

Determinants of Good Emergency Care for Mental Health Patients

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Declaration

I, Anna-Elizabeth Moore Winter, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Date: 4th November 2018

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I led and co-ordinated this programme of work through my role at UCLPartners, supervised overall by Peter Fonagy, Programme Director for the UCLPartners Mental Health Programme. The project was accountable to the UCLPartners Mental Health Programme Board and the UCLPartners Executive. My specific contributions are outlined here:

Preliminary study: designed the study and led a team of two research assistants and a group of data collectors to undertake it. I completed the analysis and write up. The work was supervised by Peter Fonagy with clinical expertise provided by Sylvia Tang, Medical Director of Camden and Islington NHS Foundation Trust.

Meta-analysis: undertaken in collaboration with CLAHRC North Thames. Led by Steve Piling and Helen Barratt, with supervision by Rosalind Raine. I was part of the research team, taking part in fortnightly review meetings. I helped structure the design, determine the analytical categories, analyse resultant themes, interpret results and helped draft subsequent papers.

Mixed-methods study: designed the study and led a team of one research assistant and one study co-ordinator and a team of data collectors, undertook analysis and write up, supervised by Peter Fonagy. This study is part of the NIHR portfolio and the qualitative data collection and analysis was supported by Tim Harris, Emergency Medicine CRN lead at Barts.

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Abstract

Background: The quality of accident and emergency (A&E) care is identified as a policy priority for mental health (MH) patients and is currently measured by the four-hour treatment target. A&E departments struggle to meet this and there is little research into how to best approach improvement.

Aim: To understand the incidence of mental health problems in A&E, what constitutes good quality care from the patient's perspective and the factors contributing to breaches and length of stay (LOS).

Methods: A meta-analysis of the incidence of mental health problems in A&E, a preliminary study exploring the feasibility of collecting real-time data and a mixed-methods cross-sectional multi-site study exploring the factors associated with LOS and breach were undertaken. Analyses included multiple regression models predicting LOS and breach. Loglinear analysis explored the mediating effect of sites. A qualitative thematic analysis investigated experience and preferences for emergency mental health care.

Results: The incidence of mental health attendances in the A&E was ~4%. These individuals represent high psycho-social need and experience of care was predominantly poor. Patients prefer not to attend A&E however difficulty with timely access to help meant most saw this as the only option. The characteristics of an 'ideal service' are identified. The relative risk of mental health breach was 4.2 with significant variation between sites. Six mediating factors helped explain these differences. 56% of the variation in LOS was predicted, with throughput factors the largest contributors.

Conclusion: It was possible to estimate the incidence of mental health attendances in A&E. The pilot demonstrated the feasibility of real-time collection of data in A&E. The mixed-methods study estimated the relative risk of breach, provided some explanation in the variability of length of stay and breach, and explored patient

experience and preferences for emergency mental health care. Recommendations for service improvement were made.

Impact Statement

This knowledge presented in this study contributes both academically and practically to health services research and policy.

Academically, it provides the first comprehensive analysis of the factors explaining variation in LOS for mental health patients in the UK, providing an opportunity for service improvers to target areas that offer the greatest gains in performance against the four-hour target. The methods used (UK based, use of prospectively collected real-time data in A&E and triangulation of the sources of data between A&E notes, community mental health services and data collectors in A&E) enabled data to be collected on all categories of factors relating to LOS according to Aspin et al's recognised approach which identifies input, throughput and output factors for the first time. Given the results illustrate that the factors affecting mental health patients are distinct from those relating to the general A&E population, these methods and approaches to analyses could be put to use to study other sub-populations and develop insights into approaches to improve their A&E performance.

A&E hospital breaches are a key national priority currently, with performance against the target the worst since the measure was begun. Politicians, commissioners and service improvers are keen to understand the cause of this poor performance as well as identify approaches that may lead to its improvement. Through this work, I demonstrate that although mental health patients are a relatively small proportion of overall breaches, they contribute disproportionately highly compared to those attending without mental health problems. This provides clear guidance that targeting this population is worthwhile to deliver efficiency gains. In terms of developing approaches, I demonstrate that process factors associated with mental health liaison teams are likely to provide the greatest gains. I have found that there are variations between sites and specific factors mediate these differences, implying it may be possible to translate effective approaches to poorly performing sites.

More generally the qualitative work indicates that while waiting times are important to mental health patients, there are other factors that are more important to them. Given this, from a policy perspective it may be that targets based on waiting times may not be the most appropriate measure of quality.

For healthcare commissioners, the qualitative work illustrates that there are current difficulties in accessing care in the community, which may be leading to more attendances at A&E. mental health patients would prefer alternative, but due to the lack of their availability A&E is often seen as the only option. This implies that early intervention may be possible, and that this could lead to avoidance of mental health patients attending A&E at all. I offer some suggestions of alternative services that could be developed to enable better access and early intervention.

This study was funded by UCLPartners Academic Health Science Network, which provides support for quality improvement and commissioning in North Central London. This provides a natural route for dissemination of findings, both to those involved in leading quality improvement efforts across the region as well as to the hospitals included in the study.

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List of Abbreviations

AAU: Acute Assessment Unit

A&E: Accident & emergency

Barts: St. Bartholomew's NHS Trust

CRHTT: crisis resolution home treatment team

CQC: Care Quality Commission

DH: Department of Health

HCUP: Health Care Utilization Project

LOS: length of stay

LAS: London Ambulance Service

MAU: Medical Assessment Unit

MH: mental health

NHSE: NHS England

NCEL: North, Central & East London

OR: Odds Ratio

R&D: Research & Development

RECORD: REporting of studies Conducted using Observational Routinely-collected health Data

RR: Relative Risk

UCL: University College London

UCLH: University College London Hospitals

Whipps: Whipps Cross NHS Foundation Trust

1 Introduction

1.1 Summary

This chapter sets out the context for my thesis, providing an overview of the increasing pressures on emergency services, in particular on mental health patients, highlighting the problems with quality that have been raised through policy, charity and patient organisations. It goes on to outline how quality is currently measured and performance managed in A&E by ‘top down’ measures set by government, and their un-intended consequences. Finally, I discuss quality from the patient viewpoint. It goes on to outline the key research priorities that are addressed by this thesis. Aims and objectives are introduced for each study, together with an outline of relevant literature.

1.2 Increasing Pressure on Emergency Services

1.2.1 A&E performance is at its worst since measurement began

Emergency services are under increasing pressure and reached a crisis point this January when sixty A&E units wrote to the Prime Minister with “very serious concerns”, warning that patients were “dying prematurely” amid “intolerable” safety risks. December 2017’s monthly A&E performance figures from NHS England show that the proportion of patients treated within four hours was 85.1%, which is the lowest recorded level since the measurement began, and only two trusts achieving the 95% level aimed for (NHS England, 2018). A&E waiting times have continued to increase over recent years, and the NHS has not met the standard since 2013/14. According to Department of Health figures, demand for emergency care has increased each year for the past 40 years, with attendances in England increasing by 9% between 2009/10 and 2014/15 and a further increase of 4.6% seen between 2014/15 and 2015/16 (NHS England, 2017).

1.2.2 Mental health patients are disproportionately affected

Although demand for emergency services is rising nationally, mental health patients are shown to disproportionately represent A&E attendances. A recent Nuffield Foundation study demonstrates that people with mental ill health use more emergency hospital care than those without mental ill health. It demonstrates that in 2013/14 mental health patients had 3.2 times more A&E attendances and 4.9 times the emergency inpatient admissions. Furthermore, this difference was more marked over time and the pattern was not replicated across other services, for example the difference in planned inpatient care use was found to be similar over time (Crisp, 2016).

1.3 Policy Context

1.3.1 International Context

The World Health Organisation recognised the substantial burden that mental disorder places on healthcare systems in developed, middle and low-income countries. The new Global Burden of Disease study identified mental disorder as the primary healthcare problem with depression as the second most burdensome diagnosis. In May 2013 the World Health Assembly (Annual World Health Organisation meeting of ministers of health) passed a major global mental health initiative, the mental health action plan from 2013 to 2020, with the aim of improving mental health care. In England there has been similar interest in mental health care, with growing recognition that the quality of care currently provided, particularly for those suffering acute episodes, does not meet adequate standards with perceived problems including lack of acute beds, poor alternative care options in the community and a lack of capacity in acute and crisis care teams (Care Quality Commission, 2015; Crisp, 2016; NHS Confederation, 2016). In response NHS England has mirrored the WHO initiatives with a series of major policy updates including 'Parity of Esteem' (NHSEngland), 'Crisis Care Concordat' (HM Government, 2014), and more recently the 'Five Year Forward View for Mental Health' with the aim of driving improvements in UK mental health emergency care.

1.3.2 UK Context

In the context of significantly reduced inpatient beds and increased demand for mental health services (Gilbert, 2015), attention over the past three decades has turned to how best to provide efficient, effective, good quality crisis services. In the UK it is widely acknowledged that mental health services can compare unfavourably to those provided for physical health problems and it was identified as a priority for improvement in the Government's Mandate to NHSEngland from 2013/14 and remains a priority for 2016/17 (HM Government, 2016). The experience of care for people suffering a mental health crisis has been shown to be variable and inconsistent in terms of timeliness and ability to provide a safe, high-quality response to people experiencing a mental health crisis. The quality of care received has been shown to depend not only on where people live, but also on which part of the service they come

in to contact with. Only 14% of people surveyed felt they received the right response and that this helped their crisis (CQC, 2015b). However, there is no question that political will in relation to achieving parity of esteem for mental health patients suffering crisis is currently strong. The most recent policy initiative seeking to address this is the Crisis Care Concordat, which at its launch in spring 2014, Norman Lamb, Minister for Social Care & Support, in an unusually emotional address said 'if I fall down stairs and fracture my skull, I am victim of gun crime and I can be reasonably confident I won't find myself in a police cell shortly afterwards, ambulances are called, paramedics deployed and, if necessary, further treatment given in hospital. So why is this not the norm for mental health crises?'. The concordat of 22 stakeholder organisations set as its aim the halving of the use of police cells following s136 detentions. Under this section of the act, a place of safety may be a community facility, a hospital, an emergency department and only in exceptional circumstances should be a police cell. In June 2013 the CQC published a joint report with the Inspectorate of Constabulary, prisons and the Healthcare Inspectorate of Wales, which revealed very substantial variations in the use of police custody (6%-76%).

1.3.3 Summary

In summary, there is an increasing recognition internationally that mental health care is as important as physical health care and that one of the key areas of focus for improving mental health care is the management of crisis. A&E performance is at its worst since measurement began and mental health patients are disproportionately affected, furthermore the disparity between those with and without a mental health diagnosis is worsening. Assessment of quality both by regulators and through patient report indicate major problems with services, with significant variation both quality and cost effectiveness. The next section addresses some of the causes of increased pressure on A&E.

1.4 Mental health patient's experience of care of A&E

1.4.1 Recent reports provide an overview of patient experience of care in A&E

A recent review of people's experience of care during mental health crisis by the CQC highlighted a range of concerns relating to experience of care in A&E. Although not peer reviewed, it includes data from a large range of sources including a call for evidence including 1,750 responses, review of available national data, survey of all NHS mental health trusts and 15 local area inspections. The quality of care was found to be variable and inconsistent with only 14% of respondents feeling they had received the right response to their crisis. It was reported that professionals in A&E are failing to provide a caring and empathic response, in particular to towards those presenting with self-harm. Patients reported not feeling listened to, and struggle to get useful advice and support. (CQC, 2015a). While there are considerable methodological problems with this report, such as selection bias and problems with the quality of routinely reported data, it highlights some important concerns to the quality of care provided which, are supported by the minimal literature specific to mental health patient's experience of A&E.

In support of these findings, the most recent relevant report from the Royal College of Psychiatrists explored service users experience of emergency services following self-harm. It was based on a national survey of 509 adults who self-harmed and attended A&E. The attitude of staff was found to be the most significant factor impacting on experience of care, with positive attitudes leaving patients with better experience but also more able to cope after discharge. Information and communication were also important, with regular contact while waiting providing reassurance and conversely a lack of contact leading them to leave the department before being seen in some cases. The environment was found to be of lesser importance, although privacy was important throughout the pathway, from talking to the receptionist to the doctors (L. Palmer, Blackwell, H., Strivens, P. , 2007).

1.4.2 Measuring Patient Experience

In response to these reports and wider critical commentary, specific measures have been included in the NHS outcomes framework which aim to quantify patient

experience in A&E (Department of Health, 2016). They remain an area identified for improvement by NHS England. The measure used if the friends and family test and data this year indicates that 86% of service users would recommend A&E to a friend or family member. Although this appears high, it compares to poorly to other parts of the NHS, for example inpatient care was rated at 96% and outpatients at 94% (Watkins, 2017). Despite this poor performance in comparison to other parts of the service, there has been improvement over time. Prior to this, the data was last reported in 2014 and only 80.7% of patients had a positive experience of care in A&E, which this had not changed notably since 2007 (80.0%) (Health and Social Care Information Service, 2014).

1.4.3 Summary

Reports in the public domain, including those by the CQC and Royal College of Psychiatrists highlight problems with patient experience of care in A&E, in particular relating to the attitudes of staff towards patients with mental health problems. In order to quantify experience of care, and manage A&E's performance, NHS England introduced the friends and family test in 2016. A&E performance is improving but remains poor compared to most other parts of NHS services, highlighting the need to understand the factors associated with this poor experience. In response to this the qualitative element of my thesis aims to establish better what constitutes good quality emergency mental health care from the patient viewpoint, as well as the characteristics of an ideal emergency mental health service. This is reported in chapter five.

1.5 Increasing demand for emergency services and its relationship with performance against the four-hour target

1.5.1 Demand has been increasing since the introduction of the service

Emergency services as a whole are under increasing pressure. According to Department of Health figures, demand for emergency care has increased each year for the past 40 years (NHS Confederation, 2014; Winter, 2017), with attendances in England increasing by 9% between 2009/10 and 2014/15 (Baker, 2015) and a further increase of 4.6% seen between 2014/15 and 2015/16 (Winter, 2017). When performance against the four-hour target reached a low of 90% in 2013, a Commons Health Select Committee conducted an inquiry into emergency care and concluded that the 'system cannot accurately analyse the cause of the problem...More accurate information about the causes of rising service pressures is not simply a management convenience, it is fundamental to the delivery of high quality care' (Committee, 2013).

Ranges of hypotheses have been developed about the causes of this increase in demand, all of which remain unproven. A recent analysis undertaken by the Nuffield Trust and The Health Foundation assessed reasons for worsening performance for the whole population through in-depth analysis between 2010 and 2013 and concluded that demand for major A&E services had not increased beyond that which would be expected from population growth during that time period. However, the sustained small increases in attendance have not been matched with funding or expansion in services (Blunt, 2014). The analysis also found that breach rates did not fully correlate with activity in A&E, with about 25% of breaches happening at times when departments were less crowded, suggesting that causes of breaches may not be solely due to A&E functioning. The analysis was broadened to explore explanatory factors and firstly found there was no single cause, and secondly that together the factors studied did not account for all breaches. For example, age accounted for 11% of the decline in performance against breach rate targets and winter months 19%. Increasing complexity of cases did also not fully account for the problems as neither the proportion of people with complex or long-term conditions nor the case-mix increased over the time period.

In the following sections I discuss the key theories that are described in the literature and how they relate to the studies undertaken as part of my thesis. Few of the studies address mental health patients as a distinct population, so the discussion below relates to the general population and I have indicated where there is relevant literature relating to mental health.

1.5.2 Expansion in emergency health care provision leading to increased uptake of services

Emergency services have been a focus for health policy and improvement for over 40 years, with some of the first descriptions of service improvement initiatives being those aimed at tackling A&E overcrowding in 1971 (Taplin, 1971). They have benefitted from a range of initiatives which have impacted on availability and structure of provision, with the first major reform of emergency care reported in the 1980's with the introduction of paramedics (Department of Health, 2010). In the 1990's new ways of working for healthcare professionals were developed including the introduction of emergency nurse practitioners, triage services in A&E, the introduction of the 999 service, and transforming the NHS ambulance services to include performance targets for response rates. In the 2000's recommendations regarding the introduction of mobile health resources, the introduction of walk-in services and the enhanced clinical role for paramedics were introduced (Alberti, 2004). 'High Quality Care for All' and the introduction of trauma networks in the 2010's led to further expansion of the service. The NHS Next Stage Review advocated bringing care nearer to where patients live, and together with the introduction of seven day working have all led to a change in expectations from the public. It is argued by some that an unintended consequence of these quality improvement initiatives has been to increase public confidence in what A&E has to offer, leading to increased motivation to attend services, or at least a reduction in the wish to avoid them. Mulley and others explore the effects of supply induced demand as well as the tendency to seek a higher-level care than necessary, where services are available (Albert G Mulley, 2009; A. G. Mulley, Trimble, & Elwyn, 2012). These arguments are supported by evidence that severity is not consistently linked with the intensity of provision, for example patients arriving by ambulance are frequently discharged without referral (Department of Health, 2008; Lowy, Kohler, & Nicholl, 1994; Peacock, Peacock, Victor, & Chazot, 2005; Pennycook, Makower, &

Morrison, 1991; Victor, Peacock, Chazot, Walsh, & Holmes, 1999). Analysis by the Health Foundation identified that A&E attendances increased by 32% between 2003 and 2013, but the majority of this increase was in minor A&E departments. Attendances at the major A&Es were, in contrast, in line with population increase and aging (Blunt, 2014). Low-acuity patients have been shown to frequently seek non-urgent care in A&E, with explanations including insufficient access to timely primary care).

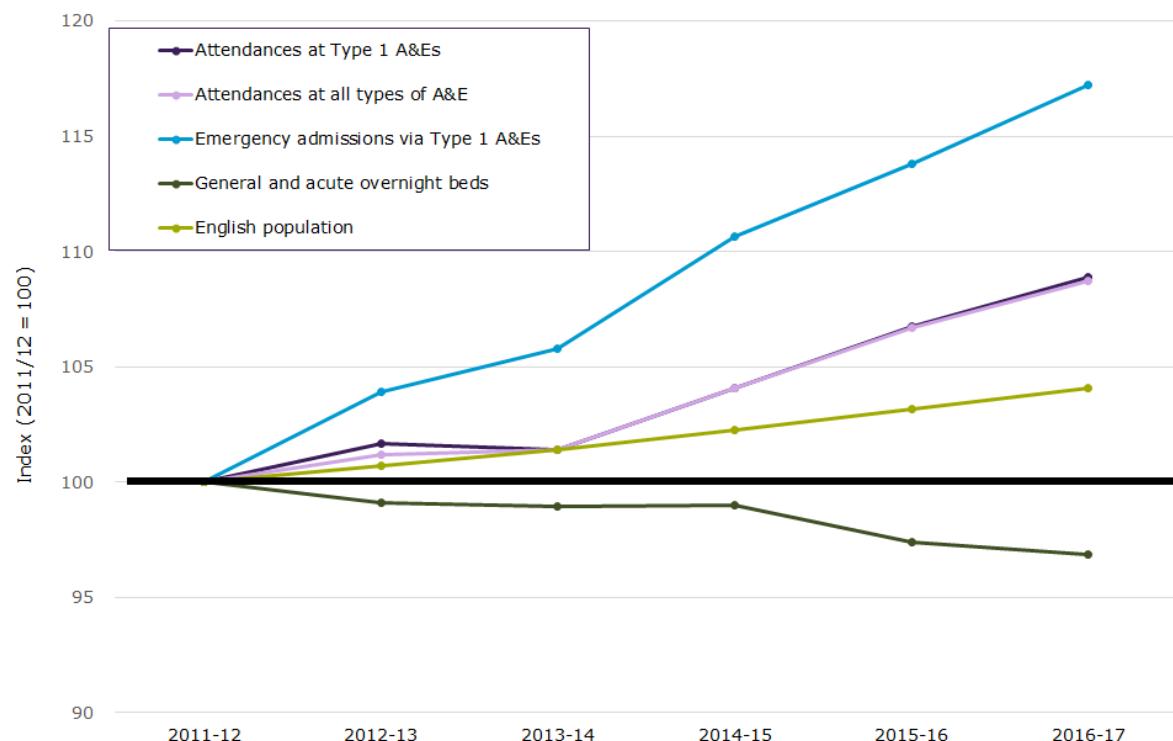
The studies in this PhD do not address acuity or severity of presentation, however Chapter five reports on a qualitative study designed to explore mental health patient's reasons for choosing to attend A&E as opposed to other services such as primary care or psychiatry services based in the community, aiming to draw out some of the challenges of accessing helpful care in crisis, the suitability of services currently available and the extent to which crises are amenable to early intervention in order to avoid the need for immediate or same day care.

1.5.3 Capacity within hospitals

1.5.3.1 Access to beds

Structural changes to health services as a whole, such as the reduction in the number of acute beds, have impacted directly on the performance of A&Es. Although higher numbers of people attending A&E correlates with worsening performance, a closer association is found with reduced capacity within receiving units to meet this demand (House of Commons, 2017). Attendances at all A&E departments have increased at a faster rate than the growth in the general population, and emergency admissions have increased at an even greater rate between 2011 and 2017 (Figure 1.1 below) (The Kings Fund, 2018). Much of this growth comes from a higher number of patients being admitted for shorter stays (National Audit Office, 2013), leading to increases in pressure on other parts of the hospital, problems in accessing beds and subsequently transferring patients out of A&E.

Figure 1 Change in hospital activity, overnight beds, and the English population, 2012 to 2017



(figure from the Kings Fund 'What's going on with A&E waiting times?' analysis webpage. <https://www.kingsfund.org.uk/projects/urgent-emergency-care/urgent-and-emergency-care-mythbusters>)

Vermeulen and colleagues illustrate that waiting times in A&E are associated with the ratio of admissions to discharges within hospitals, with longer waiting times associated with a mismatch between admission and discharge (Vermeulen et al., 2009). This was replicated by a Health Foundation analysis showing that when the daily discharge ratio (DDR) increases, the waiting time in A&E reduces. When the DDR increased from 0.8 to 1.2, the waiting time for admitted patients reduced by 20 minutes on average, compared to 3 minutes on average for those who were discharged (Blunt, 2014). This highlights that as admission rates increase, both admitted and discharged patients' waiting times are affected, but admitted patients disproportionately so.

In the preliminary and then empirical study reported in Chapters four and six of my thesis the relationship between capacity in A&E and breach for mental health patients

is explored by collecting data on both A&E and psychiatric team capacity as potential factors impacting on waits in A&E.

1.5.3.2 Staff shortages

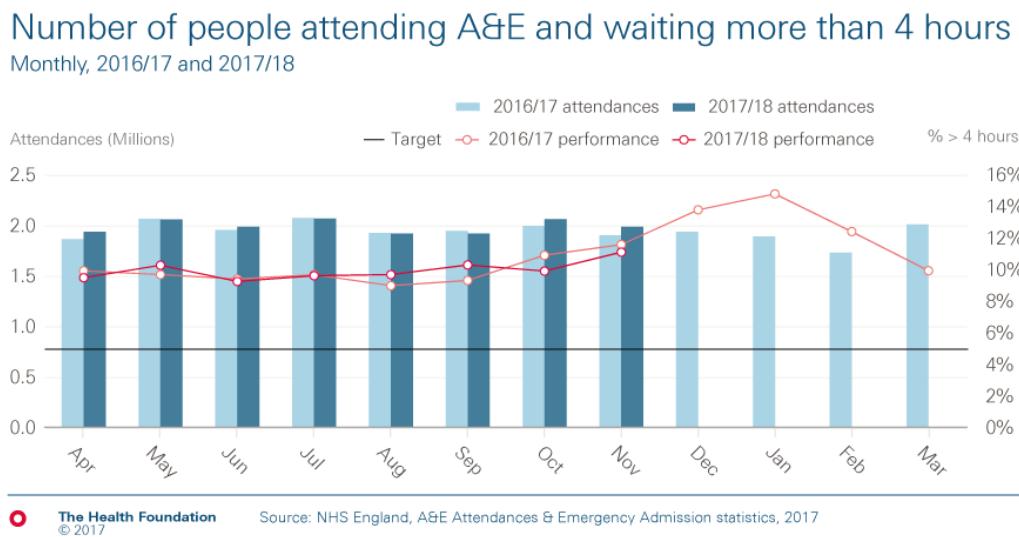
Other problems of capacity include staffing, with a well-recognised shortage of specialist emergency medicine staff, with half of the training posts remaining unfilled and emergency medicine regularly included on the government's shortage occupation list as there are not enough resident workers in England to fill vacancies. The Royal College of Emergency Medicine highlights that emergency medicine suffers from high numbers of trainee doctors leaving prior to completing training and high rates of early retirement, leading to significant reliance on locum clinical staff (*Health Education England, 2017*). Despite a range of initiatives to improve recruitment and retention, there remains a problem, which reduced the ability of hospitals to admit patients quickly or to provide specialist advice within A&E departments, leading to increases in waiting times.

This problem has not been directly addressed by this programme of research, as the study period was too short to capture fluctuations in staff availability.

1.5.4 Winter Pressures

Winter pressure is a term assigned to the recognised period of poor performance against the four-hour wait during winter months. This has been explained primarily by increased morbidity, particularly in the old and young populations and is illustrated by the figure below, extracted from a Health Foundation report of the impact on winter pressure (T. Gardner, 2017).

Figure 2 Number of people attending A&E and waiting more than four hours, across a 12-month period



NHS England highlighted the relationship between increased admissions and extremes in temperature and morbidity in their 2013 report, showing the effect was exacerbated by socio-demographic factors and air-pollution. Other temporal effects were also noted, for example seasonal outbreaks of flu-like illnesses, norovirus and rotavirus (NHS England, 2013). However, a more in-depth exploration found the effect was not a straightforward linear relationship. Attendances were found to be low at low temperatures and increased as the temperature increased, however waiting times peaked at 2 degrees and again at 25 degrees. This indicated that coldness is associated with longer waits, but cold weather does not lead to more attendances. They concluded that lower temperature only explains approximately 19% of the poor performance against the target (Blunt, 2014).

The effect of winter pressure is not examined in this thesis, as the sampling timeframe was too short, however interpretation of the results takes into consideration of the time of year that the studies are undertaken.

1.5.5 Access to emergency care in the community

Difficulties in accessing same day care have been identified as a potential cause of increased A&E attendance. The GP national survey data does not currently measure this and so it is not possible to estimate how many A&E attendances result from

patients not being able to attend their GP. However, surveys from the Pickler Institute indicate that some patients attend unscheduled care services because they can't access their GP, and others highlight that of the people who are not able to get an appointment, 9.2% attended A&E (Rosen, 2014). Yoon et al found that same day access to primary care significantly predicted fewer non-emergent and primary care treatable A&E visits (J. Yoon, Cordasco, Chow, & Rubenstein, 2015). However, this was not true for mental health problems, indicating that primary care improvements may be less important to reducing the burden of mental health patients on A&E, and specialty mental health provision may be more important.

The importance of access to same-day care in the decision making process to attend A&E is explored quantitatively in the preliminary study reported in Chapter four, which collects data on whether the patient attempted to access their GP prior to attending A&E and related causes. It is also addressed qualitatively in Chapter five, which includes exploration about patient's decision making to attend A&E.

1.5.6 Mental health patients' use of emergency services has also increased

While there is much in the literature about the general use of A&E, there are fewer studies and commentaries concerning mental health patients' use of A&E. However, a recent study indicates that the issue is even more important to this population. In 2013/14, mental health patients were found to have 3.2 times more A&E attendances and 4.9 times more emergency inpatient admissions than those without a mental health diagnosis. 62 per cent of A&E attendances for those with mental ill health were from people living in the most deprived areas, the most deprived visited A&E 1.8 times more than the least deprived and had 1.5 times more emergency inpatient admissions (Dorning, Davies, & Blunt, 2015).

To explore the epidemiology of mental health in A&E in more depth, Chapter three in this thesis reports on a systematic review and meta-analysis of the burden of mental health presentations to A&E that I undertook as part of a larger research group.

1.5.7 Summary

Increased demand in A&E services is multifactorial with many of the causes out of the control of the emergency services themselves. Moreover, demand appears to be increasing disproportionately for mental health patients, although this has not yet been quantified robustly in the literature. A range of possible causes of the increased demand in general are discussed here, including a brief overview of the impact they have had on A&E performance. A number of these themes have been included in the design of the studies I report in the following chapter.

1.6 Improving quality in A&E

1.6.1 A&E performance is measured by the four hour target

In the early 2000's, the A&E performance measure was introduced that started by 2004 98% of people would be seen, treated and admitted or discharged within four hours. Patients who failed to be discharged or admitted within four hours were said to have 'breached'. The target was initially set as 100%, however recognition that some patients would need treatment that lasted four hours led the target to be reduced to 98%.

1.6.2 Poor A&E performance is linked to poor patient outcomes

There is an established body of literature describing the relationship between longer waiting times, A&E crowding, and poor patient outcomes (E. J. Carter, Pouch, & Larson, 2014; Chalfin et al., 2007; Diercks et al., 2007; Fee, Weber, Maak, & Bacchetti, 2007; Pines, Hollander, Localio, & Metlay, 2006; Pines et al., 2009; Schull, Morrison, Vermeulen, & Redelmeier, 2003; Schull, Vermeulen, Slaughter, Morrison, & Daly, 2004; Sprivulis, Da Silva, Jacobs, Frazer, & Jelinek, 2006). In a retrospective cohort study 30-day mortality was found to be significantly greater in paediatric patients exposed to A&E overcrowding (Hazard ratio 1.26; 95% CI 1.02 – 1.59) (Cha, 2011). In another retrospective cohort, the risk of 10-day inpatient mortality for patients admitted via A&E during crowding periods was found to be 34% higher (RR 1.34, 95% CI 1.04 – 1.72) (Richardson, 2006). Finally, Guttmann et al found there was an increased risk of death at 7 days in the group discharged from A&E in shifts where the mean patient length of stay was greater or equal to six hours compared to those presenting to A&E during shifts where the average length of stay was less than or equal to an hour (OR 1.79, 95% CI 1.24 – 2.59). Similarly, links have been found between LOS and poor cardiovascular outcomes (Pines et al., 2009), pneumonia (Pines et al., 2007) and patient experience (Pines et al., 2008). Finally, length of stay has also been positively associated with patients leaving A&E before their episode of care is complete (Asaro, Lewis, & Boxerman, 2007a; Kulstad, Hart, & Waghchoure, 2010; Vieth & Rhodes, 2006).

1.6.3 The use of performance measures to improve quality

Extended lengths of stay led A&Es to be labelled ‘the corridors of shame’, with patients at times waiting entire working days to be seen (Weber, Mason, Carter, & Hew, 2011). This, together with the increasing evidence of the negative impact of waits on clinical outcomes led the announcement in 2000 that the NHS would improve the quality of A&E care by instituting a maximum length of A&E stay of four hours; “By 2004 no-one should be waiting more than four hours in accident and emergency from arrival to admission, transfer or discharge. Average waiting times in accident and emergency will fall as a result to 75 minutes” (Department of Health, 2000). The target was implemented in a step-wise fashion for an increasing proportion of patients, with the final threshold reached in January 2005. From then 98% of A&E patients were to be treated and either discharged home or admitted within four hours. The trust rather than A&E was responsible for meeting the target, which was to be publicly reported. This would represent a step-change in performance, as prior to the introduction of the target, only 87% of attendees at major A&E departments were treated within four hours.

Initially the impact of the targets was reported to be positive. The National Audit Office reported in 2004 that improved performance and increased patient satisfaction was achieved despite increasing use of emergency services (National Audit Office, 2004). Friedman and Kelman analysed performance between 2003 and 2006 and concluded that mean waiting times improved by nearly 40 minutes, or more than 25% (Kelman & Friedman, 2007). By 2009 approximately 97% of patients left A&E within four hours, although the target was met at the required 98% level in less than half of acute hospital trusts (Mason, Weber, Coster, Freeman, & Locker, 2012). Weber et al examined the effect of the four-hour target on safety showing it did not result in more admissions, unplanned return visits within one week, or A&E deaths. Resource use did not change, suggesting that investigations were not substituted for observation and that patient evaluations were not being deferred to inpatient or outpatient settings to save time. These findings were true regardless of patient age. Following these successes, it was one of the few targets that continued to be performance managed after the change in government in 2010. The target was, however, relaxed from 98% to 95%, which was associated with an almost immediate drop in performance, to an average of 95% of patients seen within four hours in 2011 (Blunt, 2013).

1.6.4 Un-intended consequences of the four-hour target

Despite these evaluations indicating that the target led to improvement in the quality of A&E care there has also been considerable controversy. The lack of empirical evidence base for the four-hour cut-off together with the financial and reputational penalties reaped as a consequence of poor performance means the targets continue to be unpopular with clinicians, managers and many commentators (Bevan & Hood, 2006c; Edhouse & Wardrobe, 1996; Emerman, 2012; Guven-Uslu, 2017; Hughes, 2010). It is argued that the arbitrary four-hour cut off risks negatively affecting patient care because any length of stay before four hours is equally rewarded, and once the patient “breaches” (stays longer than four hours) their length of stay becomes irrelevant to the target. Some patients may stay longer, and clinical need may be distorted as the pressure to manage patients efficiently after breach reduces and attention is turned to those not yet breached.

Various concerns have also been highlighted regarding the use of the target for performance management, with risk of over interpretation and unfair judgements about underlying quality of care, which risk stigmatising entire organisations (Bevan, 2010; Bevan & Hood, 2006b). As sanctions such as fines or loss of income may be associated with poor performance, there is also risk of penalising institutions most in need of financial support to improve; creating a vicious cycle that is hard to break out of. Lilford and colleagues argue that this is in particular true when comparative league tables are published for the purpose of ranking institutions, with a risk that the data may not accurately reflect the quality of the organisation. They recommend that measurement should focus on adherence to clinical and management standards instead (Lilford, Mohammed, Spiegelhalter, & Thomson, 2004).

In 1995, Smith et al identified eight unintended behavioural consequences of the publication of performance data, identified through a literature review; (1) tunnel vision, (2) sub-optimisation, (3) myopia, (4) measure fixation, (5) misrepresentation, (6) misinterpretation, (7) gaming and (8) ossification (P. Smith, 1995). All are a result of a lack of congruence between the goals of the agent, as moderated by the reward scheme, and the actual goals of the principal. In the first three there is a lack of

alignment between organisational objectives and the measurement scheme. Four and five arise because of difficulties in measuring complex phenomena with precision or fidelity. Six and seven reflect inability to process performance data correctly and finally the last indicates an inability to respond to new circumstances.

Some of these problems have been seen within A&E since the introduction of the four-hour target. For example, while there has, on average, been marked improvement reported in the proportion of patients being treated and leaving within four hours, the time to clinician has minimally improved (Freeman et al. 2010), adjusted mean length of stay has actually increased, and the activity in the last 20 minutes has increased each year and now more than 40% of the total A&E workload of patients is recorded as taking place in the last 20 minute (Locker, Mason, Wardrobe, & Walters, 2005). This growth in late disposition just before the four-hour mark, might suggest that A&Es are performing to the target but not improving overall care. Bevan et al identify examples of unintended consequences and gaming including drafting extra staff in and cancelling operations (N. Carter, Day, & Klein, 1995), patients waiting outside in ambulances until A&E was quiet enough to increase chances of being seen within four hours and the level reported by Department for Health in 2004-5 was 96%, but independent survey of patients reported a figure closer to 77% (Bevan & Hood, 2006a). It has also been suggested that hospitals were dishonest in their reporting (Hughes 2010, Mason et al. 2012, Weber et al. 2012) and using tactics such as moving patients to clinical decision units is now fairly routine (Bevan & Hood 2006, Gubb 2007, Mayhew & Smith 2008).

More recently the four-hour A&E target was brought to the UK public's attention as a result of serious concerns regarding treatment at the Mid Staffordshire Hospital Trust, which was investigated by a Public Inquiry. Within the inquiry's report it was suggested that patients within A&E were prioritised by the nurse in charge according to the amount of time they had been waiting, as opposed to their clinical need, to avoid breaching the four-hour target within a considerably understaffed and high pressured environment (Hoyle & Grant, 2015). Significant problems were reported within A&E, where staff reported being asked to inaccurately record the time that patients were within the department, or to subsequently alter the paperwork, if the patient had breached the four-hour target. The Francis report highlighted that 'there was generally

a lack of evidence of appreciation of the potential unintended consequences for individual patients of implementing policies, for instance in relation to targets' (Francis, 2013).

1.6.5 Summary

There is a recognised need to improve the quality of A&E as waiting times became untenable and outcomes were illustrated to be negatively affected. The government response was to introduce the four-hour target, which has had mixed reviews. On one hand waiting times improved significantly, however critics argue that using process measures such as waiting times as targets leads to problems such as gaming. Finally, targets which are actively managed with the use of penalties rather than incentives can lead to negative consequences to clinical care and outcomes, as illustrated by the Francis report relating to the widespread problems at Mid Staffs.

1.7 Factors affecting length of stay in A&E

In the previous sections I have introduced some of the current hypotheses relating to length of stay in A&E and the use of the four-hour target as a mechanism to performance measure English A&Es, and illustrated that the issues determining performance are multifaceted and not just a reflection of the systems and processes within A&E in isolation. In order to find solutions, waiting times must be examined quantitatively in the context of the entire delivery system, identifying the factors affecting waiting times and their relative impact on length of stay in A&E. This section reports on a rapid review of the current literature on the factors that impact on length of stay in A&E. It was undertaken with the aim of informing empirical investigations to be carried out as part of this thesis.

1.7.1 Method

Databases (Medline, Embase and Google Scholar) were searched for reviews and primary studies using the keywords relevant to A&Es and waiting times (see Appendix 2.1). Reviews were used to access primary studies and reviews, and the bibliography of these primary studies were used to identify further relevant investigations. As the primary aim was not to build a comprehensive picture of the field but to identify the key parameters for the empirical investigation to be undertaken, methodological considerations such as design or procedure were not used in study selection. Papers were however excluded if they addressed a sub-population not including psychiatric patients (e.g. uniquely surgical patients), the dependent variable did not include A&E length of stay or breach, and the study period was prior to 1997, as hospital systems have changed significantly in the past 20 years and factors identified prior to this may not be valid today. Studies included those that examined the factors associated with length of stay or breach, and both mental health and the entire A&E population were included. The rationale was that a comprehensive systematic review was not feasible and identifying the relative importance of factors effecting general population and psychiatric LOS in A&E was essential to inform the current investigation.

1.7.2 Overview of Papers

30 relevant papers were identified, including one rapid review looking at the factors leading to longer stays for all patients and a second, qualitative review, of the current literature on length of stay in A&E (Schull, Slaughter, & Redelmeier, 2002). Nine of the studies only included mental health patients or included them as a sub-analysis. 21 papers studied departments in the US and three were undertaken in the UK, none of which looked at mental health patients as a sub-category. The methodologies for the studies varied however most depended on routine data collected by A&E, one was a time and motion study and three were retrospective chart reviews. The majority were retrospective studies and one was prospective but utilised routinely collected A&E data. The prospective study did not collect contextual data nor did it triangulate information from different patient notes, such as mental health services and primary care. The numbers investigated in an individual study ranged from 121 to 4.9 million patient attendances. The most common design was single site, or comparison of two or three sites, with the range being from one site to approximately two thirds of the trusts in England. Six US studies examined 'big data' resources such as the Health Care Utilization Project (HCUP) or the National Ambulatory Care Reporting System database, enabling a large number of attendances to be examined – often tens of thousands. Most studies used multiple regression to determine which factors contributed to models explaining the reasons for breach or LOS, and two papers extended this to a stepwise logistic regression model to identify the relative importance of different factors (see Appendix 1.1 for an overview of all the papers included).

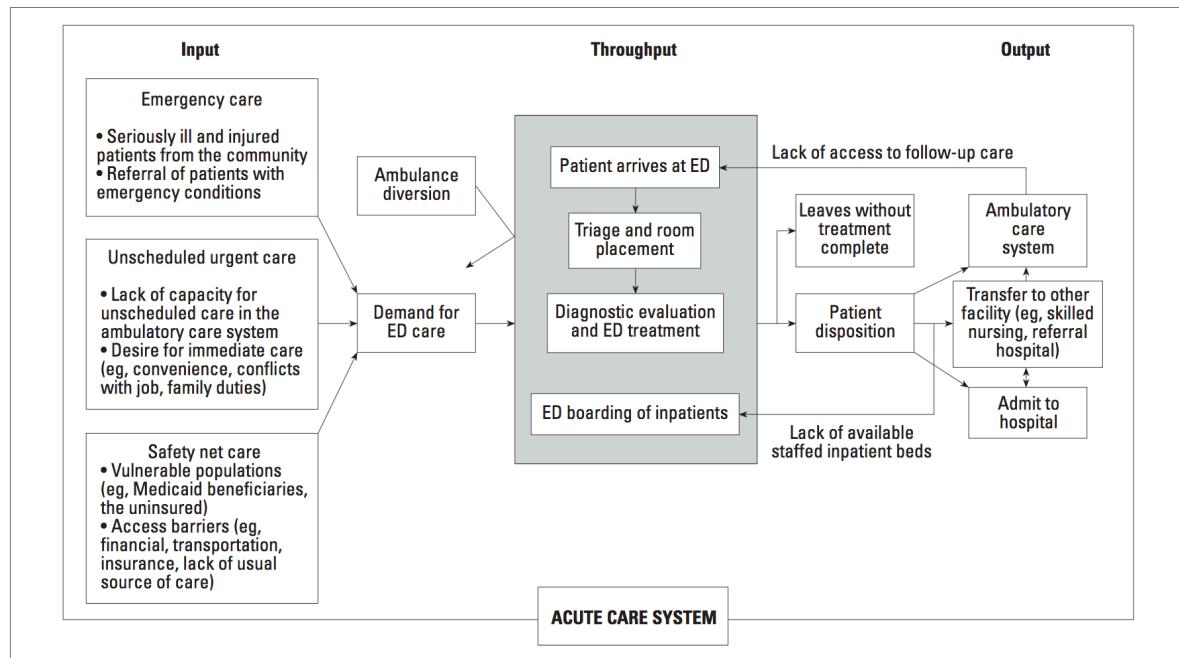
1.7.3 Results

1.7.4 Identifying a framework for analysis

The range of factors studied was wide and for the purpose of this summary report these have been grouped into three categories broadly following the conceptual model developed by Aspin and colleagues, which has been most widely utilised in the literature to date (Aspin et al., 2003). This model identifies three groups of factors: input, throughput and output factors, and is shown in figure 1.3 below. Input factors are defined as any condition, event, or system characteristic that contributes to the demand for A&E services, including demographics, ambulance diversions etc. Throughput factors are any processes relating to the functioning of A&E itself, such as

diagnostic tests undertaken, A&E attendance rates or staffing levels. Output factors includes any factors contributing to discharging the patient out of A&E, including bed availability, discharge destination or transport problems.

Figure 3 Showing the conceptual model of A&E overcrowding developed by Asplin *et al*



1.7.5 Summary of factors identified to contribute to breach or length of stay

Factors were not consistently reported in all the papers, with some papers reporting everything examined, and others only those that were found to have a significant association with LOS, which has made firm conclusions difficult due to likely publication bias. The factors reported varied substantially between papers, with some dedicated to just one variable whereas others examining a wide variety of factors across all categories. Given the methodological variance between studies, any indication of trend across studies could only be indicated by box scores (the percent of studies reporting a factor which found the parameter to be significantly associated with LOS). In total 52 factors were investigated, with the most commonly reported being age, which was reported in ten papers, followed by gender (eight papers), investigations in A&E (eight papers), admission to psychiatric unit after assessment (eight papers), hospital overcrowding (seven papers), number of A&E attendances per day (seven papers), day of attendance (seven papers). 34 factors were only studied

in one or two papers. A table with the full description of the results of the analysis is in Table 2.1, in Appendix 2.3.

Few definitive conclusions emerged, with most studies finding contradictory results. Twelve factors were most consistently reported to be associated with length of stay in A&E, these were: investigations carried out in A&E (found to be associated with LOS in 100% of studies, reported 8 times), admission to psychiatric unit (100%, reported 8 times), overcrowding of the hospital (100%, reported 7 times), complexity and of the presentation (100%, reported 6 times), substance misuse (100%, reported 4 times), transfer out of A&E (100%, reported 4 times), number of A&E admissions per day (86%, reported 7 times), mode of conveyance (83%, reported 6 times), time of day (83%, reported 6 times), admission to another inpatient bed (83%, reported 6 times), age (80% of cases, reported ten times) and diagnosis of schizophrenia/psychosis (75%, reported 4 times).

The patterns of association were not always consistent. For example, 'complexity and acuity', which described the complexity of the case using the triage scores they received on arrival at A&E, was found to be associated with LOS 100% of the times it was reported. However, the direction of relationship found differed between studies. Increased complexity was found to be associated with longer LOS in some studies(Derlet & Richards, 2000; Ding et al., 2010; Moskop, Sklar, Geiderman, Schears, & Bookman, 2009) whereas others described a bell shaped curve where those presenting with moderate acuity had the longest waits(Kreindler et al., 2016; P. Yoon, Steiner, & Reinhardt, 2003). Seven factors were found to be consistently associated with increased LOS: patient intoxication (increased LOS in 100% studies), the number of patients attending A&E in a day (reported to be associated in 86% of studies, and led to increased LOS in 100% of these), investigations undertaken in A&E (increased LOS in 100% of studies), admission to psychiatric unit (associated with LOS in 100% of cases, and led to increased LOS in 88% of these), admitted to another in patient facility (reported to be associated in 83% of studies, and all of these led to longer LOS), problems with transfer out of A&E (increased LOS in 100% studies) and overcrowding of the hospital (increased LOS in 100% studies). None were consistently associated with shorter LOS.

Finally, 14 of the studies looked at the variation of the impact of the factors across different sites. Of these, three tested the differences between sites. Of particular note, Chang et al compared two hospital sites, finding significant differences in the LOS between sites up to four-fold. These differences were found to be mediated by patient factors and reduced to two-fold differences once these were controlled for. They found that the time from decision about outcome to leaving the hospital had the biggest impact, however when studying mediating factors did not compare the affect these factors had across different sites (Chang et al., 2011). None of the studies looked at the relative importance of input, throughput and output factors, and while they demonstrate that comparisons between hospitals are likely to identify differences, none of them go on to use this level of analysis to predict differences in LOS between sites.

1.7.6 Conclusions

This rapid review has highlighted that there remain significant unanswered questions about which factors are associated with breach, as well as the relative importance that input, process or output factors have in impacting length of stay in A&E. Furthermore, there are a number of methodological problems in the existing literature, providing room for further studies to address these gaps. As most studies appeared to only report positive results, there is a possibility of publication bias.

The inconclusive findings may also reflect the data and methods used, which for the majority of cases was the retrospective analysis of routinely collected data, either directly from the hospitals' databases or through the use of the big data sets disaggregating data collated from many sites. While the numbers included in some studies are impressive (over a million in large US multi-site studies), there are recognised problems with the use of routinely collected data for research (Hersh et al., 2013; Lilford et al., 2004; Powell, Davies, & Thomson, 2003). These include (1) problems with unchecked validity and reliability of the measures themselves (2) unblinded data collection which is used for performance purposes, risking "gaming" and (3) problems with case mix (Iezzoni, 1994). These problems, amongst others, have led to the development of the REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement(Benchimol et

al., 2015). Such data improvement measures were not utilised by any of the studies examined above.

Data collection methods could explain contradictory results reported here. For example in studying complexity and acuity, when retrospective cohorts of large datasets were utilised the acuity as determined by the triage team at presentation was used and higher LOS was found to be associated with increased acuity(Goodacre & Webster, 2005). By contrast, when a retrospective review of case notes was done, which involved looking in more detail at each individual's notes including a broader range of information to judge complexity and acuity, the researchers found an n-shaped relationship with greatest LOS associated with medium acuity(P. Yoon et al., 2003).

All of the data utilised drew on limited data available in hospital records. Contextual information about problems in the department at the time of attendances was not collected to support interpretation (for example staffing levels, unusually busy periods, service improvement initiatives, closed referral units). Nor did they triangulate the data from different records such as primary care or mental health services. Qualitative analysis of the causes of length of stay all identify contextual problems to be important mediators(Grace Chang, Anthony P. Weiss, et al., 2012; Ismail, Gibbons, & Gnani, 2013; Marynowski-Traczyk & Broadbent, 2011; Morphet et al., 2012; Schull et al., 2002).

While a number of the studies were multi-site, many either did not do between site comparisons or where they did, these were not used to look at the relative impact of different factors on different sites, nor draw conclusions about these. Many factors are site specific, for example demographics or processes specific to particular A&Es, therefore not identifying factors which are amenable to local manipulation versus those which can benefit from universal approaches provides a missed opportunity for developing quality improvement approaches and understanding their likelihood of success in different settings.

1.8 Implications for my PhD

1.8.1 Factors contributing to poor quality emergency mental health care

Based on the review of the field undertaken in the previous sections, my PhD will focus on three areas that appear to be contributing to poor quality emergency care for mental health patients:

1. The proportion of mental health patients attending A&E
2. Emergency care from the patient's viewpoint
3. The causes of long waiting times and breaches of the four-hour target.

To address these identified gaps in the literature, this PhD will be structured around a series of studies designed to gather data to illuminate these issues, and thereby provide an empirical foundation for general service improvement for the management of mental health in A&E. The aims of my PhD and the associated research questions are summarised in the sections below.

1.9 Aims of this thesis

I have six high overarching aims, addressing the key areas identified above:

1.9.1 Understanding the epidemiology of mental health patients attending A&E

Aim 1: To establish the proportion of mental health patients who attend A&E (Chapters two and five).

Aim 2: To provide insight into why an increasing proportion of mental health patients utilise A&E, including consideration of the crisis pathway and the decision making process to attend A&E (Chapter four).

1.9.2 To explore the factors associated with length of stay and breaches for mental health patients in A&E

Aim 3: To estimate the relative risk of mental health patients breaching in A&E (Chapters three and five).

Aim 4: To explore the factors contributing to length of stay and breach for mental health patients in A&Es, including the consideration of subgroups such as particular patient groups, processes and the extent to which factors relate to specific sites. (Chapters three and five)

1.9.3 To explore what constitutes good quality emergency mental health care from the patient's perspective

Aim 5: To provide insight into what constitutes good quality emergency mental health care from the patient viewpoint, to and to determine if there are alternative services that would be preferable to patients (Chapter four).

1.9.4 Developing recommendations

Aim 6: To draw findings together and provide recommendations for A&E service improvement for mental health patients

1.10 Research Questions

To address these aims I will explore the following research questions:

1. What is the proportion of mental health attendees to A&E departments in the UK? (Chapters two & five)
2. What are patient preferences for emergency mental health care?
 - a. Why do individuals attend A&E rather than mental health crisis services? (Chapter four)
 - b. Are there any alternative services that patients would prefer to access in emergency? (Chapter four)
3. What are the factors that lead to long LOS for mental health patients? (Chapters three & five)
 - a. What is the relative contribution of different factors, and input, throughput or output factors more influential? (Chapters three & five)
 - b. Is it possible to identify a range of operational processes that could be improved in order to improve breach rates or LOS? (Chapters three & five)
 - c. Do the factors associated with breach and LOS vary between sites? (Chapters three & five)
 - d. What factors are important to patients needing emergency mental health care? (Chapter four)
4. Is there a cohort of patients who can be identified as high risk of breaching, and can these patients be identified at triage? (Chapters three & five)

2 Epidemiology of Mental Health Attendances at A&E: Systematic Review and Meta-Analysis

2.1 Summary

The characteristics of mental-health related A&E attendances need to be described to understand patterns of use and to enable appropriate service development. This study aims to describe the epidemiology of mental health-related A&E attendances within health care systems free at the point of access. No systematic reviews are available that have considered clinical reason for presentation; previous service use; and patient socio-demographic characteristics of mental health patients in A&Es. As part of a larger research group, I participated in a systematic review and meta-analysis of observational studies describing A&E attendances by patients with common mental health conditions. 18 studies from seven countries met the eligibility criteria. We found that mental health patients account for 4% (95% CI, 0.03–0.04) of A&E attendances; a third are due to self-harm or suicidal ideation. 58.1% of attendees have a history of psychiatric illness and up to 58% are admitted. However, the majority of studies were single site and of low quality so these aggregate estimates must be interpreted cautiously. I conclude that further, larger scale prevalence studies of mental health-related A&E attendances are required to enable the development of services meet specific needs.

2.2 Introduction

The introduction to this thesis highlights the attention turned towards improving outcomes and experience for mental health patients who attend A&E. This is partly because of concerns about the quality of care for this patient group (CQC, 2015b), and partly due to the increasing recognition that patients with mental health conditions do not consistently receive the same level of quality of service for crisis care as those with physical health problems. The NHS Mandate for 2014/15 states that services for mental health patients in crisis should be as accessible, responsive and high quality as emergency services for other patients (NHS England, 2015). Yet a recent report by the Care Quality Commission demonstrates that there are clear variations in the help, care and support available to people in crisis, with many patients still having a poor experience of care (CQC, 2015b).

An important step towards improving the quality of crisis care for mental health patients is to have high quality information about demand for services and to develop insights into the reasons for increasing numbers of mental health patients presenting in crisis. Furthermore, problems of poor performance may be due to a mismatch between estimated and actual need, rather than inefficiencies on the part of A&E departments. Current commissioning guidance for mental health crisis services is based on a sample of Medicare patients in the United States who attended hospitals in 1999 and arguably does not constitute good quality evidence about the clinical need in this population. For example, this study looked only at the prevalence of depressive symptoms. Furthermore, it is important to consider whether the use of these data as the basis for assessing the burden of need are valid given the differences between the US health care system and systems such as the NHS, where care is free to all at the point of use, independent of ability to pay.

To address this and create a generalisable understanding of the level of need in order to inform service improvement, a systematic review and meta-analysis of the epidemiology of mental health-related A&E attendances by adults within publicly supported health care systems such as the English NHS and similar was done. We aimed to quantify the proportion of A&E attendances related to mental health problems

and to identify patient clinical and socio-demographic characteristics associated with this type of attendance.

2.3 Methods

This is a systematic review of observational studies describing the overall population of mental health patients attending hospital Emergency Departments.

2.3.1 Search strategy and selection criteria

Electronic database searches were conducted in Embase, Medline, PreMedline, PsycINFO and CINAHL from 2000 onwards with an English language restriction (see Appendix 2.1 for the search strategy containing a full list of the search terms used).

We searched for studies describing patients who attended a hospital A&E with one or more mental and behavioural disorders (F01-F79 of the International Classification of Diseases, 10th edition) or self-harm (X60-X84). Studies also had to report one or more epidemiological measure, for example the frequency, incidence, occurrence, or prevalence of mental health-related attendances to A&E. As this study relates to adult A&E attendances, we did not include 'disorders of psychological development' (F80-89) or 'behavioural and emotional disorders with onset usually occurring in childhood and adolescence' (F90-F98) in the search. All records identified from the searches were uploaded to EPPI-Reviewer 4 for screening.

Inclusion criteria applied at the screening stage stated that studies of mental health-related attendances must:

- Describe services in the UK, the rest of Western Europe, Canada, or Australasia (as these were deemed most comparable to the NHS);
- Describe a cohort, case-control, cross-sectional or ecological study; and
- Relate to patients aged 18 or over.

We employed a text mining and machine learning method, known as 'active learning', using the systematic review software EPPI-Reviewer 4 to screen titles and abstracts (Thomas et al., 2010). The primary goal of text mining is to retrieve information from unstructured text and to present the distilled knowledge to users in a concise form (Ananiadou & McNaught, 2006). Active learning is a 'semi-supervised' method whereby the machine learns iteratively from human interaction to distinguish between

relevant, and irrelevant citations during the screening phase of a systematic review. It does this by ranking citations in order of relevance and presenting them to the reviewer for manual screening. After a small number have been manually screened (e.g. 25 citations), the machine re-orders the list, considering everything that has been screened thus far. Thus, rather than screening the documents in no particular order, those most similar to the studies already selected are moved to the top of the list, increasing the probability that the next document viewed will be selected for further review. We truncated the screening process at the point when 1000 titles and abstracts were consecutively excluded, and therefore the rate of inclusion had dropped to less than 0·1% (Thomas, McNaught, & Ananiadou, 2011). The full-texts of remaining records were then screened, with any queries about inclusion resolved through discussion with a second reviewer. Duplicates of articles were removed, and studies including the same patients were linked.

2.3.2 Quality assessment

There is no clear consensus about the use of rating methods for the quality assessment of epidemiological studies, particularly those reporting cross-sectional observational data (Sanderson, Tatt, & Higgins, 2007). We therefore developed a quality assessment measure for the purposes of this review, which drew on the Newcastle-Ottawa Scale for assessing the quality of non-randomised studies ; the STROBE checklist for the reporting of cohort, case-control, and cross-sectional studies ; and an additional check-list specifically for the appraisal of cross-sectional studies (Trust, 2002). Included studies were each rated as good, fair or poor in ten key domains of quality: clarity of focus; appropriateness of method; definition of study population; measures to reduce bias; data collection methods; number of study participants; quality assurance measures; data analyses; completeness of discussion; and generalisability of findings. Where insufficient information was available to assess quality in a particular domain, this was noted. We then classified the overall quality of each study as good, fair or poor, taking all ten domains into account. The measure is included in Appendix 2.2.

2.3.3 Data extraction and synthesis of results

We created a spreadsheet in Microsoft Excel to collect relevant epidemiological data from each paper. Data was extracted from the first 10% of articles to check the

reliability of this tool. The remaining data extraction, and quality assessment, was performed independently. Queries were resolved through discussion and consensus.

Data were summarised both qualitatively and quantitatively. To facilitate this, we extracted data regarding the following characteristics from all included studies: study design (cross-sectional or cohort, and retrospective or prospective); study setting (country; type of emergency department; number of sites; urbanisation); patient selection (target population; sample size; instrument used to code mental health conditions); clinical reason for attendance; past history of mental illness; destination after discharge; patient characteristics (age; gender; and socioeconomic circumstances, for example, measures of deprivation, receipt of benefit payments or health care subsidies, employment, housing status, or education level); and approach to data collection (consecutive attendances; dates of data collection; time span of data collection in days). When possible, data relating to individual patients (who may have attended A&E more than once) were recorded separately from data relating to total numbers of A&E attendances. Studies were coded inductively according to their disease focus and natural groupings of papers were identified within the data. Papers were then grouped together according to their primary disease focus to allow analysis by condition. A narrative summary was then created for each of the study characteristics described above.

Where data were available, meta-analyses were conducted to estimate the proportion of mental health-related attendances in relation to the total number of all A&E attendances. Data regarding individual patients or total A&E attendances were again handled separately. The intra-class correlation coefficient and the design effect were estimated. We then used these figures to calculate an effective sample size. This was done to reduce the impact of clustering on the meta-analysis of proportions, assuming that patients within individual studies (for example, patients attending the same hospital) are more similar to each other than they are to those in other studies, attending a different hospital (White & Thomas, 2005). Proportions were calculated using double arcsine transformations. This was done to create a sampling distribution that was closer to a normal distribution and hence whose sample variance could be better approximated in order to estimate study weights. This approach was chosen because conventional inverse variance methods have been shown to be suboptimal

when conducting meta-analyses of small proportions placing undue weight on studies with proportions close to zero and computing negative confidence intervals, for example (Barendregt, Doi, Lee, Norman, & Vos, 2013). Random effects meta-analyses were undertaken in Microsoft Excel using the add-in MetaXL (available at: http://www.epi-gear.com/index_files/metaxl.html). Heterogeneity was estimated using the I^2 statistic, where $I^2 > 50\%$ was considered substantial heterogeneity (Higgins & Green, 2008; Higgins, Thompson, Deeks, & Altman, 2003). Finally, a sensitivity analysis was planned excluding those studies assessed to be of poor overall quality.

2.4 Results

2.4.1 Description of studies

The search strategy identified 18 studies which described patients attending hospital Emergency Departments because of mental health conditions, including two conference abstracts (Figure 1)(Pereira, Garrido, Bastos, Polido, & Craveiro, 2013; Prats, Gual, Lusilla, & Gual, 2011a). Table 1 below provides a summary of the studies. Nine studies were conducted in Australia (Al-Khafaji, Loy, & Kelly, 2014; Brierley, Baker, Brack, & Cunningham, 2010; Brunero, Fairbrother, Lee, & Davis, 2007; Fry & Brunero, 2004; Kalucy, Thomas, & King, 2005; Knott, Pleban, Taylor, & Castle, 2007; Lee, 2006; Shafiei, Gaynor, & Farrell, 2011; Tankel, Di Palma, Kramer, & Van Der Zwan, 2011); three in Spain(Pereira et al., 2013) (Pascual et al., 2007; Perez-Rodriguez et al., 2006); two in Canada (Chaput & Lebel, 2007; Kang, 2014); and one in each of the UK (Cassar, Hodgkiss, Ramirez, & Williams, 2002), Ireland (Okorie, McDonald, & Dineen, 2011), Norway (Johansen, Morken, & Hunskaar, 2009) and Portugal (Pereira et al., 2013). Studies took place largely within single emergency departments (n=14). Five examined attendances to dedicated psychiatric A&Es, rather than general departments. Further information about the included studies can be found in Appendix 2.3 (see Appendix 2.3 for an overview and Appendix 2.4 for characteristics of each study).

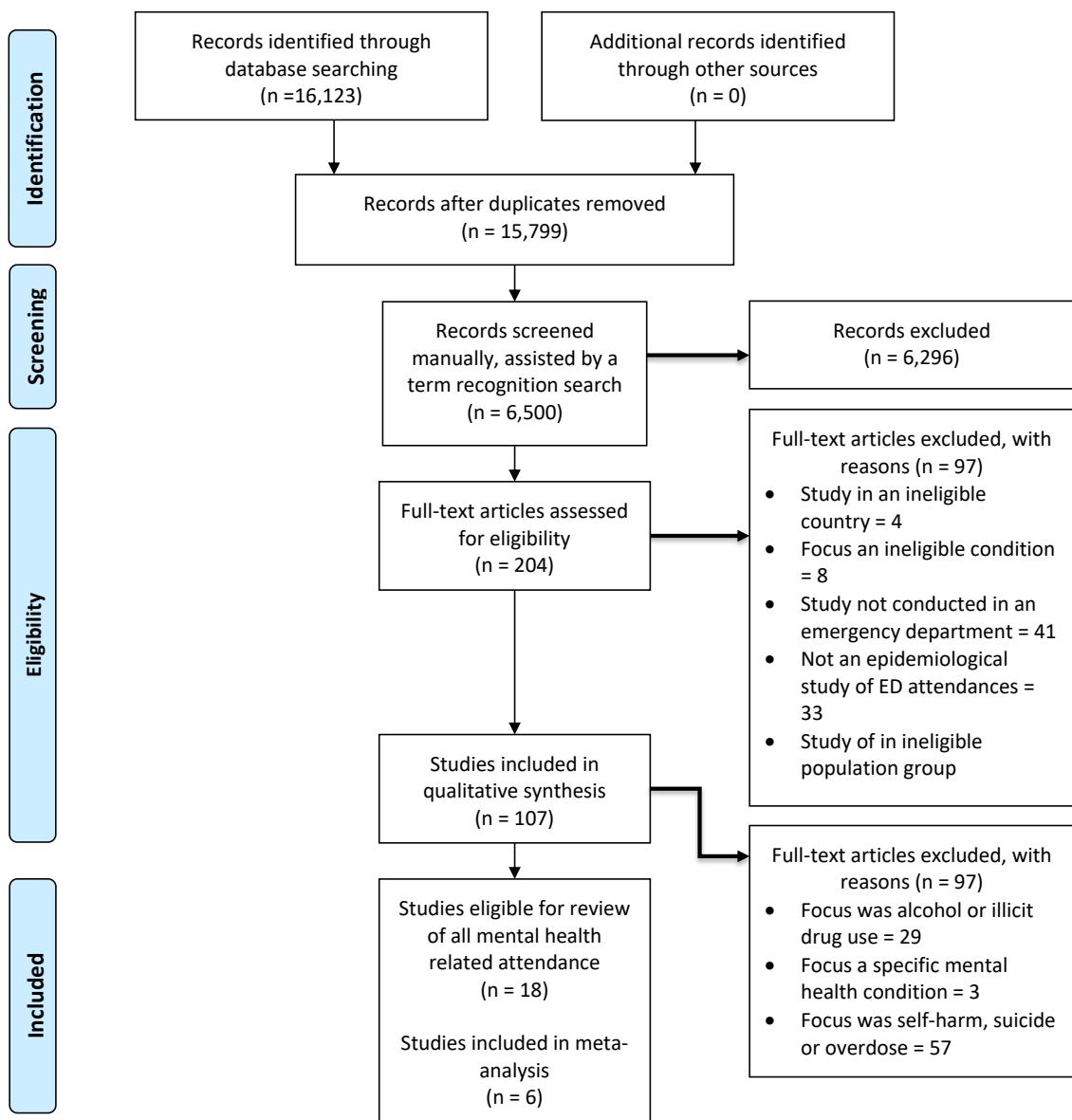
Table 1 Overview of studies included in meta-analysis (n=18)

Study Setting		N	%
Country in which study was conducted			
	UK	1	6
	Australia	9	50
	Ireland	1	6
	Norway	1	6
	Spain	3	17
	Canada	2	11
	Portugal	1	6
	Setting		

Study Design	General Emergency Department	13	72
	Dedicated Psychiatry Emergency Department	5	28
	Number of study sites		
	1	14	78
	2	2	11
	>=3	2	11
	Urbanisation		
	Rural	0	0
	Urban	10	56
	Suburban	3	17
Year of Publication	Mixed Urban, Suburban and Rural	3	17
	Other	1	6
	Not reported	1	6
	Study design		
	Cross-sectional design		
	Retrospective	12	67
	Prospective	3	17
	Not clear	1	6
	Cohort design		
	Retrospective	0	0
Data Collection	Prospective	1	6
	Not clear	0	0
	Other design	1	6
	Year of publication		
	2004	1	6
	2005	1	6
	2006	2	11
	2007	4	22
	2008	0	0
	2009	1	6
	2010	1	6
	2011	4	22
	2012	1	6
	2013	1	6
	2014	2	11
	Consecutive attendances studied		
	Yes	18	100
	No	0	0
	Duration of data collection		

Patient Selection	< 6 months	7	39
	Between 6 months and 1 year	6	33
	Between 1 year and 3 years	1	6
	Between 3 years and 5 years	1	6
	> 5 years	3	17
	Level of data reporting		
	Episodes	8	44
	Patients	6	33
	Both	4	22
	Target population		0
	All mental health-related A&E attendances	12	67
	Frequent mental health-related attendances	3	17
	ED attendees under section	3	17
	Instrument used to code mental health conditions		
	ICD - 9/10	7	39
	DSM – IV	3	17
	Health professional's assessment	3	17
	Other	1	6
	Unclear	4	22
	Sample size (Mental health attendances or patients)		0
	10-100	2	11
	100-500	4	22
	500-2500	7	39
	>2500	3	17

Figure 4 PRISMA Flow Diagram



The studies differed in the data they reported: whether in terms of total A&E attendances, or in terms of individual patients who may potentially have made multiple attendances. Eight reported only attendances; six reported only patients; and four described both types of data. Sample size varied from 168 (Brierley et al., 2010) to 290,606 (Tankel et al., 2011) A&E episodes and 36 (Prats et al., 2011a) to 3853

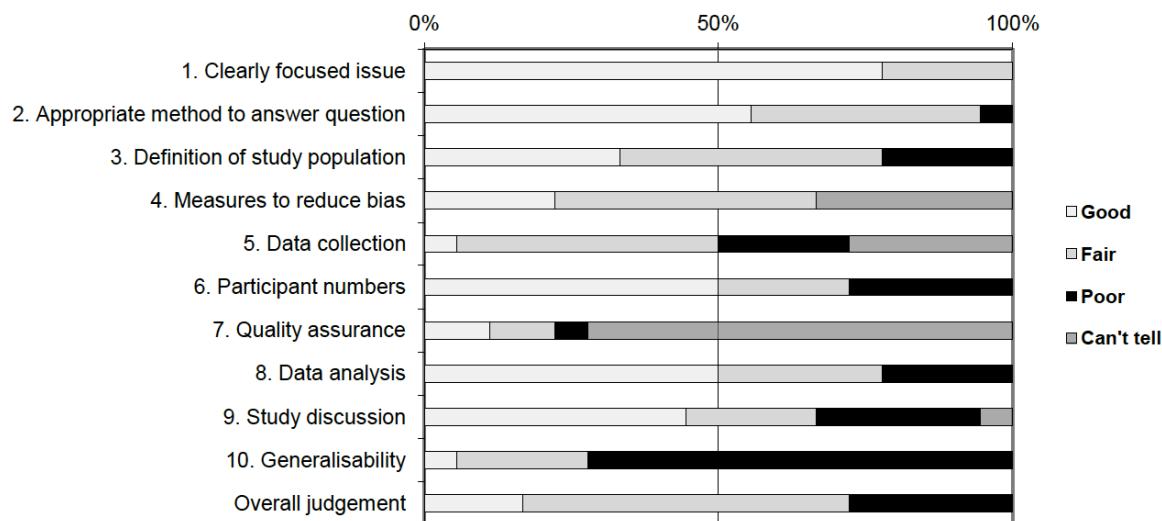
(Chaput & Lebel, 2007) individual patients. As detailed in Appendix 3.3, studies used a range of instruments to code patient diagnoses, including ICD-9 or 10 (n=7), DSM-IV (n=3) and a health professional's personal assessment (n=3).

All included studies reported that data were collected on a consecutive sample of eligible patients attending A&E during the study period. Most used a cross-sectional study design (n=16). In the majority of cases (n=12), data collection was carried out retrospectively for a specified time period. The length of data collection ranged considerably from 31 to 3652 days (Kalucy et al., 2005).

2.4.2 Quality assessment

Our assessment of the methodological quality of the included studies is summarised in Figure 5 below. Only three studies were considered to be of good overall quality. Ten were assessed to be of fair quality, whilst the remaining five were poor. Typically, more than half of the studies were assessed to be either good or fair with respect to each of the ten individual domains of quality. The generalisability of the findings was assessed as poor in 15/18 studies, usually because the study described a relatively small sample from a single hospital site. Insufficient information was provided in many cases to enable us to assess the quality and robustness of studies in three domains: measures taken to reduce bias (n=6); data collection processes (n=5); and quality assurance mechanisms (n=13). Our ability to assess methodological quality was impacted by a range of factors, for example limited descriptions of how the study population was identified or how analyses were conducted. In addition, many papers provided insufficient information about measures taken by the authors to assure the quality of the data, such as accuracy checking, or how data was actually collected in A&E.

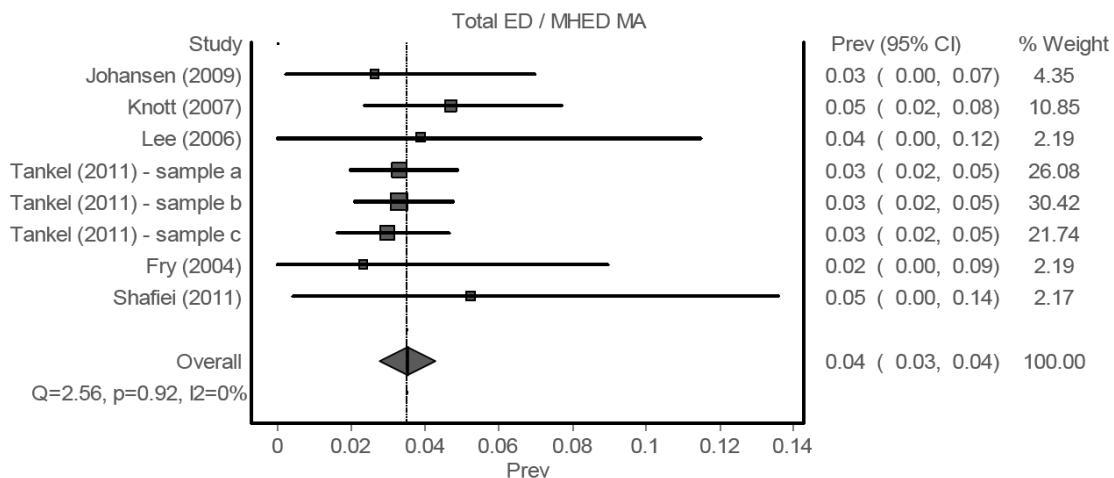
Figure 5 Methodological quality of included studies (n=18)



2.4.3 Proportion of A&E attendances related to mental health problems

Six studies provided data about the proportion of all A&E attendances due to mental health problems. One of these six studies was rated good overall quality; the remainder were assessed to be of fair quality. Pooling this information, we estimate that the proportion of all A&E episodes due to mental health problems is 0·04 (95% CI, 0·03–0·04), or 4% (Figure 3). All these six studies examined attendances at hospitals in Australia and one described separate findings from three categories of hospital, which they termed principal referral, major metropolitan and rural (Figure 2.3) (Tanel et al., 2011). Although one of the studies focused specifically on police presentations to A&E (Lee, 2006), the authors also included an estimate of the overall proportion of A&E attendances that were due to mental health conditions.

Figure 6 Forest plot (random effects) - proportion of all A&E episodes related to mental health disorders.



Where findings were reported for several different cohorts within one publication, results from each centre/time period/cohort appear separately.

2.4.4 Characteristics of patients presenting to A&Es with mental health problems

2.4.4.1 Clinical reason for attendance

Sixteen studies provided information about the clinical reasons for patients attending A&E. Generally, data on clinical reasons for attendance were reported inconsistently across the sixteen studies, with authors using different methods to classify patients. Using meta-analysis, we were able to estimate proportions of attendances that were due to four specific conditions or problems: suicide attempt/ ideation; self-harm; schizophrenia and depression. In each case, we extracted the number of patients with each condition as described by the study authors; there may be underlying differences in the way that patients were diagnosed and categorised. Meta-analysis was undertaken for these four conditions, because the relevant data were available. However, they represent only some of the reasons why patients may present to an A&E. Consequently, pooled percentages do not add up to 100%. In all the studies from which these estimates were derived, data were reported at the level of total A&E attendances, rather than individual patients.

Pooling data from three studies, which were all conducted in Australia, we estimate that 9% (0·09, 95% CI 0·05 – 0·14) of mental health-related attendances were due to a suicide attempt or suicidal ideation (Table 2). Two were assessed to be of fair quality and one was poor (Kalucy et al., 2005). We conducted a sensitivity analysis removing the poor quality study from the meta-analysis. The pooled proportion estimate reduced slightly as a result (0·08, 95% CI 0·02-0·17). In addition, via meta-analysis, we estimate that approximately 27% of mental health patients attend A&E because of self-harm (0·27, 95% CI 0·21 – 0·33). These data were pooled from three studies from two countries, Australia (n=2) and the UK (n=1). Again, two were of fair quality and the third was assessed as poor (Cassar et al., 2002). The pooled estimated proportion reduced slightly when the poor study was removed from the meta-analysis (0·26, 95% CI 0·20 – 0·33).

Table 2 Meta-analysis: proportion of mental health-related A&E attendances due to specific conditions

	Number of papers	Random effects proportion	95% Confidence Interval	I^2
Suicide risk / attempt	3	0.089	[0.046 - 0.141]	0%
Self-harm	5	0.266	[0.210 - 0.326]	87.1%
Schizophrenia	5	0.055	[0.045 - 0.066]	0.4%
Depression	7	0.134	[0.101 - 0.170]	76.7%

Similarly, we estimate via meta-analysis that approximately 6% of mental health patients attend A&E due to schizophrenia (0·06, 95% CI 0·05 – 0·07), with a further 13% (0·13, 95% CI 0·10 – 0·17) attending because of depression. Again, all three of the studies in the schizophrenia analysis were conducted in Australia, as were four of the five depression studies. The fifth was conducted in Spain. In the schizophrenia analysis, the three included studies were all assessed to be of fair quality (Fry & Brunero, 2004; Shafiei et al., 2011; Tankel et al., 2011). One of the five depression studies was of poor quality ; two were good and the other two fair (Shafiei et al., 2011; Tankel et al., 2011). Removing the poor study from the meta-analysis did not change the estimate.

2.4.4.2 Previous service use or history of mental illness

Five studies provided information on patients' past psychiatric history or previous contact with mental health services. In the UK, 58·1% had a previous history of mental illness (Cassar et al., 2002). This figure was 86·9% in a study of police presentations in Australia (Lee, 2006). 58·3% of patients aged over 65 attending a psychiatric emergency room in Spain had a history of depressive disorder (Prats et al., 2011a). In a study of frequent attenders in Ireland, 70·8% had had a prior psychiatric hospital admission (Okorie et al., 2011). Meanwhile, in Australia, 25·9% of all patients attending for mental health reasons had a psychiatric admission in the preceding 12 months (Knott et al., 2007). In the same study, 36·5% of patients were also current patients of mental health services (Knott et al., 2007).

2.4.4.3 Individual patient characteristics

Twelve of the eighteen studies described all mental-health related A&E attendances. Only three of these reported patients' mean age. Two reported that the mean age was 32-33 years (Cassar et al., 2002; Knott et al., 2007). The third was limited to patients aged 65 and over; the mean age was 75·3 years (Prats et al., 2011a). None reported a standard deviation around the mean. Insufficient data were available to enable us to carry out meta-analysis of patient age. Two of these studies were assessed as being of poor overall quality (Prats et al., 2011a) (Cassar et al., 2002), whilst the other was good quality (Knott et al., 2007).

With regard to socio-demographic characteristics, data from five studies enabled us to estimate via meta-analysis that 50% of attendances are by women (95% CI 0·45-0·55, $I^2=7\cdot3\%$). We rated three of these studies as being of fair quality; the other two were good.

Three included studies provided information about patient ethnicity or country of origin. Two described mental health-related attendances to the same, single A&E in Sydney, Australia, at different time periods. One reported that 75% of frequent attendees originally came from English speaking countries (Brunero et al., 2007). In the second, 69% of all mental health-related attendees came from English speaking countries (Fry & Brunero, 2004). The third study also studied attendances in another part of New

South Wales, Australia, specifically looking at patients with mental health problems transferred to the hospital by police (Lee, 2006). 88% of this cohort was Australian; 3% from England; 4% from New Zealand; and 5% from elsewhere. We assessed all three of these studies as being fair quality.

Four studies provided information about patients' socioeconomic circumstances, but this was reported in different ways. 53% of mental health patients attending an A&E in London, UK, were unemployed (Cassar et al., 2002) in contrast to 83% of frequent attendees at an A&E in Galway, Ireland (Okorie et al., 2011). Also in London, 17% were of no fixed abode (Cassar et al., 2002), whilst 4% of mental health patients attending A&Es in Victoria, Australia, were resident in crisis accommodation at the time; the same proportion were deemed to have no shelter (Lee, 2006). 45% of frequent attenders to a dedicated psychiatric A&E in Montreal, Canada, were in receipt of welfare payments (Chaput & Lebel, 2007). We assessed three of these four studies as being of fair quality (Chaput & Lebel, 2007; Lee, 2006; Okorie et al., 2011); one was deemed to be poor (Cassar et al., 2002).

2.4.4.4 Destination on discharge from A&E

Thirteen studies provided data on patients' destination on discharge from A&E. Because each study reported this in a different way, we were not able to use meta-analysis to calculate meaningful pooled estimates, for example of the proportion of patients who are admitted to hospital or followed up on an outpatient basis. Considering admission to hospital generally, in Spain, 17% of attendances resulted in admission, but the type of ward was not specified (Pascual et al., 2007). In an Australian study over half of patients (58%) were admitted (Fry & Brunero, 2004). Broken down by type of ward, the proportion of patients admitted to a mental health unit ranged from 8% (Shafiei et al., 2011) to 27.8% (Prats et al., 2011a), whilst the proportion admitted to a general medical ward ranged from 6.6% (Knott et al., 2007) to 16.7% (Prats et al., 2011a). Similarly, only two studies reported the proportion followed up as an outpatient: 15% of attendances in London resulted in discharge from A&E with GP follow up (Cassar et al., 2002). In an Australian study of police presentations, 25% of patients required outpatient follow-up by a community mental health team (Lee, 2006). Six studies reported the proportion of patients discharged

home from A&E. This ranged from 36% in a study of all mental health-related attendances (Kalucy et al., 2005), to 67% in study that focused on attendances by patients under section (Al-Khafaji et al., 2014). Both these studies were conducted in Australia. However, within these papers, it was only clear in one case that the discharged patients did not receive any form of follow up (Lee, 2006). Two Australian studies reported respectively that 6·1% (Knott et al., 2007) and 8% (Kalucy et al., 2005) of mental health-related attendances resulted in the patient leaving A&E without being seen. Again, we assessed these papers as lying across the quality spectrum: four were good (Al-Khafaji et al., 2014; Knott et al., 2007; Pascual et al., 2007; 2011b), six were fair (Chaput & Lebel, 2007; Fry & Brunero, 2004; Kang, 2014; Lee, 2006; Okorie et al., 2011; Tankel et al., 2011) and three were poor (Cassar et al., 2002; Kalucy et al., 2005; Perez-Rodriguez et al., 2006).

2.4.5 Summary of Results

We identified 18 studies, which together suggest that mental health patients account for 4% of A&E attendances, a third of which are due to self-harm or suicidal ideation. However, the majority of studies were single site and of low quality so data must be interpreted with caution. Our estimate is similar to the Medicare figure quoted in current policy (5%) (Himelhoch et al., 2004). Over half of patients had a past history of psychiatric illness in one study (Cassar et al., 2002), suggesting that they are 'known' to mental health services. In another, a third of patients were in current contact with services (Knott et al., 2007). We estimate that half of attendances are made by females, and based on two studies the mean age of patients is 32-33 (Cassar et al., 2002; Knott et al., 2007). Our findings suggest that a quarter are admitted to a mental health ward, but 6-8% leave A&E without waiting to be seen (Kalucy et al., 2005; Knott et al., 2007). A further third are discharged home from A&E, but it is unclear whether some in this category also received outpatient follow up.

2.5 Study limitations

The data that are available must also be interpreted with caution, in light of issues relating to the quality of the data reported; the overall methodological quality of the studies; and the generalisability of the study findings to other services and local populations. For example, eight studies reported findings in terms of total A&E attendances; six in terms of individual patients; and four used both figures, often at different points in the paper. Similarly, where data on past psychiatric history and destination on discharge from A&E were reported, this was done in different ways. This was also the case for data on ethnicity or socioeconomic circumstances. In our systematic review, we used the data reported in the studies to estimate the proportion of patients attending due to certain conditions. However, studies examined used a range of different diagnostic methods to classify clinical reasons for attendance. Self-harm or suicidal ideation maybe easily diagnosed during A&E visit. Whereas people present to an A&E with an acute psychosis for the first time are likely to have the cause of their symptoms clarified at a later stage in their care pathway, at which they could receive one of a range of diagnoses, such as mania, schizophrenia, or drug induced psychosis. In addition, only partial information was provided in some cases. For example, regarding destination on discharge from A&E, in some studies data were reported for only a sub-section of the study population, such as the proportion admitted to hospital.

A range of factors also made our assessment of the methodological quality of the studies difficult. For example, descriptions of how the study populations were identified was limited as were details on how analyses were conducted. Similarly, many papers provided insufficient information about any measures taken to assure the quality of the data, such as accuracy checking, or how data was actually collected in A&E. Many of the included studies also employed different methods of case identification. For example, where this was reported, there were considerable differences between studies in terms of the way mental health patients were identified and categorised. Notably, half of the studies were conducted in Australia and so the generalisability of the findings was assessed as poor in 15/18 cases, usually because the study described a relatively small sample from a single hospital site.

Over half of the studies were also conducted in urban areas, where the demographic profile is likely to be different, compared to other parts of the country. For example, the prevalence of mental illness is often higher in inner city areas (Reijneveld & Schene, 1998), further reducing the generalisability and relevance of the findings to less densely populated areas.

We sought to reduce heterogeneity between the included studies in our meta-analyses. Publication bias seems an unlikely explanation. Search strategies and safeguards against publication bias are less well developed for reviews of observational studies than they are for clinical trials (Owens, Horrocks, & House, 2002). However, our search strategy was broad and employed both standard terms and procedures. The most important causes of variability relate to differences in either clinical or methodological aspects of the research (Higgins et al., 2003). For example, the studies originate from different geographical regions, with half of the studies examining care in different areas of Australia. Only one was conducted in the UK and this was assessed to be of poor quality (Cassar et al., 2002). The table below shows the calculated prevalence of mental health disorder in each of the countries included in this review. It can be seen that the prevalence ranges from 18.6% in Canada (Offord, Boyle, Campbell, & Goering, 1996), to 32.8% in Norway (Kringlen, Torgersen, & Cramer, 2014). Given this range, it is likely that the numbers of people accessing care may vary in different countries which in turn may affect the proportion of attendees to the emergency department, providing problems for the generalisability of the study. Further factors likely to impact on rates of A&E attendances between countries include the extent of provision of mental health services and the disability adjusted life years, both of which are described in detail in the World Health Organisation's Atlas of Mental Health, most recently published in 2005 (Health & Substance Abuse, 2005).

Table 3 Prevalence of mental disorder by country

Prevalence	Year	of Reference	
			Study
Canada	18.6%	1996	(Offord et al., 1996)
Spain	19.4%	2009	(Kessler et al., 2009)
Australia	20.3%	2001	(Andrews, Henderson, & Hall, 2001)
United Kingdom	23.0%	2009	(HSCIC, 2009)
Norway	32.8%	2014	(Kringlen et al., 2014)
Portugal	No data		

There were significant practical advantages to using the text mining function in EPPI-Reviewer 4 to screen 16,000 titles and abstracts, not least because this approach offered a mechanism for truncating the screening process. However, the limitation of this approach is a function of its strength: it expands the review in favour of literature that uses the same language as the documents that have already been found (Thomas et al., 2011). It does not assist in identifying literatures that use different words to describe the same concepts. For example, although we included a range of possible synonyms in the search strategy, it is feasible that we have missed articles that use different terms to describe hospital emergency services. In addition, because the screening process was truncated, we cannot quantify the number of studies that may have been missed.

Finally, ordering the studies in this way may bias the reviewer: they may expect to have more included studies at the beginning of the process, and so be over-inclusive, and likewise, miss studies later in the list because they assume they are looking at less relevant studies (Thomas et al., 2011). It is possible that we may also have missed relevant studies because our search was only conducted in English. This may also limit the relevance of our findings for non-English speaking countries.

2.6 Discussion and Implications

Our initial examination of the literature identified that there were insufficient studies of prevalence and morbidity of attendance at A&E for mental health problems based on UK populations to enable meta-analysis. Therefore, our study included international studies from locations identified to have similar health economies and demographics in order to extrapolate an estimation of the burden of mental health on emergency systems in the UK. The findings show that, although mental health presentations to A&Es comprise only a small percentage of overall presentations, they are a group with significant morbidity. Between 8% and 27% are admitted to psychiatric in-patient care and 6% to 16% to general medical wards. This suggests a lower range of admission of around 14% and an upper range of over 40%, which contrasts with an admission rate for all Emergency Department attendances of 20.8% (Centre, 2014).

Current best practice in mental health supports the use of community based crisis and home treatment teams as an important means of preventing hospital admissions for people with mental disorders (Tyrer, 2011). Given that 58.1% of patients in the studies reviewed had a previous history of mental illness, and that 36.5% are current clients of mental health services, this raises a question as to whether existing community support was available to adequately meet their needs. In addition to limited access to crisis teams, it is possible that having only limited access to inpatient beds and long-term community support may also have played a role in people requiring admission via an A&E. Support for this suggestion comes from evidence of a reduction in mental health funding over recent years relative to other areas of health care (Publications.gov.uk, 2013), with 40% of mental health trusts receiving a reduction in income in 2013/14 and 2014/15 (Gilbert, 2015). This shortfall of funding has led to a large proportion of mental health trusts undertaking significant transformations that have been driven primarily by policy, the requirement to cut costs and in order to meet workforce challenges (Imison, 2014).

The most visible cost of mental health care is the provision of inpatient beds. Over that past 60 years the number of mental health beds in England has reduced from 150,000 to 22,300 by 2012, with additional 7% reduction between 2012 and 2013/14 (Crisp, 2016). While evidence supports the premise that mental health care can be better

provided in the community, the cost of this provision is mostly not lower and in some cases has been identified to be higher than in-patient provision (Knapp, Beecham, McDaid, Matosevic, & Smith, 2011; Thornicroft & Tansella, 2004). Given this, one explanation is that reducing the number of inpatient beds together with the steady reduction in funding and increased demand on services, has led to insufficient development of community services making the provision of care of sufficient quality in the community to effectively manage mental health challenging.

41.9% of patients had no history of mental illness prior to presentation at A&E and it is possible that for these patients A&E may be a route into care. Although, this may represent an opportunity to correct previously lost chances to engage with care in other settings, the fact that over a third of patients (36%) with a mental health diagnosis are sent home directly from A&E, suggests that this is not an effective route into care with needs probably continuing to be unmet.

Another cause of concern is the large proportion (36%) of mental health patients who present with self-harm or suicidal ideation. While a number of these patients will have depressive or psychotic disorders, it is probable that a significant proportion suffer from a primary problem of self-harm and are likely to have a diagnosis of personality disorder. These patients are disproportionately represented among repeat attenders to A&E and this may reflect a lack of community based service to provide effective care for this group, or that these services are under-developed.

2.7 Conclusions

This review suggests that there is a lack of high quality, generalisable epidemiological data available to inform service improvement and the development of new models of care. The concerns highlighted above suggest that limitations in available community based treatments may be leading to a significant demand on A&Es. With good quality routinely collected data still being far from a reality (Nicholls, Langan, & Benchimol, 2017), further high quality epidemiological studies are needed to inform service improvements and ensure that interventions are targeted appropriately. The use of routinely collected data could provide a solution to this problem, although the challenges to achieving this are currently significant. The pitfalls of the use of routinely collected data have been widely cited, including poor quality of data entry, multiple people responsible for data entry, some of whom are untrained and most of whom do so as one of many daily tasks which means it may be in conflict with other priorities leading to a high proportion of errors. Therefore, routine data is commonly found to be inaccurate, to have omissions or erroneous inclusions, to be incomplete or to be insufficiently detailed for purpose (Black, 1999). The quality of data collected for diagnostic purposes remains a concern, with problems regarding the lack of specificity of diagnosis and inconsistencies between medical records and diagnosis and in particular a problem with the quality of clinical notes (Tang, Lucyk, & Quan, 2017). A range of errors have been identified along the patient diagnostic trajectory as well as during the administrative process (O'malley et al., 2005). These sources of error also tend to compound each other, patient's diagnoses may change, or even new diagnoses are developed faster than recording systems such as ICD-10 are updated, leading to confusion between clinical notes and coders who rely on fixed coding systems (Kelly et al., 1995). Validation of coding data is increasingly being identified as important both to the methodological evaluation of articles as well as to enable replication (Moher, Simera, Schulz, Hoey, & Altman, 2008) (Manuel, Rosella, & Stukel, 2010). It is also important that those using the data for research or quality improvement are also accurately reporting how the data is used. The RECORD (REporting of studies Conducted using Observational Routinely-collected Data) statement has recently been published to address this, setting out standards researchers are expected to adhere to (Benchimol et al., 2015). A recent qualitative study of the use of routine data suggested a range of measures are required to improve the quality and

use of routine data, including training clinicians in the importance of accurate documentation, the use of professional coders, the use of machine learning or natural language processing techniques (Tang et al., 2017), however none of these approaches have been evaluated nor implemented systematically.

In order to effectively commission emergency service for mental health patients, there is a need for good quality epidemiological data on the prevalence of mental health patient's use of emergency services in England. Given the minimal availability of same day emergency psychiatric care available to mental health patients outside of A&E, the current best method for estimating need would be through quantification of mental health patient's use of A&E services. As a minimum, such studies would ideally involve a large sample of patients, attending a number of different A&Es to maximize the generalisability and validity of the findings. Particular attention needs to be paid to the types of data collected, which would ideally include information about the reason for attendance from the patient's viewpoint, past psychiatric history, prior service use and destination on discharge, to support the development of a detailed picture of the relevant patient population. Information about patient characteristics such as age; socioeconomic circumstances; and ethnicity would help ensure that services are being targeted to the patient groups that need those most.

The following chapters report on a preliminary study to assess the feasibility of carrying out such a study in A&E, followed by the results of a larger mixed methods study that collects detailed demographic information about A&E use, as well as analyses the factors associated with length of stay and breach, and looks at what constitutes good quality care from the patient's viewpoint.

3 Preliminary study to understand the factors that impact on breach in A&E

3.1 Summary

This preliminary study aims to builds on the existing literature examining the factors that impact on A&E length of stay by exploring the factors associated with waits over four hours (a 'breach') in a cohort of mental health patients identified in five A&Es. It is designed to address some of the methodological problems identified in the existing literature and also focusses on mental health patients, which have not yet been studied in this way in comparative health systems. I explore if it is feasible to collect accurate 'real-time' data about mental health attendances and record the processes undertaken by patients during their care using independent auditors collecting data from a range of sources. I also explore the feasibility of collecting data on the contextual factors that contribute to breaches at the time of the patient's attendance. The study is performed across five sites with the aim of identifying if there are factors that are sensitive to local conditions.

The results support my first hypothesis that the input factors 'age' and 'presenting complaint' are associated with breach. Based on existing literature for the general A&E population which indicates that A&E throughput factors should have least impact on A&E LOS, I predicted that throughput factors would have a smaller effect size than input factors. Although I have not undertaken a stepwise regression for this preliminary a study, I found that the throughput factor 'time taken for psychiatry to arrive' was highly significantly associated with breach, which was contrary to my hypothesis. Consistent with existing literature, I predicted that output factors would have the most significant impact on breach rates, however I found that the discharge destination was not associated with breach.

My third aim was to carry out a multi-site study including non-London hospitals to create a more generalisable data set. This was not achieved as the rural site pulled out due to not completing R&D in time. However, despite this we did carry out the study in a range of trusts and included A&Es from large teaching hospitals and smaller suburban sites. When comparing the characteristics of attendees', differences in

demographics were found, which provides some assurance that these results are applicable to a wide range of settings.

Finally, I was able to successfully triangulate data from A&E notes, A&E boards and mental health liaison teams through the real-time prospective collection of data in A&Es. This meant the data collected was much richer than that used in existing studies, which generally utilise routinely collected outcome data or retrospective case note audit. Using this method, it was possible to more accurately categorise reason for presentation, reason for delays and provide details about context. Researchers did not have access to mental health patient notes however, which would have made it possible to record existing diagnoses, contact with mental health teams and prior mental health service usage. These would have provided valuable information about complexity and it would be valuable to incorporate this in future studies.

3.2 Introduction

Understanding the causes of long stays in A&E is an important step to improving the quality of emergency care for mental health patients in A&E. The rapid review of the factors associated with LOS and breach reported in Chapter one identified some candidate causes, but principally highlighted the weaknesses in the current literature including the lack of high quality, generalisable data. Furthermore, very few studies considered mental health patients. Understanding true burden of mental health in A&E, including detail such as reasons for attending and discharge destination, is critical to understanding the resources and skills required to provide effective, safe and good quality emergency mental health services. It is also important for commissioning, as mismatches between need and provision lead to problems with performance. Chapter two reported a meta-analysis of the epidemiology of mental health in A&E that aimed to estimate the proportion of mental health patients attending A&E, however due a lack of good quality studies, few of which were based in the UK, we were not able to come to firm conclusions. This was mainly due to study design, poor methods, incomplete reporting and only one study was based in the UK.

To address these gaps in the literature, I designed a mixed methods study that would provide a more accurate estimate of the epidemiology of mental health problems in A&E and the factors that lead to breach. The study reported in this chapter is a preliminary feasibility study that aims to:

- (1) collect accurate data on the epidemiology of mental health presentations in A&E including accurate data on the reason for presentation,
- (2) collect detailed data on input, throughput and output factors with the aim of identifying factors associated with breach in psychiatric patients,
- (3) include multiple sites with the aim of creating a more generalisable data set and identify relationships between factors associated with breach and different settings,
- (4) test if it is possible to collect and triangulate data from a range of sources including A&E notes, psychiatric notes and information about the context A&E is operating under at the time the patient attends A&E and
- (5) create a measurement and data collection protocol that will enable a later definitive study to explore and narrow down key predictors of LOS.

Given this, the research questions I aim to answer in this study are:

- (1) What is the best method for carrying out a multi-site mixed methods study in A&E?
- (2) What are the most important candidate factors for inclusion in a larger study?
- (3) Are there any preliminary indicators of the factors relevant to breaching the four-hour target?
- (4) Are there any preliminary indicators of sub-populations with a higher risk of breach?

3.2.1 Approach taken

The rapid review provided insight into the dependent variables that would be utilised for this preliminary study, in this sense there is no rationale for limiting the number of parameters (categories of predictors) to investigate. This study will therefore include a range of factors chosen based on the possibility of them impacting on LOS, as identified in the rapid review, irrespective of statistical power considerations. Contradictory arguments have been made in the literature about the relative importance of input, throughput and output measures and it is not yet possible to determine which group of factors has the greatest impact on breach rates. Given this, our study will include independent variables that have been identified by at least one investigation to be likely to impact on breach in each of the categories of: input, process and output factors.

A range of methodological issues were identified in the rapid review and meta-analysis, which have informed the design of this study: (1) a full overview of the factors examined together with details of all statistical analyses will be reported, (2) inclusion of a range of hospital types with the aim of improving generalisability, including urban teaching hospitals, DGH's and a rural site in Hertfordshire (Luton & Dunstable), (3) the design will be a prospective case note review using independent researchers based in A&E 24 hours a day during the test period, who will use a proforma to collect data from A&E notes during the individual patient attendances (4) researchers will be in A&E at the time the patients attend and they will be asked to collect information about the current context such as particularly busy periods or problems with staffing or handover and (5) researchers will utilise A&E and mental health liaison notes, drawing data from each. Primary care notes cannot be accessed in A&E, but information about primary care can be extracted from mental health notes where possible (6) the

relationship between hospital sites and input, throughput and output factors as well as the relationship between LOS and sites will be examined.

The table below summarises the factors that will be treated as independent variables in this study and includes any factor that reached significance in the review.

Table 4 Summary of factors that will be included in this study

Input factors	Process factors	Output factors
Demographics (age, gender, race)	Time to be seen	Discharge destination
Homelessness	Investigations	Transfer problems
Initiator of attendance	Consultations with other specialties	Bed availability
Acuity and complexity		
Out of area		
Presenting complaint		
Substance misuse/Intoxication		
Attendance under s136/ police involvement		
Mode of conveyance		
Time of day, day of the week		
Number of admissions to A&E		

3.3 Hypotheses

Consistent with the literature described in my introduction, the following hypotheses form the basis of this study:

1. Input factors 'age' and 'presenting complaint' will be associated with breach.
2. Throughput factors will be weakly associated with breach rates.
3. Output factors will have a strong association with breach rates.

3.4 Methods

3.4.1 Design

This was a prospective, cross sectional multi-site study with a fixed time-bound sampling frame of 7-days. Five sites across north central London were identified, including inner city locations and those in more residential parts of London. Data was collected from consecutive cases that presented at each of the five participating sites over a 7-day period in the months October 2013 – January 2014. The inclusion criteria were: any patient aged 18 or over identified as having ‘mental health problem’ as the primary reason for presentation at any point in their journey through A&E (i.e. at triage or following further review). These patients were selected by using A&E computer screens, and through liaison with A&E staff and Mental Health Liaison Teams. All the relevant teams were briefed about the project as part of the set-up phase. Patients presenting with alcohol and/or substance use without another acute mental health problem were included if this was the primary reason for presentation and they required a mental health intervention during this presentation. Patients were excluded if they were attending for physical health reasons and no mental health cause for presentation was identified during the attendance, if they were 17 or under or if they were attending because of drunkenness and there was no evidence of an underlying alcohol dependency.

3.4.2 Data collection procedure

Data was collected from each site in real time (divided into 12 hour data collection slots) by data collectors with expertise in mental health presentation in A&E (Psychiatry Trainees) working within the local mental health trust, who had experience of the particular A&E site, clearance to work in A&E and access to mental health electronic notes. Data collectors were trained to complete the proforma as fully as possible and where possible in real time using A&E notes, mental health electronic records, talking to staff involved in the patients care and A&E tracking boards. They were encouraged to include free text to describe factors leading to the presentation and collect contextual information such as reasons for delays in the movement of patients through A&E. Auditors did not gather information directly from patients. No patient identifying information was recorded. Data was codified and entered into an

excel spreadsheet. Missing data was coded as 999 and analysis was performed on an intention to treat basis, meaning missing data was recoded to 0.

3.4.3 Data collection tool

The data collection tool was developed in collaboration with a mental health trust medical director and two psychiatric higher trainees. The tools were reviewed with A&E staff to ensure that the data could be easily collected from A&E systems. Through this process it was agreed that tick boxes were created wherever possible to enable collection with ease. Demographic data, data about the nature and reason for the presentation as well as history of contact with primary and secondary care was recorded. Timing of movement through A&E (arrival, referral to psychiatry and discharge) was collected to gain a clearer picture of potential points of delay, procedurally or otherwise. The full proforma used can be found in Appendix 3.1.

3.4.4 Ethics

NHS ethics was obtained for each participating site and ethics was obtained from the Health Research Authority under 15/LO/0308 “Understanding how to improve the quality of Emergency Department care, as measured by process measures (length of time in A&E), patient experience and safety (patients absconding from A&E)”.

3.4.5 Data Analysis

The primary research question concerned the determinants of breaching of the four-hour target. In addition to examining the distribution of the variables across sites, between site differences were examined using χ^2 test for categorical variables and Kendal’s s-test of trend where both the categories were ordered. The audited variables were examined in turn both across and within sites for the strength of association with ‘breach’. These were also tested using χ^2 test. Bonferroni adjustments were not made, as the primary purpose of this preliminary study was exploratory and descriptive rather than hypothesis testing.

3.5 Participants

Selected demographic and clinical characteristics are shown in Table 5. The majority of attendees were of working age (71.1%). A third of the sample was represented by black and minority ethnic groups, which is broadly consistent of the demographic characteristic of the urban areas of London the study covered. 39% were weekend presentations, 17% did not have English as their first language and 28% were from out of area. Frequent A&E attenders (defined as 4 or more previous visits) represented about 20% of the sample. 11% of the patients left A&E before the conclusion of their attendance (absconded). 9% of patients were not registered with a GP. The police were involved in 33% of cases.

Table 5 Demographic & clinical characteristics of the sample

	Barnet	Royal Free	Whittington	UCLH	Whipps Cross	Total/Average	Statistical Tests
Age Distribution							
18-24	7 (28.0%)	3 (8.3%)	5 (11.6%)	7 (30.4%)	4 (16.7%)	26 (17.1%)	$\chi^2 (8) = 12.3$, $p=0.14$
25-60	14 (56.0%)	27 (75.0%)	36 (83.7%)	14 (60.9%)	17 (68.0%)	108 (71.1%)	
61+	4 (16.0%)	6 (16.7%)	2 (4.7%)	2 (8.7%)	4 (16.0%)	18 (11.8%)	
Proportion BME (n, %)	6 (30.0%)	11 (39.3%)	8 (20.5%)	8 (40.0%)	11 (44.0%)	44 (33.3%)	$\chi^2 (4) = 5.11$, $p=0.28$
Weekend Presentations (n, %)	4 (16.0%)	15 (41.7%)	21 (48.8%)	12 (52.2%)	7 (28.0%)	59 (38.8%)	$\chi^2 (4) = 10.38$, $p=0.03$
English Not First Language (n, %)	2 (8.0%)	9 (25.0%)	8 (18.6%)	2 (8.7%)	5 (20.0%)	26 (17.1%)	$\chi^2 (4) = 4.41$, $p=0.35$
Frequent A&E Attenders (> or equal to 4 previous) (n, %)	1 (4.8%)	7 (23.3%)	13 (37.1%)	2 (11.1%)	3 (12.5%)	26 (20.3%)	$\chi^2 (4) = 11.3$, $p=0.03$
Out of Area (n, %)	4 (16.7%)	12 (33.3%)	20 (46.5%)	5 (21.7%)	1 (4.0%)	42 (27.8%)	$\chi^2 (4) = 17.0$, $p=0.02$
Patient Absconds (n, %)	7 (30.4%)	5 (13.9%)	4 (9.3%)	0 (0.0%)	1 (4.0%)	17 (11.3%)	$\chi^2 (4) = 13.1$, $p=0.01$
Not registered with GP (n, %)	5 (20.0%)	2 (5.6%)	3 (7.0%)	2 (8.7%)	1 (4.0%)	13 (8.6%)	$\chi^2 (4) = 5.4$, $p=0.25$
Police involved in presentation (n, %)	7 (28.0%)	9 (25.0%)	15 (34.9%)	6 (26.1%)	13 (52.0%)	50 (32.9%)	$\chi^2 (4) = 6.0$, $p=0.20$

3.6 Results

The tables displaying the results of all the χ^2 analysis of the relationship between each factor and both site and breach can be found in Appendix 3.2. Table 6 below displays the frequency of presentation and breaches for both mental health and non-mental health patients in the five A&Es participating in the study. ‘Mental health patients presenting in A&E’ represent the patients that were identified by the auditors. ‘Total presentations to A&E’ and ‘non-mental health breaches’ are obtained from routinely collected data for presentations in the corresponding week, collected from NHS England website.

Table 6 Breaches in Five North Central East London (NCEL) A&Es over a seven-day period (number and %)

	Barnet	Royal Free	Whittington	UCLH	Whipps Cross	Total/Average
Total Number of presentations to A&E	2,950	1,694	1,834	2,453	5,369	14,300
Mental health patients presenting to A&E n (%)	25 (0.85)	36 (2.12)	43 (2.34)	23 (0.93)	25 (0.47)	152 (1.06)
Total breaches in A&E n (%)	419 (14.20)	82 (4.84)	60 (3.27)	192 (7.82)	430 (8.01)	1,183 (8.3)
Non mental health breaches n (%)	403 (13.8)	67 (4.0)	52 (2.8)	186 (7.6)	416 (7.8)	1,124 (7.9)
Mental health breaches n (%)	16 (64.0)	15 (41.7)	8 (18.6)	6 (26.1)	14 (56.0)	59 (38.8)
Relative risk of mental health breach (95% CI)	4.6 (3.4 - 6.3)	10.3 (7.2 – 14.6)	6.4 (3.5 – 11.6)	3.4 (2.6 – 4.5)	7.2 (6.4 – 8.2)	4.9 (4.5 – 5.4)
χ^2 (1)	51.31	108.3	37.7	10.7	78.5	188.9
p<	0.00001	0.00001	0.00001	0.001	0.00001	0.00001

152 patients presented with mental health problems as their primary reason for attendance. They represented 1.06% of the presentations during this time period. Of these 152 patients, 38.8% breached. In comparison the non-mental health breach rate was 7.9%. This translates to a relative risk of mental health breach of almost five times that of a non-mental health breach. At the Whittington 18.6% mental health patients breached compared with Barnet where the figure was 64.0%. The proportion of mental health presentations also varied with a range of 0.47% in Whipps Cross and 2.34% at the Whittington. The relative risk of breach varied between 3.4% and 10.3%, meaning the risk of breaching was 3 times higher at the Royal Free, compared to the best performing hospital, UCLH.

Table 7 Summarising the factors examined, showing chi-squared for the variation between sites and the relationship with breach

Factors	Variation between sites		Breach
	χ^2	χ^2	
Input Factors			
Age	not possible		12.20, p=0.031
Ethnicity	5.11, p=0.280		3.33, p=0.505
Learning Disability	6.31, p=0.177		0.106, p=0.106
English 1 st Language	4.41, p=0.350		0.688, p=0.688
Out of area	17.00, p=0.02		0.023, p=0.879
No fixed abode	not possible		1.29, p=0.256
Presenting complaint	25.91, p=0.011		8.46, p=0.037
No of previous attendances	0.117, p=0.118		0.087*, p=0.298
Contact with primary care	19.59, p=0.075		0.60, p=0.900
Mode of conveyance	34.40, p=0.001		5.31, p=0.150
Police involvement	5.98, p=0.200		0.32, p=0.573
Day patient attends (all days)	not possible		14.52, p=0.024
Day patient attends (week day vs. weekend)	10.38, p=0.030		4.06, p=0.040
Time of arrival	12.41, p=0.140		0.047, p=0.977
Throughput Factors			
Time taken to refer to psychiatry	21.78, p=0.0001		4.40, p=0.036
Time taken for psychiatry to arrive	12.07, p=0.017		10.07, p=0.002
Output Factors			
Absconding	not possible		0.675, p=0.713
Outcome of visit	30.04, p=0.0001		4.84, p=0.090

Patient can't be seen because of intoxication	not possible	0.018, p=0.014
Difficulty making referral to specialist team	not possible	0.001, p=0.001
Delays in accessing an inpatient bed	not possible	<0.001, p=0.001
Delays due to medical assessment/tests	not possible	<0.001, p=0.001
Delay in waiting for crisis team	not possible	0.528, p=0.27

*: Kendall's Tau was used rather than Chi-squared

3.6.1 Presenting Complaint

Nearly 2/3 of presentations related to suicidality. This was split into those who had caused harm to themselves (19.1%) and those who had suicidal thoughts (41.4%). 14.5% of patients presented with psychotic crisis. 25% presented with agitated behaviour, which varied between sites and was associated with breach. Agitated behaviour was most frequently associated with breach (38.6% of breaches). The least frequent to breach were those with a 'psychotic crisis' (16.9% of breaches), which perhaps clinicians found easiest to diagnose and treat.

3.6.2 Pattern of service use

41.1% of patients had not attended A&E previously and 20.3% of patients had attended more than four times. This varied significantly across sites but was not associated with breach. Just over 73% of people presenting at A&E did not see their GP prior to their visit. Nearly 41% made no attempt to contact their GP and 32.4% were either not registered with their GP or were out of area. 21.4% had considered their GP to be the most appropriate first point of contact but were unable to get an appointment soon enough and so attended A&E instead. Substantial between-site differences were found however there was no association between contact with primary care and breach rates. Thus, it would be hard to argue on the bases of these data that improved contact with GPs would reduce breach rates.

3.6.3 Characteristics of attendance

The mode of conveyance to A&E varied significantly between sites, but this was not associated with breach. 32.9% of patients attended with police involvement. The distribution was fairly even between the sites and this was not associated with breach.

4% of patients had no fixed abode, which was too small to carry out statistical tests. 11.2% of patients left without being seen and was not associated with breach.

The most frequent day to present with mental health problems was a Saturday (21.1% of presentations), with the least frequent day being a Thursday (7.2% of presentations). Patients were particularly likely to breach on a Wednesday (73.7%), and this asymmetry reached significance. The day of most frequent presentation also varied across sites. The most frequent time of arrival was between 9am & 5pm (40.9%) and the least frequent was between midnight and 9am (25.5%). This was consistent across sites and was not associated with breach.

In 57.3% of cases the medical teams took over 60 minutes to refer mental health patients to psychiatry. Of these, 68.9% breached and there was a positive association between waiting of more than 60 minutes for referral and breaching. This varied significantly between sites; Whipps Cross was the site most frequently taking longer than 60 minutes (90.9% of cases). In comparison, it only happened in 26.6% cases at the Royal Free. It is unclear if the speed of referral reflects resource differences or training or cultural differences which pertain to awareness of mental health problems.

Resource issues were clearly implied in the prompt response of the liaison teams. In 37.6% of cases, liaison took over 60 minutes to arrive to assess the patient after being referred by A&E. This was associated with an increased likelihood of breach; 76.4% of patients seen by liaison in less than 60 minutes didn't breach and 65.8% of patients who were seen by liaison after 60 minutes did breach. This varied significantly between sites, in Barnet this happened in 100% of cases and in comparison, at UCLH in only 26.1% of cases and accounts for some of the inter-site differences in breach rates.

3.6.4 Outcome of Attendance

The outcomes did vary significantly between sites. 43.6% of patients were discharged, 45% were admitted to either mental health or Medical/Surgical teams, 11.4% patients absconded. In Barnet only 4.3% were discharged, whereas UCLH and Whipps Cross discharged 65.2% and 68% respectively. Barnet also had a very high number of

patients absconding at 30.4%. In comparison, UCLH had no patients abscond and the second highest rate was at Royal Free with 13.9% absconding. This could have explained breach rate differences between sites but was not associated with breach. Outcome was associated with reason for presentation, with 76.2% of acute psychosis presentations admitted. The most common presentation to end up with discharge was suicidal thoughts with no action, representing 50.8% of cases. Patients who absconded had most frequently presented with suicidal thoughts without acting on these (58.8%). Thus, absconding in a number of cases may have been a reaction to an anticipated discharge with no action.

3.6.5 Causes of delays

The four key factors that were found to increase the likelihood of breaching were: intoxication, difficulty making a referral to specialist team, delays in accessing an inpatient bed and delays due to waiting for the outcome of medical or surgical assessments or tests.

3.7 Study Limitations

A major limitation of this study was the small sample size and relatively large number of sites, which meant there were often very small numbers in contrast groups, making analysis between sites impossible particularly for infrequent events. The small sample size also means there is a risk that the issues pertaining to breach in these individuals were not representative of problems in the department across a year.

Given the complexity and fluctuating nature of A&E context, it is likely that data collection within one week is not a fair representation of the issues faced by the departments over a year. We did not collect data on context, such as staff availability, capacity, the business of the department in relation to non-mental health patients, nor the availability of beds for either MH or non-MH patients. Each of these factors would have impacted on length of stay and breach rates, and without data relating to these it's not possible to determine if the week of data collection can be characterised as a 'typical' week in A&E. With the short period of collection together with lack of such reassurances, it is difficult to generalise these results to the A&E's in question, as well as to A&E's as a whole.

There was no reliability check for data collection, so we are not able to determine if the approach to filling out the data was consistent between individual data collectors. The reliance on chart review rather than direct observation should also be included as a weakness, because there may be incomplete documentation of some patient-related factors. We tried to mitigate this through the use of as many sources of data as possible during the data collection.

The inclusion of hospitals in only one region of the country may further limit the generalisability of these results, in particular as the rural site which was recruited to mitigate this was not able to complete the study. This is a failing of most A&E studies, which tend to be in urban centres of teaching hospitals. This study is not exceptional in that regard; however, it has not taken the opportunity to address the weakness in the literature as a whole by including more rural departments.

The study took place over seven days in each site. This short time period was within the busier times of A&E departments (October to January), meaning it is likely that the estimation of the rates of A&E attendances is an over-estimate. The short time period of data collection also means there is a risk that the week chosen was not representative and therefore it is difficult to draw firm conclusions on the rate of attendances based on this. In future studies the time period of collection would ideally be longer and spaced over a number of weeks across different time points in the year.

3.8 Discussion and Implications

3.8.1 Consideration of methods

This study found the proportion of mental health presentations was 1%, in contrast to the 4% identified in the meta-analysis that also forms part of my PhD. Therefore, this study yielded only 25% of the expected number of mental health patients. A more accurate process to identify of patients used in this study may explain this. Auditors were on site and identified mental health patients as they attended whereas studies included in the meta-analysis were mostly retrospective and relied on the hospital's classification of a presenting complaint. These existing studies were often limited to very broad categories of mental health problem and identification of need or diagnosis was often made at triage, meaning they could be too general or inaccurate due to greater clarity of need being identified during the attendance. The approach used in this study enabled these nuances to be identified, which would not have been possible in other studies. Furthermore, our study allowed for the identification of MH problems after triage, for example the patient who attended with physical injuries but for whom it became apparent that these were sustained as a result of a mental health problem, eg extreme agitation. Despite this increased accuracy in case-finding, we still found a smaller proportion of cases. This may be due to the short time period for collection, which was only seven days in each site. This is not likely to be a representative reflection and may account for the smaller proportion of cases found. It is also possible that we did not accurately case find in our study and missed cases could account for the discrepancy. This could be due to the use of psychiatric trainees to case find in this study, meaning that the criteria for classifying a patient as presenting with a 'mental health problem' could be stricter than A&E would use. Furthermore, it is possible that with a single data collector, cases were missed during busier times. Additionally, data collectors were in the department for only 12 of 24 hours, and so it is possible that this also led to missed cases. It is, however, unlikely that together these explanations account for 75% of expected attendees not being identified. The lessons here are primarily methodological. In future studies it would be important to ensure that patients were not missed, which could be done by reconciling at the end of each 24-hour period all patients identified as mental health by the hospital compared to those included in the audit.

3.8.2 Relative risk of breach for mental health patients

Our second aim was to collect detailed data on input, throughput and output factors, aiming to identify factors associated with breach in psychiatric patients. Despite the limitations described, we were able to collect data on the factors identified in the rapid review. With a sample size of 152 patients we were not always able to carry out subgroup analyses or between site comparisons. In future studies a larger sample size and reduced number of comparison sites would improve power, making it more likely that we would be able to identify associations.

We found the relative risk of breach in mental health patients was almost five times greater than for non-mental health patients. The lack of relationship between the proportion of mental health patients presenting and the relative risk of breach implies that breaching is more complicated than simply presenting with a mental health problem, rather there are complex explanations which vary between individuals, subgroups and departments. The effect of the different A&E departments was illustrated by the wide range of relative risk between sites, between 3.4% at UCLH and 10.3% at the Royal Free. There was a tendency for departments with the fewest mental health presentations to have higher rates of breach, indicating that the factors impacting most significantly on breach are more likely to be linked to hospital operations rather than the characteristics of the patients themselves. To find support for this we examined the relationship between the number of patients seen in a department and the likelihood of breach, predicting there would be a significant negative correlation. However, the correlation was not significant ($\text{Tau } (-1.39, p (0.26))$), although a marked trend was apparent, and the lack of significance is probably due to the small sample size. Had this been significant, it would suggest that A&Es with the least experience of managing mental health presentations are more likely to breach. Ideally this too would be examined in a similar study with a larger sample. We explore the factors that contribute to the explanation of these findings in the sections below.

3.8.3 The role of input factors

Partially consistent with my hypotheses, three input factors were found to be positively associated with breach: age, day of presentation and presenting complaint. Those who attended as a result of 'abnormal behaviour requiring assessment' were most

likely to breach. This group included patients who presented as intoxicated as their primary reason for attending. This is consistent with previous similar studies that have found alcohol intoxication to be positively associated with longer length of stays (Grace Chang, Anthony Weiss, et al., 2012; Verelst, Moonen, Desruelles, & Gillet, 2012). Intuitively this finding makes sense, as intoxicated patients are more likely to require medical evaluation and also current policies on management of intoxicated patients require blood alcohol levels to be below a given level prior to psychiatric assessment for many departments. Some departments utilise Acute Assessment Units (AAU) that can provide short term admission to allow blood levels to reduce and psychological assessment to be completed outside of the four hour target. Departments without this facility are likely to have a large number of their intoxicated patients breaching. Further data collection about the use of AAUs would help support interpretation of these results further. Additionally, it is also possible that intoxicated patients are more difficult to manage in the department, which may lead to delays. In order to explore this further it would be valuable to collect data on the effect of patient behaviour, which could be tested as a mediator in future studies. Intoxication was also found to be significant when looking at the major causes of delays to discharge. We did not collect data on the different investigations and interventions undertaken in A&E, but it is likely that these patients underwent more thorough investigation to rule out possible physical health causes, as suggested by the literature. In future studies it would be useful to collect data on the types of intervention that were undertaken so this could be properly analysed.

The finding of day being related to breach was difficult to explain given the day was more difficult to explain. The differences identified included a much lower breach rate on Tuesdays, Fridays, Saturdays and Sundays whereas patients were found to be more likely to breach on Wednesdays. Low breach rates on Saturday and Sundays may have been a reflection of higher capacity of staff available on the weekends in general, although we did not measure this and so can only hypothesise about explanations. This was in contrast with most literature, which identified the weekends as the time most associated with breach, which was explained by the higher proportion of people attending under the influence of alcohol, leading to higher numbers of self-harm and self-poisoning episodes. Given the lack of obvious explanations, it is possible findings are likely to be an anomaly which are a reflection of the short data

collection period, and ideally in future studies data on context such as bed availability, staff capacity and business of the department would help enable a more nuanced interpretation of findings.

We were interested to explore the relationship between primary care contact and breach rates. While a relationship was not found between primary care contact and breach rates, we did identify that 40.7% of patients did not contact their GP prior to attendance in A&E. The literature indicates that a lack of GP appointments impacts on A&E attendances, however there is weak evidence linking this to performance against the four hour wait (Rosen, 2014), consistent with our data. However, the finding that ~40% of patients made no attempt to contact their GP, and 32.4% were either out of area or not registered with a GP illustrates the important role that A&E is performing in relation to first port of call for mental health problems. This raises the question of why patients do not contact their primary care provider when MH problems or concerns are emerging. This could be a lack of self-identification, reluctance to seek help or a lack of insight into their difficulties, however it is also possible that this is indicating other problems with access to mental health support in primary care settings. As a result of this finding, I will explore these issues further in my qualitative findings. This is discussed further in Chapter four.

3.8.4 The role of throughput factors

We found a larger number of throughput factors associated with breach. Unsurprisingly, in instances where it took longer than 60 minutes for the patient to be seen by medics or psychiatry teams, patients were more likely to breach. There were significant differences between sites, with over 90% of patients at one site waiting over 60 minutes for initial assessment, compared to only 27.2% of cases in the best performing A&E. These differences were also marked when looking at the variation in time it took for liaison to assess the patient after referral. In one site all patients waited over 60 minutes to be seen by psychiatry, and this site represented the highest number of breaches overall. We explored this further by examining descriptive notes on the audit forms, as well as collecting information about the way the liaison services were set up in each site. Those services with liaison services on site or in A&E departments were the sites with least wait time. This would have meant that there were staff on site

that were available to assess patients as soon as they were referred to psychiatry teams, leading to shorter times between referral and assessment. Although other factors are at play, these data suggest that once the delay between being referred to psychiatry and the arrival of the team to undertake assessment reached 60 minutes or longer, then this was more likely to lead to breach in these patients. In exploring this further, we found that the qualitative notes made by data collectors indicated that there was variation in the approach to assessment taken by sites. For example, some sites had psychiatric teams that were based in the A&E, whereas others had models where the psychiatry team covered multiple sites. In discussions about the relative merits of these approaches with clinical leads, the view was expressed that for teams who were not based on site, they had to cover patients in the community as well as undertake A&E assessments. Clinicians were required to manage competing demands and prioritise the order in which they assessed patients, and that those in A&E were more likely to be considered to be 'safe' and therefore patients in the community were prioritised over A&E assessments. These findings are consistent with the literature, which identifies that efficient referral processes between medical and psychiatry teams is key to reducing the length of stay in departments (Chew-Graham, Slade, Montâna, Stewart, & Gask, 2008; Stover & Harpin, 2015; P. Yoon et al., 2003). It would be useful to explore if this is replicated in future studies and so further exploration of these themes is included in the larger study of factors associated with breach reported in chapter five.

3.8.5 The role of output factors

Finally, we looked at the output factors with the main variable being the destination on discharge, which was not associated with breach, although it did vary remarkably across the sites. It was surprising that discharge destination was not associated with breach, particularly as this was identified as a key factor associated with breach in the literature. It is possible that the performance of the A&Es in this study was most heavily determined by process factors to the extent that the discharge destination had not additional impact. As we did not carry out regression analysis for this study it is not possible to explore the relative importance of the factors, and this is something that I will include in the larger study. Although not explored empirically, intuitively it would be expected that destination might have impacted on breach, with more severe

patients who required admission being more complicated and possibly requiring mental health act assessment prior to admission and arranging a bed. This is supported by other studies which did find a relationship between discharge destination and longer length of stay in A&E (Kreindler et al., 2016). One explanation might be the very high rates of breach and the possibility that other factors, such as the time waiting to be seen, has such a great impact on breach that any additional waits for beds had little impact.

There was a strong relationship between site and destination at discharge. In Barnet a comparatively low number of patients who were discharged (4.3%), whereas UCLH and the Whittington discharged 65.2% and 68% respectively. Correspondingly there was also a lot of variation in admission rates, with the Whittington admitting 31.3% of patients whereas Whipps Cross only admitted 10.4%. It would be valuable to explore this further, perhaps through interviews with clinicians, as it is possible that these differences may be a result of different local policies, or alternatively it may reflect the availability of local beds. Either way, it is difficult identify obvious explanations based on case mix and resultant differences in need, as there is little to suggest in the demographic data that this varied between sites to the extent that it would lead to a three times higher chance of being admitted. As a result, these data may highlight differences in local policies that are leading to significant differences in the care provided, which is worthy of further exploration in itself.

A final point to note was that during this study we found that collecting data on the reasons for delays were more difficult than anticipated due to the difficulty of identifying categories in advance that could be checked; in reality reasons for delay were broad and multifactorial. However, the inclusion of detailed notes by the auditors has enabled us to identify broad categories for inclusion in future studies and in chapter five we report on a larger repetition of this study in which we use the factors identified here to prospectively collect data on a variety of contextual factors relating to A&E, such as difficulty with communication and difficulty identifying beds to discharge to.

3.9 Conclusions

This preliminary study demonstrates that it is feasible to collect real-time epidemiological data about the attendances of mental health patients in A&E and the performance of the departments who managing them. Furthermore, we were able to split the factors that impact on breach into input, throughput and output factors, and that each of these categories has a different relationship with breach. We found that input factors behaved as expected, with age and presenting complaint having the most impact on breach. However, process and output factors behaved differently, probably due to the specific nature of mental health patients. Given this, we can conclude that improvement efforts based on generalised literature on A&E length of stay are not likely to be as effective when managing mental health patients, and solutions need to be tailored to this group specifically. According to this data, the presenting complaint appears to be the most import factor predicting breach, which is consistent with the literature. This is likely to be due to differences in the management approach for each presenting complaint, and it has been possible to identify characteristics between hospitals that make the approaches to these different presentations more or less efficient, for example the approach to processing intoxicated patients. The processes undertaken by the hospitals appear to have a significant impact on their performance, with clear differences between sites explained by their approaches. For example, having a dedicated liaison team available on site meant that UCLH performed significantly better in a range of indicators, which was in direct comparison to Whipps Cross which had the highest breach rates and performed poorly in most indicators. Despite finding some factors were associated with breach, many did not reach significance, although did demonstrate a clear trend that is likely to have fallen short of significance due to a small sample size. The marked differences between sites' performance and the processes and pathways that they utilise imply that it would be possible to modify these in order to reduce breach rates. For the factors that did reach significance, a lack of contextual data either about the hospitals' approach to delivery, or the patients' views and experiences of care made interpretation difficult.

A range of recommendations on method, data collection and analysis have been identified for the larger scale study that will be undertaken as the main quantitative study for the PhD, which are summarised in Appendix 3.3.

4 Patient Experience of Care in the Emergency Department

4.1 Summary

In this chapter I report on the qualitative arm of my extended mixed methods cohort study of mental health patients attending A&E. Patients attending A&E were consented to participate in interviews about their experience and preferences for emergency care. Exploration of the reasons for attending A&E as opposed to other services were as follows: (1) difficulty in accessing timely help elsewhere, (2) advice/signposting from other services to A&E, (3) family/ friends/ work were concerned and brought them, (4) drug seeking, (5) medical help with self-harm, (6) physical health problem (a mental health problem was later identified and patient referred to psychiatry).

Five themes are found to impact on experience of care: (1) attitudes of staff, (2) communication, (3) practical considerations such as the environment and availability of food and drink, (4) the perceived helpfulness of the intervention (this included waiting times) and (5) how the respondents felt during and after the attendance.

Finally, I explored the characteristics of an 'ideal service'. I report that there appear to be two groups of patients, those for whom A&E is unavoidable and those who would prefer to be treated elsewhere. The group for whom A&E was unavoidable were those requiring medical intervention for their self-harm. For those who preferred their treatment to be elsewhere it was clear that early intervention was possible and the characteristics of an 'ideal service' are reported as: (1) drop-in with no appointment required, (2) accessible 24/7, (3) preferably separate to A&E and not necessarily on hospital site, (4) access to professionals with mental health training and positive attitude to mental health patients and (5) relaxing or calming environment that felt safe.

In my conclusions I highlight emerging alternatives to crisis care in the community, the potential effects of a good experience of care on outcomes and the importance of better integration of A&E services with the rest of the pathway.

4.2 Introduction

4.2.1 Relationship between experience of care and outcomes

Patient experience is identified by NHSEngland as one of the three key components of quality, along with safety and clinical effectiveness, and needs to be given equal emphasis (NHSEngland, 2016) (Department of Health, 2008). There is growing evidence that patient outcomes and experience are linked, with patients achieving better outcomes when experience of care is positive (Manary, Boulding, Staelin, & Glickman, 2013). A recent systematic review found consistent positive associations between patient experience, patient safety and clinical effectiveness for a wide range of disease areas, settings, outcome measures and study designs, demonstrating positive associations between patient experience and both self-rated and objectively measured health outcomes; adherence to recommended clinical practice and medication; preventive care (such as health-promoting behaviour, use of screening services and immunisation); and resource use (such as hospitalisation, length of stay and primary-care visits) (Doyle, Lennox, & Bell, 2013). Patient-reported experience measures strongly correlate with better outcomes but also largely capture patient evaluation of care-focused communication with nurses and physicians, rather than non-care aspects of patient experience, such as room features and meals (Boulding, Glickman, Manary, Schulman, & Staelin, 2011) (Glickman et al., 2010). Conversely poor experience has also been shown to correlate with poor outcomes, most notably data indicated poor performance in relation to patient experience at Maidstone and Tunbridge Wells and Mid Staffordshire NHS trusts prior to their problems becoming widely acknowledged (Francis, 2013).

4.2.2 Experience of care in A&E

Patient experience is included in the NHS outcomes framework, with experience of accident and emergency services identified as a specific area for improvement (Department of Health, 2016). This is measured using the friends and family test, and data this year indicates that 86% of service users would recommend A&E to a friend or family member. Although this appears high, it compares to poorly to other parts of the NHS. Inpatient care was rated at 96% and outpatients at 94% (Watkins, 2017). Despite this poor performance in comparison to other parts of the service, over time

A&E has done better. The data was last reported in 2014 and only 80.7% of patients have a positive experience of care in A&E, and this had not changed notably since 2007 (80.0%) (Health and Social Care Information Service, 2014).

Despite this seemingly good performance, a recent review of people's experience of care during mental health crisis by the CQC highlighted a range of concerns. Although not peer reviewed, it includes data from a large range of sources including a call for evidence that received 1,750 responses, review of available national data, survey of all NHS mental health trusts and 15 local area inspections. The quality of care was found to be variable and inconsistent with only 14% of respondents feeling they had received the right response to their crisis. It was reported that professionals are failing to provide a caring and empathic response, in particular to towards those presenting with self-harm. Patients reported not feeling listened to, and struggle to get useful advice and support. There was a distinct difference between the experience of being treated by A&E staff and mental health professionals working in the crisis pathway, and GPs, ambulance staff and the police. The latter were perceived to be more empathic in their response. The report also explored how easily patients could access care, finding that access to crisis support was variable at different times of the day. Problems were particularly highlighted with crisis teams, who appear to struggle to provide sufficient level of support such as frequent enough contacts and enough to enable patients to stabilise sufficiently after crisis (CQC, 2015a). While there are considerable methodological problems with this report such as selection bias and problems with the quality of routinely reported data, it highlights some important concerns to the quality of care provided which, are supported by the minimal literature specific to mental health patient's experience of A&E.

4.2.3 Factors affecting experience of care in A&E

Six literature reviews have been undertaken looking at the factors affecting experience of care for all patients attending A&E (Boudreux & O'Hea, 2004; Gordon, Sheppard, & Anaf, 2010; Nairn, Whotton, Marshal, Roberts, & Swann, 2004; Sonis, Aaronson, Lee, Philpotts, & White, 2017; Taylor & Benger, 2004; Welch, 2010), these range from 2004 (Nairn et al., 2004) (Boudreux & O'Hea, 2004) (Taylor & Benger, 2004) to 2017 (Sonis et al., 2017). All include quantitative and qualitative approaches and identify

key themes. Nairn et al (Nairn et al., 2004) identify six: waiting times, communication, cultural aspects of care, pain and the environment. Also, in 2004, Boudreax and O'Hea found that the strongest predictor of A&E patient satisfaction was the quality of patient–A&E provider interpersonal interaction. Taylor and Benger (Taylor & Benger, 2004) identified a collection of service factors with influence on patient experience including interpersonal skills, perceived staff attitudes, provision of information/explanation and waiting times. In a nonsystematic clinical review in 2010, Welch emphasized many of the same themes from the prior studies, with an emphasis on timeliness of care, empathy, technical competence, information dispensation, and pain management (Welch, 2010). Most recently, Sonis et al undertook a systematic review with the most commonly identified drivers including communication, wait times, and staff empathy (Sonis et al., 2017). The table 8 below summarises these findings and highlights that waiting times were most frequently identified as important, with 83% of the reviews highlighting this issue. The quality of communication, quality of interactions, provision of information, empathy and pain were the next most frequently identified factors.

Table 8 Summary of the themes identified by reviews of patient experience in A&E

Factor	Relevant Study
Waiting times	(Nairn et al., 2004) (Taylor & Benger, 2004) (Welch, 2010) (Sonis et al., 2017) (Gordon et al., 2010)
Quality of person – provider interaction	(Boudreax & O'Hea, 2004) (Taylor & Benger, 2004) (Gordon et al., 2010)
Pain	(Nairn et al., 2004) (Welch, 2010)
Communication	(Nairn et al., 2004) (Sonis et al., 2017)
Provision of information	(Taylor & Benger, 2004) (Welch, 2010)
Empathy	(Welch, 2010) (Sonis et al., 2017)
Environment	(Nairn et al., 2004) (Gordon et al., 2010)
Perceived staff attitudes	(Taylor & Benger, 2004)
Technical competence	(Welch, 2010)
Emotional impact of emergency	(Gordon et al., 2010)
Family present	(Gordon et al., 2010)
Cultural aspects of care	(Nairn et al., 2004)

Expanding on some of these themes it is clear that the relationship between experience of care and each of the factors is not straightforward. Nairn et al identify that long waits are directly related to patient satisfaction, although falls short of concluding that reducing waiting times will lead to increased patient satisfaction due to the contradictory methods and approaches to measuring satisfaction in papers they reviewed. Interpretation was further complicated by proxy measures of satisfaction being used, such as patients leaving without being seen (Nairn et al., 2004). Gordon et al report that waiting featured in most the articles they reviewed and was more complex than just the wait to be seen initially, rather it encompassed the times between the steps such as investigations or specialist opinions. Here again the relationship was not straightforward, as the experience of care related to the quality of communication and information given about the wait, as well as the length of time. Environment and staff attitudes also interacted with length of time to impact on experience (Gordon et al., 2010).

4.2.4 Mental health patient's experience of A&E

Looking more specifically at the experience of care of mental health patients, there is very little in the literature or policy. NICE guidelines on experience of care for mental health patients have very little about care in the emergency department, stating only that patient preference was that they should have access to services via A&E that have a separate psychiatric crisis service (National Collaborating Centre for Mental Health, 2012). The most recent relevant report from the Royal College of Psychiatrists explored service users experience of emergency services following self-harm and was published in 2007. It was based on a national survey of 509 adults who self-harmed and attended A&E. Waiting time was surveyed, with the most frequent time to treatment after first contact being 1-2 hours. However there did not appear to be exploration on the effect this had on experience of care. The attitude of staff was found to be the most significant factor impacting on experience of care, with positive attitudes leaving patients with better experience but also more able to cope after discharge. Information and communication were also important, with regular contact while waiting providing reassurance and conversely a lack of contact leading them to leave the department before being seen in some cases. The environment was found to be of

lesser importance, although privacy was important throughout the pathway, from talking to the receptionist to the doctors (L. Palmer, Blackwell, H., Strivens, P. , 2007).

4.2.5 Literature on mental health experience of care in A&E

The academic explorations of experience of care in A&E specific to the mental health population are limited and often not based on UK hospitals. There have been no systematic reviews specifically looking at the topic, with the most recent review is in 2015, looking at experience of care of mental health patients in general (Newman, O'Reilly, Lee, & Kennedy, 2015). This review included emergency care and identified two relevant papers, published in 2009 (Taylor & Benger, 2004) (O'Regan & Ryan, 2009). O'Regan & Ryan undertook a mixed methods study based in Ireland with 55 participants revealing positive feedback regarding the staff, but patients expressed dissatisfaction about the availability of beds, waiting times for assessment, communication, lack of crisis services in the community and inadequate provision of information regarding services (O'Regan & Ryan, 2009). Taylor et al's 2009 systematic review of 31 papers was also not specific to mental health, but showed that service providers may have poor knowledge of self-harm (Taylor & Benger, 2004).

One useful qualitative study was undertaken by Clarke et al involving a series of eight focus groups including patients and their families, however this was based in one A&E, in Canada and is now ten years old (Clarke, Dusome, & Hughes, 2007). Themes identified were waiting in A&E, attitudes of staff, diagnostic overshadowing, having 'nowhere else to go', family needs, and a wish list for ideal services. Regarding waiting times, participants thought mental health presentations were triaged 'at the bottom of the list'. The typical A&E environment was considered over-stimulating and frightening, and often added to feelings of agitation. The attitude of staff was important with participants indicating that one person could really make a difference in the whole A&E experience, whether that was very positive or traumatising. Participants stated that they wanted to be perceived as worthy people who were suffering and legitimately seeking assistance. Above all else, they wanted compassionate, respectful, non-judgemental, and attentive care. There was a perception of a lack of expertise in A&Es around the following concerns: post- traumatic stress disorder, borderline personality disorder, treatment for adolescents and young adults, and co- occurring disorders

involving substance abuse, and physical and developmental disabilities. Participants indicated this was true for mental health staff as well as non-mental health staff. Despite these concerns, patients continued to access A&Es because they perceived there was 'nowhere else to go'. The lack of community resources, especially on evenings and weekends, left A&E as the only option when feeling paranoid, frightened, or suicidal. However, participants universally stated they did not want a separate 'psychiatric A&E'. They were concerned about the stigma such a facility might engender and as well were worried about the dangers in separating mental health from physical health issues. They wanted to be seen as whole individuals with their complex medical and mental health issues assessed in their entirety.

4.2.6 Aims of the study

This study aimed to explore:

- (1) the patient's experience of A&E and the factors that impact this,
- (2) the reasons for attending A&E, and
- (3) why A&E was patient's preferred place for care.

4.2.7 Research Questions

My research questions were:

- (1) What factors have the most impact on a patient's experience of care?
- (2) What are the factors that inform the decision making process to attend A&E as opposed to other forms of care, such as the GP or community mental health team?
- (3) Is it possible to identify the characteristics of an 'ideal service' that patients feel could help when suffering a crisis?

Information gathered in this study together with a larger case note audit will be used to develop recommendations for improving the quality of A&E care for mental health patients, including their experience of care.

4.2.8 Summary

In summary, there is little literature on the experience of mental health patients in A&E and even less based in the NHS. Literature on A&E in general identifies waiting times as the most frequent factor cited as impacting on experience of care, followed by the quality of the interaction with staff. The quality of communication, provision of information, pain, empathy and environment are also seen as important in equal measure. Looking specifically at experience of care for mental health patients, the CQC and Royal College reports highlight important problems with access to crisis care, in particular regarding care at different times of the day, as well as accessing care in the community in a timely fashion. They also highlight a lack of empathic response received from mental health and non-mental health staff in A&E. This is supported by evidence in the literature (albeit now ten years old) highlighting that attitudes of staff, information and communication, waiting times and accessibility of care in the community are key factors that impact on the experience of care received. And yet this is critical, as conclusions drawn repeatedly in the literature are that the experience users have is important to outcomes, future engagement with services, likelihood of coping after discharge from A&E and the extent of crisis support needed in the community after A&E contact.

Given these identified gaps, the present study aimed to carry out a qualitative study drawing from a subsample of patients attending three A&Es in London, exploring their experience of their visit. Based on the rapid overview of the literature above, I hypothesised that waiting times would be a key factor impacting on experience. I expected to find similar themes as the Canadian study that the; attitudes of staff towards patients in crisis are important, and attitudes of the staff will differ depending on the degree of mental health experience they have. The studies also highlight that patients attend A&E as there is 'no place else to go' and this is partly due to a perception of difficulties in community access and a lack of provision of services that would be useful. I hypothesised that in this population there would be a similar perception of lack of community access. Building on this, the study explored what an 'ideal service' would look like from the patient's viewpoint and what factors were important in their decision to attend A&E instead of community services such as the GP or community mental health team.

4.3 Hypotheses

The following hypotheses form the basis of this study:

1. I expect that waiting times will be an important theme identified by patients.
2. Patients will be found to attend A&E because of difficulties in accessing routine care in the community, or example difficulties in accessing primary care.
3. I expect that patients will have a clear view of an ideal emergency mental health service, and this will not be an A&E based service.

4.4 Methods

4.4.1 Study Design and Setting

The present study formed part of a larger study exploring the factors impacting on mental health patients' length of stay in A&E, carried out in three A&Es in London. The study was adopted onto the NIHR portfolio through the North Thames Clinical Research Network. It was part of the Emergency Care workstream led by Prof. Tim Harris. Patients who attended one of these three A&Es for mental health reasons between 17th August and 27th September 2015 and who met the inclusion criteria were asked if they would be prepared to participate in the study. Semi-structured interviews were conducted between two and four weeks after their attendance with the 42 people who met the inclusion criteria.

4.4.2 Participants

During the period of recruitment, everyone meeting the inclusion criteria was invited to participate in this qualitative study. This was determined through discussion with A&E staff and review of the patient's notes. The inclusion criteria were: all patients over 18 years of age who presented to A&E with a mental health related problem, patients who presented with another cause but for whom it became clear their primary problem was mental health during their attendance (for example patients who presented with shortness of breath but had no physical health cause for the symptoms, who were then referred to for psychiatric assessment), who were seen during the timeframe of the audit, who spoke English, were NHS patients, with capacity for consent and resident in the UK. Patients were excluded if they were under 18, not attending for mental health reasons and mental health was not deemed to be the primary cause for presentation at any point in the attendance, attended outside the time of data collection for the audit, didn't speak English, could not give consent or did not have capacity. Dementia patients with a Mini Mental State Examination score below 12 were excluded, as were patients with moderate to severe learning difficulties. Patients who were intoxicated or under the influence of drugs, those patients unable to give consent, or who lost capacity during the interview, were also excluded. Patients who presented with psychosis were discussed with psychiatric liaison and A&E team to determine if they had capacity for participation and those who were deemed to have capacity were included. Of the 642 attendees included in the full study, 598 met the

inclusion criteria. 92 agreed they were interested in participating and agreed to be contacted. Of these, 26 agreed to be interviewed, 29 agreed to postal survey and 17 agreed to online survey. Of those who agreed to be interviewed by phone, 17 telephone interviews were conducted. 29 postal surveys were sent and 4 were returned. 37 online surveys were sent and 21 were completed. This gave a total of 42 participants. Table 9 shows the demographic characteristics of the study participants. They included 20 men and 22 women; their ages ranged from 19 to 54 years (mean = 32 years, S.D. = 11.6). The average time period that lapsed between attendance and interview was 4.85 weeks (S.D.= 2.00, range 2.2 to 9.3). Most participants responded via an online survey (n=21, 50%), followed by telephone (n=17, 40.5%) with 4 (9.5%) replying by post. 38.8% of respondents lived alone, 23.8% lived with family and 26.2% lived with others, most often rented shared accommodation or student halls, and 9.5% had no fixed abode. Most people were unemployed and receiving either unemployment or long-term sick benefits (42.9%), 38.1% were employed or self-employed and 14.3% were students. One person was a volunteer serving on a board and one person did not provide an answer. 85.7% of attendees reported to have a mental health condition with a formal diagnosis. The mean number of previous A&E attendances in a lifetime was 7.6 (S.D. = 9.8, range 1 to 50), with 2.7 (S.D. = 4.1, range 0 to 25) of these on average being for mental health reasons. The mean number of attendances to A&E in the past 12 months was 2.9 (S.D. = 3.4, range 1 to 20).

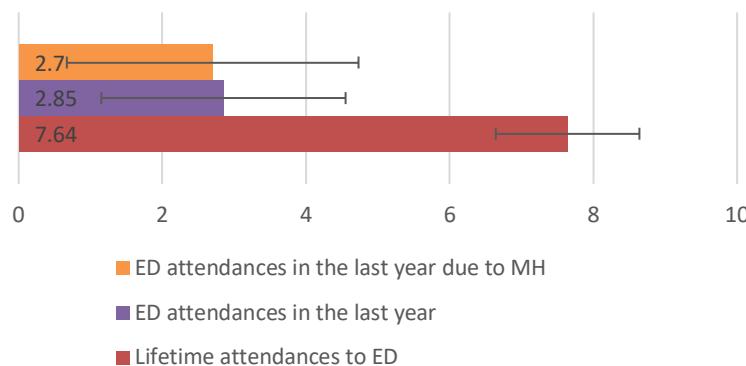
Table 9 Demographics and characteristics of A&E use

Descriptor	Barts	UCLH	Whittington	Total
Number of participants (n, %)	24 (57.14%)	10 (23.81%)	8 (19.05%)	42 (100%)
Time after attendance (mean/weeks, SD)	5.18 (2.27)	4.83 (1.62)	3.90 (1.29)	4.85 (2.00)
Response mode (n, %)				
Online	10 (41.67%)	6 (60.00%)	5 (62.50%)	21 (50.00%)
Post	2 (8.33%)	2 (20.00%)	0 (0.00%)	4 (9.52%)
Telephone	12 (50.00%)	2 (20.00%)	3 (37.50%)	17 (40.48%)
Age (mean/years, SD)	32 (11.78)	36 (12.36)	28 (9.26)	32 (11.56%)
Proportion Male (n, %)	11 (45.8%)	5 (50.0%)	4 (50.0%)	20 (47.6%)
Home Situation (n, %)				
Alone	10 (41.67%)	2 (20.00%)	4 (50.00%)	16 (38.10%)
With Family	8 (33.33%)	1 (10.00%)	1 (12.50%)	10 (23.81%)
With Non-Family	3 (12.50%)	5 (50.00%)	3 (37.50%)	11 (26.19%)
No Fixed Abode	2 (8.33%)	2 (20.00%)	0 (0.00%)	4 (9.52%)
Not collected	1 (4.17%)	0 (0.00%)	0 (0.00%)	1 (2.38%)
Occupation (n, %)				
Student	2 (8.33%)	4 (40.00%)	0 (0.00%)	6 (14.29%)
Employed/Self Employed	11 (45.83%)	1 (10.00%)	4 (50.00%)	16 (38.10%)
Unemployed/Sick	9 (37.50%)	5 (50.00%)	4 (50.00%)	18 (42.86%)
Volunteer	1 (4.17%)	0 (0.00%)	0 (0.00%)	1 (2.38%)
No Data	1 (4.17%)	0 (0.00%)	0 (0.00%)	1 (2.38%)
Existing Mental Health Condition (n, %)	19 (79.16%)	9 (90.00%)	8 (100.00%)	36 (85.71%)
Number of previous A&E attendances (mean, SD)	8.37 (8.16)	8 (14.92)	5.14 (4.06)	7.64 (9.79)
Number for mental health reasons (mean, SD)	3.22 (5.20)	1.90 (1.10)	2.14 (1.95)	2.70 (4.06)
Number of previous A&E attendances in last 12 months (mean, SD)	2.67 (2.35)	3.40 (5.89)	2.71 (1.60)	2.85 (3.39)

4.4.3 Patterns of service use

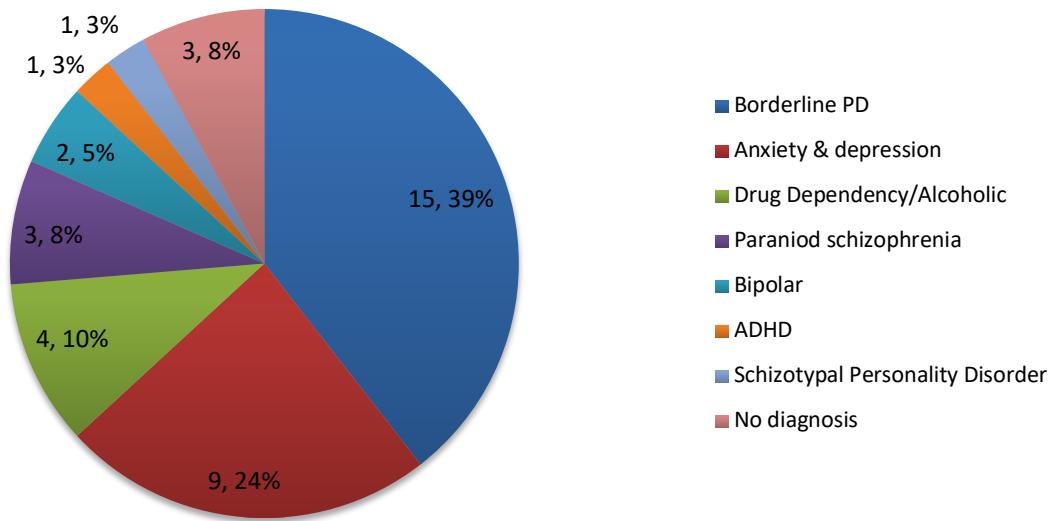
The pattern of A&E attendance is shown in Figure 4.1 below. Most attendances in the past year were reported to be for mental health reasons.

Figure 7 Average number of A&E attendances



Diagnosis was collected in 86% of the sample, with three people stating they had received no formal diagnosis. Borderline personality disorder is the most common underlying condition (43%) followed by anxiety & depression (26%) and drug and/or alcohol dependency (11%). Three people suffered from paranoid schizophrenia, two had bipolar disorder and there was one person with schizotypal personality disorder and one with ADHD. The breakdown is show in figure 4.2 below.

Figure 8 Distribution of diagnoses of participants



88% have received treatment at some point, including two participants without a formal diagnosis. 69% of these people are still receiving treatment. Of those, 14 were currently receiving talking therapy and three were on a waiting list. 27 (71%) are currently receiving medication.

4.4.4 Ethics Approval

NHS ethics was obtained for each participating site and ethics was obtained from the Health Research Authority under 15/LO/0308 “Understanding how to improve the quality of Emergency Department care, as measured by process measures (length of time in A&E), patient experience and safety (patients absconding from A&E)”.

4.4.5 Procedure

Patients meeting the inclusion criteria were approached by members of the Clinical Research Network team based at participating sites, at a time that did not interfere with assessment or treatment. The study was explained to them and details were provided using an information leaflet co-created with patients (Appendix 4.1). They were offered the option of participating either by telephone interview or self-report questionnaire (collected either online or by traditional post). If a patient expressed

interest, written consent for their contact details to be passed on to the study's research assistant was obtained. Patients were then contacted by the research assistant using their preferred method. For those who chose online or postal survey, the details of the survey were emailed or sent to them two weeks after their A&E attendance, respectively. For those who chose to participate by telephone interview, they were contacted by the research assistant, the study was explained again, and a time and date was arranged to conduct the interview between two and four weeks after their attendance. It was felt that this period provided a good balance between the episode being fresh in the patient's mind but also to enable their crisis to have settled sufficiently to not be detrimental to their ongoing care or for the interview to cause unnecessary distress.

4.4.6 Interviews

A semi-structured interview was created to gather demographic information and self-reported data, both quantitative and qualitative, about their experience of care in A&E, their reasons to attend A&E, ratings of various aspects of care in A&E and preferences for care in a crisis. This is referred to as the MHED-Patient Experience Questionnaire (Appendix 4.2). The same questions were used for all participants (telephone, postal survey or online survey). Telephone interviews were undertaken by trained research assistants with experience in qualitative research or with psychiatric training. The length of the interviews were between 30 and 45 minutes.

The questionnaire comprised 38 items summarised below:

- Reasons for attendance and the decision making process to attend A&E rather than other services.
- Experience of care during their attendance, including;
 - opinions on staff's knowledge of and attitudes towards mental health,
 - perceptions about the environment of A&E department and its appropriateness for mental health patients, and
 - their sense of their own participation in the process of decision-making regarding their care.
- Other services used by participants to support them with mental health crisis (NHS, private and charities) including;

- awareness of the existence of these other services,
- use of these other services
- experiences and opinions regarding these other services.
- Characteristics of an ideal service during crisis.
- Patient Experience Questionnaire asked patients for ratings of different aspects of their A&E visit in a scale from 0 (poor) to 10 (excellent). These subjective ratings were accompanied of clarifications by the participant about the reasons for their score.

In line with Smith's 1995 guidelines for semi-structured interviews, the protocols acted as an aide memoire to ensure that the broad topics of interest were covered, whilst using open ended questions, prompts and follow-up questions flexibly to allow participants to express what was most important to them (J. A. Smith, 1995).

4.4.7 Method of Analysis

Telephone interviews were audio recorded and transcribed verbatim. Data was anonymised and entered into an excel spreadsheet. The data protection procedures were reviewed and approved by the UCL Data Protection Manager and is covered by the UCL Data Protection Registration, reference number Z6364106/2014/12/70.

Interviews were analysed thematically using framework analysis (Ritchie & Spencer, 1994). This method was chosen to facilitate systematic analysis of a large amount of data; it allows within- and between-case comparison, easy retrieval of original textual material, and the analytic process and interpretations are accessible to others. The approach involves a process of sifting and charting material according to key issues and themes and consists of a number of distinct though interconnected stages: familiarisation with the data, identifying a thematic framework, indexing the transcripts (applying the coding framework), charting and interpretation.

The first steps involved reviewing all 42 transcripts and selecting 20 from which to develop the thematic framework. These were chosen on the basis of providing the richest descriptions of experience. Using NVIVO, the 20 transcripts were read, and key ideas were noted and summarised to produce a preliminary list of themes for each

participant. These recurrent themes were then integrated across transcripts, and clustered together into domains to provide an organising, conceptual structure (see Appendix 4.3 for the initial identification of cross-case themes). Prominent themes were documented, as well as negative case examples and a framework was constructed from a priori and emergent issues which could be applied to the whole sample. Transcripts were analysed and the final coding framework was designed to integrate and incorporate views from all of these 20 participants (see Appendix 4.3).

The coding framework was then systematically applied to all 42 transcripts using NVIVO. The 20 original transcripts used to develop the framework were re-coded. As new nuances of themes emerged, which had not been previously identified, the definitions of themes were expanded and adapted; however, no completely new categories were created. The author coded all of the transcripts. NVIVO was used to chart the data (lifting the data from their original context and rearranging them according to the appropriate thematic category). It enabled the organisation of a large amount of data according to theme, so that the range of attitudes and experiences for each issue could be examined systematically.

The interpretation stage involved comparing and contrasting participants' views across cases and searching for patterns and explanations for these within the data. At this stage, a final version of the themes to be included in the narrative write-up was established, and checked against original transcripts and participant summaries to ensure that the key messages had been captured. Some original themes were merged to avoid conceptual overlap; the current paper focuses on the most prevalent themes and those of most interest for clinical practice, even if only mentioned by a few participants.

4.4.8 Credibility Checks

In line with guidelines for qualitative research credibility checks were incorporated at all stages of the analysis to ensure that the results accurately reflected the key messages in the raw data. In developing the coding framework, a sample of transcripts were reviewed by one of the author's supervisors and the preliminary thematic framework was discussed and adapted to allow for coding with greater specificity and

at a more abstract level. Consensus was reached through detailed discussion and the framework was refined through several versions to best reflect the content of the interviews, as judged from multiple perspectives. Throughout the indexing stage, discussion regarding the framework was ongoing and the two supervisors audited a sample of coded transcripts. A consensus approach was used to arrive at the final list of themes reported.

4.5 Results

4.5.1 Emerging Themes

The aim of this study was to answer the three research questions identified in the introduction to this study:

1. What factors have the most impact on a patient's experience of care?
2. What are the factors that inform the decision making process to attend A&E as opposed to other forms of care, such as the GP or community mental health team?
3. Is it possible to identify the characteristics of an 'ideal service' that patients feel could help them when they are suffering a crisis?

The most relevant themes from those identified in the framework for analysis (Appendix 4.3) have been selected for discussion in this thesis.

4.5.2 Factors that impact on a patient's experience of care

Initial analysis of the transcripts highlighted that a large proportion of the discourse was related to respondent's experiences of being helped in A&E. This experience was generally negative or positive and five categories were identified, (1) the attitudes of staff, (2) the quality and nature of the interactions with professionals helping them, (3) practical considerations such as the environment, (4) the quality of the care and its perceived helpfulness to the respondent and (5) how the respondent felt during and after the attendance. The table below shows a summary of the positive and negative themes that emerged within each of these categories and form the basis of discussion about factors impacting on experience of care within A&E.

Table 10 Summary of positive and negative themes relating to experience of care in A&E

	Positive themes	Negative themes
Attitudes of staff	Non-judgemental/ accepting	Minimises their experiences/problems Labelled Respondents feel like they shouldn't be there/ have to prove themselves/ are not believed Not as bad as physical health problems
Communication: Quality & nature of interactions	Listened to Understanding/ empathic Caring/ nice/ sympathetic / sweet Reassuring Patient	Not listened to/ dismissed/ fobbed off Not understood Uncaring/ indifferent People directly rude to respondents Sarcasm
Practical considerations	Comfortable and safe environment Food & drink is available or offered Privacy	Uncomfortable waiting rooms No food & drink offered or available Lack of privacy
Quality of care and the perceived helpfulness of care or intervention that was received (including waiting times)	Not rushed No wait/ efficient care Respondent felt involved in care Practical help e.g. rang work for the respondent	Rushed Long waiting Not consulted or involved in care Respondents feel their preferences are not respected Hard to access help or the follow up care arranged doesn't happen Told to go to a service for help, but when they call/go they are denied help/not called back Don't get seen by the professional they want to be seen by

		<p>No clear plan is created, or tell the respondent that can't be helped</p> <p>Conflicting advice or information</p> <p>No clear pathways for care/ staff don't know the pathways of care</p> <p>Poor information about what's happening</p> <p>No pain relief/ symptom control</p> <p>Discharged at impractical times when people can't get home</p>
How respondent felt during and after the attendance	<p>Feels better</p> <p>Safe/ secure</p> <p>Comfortable</p> <p>Reassured</p> <p>Welcomed</p> <p>Accepted</p>	<p>Doesn't feel better/ feels worse</p> <p>Ignored</p> <p>Lied to</p> <p>Upset/ angry/ wound up</p> <p>Confused</p> <p>Dismissed</p> <p>Dissatisfied</p> <p>Like they can't be helped</p>

4.5.2.1 Attitudes of A&E staff

Not feeling judged by staff was important to patients, and when they felt accepted respondents often felt they were more likely to be helped and feel more comfortable in A&E. Positive comments about staff attitudes included words such as 'caring', 'friendly', 'nice', and 'reassuring'.

... he gave me time and patience, he listened to me, you know. I remember that he didn't just... I didn't feel judged, for example.

I found him completely professional. Like, I didn't think he had an opinion on me... you know, which would've made me feel uncomfortable but... so I didn't feel... I found him to be completely non-judgemental....

Perceptions of positive staff attitudes were also related to patients feeling comfortable, reassured and safe in A&E.

Well, there was, yes, well, the people that was around, they was, they was all right. So, that made me feel quite comfortable, ... yes. That they were, they were nice.

I would say the calming, kind of, reassuring nature of the staff. You know, I felt, you know, that... I felt safe, if you know what I mean.

The positive attitudes also appeared to affect the outcome of consultations, with potentially difficult situations being diffused.

it's almost like I was, sort of, pushing for what I wanted and he was, sort of, trying to, sort of, stay... you know, stay in control. He stayed in, naturally he was in control, he stayed in control even though I was quite, you know... I was a little demanding, I remember. A little, sort of, oh, why can't I have this drug? Or why I can't have that drug? So he remained very patient with me. He didn't argue with me. He just... he was very clear, though, so, you know, I felt... after a while I knew, do you know what? This is... I'm not going to get what I'm looking for here so...

When respondents expressed negative views about staff attitudes, they felt their problems were minimised by staff, felt labelled, that they shouldn't be at A&E or that their problems were not as bad as physical health problems. Although staff did not always explicitly articulate these attitudes, the respondents perceived them due to the way they were spoken to or the way they were treated.

Well, I mean the thing is he was kind of going, do you really need to be here, sort of thing, you know, and I felt like I really had to try and persuade him that I did.....Well, it's not easy. You don't feel like you're believed and it's not much fun to, you know, to have to try and persuade somebody when you, you know, you kind of want to be brought out of it.

I went in there once, they stitched my arm up and said, you know where the door is....One of the doctors, he said to me, what do you really feel like doing, and I said head butting the wall, and he says, go on then, so I did.

Some felt that they were not taken seriously or listened to because they were attending with mental health problems. One patient felt this so strongly that they believed they needed an advocate to enable them to liaise with A&E effectively.

It's like, I had to fight them to make them believe how I feel, you know, and it's hard not having... it's like you know how you go into the police station and they let you have a solicitor. I feel like, when you go into A&E and see the mental health people you need an advocate, because it's so hard trying to explain to them, because they have this stigma, like you don't know how you are feeling because you are mental...

The attitudes of staff and the way that people felt they were treated seemed to have an impact on the likelihood of them using services. One patient described taking their overdose because they didn't feel like they could come to A&E for help when they felt suicidal.

They say to go to AE if you feel suicidal. However, every time I have done this the response has been really indifferent and like what do you want us to do about that and like I was wasting everyone's time. If I had had good experiences of AE in the past I likely would have used it on this occasion instead of overdosing. I understand that services are stretched and the emergency ward is a hard enough job without also being kind and reassuring but for someone in a crisis that's some of the best medicine. Similarly if on the previous occasions I'd presented myself to AE - if I'd been taken seriously and received some actual substantive help maybe I wouldn't have ended up here. One time I got no help the other time they were shirty and said my problems were too big to deal with in a single evening and said the crisis team would call the next day - which they never did.

4.5.2.2 Quality and nature of communication and interactions

Overall more than twice as much discourse was attributed to experiences of poor communication and interactions compared to positive experiences. Positive experiences of care were reported when patients reported they felt 'listened to' or 'understood', and that the staff were 'understanding' or 'empathic'. This in turn tended to lead to people feeling 'reassured', 'comfortable' and not 'judged'.

I feel very comfortable. I feel like so reassured, and they understood me, you know. They really understood me.

I felt very comfortable, and he really understood me. He reassured me, because I was, like, saying, you know, I feel like I'm a [unclear 00:11:31] could come in here, and, you know, I know no one can help me.

... he gave me time and patience, he listened to me, you know. I remember that he didn't just... I didn't feel judged, for example, so I would say that would be quite a high... seven to eight, you know, because, yes, he did...

Positive interaction appeared to have a therapeutic effect in itself, with patients attributing the discussions with the mental health team to feeling better. It also appeared to help with the decision making as when patients felt listened to and understood there tended to be a more collaborative approach to developing a management plan and the patient appeared to be happier with it.

Like when I... when I spoke to the... the doctor and the nurses then, it made me... it made me feel better.

She was good and then we, sort of, like, both decided, oh, just go home. Because the alternative being, I would have had to go all the way to the [hospital name]....Her attitude towards it, oh, that's a hard one. What would I say to that one? She was good. She was quite good, quite understanding and, yes, I felt comfortable with her.

On the other hand, poor interactions and a lack of information was often associated with a poor experience of care in A&E and appeared to be of three types; firstly the way patients felt spoken to including tones and phrases that were perceived negatively, secondly when patients did not feel listened to, understood or felt dismissed, and finally a result of ineffective translation of information between parties. Negative experiences of tone and phrases tended to leave patients feeling insulted, upset and often judged. This often left them feeling stigmatised, which in turn led to poor engagement or not believing that services were able to help them.

And he compared my illness to tummy ache, to someone else's acute appendicitis. Now, I think the gist of it was meant to be that they can solve acute problems and they couldn't otherwise solve mysterious ones, but obviously the scale between a tummy ache and acute appendicitis is obviously quite grand. It was really insulting.

Yes, I mean, the first time I was in A&E there was a psychiatric nurse that told me to stop crying and be a man, which is... words that I found upsetting hearing.

When patients did not feel listened to it tended to lead to mistrust but also appeared to have a negative impact on the individual's mental state, and in extreme cases patients expressed feeling that they were being lied to or that they were not believed. In other situations, it appeared people found it hard to engage with the help being offered.

.....they just fob you off and lie to you and tell you that, you know, they're listening to you, but really, they're not, they're just ticking you off a list....

It's like, I had to fight them to make them believe how I feel, you know....

You know, so they were kind of, he was going back on these reports and these emails that he got, and I was like, you are not taking me for who I am and what I am telling you right now, you are reading through this report..... *Even now it's winding me up and making me angry, remembering..*

Well, I mean the thing is he was kind of going, do you really need to be here, sort of thing, you know, and I felt like I really had to try and persuade him that I did.....Well, it's not easy. You don't feel like you're believed and it's not much fun to, you know, to have to try and persuade somebody when you, you know, you kind of want to be brought out of it. You don't want to be kind of going, look, this is really bad, can you, you know... Just because I'm not, I've calmed down a little bit as soon as I was totally unable to stop crying but it doesn't mean that it's okay, you know?....Well, I don't know if... all I'm saying is that I didn't feel believed. I felt like I had to really prove myself and that didn't really help the state I was in at the time.

For some the feeling of not being believed was so strong that they felt they needed an advocate to speak for them. For some this was attributed to attending A&E for mental health reasons and identified this as stigmatising.

I feel like, when you go into A&E and see the mental health people you need an advocate, because it's so hard trying to explain to them, because they have this stigma, like you don't know how you are feeling because you are mental...

For some patients the experience of stigma included feeling labelled and this appeared to be associated with them not believing professionals will offer them help that they find useful.

I was feeling really low, and the sarcasm you receive on the other side of the phone, it's just like... you just don't want to be part, you just give me a label, you want me to come round, they're just going to give me a label and maybe more medication and that's it, you know.

Understanding what was happening and the various steps of care in A&E was important to people. When this failed it tended to leave people feeling frustrated and confused. This also had a negative impact on their state of mind, affected their confidence in the services and made it hard to engage with help.

After I had spoke with the out of hours I felt the level of concern had not been registered at AE it took a while for them to knowledge that I was already seen and was not clear where they were meant to send me. This had impacted on my state of mind. I felt more stress confused which left me in an awkward position. I left like leaving.

For some this related to practical aspects of care and not just the care pathway relating to their mental health, such as use of the facilities.

Yes, I suppose so, but I was in a wheelchair for the first time in my life and I was worried about things like toilets and nobody was really explaining to me. I was distressed by that, by them not explaining that... I mean, for example, if somebody had said let us

know if you need the toilet, or something like that, I think that would have put me somewhat at ease, but for the first time in my life I was unable to get to the toilet on my own and therefore there was a bit of panic going on there, even though I didn't need to go.

The lack of information had a marked impact on some people and appeared to translate to a perceived lack of care, with one person even feeling they may die due to this lack of concern for their health.

Well, in the six hours that I was waiting for the Psychology team to get there I wasn't informed of what was happening and I was just left in that room with my partner and not really given any information, just having checks every now and then and no one really able to tell me. When I did ask they just said that they'd contacted the Psychology team and they would be here soon, but obviously that didn't seem to be happening....

Stuff just happened. I would have liked to be told what was going on at each stage - what I was waiting for how long that would take and what each treatment was for also what my odds of survival were - it was around two days before anyone told me I was going to be alright but I'm sure they must have known before then. I spent a long time thinking I was going to die because I had been forgotten in AE.

4.5.2.3 Practical Considerations

Practical considerations included things like the environment in A&E, and the provision of food and drink. This appeared to be important to patients and this was again seen as either negative or positive and, in both cases, appeared to contribute to experience of care and also to their perception of feeling cared for or accessing useful help. Aspects that seemed important to people were privacy, a quiet environment, access to food and drink while waiting and feeling like they were in a safe environment.

Being that it was my first and hopefully last attendance I must say that I was very happy with my care I was listened to and understood by everyone speaking to me I was seen very quickly and efficiently and was put straight into my own cubical so that I felt secure and private.

I felt very comfortable, I mean, I was given my... I was staying in a room on my own which had like newspapers in and it had, like a, a mat on the floor. I was... I had an ensuite on it as well and everything that I needed was there, and I was offered a cup of tea or anything to drink, [unclear 00:09:36] feels very welcomed.

After being seen initially I went into a room that had a bed to lay down on, sort of, like, a room just near the Casualty Department, one of those off rooms. Not one with a curtain, one with a door.

Negative views of the environment appeared to be related to lack of privacy, too much noise, no access to food or drink, uncomfortable chairs or no bed. Privacy effected the perception of the environment in a number of ways, with some preferring to be in a private room, and so found it hard when they had to wait for many hours in a busy waiting room. Whereas other found it hard if they were left alone for many hours and not checked on or given updates.

No, I'm not comfortable. You know, when I first went in there are... apart from, like I said, A&E, no, I'm not comfortable. I hate it. I'm not comfortable when....There's no privacy or nothing, no....I feel it's how I'm feeling...[....].....I don't want to be with other people. I'd rather be on my own.

Every time I have visited AE in mental distress I have had to wait between 6 - 12 hours to see the home treatment team usually at night in a room with no bed. I am rarely checked on and never offered food or drink. Each time I have been there I have had cuts from self-harm that were not seen by a doctor and have never been offered any kind of pain relief or anxiety relief

The busy environment was also linked to the general noise in A&E, which some also found difficult.

I don't like the noise around me. I don't want to see other people. Yes, it's, kind of... in a way it, kind of, gets irritating, you know, because you're not yourself, and you don't need all that... people around you, and you don't need all this noise. Noise... there wasn't... you know, it's like clink, clang, but, actually, I don't like it.

I remember being in a cubicle with people walking past and loud beeping noises it was too overstimulating and I was not comfortable.

Having comfortable chairs or a bed to wait on was important, especially when the wait was for a number of hours.

Long waiting period in small room with no bed - I was there for 11 hours

Every time I have visited AE in mental distress I have had to wait between 6 - 12 hours to see the home treatment team usually at night in a room with no bed.

No, I was put in a, almost a prison, if you like, room that had no, basically no furniture in and a very thick door with a tiny little window inside, and that's basically where I was for six hours....No, I could sit down, but that was basically it.

Other would have appreciated access to food and drink during their wait.

I mean, it would've been nice if there were... it's probably a bit unreasonable but maybe tea or coffee facilities or, you know, a fountain; I was quite dehydrated, you know, and I could've asked for tea... I think I did ask for tea and coffee but it would've been nice maybe if that was offered at some point, you know.

Some felt that they were left in worse conditions than other patients because they were attending for mental health reasons.

I think the staff did everything they could with what they have. Unfortunately the waiting on a corridor was the worst part. It felt as if 'oh you're a mental health patient ... We have nowhere for you... Just shove them in the corner and wait it out.'

For some, even though the environment was seen as comfortable, negative staff attitudes appeared to be more important, and appeared to have more impact on overall experience of care.

Yes, I think... Well, yes, it was, so it was obviously meant to be comfortable. I think anyone in severe distress is bound to be triggered by a number of things. I think the people in there, not the nurses but the patients and... I... Just the environment was still quite distressing....Yes, I mean, the first time I was in A&E there was a psychiatric nurse that told me to stop crying and be a man, which is... words that I found upsetting hearing.

For others, the environment was very important and even a short waiting time did not help improve their experience and had a negative effect on their mental states.

I was seen probably within about 25 minutes, because I had an anxiety attack in the waiting space, because I find it so hard to wait around other people, be around, I don't go out, so being in A&E was really difficult for me. You know, being around, sitting around with lots of people that were having problems, I was shaking a lot and having anxiety, so I had an anxiety attack and I was about to throw up, and that's when they called someone from the Psychiatric Liaison Team who came and got me.....

4.5.2.4 Participation

Decision-making appeared to be important, and was closely related to feeling listened to, understood and involved in the care process. These sentiments were associated with respondents feeling they could be helped.

I would believe that it [the decision making process] was quite fair, to be honest..... Yes. So they listened, yes. That I was listened to and, yes, the, what I would give them; they actually listened to what I was saying.

I was asked how I felt about any suggestions to my care If there was anything else I wanted and if I was happy with the decisions.

Very involved given decisions on my treatment

Yes. No, I was... I think I was fully involved because I asked if I could go to [hospital name] and then once I was off the drip on the Friday they... the ambulance took me straight there.

As a result, respondents also felt happier with the decisions that were made and appeared to be more compliant with treatment plans.

She was good and then we, sort of, like, both decided, oh, just go home. Because the alternative being, I would have had to go all the way to the [hospital name]....Her attitude towards it, oh, that's a hard one. What would I say to that one? She was good. She was quite good, quite understanding and, yes, I felt comfortable with her.

Totally involved....Yes. Questions I asked were answered, you know, the physical aspects of things. The other aspects, it must have been difficult for them as well because, you know, I wasn't appearing, probably, as somebody that needed help. So it wasn't like I was in there threatening people, you know, hysterical or anything like that. You know, I was able to, like, converse with them normally.....I think... oh, I don't know. If they had said to me, stay in the [hospital name] that night, I would have done.

Oh, then very involved. Very involved. He asked me about, you know, home treatment team, you know, should I get that, you know, and I said, well... and I actually say, what they can do, you know. They can't do anything. They said they're just going to make sure that... it's a long weekend, you're okay. It's only for weekend, and then I took it on... knowing me, you know, I took it on. He asked me about it, you know, how do I feel about that? So I would say, very involved.

Some did not feel able to participate and preferred A&E staff to make plans, while others felt they struggled to get the care they felt they needed despite being involved in the decision making process.

Was unwell and felt indecisive so left it in her very capable hands.

I felt that it was a struggle getting the treatment I needed....I felt very involved, but I felt that I was fighting them to get the treatment I needed.

One respondent felt their wishes were overtly disregarded which left them feeling distressed.

Yes, my mum was very distressing, I didn't want her there. I didn't like her, I didn't have no relationship up until that point, and now because everyone let her in, and now she will, sort of, force herself into my life. She's now forced me out of my nan's house, I'm now living in her house with her, and she doesn't even like me. So yeah, that was very distressing....Yes, because I was telling her fuck off, get the fuck away from me. I literally spent all the energy I had in that hospital telling her to fuck off, yet they were still letting her stand there and stand around my bed and fucking just be there, I didn't get that. I didn't get that, I even had to tell the nurse can someone get fucking security to get this woman out the fucking place please, sorry.

4.5.2.5 Quality of care and the perceived helpfulness of care or intervention

Waiting Times

Waiting times were an important aspect of this for many patients and were either perceived as being too long or the service was seen as efficient. Linked to this was the perception of feeling rushed, or that time was rationed. Short waits were associated with positive sentiment and also tended to be linked to experiences that were positive in a number of domains, such as positive staff attitudes and feeling listened to. This translated into positive experiences, with phrases like 'relaxing' and 'very happy with my care' used.

Well, I saw... I remember the receptionist, sort of, being, sort of, very attentive to me. I told her I needed to see someone from the psych liaison team and within a minute or two I was seen by the nurse and just within a few minutes the... after that... after the nurse escorted me to where I needed to go.

Being that it was my first and hopefully last attendance I must say that I was very happy with my care I was listened to and understood by everyone speaking to me I was seen very quickly and efficiently and was put straight into my own cubical so that I felt secure and private.

Yes, that was... like I said I didn't have to wait long when I first come in the hospital [unclear 00:11:44] for about five or ten minutes, and everything was done at a good pace, nothing was rushed, everything was done, you know, in good time, you know, I didn't get sent around, it was very relaxing.

Waits were most often described as being long, with phrases like 'forever', 'long time', with some left with a sense of time being 'rationed' or that it wasn't 'freely available'. In some cases the long waits caused distress and in one instance induced a panic attack in one patient.

I know I have to wait, but it's just like, it's a pre-called arrangement, it was a planned stuff, where I go into reception and I get called in, but it's just ridiculous when you are in desperate need and you are waiting for over an hour, two hours at times, to be seen, at that time, because I had an anxiety attack I was seen, like just over an hour, from the time I walked into A&E and being seen by the Psychiatric Liaison Team. But personally before, I have had to wait for three or four hours. There was a time when I waited from nine o'clock in the morning until five o'clock in the evening just to be seen.

Oh, distressed me, it was just the waiting that distressed me.

There appears to be an interaction between waiting times, communication and experience of care, as when the wait was long and there was no communication with patients about it, negative experiences were reported.

I just didn't really understand why it was taking so long to be seen.

Well, in the six hours that I was waiting for the Psychology team to get there I wasn't informed of what was happening and I was just left in that room with my partner and not really given any information, just having checks every now and then and no one really able to tell me. When I did ask they just said that they'd contacted the Psychology team and they would be here soon, but obviously that didn't seem to be happening....

Although most participants felt that the time they waited seemed too long, patients showed some empathy towards the difficulties of A&E, showing awareness that there

might be cases that are more urgent than themselves, and that attending at busier times of the day might imply more waiting.

I know I'm not the only person in there to be seen so, you know, that's where you have to be patient in a way but sometimes people with depression, you know, haven't got a lot of patience, if you know what I mean

In spite of the low ratings given by participants in regard to the waiting times at A&Es, some patients felt that the time they waited had some positive impact in their presenting condition.

Well, this last one wasn't too bad. And also, you know, waiting isn't such a bad thing because you do, sort of, calm down, de-stress so I would say about, you know, seven. Not too bad.

Preferred professional

Having access to the type of professionals they preferred seemed to be important to respondents and when this was not possible, they often expressed low satisfaction with services.

No, I would like to say zero because the point is I asked to see the psychiatrist, I felt that that was necessary to get the care I needed, and that request was kind of dismissed and so therefore I'm totally dissatisfied, so I think I'd say zero.

I'm still inclined to score it low and say one....Well, I specifically requested to speak to a psychiatrist and I was given a psychiatric nurse.

Clear follow plans that could be carried out were important to respondents. When advice was conflicting or confusing it made engaging with services difficult for some.

I don't think I've ever left A&E feeling better or like there was a definite plan, or any kind of care beyond the care I was receiving then.....

After I had spoken with the out of hours i felt the level of concern had not been registered at AE it took a while for them to knowledge that I was already seen and was not clear where they were meant to send me. This had impacted on my state of mind. I felt more stress confused which left me in an awkward position. I left like leaving

Difficulty in accessing care after discharge

A number of respondents reported difficulty in accessing the care they were referred to, difficulty accessing follow up care, confusing or conflicting advice or nothing happening at all.

No, I was given advice that they would be in contact with the Home Treatment Team and you know, the Psychiatric Liaison, the nurse that I saw, he will call me back and give me an update. He called me back that day and he gave me an update, then when I did call back, I was supposed to call my CMHT on Monday, when I did call them, they gave me different kind of information to what a guy from A&E gave me, and it just set me into such a confusion, and it's like a wild goose chase, you know. Then you think to yourself, why am I putting so much energy into this, is there any point, it's like the left hand and the right hand, you know, they just can't clap.

Of course, in that space of time I couldn't say everything and he told me he'd be getting in contact with their team, whatever, and then a week or so back I phoned up their team because I haven't heard nothing and they said they couldn't do no help for me.

Of course, in that space of time I couldn't say everything and he told me he'd be getting in contact with their team, whatever, and then a week or so back I phoned up their team because I haven't heard nothing and they said they couldn't do no help for me.

Out of all the times I've been there, there has been a sum total of nothing that's happened. There's been letters sent to a GP, or to a community mental health team, but beyond that there's been no action.

For some, the confusion associated with the lack of clarity and difficulty accessing help appears to be iatrogenic, causing negative mental states and a lack of trust in services.

So am I supposed to call him back and say, why did you lie to me, you know, why did you give me the wrong information, it just winds you up, and that's why I think

sometimes having an advocate helps because you don't feel, even though I am going for mental health, and I feel sometimes I am out of my mind, it just pushes you to an edge where you feel so angry, like the people that are listening to you and manipulating you, or just messing with you.

When the care that was 'promised' in A&E was not delivered some were left feeling that A&E interaction was false or a lie designed to get them out of the department more quickly.

Yes, because I explained to them that my flat wasn't suitable for someone in my condition, because I also have a hoarding problem, and they promised that a medical team would come over with me and assess my living conditions, but that was baloney, they just made that up, and they sent me over with the driver who didn't even ask to look in my flat..... Yes, but it was completely fabricated, it was just something to get rid of me and to raise false hopes in a way that would see me on my way.

One respondent reported that the difficulty in accessing the care promised, together with the attitude of the individual involved left them wanting to disengage with services permanently.

They gave me a number for NHS, the mental... they gave me a number and they said if you ever have any problems call this number. Now, I called the number, I think it was at like seven o'clock I called it because I wasn't in my right state of mind and I didn't know who to call or what number to call. And I'd been given this number, which I called, and then some guy answered the phone and he was being so rude, so so rude. He made me so angry where I actually wanted to cancel this whole contract with them because I thought why give me a number to call if I'm ever in need. I'm calling the number and whoever answered the phone was just so bloody rude, and then he refused to give me his name, you know what I mean? But I was thinking you can't give me this number, tell me to call when I'm in an emergency. I've called the number and some guy answered the phone and doesn't know that you've given this number to someone who could possibly be mentally ill, and now he's just being bloody rude to me.

One respondent reported that had their experience been perceived as more useful and caring it is likely they would not have taken the overdose that led to their current attendance.

They say to go to AE if you feel suicidal. However every time I have done this the response has been really indifferent and like what do you want us to do about that + like I was wasting everyone's time. If I had had good experiences of AE in the past I likely would have used it on this occasion instead of overdosing. I understand that services are stretched and the emergency ward is a hard enough job without also being kind reassuring but for someone in a crisis that's some of the best medicine. Similarly if on the previous occasions I'd presented myself to AE - if I'd been taken seriously and received some actual substantive help maybe I wouldn't have ended up here. One time I got no help the other time they were shirty + said my problems were too big to deal with in a single evening and said the crisis team would call the next day - which they never did.

4.5.2.6 How respondent felt during and after the attendance

A large number of respondents included reference to how their A&E attendance made them feel and this is explored in detail given its intuitive link with experience of care and possibly with mental state. When individuals saw the attendance in a positive light, it tended to leave them feeling better. This was related to feeling safe, secure, reassured and comfortable. When patients felt like this, they tended to be more satisfied with their A&E visit.

I feel very comfortable. I feel like so reassured, and they understood me, you know. They really understood me.

It's me, because I know what my diagnosis is. It's going to be recurrent, you know, so there is... and he was very reassuring, you know. I'll give him ten. He said it didn't matter, it's your condition, in the way that you help people, we can do things to help you, everything.

Like when I... when I spoke to the... the doctor and the nurses then, it made me... it made me feel better.

Feeling safe and secure in particular appeared to be important to some patients.

I would say the calming, kind of, reassuring nature of the staff. You know, I felt, you know, that... I felt safe, if you know what I mean.

Being that it was my first and hopefully last attendance I must say that I was very happy with my care I was listened to and understood by everyone speaking to me I was seen very quickly and efficiently and was put straight into my own cubical so that I felt secure and private.

I suppose just being in a safe environment. Do you know what I mean? It made me feel better because I'd... I just felt so unstable and unsafe in my own home.

For some, the positive feelings translate into a feeling that they have been helped.

I think, you know, the thing that makes you feel better is when someone is accepting of how you are and, you know, and is, kind of, is helpful. That's ... that is what helps me.

Conversely when respondents reported experiencing negative feelings during their attendance, this tended to have a negative impact on their experience of care and also on their mental state. One person, as described previously suffered an anxiety attack as a result of struggling with the busy and noisy environment. However, it was more common that the attendance made respondents angry, frustrated or upset, and this was most often related to negative interactions with staff in which they felt dismissed, ignored or disrespected. This in turn left some feeling that they were not welcome, or that they shouldn't be in the department to receive help. This was often compounded later after discharge with a sense of feeling lied to or 'fobbed off', most often because they were promised access to a service that was later denied, did not exist or they didn't qualify for. This left people feeling confused, mistrustful of services and also with a sense that they can't, or shouldn't, be helped.

*I was seen by the head nurse on A&E, who put me through to the psychological...[...].
And he compared my illness to tummy ache, to someone else's acute appendicitis.*

Now, I think the gist of it was meant to be that they can solve acute problems and they couldn't otherwise solve mysterious ones, but obviously the scale between a tummy ache and acute appendicitis is obviously quite grand. It was really insulting.

I would say it's about five, because I think they are confused....Yes, it's like when you say, when I wanted a psychologist, they kind of raised their eyebrows, but then they kind of think with sympathy, and then they are in a state of confusion, like 'okay, I need to be normal again'....

....It's like oh, it's mental health, it's not a broken leg, it's not a broken leg...

Others felt that they were not able to access the services they hoped for, or they didn't feel that the person they saw was able to understand their problems. It was not clear if this was due to poor knowledge or training or a reflection of the attitude of the staff member towards mental health concerns:

No, I would like to say zero because the point is I asked to see the psychiatrist, I felt that that was necessary to get the care I needed, and that request was kind of dismissed and so therefore I'm totally dissatisfied, so I think I'd say zero.

You know, and I went there and it's like I was lied to, because the person I saw, I thought he was a doctor, then I realised he wasn't.

Oh, five, they didn't speak to me that often, and they didn't understand half the things I was talking about.

On the other hand, respondents who scored highly described feeling understood, listened to and attended to:

So, yes, the lady, I remember, it was a lady and she was really nice and she was very helpful in speaking to me.

I feel very comfortable. I feel like so reassured, and they understood me, you know. They really understood me.

Well, I saw... I remember the receptionist, sort of, being, sort of, very attentive to me. I told her I needed to see someone from the psych liaison team and within a minute or two I was seen by the nurse and just within a few minutes the... after that... after the nurse escorted me to where I needed to go.

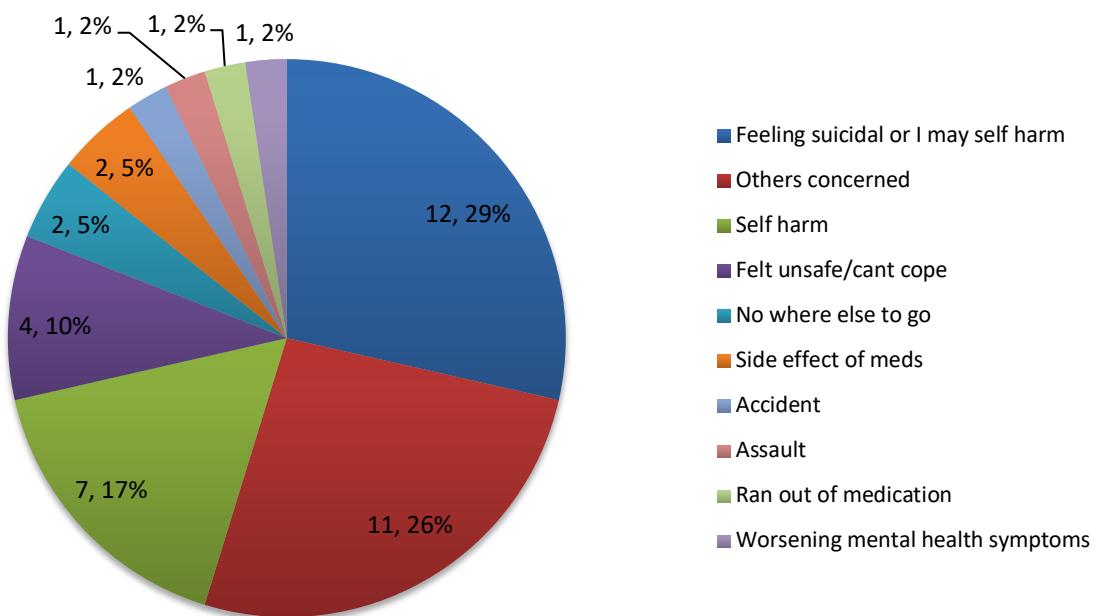
They were all fabulous straight away.

4.5.3 Reasons to attend A&E

The second research aim was to explore the factors that inform the decision making process to attend A&E. I aimed to understand better the reasons why respondents chose to attend A&E as opposed to other types of care, such as crisis services, their GP or contacted their community mental health teams. I also aimed to explore if other parties were influential in the decision, for example either family or friends, or other professional services such as 111.

Reasons for attending A&E are shown in the figure below. The commonest reason was feeling suicidal or that they may self-harm. The second most frequent reason was that others felt that they should attend. The breakdown is shown in figure 4.3 below.

Figure 9 Break down of the reasons for attendance



Themes relating to why patients attended A&E are detailed below and are not listed in any particular order. The main themes are discussed in the sections below.

1. Difficulty in accessing timely help elsewhere.
2. Advice/signposting of other services to A&E.
3. Family/ friends/ work were concerned and brought them.
4. Drug seeking.
5. Medical help with self-harm.
6. Physical health problem (a mental health problem was later identified, and patient referred to psychiatry).

4.5.3.1 Difficulty in accessing timely help elsewhere

Worsening mental state was the most frequently cited reason for attending. Some tried to access help when they recognised they were in crisis, with varying success. Understandably there were no positive stories of accessing help prior to attendance, given we only interviewed respondents who did attend A&E. However, all who did try to access care instead of attending A&E found this to be unsatisfactory, either encountering poor attitudes that were unhelpful, problems with access due to either

presenting out of hours or because of long waiting lists, or the intervention was ineffectual. A small proportion tried help lines, either NHS or third sector (MIND or Samaritans), but found them to be insufficient, identifying them as not helpful or a preference for face to face contact. A cohort did not try other services at all, either because they were not aware of them, or because of negative experiences in the past. This was particularly prevalent in relation to primary care or community mental health services.

The theme of going to A&E as there was nowhere else to go during crisis was common. For some this was because there was no other immediate care available, but for others this appeared to be because A&E felt safe.

I mean it's just, it happens to me that sometimes I get so upset I can't walk. I'm in the middle of the street and I'm just in floods of tears. And it would be nice if there was somewhere to go other than A&E but there isn't.

And, you know, I hear what she's saying and I know that, you know, there have been times when I've gone to A&E and then I've been admitted afterwards but... you know, and looking back on those, sometimes I've gone why, why did I do it? But you know, sometimes there isn't anywhere to go and you just do that, you haven't got anywhere to go.....

I was having a bad anxiety. I was worried that I could harm myself, that... you know, and the best thing to do is to get there, because in the... in the past I harmed myself, and then got myself there, but I'd rather do it before I harm myself, because I know what I could do if I sit on it.

I... I guess it comes from a feeling... feeling unsafe, where there is very little other options to separate myself from dangers....[...]. at least a couple of hours away from the triggers that will usually be around me, so I would say I just, I would say, I attended A&E because I felt unsafe.

4.5.3.2 Primary Care

Although most respondents were currently or recently under mental health services or had sought help from their GP in the past, some did not attempt to contact these services first. Whereas others attempted to contact other services, however either were not able to get an appointment, the services were not able to help, or they were referred to A&E for assessment. The lack of available services out of hours was frequently commented on, with respondents describing the need for immediate help to avoid self-harm or worsening mental states.

Before... anywhere else for help? No, I haven't, because I know it's out of hours. I can't call the community mental health team, or GP, so it has to be A&E.

It was Friday night....It was out of hours, yes.

Closed on weekends out of hours service

Some commented that they wouldn't have tried to contact their GP even if they could get an appointment. When exploring this further, most described their frustration with trying to get help they found useful. This mainly related to the length of wait for appointments but included feeling that the GP was not able to help due to lack of knowledge or a poor relationship with them.

No. I've never really... since I've moved back to London I've really had no, sort of, like, communication with my GP I just don't find it... I find it hard to talk to them, if you know what I mean....

No. Although I've got a GP, and I've got community mental health team, if I've got an issue going on I'd rather go to A&E, you know. I'll sit on it. I'll go to A&E, then I'll contact them, because, I don't know. I had a horrible experience with them, and I just... I don't want to bother them....Because... do you know why? Because he... do you know why? Because you know they will say you're with the community mental health team. They'll be your first point of contact, unless it's out of hours.

She's not going to do anything about medication, anything, you know, so a GP isn't going to do anything anyway, because... unless I've... I'm not... I don't belong to

community mental health team, then the [unclear 0:21:33] team, the GP will do something, but otherwise they don't, because you're under another service.

No. No, I mean, I wouldn't... I mean, A&E is, sort of, immediate and the GP, you know, that would take a few days if I'm lucky and if I'm not fussy about who I see....And possibly longer. You know, if I want to see my doctor, it would probably take a week or two.

I have phoned my GP before while in a suicidal crisis and they have never been able to help - only an appointment in 2+ weeks

They don't know nothing. My doctor, [doctor's name], he don't know nothing about mental health. He's only a, sort of, doctor, and knows something, not mental health; he's not in that role.

Oh, I don't know. I don't bother with them because when I used their help, I never got help, and I just lost hope with the GP in mental health. I lost hope in them.

4.5.3.3 Community mental health teams

For those under the care of community or crisis teams, we explored why respondents did not access help from them. Again, the issue arose that services weren't available out of hours and long waiting lists. For one person they felt that they only had access to a junior doctor and that this was insufficient.

The mental health team, I wouldn't call them because I know I wouldn't get through. Yes. As far as I'm concerned these mental health teams are always to refer you to things and give you drugs, and beyond that I have found them to be unreliable and psychological therapy services... I've never been offered or explained to a system wherein I could call them and ask them if I move beyond our scheduled weekly thing. They've actually had a quite lengthy discussion with me about how they don't usually treat people who are symptomatic. They usually only take on asymptomatic patients, so...

No, I haven't, because I have experience before, and they're not... they've not even returned your phone call....So I don't bother.

No, there was no way I would be able to do that because you have to book them up three months in advance.

Well, you know, from their particular perspective... I mean, the thing is you don't get a specialist knowledge of mental health because all you're seeing is somebody who's a junior trainee doctor. So I would say three.....Because they haven't referred me to any and I can't get any, I can't get any other referrals because the psychiatrist won't refer me.

There was a cohort of people who were on the mental health team waiting list, either for assessment or treatment, but who had no point of contact to access help while waiting. These people felt they had no option but to attend A&E. Two respondents experienced a failure of care where their support team was not available for several months and no alternative was provided.

And, well, the counselling, they was, there was a waiting list, so I was, yes, so I had to wait for over a year, so, yes, nothing happened from there, so it was just left.

I am on medication and I am also waiting, I go for counselling, and I am also waiting for CBT....I've been waiting for it since January of this year....Yes, it's a long time, they keep telling me it could take up to 42 weeks.....No, I received support at home, I have a support coordinator who visits me, but she's off for like three months, she works for two months, then she's off for six weeks, and I have been having a lot of problems, that's why I have been in and out of A&E.

Some had accessed care previously but were discharged or were not able to access the specialist input they felt they needed. This group also appeared to have no way to access help in a crisis and as a result also attended A&E as there were no alternatives.

The answer is that I am engaged in a long-term dispute involving the NHS complaints body, VoiceAbility, in an attempt to get treatment... to get specialist treatment because, well, my GP is constantly referring me and I'm not getting... I'm simply not getting the service that he's asking for....I'm being obstructed in seeking it, as I was in hospital.

I'm not being seen at the moment and of course, you know...[...]...this isn't an easy time and, you know, they don't want to help. It's like nobody's got anywhere to pass you onto so that's why you end up going to A&E.

4.5.3.4 Mental health crisis services

Some had access to liaison or crisis numbers out of hours but had unhelpful interactions that led to them attending A&E anyway.

I called from two o'clock in the morning, I called once and then the lady told me, so what do you want me to do with that, how you're feeling, like you know really, it's like when you are feeling really down and, it's like today I am not feeling as down as I was on that day, I was feeling really low, and the sarcasm you receive on the other side of the phone, it's just like... you just don't want to be part, you just give me a label, you want me to come round, they're just going to give me a label and maybe more medication and that's it you know.

I called them at like two o'clock in the morning, and then I was in a really low place and they just made me feel worse, and so I tried to control my feelings, then I called again at six o'clock in the morning, because I couldn't control how I was feeling, and I had to really like, I wasn't safe, you know....

They gave me a number for NHS, the mental... they gave me a number and they said if you ever have any problems call this number.... And I'd been given this number, which I called, and then some guy answered the phone and he was being so rude, so so rude. He made me so angry where I actually wanted to cancel this whole contract with them because I thought why give me a number to call if I'm ever in need. I'm calling the number and whoever answered the phone was just so bloody rude, and then he refused to give me his name, you know what I mean?

4.5.3.5 Care found to be unhelpful

Some did manage to access services in the community, including third sector services and primary care, however the input was not sufficient to help and as they continued to feel worse, they decided to attend A&E.

No. I recall I spoke to helplines. Like, I'd called the Samaritans and I'd called Alcoholics Anonymous' help line and I spoke to one or two AA members, I think, but I just wasn't... I find it... I found it, kind of, ineffective. I felt like... that it wasn't really helping me as much as I would've liked, for example.

No, because I talked to the Samaritans on the phone, and then the lady said, you seem really down, I think you just need to go and see a doctor, maybe change your medication, or get something to help you sleep, you know, because I wasn't sleeping and I was feeling worse.

I saw my GP and the crisis team during the day. The psychotic episode I was having continued into the evening. Basically they didn't have inpatient facilities to care for me. If I didn't have my family I would have been in serious trouble

4.5.3.6 Signposting from other services

Signposting to A&E was common, and for the most part seemed appropriate due to the lack of other available services and the difficulty in assessing risk accurately over the phone by an un-clinically trained professional. However, there were examples of patients being signposted to A&E by their GP, liaison or A&E themselves, where the respondent themselves appeared to be ambivalent about their attendance.

It was another, the person on the phone told me to attend. Yes...[.]..he said to me, come into A&E, and I explained to him, it's like you know, am I going to be seen by a doctor, because I just have my last £8, and if I come in, I have to get a cab and if I come down and I don't get seen by a doctor, there's no point in me coming down.

Well, in the night, I called A&E, and they said, you know, if you're feeling like this, do come, you know. And I told them, you know, I'll see how it goes, now that I've spoken to somebody. And then in the night I had the same feelings again. I thought, let's go, because I did... I was told to come.

Many respondents seemed to attend A&E after being signposted to the service at other points in the pathway, with the advice helpline 111 frequently cited. There were times this was appropriate, for example after an overdose was taken. Here the

individuals needed medical assessment and A&E was unavoidable under current guidelines. There were also examples of appropriate signposting from the police and other professionals. There was a cohort of patients who appeared to be suffering psychosis who were brought to A&E for assessment, these patients often did not come through choice, but were brought in by police or ambulance after family or the public alerting services because they were behaving strangely.

4.5.3.7 Self-harm

Self-harm was a common reason for people to attend, either for medical attention, or with the aim of avoiding it. It seemed that A&E was chosen as there was 'nowhere else to go' in the latter cases.

Yes, and I was feeling suicidal, and I was at my last resort.

About four o'clock, so, five o'clock I decided to go, because if I continue feeling like that, I know I would harm myself, yes...

4.5.3.8 Possible opportunity for early intervention to avoid A&E attendances

When exploring the text describing the feelings and events that led to the attendance, three different groups were identified, (1) those who have a slow build-up of problems, (2) those who have sudden onset of symptoms, normally because an event triggered them, and (3) those who did not want to attend but were brought in by friends, family or professional services. For those who had symptoms building up, it seems to be over a number of days or even weeks.

Just a lot of build-up all through that last week, week and a bit, like, just, you know, you... it's hard to describe when you're down, when you're in... you go to just a dark place, if you know what I mean, and...

Yes, because, you know, in the night I called, I was feeling really bad, and then the same thing happening in the morning, about four o'clock, so, five o'clock I decided to go, because if I continue feeling like that, I know I would harm myself, yes.

I was at Mind Mental Health. I went for an assessment and basically, I couldn't stop crying and I wanted... you know, they couldn't look after me there and I just thought it was best to go to A&E. But it was a difficult situation for me. I mean I had wanted, I mean I had basically stood outside the hospital the previous evening and [inaudible 00:03:34]. So it was sort of, it wasn't out of nowhere.

IV So it had sort of been building up?

Yes. I mean it seems that at the moment what's triggering these is when I see my parents, if I go out to see them, you know, especially if I'm there a couple of days. I come back and I'm very wobbly myself. I can kind of cope when I'm there, you know, I can cope at work and then I just kind of wobble

IV So it had been building up for a few days and you recognise what had triggered it.

Well, yes, I know what the trigger was and I know what, you know... Yes. I mean I won't say it's a pattern but, you know, I know that I... It's been quite good this time round. I really, I noticed that I was wobbling again because I was there this weekend and, you know, I really made sure that I had some help to deal with it because I knew I was likely to wobble, you know? So I got my boyfriend to come around.

It seems that for the first group it may be possible to intervene and avoid A&E attendance, and for the latter accessing crisis help is probably unavoidable, however it's possible that alternative services may provide a better solution for the cohort not requiring medical attention.

4.5.4 What constitutes an 'ideal' service during crisis?

The final research question aimed to determine if it is possible to identify the characteristics of an 'ideal service' that patients feel could help them when they are suffering a crisis. There appeared to be two groups – those who wanted to access other services and those for whom an A&E visit was required, in the patient's opinion, due to their current situation. I have therefore addressed how A&E could be improved, what are the important characteristics of services during crisis and what services they would like to have had available and what could have improved their experience in A&E.

4.5.4.1 Important characteristics for services during crisis

The key characteristics identified were a positive attitude from staff, good communication and information, feeling listened to, feeling safe, and short waiting times in the department. Communication, staff attitudes and feeling listened to were all linked. It seemed to be important that staff communicate well, in a caring way, and that patients feel listened to and understood. Many of the themes identified in the first section were repeated, and their therapeutic effect was highlighted, as was the theme of not feeling judged.

I think, you know, the thing that makes you feel better is when someone is accepting of how you are and, you know, and is, kind of, is helpful. That's ... that is what helps me.

I... I think people should just not judge people on... on my appearance even though I might be intoxicated. I think they should just be more compassionate and find out the underlying scenario of what the situation is. And it would have been good to find out what caused... caused me to get to the stage where I was.

4.5.4.2 Improving A&E

There are several areas where participants think A&Es can improve. They can be summarised by improving waiting times and by feeling cared for during the attendance. Waiting times were frequently raised and some participants felt the solution was to have mental health staff or having a psychiatrist on site.

something needs to be done about the long waiting

Offer a hot beverage for waiting so long. Psychiatric team to intervene sooner.

the only criticism I would have was the long duration... the long wait to see the doctor but that's often been exchanged for, it seems to be, like... it's very often... I could be wrong here, but it seems like that it's very rare that a psychiatrist is actually onsite at [hospital name], they always seem to be at [different hospital name] which... maybe it's their base but it always seems like a lot of the responsibility at A&E seems to be left up to the nurses in charge rather than any of the doctors.

Then I attended the AE reception to 'check in' I was feeling suicidal...[...]. Even then I had to wait ages around 2 hours to be assessed by a nurse. Far too long I found for someone set on taking their own life. I feel patients reporting to A&E should be prioritised the same as those suffering a cardiac arrest. However, this is not the case.

It doesn't have to be big, just warm and safe and reassuring and you should be able to access it immediately instead of having to sit in triage for four or five hours.

Quicker waiting times by having a whole set of doctors dedicated to mental health

Respondents also valued feeling cared for. This was consistent with the previous section in that, including the attitudes of staff and how they were spoken to were most important.

They should have more care, and more understanding of mental health. They should have more understanding about it, more caring and more understanding.

I... I think people should just not judge people on... on my appearance even though I might be intoxicated. I think they should just be more compassionate and find out the underlying scenario of what the situation is. And it would have been good to find out what caused... caused me to get to the stage where I was. So if I had the opportunity to tell them that I'd gotten mugged, etc., then they might have understood slightly better. But I wasn't given that opportunity.

I understand the waiting time however I was uncomfortable with the way the member of the psychiatric team spoke to me and did not offer much support.

An improved environment was also cited often, which included quiet and privacy, preferably in a cubicle rather than being left in the waiting room. But equally people did not want to be left waiting alone for hours, and so suggested that being checked on would be reassuring. It was raised that there were so many steps and people to see during a single attendance, that they would appreciate having a single contact that they could talk to, to explain the steps and what was going on, and this person would be able to check in on them periodically. Being offered food and drink was also cited a few times, in particular if the wait was long.

Every time I have visited AE in mental distress I have had to wait between 6 - 12 hours to see the home treatment team usually at night in a room with no bed. I am rarely checked on and never offered food or drink. Each time I have been there I have had cuts from self-harm that were not seen by a doctor and have never been offered any kind of pain relief or anxiety relief. This experience could have been improved if I was seen by a doctor when I arrived and either had cuts attended to or given antiseptic wipes so I could attend to them myself. If the wait time for the home treatment team is going to be over 2 hours which it usually is then the patient should be given a bed and offered anxiety relief. The rooms that are allocated to people in mental distress could have beds or benches put in them so that there is space to lie down and try to relax through the waiting period.

4.5.4.3 What alternative services would be useful

Recommendations for alternatives to A&E were mainly focussed on being able to access help quickly. Most respondents articulated wanting to avoid the crisis and not wanting to go to A&E, however no other options are easily available.

Any less intense severe option would have been preferable to discuss the case.

The primary feature of an ideal service was accessibility, with a clear preference for face-to-face help on a drop in basis. The key features seemed to be being able to access help very quickly, ideally there would be a counselling element, or access to someone with some mental health knowledge and experience. Access 24/7 would be important as many patients said the reason they attended A&E was due to being in crisis out of hours. The environment is important, which should be comfortable, calming and quiet – one described it as a ‘retreat’. Patients were not just asking for a calm place however, as access to mental health professionals was an important part of the service. It was also important that there was no stigma and people felt accepted when they attended.

Somewhere you have a drop-in and you can go the day you're ill, not wait weeks for an appointment, which in some cases can be too late.

For some this is a totally separate place to A&E, one described it as in the community, for example next to a pub. Others felt that it works well as a department within the hospital, calling it a mental health A&E.

Yes, I would like to go, like instead of going to A&E, I've been thinking about this because I used to work with youths, it's like you have the youth club, it's like just having somewhere where you can go for your mental health, but it's not connected with A&E...[...]

Yes, 24/7, so you know like having an A&E, but a mental health A&E, a different department, a sort of different department away from all the like broken arms and the blood and all of that, and having like more specialist support, you know.....It will be a bit nuts [laughs]...[...] I know it's going to be stigmatised, but it's like where do you draw the line of this normal and not normal, you know, but it just makes it easier for people like me, so we don't have to go in and rush and queue up behind loads of people and then like everybody rolling their eyes, like here's another one, you know. It's just it's difficult.

At AE there should be a specific place for people in suicidal crisis. It doesn't have to be big just warm and safe and reassuring and you should be able to access it immediately instead of having to sit in triage for four or five hours. Maybe staffed by Samaritans maybe with cushions or self-help books or stress balls and sand or whatever other sensory things people are meant to use to ground themselves. Even rubbish motivational posters Just so people knew they could always go there and it'd be a safe calm place for a few hours. You could calm yourself down and check out or if you were still there by the time the docs were free then you could get a referral or have some involvement from the psych team as necessary

Some felt that the emphasis should be on support in the community either prior to crisis or as things started to get worse. Some felt that regular input would be useful and that knowing that they would have contact with mental health practitioners would help them to cope and avoid A&E attendances.

I would like to be able to have some sort of, you know, Care Coordinator or something like that but, I don't think so because I think what's happening at the moment is just it's a response to an acute situation so, you know, yes, it would be nice if I had... you know, if I had have had that support then I probably would not have accessed A&E on that

day, do you see what I mean...Or the last two times that I've accessed A&E, certainly, I probably wouldn't have had to access it because I would have had support and I would have known, you know, I've got support on X day per week so you can kind of hold yourself together until then....So that's what I think would have helped.

In a similar vein, a key worker, or named individual was often cited. It appeared that again the key component was rapid access to someone who could help them and provide support.

Yes, I would like... I know I can't have... I can have an allocation, allocated to somebody when I've got an emergency. And then I think that... that will make me in my situation and me self-medicating a lot easier. That's what I believe.... so that I can talk to somebody like I do with... like I do with everyone else who is in the same boat as me because I deal with mental health as it is....Yes, I'm not saying that... you know, that I need to see him every day or her, every day, every minute. I'm just saying when I need some help I can get access to somebody by a phone call even, or an email.

4.6 Study Limitations

The main limitations of this study are the non-representative nature of the sample due to its small size and its self-selected nature. It is possible that respondents who chose to participate may have done so as it was seen as a way to have their complaints heard, and so are more likely to represent negative views. A large number of respondents appear to be frequent attenders to A&E, the average attendances for mental health reasons being 2.70 (SD = 4.06), and the range being 1 to 50. There were a large number who attended for self-harm or suicidal thinking. This implies that personality problems and co-morbidity may be disproportionately represented in the sample. 39% of the sample had a diagnosis of borderline personality disorder.

The time period between attendance and interview was up to 9 weeks with some respondents attending A&E several times between consent and interview. It is therefore possible that respondent's recollection of the attendance may not be complete, with negative or positive bias being prominent.

Another limitation is the different method used to collect data from the survey. The approaches included interview, postal response and online response. Although all approaches used the same questions and relied on the same responses, there is evidence in the literature that the mode of surveying does impact the results and can lead to bias in the responses, making quantitative comparison difficult (Harris & Brown, 2010). Our study does not include any quantitative analysis; however, review of the responses does indicate that there was a difference in the length of responses across the different approaches, with much richer data being captured through the telephone interviews compared to the online and postal responses. Due to the nature of the study, which involved individuals who were at a particularly vulnerable and at times heightened state of distress, we needed to take a pragmatic approach to enrolment of participants, taking an approach that provided a balance of maximising the number of respondents who were willing to participate with methods that were robust enough to enable reliable results. Given this, it was decided that offering options of response mode provided a good balance, although it is important to acknowledge that this does mean we have analysed results from a number of different modalities.

This study aimed to identify the reasons for attendance and to understand the issues relating to a good quality A&E service for mental health patients. However, it has not included interviews with staff as a part of the study at all. It would be important to include this perspective in order to develop a more rounded view of the challenges and strengths of provision for emergency MH care. This would also provide a more generalisable view, as staff would be in a position to comment on the care patients presenting with a wide range of complaints and needs, mitigating the effect of the skewed sample included in these analyses.

It is also apparent that over half of the respondents were from Barts (57.14%), with the remaining sites having 23.81% (UCLH and 19.05% (Whittington) of the respondents. Furthermore, the majority of the interviews were conducted with Barts patients. Together this indicates that the qualitative results are likely to be biased towards the experience of respondents who were managed at Bart's A&Es and the qualitative data may therefore be particularly problematic to generalise.

4.7 Discussion and Implications

4.7.1 Factors impacting on experience of care

In summary, this analysis provided useful insights into the research questions and contributes to existing literature on the experience of mental health users in A&E, the reasons for attendance and alternative places for care during crisis. Our findings are consistent with existing literature, which identified the quality of communication, attitudes of staff, the information and communication provided, waiting times and accessibility of care in the community to be key to experience, and are expanded on further in following sections. In this study environment was found to play an important role, as well as how the encounter as whole left the patient feeling. Experience of care was found to be fairly binary, tending towards either good or bad. Overall, there were more examples of poor experience of care, with respondents often feeling upset by their encounter.

These factors appear to be consistent across the literature both for general A&E attendances as well as those specific to mental health (Sonis et al., 2017) (Clarke et al., 2007). The attitude of staff towards patients and the nature of inter-personal communication appeared to be the most important factor in the current study, a finding which replicates the studies summarised in the introduction (Boudreux & O'Hea, 2004) (Gordon et al., 2010) (Sonis et al., 2017) (Clarke et al., 2007). Additionally, this study identifies a sub-set of factors that relate more specifically to mental health patients, such as feeling stigmatised. Many of the patients in this study described feeling labelled and judged, which was also found by Clarke et al, who reported that mental health patients felt they were 'at the bottom of the list' and that 'people are always telling me I'm not sick enough' (Clarke et al., 2007). Participants whose presentation involved self-harm of some sort felt that put them even further at the 'end of the line'. Boudreux and colleagues identify two aspects of interpersonal interaction; responding in a caring manner towards patients and the provision of information. Both were important to the respondents in this study. Information during the attendance was seen as important, with respondents reporting they were left for hours without any updates on what was happening. Another source of frustration was the discord between information about the help respondents would receive and the reality once they returned to the community. The sense of disappointment was marked, leaving

many feeling that they couldn't be helped. On the other hand, communication that left the respondents feeling listened to and understood, together with caring staff who were supportive was valued and linked to good experience of care. In the most recent review of general A&E experience of care, staff-patient communication was the most commonly cited factor (Sonis et al., 2017). This study appears to build on these findings, with an apparent relationship between feeling listened to and understood, and a perception that the attendance was helpful, which in turn appears to have had a positive effect on respondent's mental state.

A possible relationship between A&E environment, having a positive experience of care and this leading to a positive mental state also emerges in these findings. Privacy, comfortable chairs and/or a bed and the offer of food and drink for those with long stays were important to the patients interviewed and appeared to be associated with a sense of being cared for. This in turn meant that patients were more likely to report a positive experience of care and that the intervention or attendance was helpful. Given that many mental health crises are often exacerbated by difficult experiences, difficulties in relationship or loss, it follows that experiencing an intervention as being caring is likely to have a soothing effect and it is reasonable that this might lead to improved mental state. Furthermore, other studies have found a similar relationship, with lack of privacy being linked to exacerbated distress (Clarke et al., 2007). In the case of the patients involved in this study, privacy seemed important partly due to the sensitive nature of many crises but was also because the over stimulating environment of A&E tended to worsen people's mental states rather than be therapeutic. However, the sense of abandonment for some left in the waiting room made things worse, a finding also supported by Clarke et al. Improving the experience of care would require a careful balance between providing a safe, quiet place and the reassurance that patients have not been forgotten during their wait. Some patients suggested having a primary point of contact in A&E, who would also serve as a contact for family members.

As hypothesised, waiting times were consistently identified as a problem by participants in this study, a finding supported by every other review looking at A&E experience both generally and specific to mental health (Morphet et al., 2012) (Clarke et al., 2007) (Boudreux & O'Hea, 2004), and is also consistent with the view of the general public – the public outcry that in part led to the introduction of the four hour

wait was in response to excessively long waiting times in A&E in the early 2000's. This study provides some additional knowledge in that a link between waiting times, poor environments and mental state is also suggested by these results. It has been repeatedly demonstrated that experience of care is more strongly related to perceived waiting time rather than actual waiting time (Boudreax & O'Hea, 2004), and it is possible that the poor environments described in this study could and worsened mental state found in our study could have had a negative impact on mental states of the patients in this study, and that this in turn could lead to a perception that waits were longer. It is conceivable that waiting in an unpleasant, frightening environment could lead to a perception that a wait is longer, which in turn leads to poorer experience and worsened mental state. Morphet et al provide support for this in their review which identified that delays in treatment can result in agitation and aggression from patients, which can lead to negative outcomes or for patients to leave without being seen "If you have to wait that long when you are so low, what is stopping a mental health patient [walking] . . . out and do whatever, as you are able to leave" (Morphet et al., 2012).

Finally, although there are few therapeutic interventions that can be delivered during a single A&E visit, it appears that the attendance in itself acts as an intervention; one that can have a very positive impact on an individual's treatment and recovery, or one that can cause harm and lead to a worsening of mental state. The worrying aspect in the latter case were examples of patients indicating that the poor experiences of A&E affected them badly at the time and also impacted on future engagement with treatment and services. It is therefore quite conceivable that a poor experience of care could impact negatively on longer term outcomes. Despite this, poor experience did not appear to reduce the number of A&E attendances; rather our study indicates that they may even be increased. A number of respondents described their difficult A&E experience leading to worsened crisis and feeling a loss of hope about the prospects of recovery. Some did not bother with the follow up services and disengaged with services, which led to a downward spiral of further crises and multiple A&E attendances in a short period of time, most respondents felt these were unavoidable and often involved requiring medical attention after self-harm. It is recognised in the literature that A&E staff have more negative attitudes towards mental health patients, and can see them as time wasting, less urgent or less 'worthy' than those with physical

health problems (Clarke, Brown, Hughes, & Motluk, 2006; Heslop, Elsom, & Parker, 2000; Wright, Linde, Rau, Gayman, & Viggiano, 2003). Together with the current 'crisis' A&E services are experiencing it is easy to understand that pressures may lead to staff using abrupt communication styles with the aim of seeing patients efficiently and perhaps discourage future attendances. However, this research suggests that the approach may be having the opposite effect, and that thoughtful, kind consideration of patients experiencing mental health crisis may have a therapeutic effect in itself, helping to improve mental state and reducing the need for future attendances to their departments.

4.7.2 Factors impacting on reasons for attendance

The second research question addressed the reasons for attendance, seeking to understand aspects of the decision making process to attend A&E, as well as why A&E was chosen over alternatives such as primary or secondary care provided in the community. As expected, most decisions to attend were based on deteriorating mental state leaving respondents feeling they couldn't cope any longer, with many describing strong urges to harm themselves or having acted on these feelings already. The study went on to explore whether A&E was the only option to patients when they suffered worsening mental states and crisis. It was common for respondents to describe feeling they 'had nowhere else to go' and A&E offered a 'safe place'. In terms of the decision-making, this was either by the individual themselves, with or without the support of friends/family, or the decision was made by emergency services who felt they needed to be seen. Interestingly a significant number tried to access help elsewhere and were signposted to A&E either by 111 or other professionals. It was clear that for many A&E was the service of choice simply as there were no alternative means of accessing care in a short time period, with even primary care not being able to offer appointments for days or weeks. It was commonly acknowledged by respondents that A&E was probably not the right place for their care, but that there were no other options available to them. This was primarily due to difficulty in accessing appropriate help in a timely fashion, but the lack of knowledge of mental health and the experience of stigma, especially in primary care, were also commonly cited as reasons for the lack of alternatives. Gaps in provision were also identified, the first being those on waiting lists. A number of patients explained they had been referred to specialist services and

were either waiting for assessment or treatment for many months with no access to care in the interim. This often including primary care, where it was reported that there was nothing further, they could offer after referral had been made. The other gap was for those who had received treatment and had been discharged, but for whom the treatment was not effective. A proportion of these patients have no options for treatment available in secondary care, but often present as too severe and high a risk for management in primary care, and so paradoxically receive no care other than via A&E.

Despite poor experiences of care, mental health patients keep attending A&E. Many respondents described multiple attendances, with most patients having attended at least once, and one attending up to fifty times. These patients were more likely to talk about negative experiences of care but despite describing the attendances as unhelpful to their mental health, they continued to attend. The main reason appeared to be that there was nowhere else to go, and the care provided in the community was not sufficient, for example one patient had no access to specialist care while they were undergoing a dispute following exclusion from services in their local trust. It is well known that a small number of mental health patients account for a disproportionately high number of attendances to A&E (LaCalle & Rabin, 2010) (Vandyk, Harrison, VanDenKerkhof, Graham, & Ross-White, 2013). In a qualitative study exploring the experience of frequent attenders for mental health reasons, there were competing views. Some felt attendance was unavoidable and that they had no choice but to attend, with participants feeling that their life was at risk without immediate help. Others felt that they would prefer not to attend A&E, but there were no alternatives. This was either due to lack of knowledge of alternatives or inability to access care because of waits for appointments (Wise-Harris et al., 2017). Despite being based in Australia, these findings echo comments of respondents in this study, with many reporting feeling like they have no other option but to attend, either due to their mental state, because of injuries from self-harm or because they can't access psychiatric input in a timeframe that is helpful when in crisis or that enables them to avoid crisis. Further to this, we identified a cohort who described a slow build up in symptoms, during which they often tried to access help but were unsuccessful. Together, this supports the idea that provision of drop-in services in the community could provide a valid alternative to A&E as well as provide a pre-emptive solution for those going into crisis, findings which

are supported by the growing literature on alternatives to inpatient care which are being shown to be successful at avoiding admissions, A&E attendances and improving outcomes (Gilbert et al., 2010; Osborn et al., 2010).

4.7.3 What an ideal service could look like

Our final question sought to understand what would constitute ideal care in a crisis from the user's perspective, including how the experience of A&E could be improved in A&E and what alternative services may be preferred. Improvements in A&E unsurprisingly focussed around the factors that led to poor experience, with short waiting times, accessibility immediately before or during crisis, feeling cared for and listened to and a positive, calming environment being the most discussed themes. While there is extensive literature on the problems with A&E and more specifically the management of mental health patients, there are few studies that evaluate approaches to delivering improvements, with most of the literature focussing on the use of LEAN principles to improve flow in general (Holden, 2011; Vermeulen et al., 2014), or training of A&E staff to help them understand the mental health service user's perspective better (Alakeson, Pande, & Ludwig, 2010; Mayer, Cates, Mastorovich, & Royalty, 1998). I was not able to find studies that looked at whether these improvements translated into improvement in user experience or outcomes. However quality standards exist for the provision of psychiatric liaison services and emergency services, which provide guidance. For example, it is widely recommended that A&Es provide a quiet, non-stimulating environment for people with mental health problems (Clinical Effectiveness Committee of the College of Emergency Medicine, 2013) (L. Palmer, Dupin, Hinchcliffe, & McGeorge, 2009). Two randomized controlled trials have studied the effects of providing information on how A&E functions (e.g., role of triage, use of consultants), with one using a printed brochure given to the patient after triage and the other using a videotaped message played in the waiting area (Corbett, White, & Wittlake, 2000) (Krishel & Baraff, 1993). Both studies found that providing such information improved patient satisfaction. Spaite and colleagues demonstrated that process redesign can successfully lead to reduced throughput times and increased patient satisfaction in an academic A&E (Spaite et al., 2002). Finally, improving interpersonal and communication skills of providers can lead to improved satisfaction. Two studies demonstrated empirical evidence that enhanced provider skills are linked

to better patient satisfaction. Mayer and colleagues found an 8-h customer service training program was associated with an increase in patient satisfaction across a range of domains, including ratings reflecting expressive quality, information delivery, and global satisfaction (Mayer et al., 1998). These findings indicate that there is an opportunity to improve services, but that more research focussed on the issues identified would provide a valuable resource for those seeking to deliver improvement in A&E.

Respondents were also able to identify some alternative options for care. For those who felt that alternatives were possible, almost anything else was overwhelmingly seen as preferable to attending A&E. The characteristics of such a service were (1) it should work as a drop in service with no appointment required, (2) accessible 24/7, (3) most felt it would preferably be separate to A&E and maybe even not on a hospital site, (4) access to mental health professionals and (5) provide a relaxing environment. In addition to these, the importance of prevention was raised with many commenting that with sufficient support they felt would not need to attend A&E at all. This was consistent with findings in a qualitative study exploring mental health patient experiences in A&E, which found that participants wanted to see 'safe spaces' and more intermediate rehabilitative resources available on evenings, nights, and weekends so that individuals would have an alternative to A&E (Clarke et al., 2007).

One of the most striking findings was the clear disconnect between services in A&E, the community and primary care, as well as between health and other professions, for example the police. This mainly manifests as a misunderstanding by emergency service staff, including psychiatric liaison, about what can be provided in the community and the waiting times associated with these services. As a result, it was common for patients to describe being discharged with the promise of follow up or access to services, which were not followed up or provided due to lack of resources or incorrect information. This was often associated with negative sentiments towards mental health services as a whole and at times disengagement. There are increasing numbers of examples of integrated approaches to psychiatric emergency services, including training and service improvement. An example of a large scale training programme is the UCLPartners Breaking the Barriers programme which provides reciprocal training between psychiatric liaison and emergency service staff

(UCLPartners Academic Health Science Partnership, 2017). Although this does not include training with community services, which would be an obvious useful next step. The Crisis Care Concordat has stimulated a large number of service improvement programmes focussing on mental health, including the introduction of police into psychiatric liaison teams, and mental health professionals who work within first response police teams. Although anecdotal evidence and organisational reporting indicate the outcomes of these approaches are useful, there have as yet been no formal evaluations of these services.

4.8 Conclusions

The study has provided helpful insights into the three research questions examining the factors affecting mental health service users' experience of A&E, why they choose to attend and how services can be improved posed. It is consistent with the literature relating to each field and in some cases has added to existing knowledge. Waiting times are again highlighted as a problem, both while in A&E as well as in the community in order to access care. Given that perceived waiting times are more important than actual waits in A&E, it is conceivable that a few simple interventions such as comfortable and appropriate waiting spaces, could impact on the perception of the wait and individuals' mental state, and as such impact positively on experience in a significant matter. There are a range of simple elements that are already identified in quality standards, which this research implies are still not being provided in A&E, such as regular communication, caring attitude towards patients and the provision of a comfortable waiting environment, yet it is confirmed again here that they would go a long way towards improving experience and providing a therapeutic intervention that has potential to have positive impact on recovery in the longer term. The overwhelming reason that people chose to attend A&E was to access timely help in a safe environment and access to knowledgeable, caring staff. A significant proportion acknowledged that A&E was not the right place for their care, and that if able to access timely, appropriate help elsewhere they would not need to attend. There are increasing numbers of services that aim to provide this care, which also provide better service user experience and therapeutic alliance, including Crisis Houses and drop-in services (Gilbert et al., 2010; Osborn et al., 2010; Sweeney et al., 2014). The provision of such alternatives has the potential to reduce the burden of mental health on A&E not only from reduced need due to averted crisis, but also through reducing re-attenders. Furthermore, the evidence indicates they seem more able to provide a positive experience of care, and as such are more likely to positively impact on mental states and thus outcomes.

If the problems highlighted in this research are to be addressed, integration across the different aspects of the crisis pathway is crucial. These results indicate that each part of the system has very little knowledge of the reality of what is available in other services, as well as the pressures they are under to deliver effective and efficient

healthcare. Integration in this context is likely to be less about effective processes such as effective referral mechanisms between services, and more about improving relationships and knowledge between professionals in different agencies. This joint management of complex cases and the risk associated with them is gaining increased interest, particularly in areas such as older adult or child and adolescent services. For example the new approach to risk management in children's mental health described in THRIVE provides a clear structure for this and is currently being implemented nationally based on well-established AMBiT principles (Bevington, Fuggle, Fonagy, Target, & Asen, 2013). The translation of innovative approaches such as these to the crisis pathway has the potential to provide valuable contributions to service improvement. Further to improving effective multi-agency collaboration, the provision of meaningful information and signposting to service users also appears to be critical to reducing avoidable attendances, both through earlier intervention by appropriate services, as well as enabling those in crisis to make effective use of alternative services that already exist. However, for signposting to be effective, there is a requirement for services to be accessible. The commonly cited issue of waiting weeks or months for appointments, even when in crisis, clearly can't offer a tangible solution, and it is critical that those in crisis have ready access to useful services in order to hope to reduce the need for A&E attendance. As such, effective engagement with commissioners to enable the problem to be addressed across agencies at a pathway level, rather than just focussing attention on improving A&E itself, is crucial if meaningful improvement is to be achieved. By building partnerships within A&E and the wider health service and including service users, there will be more opportunities for success in the assessment, treatment and follow-up of people who present in crisis with a variety of mental health issues.

The second part of this study includes a large case note audit of over 600 patients who attended the three teaching hospital A&Es, and includes the quantitative data relating to the patients included in this study. The aim of the next chapter will be to develop a quantitative understanding of the factors associated with long waits in A&E, and these results, together with these qualitative findings will help us draw up recommendations about how to improve A&E services for mental health patients.

5 Extended study of the factors effecting breach and length of stay in A&E for mental health patients

5.1 Summary

This chapter reports on a fixed time-bound naturalistic cohort study of mental health attendances at A&E. I report on the prevalence of mental health attendances estimated using this method, calculate the relative risk of mental health breach and the results of a series of regression analyses which aim to explain the variances in LOS, breach and identify between site differences.

This research highlights that there are a range of identifiable factors that appear to be contributing to breaches and LOS of mental health patients in A&E. The most significant of these relate to the functioning of mental health teams in A&Es.

Based on these findings, I discuss the ways that improvement in A&E breach rates could be achieved.

5.2 Introduction

The studies reported in the previous three chapters were designed to provide insight into the three domains identified in the introduction as contributing towards the quality of mental health services in A&E: (1) understanding more accurately the burden of mental health problems in A&E (2) understanding what constitutes good quality from the patient's viewpoint and (3) improving the efficiency of the service. The three studies reported in Chapters two to four have been designed to contribute towards the knowledge in these fields, however each has weaknesses as summarised below. This chapter therefore reports on a final larger quantitative study designed to address some of these issues and provide a more thorough exploration of the issues at hand. The following sections address each of these in turn and provide justification for this final studies' aims and research questions.

5.2.1 Mental Health Attendances at A&E

The meta-analysis in Chapter two identified a lack of high quality generalisable epidemiological data on mental health attendances in A&E. This was mainly due to the dependence on routinely collected data, which was found to be of poor quality. This poor data quality led to particular problems with quantifying reasons for presentation, and it was concluded that this granular level of analysis could not be reliably carried out using routine data sets. Chapter three reported on a preliminary study which in part aimed to explore the feasibility of collecting epidemiological data in real time in A&E. It was possible to collect more accurate data on causes of presentations, and it was found that taking a needs-based approach to reporting this was the most useful approach, as little data was available on diagnoses, in part because many patients did not have confirmed diagnoses at this stage in their journey. Limitations to this study included not having access to mental health trust data, and therefore most accurate diagnostic data including co-morbidities, and also the study was underpowered due to having a relatively small sample size ($n=152$) across five sites. The results of the meta-analysis and preliminary study were quite different (4% of A&E attendances were mental health in the meta-analysis compared to 1.06% in the real-time study), and due to the small sample size and limitations of method of case identification in the real time study, we were not able to draw firm conclusions. This study therefore aims create a more accurate estimation of the proportion of

mental health patients that attend A&E with mental health problems by increasing the sample size, having a smaller number of sites and improving the approach to case identification, all of which are described in detail in the following sections. We will be addressing the research question: what is the burden of mental health problems in A&E? Linked to this, we will aim to determine the reasons for presentation, previous service use and co-morbidities and finally identify the characteristics of patients who attend A&E. These sub-categories of analysis will be used to create factors to determine if any of these factors contribute length of stay or breach, as described below.

5.2.2 Estimating the Relative Risk of Breach

An overarching purpose of this thesis was to be able to provide practical recommendations to policy makers and NHS trusts about approaches for improving performance against the four-hour target. The initial step taken is to understand the extent of the problem by exploring the proportion of mental health patients that breach, and relative risk of mental health breaches compared to other patients attending A&E. There is little generalisable data in the literature to shed light on this issue, and so one aim of this thesis is to estimate this figure. The preliminary study (Chapter three) enabled us to estimate breach rate (38.8%) and the relative risk of breach (4.9) and although five sites were included in the study which does improve generalisability, we collected data over a relatively short time period (one week) making it unlikely that this was a representative sample. Given this, we will repeat the analysis in this study which is designed over a longer period of time (six weeks) and will therefore have a larger sample size and be a more representative sample.

5.2.3 Understanding the causes of LOS and breaches

In order to address the issue of high numbers of breaches highlighted in the preliminary study and more widely in the literature, we aimed to understand what causes mental health patients to stay longer in A&E than other patients. Very little information pertaining to mental health patients was identified in the literature, with no relevant studies found that were based in UK A&Es. However, a brief review of the literature did help with the identification of candidate factors, which were used, together with factors identified with the support of clinicians working in the field in the

UK, as the basis of the preliminary study in Chapter three. Exploration of these factors identified that age, presenting complaint and the time taken for psychiatry to arrive were highly significant. We hypothesised that consistent with the literature, output factors, such as discharge destination, would have the largest impact, however we did not find this to be the case in this sample. Although this study provided some indication of the issues at hand, due to a small sample size in each site ($n=152$ over 5 sites), we were not able to draw firm conclusions about the effect of a number of factors that were predicted to play a role in the literature (process and output factors were key candidates), nor understand the differences between sites. To address these issues, this study has been designed to enable exploration of these factors by increasing the sample size through a lengthened data collection period, reducing the number of sites to three to enable between site comparisons, and improving the data collection of process factors. In addition, although the thesis set out to understand the causes of breach, the qualitative research highlighted that length of stay was a key factor that patients were concerned with, in particular longer lengths of stay (rather than an arbitrary four hour cut off). We hypothesise that the factors leading to a wait of four hours may be different to those effecting longer lengths of stay, and so analysis of the relationship between the identified factors and length of stay has been added.

The importance of taking an empirical approach to improvement and the benefit of considering programme design in order for efforts to be effective has been highlighted by Dixon-Woods and others (Dixon-Woods & Martin, 2016; Dixon-Woods, McNicol, & Martin, 2012; Nicolay et al., 2012). To provide support for A&Es in the development of improvement approaches I will include two further analyses:

- (1) Given the significance age and presenting complaint identified in the preliminary study, and the evidence that stratification of patient groups to enable targeted strategies focussed on high-risk populations has led to some improvement in performance (Betancourt, Green, Carrillo, & Owusu Ananeh-Firempong, 2016; Chin et al., 2012; Khaw et al., 2008), I will explore if it is possible to establish a group of factors that can be identified at triage that represent a high risk of breach. If achievable, it would be possible to explore the development of pro-active approaches or pathways for managing these groups of patients with the aim of reducing breach rates of length of stay.

(2) With the aim of understanding if recommendations for improvement efforts can be universal or whether sites should take individual approaches to improvement based on locally identified weaknesses, I will include analysis of between site differences as a part of this study.

5.2.4 Summary of study aims:

- (1) To more accurately estimate the proportion of mental health patients that attend A&E
- (2) To more accurately estimate the relative risk of mental health breach in A&E
- (3) To explore the factors contributing to LOS and breach in A&E, including consideration of:
 - a. The relative importance of input, throughput and output factors
 - b. The extent to which factors are site specific
 - c. The feasibility of identifying patients at high risk of breaching during triage.

5.2.5 Research Questions

With the above aims in mind, this study was designed around five research questions;

1. What is the burden of mental health problems in A&E?
 - a. What are the clinical reasons for attendance?
 - b. What is the previous service use and history of mental illness?
 - c. What are the individual patient characteristics?
2. What are the factors associated with breach and LOS for mental health patients?
3. What is the relative contribution of different factors, and input, throughput or output factors more influential?
4. Is there a cohort of patients at high risk of long LOS or breach which can be identified at triage?
5. To what extent are factors applicable to all sites and are there any that vary between sites?

5.3 Hypotheses

The following hypotheses form the basis of this study:

1. I hypothesise that it will be possible to identify a range of input factors that are associated with breach, and that these will include 'presenting complaint' and 'out of area' status, and these will be identifiable at triage.
2. Consistent with the preliminary studies findings, throughput and output factors will have the greatest impact on breach rates and length of stay, whereas input factors will have relatively little impact.
3. The impact of throughput and output factors will vary between sites.

5.4 Methods

The overall structure of this study is similar to that reported in Chapter three, however in order to overcome some limitations of that study we made a several changes in the procedure with the aim of overcoming these. We limited the number of changes in order to be able to be able to replicate some of the findings.

5.4.1 Design and sampling

This was a cross sectional, naturalistic multi-site study with a fixed time-bound sampling frame between 17th August and 28th September 2015. Three A&E sites across north central London were identified, including two inner city locations and one linked to a more residential part of London. Table 34 in Appendix 5.1 provides an overview of the three hospitals and A&Es. Data collection occurred in all three hospitals between 17th August 2015 and 28th September 2015. Data was collected from consecutive cases that presented at each of the three participating sites and was over 4 weeks in each site.

5.4.2 Procedure for identification of participants

Patients were identified using A&E computer screens, and through liaison with A&E staff and Mental Health Liaison Teams. All the relevant teams were briefed about the project as part of the set-up phase.

The inclusion criteria were: any patient aged 18 or over identified as having 'mental health problem' as the primary reason for presentation at any point in their journey through A&E (i.e. at triage or following further review). Patients presenting with alcohol and/or substance use without another acute mental health problem were included if this was the primary reason for presentation and they required a mental health intervention during this presentation. Patients were excluded if they were attending for physical health reasons and no mental health cause for presentation was identified during the attendance, if they were 17 or under or if they were attending because of drunkenness and there was no evidence of an underlying alcohol dependency.

5.4.3 Data collection procedure

Data was collected from each site in real time (divided into 12 hour data collection slots) by data collectors with expertise in mental health presentation in A&E (Psychiatry Trainees) working within the local mental health trust, who had experience of the particular A&E site, clearance to work in A&E and access to mental health electronic notes. Each data collector had an honorary contract with the participating local mental health trust to enable access to mental health trust notes as well as hospital A&E notes.

The same data procedure was utilised as in the preliminary study described in Chapter three of this thesis, with amendments as follows: (1) The number of previous A&E attendances in the past year, as opposed to all previous attendances, was collected. While this improved accuracy as it was collected from the A&E software (rather than from the patient), data was only available for the hospital site in question and information on attendances at other hospitals could not be collected. As our sites included inner-city sites with a relatively larger proportion of transient patients, collecting data only for the previous year was considered to be more accurate. (2) More detailed information about contact with mental health services was collected than in the previous study. This included recording information about the services that patients were currently registered with and those that the patient had been discharged from. This was collected as to address questions concerning the impact of specialist care on A&E management. Do such individuals under specialist mental health services present greater clinical complexity impacting on LOS? Does the availability of current mental health history and management plan reduce time required to arrive at decisions because more information about current risk may be available? (3) Physical health comorbidities were collected as it was hypothesised that those with physical health comorbidities may be more complex and have a longer LOS. (4) Detailed information about the pathway within A&E was collected, including data about which staff saw the patient and when, investigations, and whether a parallel assessment was done with A&E and psychiatric teams (a protocol implemented in some hospitals as a mechanism to reduce LOS). (5) Importantly, we prospectively collected data on the common reasons retrospectively identified as causing delays in the preliminary study, to address issues of potential chance findings.

All data collectors were trained to complete the proforma through a half day training delivered by experienced clinical research network A&E researchers and the research team. They were encouraged to include free text to describe factors leading to the presentation and collect contextual information such as reasons for delays in the movement of patients through A&E. Data collectors did not gather information directly from patients. No patient identifying information was recorded.

5.4.4 Data collection tool

The data collection tool was modified from the one used in the initial study to incorporate the changes described above. The full proforma completed on each case (see Appendix 5.2) had items divided into the following domains: The proforma had 30 fields, split up into the following domains: (1) demographics (age, gender, ethnicity, English first language, known learning disability, number of attendances in the past year), (2) reason for attendance in A&E (presenting complaint, primary reason for presentation, secondary cause (s) for presentation, co-morbidities. (3) Details of the attendance (why patient came to A&E, if patient was out of area and reason for attending this department if they were (4) Other service use (under care of specialist mental health services, type of services patient is in contact with) (5) Event in A&E (time of: arrival, triage, seen by A&E clinicians, referred to liaison, seen by liaison, details of medical/ surgical assessment and their timings, outcome was decided, time that patient left the department), if the assessment by A&E clinicians and liaison was parallel, attendance outcome, if the patient breached, the length of time patient was in department, whether the patient was admitted to CDU/ AMU/ similar short term wards, reasons for delays (check list of possible delays which was created through consultation with psychiatric higher trainees who worked in ED, plus a large open text field for details, other reasons and any relevant timings), other issues relevant to the decision to attend the A&E versus other services (free text), other contextual factors that impacted on length of stay (free text).

During training, data collectors were encouraged to write detailed notes in free text boxes. Data was codified and entered into an excel spreadsheet. The new tool was reviewed with A&E staff and the North Thames Clinical Research Network A&E Research Lead to ensure that the data could be easily collected from A&E systems. All protocols were entered into a database with coding rules specified in a data book

and entries were verified with random spot checking of 10% of entries. Missing data was entered with missing value codes indicating the reasons for a blank data field. The management of missing data was conservative and analysis was performed on an intention to treat basis, meaning all cases were included in the analysis. Where relevant, sensitivity analyses were performed to identify the impact of missingness on findings.

5.4.5 Ethics

NHS R&D was obtained for each participating site and ethics was obtained from the Health Research Authority under 15/LO/0308 “Understanding how to improve the quality of Emergency Department care, as measured by process measures (length of time in ED), patient experience and safety (patients absconding from ED), the details of which are included in Appendix 5.3.

5.5 Analytic strategy or Statistical Plan

5.5.1 Preliminary Analysis

Analysis was done in STATA 14.1 (StataCorp. 2015. Stata Statistical Software: Release 14. College Station, TX: StataCorp LP). The primary research question concerned the determinants of breaching of the four-hour target. Following the examination of the data for distributional characteristics and major differences in data across sites, between site differences were examined using Chi² test for categorical variables and Kendal’s s-test of trend where both the categories were ordered. Univariate statistics were performed to examine the strength of association with ‘breach’ each variable using appropriate (parametric or non-parametric tests). To minimise the likelihood of Type I error, the conservative approach of Bonferroni adjustment was chosen in favour of Bootstrapping. The significance level was adjusted to p<0.0004 given 130 variables in the dataset. Cramer’s V was calculated to provide a measure of association for each chi² test.

5.5.2 Hypothesis testing

Five different analyses were done to address each of the remaining aims, which are described and justified under the five key questions around which the study was focused.

5.5.3 To determine the relative importance of input, throughput and output factors

In order to answer the question about the relative importance of input, throughput and output factors in determining LOS in the first stage in this analysis, separate multiple regression models for each group of factors (input, throughput and output factors) was performed. Multivariate linear regression models were constructed using a \ln_{10} transformed LOS to calculate the minutes from arrival to end of A&E stay. Predictor variables were identified as input, throughput or output variables according to the criteria described in Chapter one of this thesis, based on the approach recommended by Aspin et al (Aspin et al., 2003). For each category of factors variables which demonstrated a significant relationship with breach according to χ^2 were considered for entry into the multiple linear regression equation predicting length of stay. These are listed in Table 13. A forward selection procedure was used, and each variable was selected if it significantly ($p<0.05$) added to the proportion of variance accounted for by the equation. There was no reasoning behind the order in which input variables were added to the model, as there was no hypothesis about sequence impacting on outcome. Throughput and output variables were added in the order in which steps in the care pathway were most likely to have been undertaken. For example, patient being seen by medics and all the associated factors (e.g. medical tests/ radiology) were input prior to the patient being seen by psychiatry and associated factors (e.g. MHA assessment). The results were expressed in tabular form with 95% confidence intervals and Beta weights, where Beta is the standardised regression co-efficient of each variable in the linear regression equation. The significance levels shown use the t statistic to test the hypothesis that there is no linear relationship between the given variable and the dependent variable. The semi-partial correlation was calculated in order to provide an alternative means of assessing the relative importance of each of the variables.

This process was repeated for throughput and output variables, creating a separate model for each of the three classes of factors. To create a model including all factors, the throughput and output variables that contributed significantly to their respective models were added to the input factors model using the same forward selection procedure as described above. These results were also displayed in tabular format, as described above.

5.5.4 Moderation

A number of independent variables were hypothesised to have a moderating effect on mental health patient's LOS in A&E. The variables examined were identified by two mechanisms. Firstly, those that were identified in the literature to have an effect on other variables (see Chapter one). For example as described in Chapter one, evidence has accumulated that patients with mental health and physical health comorbidities have higher utility of health services, are more complex to assess and manage and have longer LOS in health services in general (Dorning et al., 2015). Secondly, we included variables not researched in studies of LOS, but where pragmatic and clinical expectations may lead one to anticipate impact on A&E LOS in combination with another variable. For example, patients who attend intoxicated and, in addition, homeless could create exceptional challenges which may disproportionately increase the length of stay. The hypothesised moderators are identified, together with the rationale for inclusion, are listed in Table 62, Appendix 5.4 Given the growing literature that standardisation does not effect co-linearity (Echambadi, Campbell, & Agarwal, 2006; Echambadi & Hess, 2007), the relevant variables have not been standardised prior to forming multiplicative terms. This has the advantage of retaining the unit of measurement of the independent variable making interpretations relatively straight forward.

5.5.5 Logistic regression to determine factors associated with breach

To determine if the same factors effect LOS and breach, a logistic regression was performed using the same method as described for the multiple regression above, with breach as the dependent variable.

5.5.6 Multiple regression to determine patients at high risk of breach at arrival at A&E

A multiple regression model was built to predict LOS including only parameters that are identifiable at arrival at A&E. The model included demographics, presenting complaints, pattern of previous health service use, mode of arrival, current mental health diagnoses, physical health diagnoses and contributing factors such as intoxication. A full table of predictors that were considered is included as Appendix

5.5. The regression analysis used transformed values of LOS (\ln_{10} LOS) as the dependent variable.

5.5.7 Multiple regression of causes of LOS for out of area patients

Initial analysis of the sample showed that 38.9% were out of area (OOA) patients. It is possible that the determinants of long LOS and breaches are different for this group and initial analysis showed that the rate of breaches is significantly higher for this group. A model for LOS specifically for out of area patients was therefore constructed. The initial Chi² analysis was undertaken to identify factors that were associated with breach or site for this subgroup in order to identify any differences with the full sample. The regression model was built using the same approach and criteria as described in section 5.4.6 above for the whole population.

5.5.8 Loglinear analysis to assess the impact of site as a moderator of length of breach

To determine the mediating effect of site on the two-way interactions, loglinear analysis was performed with the dependent variable of breach for the whole sample. All factors found to be significantly associated with breach were tested in the model. This analysis was undertaken using SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Macintosh, Version 22.0. Armonk, NY: IBM Corp.).

5.6 Participants

The table below provides an overview of the demographic characteristics of the participants in this study.

Table 11 Showing the demographic characteristics of the sample across the three sites. Statistical tests refer to between site differences using χ^2 statistic

	Barts (n, %)	UCLH (n, %)	Whittington (n, %)	Total (n, %)	Statistical Tests
Age Distribution					
18-24	49 (19.29%)	42 (17.65%)	22 (16.42%)	113 (18.05%)	
25-34	90 (35.43%)	68 (28.57%)	40 (29.85%)	198 (31.63%)	
35 - 44	48 (18.90%)	54 (22.69%)	25 (18.66%)	127 (20.29%)	$\chi^2 (14)=20.66$, $p=0.11$
45 - 54	35 (13.78%)	46 (22.69%)	22 (16.42%)	103 (16.45%)	
55 - 64	19 (7.48%)	16 (6.72%)	11 (8.21%)	46 (7.35%)	
65 - 74	10 (3.94%)	11 (4.62%)	8 (5.97%)	29 (4.63%)	
75 +	3 (1.18%)	0 (0.00%)	6 (4.48%)	9 (1.44%)	
Ethnicity					
White	118 (46.09%)	97 (40.76%)	67 (50.00%)	282 (44.90%)	
Mixed-white	22 (8.59%)	12 (5.04%)	25 (18.66 %)	59 (9.39%)	$\chi^2 (8)=113.71$, $p=<0.0001$
Asian	63 (24.61%)	10 (4.20%)	7 (5.22 %)	80 (12.74 %)	
Black	19 (7.42%)	15 (6.30 %)	9 (6.72%)	43 (6.85%)	
Refused/ declined/ not known	34 (13.28%)	104 (43.70%)	26 (19.40%)	164 (26.11%)	
BME	104 (46.85%)	37 (27.61%)	41 (39.22%)	182 (39.22%)	$\chi^2 (2)=13.06$, $p=0.001$
Weekend presentation	62 (24.22%)	56 (23.53%)	35 (26.12%)	153 (38.8%)	$\chi^2 (2)=0.32$, $p=0.85$
English Not First Language	33 (14.80%)	34 (17.8%)	24 (20.17%)	91 (17.07%)	$\chi^2 (2)=1.69$, $p=0.43$
Frequent A&E Attenders	71	51	26	148	$\chi^2 (2)=3.89$,

(> or equal to 3 previous in current year)	(27.73%)	(22.27%)	(19.40%)	(23.91%)	<i>p</i> =0.14
Out of Area	88 (34.38%)	119 (50.0%)	37 (27.61%)	244 (38.85%)	χ^2 (2)=21.74, <i>p</i> <0.001
Patient Absconds	34 (13.28%)	23 (9.66%)	12 (8.96%)	69 (10.99%)	χ^2 (2)=2.37, <i>p</i> =0.31
Police involved in presentation	35 (14.71%)	42 (17.80%)	19 (14.18%)	96 (15.79%)	χ^2 (2)=1.19 <i>p</i> =0.55

The commonest age of presentation was 25-34 years in all sites, with an average age of 37.8 years (18 to 85 years, S.D. = 14.44). There was no difference in the age of patients between the sites (χ^2 (14)=20.66, *p*=0.11). Black and ethnic minorities represented 39.22% of the sample, with Asian heritage being most commonly represented (12.74%). For over a quarter of the sample ethnicity was not known, either as patients declined to share the information or it was not collected either by the A&E or the auditors (26.11%). Chi-squared test highlighted that there was a difference in ethnicity distribution between sites (χ^2 (8)=113.71, *p*<0.0001), which was accounted for by a large Asian population at Barts (24.61%), a very large number of unknowns at UCLH (43.70%) and a large mixed white population at the Whittington (18.66%). Related to this, English was not the first language for 17.0% of attendances, but no difference was found between sites. Presentation at the weekend accounted for 38.8% of attendances with no difference between sites. The number of attendances at A&E in the past year was collected with those attending three or more times in the past year being classified as 'frequent attenders'. These participants accounted for 23.91% of the sample with no difference between sites. A large number of participants were 'out of area', meaning they had attended an A&E that was not within the locality they lived in (38.85%). χ^2 squared highlighted a difference between sites, which was accounted for by a very large proportion of UCLH participants being out of area (50%), χ^2 (2)=21.74, *p*<0.001. Almost 11% of patients absconded, and 15.8% attendances were associated with the police, both of which were consistent across sites.

5.6.1.1 Comparison with Preliminary Study

Comparison of these demographic data with the sample in our preliminary study (Table 5) highlights a number of similarities and some differences.

5.6.1.2 Demographics

The proportion of BME attendees was slightly higher in this study (39.22% vs. 33.3%) however in the preliminary study there was no difference between sites, whereas a marked variation is noted in the current study. The proportion of those without English as a first language was almost identical in both studies (17.1% vs. 17.07%) with no variation between sites found in either study.

5.6.1.3 Pattern of A&E Use

Weekend presentations were identical in the two studies (38.8%), although in the preliminary study there was a difference between sites, which was not replicated in this study. In the preliminary study one site had a much lower rate of weekend presentations, at less than half the rate of the other four sites, which indicates there may have been an error in week-end data collection in that site.

'Frequent attenders' was calculated differently in the two studies, with the total number of A&E attendances in a life time collected in the preliminary study and the total attendances in the previous year collected in this study. The definition of frequent attendance was modified in this study so it was comparable, with 4 or more attendances used as the definition in the preliminary study and 3 or more in this study, which was felt reasonable given the tendency for attendances to be clustered. When comparing these figures, the preliminary study appeared to yield similar proportion of frequent recent attendees (20.3% compared to 23.91% in the current study).

There was a marked difference in the proportion of out of area patients, with 27.8% in the preliminary study vs 38.85% in this larger one. Chi-squared found a difference in both, accounted for by a large proportion at UCLH in this study and a small proportion at Barnett and Whipps Cross in the smaller study.

The number absconding in both was very similar (11.3% vs. 10.99%). Although the difference between sites reached significance in the small study and not in the present study, which was due to a very high value at Barnet (30.0%) and a very low value at UCLH (0%) in the preliminary study.

The preliminary study collected data on whether the patient was registered with a GP, which the current study did not collect.

Finally, the proportion of attendances with police involvement was markedly different, with the current study finding less than half the number (14.79% vs. 32.9%). However, in both cases there was no difference between sites.

5.6.2 Summary

To summarise, the variables that were similar between sites were; age, BME attendances, weekend presentations, English not the first language and number of absconders. The key differences were in the number of patients attending with police involvement and the number of out of area patients. ‘Frequent attenders’ was calculated differently in the two studies and so are arguably not comparable, and there is a lack of data on GP registration in the current study. The difference in police attendances may be due to the different sites’ policies, or the presence of a place of safety in the ED, which would lead to more s137 patients attending. The number of out of area patients is higher in this study, mainly represented by UCLH, which has the highest proportion in both studies.

Given that nearly 40% of the population is out of area it will be important to establish if predictors of breeches are determined by this demographic feature and separate analyses will be reported for this group in order to determine the generalisability of the results observed for the whole sample. A sub-analysis for this population, including initial and regression analyses, will help to determine if different factors contribute to LOS in this group.

5.7 Results

5.7.1 Breach Rates

The table below shows the frequency of presentation and breaches for both mental health and non-mental health patients in the three participating A&Es. ‘Mental health patients presenting in A&E’ represent the patients that were identified during the study. ‘Total presentations to A&E’ and ‘Non-mental health breaches’ are obtained from routinely collected data for presentations in the corresponding week, collected from NHS Digital website (NHS Digital, 2015).

Table 12 Breaches and Length of Stay in Three North Central East London (NCEL) A&Es

	Barts (n, %)	UCLH (n, %)	Whittington (n, %)	Total (n, %)
Total Number of presentations to A&E	23,427	10,258	3,583	37,268
Mental health patients presenting to A&E	256 (1.09)	238 (2.32)	134 (3.74)	628 (1.69)
Total breaches in A&E	3,167 (13.52)	718 (7.00)	178 (4.96)	4,063 (10.90)
Non-mental health breaches	3,060 (13.21)	592 (5.91)	139 (4.03)	3,791 (10.34)
Mental health breaches	107 (41.80)	126 (52.94)	39 (29.10)	272 (43.31)
Length of Stay/Minutes (mean, SD)	261, SD= 190	396, SD = 323	262, SD = 170	313, SD = 313
Relative risk of mental health breach (95% CI)	3.19 (2.51 – 4.05)	8.99 (6.27 – 12.91)	6.53 (2.56 – 16.65)	4.20 (3.56 – 4.95)
χ^2 (1)	68.39	186.54	17.45	249.43
p<	0.00001	0.00001	0.00003	0.00001

5.7.2 Prevalence of Mental Health Attendance

Mental health patients represented 1.69% of the A&E attendances during the period of data collection. This varied between 1.09% at Barts and 3.74% at the Whittington. This compares to the meta-analysis value of 4% and the preliminary study results of 1.06%.

The difference in numbers of people attending with mental health complaints is increased from 1.06% in the preliminary study to 1.69%. This increase by 59% is only partially explained by the increase in mental health patient attendance at A&E during a comparable time, which is reported to be approximately 8% (Dorning et al., 2015). The remaining 51% could be explained by better case finding as a result of improved methodology. Firstly, data collectors attended A&E for a full 24 hours, meaning it is likely there was less opportunity for mental health patients to be missed. Secondly, data collectors were asked to carry out reconciliation at the end of each 24-hour period, checking the number of mental health patients as identified by the A&E department with their records, and reviewing any cases that were missed and adding these as necessary. Finally, the data collection period was longer and with the greater power this brings, the results will be more accurate. Whatever the reason, it is important to note that whenever there is a failure to replicate the previous study this absence of correspondence is most likely due to the inclusion of cases that might have been missed in the previous investigation.

This study finds the attendance rate to be just under half that calculated in the meta-analysis (4%). It is possible that this study provides a more accurate estimation as the meta-analysis was based on relatively poor quality studies, with very few based in the UK and the majority using routinely collected data from A&E. The latter is notoriously problematic due to poor quality of recording as described in the introduction. It is feasible that despite the relatively short sampling window and restricted number of sites, the more robust methods including real-time collection of data from trained psychiatrists in this study has provided a more accurate estimation of urban mental health presentations than the meta-analytic aggregate reported above. However, despite improved methods it is still possible that patients were missed, or that due to the relatively short timeframe for data collection (four weeks) limited to three central

London teaching hospitals, that the sample was not seasonally and geographically representative of even an urban population. Given this although the quality of this study is better than almost all of those included in the meta-analysis, it is neither sufficiently powered nor generalisable enough to conclude that these results represent an accurate reflection of the burden of mental health in A&E nationally.

5.7.3 Relative Risk of Mental Health Breach

Of the 628 patients presenting with mental health problems, 272 breached, which translates to a breach rate of 43.31%. In comparison, only 10.34% of non-mental health patients breached. This translates to a relative risk of breach for mental health patients of 4.20 (CI = 3.6 – 5.0). These results are consistent with the preliminary study, which calculated the overall breach rate at 38.8%, with a relative risk of 4.9 (4.5 – 5.4). To date there have been no academic estimates of the breach rates for mental health patients in the literature so national comparisons are not possible.

5.7.4 Factors associated with breach

To assess which factors were associated with breach, each independent variable was tested for its association with site and breach using χ^2 . Cramer's V was used as a measure of the strength of the observed relationship. All variables tested are listed in Table 13 below and are categorised as input, throughput or output variables (see page 39, section 1.7.3 for an explanation of this categorisation). The tables in Appendix 5.11 and 5.12 provide a definition of the primary presenting complaints and contributing factors. Given the binary nature of breach no data screening e.g. for normal distribution or outliers was undertaken. Analysis was undertaken on an intention to treat basis (i.e. all participants were entered into the analysis notwithstanding missing data), with missing values conservatively treated as 0 or absent. This approach was adopted because listwise deletion of cases with missing data would have biased the sample towards cases where data points were relatively easy to obtain and by coding missing conservatively as absent, reducing the likelihood of chance findings.

The table below shows a summary of the size of associations found between input, throughput and output factors and (1) site and (2) breach, together with each test's significance, which is indicated with a * system. As described in the analysis section,

Bonferroni Adjustment required a probability of $p<0.0004$ to reach statistical significance. [^] indicates that Fisher's exact test was performed due to small numbers in sub-groups. [§] indicates that Kendall's Tau was used taking into consideration the ordinal scale on which the variable was coded. Results on demographics are reported in the previous section.

Table 13 Providing an overview of the significance of Chi2 and Cramer's V for input, throughput and output factors, showing the results for the preliminary study and current

		Variation between sites (preliminary study) N=152, 5 sites	Variation between sites (current study) N=628, 3 sites	Association with breach (preliminary study) N=152, 5 sites	Association with breach (current study) N=628, 3 sites
		χ^2 , p	Cramer's V	χ^2	Cramer's V
Breach		188.90, p<0.001	0.18***	n/a	n/a
Demographics	Input Factors				
	Age	Not possible	0.09	12.20*	0.08
	Gender	Not done	0.07	Not done	-0.02
	Ethnicity	5.11	0.30***	3.33	0.13
	Learning Disability	6.31	0.06	0.11, p=0.106	0.006
	Fluent in English	Not collected	0.13	Not collected	0.03
	Out of area	17.00, p=0.02	0.19***	0.02, p=0.879	0.09
Presenting Complaints	No fixed abode	Not possible	0.13	1.29, p=0.256	0.13
	Presenting complaint	25.91, p=0.011	0.13	8.46, p=0.037	0.31***
	Any physical health co-morbidity	Not collected	0.06	Not collected	0.14
	Alcohol/drug dependency (no diagnosis)	Not collected	0.12	Not collected	0.09
Service Use	No of previous attendances	0.12*, p=0.118	\$0.09	0.09, p=0.298	-0.05\$
	Contact with primary care	19.59, p=0.075	Not collected	0.60, p=0.900	Not collected
	Patient has ever been under mental health services	Not collected	0.27***	Not collected	0.11
	Alcohol or Substance misuse services	Not collected	^0.18***	Not collected	0.04

Characteristics of attendance	Mode of arrival	34.40, p=0.001	0.12	5.31, p=0.150	0.11
	Under s137	Not collected	0.07	Not collected	0.14
	Any police involvement	5.98, p=0.200	0.04	0.32, p=0.573	0.11
	Day patient attends (all days)	Not possible	0.04	14.52, p=0.024	0.12
	Day patient attends (week day vs. weekend)	10.38, p=0.030	0.02	4.06, p=0.040	0.07
	Time of arrival	12.41, p=0.140	0.02	0.05, p=0.977	0.05
Contributing presenting problems	Drug and/or Alcohol Intoxication	Not possible	0.07	Not possible	0.05
	Violence and/or aggression	Not possible	0.11	Not possible	0.08
	OD or DSH	Not possible	0.11	Not possible	0.16***
	Thoughts DSH or suicide	Not possible	0.11	Not possible	0.17***
	Agitation / abnormal behaviour	Not possible	0.10	Not possible	0.15***
	Physical health problem	Not possible	0.01	Not possible	-0.08
	Anxiety	Not possible	0.03	Not possible	-0.08
	Low mood	Not possible	0.02	Not possible	0.009
	Stressed or can't cope with a situation	Not possible	0.10	Not possible	0.08
Mental Health Diagnoses	Any mental health diagnosis	Not collected	0.11	Not collected	0.04
	Any mental health (excluding Drugs, alcohol & learning disability)	Not collected	0.04	Not collected	0.10
	Alcohol and/or drug misuse problem	Not collected	0.11	Not collected	0.09
	Depression and/or Anxiety	Not collected	0.06	Not collected	-0.02
	Schizophrenia	Not collected	0.10	Not collected	0.09

	Bipolar (separate because of overlap with borderline)	Not collected	0.04	Not collected	0.04
	Personality disorder/ deliberate self-harm	Not collected	0.08	Not collected	0.19***
Physical Health	Any physical health co-morbidity	Not collected	0.06	Not collected	0.14
	Throughput Factors				
Time	Time taken to refer to psychiatry > 60 mins	21.78, p=0.0001	0.37***	4.40, p=0.036	0.16
	Time taken for psychiatry to arrive > 60 mins	12.07, p=0.017	Not collected	10.07, p=0.002	Not collected
Process Reasons for delay	Patient can't be seen because of intoxication	Not possible	0.02	0.019, p=0.014	0.16***
	Difficulty making referral to specialist team	Not possible	Not collected	0.001, p=0.001	Not collected
	Waiting specialist review	Not done	0.09	Not done	0.16***
	Investigations	Not possible	0.07	<0.001, p=0.001	0.24***
	Medical assessment	Not done	0.02	Not done	0.25***
	Waiting for psych review	Not possible	^0.08	0.53, p=0.27	^0.10
	Waiting to be seen in A&E	Not done	0.18***	Not done	-0.0005
	Waiting for MHA Assessor	Not done	^0.21	Not done	0.26***
	Mental health team not on site	Not done	^0.14	Not done	^0.17***
	Psychiatry particularly busy	Not done	0.07	Not done	0.09
	A&E particularly busy	Not done	0.07	Not done	0.06

	Waiting to be medically cleared	Not done	0.07	Not done	0.21***
	Delay in referral to psych	Not done	0.11	Not done	0.17***
	Patient's behaviour	Not done	0.13	Not done	0.25***
	Difficulty with communication with mental health	Not done	^0.16	Not done	0.25***
Clinical Type & Nature of Assessment	Parallel Assessment	Not collected	0.18	Not collected	0.33***
	ED Dr Assessment	Not collected	0.26***	Not collected	0.22***
	Seen by Psychiatry	Not collected	0.15	Not collected	0.46***
	Seen by A&E SHO	Not collected	0.14	Not collected	0.08
	Seen by A&E Registrar	Not collected	0.21***	Not collected	0.11
	Seen by A&E Consultant	Not collected	0.03	Not collected	-0.004
Investigations	Bloods	Not collected	0.03	Not collected	0.28***
	Radiology	Not collected	0.04	Not collected	0.16***
	ECG	Not collected	0.03	Not collected	0.18***
	Urine analysis	Not collected	0.08	Not collected	0.12
Output Factors					
Discharge Destination	Outcome of visit	30.04, p=0.0001	^0.001	4.84, p=0.090	^0.41***
	Delays in accessing a mental health inpatient bed	Not possible	^0.15	0.001, p=0.001	^0.35***
Reasons for Delay	Delays waiting for an acute IP bed	Not done	^0.07	Not done	^0.16***
	Delay with transport or transfer	Not done	^0.09	Not done	^0.28***

5.7.5 Summary of differences in findings relating to input, throughput and output factors between preliminary study and current study

5.7.5.1 Input Factors

There were marked differences found between the current and preliminary study. After Bonferroni Adjustment, the only factor significant between sites was mode of arrival in the preliminary study. This was not replicated in the current study. No input factors were significantly associated with breach in the preliminary study. Whereas in the current study the primary presenting complaint, including presenting with DSH including OD, thoughts of self-harm or suicidal ideation and agitated behaviour, having an existing diagnosis of personality disorder or frequent self-harm were all associated with breach.

5.7.5.2 Throughput Factors

Due to problems with data collection methods in the preliminary study only two factors were examined and the only factor that varied significantly between sites was the amount of time taken to refer to psychiatry. This was replicated in the current study. No throughput factors were found to be significantly associated with breach in the preliminary study and a range of additional factors were examined in the current study which is reported in the sections below.

5.7.5.3 Output Factors

In contrast with the literature there were a number of factors which were not found to be significantly associated with breach in the preliminary study, which we hypothesised to be due to a lack of power. In the better powered current study they did reach significance, supporting our hypothesis. These factors were outcome of the visit and absconding.

5.7.5.4 Conclusions

The improved power of this study led to identification of factors associated with breach that were not found in the preliminary study. The only factor found to differ between

sites in the preliminary study was not replicated here, which is likely to be attributable to the different sites included in this study.

5.7.6 Summary of the relationship between input, throughput and output factors and breach in the extended study

The following section reports the findings of the current study, without comparison with the preliminary study unless a point of particular interest is noted. For each factor we tested variation between sites as well as the association with breach. No significant associations were found between sites. Where a significant relationship is found between breach and the factor in question, I have performed a loglinear analysis with the aim of finding factors that can predict breach for the factor in question. The sections below provide a summary of these results. Tables showing the results of χ^2 , together with a detailed narrative of each of the results found to be significant can be found in Appendices 5.6, 5.7 and 5.8.

5.7.6.1 Input Factors

In summary, we found no significant associations between demographics, patterns of service use, the characteristic of the attendance or physical health co-morbidity and breach. A significant relationship was found between the presenting complaint, where those attending with agitation or abnormal behaviours identified by others or DSH are more likely to breach, whereas those with anxiety or abnormal experiences identified by themselves are less likely to breach. Of the contributing factors tested, OD/DSH, thoughts of DSH/Suicide and agitation/abnormal behaviour were all significantly associated with increased likelihood of breach and there were no contributing factors that were observed to decrease the likelihood of breach. Hierarchical loglinear analysis identified that patients with thoughts of self-harm or suicide and either had difficult behaviour, attended on s136 or had to wait for MHA assessment were more likely to breach. Confirming this pattern, having a prior diagnosis of personality disorder or self-harm was also found to be significantly associated with breach.

5.7.6.2 Throughput factors

This section investigates the relationship between a range of process measures and the likelihood of breach. While it is not possible to make conclusive causal inferences based on any of these findings from this study because of the study's observational nature, it is possible to infer a degree of probable cause on the basis of the associations between the variables tested. For example, our input factors are related to the patients themselves and so the relationship between cause and effect is clearer. However, the relationships between breach and the process factors discussed in the following section are less clear as it is possible that the breach itself is described, rather than the cause of a breach. Thus, variables related to patients having investigations in themselves cannot be considered to be causing breaches but the reasons for requiring an investigation is appropriately considered a cause. Most dramatically, the involvement of psychiatry in the process may be associated with increased likelihood of breach but removing psychiatrists would not resolve the problem. Another example, we can distinguish between a CT head that appears to be causing the breach, but associated with the scan are the reason the patient required a CT head in the first place to which the breach is appropriately attributed. Having made the distinction, it seems important to establish that from a pragmatic standpoint, the procedural issue that is linked to the breach may be deserving of study in case the protocols currently in use in relation to the procedure may be modified to reduce the risk of breach. For example, procedural changes to the requirement for the CT head may prevent a breach. In brief, the process variables have the capacity to alert us where the likelihood of breach may be reduced but how this may happen cannot be addressed without exploring the network of associated variables. In following sections I explore this in more depth in relation to patients presenting with agitation or overdose.

I found no significant associations between the efficiency of referral to psychiatry and breach. I hypothesised that parallel processing would reduce the risk of breach and found some evidence for this. Seeing the mental health team was strongly associated with breach, but when looking at the effect of parallel assessment, this effect size reduced, indicating that when mental health patients were seen in parallel with the medical team the likelihood of breach reduces.

We hypothesised that more senior clinicians would reduce likelihood of breach, however we found no significant association between clinician grade and breach.

Having investigations was associated with breach, with radiology, bloods and ECG all increasing the risk of breach.

Finally, a significant relationship was found between a range of process factors that caused delays, which were: delays in assessment due to intoxication, waiting for specialist review, delays with investigations, having a medical problem that needed additional assessment, waiting for MHA assessors, the mental health team not being on site, waiting for medical clearance, delays in referral to psych and difficulty in managing patient's behaviour.

5.7.6.3 Output Factors

In summary, the discharge destination was found to be significantly associated with breach, with a strong effect size. Patients who absconded or were discharged home were less likely to breach whereas those being admitted to mental health beds were the most likely to breach. Consistent with this, breach was associated with delays in accessing beds (acute and mental health) and issues relating to transfer out of A&E.

5.7.7 Examining the effect of throughput factors on the relationship between input factors and breach

My discussion of throughput factors in section 5.6.6.2 above recognises that establishing a causal relationship between the throughput factors and breach is problematic because it does not recognise the underlying patient related factors, such as presenting complaint, that lead to the processes being required. Consideration of the throughput and input factors associated with breach led me to develop the following hypotheses:

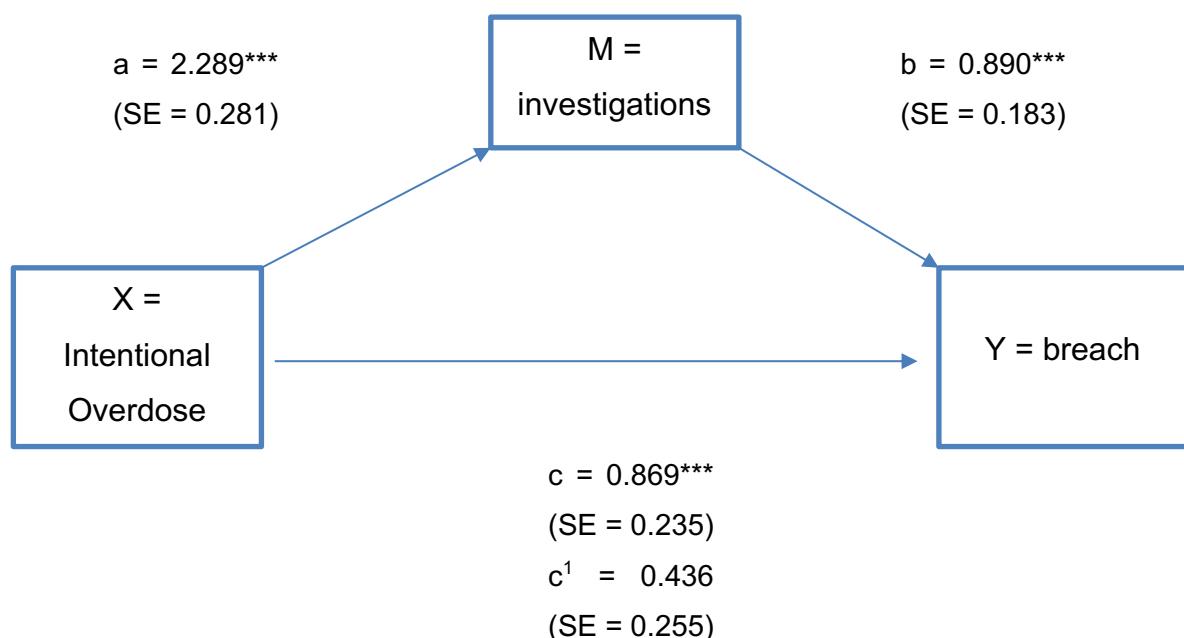
1. Individuals presenting with intentional overdose are more likely to breach due to the requirement for medical investigations and/or medical review.

2. Individuals presenting with agitation or abnormal behaviour are more likely to breach because they require MHA assessment or because their behaviour in the ward is problematic.

To test these, I undertook mediation logistic regression analysis using the Baron and Kenny four step approach to mediation analysis and calculated the proportion of variation explained by the mediation pathway using an excel programme developed by Herr, which was developed based on MacKinnon's work on estimating mediated effects. To test these, I undertook mediation logistic regression analysis using the Baron and Kenny four step approach to mediation analysis (Baron & Kenny, 1986) and calculated the proportion of variation explained by the mediation pathway using an excel programme developed by Herr (Herr, 2018), which was developed based on MacKinnon's work on estimating mediated effects (MacKinnon, Warsi, & Dwyer, 1995).

5.7.7.1 Medical Investigations as a mediator of the relationship between intentional overdose and breach

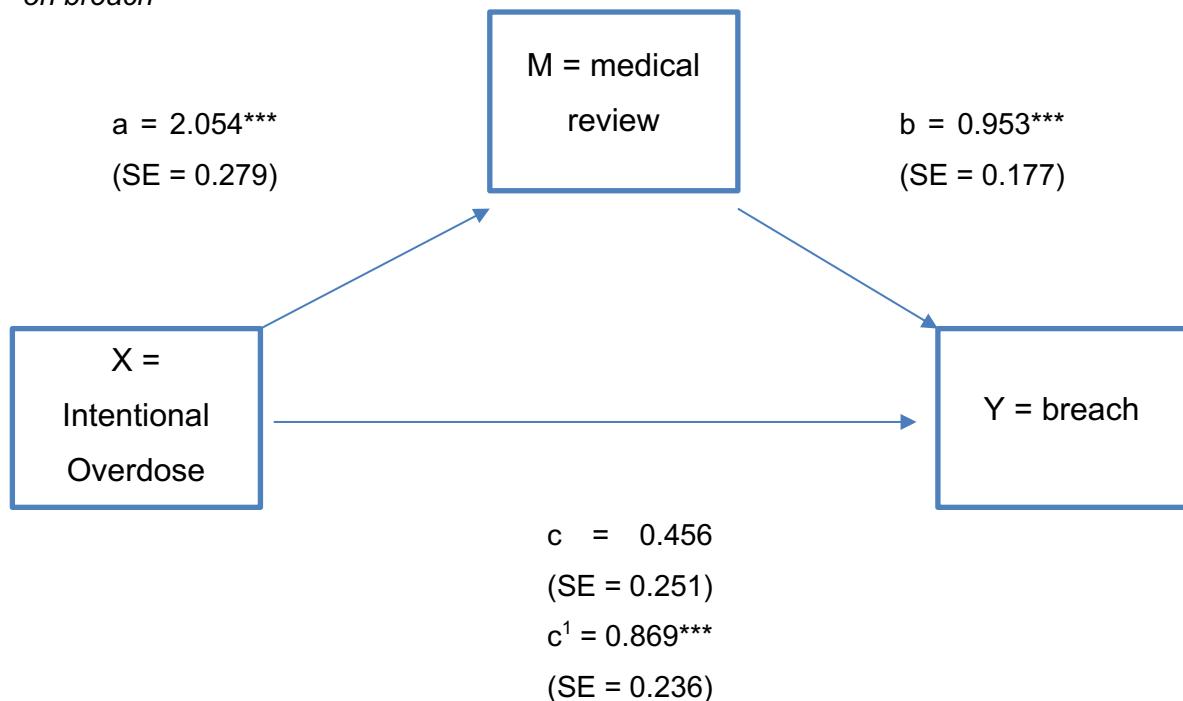
Figure 10 Showing the results of the logistic regression testing the hypothesis that the requirement for medical or surgical investigations mediates the effect of presenting with an intentional overdose on breach



The figure above illustrates the results of the mediation analysis. Logistic regression analysis was used to investigate the hypothesis that the requirement for medical or surgical investigations mediates the effect of presenting with an intentional overdose on breach, using the approach by MacKinnin & Dwyer (MacKinnon et al., 1995). Results indicated that intentional overdose was a significant predictor of needing investigations, $b = 2.289$, $SE = .281$, $p < .0001$, and that investigations was a significant predictor of breach, $b = .890$, $SE = .183$ $p < .0001$. These results support the mediational hypothesis. Intentional overdose remained a significant predictor of breach after controlling for the mediator, investigations, $c = 0.869$, $SE = .235$, $p < 0.001$, consistent with no mediation. Approximately 6% of the variance in breach was accounted for by the predictors ($R^2 = .059$). The indirect effect was tested using Baron and Kenny's steps for mediational hypotheses (Baron & Kenny, 1986). These results indicated the indirect coefficient was not significant, $c_1 = .436$, $SE = .255$, $p = 0.087$.

5.7.7.2 Specialist medical review as a mediator of the relationship between intentional overdose and breach

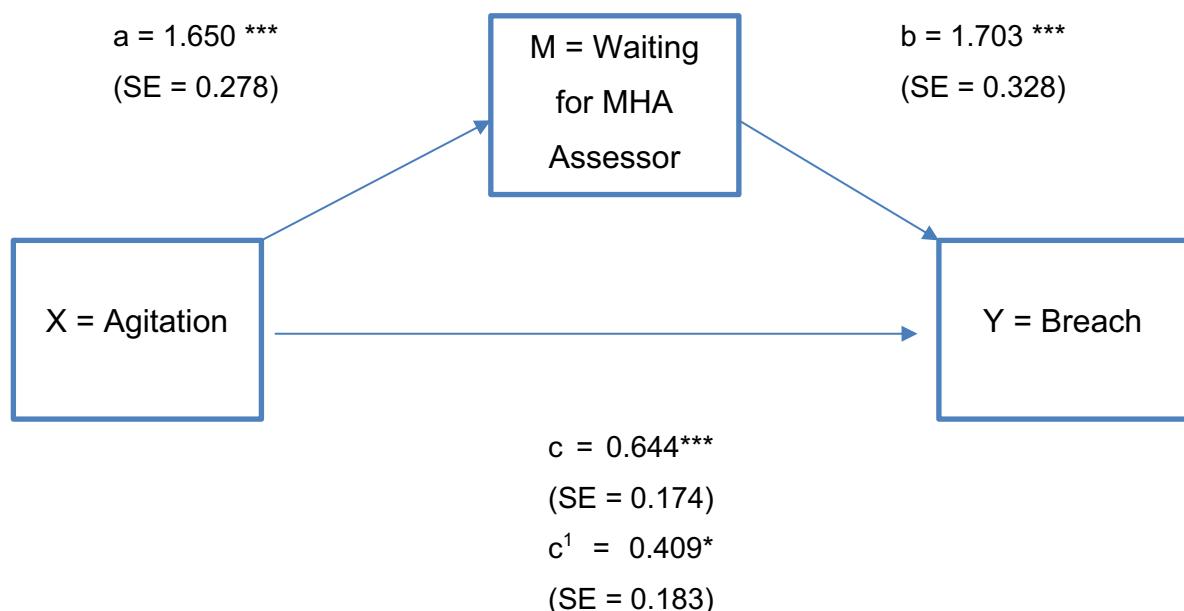
Figure 11 Showing the results of the logistic regression testing the hypothesis that the requirement for medical review mediates the effect of presenting with an intentional overdose on breach



The figure above illustrates the results of the mediation analysis. Results indicated that intentional overdose was a significant predictor of needing a medical review, $b = 2.054$, $SE = .279$, $p < .0001$, and that medical review was a significant predictor of breach, $b = .953$, $SE = .177$ $p < .0001$. These results support the mediational hypothesis. Intentional overdose was no longer a significant predictor of breach after controlling for the mediator, medical review, $c = .0456$, $SE = .251$, $p = 0.069$, consistent with full mediation. Approximately 9% of the variance in breach was accounted for by the predictors ($R^2 = .09$). The indirect effect was tested using Baron and Kenny's steps for mediational hypotheses (Baron & Kenny, 1986). These results indicated the indirect coefficient was significant, $c_1 = .869$, $SE = .236$, $p < 0.0001$. The proportion of the effect mediated was calculated to be 96.7% according to Baron & Kenny's method (Kenny, 2006).

5.7.7.3 Waiting for MHA assessor as a mediator of the relationship between agitation and breach

Figure 12 Showing the results of the logistic regression testing the hypothesis that the waiting for a MHA assessor mediates the effect of presenting with agitated behaviour on breach

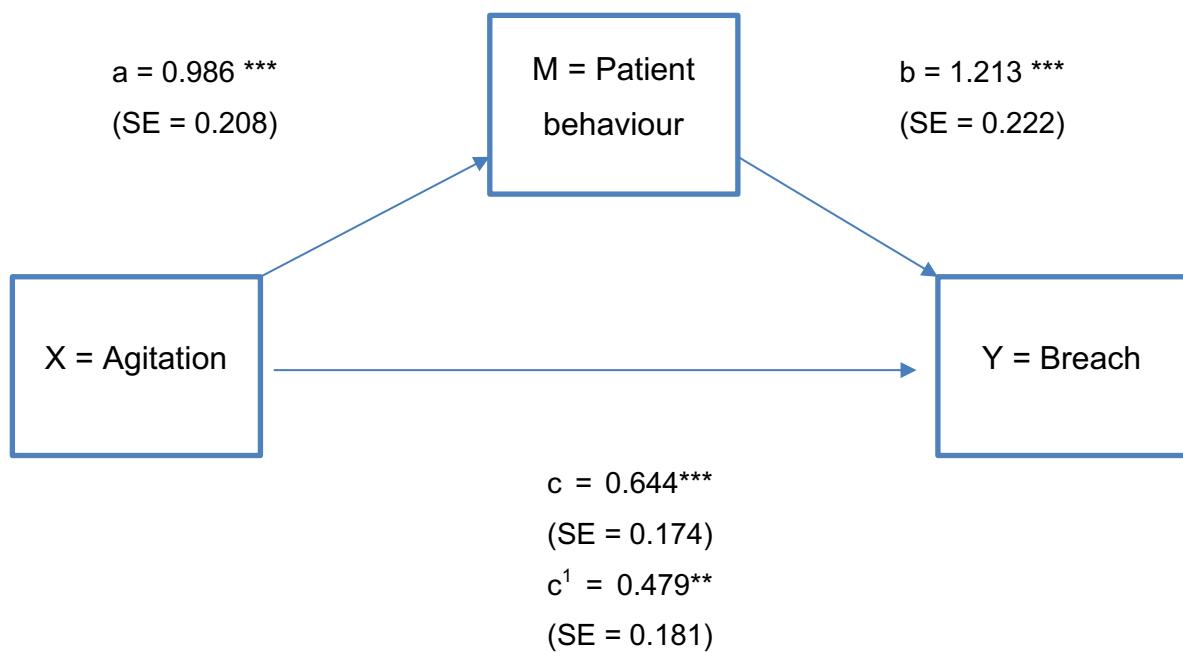


The figure above illustrates the results of the mediation analysis and indicate partial mediation. Results indicated that agitation was a significant predictor of waiting for a MHA assessment, $b = 1.650$, $SE = .278$, $p < .0001$, and that waiting for a MHA

assessment was a significant predictor of breach, $b = 1.703$, $SE = .328$ $p < .0001$. These results support the mediational hypothesis. Agitation remained a significant predictor of breach after controlling for the mediator, medical review, $c = .0.644$, $SE = .174$, $p < 0.0001$, consistent with partial mediation. Approximately 10% of the variance in breach was accounted for by the predictors ($R^2 = .097$). The indirect effect was tested using Baron and Kenny's steps for mediational hypotheses (Baron & Kenny, 1986). These results indicated the indirect coefficient was significant, $c_1 = .409$, $SE = .183$, $p = 0.026$. The proportion of the effect mediated was calculated to be 21% according to Baron & Kenny's method (Kenny, 2006).

5.7.7.4 Difficulties managing patient behaviour as a mediator of the relationship between agitation and breach

Figure 13 Showing the results of the logistic regression testing the hypothesis that difficulties in managing patient behaviour mediates the effect of presenting with agitated behaviour on breach



The figure above illustrates the results of the mediation analysis and indicate that there is a partial mediation. Results indicated that agitation was a significant predictor of difficult patient behaviour, $b = 0.986$, $SE = .208$, $p < .0001$, and that difficult patient behaviour was a significant predictor of breach, $b = 1.213$, $SE = .222$ $p < .0001$. These results support the mediational hypothesis. Agitation remained a significant predictor

of breach after controlling for the mediator, patient behaviour, $c = 0.644$, $SE = .174$, $p < 0.0001$, consistent with partial mediation. Approximately 10% of the variance in breach was accounted for by the predictors ($R^2 = .095$). The indirect effect was tested using Baron and Kenny's steps for mediational hypotheses (Baron & Kenny, 1986). These results indicated the indirect coefficient was significant, $c_1 = .0447$, $SE = .181$, $p = 0.069$. The proportion of the effect mediated was calculated to be 37.7% according to Baron & Kenny's method (Kenny, 2006).

5.7.7.5 Summary of mediation analyses

My results indicate that having medical investigations does not explain the association between presenting with an intentional overdose and breaching, however waiting for a medical review does. Waiting for a medical review was found to fully mediate the relationship between overdose and breach.

The relationship between presenting with agitation and breaching was partially mediated by two variables; waiting for a MHA assessment and difficulty in managing the patient's behaviour while they are in the department. Waiting for MHA assessment explained 21% of the variance whereas difficulty with behaviour explained 38% of the variance.

5.7.8 Sites as mediators of breach

In order to determine the mediating effect of site on the two-way interactions, logistic regression analysis of breach was performed with the dependent variable of breach. All factors found to be significantly associated with breach were tested.

Six factors were found to be mediated by site, one related to the presentation, four were associated with physical health assessment and related investigations and processes and one was to do with communication with the mental health team: (1) presenting with an overdose, (2) when the patient required a medical assessment in A&E, (3) blood tests performed, (4) ECG performed, (5) delays caused by a medical problem requiring assessment and (6) delays caused by communications with mental health teams.

Table 14 Summary table displaying the OR of breach for the six factors with significant associations between breach and site

	Barts	UCLH	Whittington
Presenting with an overdose	5.43	1.64	0.93
Patient required a medical assessment in A&E	4.95	5.68	1.00
Blood tests	6.00	2.17	1.17
ECG	5.05	1.41	0.88
Delays caused by a medical problem requiring assessment	7.16	1.59	2.00
Delays caused by communications with mental health teams	2.54	37.21	5.55

Patients presenting with OD are much more likely to breach at Barts so being admitted to that unit accounts for the impact of OD on breach rates. The Whittington performs best in for all of the factors relating to medical assessment with the OR of breach being small compared to the other sites with the other two sites accounting for the impact of medical assessment on the likelihood of a breach. Barts performs particularly badly in relation to these factors. Finally, UCLH performs much worse than either of the other sites in relation to communications with mental health team, leading to an OR of breach of 37.21, compared to Whittington (5.55) and Barts (2.54) so the impact of communication with mental health team delaying A&E process largely attributable to the UCLH site.

5.7.9 Predicting Length of Stay

The regression analysis was done to understand the relative contribution of different factors to length of stay, with the aim of providing a basis for recommendations as to how best improvement efforts may be guided. While predicting breach was seen to be important, it was felt that understanding the factors that modelled length of stay (LOS) may be more valuable for a range of reasons including: (1) qualitative data collected from patients and reported in Chapter four indicates that length of stay in A&E is felt to be important, and patients do not recognise the arbitrary four-hour cut off as particularly significant, (2) research summarised in the rapid review in Chapter one indicates that output factors have the greatest impact on A&E functioning and that longer delays in discharge from A&E lead to problems with patient flow, and so a model that helps explain the longer lengths of stay is useful (3) clinical leads involved in the study agree that as the four hour wait is arbitrary, a model helping to explain LOS would be a preferable approach; (4) the mere fact that a 4 hour cut-off has been established as a key performance indicator means that the processes created around that indicator will not be representative of the natural process of a mental health patient's journey through A&E and LOS may surface aspects of the underlying processes better. There are, however, disadvantages to this approach as it may be harder to interpret results. It is possible that waits that are 4-6 hours long are different in character to those that are substantially longer, such as 10 plus hours. While time seems a reasonably simple continuous variable there may be an illusory homogeneity assumption which we make in relation to it. In addition, the longer lengths of stay are also less common and so the benefit of building statistical models which are inevitably focused on understanding these, may not serve us best when targeting improvement efforts. Such models may lead to resources being directed towards tackling infrequent events. Thus, while there are powerful and obvious reasons for studying LOS in addition to breaches, we need to remain mindful that LOS could lead us to focus efforts that will not tackle the breach of the four hour waiting time in ED.

5.7.9.1 Initial Data Screening

Data screening to determine if LOS data met the standard assumptions of OLS regression (normality, independence and homoscedascity) was undertaken. A \log_{10}

transformation of LOS was done to achieve normality, with results showing the distribution before and after in figure 5.1 and figure 5.2 below. The initial distribution had considerable positive skewness of 2.11 (S.E. = 0.098) and Kurtosis = 5.381 (S.E. = 0.195). After the log transformation this skewness improved with of -0.484 (S.E. = 0.098) and but kurtosis = 1.169 (S.E. 0.195) remained a problem. While normality was not achieved even after transformation, the log transformed data was used for the regression analysis.

Figure 14 Showing the distribution of LOS with no transformation (total time/ minutes)

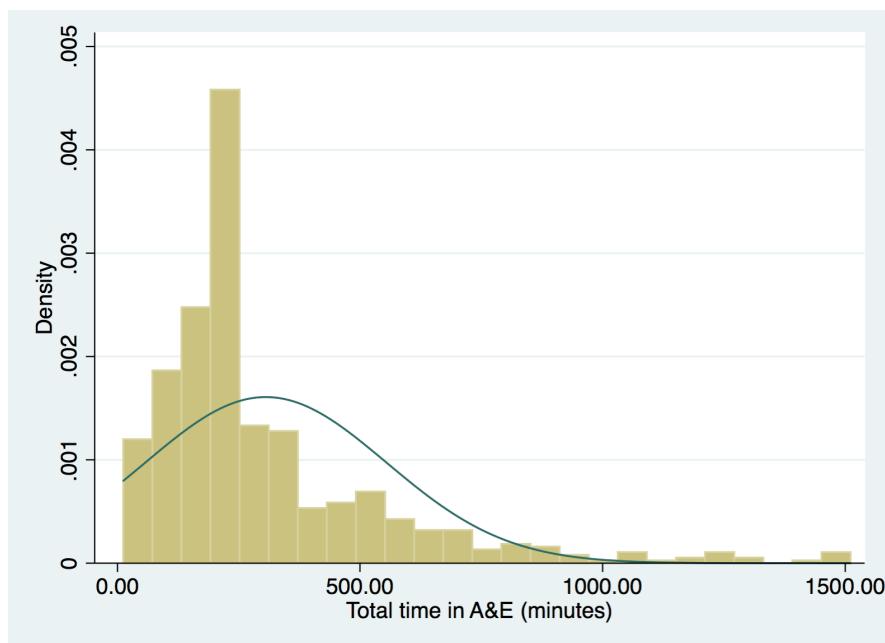
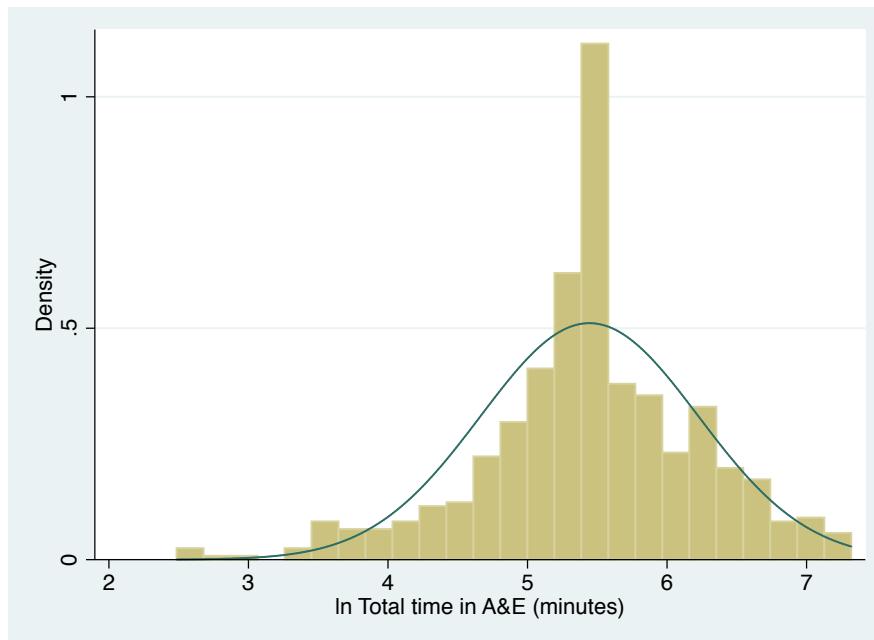


Figure 15 Showing the distribution of $\ln(\text{total time}/\text{minutes})$



5.7.9.2 Regression models

To measure the relative importance of factors associated with LOS, \log_{10} transformation of the time patients stayed in A&E measured in minutes was used as the dependent variable to build a variety of regression models. There was LOS data for 626 of the 628 patients and the average length of stay was 306.0 minutes (range 12 mins – 1,511mins), S.D. 248.19 minutes.

Models were built for input, throughput and output factors separately, using methods described in section 3.3.5. The independent variables found to be significant for each of the models were then all used to create a model including all three variable types, creating a model referred to as the 'full model'. Finally, mediator variables were added to the full model to create the 'mediated full model'. The table below shows the adjusted R-square for each separate regression model (input, throughput and output factors), the full model and the mediated full model. Input factor variables explained 8.77% of the variability of LOS, throughput variables explained 49.58% of the LOS and output variables explained 23.33% of LOS. When combined, 54.39% of the LOS was explained. After adding in moderators, it was possible to explain 55.94% of LOS. The F test for each of these models indicates that the independent variables included in the model have an effect on the dependent variable. The greatest contribution to

length of stay was made by throughput factors, which accounted for 49.58% of the variation.

Table 15 Summary of regression models

	Input	Throughput	Output	Full Model	With Moderators
Number of observations	626	626	626	626	606
Degrees of Freedom	3	12	3	14	18
F	21.02	52.22	64.40	54.23	43.67
Model significance	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
R-squared	0.0921	0.5055	0.2370	0.5541	0.5725
Adj R-squared	0.0877	0.4958	0.2333	0.5439	0.5594
Residual Standard Deviation	381.01	188.42	200.94	169.90	154.98

5.7.9.3 Regression Model Coefficients

The regression coefficients for each variable are shown in the tables below. Along with the coefficients, the significance is expressed as p-values and 95% confidence intervals. The regression coefficients represent additional time in minutes attributable to that variable per unit change in that variable, expressed as a \log_{10} transformation. To aid interpretation, the results displayed in the following two tables are once again on original scale (minutes). In each case, the first of these tables shows the coefficients and corresponding values as a simple transformation to the geometric mean. However as this is difficult to interpret, the second table displays the re-transformed data expressed as the percentage change in Y as a result of a one unit change in X. As many of the coefficients are greater than 0.2, the following equation was used to calculate the percentage change in Y, as described by Benoit (Benoit, 2011).

Equation 1: A one-unit change in X causes Y to change by $100 \cdot (e^{Bx} - 1)\%$

5.7.9.4 Input Factors

Table 16 below summarises the input factors found to be significant in a multiple regression analysis of the independent variables affecting LOS in A&E. Of the five factors that were significantly associated with breach and tested for inclusion in the model, three were found to contribute significantly. All of these factors led to an increase in average waiting time. From Table 18 it can be seen that patients who attended with thoughts of self-harm or suicide waited for an additional 31.33% on average. Those attending with agitation waited the longest, with nearly 51% increased LOS on average. Having a diagnosis of personality disorder had the smallest impact, increasing the LOS by 17.09% on average.

The relative importance of the independent variables is shown by the standardised beta (β) coefficient in Tables 16 & 17. Here $\beta \leq 0.09$ is considered to be a small effect (less than 10% of SD), β between 0.1 and 0.2 a moderate effect (10-20% of SD) and $\beta \geq 0.2$ is a large effect (more than 20% of SD). Presenting with agitated behaviour had the largest effect (0.25) and a diagnosis of PD represented the smallest effect (0.09).

The semi-partial correlation is displayed in order to provide an alternative means of assessing the relative importance of each of the variables, by removing the variation that control variables share with the independent variable in question. This shows the amount that R^2 would be reduced if the variable is removed from the model (i.e. the amount of shared variability). These results confirm that agitated behaviour has the greatest unique contribution (5.9%) and a diagnosis of PD has least unique contribution (0.7%), consistent with Beta.

Table 16 Regression model of input factors showing log(10) data

	Coefficient	Standard Error	t	P>t	95% Confidence Interval			Beta (β)	Squared Semi-partial Correlation
Thoughts of DSH or Suicide	0.27	0.06	4.21	0.000	(0.15	-	0.40)	0.17	0.026
Agitation or behaviour that requires assessment	0.41	0.06	6.36	0.000	(0.28	-	0.54)	0.25	0.059
Diagnosis personality disorder or DSH	0.16	0.07	2.24	0.026	(0.02	-	0.30)	0.09	0.007
_cons	5.11	0.05	95.04	0.000	(5.00	-	0.40)	.	

Table 17 Inverse log of regression model of input factors

	Coefficient	Standard Error	t	P>t	95% Confidence Interval			Beta (β)	Squared Semi-partial Correlation
Thoughts of DSH or Suicide	1.31	0.085	4.21	0.000	(1.16	-	1.49)	0.17	0.0258
Agitation or behaviour that requires assessing	1.51	0.098	6.36	0.000	(1.32	-	1.71)	0.25	0.0590
Diagnosis personality disorder or DSH	1.17	0.082	2.24	0.026	(1.02	-	1.34)	0.09	0.0073
_cons	165.48	8.896	95.04	0.000	(148.91	-	183.91)		

Table 18 Re-transformed regression model of input factors

	Coefficient (%)	SE (%)	z	P>[z]	95% Confidence Interval		
Thoughts of DSH or Suicide	31.33	8.50	3.68	0.000	(14.66	-	48.01)
Agitation or behaviour that requires assessing	50.99	9.78	5.21	0.000	(31.81	-	70.16)
Diagnosis personality disorder or DSH	17.09	8.26	2.07	0.039	(0.90	-	33.28)

5.7.9.5 Throughput Factors

Table 19 below summarises the factors found to be significant in a multiple regression analysis of the throughput factors effecting LOS in A&E. Sixteen factors were found to be significantly associated with breach and were tested for inclusion in the model. Of these, twelve were found to make a significant contribution to the model and are listed in Table 20. All factors led to an increase in average waiting time. The four factors that related to the functioning of the psychiatric team had the greatest impact on percentage of LOS. Patient related factors had the least impact and the remainder related to processes carried out by the A&E or physical health specialist teams. The patients that were seen by the psychiatric team waited for 82% longer on average, communication problems with mental health teams (either those based in A&E or those based in referring units) increased average LOS by 63.45%. When the mental health team was not on site there was an increase of 51% in LOS and waiting for MHA act assessors caused increases in LOS of 48.64%.

Being seen by A&E Doctors (as opposed to nurses or physicians' assistants) led to increase in LOS of 39.79% and waiting for a specialist medical or surgical review increased LOS by 29.97%. If the A&E team delayed their referral to psychiatry this led to increased LOS of 31.58% on average. Investigations were also found to increase LOS, although to a lesser extent, with average increases of 15.23% for bloods and 16.36% for radiology.

Beta coefficients (β) highlighted that being seen by the mental health team was the only factor with a large effect size (0.35). Small effect sizes were found for having a medical problem that required assessment (0.08), having radiology investigations (0.06), waiting for specialist review (0.08), delay in referral to psychiatry (0.09) and difficult patient behaviour (0.08). The remaining factors were medium in size.

The semi-partial correlation shows that being seen by the mental health team had the largest contribution to the model (10.85%) and having radiology investigations made the smallest contribution (0.3%), which is consistent with the findings of the β - coefficients.

Table 19 Regression model of throughput factors

	Exp (Coefficient)	Exp (Standard Error)	Exp (t)	P>t	Exp (95% Confidence Interval)	Beta (β)	Squared Semi-partial Correlation
Intoxicated patient	0.21	0.06	3.72	0.000	0.10 - 0.31	0.12	0.0112
Seen by A&E medics	0.33	0.07	5.10	0.000	0.21 - 0.46	0.16	0.0210
Medical problem requiring assessment	0.13	0.06	2.16	0.031	0.01 - 0.25	0.08	0.0038
Radiology	0.15	0.07	2.03	0.043	0.01 - 0.28	0.06	0.0033
Bloods	0.14	0.06	2.32	0.02	0.02 - 0.26	0.09	0.0044
Waiting specialist medical/surgical review	0.26	0.10	2.70	0.007	0.07 - 0.45	0.08	0.0059
Delay in referral to psychiatry	0.27	0.09	2.91	0.004	0.09 - 0.46	0.09	0.0068
Seen by mental health Team	0.60	0.05	11.60	0.000	0.50 - 0.70	0.36	0.1085
Mental health team not on site	0.41	0.10	4.11	0.000	0.22 - 0.61	0.12	0.0136
Communication with mental health team	0.49	0.08	5.94	0.000	0.33 - 0.65	0.17	0.0285
Waiting MHA assessor	0.39	0.08	5.10	0.000	0.24 - 0.55	0.16	0.0210

Patient behaviour	0.16	0.06	2.61	0.009	0.04	-	0.28	0.08	0.0055
_cons	4.40	0.06	71.87	0.000	4.27	-	4.51		

Table 20 Log Transformed Regression Model of Throughput Factors

	Co-efficient	Std. Err.	t	P>t	95% Conf.	Interval
Intoxicated patient	1.23	0.07	3.72	0.0000	1.10	1.38
Waiting specialist medical/surgical review	1.30	0.13	2.70	0.0070	1.07	1.57
Medical problem requiring assessment	1.14	0.07	2.16	0.0310	1.01	1.28
Waiting MHA assessor	1.49	0.12	5.10	0.0000	1.28	1.73
Mental health team not on site	1.51	0.15	4.11	0.0000	1.24	1.84
Delay in referral to psychiatry	1.32	0.12	2.91	0.0040	1.09	1.58
Patient behaviour	1.17	0.07	2.61	0.0090	1.04	1.32
Communication with mental health team	1.63	0.14	5.94	0.0000	1.39	1.92
Seen by A&E medics	1.40	0.09	5.10	0.0000	1.23	1.59
Seen by mental health Team	1.82	0.09	11.60	0.0000	1.65	2.02
Bloods	1.15	0.07	2.32	0.0200	1.02	1.30
Radiology	1.16	0.09	2.03	0.0430	1.01	1.35
_cons	81.17	4.97	71.87	0.0000	71.98	91.53

Table 21 Re-transformed regression model of throughput factors

	Coefficient(%)	SE(%)	z	P>[z]	95% Confidence Interval	
Intoxicated patient	23.42	6.98	3.35	0.001	9.37	- 48.01
Seen by A&E medics	39.79	9.17	4.34	0.000	21.81	- 57.77
Medical problem requiring assessment	13.92	6.87	2.03	0.043	0.45	- 27.39
Radiology	16.36	8.68	1.89	0.059	-0.65	- 33.36
Bloods	15.23	7.03	2.17	0.030	1.46	- 29.01
Waiting specialist medical/surgical review	29.97	12.62	2.37	0.018	5.23	- 54.71
Delay in referral to psychiatry	31.58	12.40	2.55	0.011	7.28	- 55.87
Seen by mental health Team	82.07	9.41	8.73	0.000	63.63	- 100.50
Mental health team not on site	51.03	15.16	3.37	0.001	21.32	- 80.75
Communication with mental health team	63.45	13.52	4.69	0.000	36.95	- 89.96
Waiting MHA assessor	48.64	11.56	4.21	0.000	25.99	- 71.30
Patient behaviour	17.13	7.09	2.41	0.016	3.23	- 31.03
_cons			7.51	0.000	(110.93	- 189.44)

5.7.9.6 Output Factors

The table below summarises the factors found to be significant in a multiple regression analysis of the output factors effecting LOS in A&E. Four factors were found to be significantly associated with breach and were tested for inclusion in the model. Of these, three contributed significantly and are listed in Table 22. All factors led to an increase in average LOS. Again, the greatest effect on LOS was due to a mental health related factors, with the greatest average increase in LOS due to waiting for a mental health bed, which increased LOS by 141.42% on average. Waiting for an acute bed, which increased average LOS by 86.36%, followed this. The smallest impact was from delays due to transport or transfers from A&E to the discharge destination (increased LOS by 55.63%).

Beta co-efficients (β) highlighted that waiting for transport had the smallest but nevertheless medium size effect (0.16), waiting for a mental health inpatient bed had a large effect (0.38) and waiting for an acute IP bed had a moderate effect size (0.19).

The semi-partial correlations show that waiting for transport had the smallest unique contribution (2.30%) and waiting for mental health in-patient beds had the largest (12.75%).

Table 22 Regression model output factors

	Coefficient	Standard Error	t	P>t	[95% Confidence Interval]		Beta (β)	Squared Semi-Partial Correlation	
Awaiting mental health in patient bed	0.88	0.09	10.19	<0.0001	0.71	-	1.05	0.38	0.1275
Awaiting acute in patient	0.62	0.12	5.28	<0.0001	0.39	-	0.85	0.19	0.0341
Transport or transfer	0.44	0.10	4.39	<0.0001	0.24	-	0.64	0.16	0.0237
_cons	5.25	0.03	171.36	<0.0001	5.19	-	5.31		

Table 23 Log transformed regression model of throughput factors

	b	Std. Err.	t	P>t	95% Conf.	Interval
Awaiting mental health in patient bed	2.41	0.21	10.19	0.0000	2.04	2.86
Awaiting acute in patient	1.86	0.22	5.28	0.0000	1.48	2.35
Transport or transfer	1.56	0.16	4.39	0.0000	1.28	1.90
_cons	191.26	5.86	171.36	0.0000	180.09	203.13

Table 24 Re-transformed regression model of output factors

	Coefficient (%)	SE (%)	z	P>[z]	95% Confidence		
					Interval		
Awaiting mental health in patient bed	141.42	20.87	6.78	0.0000	100.51	-	182.32
Awaiting acute in patient	86.36	21.99	3.93	0.0000	43.26	-	129.45
Transport or transfer	55.63	15.67	3.55	0.0000	24.92	-	86.33

5.7.9.7 All Factors

Table 25 below summarises the factors found to be significant in a multiple regression analysis including all factors effecting LOS in A&E. The factors found to be significant in the throughput and output regression models were added to the input regression model to create the full regression model. Four factors were excluded as their co-efficient was no longer significant when factors were added to the model (all input factors and radiology investigations).

All factors led to an increase in LOS. The greatest increases were as a result of psychiatry input, with the greatest increase in average LOS was due to seeing the mental health team (71.66% increase). Waiting for a mental health bed led to an average of 62.87% increase, and the mental health team not being on site led to 51.83% increase in LOS. The smallest impact was from having bloods taken (12.31% increase) and as a result of difficult patient behaviour (13.84% increase).

Beta co-efficients (β) highlighted that having bloods (0.07), communication with mental health team (0.08), waiting for MHA assessors and patient behaviour (0.06) had a small effect on the model. Being seen by the mental health team (0.32) had the largest effect on LOS, followed by waiting for a mental health bed (0.21). The remaining factors had moderate effects. Again, the only factors with a large effect were those relating to the way mental health system functioned.

The semi-partial correlations show that having bloods done had the smallest unique contribution (0.29%) and being seen by the mental health team had the largest (8.6%), consistent with Beta.

Table 25 Full model combining input, throughput and output factors

	Coefficient	Standard Error	t	P>t	95% Confidence Interval		Beta (β)	Squared Semi-Partial Correlation	
Throughput factors	Intoxicated patient	0.21	0.05	3.89	0.0000	0.10	0.31	0.10	0.118
	Seen by A&E medics	0.34	0.06	5.44	0.0000	0.22	0.46	0.22	0.162
	Seen by mental health Team	0.54	0.05	10.87	0.0000	0.44	0.64	0.44	0.320
	Medical problem requiring assessment	0.14	0.06	2.43	0.0150	0.03	0.25	0.03	0.087
	Bloods	0.12	0.06	2.00	0.0460	0.00	0.23	0.00	0.074
	Waiting specialist review	0.29	0.09	3.17	0.0020	0.11	0.47	0.11	0.087
	Delay in referral to psych	0.34	0.09	3.74	0.0000	0.16	0.51	0.16	0.104
	Mental health team not on site	0.42	0.10	4.37	0.0000	0.23	0.61	0.23	0.121
	Communication with mental health	0.22	0.08	2.64	0.0080	0.06	0.39	0.06	0.080
	Waiting MHA assessor	0.18	0.08	2.19	0.0290	0.02	0.33	0.02	0.069
	Patient Behaviour	0.13	0.06	2.24	0.0250	0.02	0.24	0.02	0.065

Output factors	Waiting mental health inpatient bed	0.49	0.08	6.20	0.0000	0.33	0.64	0.33	0.210	0.0281
	Waiting acute trust inpatient bed	0.33	0.09	3.52	0.0000	0.15	0.52	0.15	0.099	0.0090
	Problems with Transfer	0.29	0.08	3.60	0.0000	0.13	0.45	0.13	0.106	0.0095
	_cons	4.40	0.06	75.56	0.0000	4.28	4.51	4.28	.	

Table 26 Log transformed regression model combining input, throughput and output factors

	b	Std. Err.	t	P>t	95% Conf.	Interval
Intoxicated patient	1.23	0.07	3.89	0.0000	1.11	1.37
Seen by A&E medics	1.40	0.09	5.44	0.0000	1.24	1.59
Seen by mental health Team	1.72	0.09	10.87	0.0000	1.56	1.89
Medical problem requiring assessment	1.15	0.07	2.43	0.0150	1.03	1.28
Bloods	1.12	0.07	2	0.0460	1.00	1.26
Waiting specialist review	1.34	0.12	3.17	0.0020	1.12	1.61
Delay in referral to psych	1.40	0.13	3.74	0.0000	1.17	1.67
Mental health team not on site	1.52	0.14	4.37	0.0000	1.26	1.83
Communication with mental health	1.25	0.11	2.64	0.0080	1.06	1.48
Waiting MHA assessor	1.19	0.10	2.19	0.0290	1.02	1.40
Patient Behaviour	1.14	0.07	2.24	0.0250	1.02	1.28
Waiting mental health inpatient bed	1.63	0.13	6.2	0.0000	1.40	1.90
Waiting acute trust inpatient bed	1.39	0.13	3.52	0.0000	1.16	1.68
Problems with Transfer	1.33	0.11	3.6	0.0000	1.14	1.56
_cons	81.11	4.72	75.56	0.0000	72.35	90.93

Table 27 Re-transformed regression model of input, throughput and output factors

	Coefficient (%)	SE (%)	z	P>[z]	95% Confidence Interval		
Intoxicated patient	23.26	6.63	3.51	0.0000	10.27	-	36.26
Seen by A&E medics	40.39	8.76	4.61	0.0000	23.22	-	57.57
Seen by mental health Team	71.66	8.53	8.40	0.0000	54.94	-	88.37
Medical problem requiring assessment	14.85	6.54	2.27	0.0230	2.04	-	27.66
Bloods	12.31	6.51	1.89	0.0590	-0.45	-	25.07
Waiting specialist review	34.02	12.38	2.75	0.0060	9.75	-	58.29
Delay in referral to psych	39.96	12.59	3.17	0.0020	15.28	-	64.64
Mental health team not on site	51.83	14.50	3.57	0.0000	23.41	-	80.25
Communication with mental health	25.06	10.59	2.37	0.0180	4.30	-	45.82
Waiting MHA assessor	19.29	9.59	2.01	0.0440	0.49	-	38.09
Patient Behaviour	13.84	6.58	2.10	0.0350	0.94	-	26.73
Waiting mental health inpatient bed	62.87	12.80	4.91	0.0000	37.77	-	87.96
Waiting acute trust inpatient bed	39.39	13.14	3.00	0.0030	13.62	-	65.15
Problems with Transfer	33.41	10.68	3.13	0.0020	12.48	-	54.33

5.7.9.8 Factors that have moderating effects on factors that predict length of stay

Our study aims to contribute to the debate on the factors affecting LOS by also providing quantitative evidence of the factors that moderate the length of stay on mental health patients in A&E. It was hypothesised that five factors, alcohol, having no fixed abode, being out of area, presenting complaint and attending under s136 of the MHA would moderate the effects of a range of variables. Table 62 in Appendix 5.4 provides a summary of the moderators; the variables that it was hypothesised they would affect, the rational for these hypotheses and the predicted outcome.

5.7.9.9 Effect of moderators on the model

The table below shows the adjusted R-square for the regression model. Ten moderators were tested and of these, five were found to contribute significantly to the model. Adjusted R-square shows that the model including only moderator variables explained only an additional 1.55% of the LOS. Although this is a very small contribution, it was felt that it was worth including them in the model as four relate specifically to OOA patients and one to s136 attendances – each of these are areas that were not found to be significant in any of the previous models and relate to specific issues that could be targeted by improvement approaches.

5.7.9.10 Relative impact of variables

Table 29 below summarises the factors found to be significant in a multiple regression analysis including all factors affecting LOS in A&E and the moderator variables that improved the model. Five moderator variables improved the model: those who were out of area and were either agitated (OOA*Agitated), had a diagnosis of schizophrenia (OOA*schizophrenia), required admission to a mental health IP unit (OOA*admit IP unit) or had suicidal ideation (OOA*suicidal ideation) and finally those who attended under s136 with schizophrenia (polices136*schizophrenia). One factor that was included in the full model without moderation was no longer found to contribute significantly (difficulties with patient behaviour).

All factors led to increases in LOS apart from the moderator ‘patients with schizophrenia who are out of area’, which decreased the LOS by 27.43% indicating

there was a set of processes particular to this group leading them to be managed more efficiently. OOA*admitted IP unit had the greatest impact, increasing LOS by 32.71% on average.

Beta-coefficients showed that the moderators all had a small effect size apart from being OOA with schizophrenia, which had a moderate effect (0.11).

Squared semi-partial correlations were consistent with Beta, with the largest individual contribution being made by patient who were OOA with schizophrenia (0.95%).

In all models, the average percentage of LOS was increased the most for factors relating to psychiatric teams or processes. Just being seen by the mental health team increased the average LOS by the greatest amount and the effect size (β) in the model was large and waiting for an IP mental health bed or when the mental health team was not available on site to assess patients were the other two largest contributors to the model.

Table 28 Regression analysis with moderation

		Coefficient	Standard Error	t	P>t	95% Confidence Interval		Beta	Squared Semi-Partial Correlation	
Throughput Factors	Intoxicated patient	0.18	0.05	3.47	0.0010	0.08	-	0.29	0.11	0.0088
	Seen by A&E medics	0.35	0.06	5.54	0.0000	0.22	-	0.47	0.16	0.0224
	Seen by mental health Team	0.52	0.05	10.49	0.0000	0.42	-	0.62	0.31	0.0802
	Medical problem requiring assessment	0.16	0.06	2.90	0.0040	0.05	-	0.27	0.10	0.0061
	Bloods	0.12	0.06	2.03	0.0430	0.00	-	0.23	0.07	0.0030
	Waiting specialist review	0.34	0.09	3.71	0.0000	0.16	-	0.52	0.10	0.0100
	Delay in referral to psych	0.38	0.09	4.28	0.0000	0.20	-	0.55	0.12	0.0133
	Mental health team not on site	0.40	0.09	4.26	0.0000	0.21	-	0.58	0.12	0.0132
	Communication with mental health	0.19	0.08	2.19	0.0290	0.02	-	0.35	0.07	0.0035
	Waiting MHA assessor	0.20	0.08	2.56	0.0110	0.05	-	0.36	0.08	0.0048
Output Factors	Waiting mental health inpatient bed	0.39	0.08	4.62	0.0000	0.23	-	0.56	0.17	0.0155
	Waiting acute trust inpatient bed	0.34	0.09	3.62	0.0000	0.15	-	0.52	0.10	0.0095
	Problems with Transfer	0.24	0.08	3.00	0.0030	0.08	-	0.39	0.09	0.0065
Mediators	OOA*Agitated/abnormal	0.15	0.07	2.07	0.0390	0.01	-	0.29	0.06	0.0031
	OOA*suicidal ideation	0.16	0.06	2.91	0.0040	0.05	-	0.27	0.08	0.0062
	OOA*schizophrenia	-0.32	0.09	-3.60	0.0000	-0.50	-	-	-	0.0095
	OOA*admit IP unit	0.28	0.12	2.42	0.0160	0.05	-	0.51	0.09	0.0043
	polices136*schizophrenia	0.44	0.19	2.34	0.0200	0.07	-	0.81	0.07	0.0040
	_cons	4.38	0.06	73.22	0.0000	4.27	-	4.50	.	

Table 29 Log transformed regression model combining input, throughput and output factors and moderators

	b	Std. Err.	t	P>t	95% Conf.	Interval
Intoxicated patient	1.20	0.06	3.47	0.0010	1.08	1.33
Seen by A&E medics	1.41	0.09	5.54	0.0000	1.25	1.60
Seen by mental health Team	1.68	0.08	10.49	0.0000	1.53	1.86
Medical problem requiring assessment	1.18	0.07	2.90	0.0040	1.05	1.31
Bloods	1.12	0.06	2.03	0.0430	1.00	1.26
Waiting specialist review	1.40	0.13	3.71	0.0000	1.17	1.68
Delay in referral to psych	1.46	0.13	4.28	0.0000	1.23	1.73
Mental health team not on site	1.49	0.14	4.26	0.0000	1.24	1.79
Communication with mental health	1.20	0.10	2.19	0.0290	1.02	1.42
Waiting MHA assessor	1.23	0.10	2.56	0.0110	1.05	1.43
Waiting mental health inpatient bed	1.48	0.13	4.62	0.0000	1.25	1.75
Waiting acute trust inpatient bed	1.40	0.13	3.62	0.0000	1.17	1.68
Problems with Transfer	1.27	0.10	3.00	0.0030	1.09	1.48
OOA*Agitated/abnormal	1.16	0.08	2.07	0.0390	1.01	1.33
OOA*suicidal ideation	1.17	0.06	2.91	0.0040	1.05	1.31
OOA*schizophrenia	0.73	0.06	-3.60	0.0000	0.61	0.86
OOA*admit IP unit	1.33	0.16	2.42	0.0160	1.05	1.67
polices136*schizophrenia	1.56	0.29	2.34	0.0200	1.07	2.26
_cons	80.06	4.79	73.22	0.0000	71.18	90.05

Table 30 Re-transformed regression model of input, throughput and output factors and moderators

	Coefficient (%)	SE (%)	z	P>[z]	Beta	95% Confidence Interval
Intoxicated patient	20.23	6.38	3.17	0.0020	0.11	7.73 - 32.73
Seen by A&E medics	41.43	8.85	4.68	0.0000	0.16	24.09 - 58.77
Seen by mental health Team	68.38	8.36	8.18	0.0000	0.31	52.00 - 84.77
Medical problem requiring assessment	17.62	6.58	2.68	0.0070	0.10	4.73 - 30.52
Bloods	12.24	6.39	1.92	0.0550	0.07	-0.27 - 24.76
Waiting specialist review	40.46	12.87	3.14	0.0020	0.10	15.23 - 65.68
Delay in referral to psych	45.85	12.87	3.56	0.0000	0.12	20.63 - 71.08
Mental health team not on site	49.00	13.96	3.51	0.0000	0.12	21.63 - 76.36
Communication with mental health	20.36	10.19	2.00	0.0460	0.07	0.39 - 40.33
Waiting MHA assessor	22.67	9.78	2.32	0.0200	0.08	3.51 - 41.83
Waiting mental health inpatient bed	48.02	12.56	3.82	0.0000	0.17	23.39 - 72.64
Waiting acute trust inpatient bed	39.98	13.01	3.07	0.0020	0.10	14.47 - 65.48
Problems with Transfer	26.78	10.03	2.67	0.0080	0.09	7.11 - 46.44
OOA*Agitated/abnormal	15.76	8.19	1.92	0.0540	0.06	-0.29 - 31.82
OOA*suicidal ideation	17.43	6.48	2.69	0.0070	0.08	4.73 - 30.13
OOA*schizophrenia	27.43	6.46	-4.25	0.0000	-0.11	-40.09 - -14.78
OOA*admit IP unit	32.71	15.53	2.11	0.0350	0.09	2.26 - 63.15
polices136*schizophrenia	55.68	29.46	1.89	0.0590	0.07	-2.06 - 113.41

5.7.10 Predicting Breach

In order to test if the factors predicting breach are the same as those predicting LOS, a logistic regression analysis was conducted using breach as the dependent variable and adding the independent variables to the model as predictors using the same method as described previously. A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between breaches and non-breaches ($\chi^2 (12) = 324.84$, $p<0.00001$). However, Nagelkerke's R^2 of 0.38 indicated a relatively weak relationship between prediction and breaches. Twelve variables were found to significantly contribute to predicting breaches; these are shown in Table 31 below. The table shows the factors included that were consistent with the breach model and those that are unique to the breach model.

In this model, all factors were associated with an increased likelihood of breach except OOA*schizophrenia which was also associated with a decreased LOS in the linear regression. In this model 'seeing the mental health team' also had the largest impact, with these patients being over seven times more likely to breach. Being OOA with suicidal ideation was the only moderator that was significant, but only increased the likelihood of breach by 1.79 times. OOA with schizophrenia had the effect of decreasing the likelihood of breach by 0.36.

The factors that contributed significantly to the linear regression of \log_{10} LOS but not to breach are: delays due to patient intoxication, seen by A&E medics, waiting for specialist review, waiting for a mental health assessor, waiting for an acute trust IP bed, and the moderators OOA and agitated, OOA with suicidal ideation, OOA with schizophrenia, OOA and admitted to an IP unit and attending under s136 with schizophrenia.

Table 31 Logistic regression of Full Moderated Model using Breach as Dependent Variable

		Odds Ratio	Std. Err.	z	P>z	95% Conf. Interval
Factors consistent with LOS regression	Seen by mental health Team	7.26	2.18	6.60	0.000	4.03 13.08
	Medical problem requiring assessment	2.43	0.68	3.16	0.002	1.40 4.21
	Bloods	2.13	0.58	2.76	0.006	1.24 3.63
	Delay in referral to psych	3.72	1.64	2.98	0.003	1.57 8.83
	Mental health team not on site	5.76	3.20	3.15	0.002	1.94 17.10
	Communication with mental health	3.35	1.67	2.44	0.015	1.27 8.88
	Waiting mental health inpatient bed	6.88	2.89	4.59	0.000	3.02 15.68
	Problems with Transfer	4.98	2.45	3.27	0.001	1.90 13.05
Factors unique to logistic regression	Patient behaviour	1.84	0.52	2.18	0.029	1.06 3.20
	Waiting acute trust inpatient bed	3.26	1.58	2.45	0.014	1.27 8.41
	Diagnosis of DSH/Personality Disorder	2.01	0.49	2.86	0.004	1.25 3.25
	OOA*suicidal ideation	1.79	0.49	2.12	0.034	1.05 3.05
	_cons	0.03	0.01	-11.10	0.000	0.01 0.05

5.7.11 Out of Area Patients

Patients who are out of area represent a large proportion of the sample (38.85%) and the regression analysis demonstrated that being out of area was a moderating factor in four out of the five significant moderators included in the final model. With the aim of identifying if there were specific factors leading to greater LOS associated with this sub-population, the study was repeated for the OOA population only. The results of the Chi² and Cramer's V are reported in Appendix 5.8 and for an overview of the definition of effect sizes in relation to Cramer's V, see Appendix 5.10. These results showed that there were no factors that were significantly associated with breach for the OOA population which were not also found to be significant in the full sample. For the factors that were significantly associated with breach, two variables had different effect sizes when comparing the two populations, which was larger in both cases: (1) Personality disorder diagnosis had an effect size of 0.19 for the whole sample, but 0.27 for the OOA sample. (2) For delays as a result of difficult patient behaviour the effect size was 0.25 for the whole population but 0.30 for the OOA population.

The regression analysis was undertaken with \log_{10} LOS as the dependent variable. Variables were added to the model using the same method as described previously. The results of the regression indicated that eight predictors explained 53.96% of the variance ($R^2=.54$, $F (8,243)=37.93$, $p<.00001$).

The table below shows the re-transformed data with the contribution of each of the variables expressed as a percentage increase in LOS. The factors that explained the increased LOS were predominantly psychiatric in nature, with admission to an IP mental health bed having the largest percentage increase in average LOS (131.21%). Two variables are included in this model but not the full moderated model reported in section 5.6.9.9: (1) violence or aggression towards others (increase LOS by 93.30%) and (2) waiting for medical clearance (increase LOS by 19.90%). Other factors with a large impact included: patient intoxication (48.22%), delay in referral to psychiatry (51.53%), being seen by mental health team (86.78%) and communication with mental health team (59.58%). No mediators were found to be significant.

Table 32 Re-transformed Regression Model of Out of area Patients

		Coefficient (%)	SE (%)	z	P>[z]	95% Confidence Interval		Beta (β)	
Variables included in Full Moderated Model Previously	Intoxicated patient	48.72	11.82	4.12	0.0000	25.55	-	71.89	0.22
	Delay in referral to psychiatry	51.53	23.81	2.16	0.0300	4.86	-	98.20	0.12
	Seen by A&E medics	32.52	12.96	2.51	0.0120	7.12	-	57.92	0.13
	Seen by mental health Team	86.78	15.49	5.60	0.0000	56.42	-	117.14	0.35
	Communication with mental health team	59.58	33.99	1.75	0.0800	-7.04	-	126.19	0.10
	Admitted IP mental health Bed	131.21	23.10	5.68	0.0000	85.94	-	176.48	0.38
Factors Unique to OOA Model	Violence/aggression towards others	93.30	28.14	3.32	0.0010	38.16	-	148.45	0.20
	Waiting to be medically cleared	19.90	10.81	1.84	0.0660	-1.29	-	41.09	0.09

5.7.12 Predicting Length of Stay on Arrival at A&E

One research question was to explore if it is possible to identify patients who are at high risk during triage or when being booked in at arrival. The purpose being to explore if care pathways designed specifically for these groups could make their management more efficient, with the aim of reducing breach rates. To build this model only factors that are identifiable before assessment were included. This included demographics, presenting complaints, pattern of previous health service use, mode of arrival, current mental health diagnoses, physical health diagnoses and contributing factors such as intoxication. Factors that reached significance of 0.05 by the Chi² test were included in this model as were looking only at patient factors and not the whole suite of factors that were collected during the study.

The regression analysis was undertaken with \log_{10} LOS as the dependent variable. Variables were accepted for inclusion in the model using the methods described previously. The results of the regression indicated that eight predictors explained 10.60% of the variance ($R^2=.1006$, $F (5,517)=13.23$, $p<.00001$).

The table below shows the re-transformed data with the contribution of each of the variables expressed as a percentage increase in LOS. Most categories of variables were not significant (previous A&E use, psychiatric diagnosis, mode of arrival, demographics). Presenting complaint, physical health co-morbidity, previous mental health service use and being out of area were found to be significant. This was the only model in which physical health comorbidity was a significant predictor, although it contributed the least (19.93% of LOS). Two presenting complaints were significant, and these were the most powerful predictors in the model, (1) Agitated behaviour (42.17% increased LOS) and (2) thoughts of self-harm (38.11%). Being out of area increased LOS by 23.20% and if the patient was previously under mental health services LOS was increased by 22.45%.

Table 33 Re-transformed Regression Model for Patients at High risk of Breach

	Coefficient (%)	SE (%)	z	P>[z]	95% Confidence Interval		Beta (β)	
Thoughts of self-harm	38.11	9.60	3.97	0.0000	19.29	-	56.92	0.20
Agitation or abnormal behaviour	42.17	10.36	4.07	0.0000	21.86	-	62.47	0.21
Physical health co-morbidity	19.93	8.34	2.39	0.0170	3.58	-	36.28	0.11
Out of area	23.20	8.78	2.64	0.0080	5.99	-	40.41	0.12
Patient previously under mental health services	22.45	9.75	2.30	0.0210	3.35	-	41.56	0.11

5.7.13 Summary of Results

Five separate analyses were reported: (1) preliminary analysis for associations including loglinear analysis to look for three-way interaction between site, breach and factors significantly associated with breach (2) multiple linear regression to determine the variables associated with \log_{10} LOS (3) logistic regression to determine the variables associated with breach and to compare the relative strengths of the models (4) multiple linear regression to determine the factors associated with \log_{10} LOS for out of area patients and (5) multiple linear regression to explore if there are any patient characteristics more likely to be associated with length of stay.

5.7.13.1 Breach Rates

MH patients represented 1.69% of A&E attendances, which corresponds to a relative risk of breach of 4.20 times for mental health patients compared to non-MH patients. This compares with the meta-analysis result of 4% and the preliminary study value of 1.06% (RR breach was 4.90). There was a significant variation in breach rates between sites, with UCLH having the highest relative risk of breach (8.99), followed by the Whittington (6.53) and Barts (3.19).

5.7.13.2 Process factors as mediators of input factors

Mediation logistic regression analysis was undertaken in order to understand the extent to which process factors are able to explain the relationship between input factors and breach. I hypothesised that individuals presenting with intentional overdose would be more likely to breach because of medical investigations that underwent, and the need for medical review. My results indicate that having medical investigations does not explain breaches in this population, however waiting for a medical review does. Waiting for a medical review was found to fully mediate the relationship between overdose and breach.

Secondly, I hypothesised that patients presenting with agitation breach because of waits for MHA assessment and also due to difficulties in managing their behaviour while in the department. Both were found to partially mediate breach. Waiting for MHA

assessment explained 21% of the variance whereas difficulty with behaviour explained 38% of the variance.

5.7.13.3 Sites as mediators of breach

Loglinear analysis was used to explore the mediating effect of site on the factors that were significantly associated with breach. Six factors were found to be mediated by site, one related to the presentation, four were associated with physical health assessment and related investigations and processes and one was to do with communication with the mental health team: (1) presenting with an overdose, (2) when the patient required a medical assessment in A&E, (3) blood tests performed, (4) ECG performed, (5) delays caused by a medical problem requiring assessment and (6) delays caused by communications with mental health teams.

Patients presenting with OD are much more likely to breach at Barts so being admitted to that unit accounts for the impact of OD on breach rates. The Whittington performs best in for all of the factors relating to medical assessment with the OR of breach being small compared to the other sites with the other two sites accounting for the impact of medical assessment on the likelihood of a breach. Barts performs particularly badly in relation to these factors. Finally, UCLH performs much worse than either of the other sites in relation to communications with mental health team, leading to an OR of breach of 37.21, compared to Whittington (5.55) and Barts (2.54) so the impact of communication with mental health team delaying A&E process largely attributable to the UCLH site.

5.7.13.4 Predicting LOS

A multiple regression analysis tested which factors significantly contributed to LOS, identifying that throughput factors were best able to predict LOS ($R^2=0.50$), followed by output factors ($R^2=0.23$) and finally input factors ($R^2=0.09$). When combined and moderators were added, the variables tested were able to account for 56% of the variation in LOS. In the full moderated model, no input factors remained significant and throughput factors contributed the largest proportion of increased LOS with the largest effect sizes. Moderators contributed to the overall strength of the model a very small amount (approx 1.5%), however four out of five of those tested that contributed

significantly related to OOA patients, providing support that this is a separate sub-group behaving differently within the sample. All factors led to increases in LOS apart from the moderator 'patients with schizophrenia who are out of area', which decreased the LOS by 27.43% indicating there was a set of processes particular to this group leading them to be managed more efficiently. In all models, the average percentage of LOS was increased the most for factors relating to psychiatric teams or processes. Just being seen by the mental health team increased the average LOS by the greatest amount, with a large effect size. Waiting for an IP mental health bed or when the mental health team was not available on site to assess patients were the other two largest contributors to the model.

5.7.13.5 Predicting breach

A logistic regression with breach as the dependent variable was done, (χ^2 (12) = 324.84, $p<0.00001$). Nagelkerke's R^2 of 0.38 indicated a weak relationship between prediction and breaches. No input factors, which relate most directly to patient characteristics, contributed significantly to the model. Being seen by the mental health team increased likelihood of breach by 7.26 times. The factors that most increased the likelihood of breach were process factors or delays within the A&E department, such as the mental health team not being on site to assess the patients ($OR=5.76$), waiting for an inpatient bed ($OR=6.88$) and problems with transfer ($OR=4.98$). Other than presenting with a mental health problem that is severe enough to require specialist mental health assessment, few factors contributed to the model significantly that help to identify a sub-group of patients. For example, presenting complaint, prior diagnosis, co-morbid physical health complaints, demographic factors, mode of arrival, prior patterns of service use or contributing factors, such as being intoxicated, did not contribute.

5.7.13.6 Out of Area Patients

Sub-group analysis was done for out of area patients to determine if the same factors affected LOS. Eight predictors were found to be significant, explaining 53.96% of the variance in LOS ($R^2=.54$, F (8,243) =37.93, $p<.00001$). Again, the factors that explained the increased LOS were predominantly psychiatric in nature, with admission to an in-patient mental health bed having the largest percentage increase in average

LOS (131.21%). Two variables were included which were not found to be significant in other models: (1) violence or aggression towards others (increase LOS by 93.30%) and (2) waiting for medical clearance (increase LOS by 19.90%). Other factors with a large impact included: patient intoxication (48.22%), delay in referral to psychiatry (51.53%), being seen by mental health team (86.78%) and communication with mental health team (59.58%).

5.7.13.7 Predicting LOS on arrival at A&E

Finally, an analysis was undertaken with the aim of identifying predictors that predict long LOS that could be identified during triage/ booking in at arrival. This regression identified eight significant variables, however they only predicted 10.60% of the variance ($R^2=.10$, $F (5,517) =13.23$, $p<.00001$). Most categories of variables were not significant (previous A&E use, psychiatric diagnosis, mode of arrival, demographics). Presenting complaint, physical health co-morbidity, previous mental health service use and being out of area were found to be significant. This was the only model in which physical health comorbidity was a significant predictor, although it contributed the least (19.93% of LOS). Two presenting complaints were significant, and these were the most powerful predictors in the model, (1) agitated behaviour (42.17% increased LOS) and (2) thoughts of self-harm (38.11%). Being out of area increased LOS by 23.20% and if the patient was previously under mental health services LOS was increased by 22.45%.

5.8 Study Limitations

The cross-sectional nature of this study is a weakness. Consecutive patients were included in the study with the aim of reducing selection bias, however this meant that the study period was a relatively short time period. Given the fluctuations in A&E performance and attendance over a year, due to seasonal fluctuations, there is a risk that the results are not representative. To overcome this, routinely used data can be used, which enables analysis of very large data sets over longer periods of time. However, I decided not to take this approach because of the poor quality of data collected, plus it did not allow me to either collect data on the majority of factors that I was interested in as they are not routinely collected, or draw on data from a number of sources, as I did not have access to a linked data set. Due to the lack of temporal data, only associations and not causation of breach or length of stay can be inferred. Given this, these results only serve to provide hypotheses about the causes of breach and LOS which may be of use to a more complex study, such as a cohort.

A key limitation of this study was limiting the sites to central London. Even with the inclusion of different hospital types (large teaching, city centre and district general hospital), the differences in structure of services as well as demographics served means the results may be informative for other services, but probably not entirely generalisable.

The study period was between August and September, a time of year that is relatively quieter than other periods such as the winter period. Furthermore, the Ebola breakout started during the study, and one A&E department was closed for approximately five days due to having an Ebola case attend, requiring quarantine and deep cleaning of the department. Due to both of these issues it is likely that the estimation of A&E attendances is lower than the true value. While it may have been possible to choose an alternative period for the data collection, the resource required to do so made this unfeasible for this research study. Avoiding the Ebola outbreak was not avoidable and is illustrative of the complexity of research undertaken in complex environments such as A&E departments.

There remained some problems with data collection, with poor data collected on the individual steps and timings undertaken during the A&E visit. These weaknesses were difficult to address due to the busy nature of A&E departments; multiple patients being managed in parallel and a lack of accurate record keeping in A&E notes especially of details such as individual tests ordered, who saw the patient when, and their grade/profession. The large proportion of missing data meant that some analyses would not be meaningful and so they were not undertaken.

Pre-identification of problems within the environment was partially informed by the preliminary study, however some of the variables were created from free text in the data collection fields. Data collectors were asked to identify causes for delays through observation and discussion with staff. Where an existing data field did not exist, they were asked to detail the reasons for the delay in free text. These fields were then analysed post-hoc. It is possible that data collectors did not record these reasons accurately, or that some reasons for delays were not identified accurately.

One aim was to collect detailed data on the processes that were undertaken in A&E. This was achieved to some extent, but details such as the timings of each contact or the type of professional was not successfully collected in all cases. As such this could not be analyzed meaningfully.

Although this study did include a qualitative element, reported in Chapter four, I did not include questions exploring what the patient's views were of the reasons for their delays. Nor did I include any qualitative interviews with clinicians working in the departments. Both would have been useful to guide the development of hypotheses about moderators and mediators, as well as provide some insight for interpretation of the results.

Given one hypothesis was that presenting complaint and diagnoses would be important predictors of breach, the data included on this was fairly weak and also incomplete due to relying on electronic mental health records, which meant only in area patients had data available (only 62% of the population) and of these, the diagnosis was not accurately recorded. To address this, we could have either included

a self-report question in our qualitative interviews or carried out structured interviews with patients to obtain this data.

The study included a large number of variables, and despite the sample size being fairly large, error was introduced through multiple testing which I had to control for. It would be useful to repeat the study with a reduced set of variables. My mediation analysis used the approach developed by Baron and Kenny, (Baron & Kenny, 1986), which is a four-step approach to establishing the nature of the mediation relationship. There is criticism in the literature of using dichotomous data to analyse the mediation relationship (Valeri & VanderWeele, 2013). Despite this, an approach has been developed by MacKinnon & Dwyer (MacKinnon et al., 1995), which I used to undertake my analysis. Given this, my results should be viewed and assessed with this unresolved controversy in mind. My regression analyses did not include latent variables, which means I was not able to explore the possibility of variables working together to predict either LOS or breach. This may be a useful additional analysis to undertake. Finally, I aimed to provide guidance on whether improvement approaches should be locally determined based on sites' individual performance, or whether generalised approaches can be taken. I approached this by exploring the relationship between sites and breach and by doing a hierarchical loglinear analysis. Ideally, I should have also undertaken separate analysis of the relationship between LOS and breach for each of the sites and then repeated my regression analyses to establish if I could account for a greater proportion of variance in LOS or breach or see if different predictors emerge.

Finally, I aimed to create hypotheses of the factors most likely to be associated with breach and LOS by drawing on relevant literature. However due to the lack of research on mental health patients in this field in comparable health systems, this was difficult. Given this, hypotheses were often constructed based on data from studies including non-MH patients, from studies based in the US or Australia (where there are more relevant sources to draw on) or through discussion with clinical colleagues.

5.9 Discussion and Implications

This study had a number of aims. Firstly, to build on the preliminary study to contribute to existing literature on the factors that impact on A&E LOS and breach and to more accurately estimate the burden of mental health in A&E. Secondly, to determine the extent to which factors identified are site specific in order to guide the design of improvement programmes. Further to this, we aimed to identify if there were specific operational processes that could be targeted for improvement. Finally, we aimed to explore if there are cohorts of patients that can be identified at arrival/triage of being high risk of breach, as pro-active management by a specifically tailored pathway may help efficiency. To answer these research questions five separate analyses were undertaken, the results of which will be discussed in the following sections.

5.9.1 Addressing methodological issues

The study was designed to address the methodological issues identified in the preliminary study. The sample size was increased from 152 to 628 and the number of sites was reduced from five to three to increase power. This proved sufficient to test for significant differences between breach and non-breach groups. Despite this, a number of limitations remain, as highlighted in the limitations section above. During the data cleaning a large number of reasons for delays were identified, leading to large number of repeated tests. After Bonferroni correction the requirement for statistical significance was reduced to $p=0.0004$. Although this did increase the requirement for significance substantially, the decision was made to take this approach given the very limited scope for prediction in the face of between site moderation rather than the less conservative approach of bootstrapping in order to minimise the chance of Type I error.

One criticism of the literature is its lack of generalisability with most studies including one or two sites, and few from rural areas. This study aimed to address this by including a more rural site (Luton), however it was not possible due to challenges relating to the practicalities of data collection and deadlines for inclusion in ethics applications. As a result, the sites included are all London teaching hospitals, and although some variation was achieved through the inclusion of a DGH in a more

affluent suburb, an inner-city site and a large hospital in a more challenged area, it did not successfully address this gap.

The final methodological improvement addressed data collection quality with the aim to (1) reduce the chance of missed cases and (2) reduce the amount of missing/incorrect data. This was achieved by improving the training for data collectors, which involved a compulsory half day and included patient involvement representatives. The course was active and involved data collectors filling in test sheets that were checked by course leaders for accuracy and problems resolved. Secondly, researchers were in A&E for 24 hours a day rather than for a 12-hour shift in 24 hours as in the preliminary study. The purpose of this was to reduce the number of opportunities for cases to be missed as well as improve the 'real time' element of the data collection.

We added a number of variables to collect data on in this study: whether parallel assessment was done between A&E staff and the mental health team, more in-depth data on reasons for delays which were both identified both in the preliminary and current study. Finally, data was collected on the interventions and clinicians that the patients encountered during their A&E attendance, as it was noted in the preliminary study that these factors appeared to impact on breach rates, with those breaching undergoing more complex care pathways.

5.9.2 Burden of mental health in A&E

We found that the total number of mental health patients attending A&E in this period was 1.69%, which compares to the meta-analysis results of 4% and the preliminary study result of 1.06%. In comparison with the preliminary study, this study saw an increase in the proportion of mental health attendees by 60%. It is difficult to fully account for these differences between the two studies reported here. One explanation could be the increase in MH presentations that is widely reported, however these are estimated to have increased by 8% between the two time periods, only partially accounting for the difference (Dorning et al., 2015). Although the method of this study was an improvement over those in the existing literature, the non-representative sample due to only including London sites, plus the short sampling timeframe means

that we cannot be sure of the accuracy of these results. On the other hand, the estimation made by the meta-analysis may be high due to inaccurate or different recording of cases (for example how patients attending with drug and/or alcohol intoxication are recorded), poor quality data and methods in existing studies or differences in health systems as many of the studies included were not based in the UK.

However, regardless of the exact figure it can be concluded from these results and existing literature that the proportion of MH patients attending A&E is small compared to non-MH patients. Despite mental health patients representing a relatively small proportion of the population attending A&E, these results indicate that they likely to represent high need, and there is evidence that A&E's are performing particularly badly in managing mental health patients, particularly when compared with patients attending with non-MH complaints. The breach rate for mental health patients was 43.31%, with an average RR of 4.20 – meaning mental health patients were more than 4 times more likely to breach than non-MH patients. This also corresponded to long length of stay in the department, with an average stay of 306 minutes, meaning mental health patients stay in A&E over an hour longer than the four-hour target, on average. The longest stay was 1,511 minutes, or just over a day (25 hours). Improving performance is not only important in terms of meeting targets and avoiding consequences such as financial penalties when sites fail, but long A&E stays are also associated with worse outcomes in terms of mental state (G. Chang et al., 2012; Chang et al., 2011). These data indicate that a significant number of patients leaving the department without medical clearance (absconding) which is, in turn, associated with deterioration in mental state and frequently a return to A&E (C. M. Fernandes, Price, & Christenson, 1997; Goodacre & Webster, 2005; Hickey, Hawton, Fagg, & Weitzel, 2001). The sequelae of repeated failure to access care that is helpful is associated with worse long-term engagement with services (Grace Chang, Anthony Weiss, et al., 2012; Park et al., 2009), which has been shown to lead to poorer clinical outcomes. Therefore, it is vitally important that A&E attendances are not only providing efficient care but are also able to provide an intervention that improves engagement with services in the long term, as there is evidence this is most likely to lead to improved outcomes over time.

5.9.3 The factors that lead to long LOS for mental health patients

Our analysis included a regression analysis which explained 55.94% of the variation in LOS in our sample population by looking at input, throughput and output factors. No other study of patient waiting times in A&E has studied all three categories of factors to date, with most focusing on either patient characteristics and discharge destination, and as such other studies in the literature to date were only able to account for a much smaller proportion of the waiting time. For example, Yoon et al carried out an analysis of all patients looking only at process factors, such as contacts with professionals and investigations and were able to account for 38.4% of the variation on LOS (P. Yoon et al., 2003). This study showed that seeing psychiatry at these sites increased LOS by an average of four hours, consistent with our finding that seeing the psychiatry team had the greatest impact on LOS. The following sections provide an overview of the categories of factors that we found to be associated with LOS and considers how these findings contribute to the existing literature.

5.9.4 Throughput factors

Based on existing literature and the preliminary study, I hypothesised that output factors would have the biggest impact on length of stay, as the availability of beds is frequently identified as a key factor that impacts on patients being discharged from A&E in the general literature (Bastiampillai, Schrader, Dhillon, Strobel, & Bidargaddi, 2012; Cooke, Wilson, Halsall, & Roalfe, 2004; Rathlev et al., 2007). However, this study identified that for mental health patients, throughput factors appear to be the most influential, with a model consisting of only throughput factors able to explain 49.58% of the variability. Of the twelve factors that contributed to the model, factors associated with the functioning of the psychiatric team, as opposed to the A&E doctors, medical/surgical specialty teams or patient related factors had the greatest impact. Just being seen by the mental health team increased LOS by 82%. More specifically both 'MH team not on site' and 'wait for MHA assessors' increased LOS by about 50% and 'problems in communicating with the mental health teams' (either for assessment or to arrange beds) increased LOS by 63.45%. All of these factors relate to the way that mental health teams are integrated into A&E departments and can potentially be addressed by tackling related processes and operating procedures. For example, mental health teams and MHA assessors are often commissioned from

the local mental health trust by acute trusts and cover multiple sites oncall. As a result, they are not generally based in A&E departments, which in turn leads to problems with making contact and issues with competing priorities for busy oncall teams. In addition, psychiatric staff are not subject to the same pressures to manage patients within four hours, which may contribute further to delays. This finding, which was discussed with clinical staff was supported by our finding that communication with the mental health teams was the only factor relating to mental health team functioning which was found to vary significantly between sites. UCLH had the highest breach rate and highest relative risk of breach (8.99) and was also found to have an OR of breach as a result of 'delays caused by communication with mental health team' of 37.21, in comparison with Barts (OR of 2.54) and Whittington (OR of 5.55). Although not formally analysed, free text collected from data entry sheets indicated that there was a large variation in effectiveness in processes between sites, with the method of referral, accepting and allocating beds varying between sites and departments, with fax, phone, email and bleep all being examples of approaches included in different sites operating procedures. Detailed analysis of processes within A&E has not been conducted in the literature and so comparison with other studies is not possible. However, simple measures such as onsite psychiatric teams and addressing mechanisms of communication have potential to make significant gains.

5.9.5 Output factors

Output factors contributed to 23.33% of the variation in LOS as a whole, however when all factors were included in the model together with moderators the output factor 'waiting for mental health IP bed' made one of the largest contributions to the variation, extending LOS by 48.02% on average. It also made the third largest individual contribution to the full model. This is more consistent with the literature on A&E waiting times as a whole, which generally finds that discharge destination is one of the biggest predictors of LOS when looking at the A&E population as a whole (Kreindler et al., 2016) or specifically at mental health patients (Robert J. Stephens, Susan E. White, Michael Cudnik, & Emily S. Patterson, 2014). The lack of interaction with site as shown by the mediation analysis indicates that this is a more general issue. Wider system issues may be at play and affecting the accessibility of beds, such as funding, inpatient LOS, approach to early intervention, the emphasis placed on IP versus community

provision, and the joint approach to risk management between agencies. Current analyses indicate that underfunding has led to a 'beds crisis' in mental health which would explain why needing a mental health bed leads to problems in general and is not sensitive to differences in local provision. Given the nature of the likely issues, the accessibility of IP beds is not amenable to typical improvement programmes and is more likely to be tackled through fundamental changes in funding or policy. Alternative emerging approaches to the delivery of pathways of care include the introduction of new models of care such as the NHS England New Models programme (NHS Engand, 2018) or more specific to mental health, the new model of care for children's mental health services, THRIVE (Wolpert et al, 2017) and its associated implementation programme, i-THRIVE (www.implementing-thrive.org). These models have been designed to tackle whole system issues like integration across agencies e.g. health, education and local authority, and it is possible that learning from these approaches could be applied to the adult mental health services. For example, quadrant four of the THRIVE model of care addresses the management of young people presenting at high risk and also the organisation of crisis and emergency services. This approach includes having an explicit multi-agency approach with co-produced risk management plans for individuals at risk of mental health crisis, in particular self-harm and suicide. The results of this study indicate that currently there is little integrated approach for adult mental health patients, with qualitative results highlighting this as leading to problems in continuity and access, as well as experience of care reported in chapter 4 in particular. Although multi-agency data is generally not available within localities, evaluation of the impact of this approach on the effectiveness and efficiency of the system, as well as the impact on A&Es, would be of value in future studies.

5.9.6 Out of area patients

The regression analysis explored the contribution of moderators and although they contributed very little to the overall model (1.55%), four out of the five factors found to be significant related to out of area patients. Interestingly one of the factors, OOA patients with schizophrenia, identified reduced LOS by 27% and was the only factor examined to have this effect. It is possible that there is a protocol in place in London to address this group specifically, given the likely need for admission and high-risk presentation, and that as a result patients are accepted into IP units more quickly. If

this was found to be the case, it would be worth considering the characteristics of these protocols or guidelines with the aim of translating these principles to other patient groups which are out of area. The remaining three factors associated with OOA patients lead to increased LOS and given the apparent problems with processes in this sub-group, learning from the processes associated with OOA schizophrenic patients could be of value.

5.9.7 Summary of analysis of input, throughput and output factors

To summarise, this set of analyses highlighted that process factors associated with the way mental health teams function tend to have the greatest impact on LOS. Although not formally explored, discussion with clinical and managerial leads as well as existing literature on A&E processes indicate this may be as a result of poor integration of mental health teams within A&E and poor communication between A&E and accepting mental health units. Supporting this possibility, communication in particular has been shown to vary in its effectiveness across sites, with UCLH demonstrating particularly poor performance in this regard and also having the highest MH breach rates amongst the sites. These factors, with the exception of the availability of beds, are particularly amenable to improvement programmes and it is possible targeting this would benefit from generalised approaches that consistent across all A&E departments. There may be value in UCLH in particular addressing issues with communication between A&E and the mental health teams, as although causality cannot be unequivocally attributed, these findings suggest that poor communication with mental health teams is one of the key factors leading to longer LOS. Given that UCLH is identified as being particularly poor at communication with MH, and also has the worst breach rate, there is some evidence in these results to suggest that there may be a link and it is therefore possible than that tackling this factor at this site could be of particular benefit in reducing mental health breaches at this site. Finally, OOA patients make up a large proportion of the population and these results indicate that there are some factors leading to longer LOS that relate specifically to these patients. However, as the proportion of the variance attributable to this group is small, it is unlikely that improvement programmes targeting this group will yield much gain in performance. Despite this, as we found that approximately 32% of patients were OOA, and so improving the processes associated with managing the issues that arise from

attending A&E further away from home is likely to lead to improvement in the quality and experience of care for a significant proportion of attendees to A&E, and for this reason alone merits consideration. Consistent across all the factors associated with delays in this population are the underlying operational issues relating to communication with out of area teams. Exploration of some of the issues that arise with this group would be of value, such as communication and effective sharing of information about risk between localities.

5.9.8 Exploring how patient characteristics and process factors interplay to effect breach rates

I undertook a mediation analysis to explore the relationship between process factors and breach, with the aim of explaining why patients with some presenting complaints are more likely to breach. This was undertaken to build on findings identified in the preliminary study, which led to hypotheses that patients who were intoxicated were more likely to breach. I expected that the higher number of medical investigations required when patients present with overdose would explain their increased breach rates. However, these results indicate that this was not the case. Instead, a second mediation analyses illustrated that breach rates were almost entirely explained by the need to wait for medical review. Investigations are often undertaken by staff embedded within the A&E departments and when these results do not show any abnormalities it follows that they would not be expected to lead to delays in treatment. However, abnormalities in initial screening tests would be more likely to require medical review and input, and it is these process steps that are more likely to lead to breaches, rather than the investigation itself. It is possible that approaches that enable medical reviews to be undertaken more efficiently may reduce the breach rate for those presenting with OD, however it is likely that the underlying causes of the problems may lead to more interventions and treatment, and this in turn is likely to lead to increased LOS. As a result, it would not be possible to predict that more efficient reviews would lead to reduced LOS, unless this was coupled with a more efficient management of underlying issues that the review identified.

The second group of patients examined were those presenting with agitation. Here I expected waiting for a MHA assessment and difficulty in managing patient behaviour

in the department would explain the increased breach rate. Both factors only partially explained the breach rate, which is likely to reflect the heterogeneity of the individuals involved. Patients presenting with agitation could be presenting with a range of reasons which include psychosis, emotional and behavioural difficulties, and alcohol or drug intoxication. Not all of these patients require MHA assessment, however those that do tend to breach. Similarly, not all patients with agitation have difficult behaviour, although my results do indicate that this explained a larger proportion of the breach rate (38% of the variance). These results reflect the difficulty faced in managing presenting needs which can have a wide range of pathologies underlying them and, in this case, there is no clear indication of an approach that could be tested to improve breach rates in this population.

5.9.9 Are there a cohort of patients at high risk of breach that could be identified at initial assessment or triage?

One aim of the study was to explore if it is possible to establish a group of factors predictive of breach for use as 'red flags' during triage. Five predictors were identified, which explained 10.60% of variation in LOS. The variables included two presenting complaints (thoughts of self-harm/suicide or agitated behaviour), having a physical health co-morbidity, having been under mental health services previously and being out of area. The presenting complaints both had large effect sizes in the model and contributed to the greatest increase in LOS. Given self-harm or thoughts of self-harm/suicide account for almost 45% of all attendances, there may be value in using these factors as a mechanism to identify patients in advance who are at higher risk of breach. However, as these presenting complaints only account for about 10% of the variation in LOS notwithstanding their high prevalence, other factors, not associated with input and present at triage have more important pragmatic roles. It is likely that improvement efforts just aimed at presenting conditions without addressing the process factors identified in the previous sections would have limited impact. A recent review of the factors effecting LOS highlighted the lack of predictive models to date (Kreindler et al., 2016), highlighting the pertinence of the present observations. However, a study looking at patients' factors associated with mental health breach also found that suicidal ideation was the only presenting complaint linked with LOS (Robert J. Stephens et al., 2014). A second study found that positive screen for alcohol

led to waits of six hours longer (Weiss et al., 2012). Both these were US based studies with limited applicability to NHS ED settings. Ideally a statistical approach which simultaneously considers the combination of individual patient characteristics, such as a cluster analysis may be useful, but has not as yet been reported in the literature.

5.9.10 Should improvements be generalisable or site specific

The final aim of the study was to understand the effect of site, with the purpose of determining if recommendations about improvement efforts should be generalised or tailored to specific sites. A marked difference in breach rates and RR of breach observed across sites in this study and was confirmed by the hierarchical loglinear analysis. Six factors were found to be mediated by site: overdose, communication with the mental health team and the remaining four related to medical process in A&E (requiring medical assessment, blood tests, ECG test and delays caused by a medical problems that required assessment).

There were marked patterns in different sites' performances in these domains, with UCLH, as we have seen, performing particularly poorly in relation to communications with mental health teams (OR breach = 37.21). As this factor was found to be one of the most important predictors of LOS, this could in part account for UCLH's poor performance overall. So, improvement efforts focusing on mental health communications at UCLH are likely to be of value in tackling their breach rates.

Barts performs the worst in all the remaining five categories – managing patients presenting with an OD and the medical process problems. Given this, there is likely to be value in Barts tackling operational issues relating to medical processes, specifically how they manage blood tests and ECGs, and also considering their pathways relating to patients presenting with an OD.

Although these findings indicate that tailored programmes could be of value in helping sites improve, the poor performance against all factors indicates that benefit of identifying individual weaknesses unlikely to outweigh the resource requirements to do so and addressing any of the issues identified is likely to confer benefit. In general, the pattern of results suggests that to an important but limited degree, breach issues

can be solved globally by identifying important categories of issues with the potential to cause delay. Beyond this, the significance of specific parameters needs to be addressed for each site and generalisability cannot be assumed.

5.9.11 Implications

Our study provides the first estimation of the relative risk of breach of mental health patients in A&E and shows that mental health breaches are a significant problem for acute trusts. Although they represent a small number of cases treated in EDs, mental health cases have a disproportionate effect on the breach rate of any one department. The negative correlation found between the proportion of mental health patients seen and risk of breach indicates that the experience gained by seeing more mental health patients confers better performance, and the subsequent analysis of the factors leading to this provides more granular understanding of this.

It has been possible to identify factors that account for more than half of these breaches and these are not the same factors that predict LOS or breach in the general A&E population. For mental health patients, we find that process factors have greatest impact rather than output factors and are predominantly associated with how mental health teams function. Just being seen by mental health team increased LOS by 71.66%. More specifically, communication with mental health teams, mental health teams not being on site and admission to mental health beds contribute most to LOS. The first two have a range of processes associated that would be amenable to improvement programmes, however admission to beds is more likely to be a systemic problem that needs to be tackled at a commissioning level.

Some observations we report appear to be mediated by site however the factors having the greatest effect on LOS are not, with the exception of communication with mental health teams, which was particularly poor in one site. The conclusion, moderated by recognition that the sites looked at were relatively homogenous, is that most improvement efforts are likely to be possible to generalise and the factors that vary by site have relatively small effects on LOS. Thus, although there could be some gain in developing targeted or individualised improvement programmes, the overall benefit is unlikely to outweigh the cost. Challenges presented by how mental health

teams function as a whole in relation to A&E appears to be the best first approximation approach to take. Results on throughput factors indicate that improving communication between A&E staff and liaison staff, having liaison staff based in A&E, undertaking parallel assessments between liaison and A&E staff, being flexible about assessing prior to medical clearance where this is appropriate and ensuring referrals to liaison teams are prompt are all likely to deliver improvements. These factors are all amenable to quality improvement projects using techniques such as the Institute of Health Improvement's Plan Do Study Act approach. (Nicolay et al., 2012).

We pointed to five factors identifiable on arrival that appear to increase the risk of breach. However, their overall contribution to explaining LOS is small. So again, this is probably not the most effective approach to take to improve breach rates.

Finally, out of area patients represent a significant population in our sample, however they did not behave differently as a cohort in general. Violence is more likely to lead to longer LOS, which may be accounted for by the increased complexity of risk management and accessing information to enable this to be done properly prior to discharge. Once again tackling this issue is likely to have a smaller effect but given the significant proportion of the population is worth addressing. OOA patients with schizophrenia tend to have a shorter LOS and so understanding what it is about this cohort and the protocols associated with their management may help to improve the LOS/ breach rates for the other OOA groups identified to be at a higher risk of breach.

5.10 Conclusions

To conclude, this regression analysis has highlighted that process factors associated with the way mental health teams function tend to have the greatest impact on LOS. It is likely that this is a result of poor integration of mental health teams within A&E, and poor communication between A&E and accepting mental health units. Communication in particular has been shown to vary in its effectiveness across sites, with UCLH demonstrating particularly poor performance in this regard. These factors, with the exception of the availability of beds, are particularly amenable to improvement programmes and would benefit from generalised approaches targeting all departments. There is value in UCLH in particular addressing issues with communication between A&E and the mental health teams, and although causality cannot be attributed, communication with mental health is one of the key factors leading to LOS, UCLH is particularly poor at this and also has the worst breach rate, and so it is possible that tackling this factor at this site could be of particular benefit in aiming to reduce mental health breaches at this site. Finally, OOA patients make up a large proportion of the population and these results indicate that there are some factors that relate specifically to these patients. Consistent across all the factors associated with delays in this population, are the underlying operational issues relating to communication with out of area teams. Exploration of some of the issues that arise with this group would be of value, such as communication and effective sharing of information about risk between localities may be of value.

6 Discussion

This series of studies highlighted that there are a range of identifiable factors that appear to contribute to breaches and LOS of MH patients in A&E. The most significant of these relate to the functioning of MH teams in A&Es. There are a number of ways that A&Es could be improved, with a series of recommendations for service development which are relevant to clinicians, managers, policy makers and researchers. Improvement of emergency care is shown to not just be about improving breach rates; a range of other factors are identified which are in some cases more important to patients than the length of their wait. There is evidence that the pressure to manage patients quickly is having adverse impact on the quality of care, possibly even leading to worsened mental states, poor longer-term outcomes and repeated attendances to A&E in the short-medium term. Given this, it is possible that the four-hour wait may not be the most suitable measure of quality in this group. Although the proportion of MH patients attending A&E may be perceived to be low, the need in this population is high, much of which is unmet. Significant gaps in existing provision are highlighted as well as the missed opportunity for prevention and early intervention, which has potential to not only improve the pressure on busy A&Es, but also impact positively on mental health outcomes. Finally, the opportunity that A&E presents to tackle wider determinants of health is highlighted, together with the lack of effective approaches to this currently in place. Solving the existing problems with emergency care for MH patients will require more than being more efficient – we need to think more fundamentally about service provision including alternative service models, prevention, and approaches that enable us to tackle the wider determinants of health at a time at which people may be particularly amenable to making positive change.

6.1 Summary of Key Findings

The main objectives of this thesis were related to the quality of emergency care for mental health patients in A&E by:

1. Exploring the epidemiology of mental health patients attending A&E (Chapters three, four & five)
2. Exploring the factors associated with length of stay and breaches for mental health patients in A&E (Chapters four & six)
3. Exploring what constitutes good quality emergency mental health care from the patient's perspective (Chapter five).

6.1.1 Epidemiology of mental health in the A&E

6.1.1.1 Burden of mental health in the A&E

The meta-analysis reported in Chapter three suggests that mental health patients account for 4% of A&E attendances, a third of which are due to self-harm or suicidal ideation. However, the majority of studies were single site and of low quality and so even meta-analytic data must be interpreted with caution. Our estimate is similar to the Medicare figure quoted in current policy (5%) (Himelhoch et al., 2004). We estimate that half of attendances are made by females, and based on two studies the mean age of patients is 32-33 (Cassar et al., 2002; Knott et al., 2007). In general patients had histories of psychiatric illness, in one study over 50% (Cassar et al., 2002), suggesting that they are likely to be 'known' to mental health services. Many appear to be in current contact with services (Knott et al., 2007). Our findings suggest that following A&E visit a quarter are admitted to a mental health ward, but 6-8% leave A&E without waiting to be seen (Kalucy et al., 2005; Knott et al., 2007). A further third are discharged home from A&E, but it is unclear whether some in this category also received outpatient follow up.

In the extended study looking at consecutive mental health attendances in A&E (Chapter five), mental health patients represented only 1.69% of the attendances. The methods for case-finding, using psychiatric trainees, was more accurate than most of the studies included in the meta-analysis, which tended to use retrospective routinely collected data. However, we do not

know if the case finding procedure, while precluding false positives based on unqualified judgments, did not generate false negatives; it is possible that patients were missed. Further qualifications should be made because of the short period of collection (4 weeks), the relatively small sample size and sites limited to London. Thus, the prevalence figure may not be representative, and it is not possible to conclude if this substantially lower figure is a better estimate compared to the meta-analytic estimate. While more definitive studies are evidently required, the possibility that the 5% prevalence figure that many services and policy makers are working with, may be an overestimate.

6.1.1.2 Insights into the causes of attendances

The qualitative research undertaken in Chapter four explored the reasons for attending A&E. Explanations for attending A&E included difficulty in accessing timely help, either at the onset or during a crisis, and also in the time period prior to crisis when patients identified their mental health as deteriorating. Trouble in accessing services extended to primary care, community psychiatric teams and crisis teams. Service gaps were identified, for those on waiting lists and those who had been discharged from community mental health teams. Signposting to A&E from other services, such as 111 or primary care was common. Attendance at A&E was identified as an opportunity for intervention, with poor experiences contributing to deterioration of mental states which for some, led to more repeat attendances in A&E. A cohort of patients for whom symptoms built up over a number of weeks were identified, which suggests an opportunity for early identification and intervention which may prevent A&E attendances in some.

6.1.2 Factors associated with length of stay and breach

6.1.2.1 Factors associated with breach

The extended study in Chapter five identified the relative risk (RR) of breach for mental health patients compared to non-mental health patients to be 4.2 (CI = 3.56 – 4.95).

A logistic regression predicting breach event was performed (χ^2 (12) = 324.84, $p<0.00001$). Nagelkerke's R^2 of 0.380 indicated a moderate capacity to predict breaches on the basis of available information. Being seen by the MH team increased odds of breach by 7.26 (CI = 4.03 – 13.08). The factors that most increased the likelihood of breach were process factors or delays within A&E department, such as the MH team not being on site to assess the patients (OR=5.76, CI=1.94–17.10)), waiting for an inpatient bed (OR=6.88, CI=3.02–15.68)) and problems with transfer (OR=4.98, CI=1.90-13.05)). No input factors, which relate most directly to patient characteristics, contributed substantially to the model. Four factors were unique to this logistic regression predicting breach; patient behaviour, waiting for acute trust inpatient bed, diagnosis of Personality Disorder and being out of area with suicidal ideation. This indicates that these factors predict variability around the four hour mark, however, do not contribute significantly to predicting shorter and longer LOS. So, for example, it is likely that just prior to breach there is a lot of activity trying to admit patients into inpatient beds, and difficulties in this led to breach. One interpretation could be that this does contribute as much to longer lengths of stay as once the patient has breached, there is little gain in focussing on these patients, who are 'safe' in A&E beds, and attention is focussed on avoiding other breaches. Avoiding breaches for patients whose' variability in LOS is around four hours may be achieved through admission to short-stay wards, and these results indicate that out of area patients who cannot be easily discharged, and those who need longer assessment perhaps due to risk, may be good candidates for this approach.

6.1.2.2 Factors associated with LOS

A regression analysis tested which factors significantly contributed to LOS, with R^2 of 0.56 indicated a moderate relationship between predictors and length of stay. Although the relationship was moderate, it managed to achieve the greatest proportion of variation in the literature on MH LOS to date. Throughput factors contributed the largest proportion of increased LOS with the largest effect sizes. All factors led to increases in LOS apart from the moderator 'patients with schizophrenia who are out of area', which decreased

LOS by 27.43% indicating there was a set of processes particular to this group leading them to be managed more efficiently than individuals with other mental health conditions out area or in area with the same condition. In all models, the average percentage of LOS was increased the most for factors relating to psychiatric teams or processes. Just being seen by the MH team increased the average LOS by the greatest amount (68.38%) with a correspondingly large effect size. Waiting for an IP MH bed or when the MH team was not available on site to assess patients were the other two largest contributors to the model (49.00% and 48.02% respectively). Interestingly waiting for a MH bed was found to be a predictor of LOS but not breach. This indicates that this factor predicts the variability in the longer or shorter stays rather than stays around four hours. Given the average LOS for MH patients is around five hours, it is possible that there is little expectation that MH patients can be assessed and admitted to IP units within four hours, and as such there is little effort made to achieve this target within these units. Addressing the pathways and accessibility and availability of beds could be helpful, as could enabling early decisions about likelihood of admission, with transfer to short stay wards while beds are being arranged could be of use in meeting the target. The qualitative results in this study indicate that a dedicated MH short stay ward which is quieter and more comfortable than A&E would be valued by patients. Further studies exploring the use of such units would be of benefit in understanding if this model could work.

6.1.2.3 Differences between sites

There was a significant variation in breach rates between sites, with UCLH having the highest relative risk of breach (8.99), followed by the Whittington (6.53) and Barts (3.19).

Loglinear analysis used to explore the mediating effect of site identified six factors were found to be mediated by site, one related to the presentation, four were associated with physical health assessment and related investigations and processes and one was related to communication with the MH team. Specifically, the moderators were: (1) presenting with an overdose, (2) when the patient required a medical assessment in A&E, (3) blood tests performed, (4) ECG performed, (5) delays caused by a medical problem

requiring assessment and (6) delays caused by communications with mental health teams.

Perhaps there are some helpful lessons to be learnt from these 'site by predictor' interactions. Patients presenting with OD are much more likely to breach at Barts. The Whittington performs best in for all of the factors relating to medical assessment. Finally, UCLH performs much worse than either of the other sites in relation to communications with MH team, leading to an OR of breach of 37.21, compared to Whittington (5.55) and Barts (2.54). These results indicate that the system as a whole is less than optimal, that there are palpably better ways of managing some critical challenges which MH patients present in ED. Because the sites in this study are physically close, there is opportunity for learning and exchanging best practice between sites, with the translation of effective approaches e.g. managing mental health patients requiring physical assessment from effective sites to those requiring improvement in the area. It is likely that sites are neither no more aware of their relative strengths than they are aware of their weaknesses. How knowledge about both may be most effectively communicated is neither evident nor commonly the subject of systematic investigation.

6.1.2.4 Out of area patients

Sub-group analysis was done for out of area patients to determine if the same factors affected LOS. The log-linear regression was repeated using log (10) LOS as the dependent variable. Eight predictors were found to be significant, explaining 53.96% of the variance in LOS ($R^2=.54$, $F (8,243) =37.93$, $p<.00001$), which was very similar to the proportion of variability explained in non-OOA patients. The factors that explained the increased LOS were predominantly psychiatric in nature, with admission to an IP MH bed being associated with the largest percentage increase in average LOS (131.21%). Two variables were included which were uniquely significant to OOA patients: (1) violence or aggression towards others (increase LOS by 93.30%) and (2) waiting for medical clearance (increase LOS by 19.90%). Other factors with a large impact included: patient intoxication (48.22%), delay in referral to psychiatry (51.53%), being seen by MH team (86.78%) and communication with MH team (59.58%). Obviously, these observations beg the question what

circumstances necessitated these processes? We only have partial answers to this however it is possible that demonstrating violence and aggression to others and also being OOA and thus teams not having easy access to the individual's history made risk assessment difficult and thus contributed to longer LOS. OOA patients are also more likely to have longer LOS due to waiting for medical clearance. This may be a marker of severity of need, indicating that those attending hospitals further from home may be more likely to require medical input, however further research is required to explore this.

6.1.2.5 Can breach be predicted at arrival?

A further analysis explored the pragmatic question if long LOS could be identified during triage/ booking in at arrival. We identified eight significant variables, however they only predicted 10.60% of the variance ($R^2=.1006$, $F(5,517) =13.23$, $p<.00001$). Presenting complaint, physical health comorbidity, previous MH service use and being out of area were found to be significant. This was the only model in which physical health comorbidity was a significant predictor, although it contributed the least (19.93% of LOS). Two presenting complaints were significant, and these were the most powerful predictors in the model; (1) Agitated behaviour (42.17% increased LOS) and (2) thoughts of self-harm (38.11%). Being out of area increased LOS by 23.20% and if the patient was previously under MH services LOS was increased by 22.45%. While none of these predictors are counterintuitive, it is striking that despite significant concern about problem and patient characteristics, there is little variability that can be directly attributed to these concerns.

6.1.3 What Constitutes good quality care from the patient's perspective

6.1.3.1 Mental health patient's experience of A&E and the factors affecting it

The qualitative study findings reported in Chapter four, gave some insight into the experience of 42 patients who had recently attended A&E for mental health reasons. Their experience of care was found to be fairly binary, tending towards either good or bad. Overall, there were more examples of poor experience of care, with respondents often feeling upset by their

encounter. Five themes contributing to the experience of care being positive or negative were identified: (1) attitudes of staff (2) the quality and nature of the interactions with professionals helping them, (3) practical considerations such as the physical environment, (4) the quality of medical care and its perceived helpfulness to the respondent and (5) how the respondent felt during and after attending. The most commonly highlighted factor appears to be the attitude of staff and the nature of inter-personal communication with them during the A&E visit. Waiting times are also consistently identified as a problem, with a link between long waits, aggravated by poor physical environment and agitated/distressed mental state identified by participants as presenting almost insuperable challenges to wellbeing. Striking amongst the responses were the relative malleability of the factors named as critical to experiencing the visit to A&E more positively.

6.1.3.2 Characteristics of an 'ideal' crisis service

Suggestions for improvements in A&E unsurprisingly focussed around the factors that led to poor experience, with shortening waiting times, increasing accessibility immediately before or during crisis, feeling cared for and listened to and a positive, calming environment being the most commonly discussed themes.

Respondents were also able to identify a number of alternative options for care. For those who felt that alternatives were possible, almost anything else was overwhelmingly seen as preferable to attending A&E. The characteristics of such a service were (1) it should work as a drop-in service with no appointment required, (2) accessible 24/7, (3) most felt it would preferably be physically separate from A&E and maybe even not on a hospital site, (4) providing access to mental health professionals and (5) offering a relaxing environment. In addition to these, the importance of prevention was raised with many indicating that with sufficient support they felt would not need to attend A&E at all.

6.2 Limitations

The strengths and limitations for each study are detailed in the relevant chapters. Here some of the more fundamental limitations for the thesis as a whole are considered.

6.2.1 Generalisability

The major limitation of this thesis is the generalisability of the data across a variety of domains. In general, there was a lack of good quality research on A&E in the MH population undertaken in the UK. More work has been reported in other countries, in particular the US and Australia. Due to substantial differences in the structure and funding of services in these countries, it is difficult to make meaningful comparisons. This was in particular a problem for our meta-analysis in which only one UK study met the inclusion criteria and this was assessed to be of poor quality (Cassar et al., 2002).

It has been difficult to compare the baseline data from these studies with other studies as there are either a lack of similar studies addressing just the mental health population, or the studies do not report such information. One reason is possibly that many studies rely on routinely collected data from A&E. These studies cannot include detailed descriptions nor reflect a systematic approach to recording the reason for presentation for MH as a sub-group, with granularity extending to 'DSH', 'overdose', 'drugs & alcohol' and the rest being classed as a single but relatively meaningless category of 'mental health'. The small number of real-time observational studies that have been done are based in the US (primarily Boston) and reflect a different healthcare system and a non-comparable population.

All observations in these studies were made in sites that were predominantly urban. The meta-analysis included only studies that were all in urban centres and the observational and qualitative studies described were all based in London. This was identified as a weakness in the planning phase and the aim was to include a more rural site (Luton). However, ultimately this site was not able to participate in the investigation as difficulties in meeting timelines for ethics could not be overcome. This leads to difficulties in interpreting the data

beyond the unique characteristics of inner city London A&E departments. The cohort of patients attending, for example include a high proportion of out of area patients, high proportion of specific populations (e.g. students) and also drawn from a highly transient populations.

Data was collected in early winter over a relatively short time period (6 weeks) and given known seasonal variations in terms of the types of presentations, rate of attendance and length of stay at different times of the year, it is difficult to assess how much the factors associated with breach would vary seasonally. One approach to addressing this would be to collect quantitative data on some of the seasonally variable contextual parameters, such as how busy the A&E is, capacity, relative attendance of MH: non-MH patients, staffing levels so they can be based in a more complex multivariate model of predicting breaches. As presenting complaint was not found to determine breach outcome, it is unlikely that differences in presentation that are known to reflect seasonal variation would affect the results significantly.

The qualitative study included a self-selected population and included predominantly patients with self-harm and suicidal thinking. In future studies it would be useful to take a purposive sampling approach to ensure that there was a broader range of views included. Further, the time period between attendance and interview was up to nine weeks which is likely too long for obtaining pertinent information about the experience of the visit. In future studies it would be important to aim to reduce this and this may both increase respondent rate as well as improve the quality and reliability of the data collected.

6.2.2 Additional Data

Comparison with national data sets, data on each individual site's capacity at the time of data collection and the non-MH population would have been a valuable addition to these studies. Not including this makes it challenging to determine which factors effecting LOS are specific to the MH population and which are a function of the A&E environment at any time. For example, factors known to effect LOS are the relative business of the A&E department,

availability of acute hospital beds and national capacity problems such as winter pressures. As systems data are not available on these key parameters, we were not able to control for any of these factors in the regression analyses. The relatively low proportion of variability we were able to capture in these analyses may reflect the absence of key systemic indicators of general A&E functioning for the times when we were assessing A&E performance in relation of MH patients.

Primary care was identified as an important factor affecting the decision to attend in the qualitative study, with those who are not able to access primary care in a timely fashion indicating that they were more likely to attend A&E. Kings Fund and Nuffield trust reports indicate there may be an association. Ideally our study would have collected these data and in future studies this could be a valuable addition. This would either be done at the time of attendance, or by linking to primary care records to collect data on the pattern of contacts prior to the attendance.

Some data collection relied on the judgement of the data collectors, in particular data relating to the causes of delays in A&E. As only one data collector was on site, we did not have a way of validating this reliably and it is therefore possible that this data is not accurate. To mitigate this, training was undertaken with data collectors as a group to attempt to reduce the variation in judgement. Ideally, we would have tested the difference between results for different data collectors to ensure there were no identifiable differences in approaches.

In order to increase the number of respondents in the qualitative study, we offered the option of responding via telephone interview or online survey. About 60% of our data collection was through survey. On review of the quality of data collection, data collected by interview was more detailed, more complete and of better quality. If the study were to be repeated, then a focus on this method for data collection would be preferable. Of course, there are resource implications which are challenging in the context of a project such as this one with limited extramural funding.

One aim of the qualitative study was to develop an understanding of ways that the experience and quality of MH emergency care could be improved. Our focus was on the patient's viewpoint; however, it can be argued that a complete picture has not been gathered without the views of the professionals involved in care, and this would be a valuable addition to future studies.

6.2.3 Repeated testing in empirical chapters

A common problem in inferential data analysis is the introduction of type I error as a result of multiple repeated testing of a large number of factors, which can arise as a result of taking an unstructured approach to identification of factors. In the current study we attempted to mitigate this identifying candidate factors, through a thorough literature review and a preliminary study which provided an initial assessment of the candidate factors. During analysis of the extended study we chose to use Bonferroni approach to control for type I error to minimise the risk of false positives. However, the large number of factors tested meant that the alpha level was 0.0004, which reduced the number of positive findings substantially. Some argue that using this approach to minimizing family-wise error rate is too strict (Noble, 2009). An alternative approach would have been to reduce the number of comparisons by being more focussed in the selection of candidate factors, by eliminating some either though study or the literature. The drawback of this approach is that it may preclude serendipitous discoveries. Given a sample size of over 600, it would have been possible to carry out a cross validation of these results in the cases where there was not more than one category. However, the study was not powered sufficiently for comparison between sites, or for factors with more than one category, such as presenting complaint or ethnicity. Alternatively, a resampling approach such as bootstrapping may have been applicable (Mooney, 1993), and may have provided a less strict method and potentially enabled inclusion of more factors into regression analyses. Ultimately, the only solution to the problem of significance testing is replication which obviously is for future studies and preferably by independent research groups.

6.2.4 Logistic challenges of undertaking research in A&E

There are significant challenges associated with undertaking research in A&E. The overwhelming majority of relevant literature utilises retrospectively collected routine data from A&E notes. It does not link data from different sources and does not allow data to be validated with clinicians at the time of data collection. The studies sought to address this with data collectors present in A&E, collecting from a variety of sources including contextual information. Where there were doubts, data collectors could seek clarification from clinicians. Despite these attempts to overcome known problems, collecting accurate data remained a problem due to a number of reasons described below.

- (1) Patients were not spaced evenly and so at times there were a number of patients and therefore data was not collected. We did not undertake analysis to explore whether factors presented at higher frequencies at different times, so it is difficult to judge the likelihood of confounding as a result of the lack of this data. Ideally, we should have had a flexible group of data collectors with some 'oncall' for busy periods.
- (2) For a number of reasons, clinicians were not able to give time to data collectors for clarification including being too busy or finishing their shift. This is difficult to mitigate without significant funding, as the most obvious approach would be to provide the opportunity for staff to report back to data collectors in the last 30-60 minutes of their shift. In busy periods there would be little justification for staff being available for this without appropriate cover, which our budget did not extend to.
- (3) The study only had access to mental health notes for 'in area' patients. As out of area patients represented 39% of the sample there were a significant proportion for whom we were not able to triangulate data sources. As EDs are close by in London, a patient may be classed as 'out of area' but only be a short distance from their home, e.g. if the patient decided to attend the A&E close to work or their local hospital was known to be very busy they may choose another close by hospital. To overcome this, we created a list of all

OOA patients and checked if they had records in any of the three hospitals that were included in the study. This enabled us to identify records from approximately 30% of the OOA sample. The data missing therefore relates to a distinct population that attended A&Es further from home and are likely to represent a distinct population. Analysis was undertaken on an ITT basis, but it is possible that selection bias may lead to confounding or results that depended on mental health notes, which includes prior and current mental health service use, co-morbidities and existing MH diagnoses. The risk of false positives is low as none of these factors were found to be associated with breach, however it is possible that factors were missed.

(4) One aim was to look at time-series data, to explore if any particular steps in the pathway led to delays. However, the recording of the time that patients were seen and by whom was poor, and it was not possible to reconstruct sequences of clinical actions from the notes. The study did not have resources to track each patient individually to collect this data and so we were not able to undertake this aspect of the analysis.

6.2.5 Overinterpretation of the results

In inferential data analysis there is a risk that results can be over-interpreted (Warner, 2008). The best estimate of the factors associated with breach was around 55%, meaning that almost half of the predictors of breach remain unidentified.

Although the input, throughput and output categorisation of factors was useful to provide a framework for the data analysis, in reality many of the factors could not be unequivocally assigned to one of these categories as the framework is heuristic rather than empirical or conceptual. The factors are linked and interdependent. We cannot therefore conclude that a particular group of factors have more or less 'impact on breach' and so should therefore be a primary target of improvement efforts in isolation. For example, throughput factors included the type of professional seen by the patient. Although it may be that those seeing medics have a longer LOS, the reason the patient needed a medic was because of their presenting complaint (an

input factor) and thus concluding that 'seeing a medic' causes longer LOS is erroneous and any improvement efforts need to take into consideration the wider issues relating to the reasons the patient needs to see the medic. Nevertheless, the distinction enables us to surface where problems directly linked to breaches and LOS occur even if attributing causation to these factors would not be a sound strategy.

6.3 Implications of the findings

6.3.1 Understanding breach rates and long LOS

The causes of the rate of MH patient breach and LOS can't be easily explained. Despite testing over 170 factors, which were identified through the literature and by clinical experts and which is the most comprehensive consideration of the factors associated with breaches to date, we were only able to explain 38% of the variance in breach rate and 56% of the variance in length of stay. In the existing literature, only eleven studies were found to have undertaken a similar exhaustive analysis of predictive factors and developed a regression model, most of which didn't include all categories of factors and only five reported R^2 (Asaro, Lewis, & Boxerman, 2007b; Chan, Reilly, & Salluzzo, 1997; Cooke et al., 2004; Park et al., 2009; P. Yoon et al., 2003). The best fitting model included only psychiatric patients with extended LOS and was able to account for 66% of the variation in breach rates, identifying lack of insurance, current suicidal ideation, disposition to inpatient unit, and current homicidal ideation as explanatory factors (Park et al., 2009). The rest of the models included 'all presentations' with up to 38% of LOS explained. Notwithstanding issues of generalisability discussed in the previous sections, which are limitations in all current literature in this field, this study contributes significantly to the current knowledge of the causes of breaches in mental health patients. The studies identify a mixture of factors that may contribute to MH breaches, some of which are consistent with the literature such as the number of investigations and the availability of beds, and some that are newly reported. The novel factors primarily relate to processes and output variables such as communication with the MH team, problems with transfer to MH trusts and the MH teams not being present on the site. Their identification was made possible through the methods used, by collecting data in 'real time' in A&E; an approach which has previously not been reported on in UK EDs. These factors highlight that management issues for MH patients in A&E, such as the clinical steps required to effectively provide care and the associated processes, may be so significant that they eclipse the effect of factors associated with all patients. This was seen to the extent that factors relating to 'all patients', such as the A&E unit being busy or

receiving blood tests, did not contribute significantly to the final regression model. One interpretation of these findings is that the challenges presented by having MH teams working in silo within A&E are so significant that any efficiencies existing within the A&E units' internal pathways are not likely to materially influence outcome. This is consistent with existing literature, which highlights the particular challenges of MH patients in A&E, both in terms of the consistently high breach rates and LOS as a whole (C. L. Atzema et al., 2012; R. J. Stephens, S. E. White, M. Cudnik, & E. S. Patterson, 2014), but which also identifies a range of process factors as playing an important role in the causes of breach & LOS in this population. For example, it has been shown that efficient referral processes between medical and psychiatry teams are important to reducing LOS (Chew-Graham et al., 2008; Stover & Harpin, 2015; P. Yoon et al., 2003).

6.3.2 The role of patient factors versus process or systemic factors

In this research very little of the breach rate could be directly attributed to patient factors such as age or ethnicity, nor to the conditions they present with – it was not possible to accurately predict breaches with a model including only these elements. A recent review of the patient factors associated with long LOS highlighted that no studies reported a predictive model, however the factors found to be significantly associated were need for admission, the older adult population, receiving diagnostic tests or consultations and arrival by ambulance (Kreindler et al., 2016). Despite the lack of predictive models, presenting complaint is most consistently associated with breach in previous studies (Clare L Atzema et al., 2012; Downing, Wilson, & Cooke, 2004; Elkum, Fahim, Shoukri, & Al Madouj, 2009). We found presenting complaint to be highly significantly associated with breach, when process and output factors were controlled for, the contribution of the disorders themselves was not significant. This is likely to be a reflection of complexity, with those with multiple concurrent issues or complaints leading to a need for more detailed assessment involving medical and psychiatry teams, possibly involving treatment to stabilise their medical conditions, followed by the development of management plans dependent on

or involving more than one team such as crisis teams and MHA assessments. Each of these steps seems to convey added time, and for the most part many of these are unavoidable. However, from the work comparing sites it suggests that some units are able to undertake these more effectively than others. This suggests that there is potentially room for improvement, and an opportunity to translate effective processes from one site to another.

6.3.3 Addressing process may lead to improvement in breach rates

The difficulty in identifying clear causes of breach is in part a reflection of the multi-factorial causes for presentation – a combination of unstable mental state triggered by a range of sociological factors. Despite this complexity, this research indicates that there may still be opportunities to make gains in performance against the four-hour breach target by improving the approach to management. A number of process measures have been identified that appear to contribute to long stays significantly, all of which are amenable to improvement at face value. These include reducing delays in referral to psychiatry team, bringing the MH team to be based on site, improving access to IP MH beds together with addressing difficulties associated with the processes for arranging these, and finally finding a more effective approach to managing patients attending under s136 with schizophrenia.

6.3.4 Use of the conceptual framework of input, throughput and output factors

Using the input/ throughput/ output model of classification was a helpful way of grouping variables for research purposes, although it must be remembered that these are not discrete groups as throughput and output factors are rarely independent of patient characteristics (input factors). It is by and large inevitably the underlying presenting needs that determine management processes and pathways that define a patient's path through the health care system. Given the implicit aim to identify factors effecting breach so that improvements can be attempted, understanding the relationship between patient characteristics, and throughput & output factors would be important part of the process of teasing out how improvements are best delivered. This of course is not straightforward and constitutes a major research programme

in itself. In the absence of a comprehensive study of the nature of health care pathways in mental health, the identification of key choice points and the predictors which underpin these, we have to be cautious in recommending remedial steps for services to undertake in the light of these findings. The interdependency of input, throughput and process factors both across these categories and within them means that causing change in one factor may result in changes elsewhere in the system – both desirable and potentially undesirable. Given this, developing approaches that aim to address one of a group of factors in isolation should not be undertaken without a great deal of circumspection. Further, the interdependence of factors effecting LOS and breach means that there is a high risk that changes in throughput or output is rate limited by associated input factors that could limit the gains achievable.

6.3.5 Is it possible to improve A&E performance against identified problem areas?

The primary purpose of identifying factors that lead to long stays is to target these areas for improvement. In developing approaches to improvement, a sensible first step would be to use the positive deviance approach described in the quality improvement literature in which relevant exemplary approaches, preferably in a local network, are identified with the aim of translating good practice to less well performing sites. In order to do this empirically, it is possible to turn to the mediation study in which we explored differences between sites, identifying variations in good and poor performance, in Chapter five. However, in our study the group of A&Es included no sites which performed significantly better in relation to any of these individual factors, indicating that the issues relating to these process problems may be particular to this group of hospitals, to London or a more widespread problem.

The next step would be to turn to the literature for guidance; although there are no published studies addressing these issues directly, the use of generalised strategies that improve patient flow have successfully reduced waiting times for MH patients and may be of some benefit. For example, in an Australian A&E the mean waiting time was reduced from just over 5 hours to around 4 hours by implementing a pull model and improved triage (Bost,

Crilly, & Wallen, 2015). This suggests that targeted improvement methods have the potential to lead to shorter LOS even without a full understanding of all the factors associated with breaches.

Next, we turn to the grey literature and identify that a national focus on improving A&E breach rates has produced a range of tools to support sites improve locally and this includes case studies from NHS Improvement, although none are specific to MH patients. In particular there is a series of case studies drawing on work in the North which aim to improve A&E flow, including improving triage, minimising admission rates and effective push-pull mechanisms which will improve the processes between A&E and the follow-on teams, including those that assess in A&E (NHS Improvement, 2016), although none of these approaches have been evaluated systematically.

Finally we look to literature addressing the A&E population as a whole and identify that there are a large number of studies involving modelling patient flow which aim to improve performance, again none of these are specific to MH populations (Coats & Michalis, 2001; Gunal & Pidd, 2006; Hay, Valentin, & Bijlsma, 2006; Hoot et al., 2008; Hoot, Zhou, Jones, & Aronsky, 2007; Konrad et al., 2013) (as examples). A recent review of these highlights the plethora of approaches with an absence of consensus about methodology, and to an even lesser extent examples of the use of modelling patient flow leading to measurable improvements (Bhattacharjee & Ray, 2014). Improving flow is also approached without initial modelling studies and a recent systematic review identified three approaches that have been implemented and evaluated systematically to date: extending nurse specialist roles, introducing physician assisted triage and the use of medical assessment units. Findings indicated there may be a role for each of these, but no firm conclusions were drawn with no specific reference to how these interventions were relevant to MH patients (Elder, Johnston, & Crilly, 2015). The research reported here did not address any of these issues specifically, although analysis was undertaken on the effect that the type of clinician seen and the use of MAU beds, and neither was significantly associated with breach or LOS. It therefore isn't possible to draw firm conclusions about the usefulness

of these approaches based on the findings of the studies reported here. However, at face value the factors discussed as modifiable do not seem to be related to the most important factors associated with MH patients identified in this research and indeed the existing literature. It would therefore be surprising if they turned out to offer significant gain. I would argue that more specific research is needed into how best to manage this cohort. Addressing the problem from the position of considering the A&E population as a whole is unlikely to provide much useful insight into this particular sub-group.

So how best to tackle issues of poor quality of service for MH patients in the context of a paucity of good quality research in the area to inform remedial action. The approach taken usually focusses on quality improvement using methods such as PDSA. While there is some evidence of the effectiveness of these approaches, Dixon-Woods and Martin highlight that for effective gains to be made, quality improvement efforts need to take a systematic approach as many small isolated projects are unlikely to lead to significant improvement and may even risk disruption of a system. (Dixon-Woods & Martin, 2016). These authors suggest a programme approach in favour of siloed projects, with efforts strategically designed across networks, using systematic methods that are locally adapted. This whole system approach seems particularly important when addressing complex multifactorial problems such as those identified in this programme of research.

6.3.6 Mental health A&E attendees represent high need

The findings of this research have highlighted that the issues relating to emergency care for MH patients are broader than long waiting times in A&E; the level of unmet need in this population being a primary example. The present findings, together with the existing literature, suggest that the burden of mental health patients on A&E is likely to be between 2% and 4%. Although a low proportion of overall attendances, this cohort are shown to present significant need. The studies reported above illustrate high levels of morbidity and social disadvantage within this population. For example, we found that 24% are frequent attenders, 16% attend with police involvement, 53% are unemployed and 17% have no fixed abode. This is consistent with

other reports (Barratt et al., 2016; Blunt, 2014; Bolton, 2009; Brunero et al., 2007; van Tiel et al., 2015). Marmot highlighted the social determinants of health, demonstrating that health depends directly on society's social and economic organisation, describing how issues such as homelessness, social support and economics influence disease (M. Marmot, 2005; M. G. Marmot et al., 1991). Increasingly medical professionals recognise the need to intervene with social determinants in daily patient care, particularly in mental health. Perhaps nowhere is the need for considering social determinants more acute than in A&E, where these factors converge with illness and policy. The qualitative findings of this report support this view and illustrate that not only is the need high but that help seeking during crisis could provide an opportunity for individuals to pursue positive change at a point at which intervention may be particularly useful. However, there is little research on this therapeutic opportunity and how best to manage it. The most useful literature reports a review of clinical approaches used to make A&E assessments more therapeutic during crisis. These are based on expert consensus, arguing that reflexivity can create a powerful approach to intervention. However, none of the approaches discussed take a holistic view incorporating consideration of the wider determinants, nor practical solutions for how to manage them (Denis & Hendrick, 2017).

The currently most widespread approach taken is to provide ongoing emergency MH care after A&E attendance rather than during the attendance itself. Often it involves referral to the crisis team. This could provide an opportunity to address the wider social issues pointed to above. For the approach to effectively meet the patient's multiple needs a range of criteria must be met. Firstly, crisis team support needs to be available to all attending A&E who could make use of it. Secondly, the team needs to be immediately available after attendance. Thirdly, the approach needs to incorporate capacity to address the broader issues facing the patient (e.g. social care expertise). Finally, the team needs to be closely linked with services that can provide ongoing support, for example with housing and welfare. Currently crisis teams are not structured to be able to provide care in this way. A significant proportion of A&E attendees do not even meet the pre-specified

criteria for the service. Evidence from this research suggests that the four service features laid out above are infrequently met. Thus, in reality a significant proportion of the MH patients attending A&E services are excluded from receiving crisis care. But even where the care is provided there is little evidence of a multidisciplinary approach or effective linking with wider community services. Access to crisis teams is problematic for some, and that the service provided is not always sufficient in terms of the length of time nor the usefulness of the help provided. These findings are supported in a recent systematic review of crisis services which included both quantitative and qualitative findings (Wheeler et al., 2015). As none of the studies included in the review reported on the numbers referred or assessed compared to the proportion accepted, the meaning of access to services remains difficult to quantify. However, qualitative evidence identified problems with availability of help during a crisis and having an inclusive approach with clear eligibility criteria, suggesting that these problems may be widespread and not limited to those participating in the present study (Wheeler et al., 2015). Crisis teams in their current format and level of funding are unlikely to provide a suitable solution for the needs of this population. Given this, it seems reasonable that alternatives to crisis teams are developed and trialled which meet the need of those presenting at A&E with mental health problems, and providing a solution to the problems and needs of frequent users of A&E services should be a priority for service managers, clinicians and researchers.

6.3.7 Current provision

The findings reported in Chapter four indicate that issues with accessing care do not arise from a reluctance to receive help for the majority of A&E attendees. Rather there is an overwhelming indication from patients that services in their current form are failing to effectively provide either mental health or social intervention. The issues highlighted in the reports and interviews indicate that appropriate help is either not offered at all, or where it is offered, the care is not received due to poorly functioning of the clinical pathways. Examples include lack of follow on care due to failures in referrals, lack of effective social intervention incorporated into the offer, A&E team's

lack of knowledge of services in the community and difficulty with access when referral to appropriate services is achieved. Addressing these issues requires multifaceted interventions that offer effective mental health and social intervention at the point of crisis. It is likely these will need to address service structure including better integration between mental health and acute services within the acute environment, education of staff and patients, and a focus on interventions that tackle not just MH problems but incorporate the wider determinants.

There is increasing recognition of the need to incorporate social medicine into medical education (Westerhaus et al., 2015), and more recently a call for this to be a priority for emergency medicine training has been made (Axelson, Stull, & Coates, 2018). Currently there are no evaluated examples of this approach that have been developed for MH patients in A&E, and research is required to innovate, test and implement them. One approach that may be of benefit to sites in developing the multi-agency approach that is needed is the Ambit model (Bevington, Fuggle, Cracknell, & Fonagy, 2017). This approach, based on mentalization, provides a toolkit for use with teams and wider inter-agency networks, to support them to develop a joint working approach to working with mental health patients.

In the light of these considerations, it seems imperative that a fundamental shift in the thinking about what constitutes a useful crisis intervention for MH patients is required, as well as how best it should be delivered, including consideration of modality, integration with other services and the best place for ongoing care.

6.3.8 Missed opportunity for early intervention

Findings in Chapter four also suggest that A&E attendances could be avoided with more effective early intervention. A significant cohort of patients described had a slow build-up of symptoms and reported being help-seeking during this phase with descriptions of attempts to access care. However, in this group, perhaps predictably, efforts to access care were consistently reported as unsuccessful, with problems such as difficulty accessing GP or

community MH services in a timely manner, being on long waiting lists with no access to interim support or experiencing exclusion from services. Some also described poor attitudes on the part of providers, which led to reluctance to seek help, for example in primary care or from crisis lines. These observations are confirmed in a recent Health Foundation report as well as evidence from peer reviewed sources, which indicate that the lack of availability of same day care is a system-wide problem which has an impact on the rate of presentation to emergency services (Asaro et al., 2007b; Blunt, 2014; Blunt et al., 2015; Vermeulen et al., 2009).

Extensive literature exists on the benefits of early intervention in mental health crisis (Auerbach & Kilmann, 1977; Knapp, McDaid, & Parsonage, 2011; Larkin & Beautrais, 2010; Miller et al., 2017; Paton et al., 2016; Repper, 1999), and in 2014/15 the provision of emergency mental health services was identified as a priority in the NHS mandate (Department of Health, 2013). In response the London Strategic Network recently established four key standards after extensive consultation across London that address access to crisis care, with the aim of improving the offer in the capital. The standards aim to improve access by having access to 24/7 telephone lines, self-referral, the use of third sector organisations and GP support (London Strategic Clinical Networks, 2014). However, despite it being a priority both nationally and locally for the past three years, the findings indicate that there continues to a problem at least in the sites participating in this study, and also provides evidence that these missed opportunities could be leading to greater pressure on struggling A&E departments. The findings of these studies suggest that poor management of mental health patients in crisis may have a negative effect on mental state, leading to deterioration and lack of engagement with community services. This seems to ultimately lead to patients re-presenting and in some cases a number of times in a short time period. Existing literature supports these findings, with Mind identifying the need for a place to go which was away from home as a means of removing the individual from a toxic environment as a mechanism to avert crisis (Mind, 2011, 2015). This resonates with many respondents reported in Chapter four citing their reason for attendance as needing 'a safe place to go to'.

Despite the intuitive benefits to be gained from taking a pre-emptive approach, a recent literature review of the effectiveness of access to support before crisis reveals there is very little data in relation to the effectiveness of different models (Paton et al., 2016). NICE guidelines on access to support before crisis are based mainly on expert consensus and include the importance of receiving care with minimum delay, quick referral (via self-referral or by building links between mental health services, primary care and third sector organisations) and equality of access (National Collaborating Centre for Mental Health, 2012). Optimising the opportunity for early intervention requires the provision of services enabling easy access, should include services accessible and appealing to marginalised groups, as well as research focussing on effective models for provision of care in the lead up to crisis. The findings of the qualitative research study contribute to the knowledge about models preferable to patients. A useful next step would be identification of existing effective models, in order to determine which approaches are most likely to offer effective solutions and also provide a solution that is acceptable to this group.

6.3.9 Gaps in Provision for those presenting with DSH/ suicidality

A number of gaps in provision are highlighted and suggest there is a failure to provide timely care for particular sub-groups in particular. The lack of provision and difficulty accessing care for those with personality disorders or repeated self-harm is well documented in the literature (Holm & Severinsson, 2008; Larkin & Beautrais, 2010; Nehls, 1999), and is echoed by this research. These gaps also appear to be putting strain on A&E services, with patients describing not having the option to access help in other settings, with no option but to attend A&E.

In this study, these gaps take four forms: (1) patients discharged from services permanently because of difficult behaviour, (2) those discharged with no other support as there are no services available locally to help them, (3) those on waiting lists and (4) those deemed to not be severe enough to require Tier 3 MH services, but for whom there are no alternatives available.

A decision needs to be made about the approach to provision for these groups, including funding, responsibility for provision of services, the ideal service structure and approach. The current lack of recognition of this problem, or development of an appropriate strategy to approach it has led to A&Es being forced to act as a poor-quality default option for a significant proportion of MH patients – one which this research, as well as others, illustrate to be a poor option that has potential to be ineffectual at best and at worst, iatrogenic to both the system and the patients themselves.

6.4 Conclusions

This research has highlighted that there are a range of identifiable factors that appear to be contributing to breaches and LOS of MH patients in A&E. The most significant of these relate to the functioning of MH teams in A&Es. There are a number of ways that A&Es could be improved, with a series of recommendations for service development which are relevant to clinicians, managers, policy makers and researchers. Improvement of emergency care is shown to not just be about improving breach rates; a range of other factors are identified which are in some cases more important to patients than the length of their wait. There is evidence that the pressure to manage patients quickly is having adverse impact on the quality of care, possibly even leading to worsened mental states, poor longer-term outcomes and repeated attendances to A&E in the short-medium term. Given this, it is possible that the four-hour wait may not be the most suitable measure of quality in this group. This research highlights that although the proportion of MH patients attending A&E may be perceived to be low, the need in this population is high, much of which is unmet. Significant gaps in existing provision are highlighted as well as the missed opportunity for prevention and early intervention, which has potential to not only improve the pressure on busy A&Es, but also impact positively on mental health outcomes. Finally, this research highlights the opportunity that A&E presents to tackle the wider determinants of health, together with the lack of effectual approaches to this which are in place currently. Solving the existing problems with emergency care for MH patients will require more than being more efficient – we need to think more fundamentally about service provision including alternative service models, prevention, and approaches that enable us to tackle the wider determinants of health at a time at which people may be particularly amenable to making positive change.

7 Policy Recommendations

The following policy recommendations are made from this research:

1. Although MH patients are a relatively small proportion of the presenting need within A&E departments, they represent high levels of need. A&E presents an opportunity to identify vulnerable individuals, however the pathways between A&E and community services for MH patients function poorly currently and many patients are lost to follow-up. Improvement of integration of A&E services with those in the community would enable A&E to act as a useful mechanism of identifying and signposting the most vulnerable and in need to services.
2. A high proportion of patients attending A&E are known to MH services and have a previous history of MH problems. Existing community support is unlikely to meet current need. This research indicates there are problems with access to timely help in the community and a lack of capacity in terms of community teams and available beds. There is some evidence to support that patients are attending A&E due to this.
3. Attendees presenting with self-harm and or suicidal thinking and behaviours are disproportionately represented in the cohort. This may reflect a lack of community based support for those with personality disorders and emotional and behavioural problems. Qualitative research supports this, indicating there may be a gap in provision for this group. Providing services for this group has the potential to substantially reduce the numbers of mental health attendees to A&E.
4. Patient experience in A&E is poor. This may be leading to increased rates of attendances to A&E. There is evidence to suggest that poor experiences in A&E contribute to a worsening mental state. This, together with a lack of perceived benefit to attending and frequent failure of pathways from A&E into mental health services mean that some patients re-present to A&E. Emphasis on providing a good experience and useful intervention, even if this is limited to effective signposting, may lead to reductions in MH presentations to A&E.

5. There is clear indication that for many mental health patients A&E is not their preferred place of care, but there are currently a lack of alternative options. There is increasing evidence that alternatives are safe, effective and often preferable (for example drop ins and crisis houses). Systematic provision of such alternatives would increase access, improve quality of care, reduce the demand for A&E care and reduce breach rates for MH patients.
6. The relative risk of mental health breach is 4.2 compared to non-mental health patients. This indicates there are still considerable problems with parity. This research also highlights that the MH population behaves distinctly to the general A&E population, and different factors cause breaches in this group. MH is rarely a specific consideration for policy makers when looking to address breach rates in A&E, however they are disproportionately represented. Increasing the focus on how effectively A&E 's manage MH patients will lead to improvement in breach rates and address parity between MH and non-MH patients.

8 Quality Improvement Recommendations for A&E Departments

1. These findings and the literature indicate that experience of care for mental health patients is poor. This research indicates that the following aspects contribute to this finding: poor quality communication, poor attitudes of staff, lack of information while in A&E and long waiting times. Improvement and educational programmes addressing these may improve patient experience of care.
2. Quality improvement projects aiming to address breach rates and LOS for MH patients are likely to improve performance, as we were able to explain 56% of the variance of LOS. Process and output factors explain the majority of this variance, whereas input factors such as patient characteristics had comparatively little impact. This differs from the general A&E literature on causes of breach and LOS, indicating that improving LOS for MH patients should be tackled through improvement approaches tailored specifically to this group. The table below highlights the key factors predicting length of stay and these would be good areas to focus improvement projects. The co-efficient relates to the proportion of LOS that the factor increases waits by.

Table 73: Showing the factors that increase LOS by 20% or more in the regression analysis reported in Chapter five

Description of factor	Coefficient (%)
Seen by MH Team	68.38
s136 with diagnosis of schizophrenia	55.68
Mental health team not on site	49.00
Waiting mental health inpatient bed	48.02
Delay in referral to psychiatry	45.85
Seen by A&E medics	41.43
Waiting specialist review	40.46
Waiting acute trust inpatient bed	39.98
Patient is OOA and requires admission to IP unit	32.71

Problems with transfer	26.78
Waiting MHA assessor	22.67
Communication with mental health teams	20.36
Intoxicated patient	20.23

3. Some groups of patients were found to be managed particularly efficiently, for example psychotic patients who are out of area. This indicates that pathways or protocols for particular patient groups may be helpful to improving efficiency of care.
4. It was not possible to identify a set of characteristics at arrival that would predict breach.
5. There was significant variation in breach rates between sites. Analysis found that three factors predicted the variances between sites (presenting with an OD< process factors relating to medical review such as blood tests, ECGs and radiology, and problems with communication with mental health teams. Differences were not explained by patient characteristics such as presenting complaint, ethnicity, age, homelessness etc. While these differences are specific to the sites studies, the results indicate that the differences in performance between sites is unlikely to be due to local demographic differences and more to do with how A&Es manage patients.
6. Analysis highlighted that breach in patients with presenting with overdose is caused by delays in waiting for medical review. This could be an area for focus in any projects aiming to improve the processes associated with this group.

9 Research Recommendations

1. More studies on the causes of breach and length of stay based in the UK should be undertaken as there are currently no good quality studies, making comparisons with the literature impossible.
2. More systematic use of frameworks for identifying and classifying factors relating to breach should be utilised in studies exploring the causes of breach and LOS.
3. The use of routinely collected data limits the range of factors that can be studied. This research indicates that factors that are found to be most significantly related to breach/ LOS are not those included in these databases. Therefore, use of data collected from notes would be of greater value to the field.
4. Nearly all studies of A&E delays are based in large teaching hospitals. Given my research has highlighted that there are differences between sites, inclusion of smaller hospitals and those in a rural setting would improve the generalisability of future studies.
5. My qualitative results are based on a sample with a high proportion of patients with personality disorder. It would be valuable to validate these results by repeating the study with a broader range of A&E attendees.

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11 Appendices

11.1 Appendix 1.1

Summary of the factors found to impact on LOS in the papers studied

Description	(no times found to be associated with increased LOS, no of times reported)	References	Description	(no times found to be associated, no of times reported)	References	Description	(no times found to be associated, no of times reported)	References
Age – increased age leads to increased LOS	7,10	(Brennanan, 2015; Downing et al., 2004; Goodacre & Webster, 2005; Karaca, Wong, & Mutter, 2012; Kreindler et al., 2016; Schull et al., 2002; Weiss et al., 2012)	Investigations in A&E	8,8	(Azzopardi et al., 2011; R. L. Gardner, Sarkar, Maselli, & Gonzales, 2007; Kocher, Meurer, Desmond, & Nallamothu, 2012; Kreindler et al., 2016; Kropp et al., 2005; Schull et al., 2002; Weiss et al., 2012; P. Yoon et al., 2003)	Admission to psychiatric IP unit	7,8	(Chang et al., 2011; Downing et al., 2004; R. L. Gardner et al., 2007; Kreindler et al., 2016; Park et al., 2009; Robert J. Stephens et al., 2014; Weiss et al., 2012)
Complexity & acuity	6,6	(Ding et al., 2010; Goodacre & Webster, 2005; Kreindler et al., 2016; Schull et al., 2002; Robert J. Stephens et al., 2014; P. Yoon et al., 2003)				Admission to another IP unit	5,6	(Downing et al., 2004; R. L. Gardner et al., 2007; Kropp et al., 2005; Slade, Dixon, & Semmel, 2010; Weiss et al., 2012)
Suicidal Ideation	3,4	(Ding et al., 2010; Park et al., 2009; Robert J. Stephens et al., 2014)				Transfers out of A&E	4,4	(Chang et al., 2011; Park et al., 2009; Slade et al., 2010; Weiss et al., 2012)

Schizophrenia/ psychosis	2,4	(Park et al., 2009; Slade et al., 2010)				Overcrowding of hospital	7,7	(Chan et al., 1997; Cooke et al., 2004; Ding et al., 2010; Forster, Stiell, Wells, Lee, & Van Walraven, 2003; Rathlev et al., 2007; Schull et al., 2002)
Substance misuse/intoxication	4,4	(Kropp et al., 2005; Park et al., 2009; Slade et al., 2010; Weiss et al., 2012)						
Mode of conveyance (brought in by ambulance)	4,6	(Ding et al., 2010; Downing et al., 2004; Goodacre & Webster, 2005; Kreindler et al., 2016; P. Yoon et al., 2003)						
Number of A&E attendances per day	6,7	(Chan et al., 1997; Krall, Cornelius, & Addison, 2014; Lucas et al., 2009; McCarthy et al., 2009; Rathlev et al., 2007; Wiler et al., 2012)						

11.2 Appendix 2.1: Search strategy for rapid review

11.2.1 Database and search string
EMBASE (Ovid)
1. (emergency department\$ OR A&E OR Accident and emergency OR emergency service OR emergency ward OR casualty) AND (psychiatry OR mental health OR mental disease OR mental illness OR dementia OR psychiatric OR suicide OR suicidal OR self-harm OR self-injurious OR DSH OR addiction OR alcohol) AND (breach\$ OR four hour wait OR target OR length of stay OR waiting time OR wait time OR wait OR boarding OR) .mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] 2. limit 1 to yr="1997 -Current"
MEDLINE (Ovid)
1. (emergency department\$ OR A&E OR Accident and emergency) AND (psychiatry OR mental health OR mental disease OR mental illness OR dementia OR psychiatric) AND (breach\$ OR four hour wait OR target OR length of stay OR waiting time) .mp. [mp=title, abstract, subject headings, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword] 2. limit 1 to yr="1997 -Current"
11.2.2 Website and search terms
Google Scholar
1. emergency department OR A&E AND breach OR four-hour wait OR boarding OR targets AND mental health OR psychiatry OR psychiatric 2. Custom range 1997 – current 3. Exclude patents

11.3 Appendix 2.2: Scoring system for methodological quality of included studies

1	<p>Did the study address a clearly focused issue?</p> <p><i>A question can be focused in terms of: the population(s) studied the epidemiological variables studied Did the authors describe their goal in conducting this research? Is it easy to understand what they were looking to find?</i></p>	<p>Good Fair Poor Can't tell</p>
2	<p>Did the authors use an appropriate method to answer their question?</p> <p><i>Consider Is a descriptive/cross-sectional study an appropriate way of answering the question? Did it address the study question?</i></p>	<p>Good Fair Poor Can't tell</p>
3	<p>Was the study population clearly specified and defined?</p> <p><i>Did the authors describe the group of people from which the study population was selected? If you were to conduct this study again, would you know which patients to include?</i></p>	<p>Good Fair Poor Can't tell</p>
4	<p>Were measures taken to accurately reduce measurement bias?</p> <p><i>Consider whether measurement bias might compromise the findings: Were variables defined in detail? Were the tools or methods used to measure relevant variables accurate and reliable—for example, have they been validated or are they objective? Did they use subjective or objective measurements? Do the measures truly reflect what you want them to (have they been validated)?</i></p>	<p>Good Fair Poor Can't tell</p>
5	<p>Were the study data collected in a way that addressed the research issue?</p> <p><i>Consider: if the setting for data collection was justified</i></p>	<p>Good Fair Poor Can't tell</p>

	<p><i>if it is clear how data were collected (e.g., interview, questionnaire, chart review)</i></p> <p><i>if the researcher has justified the methods chosen</i></p> <p><i>if the researcher has made the methods explicit</i></p> <p><i>(e.g. for interview method, is there an indication of how interviews were conducted?)</i></p>	
6	<p>Did the study have enough participants to minimize the play of chance?</p> <p><i>Consider:</i></p> <p><i>if the result is precise enough to make a decision</i></p> <p><i>if there is a power calculation. This will estimate how many subjects are needed to produce a reliable estimate of the measure(s) of interest.</i></p>	Good Fair Poor Can't tell
7	<p>Did the authors take sufficient steps to assure the quality of the study data?</p> <p><i>For example, did they:</i></p> <p><i>Use standardised data extraction tools</i></p> <p><i>Employ double data extraction methods</i></p> <p><i>Double check a sample of notes to confirm the accuracy of data collection?</i></p> <p><i>Confirm that consecutive patients were included?</i></p>	Good Fair Poor Can't tell
8	<p>Was the data analysis sufficiently rigorous?</p> <p><i>Consider:</i></p> <p><i>if there is an in-depth description of the analysis process</i></p> <p><i>if sufficient data are presented to support the findings</i></p>	Good Fair Poor Can't tell
9	<p>How complete is the discussion?</p> <p><i>Consider:</i></p> <p><i>Is there a clear statement of findings?</i></p> <p><i>Do the authors discuss the limitations of their study?</i></p> <p><i>Do the authors set their findings in the context of other studies?</i></p>	Good Fair Poor Can't tell
10	<p>To what extent are the findings generalizable to other international contexts?</p>	Good Fair Poor

	<p><i>Consider:</i></p> <p><i>Number of study sites</i></p> <p><i>Type of EDs included</i></p> <p><i>Size of study population</i></p> <p><i>Length of study period</i></p> <p><i>Consider also whether selection bias which might compromise the generalizability of the findings:</i></p> <ul style="list-style-type: none"> - <i>Was the study sample representative of the patient population?</i> - <i>Was everybody included who should have been included?</i> 	Can't tell
	<p>Your overall judgement of the paper</p> <p><i>(Please provide an overall judgement about the quality of the paper, taking into account your responses to questions 50-59)</i></p>	Good Fair Poor Can't tell

11.4 Appendix 2.3 Overview of studies included in rapid review of factors associated with length of stay in A&E

	N	%
Country in which study was conducted		
UK	3	10
Germany	1	3
Malta	1	3
USA	21	70
Canada	3	10
not clear	1	3
Number of study sites		
1	9	30
2-5	10	33
6-10	2	7
>10	7	23
not clear	2	7
Urbanisation		
Rural	0	0
Urban	15	50
Suburban	0	0
Mixed Urban, Suburban and Rural	7	23
Mixed Urban & Suburban	4	13
Not reported	4	14
Study design		
Retrospective	23	77
Prospective	4	13
Review	3	10
Year of publication		
1997	1	3
2002	1	3
2003	2	7
2004	2	7
2005	1	3
2007	2	7
2009	4	13
2010	2	7
2011	2	7
2012	6	20
2014	3	10

	2015	3	10
	2016	1	3
Data type			
Literature review		1	3
Notes review		6	21
Qualitative		1	3
Routinely collected data		22	73
Duration of data collection			
2 weeks or less		2	7
2 weeks - 1 month		2	7
1 month - 1 year		14	47
1 - 2 years		5	16
>2 years		2	7
not clear		5	16
Sample size			
10-100		0	0
100-1000		3	11
1000-5,000		7	23
>5000		13	43
not clear		7	23

11.5 Appendix 2.4: Summary of main characteristics of included studies (n=18)

	Focus of the study	Study design	Country	No. of sites	Urbanisation	Data source(s)	Consecutive attendances	Year(s) of data collection	Time span (days)	Included cases		Overall quality			
										Episodes	People				
Cassar ³³ (2012)	All attenders	MH	Retrospective	Cross-sectional	England	1	Urban	Routine database, medical records at the ED, clinicians	ED	Yes	1997	92	565	NR	Poor
Fry ²⁰ (2004)	All attenders	MH	Retrospective	Cross-sectional	Australia	1	Urban	Medical records at the ED	Yes	2002-2003	365	NR	1076	Fair	
Johansen ³⁵ (2009)	All attenders	MH	Retrospective	Cross-sectional	Norway	2	Mixed	Medical records at the ED	Yes	2006	365	728	NR	Fair	
Kalucy ²¹ (2005)	All attenders	MH	Retrospective	Cross-sectional	Australia	1	Suburban	Medical records at the ED	Yes	1994-2003	3652	NR	NR	Poor	
Knott ²² (2007)	All attenders	MH	Retrospective	Cross-sectional	Australia	5	Mixed	Medical records at the ED	Yes	2004	153	3857	3702	Good	
Pascual ²⁹ (2007)	All attenders	MH	Prospective	Cross-sectional	Spain	1	Urban (psych)	Routine database	ED	Yes	2002-2006	1461	11578	NR	Good
Pereira ¹⁸ (2013)	All attenders	MH	Retrospective	Cross-sectional	Portugal	1	Urban (psych)	Medical records at the ED	Yes	2010	181	4537	NR	Fair	
Perez-Rodriguez ³⁰ (2006)	All attenders	MH	Prospective	Cross-sectional	Spain	1	Urban (psych)	Medical records at the ED, clinicians, patients	Yes	2003	265	1511	NR	Poor	
Prats ¹⁹ (2011)	All attenders (age 65+)	MH	Not clear	Cross-sectional	Spain	1	Urban (psych)	NR	Yes	2010	31	NR	36	Poor	
Shafiei ²³ (2011)	All attenders	MH	Retrospective	Cross-sectional	Australia	1	Suburban	Routine database, medical records at the ED	ED	Yes	Time 1: 2008	31	NR	290	Fair

										Time 2: 2009				
Tankel ²⁴ (2011)	All attenders	MH	Retrospecti ^{ve}	Cross-sec ^{tion} al	Austra ^{lia}	36	Mixed	Medical records at the ED	Yes	1999-2006	2922	290606	NR	Fair
Brunero ²⁵ (2007)	Frequent MH attenders	Retrospecti ^{ve}	Cross-sec ^{tion} al	Austra ^{lia}	1	Urban	Routine database	ED	Yes	2002-2003	365	1076	869	Fair
Chaput ³¹ (2007)	Frequent attenders (age 20+)	Prospectiv ^e	Cohort	Canada	1 (psych)	Urban	Routine database	ED	Yes	1985-2000	5679	NR	3853	Fair
Okorie ³⁴ (2011)	Frequent attenders	Retrospecti ^{ve}	Case-control	Irelan ^d	1	Urban	Routine database, medical records at the ED	ED	Yes	2007	184	639	489	Fair
Al-Khafaji ²⁶ (2014)	Attenders under section (age 16+)	Retrospecti ^{ve}	Cross-sec ^{tion} al	Austra ^{lia}	1	Suburban	Routine database, medical records at the ED	ED	Yes	2009	365	197	164	Good
Brierley ²⁷ (2010)	Attenders under section	Retrospecti ^{ve}	Cross-sec ^{tion} al	Austra ^{lia}	1	Other	Routine database, medical records at the ED	ED	Yes	2008	183	168	NR	Fair
Kang ³² (2014)	Attenders under section (age 18+)	Retrospecti ^{ve}	Cross-sec ^{tion} al	Canada	2	NR	Medical records at the ED	Yes		2012	366	1487	NR	Fair
Lee ²⁸ (2006)	Police presentations	Prospectiv ^e	Cross-sec ^{tion} al	Austra ^{lia}	1	Urban	Clinicians		Yes	2002-2004	731	452	NR	Fair

11.6 Appendix 3.1: Proforma for data collection

Site: RFH BH UCH WH WCH

Date:

Patient Factors	
Age	18-24yrs <input type="checkbox"/> -60yrs <input type="checkbox"/>
	25-30yrs <input type="checkbox"/> -70yrs <input type="checkbox"/>
	31-40yrs <input type="checkbox"/> -75yrs <input type="checkbox"/>
	41-50yrs <input type="checkbox"/> -5yrs <input type="checkbox"/>
Ethnicity	
Known Learning Disability ?	Yes <input type="checkbox"/> <input type="checkbox"/>
English first Language ?	Yes <input type="checkbox"/> <input type="checkbox"/>
Associated alcohol misuse?	Yes <input type="checkbox"/> <input type="checkbox"/>
Associated substance misuse	Yes <input type="checkbox"/> <input type="checkbox"/>
No. of A+E attendances in past year?	Unknown (incl. out of area pts) <input type="checkbox"/>
	0-3-5 <input type="checkbox"/> <input type="checkbox"/>
	1-3 <input type="checkbox"/> <input type="checkbox"/>
Actual time of arrival	
Referral Reason	Overdose <input type="checkbox"/>
	Other Self Harm <input type="checkbox"/>
	Psychotic Crisis <input type="checkbox"/>
	Acute Confusional State <input type="checkbox"/>
	Trauma/interpersonal violence <input type="checkbox"/>
	Substance intoxication/withdrawal state <input type="checkbox"/>
	Other <input type="checkbox"/>
Mode of conveyance	
Out of area Patient?	Walked into department
	Police: s136 MCA 'informal' <input type="checkbox"/>
	LAS <input type="checkbox"/>
	other
Out of area Patient?	
Yes <input type="checkbox"/> <input type="checkbox"/>	

If yes, reason for attendance at this department	s136, diverted from local area (local service at full capacity) <input type="checkbox"/> s136, diverted from local area (local service lack of staff) <input type="checkbox"/> s136, diverted from local area (medical co-morbidity requiring intervention) <input type="checkbox"/> Conveyed by police/LAS (not on s136) <input type="checkbox"/> Patients decision <input type="checkbox"/> Patient away from home/overseas patient <input type="checkbox"/> Other <input type="checkbox"/>
Decision to attend A+E	Patient decision <input type="checkbox"/> Relative/friend/carer <input type="checkbox"/> Advice from 111 telephone line <input type="checkbox"/> Advice by primary care <input type="checkbox"/> Was patient assessed today prior to advice? Yes/no Advice from local secondary care mental health service <input type="checkbox"/> Was patient assessed today prior to advice? Yes/no Advice from out of area secondary care mental health service <input type="checkbox"/> Was patient assessed today prior to advice? Yes/ no Other.....
Details about contact with Primary care	Not registered with GP (inc. foreign traveller) <input type="checkbox"/> Patient never attempted to make appointment <input type="checkbox"/> Unable to offer urgent appointment <input type="checkbox"/> GP referred to A+E due to severity <input type="checkbox"/> If so, was crisis team contacted? Yes /No/ Not known Other.....
Contact with secondary care mental health services	
Is patient open to mental health services?	Yes <input checked="" type="checkbox"/> <input type="checkbox"/>

If yes, what type?	Crisis/Home treatment team <input type="checkbox"/> Community team (care coordinated) <input type="checkbox"/> Community team (not care coordinated) <input type="checkbox"/> IAPT <input type="checkbox"/> Substance misuse service (statutory) <input type="checkbox"/> Other.....
Events in A+E	
Assessing clinician/s (tick as many as apply)	A+E nurse (triage) <input type="checkbox"/> A+E Doctor <input type="checkbox"/> Mental Health Liaison team <input type="checkbox"/> Time of referral to Liaison..... Time to initial assessment by Liaison..... Other medical/surgical specialist <input type="checkbox"/>
Outcome of assessment	Discharge <input type="checkbox"/> Referral to Crisis team <input type="checkbox"/> Referral for MHA <input type="checkbox"/> Referral to AAC (acute assessment centre) <input type="checkbox"/> Referral for informal admission <input type="checkbox"/> Requires in-patient medical/surgical admission <input type="checkbox"/>
Time until outcome of assessment achieved (mins/hrs from initial arrival)	.....
Time actual outcome achieved (if absconds note time noticed)	.....
Breach	Yes <input type="checkbox"/> No <input type="checkbox"/>

Particular delays	Intoxicated patient	<input type="checkbox"/>
	Medical problem requiring assessment/treatment	<input type="checkbox"/>
	Waiting for interpreter	<input type="checkbox"/>
	Liaison with services (local)	<input type="checkbox"/>
	Liaison with services (out of area)	<input type="checkbox"/>
	Awaiting crisis team assessment	<input type="checkbox"/>
	Awaiting MHA (AMPH)	<input type="checkbox"/>
	Awaiting MHA (S12)	<input type="checkbox"/>
	Awaiting in-patient bed	<input type="checkbox"/>
	Other	<input type="checkbox"/>
Please give specific details and timings.....		
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Please comment on any other issues that you feel were relevant regarding the patient attending A&E vs. other points of contact.....		
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Please describe any further issues that you feel were relevant from patient arrival to leaving A&E.....

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11.7 Appendix 3.2: Tables of results of preliminary study

Association between Breach and Age

	No breach	Breach	Total/ Average	Statistical Tests
18-24	19	7	26	
	(73.1%)	(26.9%)	(100%)	
	(20.4%)	(11.9%)	(17.1%)	
25-30	18	8	26	
	(69.2%)	(30.8%)	(100%)	
	(19.7%)	(13.6%)	(17.1%)	
31-40	26	18	44	$\chi^2 (5)=12.20^*$,
	(59.1%)	(40.9%)	(100%)	$p=0.031$
	(28.0%)	(30.5%)	(28.9%)	
41-50	16	6	22	
	(72.7%)	(27.3%)	(100%)	
	(17.2%)	(10.2%)	(14.5%)	
51-60	9	7	16	
	(56.3%)	(43.8%)	(100%)	
	(9.7%)	(11.9%)	(10.5%)	
61+	5	13	18	
	(27.8%)	(72.2%)	(100%)	
	(5.4%)	(22.0%)	(11.8%)	
Total	93	59	152	
	(62.1%)	(38.8%)	(100%)	
	(100%)	(100%)	(100%)	

(*0% have value less than 5)

Association between breach and No Fixed Abode

	No breach	Breach	Total/ Average	Statistical Tests
Fixed Abode	88	58	146	
	(60.3%)	(39.7%)	(100%)	
	(94.6%)	(98.3%)	(96.1%)	
No Fixed Abode	5	1	6	$\chi^2 (1)=1.29^*$,
	(83.3%)	(16.7%)	(100%)	$p=0.256$
	(5.4%)	(1.7%)	(3.9%)	
Total	93	59	152	
	(61.2%)	(38.8%)	(100%)	
	(100%)	(100%)	(100%)	

(*50% have value less than 5)

Reason for Presentation across sites

	Royal	Barnet	UCH	Whittington	Whipps	Total/	Statistical
	Free				Cross	Average	Tests
Overdose or self-harm	3	9	1	11	5	29	
(suicidal intent/MH related)	(8.37%)	(36.0%)	(4.3%)	(25.6%)	(20.0%)	(19.1%)	
Suicidal thoughts/self-harm	16	14	13	13	7	63	
thoughts (no action)	(44.4%)	(56.0%)	(56.5%)	(30.2%)	(28.0%)	(41.4%)	
Psychotic Crisis	6	2	5	5	4	22	
	(16.7%)	(8.0%)	(21.7%)	(11.6%)	(16.0%)	(14.5%)	
Agitation/behaviour needing	11	0	4	14	9	38	$\chi^2 (12) =$
assessment/intoxicated	(30.6%)	(0.0%)	(17.4%)	(32.6%)	(36.0%)	(25.0%)	25.9*, p=0.01

(*30% have value less than 5)

Association between Breach and Reason for Presentation

	No breach	Breach	Total/	Statistical
			Average	Tests
Overdose/self-harm	18	11	29	
(suicidal intent/MH	(62.1%)	(37.9%)	(100%)	
related)	(19.4%)	(18.6%)	(19.1%)	
Suicidal thoughts/self-	46	17	63	$\chi^2 (3) = 8.46^*$,
harm thoughts (no	(73.0%)	(27.0%)	(100%)	p=0.037
action)	(49.5%)	(28.8%)	(41.4%)	
Psychotic Crisis	12	10	22	
	(54.5%)	(45.5%)	(100%)	
	(12.9%)	(16.9%)	(14.5%)	
Agitation/behaviour	17	21	38	
needing	(44.7%)	(55.3%)	(100%)	
assessment/intoxicated	(18.3%)	(35.6%)	(25.0%)	
Total	93	59	152	
	(62.1%)	(38.8%)	(100%)	
	(100%)	(100%)	(100%)	

(*0% have value less than 5)

Variation of 'Number of previous attendances at A&E' across Sites

	Royal	Barnet	UCLH	Whittington	Whipps	Total/	Statistical
	Free				Cross	Average	Tests

Number of previous attendances						
0	17	8	8	13	7	53
	(32.1%)		(15.1%)	(24.5%)	(13.2%)	(100%)
	(56.7%)	(15.1%)	(44.4%)	(37.1%)	(29.2%)	(41.1%)
			(38.1%)			
1 - 3	6	12	8	9	14	49
	(12.2%)		(16.3%)	(18.4%)	(28.6%)	(100%)
	(20.0%)	(24.5%)	(44.4%)	(25.7%)	(58.3%)	(38.3%)
			(57.1%)			
>4	7	1	2	13	3	26
	(26.9%)	(3.8%)	(7.7%)	(50.0%)	(11.5%)	(100%)
	(23.3%)	(4.8%)	(11.1%)	(37.1%)	(12.5%)	(20.3%)
Total	30	21	18	35	24	128
	(23.4%)		(14.1%)	(27.3%)	(18.8%)	(100%)
	(100%)	(16.4%)	(100%)	(100%)	(100%)	(100%)
			(100%)			

(*20% have value less than 5)

Association between breach and Number of previous attendances

	No breach	Breach	Total/ Average	Statistical Tests
Number of previous attendances at A&E				
0	36	17	53	
	(67.9%)	(32.1%)	(100%)	
	(46.8%)	(33.3%)	(41.4%)	
1 - 3	25	24	49	
	(51.0%)	(49.0%)	(100%)	
	(32.5%)	(47.1%)	(38.3%)	
>4	16	10	26	Tau _b
	(61.5%)	(38.5%)	(100%)	(128)=0.087,
	(20.8%)	(19.6%)	(20.3%)	p=0.298
Total	77	51	128	
	(60.2%)	(39.8%)	(100%)	
	(100%)	(100%)	(100%)	

(*0% have value less than 5)

Prior Contact with Primary Care Prior to Attendance

	Royal Free	Barnet	UCLH	Whittington	Whipps Cross	Total/ Average	Statistical Tests
Contact with Primary Care							
Not registered with GP or out of area	11 (34.4%)	6 (26.1%)	7 (30.4%)	21 (50.0%)	2 (8.0%)	47 (32.4%)	
No attempt made to contact GP	13 (40.6%)	11 (47.8%)	10 (43.5%)	15 (35.7%)	10 (40.0%)	59 (40.7%)	
Requires emergency appointment (GP can't see soon enough)	6 (18.8%)	5 (21.7%)	4 (17.4%)	6 (14.3%)	10 (40.0%)	31 (21.4%)	$\chi^2 (12)=$ p=0.075
Recent Contact with mental health services in the community/primary care	2 (6.3%)	1 (4.3%)	2 (8.7%)	0 (0.0%)	3 (12.0%)	8 (5.5%)	

(*35% have value less than 5)

Association between breach and prior contact with services on Breach

	No breach	Breach	Total/ Average	Statistical Tests
Not registered with GP or out of area				
	30 (63.8%)	17 (36.2%)	47 (100%)	
	(33.7%)	(30.4%)	(32.4%)	
No attempt made to contact GP	34 (57.6%)	25 (42.4%)	59 (100%)	$\chi^2 (3)=0.60^*$, p=0.90
	(38.2%)	(44.6%)	(40.7%)	
Requires emergency appointment (GP can't see soon enough)	5 (62.5%)	3 (37.5%)	8 (100%)	
	(5.6%)	(5.4%)	(5.5%)	
Recent Contact with mental health services in the community/primary care	20 (64.5%)	11 (35.5%)	31 (100%)	
	(22.5%)	(19.6%)	(21.4%)	
Total	89 (61.4%)	56 (38.6%)	145 (100%)	
	(100%)	(100%)	(100%)	

(*25% have value less than 5)

Mode of conveyance across sites

	Royal	Barnet	UCH	Whittington	Whipps	Total/	Statistical Tests
	Free				Cross	Average	
Walked In	11 (30.6%)	4 (16.0%)	14 (60.9%)	9 (20.9%)	7 (28.0%)	45 (29.6%)	
Police Involvement	9 (25.0%)	4 (16.0%)	3 (13.0%)	11 (25.6%)	11 (44.0%)	38 (25%)	$\chi^2 (12)=34.40^*$, p=0.001
London Ambulance Service	15 (41.7%)	16 (64.0%)	2 (8.7%)	21 (48.8%)	5 (20.0%)	59 (38.8%)	
Other	1 (2.8%)	1 (4.0%)	4 (17.4%)	2 (4.7%)	2 (8.0%)	8 (6.6%)	

(*25% have value less than 5)

Association between breach and mode of conveyance new

	No breach	Breach	Total/	Statistical
			Average	Tests
Walked In	30 (66.7%)	15 (33.3%)	45 (100%)	
	(32.3%)	(25.4%)	(29.6%)	
Police Involvement	21 (55.3%)	17 (44.7%)	38 (100%)	$\chi^2 (3)=5.31^*$, p=0.15
	(22.6%)	(28.8%)	(25.0%)	
London Ambulance Service	33 (55.9%)	26 (44.1%)	59 (100%)	
	(35.5%)	(44.10%)	(38.8%)	
Other/Not recorded	9 (90.0%)	1 (10.0%)	10 (100%)	
	(9.7%)	(1.70%)	(6.6%)	
Total	93 (61.2%)	59 (38.8%)	152 (100%)	
	(100%)	(100%)	(100%)	

(*12.5% have value less than 5)

Variation of 'Police Involvement in Presentation' across Sites

	Royal	Barnet	UCLH	Whittington	Whipps	Total/	Statistical
	Free				Cross	Average	Tests
No Police Involvement	27 (26.5%)	18 (17.6%)	17 (16.7%)	28 (27.5%)	12 (11.8%)	102 (100%)	$\chi^2 (4)= 5.98^*$, p=0.20
	(75.0%)	(72.0%)	(73.9%)	(65.1%)	(48.0%)	(67.1%)	

Police Involved	9	7	6	15	13	50
	(18.0%)	14.0%)	(12.0%)	(30.0%)	(26.0%)	(100%)
	(25.0%)	28.0%)	(26.1%)	(34.9%)	(52.0%)	(32.9%)
Total	36	25	23	43	25	152
	(23.7%)	16.4%)	(15.1%)	(28.3%)	(16.4%)	(100%)
	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)

(*0% have value less than 5)

Association between breach and Police Involvement

	No breach	Breach	Total/	Statistical
			Average	Tests
No Police	64	38	102	
Involvement	(62.7%)	(37.3%)	(100%)	
	(68.8%)	(64.4%)	(67.1%)	
Police Involved	29	21	50	$\chi^2 (1)=0.32^*$, p=0.573
	(58.0%)	(42.0%)	(100%)	
	(31.2%)	(35.6%)	(32.9%)	
Total	93	59	152	
	(61.2%)	(38.8%)	(100%)	
	(100%)	(100%)	(100%)	

(*0% have value less than 5)

Association between breach and Day of presentation

	No breach	Breach	Total/	Statistical
			Average	Tests
Day				
Monday	11	10	21	
	(52.4%)	(47.6%)	(100%)	
	(11.8%)	(16.9%)	(13.8%)	
Tuesday	14	5	19	
	(73.7%)	(26.3%)	(100%)	
	(15.1%)	(8.5%)	(12.5%)	
Wednesday	5	14	19	$\chi^2 (7)=14.52^*$, p=0.024
	(26.3%)	(73.7%)	(100%)	
	(5.4%)	(23.7%)	(12.5%)	
Thursday	6	5	11	
	(54.5%)	(45.5%)	(100%)	

	(6.5%)	(8.5%)	(7.2%)
Friday	15	8	23
	(65.2%)	(34.8%)	(100%)
	(6.5%)	(13.6%)	(15.1%)
Saturday	23	9	32
	(71.9%)	(28.1%)	(100%)
	(24.7%)	(15.3%)	(21.1%)
Sunday	19	8	27
	(70.4%)	(29.6%)	(100%)
	(20.4%)	(13.6%)	(17.8%)
Total	93	59	152
	(61.2%)	(38.8%)	(100%)
	(100%)	(100%)	(100%)

(*7.1% have value less than 5)

Association between breach and Day of presentation

	No breach	Breach	Total/	Statistical
			Average	Tests
Weekdays	51	42	21	$\chi^2 (7)=4.06^*$,
	(54.8%)	(45.2%)	(100%)	p=0.04
	(54.8%)	(71.2%)	(61.2%)	
Weekends	42	17	59	
	(71.2%)	(28.8%)	(100%)	
	(45.2%)	(28.8%)	(38.8%)	
Total	93	59	152	
	(61.2%)	(38.8%)	(100%)	
	(100%)	(100%)	(100%)	

(*0% have value less than 5)

Variation of Day of Presentation Across Sites

	Royal	Barnet	UCLH	Whittington	Whipps	Total/	Statistical Tests
	Free				Cross	Average	
Weekdays	21	21	11	22	18	93	
	(22.6%)	(22.6%)	(11.8%)	(23.7%)	(19.4%)	(100%)	
	(58.3%)	(84.0%)	(47.8%)	(51.2%)	(72.0%)	(61.2%)	$\chi^2 (4)= 10.38^*$,
Weekends	15	4	12	21	7	59	p=0.03
	(25.4%)	(6.8%)	(20.3%)	(35.6%)	(11.9%)	(100%)	
	(41.7%)	(16.0%)	(52.2%)	(48.8%)	(28.0%)	(38.8%)	

Total	36	25	23	43	25	152
	(23.7%)	(16.4%)	(15.1%)	(28.3%)	(16.4%)	(100%)
	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)

(*0% have value less than 5)

Variation of Time of Arrival Across Sites

	Royal Free	Barnet	UCLH	Whittington	Whipps Cross	Total/Average	Statistical Tests
Time of Arrival							
Within Shift							
9am – 5pm	5 (8.9%) (17.2%)	13 (23.2%) (59.1%)	10 (17.9%) (52.6%)	18 (32.1%) (41.9%)	10 (17.9%) (41.7%)	56 (100%) (40.9%)	
5pm - Midnight	15 (32.6%) (51.7%)	6 (13.0%) (27.3%)	4 (8.7%) (21.1%)	14 (30.4%) (32.6%)	7 (15.2%) (29.2%)	46 (100%) (33.6%)	$\chi^2 (8) = 12.41^*$, p=0.14
Midnight – 9am	9 (25.7%) (31.0%)	3 (8.6%) (13.6%)	5 (14.3%) (26.3%)	11 (31.4%) (25.6%)	7 (20.0%) (29.2%)	35 (100%) (25.5%)	
Total	29 (21.2%) (100%)	22 (16.1%) (100%)	19 (13.9%) (100%)	43 (31.4%) (100%)	24 (17.5%) (100%)	137 (100%) (100%)	

(*6.7% have value less than 5)

Association between breach and time of arrival

	No breach	Breach	Total/Average	Statistical Tests
Time of Arrival Within Shift				
9am – 5pm				
	34 (60.7%) (40.5%)	22 (39.3%) (41.5%)	56 (100%) (40.9%)	
5pm - Midnight	28 (60.9%) (33.3%)	18 (39.1%) (34.0%)	46 (100%) (33.6%)	

Midnight – 9am	22 (62.9%) (26.2%)	13 (37.1%) (24.5%)	35 (100%) (25.5%)	$\chi^2 (2)=0.047^*$, $p=0.977$
Total	84 (61.3%) (100%)	53 (38.7%) (100%)	137 (100%) (100%)	

(*0% have value less than 5)

Variation of 'Time taken to refer to psychiatry by the medical team' across Sites

	Royal	Barnet	UCLH	Whittington	Whipps	Total/	Statistical Tests
	Free				Cross	Average	
Time taken to refer to psych less than 60 mins	20 (45.5%) (71.4%)	3 (6.8%) (27.3%)	7 (15.9%) (36.8%)	12 (27.3%) (52.2%)	2 (4.5%) (9.1%)	44 (100%) (42.7%)	$\chi^2 (4)=21.78^*$, $p=0.0001$
Time taken to refer to psych more than 60 mins	8 (13.6%) (26.6%)	8 (13.6%) (72.7%)	12 (20.3%) (63.2%)	11 (18.6%) (47.8%)	21 (33.9%) (90.9%)	59 (100%) (57.3%)	
Total	28 (27.2%) (100%)	11 (10.7%) (100%)	19 (18.4%) (100%)	23 (22.3%) (100%)	22 (21.4%) (100%)	103 (100%) (100%)	

(*10% have value less than 5)

Association between breach and time taken to refer to psychiatry by the medical team

	No breach	Breach	Total/	Statistical
			Average	Tests
Time taken to refer to psych less than 60 mins	30 (68.2%) (51.7%)	14 (31.8%) (31.1%)	44 (100%) (42.7%)	$\chi^2 (1)=4.4^*$, $p=0.036$
Time taken to refer to psych more than 60 mins	28 (47.5%) (48.3%)	31 (52.5%) (68.9%)	59 (100%) (57.3%)	
Total	58 (56.3%) (100%)	45 (43.7%) (100%)	103 (100%) (100%)	

(*0% have value less than 5)

Table providing summary of the effect sizes for different factors impacting on breach within the sub-group that were seen by medics within 60 minutes

Factor	χ^2	P value	Summary of results	% cells <5
	squared			
Patient attends during weekend	3.96	0.05	78.6% of patients who were seen quickly by medics and who breached attended on a weekday. This reached significance. Only 15.8% of patients attending on the weekend who were seen within 60 mins by medics breached. This reached significance.	0
Police are involved in presentation	0.28	0.60	Police involvement did not impact on likelihood of breaching.	25%
Liaison take over 60 mins to arrive	0.131	0.72	There was no difference between those for whom Liaison arrived within 60 mins or not.	0
Help sought immediately before attending A&E	0.006	0.94	Seeking help from the GP or another mental health specific service before attending A&E has no relationship with likelihood of breaching.	25%
Patient is Out of Area	0.37	0.54	42.9% of those who breached were out of area, but this did not reach significance.	0
Delays caused by waiting for medical assessment			Examined, but sample too small to make inferences.	
Delays caused by out of area liaison team				
Day patient presented				
Shift patient arrived in				
Patients who absconded				
Number of previous attendances at A&E				
Shift that referral to Liaison is made in				
Reason for presentation				
Nature of Prior contact with health services				
Age				
No fixed abode				

Association between breach and liaison taking over 60 minutes to arrive after referral

	No breach	Breach	Total/	Statistical
			Average	Tests
Liaison take less than 60 mins to arrive	42 (66.7%)	21 (33.3%)	63 (100%)	$\chi^2 (1)=10.07 ^*$, p=0.002

Liaison take over	13	25	38			
60 mins to arrive	(34.2%)	(65.8%)	(100%)			
	(23.6%)	(54.3%)	(37.6%)			
Total	55	46	101			
	(54.5%)	(45.5%)	(100%)			
	(100%)	(100%)	(100%)			

Variation of 'Liaison taking more than 60 minutes to arrive' Across Sites

	Royal	Barnet	UCLH	Whittington	Whipps	Total/	Statistical Tests
	Free				Cross	Average	
Liaison take less than	21	0	17	10	15	63	χ^2 (4)= 12.07*, p=0.017
60 mins to arrive	(33.3%)	(0.0%)	(27.0%)	(15.9%)	(23.8%)	(100%)	
	(67.7%)	(0.0%)	(73.9%)	(55.6%)	(65.2%)	(62.4%)	
Liaison take over 60	10	6	6	8	8	38	
mins to arrive	(26.3%)	(5.8%)	(15.8%)	(21.1%)	(21.1%)	(100%)	
	(32.3%)	100%)	26.1%)	(44.4%)	(34.8%)	(37.6%)	
Total	31	6	23	18	21	101	
	(30.7%)	(5.9%)	(22.8%)	(17.8%)	(22.8%)	(100%)	
	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)	

(*20% have value less than 5)

Variation of the Outcome of the Visit Across Sites

	Royal	Barnet	UCLH	Whittington	Whipps	Total/	Statistical
	Free				Cross	Average	Tests
Discharge	15	1	15	17	17	65	χ^2 (8)= 30.04*, p=0.0001
	(23.1%)	(1.5%)	(23.1%)	(26.2%)	(26.2%)	(100%)	
	(41.7%)	(4.3%)	(65.2%)	(40.5%)	(68.0%)	(43.6%)	
Admit	16	15	8	21	7	67	
(IP/CRHTT/Assessment	(23.9%)	(22.4%)	(11.9%)	(31.3%)	(10.4%)	(100%)	
Unit/Medical/Surgical)	(44.4%)	(65.2%)	(34.8%)	(50.0%)	(28.0%)	(45.0%)	
Absconded	5	7	0	4	1	17	
	(29.4%)	(41.2%)	(0.0%)	(23.5%)	(5.9%)	(100%)	
	(13.9%)	(30.4%)	(0.0%)	(9.5%)	(4.0%)	(11.4%)	

Total	36	23	23	42	25	149
	(24.2%)	(15.4%)	(15.4%)	(28.2%)	(16.8%)	(100%)
	(100%)	(100%)	(100%)	(100%)	(100%)	(100%)

(*33.3% have value less than 5)

Association between breach and outcome of A&E attendance

	No breach	Breach	Total/Average	Statistical Tests
Discharge	47	18	65	
	(72.3%)	(27.7%)	(100%)	
	(50.5%)	(32.1%)	(43.6%)	
Admit (IP/CRHTT/Assessment	37	30	67	
Unit/Medical/Surgical)	(55.2%)	(44.8%)	(100%)	
	(39.8%)	(53.6%)	(45.0%)	
Absconded	9	8	17	$\chi^2 (2)=4.84^*$, p=0.09
	(52.9%)	(47.1%)	(100%)	
	(9.7%)	(14.3%)	(11.4%)	
Total	93	56	149	
	(62.4%)	(37.6%)	(100%)	
	(100%)	(100%)	(100%)	

(*0% have value less than 5)

Variation of the Outcome of the Visit and Reason for Presentation

	Self-	Suicidal	Acute	Abnormal	Total/Average	Statistical Tests
	Harm	Thoughts,	Psychosis	behaviour		$\chi^2 (6)=$ 19.91*, p=0.003
	with	no action		needing		
	Intent			assessment		
Discharge	9	33	2	21	65	
	(13.8%)	(50.8%)	(3.1%)	(32.3%)	(100%)	
	(33.3%)	(52.4%)	(9.5%)	(55.3%)	(43.6%)	
Admit to mental health (IP/CRHTT/Assessment	16	20	16	15	67	
Unit/Medical/Surgical)	(23.9%)	(29.9%)	(23.9%)	(22.4%)	(100%)	
	(59.3%)	(31.7%)	(76.2%)	(39.5%)	(45.0%)	
Absconded	2	10	3	2	17	
	(11.8%)	(58.8%)	(17.6%)	(11.8%)	(100%)	
	(7.4%)	(15.9%)	(14.3%)	(5.3%)	(11.4%)	

Total	27	63	21	38	149
	(18.1%)	(42.3%)	(14.1%)	(25.5%)	(100%)
	(100%)	(100%)	(100%)	(100%)	(100%)

(*25% have value less than 5)

Association between Breach and Patient Absconding

	No breach	Breach	Total/Average	Statistical Tests
Absconded	9	8	17	
	(52.9%)	(47.1%)	(100%)	
	(9.7%)	(13.6%)	(11.2%)	
Didn't Abscond	83	50	133	χ^2 (2)=0.675*, p=0.713
	(62.4%)	(37.6%)	(100%)	
	(89.2%)	(84.7%)	(87.5%)	
Not recorded	1	1	2	
	(50.0%)	(50.0%)	(100%)	
	(1.1%)	(1.7%)	(1.3%)	
Total	93	59	152	
	(61.2%)	(38.8%)	(100%)	
	(100%)	(100%)	(100%)	

(*33.3% have value less than 5)

Table providing summary of the relationship between different reasons for delay and breach

Factor	χ^2	Phi	P	Summary of results
	squared		value	
	Fisher's			
	exact			
Patient can't be seen because of intoxication	0.018	0.201	0.014	64.7% of patients with this identified as a problem breached.
Delay contacting crisis oncall	0.528	-	0.269	
			0.091	
Delay crisis team arriving for assessment	0.575	0.063	0.444	
Difficulty making referral to special	0.001	0.280	0.001	83.3% patients breached had delays as a result of contacting the specialist team to refer to identified as the main problem.

Delays in accessing an inpatient bed	<0.001	0.357	<0.001	87.5% of patients for whom there were delays in accessing an IP bed breached.
Delays with handover	0.297	0.094	0.251	
Delays due to medical assessment/	0.001	0.301	<0.001	66.7% patients breached who delays with medical assessment/tests had identified as their main problem.
Delays waiting for additional Home Treatment Team assessment	0.005	0.245	0.005	87.5% of patients who had to wait for further assessment by HTT breached

11.8 Appendix 3.3: Summary of recommendations for the large quantitative study based on findings from the preliminary study

11.8.1 Methodological Suggestions

1. Larger sample size and fewer sites to improve the statistical power.
2. Inclusion of a range of hospital types, e.g. inner city, teaching hospital, suburban and rural to improve generalisability.
3. Ensure patients are not missed by checking at the end of each 24-hour period that all patients identified as mental health by the hospital are included in the audit to improve accuracy of proportion of patients presenting with mental health problems.

11.8.2 Data Collection

1. Reliability check to demonstrate the approach to data collection is consistent between individuals.
2. Better training of data collectors to ensure data collection is more complete, perhaps with incentives to submit completed data.
3. Data collected in real time, so contextual factors relating to breach are collected (staffing levels, unusually busy periods, service improvement initiatives, closed referral units are examples).
4. Collect data on parallel processing approach in A&E.
5. Collect data on the 'reasons for delays', which were identified in the preliminary study.
6. Triangulate data from A&E notes, A&E boards, mental health liaison teams and mental health trusts. Specifically collect data on existing diagnoses, contact with mental health teams and prior mental health service usage.

7. Collect more detailed data about the processes that patients are subject to, such as the interventions and number of clinicians encountered.

11.8.3 Analysis & Interpretation

1. Sub-analyses to examine the relationship between age and other candidate factors.
2. Discussion with departments to understand if there are contributing factors such as regional training being held on a particular day, which may help to understand results better.
3. Qualitative study exploring the experience of the patients, run in parallel with quantitative study would provide valuable contextual data to enable more meaningful interpretation.
4. Report the results of negative associations as well as those found to significantly impact on LOS
5. Analysis of the relationship between the seniority of decision maker and likelihood of admission would provide more insight into this and collection of this data would be useful in further studies, as would analysis of the length of stay on an inpatient unit after admission via A&E.

11.9 Appendix 4.1: Patient information leaflet explaining the qualitative study

Date xxxxxxxx

Patient information sheet – Experience in the Emergency Department

We understand that you have attended the Emergency Department because you have felt unwell. We would like to invite you to take part in a regional study that looks at the care provided for patient with mental health symptoms in Emergency Department. The study aims to understand more about your experience of care, any care you received for mental health problems prior to your attendance and to understand your preferences for care settings. By taking part in this study, you will be making an important contribution to the understanding of the quality of care in the Emergency Department as well as contributing towards subsequent improvement of care for people presenting with similar problems here in the future.

What is the purpose of this study?

We are interested in determining why patients who present to the Emergency Department with a mental health problem spend a longer time than average within the department. We are also interested in improving the experience of patients within these departments. This study is currently being carried out at the Royal Free London NHS Foundation trust, The Whittington Hospital NHS Trust, Whipps Cross Hospital and University College London Hospital NHS Foundation Trust. We are also interested to understand if there are any alternative places of care that patients would prefer to access if they were available – for example a GP service or a special mental health out of hours services.

Why have I been chosen and do I have to take part?

All patients who present to the Emergency Department at the above mentioned sites with mental health problems are currently being invited to take part. You do not have to take part if you don't want to and this will not affect the care you receive here at all.

You can also change your mind about taking part in this study at any time. Your treatment will be the same whatever you decide.

What does the study involve and what do I have to do?

If you agree to take part, all you have to do for now is sign a consent form agreeing to take part in this study. We will then contact you in 2-4 weeks' time to complete a questionnaire about your experience whilst you were in the department today. The questionnaire will ask some background information about

your reason for attending, ask about the mental health care you have received in other services such as your GP, ask about your experience in the A&E today and about what is helpful when you are having similar symptoms as those you suffered from today.

The interview can be carried out either on the phone, by email or by post depending on your preference. If you agree to participate, we will collect your preferred contact details from you today.

How will the information be used?

Your answers to the questions will be anonymised and retained during the study, which will end in summer 2015. After the conclusions are drawn and the reports are completed, the information we record during the interview will be destroyed by the end of December 2015. Your experiences will help to shape changes within A&E within this region.

Data Protection Notice

All the information you give us is strictly confidential and will remain anonymous. The doctors, nurses and teams within the community will at no stage be able to see your answers. Information that you give will not be released to any outside organisations. Published reports will not refer to any individuals. There is no way any of the information you share today will be attributable to you.

Are there any risks for me as a patient?

There are no risks for you as a patient, but this study will help us to improve patient experience within the Emergency Department in the future.

Contact for further information

If you have any immediate questions about the study, please do not hesitate to discuss this with the person who gave you this questionnaire. This study is organised by the Camden and Islington NHS Foundation Trust in conjunction with UCLPartners, an

academic partnership that supports the NHS to carry out research. If you have any questions about the study, please contact Dr Anna Moore, 07540608296, a.moore@ucl.ac.uk at any time.

Many thanks for your help in improving the patient experience within healthcare

11.10 Appendix 4.2: Patient Experience Questionnaire

Patient Experience Interview Template

11.10.1 Introduction

Aim: To introduce the research and set the context for the proceeding discussion

- Introduce self
- Confirm consent and reassess capacity
- Introduce the study: who is it for, what is it about
- Talk through key points:
 - Purpose of the interview
 - Length of the interview
 - Voluntary nature of interview
 - Reasons for recording interview
- Confidentiality and how findings will be reported

1. Background and personal information

Aim: To generate background information about the respondent and highlight any background issues that might influence their use of emergency health care

Ask the patient if they mind sharing some background information with you:

- Would you mind please telling us about your occupation and your home situation?
- Do you have a mental health problem that was confirmed by your doctor and you are or have in the past received treatment for this?
- Would you please describe the treatment have you received for this?
- How many times have you attended A&E? How many of these attendances have been in the last 12 months?
- How many of these attendances have been for mental health reasons (including drugs & alcohol related attendances)?

2. Your recent A&E visit

Aim: To understand the pathway to A&E including alternatives the patient may have considered and their experience of care in the ED.

- Would you please describe why you attended A&E recently?
 - *Prompt questions:* What made you decide to attend A&E? When did you decide? Who else was involved in the decision? Were there any other services/professionals involved in the decision? Did you try & get help elsewhere first?
- Would you please describe what happened while you were in A&E this time?

- On arrival who saw you first? Triage nurse? How long did it take to see them? How did they talk to you? Knowledge of person about mental health? Attitude of person towards MH problems?
 - Who did you see next? How long did it take to see them? How did they talk to you? Knowledge of person about mental health? Attitude of person towards MH problems?
 - Repeat until end of the visit: Who did you see next? How long did it take to see them? How did they talk to you? Knowledge of person about mental health? Attitude of person towards MH problems?
- Would you mind describing the environment:
 - *About the physical environment*: Was there somewhere comfortable for you to wait? Was there anything in the setting that distressed you? Was there anything that helped to make you feel better?
 - *About your involvement in your care*: Did you feel able to participate in decisions about your care? Were you given enough information? Were options raised? Were they explained? Did you have a part in making the decision? For example, the formation of the management plan, any medication or options regarding admission?
- Please rate your overall experience of the care provided:
 - By the service as a whole 0-10 (0- poor, 10 – excellent)
 - By A&E staff 0-10 (0- poor, 10 – excellent)
 - By psychiatry staff 0-10 (0- poor, 10 – excellent)
 - Please tell us about the physical environment at A&E 0-10 (0- poor, 10 – excellent)
- How do you feel the experience of your visit to A&E could have been improved?
- What do you think about the amount of time you spent in the A&E department? Was it not long enough, just right, too long?
 - Was there anything in particular that you feel might have led to delays in your care or for your stay to be cut shorter than you would expect?
- What was the ultimate outcome of your A&E visit?
 - Was a plan made (as far as you know)?
 - Has the plan made been put into place? If NOT: why not?

3. Current local mental health services in the community

Aim: To establish what services participants access locally and their views about these services.

The next section of the interview will be to understand what services in the community you access to support your mental health and wellbeing. We are going to ask about attending your GP, any contact with specialist mental health services. If you attend any charities or non-NHS services, please let us know about these as well. The purpose of this is to help us understand how people prefer to access care, and when they prefer to go to A&E and what informs their decisions about the best place to go for help.

To understand contact with Primary Care:

- Are you registered with a GP?
 - How often do you see your GP?
 - How often do you see them for mental health reasons?
 - Did you try to access the GP before you're A&E visit?
 - If YES: What happened?
 - If NO: Why not?
 - What is your general experience of accessing your GP(s) for mental health problems? Ease of appointment? Length of appointment? Knowledge of GP about mental health? Attitude of GP towards MH problems?
- Do you receive specialist mental health care from the NHS?
 - What type of service? HTT/CRHT? CMHT (CPN)? IAPT? EIP? Substance misuse? PD service. Eating disorder. Psychotherapy service?
 - Did you try to access the specialist MH service before presenting to the A&E?
 - If YES: What happened?
 - If NO: Why not?
 - What has been your experience of them? Ease of appointment? Length of appointment? Knowledge of specialist about mental health? Attitude of specialist towards MH problems?

The next part of the interview is to help us understand the details of any non-NHS care you receive.

- Do you access any other services for your mental health? (prompt then regarding voluntary sector etc services if necessary)
- Are there any other services that you would have liked to be able to contact to help you support you with your mental health problems?

4. Preference for place of care in mental health crisis

Aim: to understand if there are any alternative services that patients would like to access instead of A&E when in crisis.

This is the last section and here we would like to understand from you what an ideal mental health crisis service would look like.

- Is there a service that you would have preferred to go to instead of coming to A&E? If YES: Please describe what you would have preferred?
- Do you think it would have been possible to prevent your recent visit to A&E? For example, by having access to earlier or different services to help you when you are struggling?

5. Conclusion of the interview

- That is the end of our interview questions, thank you very much for your time. Is there anything else you would like to add, or do you have any questions?

11.11 Appendix 4.3: Framework for Analysis

Domain	Theme
Why patients access A&E	<ol style="list-style-type: none"> 1. How patient is feeling at the time – suicidal, to be safe, can't cope, etc 2. Things that had happened (arguments, lost jobs, bereavement etc) 3. Problems with current care – medication, can't access care they need 4. Advice/signposting of other services to ED 5. Family/ friends/ work get them to come 6. Drug seeking 7. Nowhere else to go – no other support, nowhere else to turn to, housing etc
What the care pathways for crisis are like	<ol style="list-style-type: none"> 1. Difficulty accessing help prior to crisis – can't access help and so end up in crisis. Includes timely GP access, being stuck on waiting lists, not able to access care as don't meet criteria 2. Accessing crisis care during crisis including care out of hours – difficulty, people rude, hard to navigate, confusing 3. Complexity of the system – can't navigate it 4. Primary care – info about how often go and how often mental health, and why they do/don't go to GP for mental health problems. Why they did/didn't access GP prior to this attendance, 5. Specialist mental health services – as above,
How A&E makes people feel	<ol style="list-style-type: none"> 1. Negative Insulted, Lied to, in tears/distressed/broke down, dismissed, not spoken to, not understood, as if they shouldn't come to the ED, invalidated, as if their problems are not important, mocked, ignored, anxious, paranoia, confused, suicidal, not listened to, when they don't see the person there then but only the person in the notes (so pre-judged?), angry, upset, powerless, confused, stress, like leaving, 2. Positive helped, comfortable, reassured, understood, attentive, fabulous, accessible, nice, knowledge of pathways and where to refer,
Patient's Experience of A&E staff	<ol style="list-style-type: none"> 1. Attitudes of professionals (positive & negative) <ul style="list-style-type: none"> + Nice staff, policeman found mattress & sheets for patient to sleep on, good knowledge about psychology, - unwelcoming, not being believed, having to prove yourself, lack of care, family members there and staff letting them stay even if patient doesn't want them there, being ignored, manipulated, lied to, messed with 2. Knowledge of mental health (pos & neg)
Length of wait in ED	<ol style="list-style-type: none"> 1. For the most part it's too long, a few said it was efficient.
Environment	<ol style="list-style-type: none"> 1. Positive - the beds were comfortable, food & drink, being in their own cubicle alone, quiet, relaxing, Support - family/friend there, having people around,

	<ol style="list-style-type: none"> 2. <i>Negative</i> - Noise, busy, moving around from place to place, no privacy, padded cell, other people security guards lack of cleanliness, feeling confined,
Communication & Information	<ol style="list-style-type: none"> 1. Lack of explanation about what happens there eg where toilets are, lack of information, complicated processes,
Experience of 'getting helped'	<ol style="list-style-type: none"> 1. <i>Didn't get helped</i> - don't see the professional they want to or don't get useful help/ intervention, What people promise doesn't happen, not cared for, 2. <i>When do feel helped</i> - seeing mental health, fast treatment, cared for
Decision making in ED	<ol style="list-style-type: none"> 1. Negative - Not very involved, wasn't able to be involved, wanted more explanation, not involved, involved but didn't get what I wanted, not informed, involved but not everything actually happened, 2. Positive - fair, they listened, very involved,
Outcome of visit	<ol style="list-style-type: none"> 1. Nothing - never heard anything afterwards, called for help from team referred to and told they can't offer any help, lied to about what would happen, went to GP the following week to get help, 2. Signposting or information about other services - when given a prescription the pharmacies were all closed so couldn't get meds, 3. Confusion – conflicting advice after leaving compared to in ED, no co-ordination of the system, 4. Admitted 5. Access care
What is important to patients in seeking help during crisis	<ol style="list-style-type: none"> 1. Communication & information 2. Length of wait 3. Accessible, and able to get help when there 4. Knowledgeable staff 5. Attitudes - Professional, non-judgemental, sympathetic, Understood & listened to
How to improve ED	<ol style="list-style-type: none"> 1. Can't 2. Information 3. Something that helps - provide a solution or something that helps, a definite plan of action, provide support 4. Waiting times - to be seen sooner, 5. Staff attitudes, behaviour, knowledge - listen not just write notes but 'do' something, make people feel comfortable while waiting, make sure you are safe (checking), respectful, compassion & understanding, feel believed, give people more time (felt like it was being rationed), not judgemental, write down things to take home so they know what happened, more caring, not be left alone, 6. Environment - privacy, communication, offered food/drink, somewhere for mental health patients to wait, nice, specific place for suicidal people,

	<ol style="list-style-type: none"> 7. Processes - see less professionals, primary staff member that updated them on what was happening as it was long and confusing and there was no point of contact for family 8. Symptom relief while waiting - pain relief, anxiety relief,
What alternative services they would like in a crisis	<ol style="list-style-type: none"> 1. Access to services - Counselling / drop in centre you can go to at the time, call line, access to social services, access to a psychiatrist, to be admitted, somewhere to stay while having the crisis, GP, CMHT, HTT, access to a crisis team before A&E (not afterwards) 2. Info & Advice - about what to do/ where to go when struggling/ sad / someone to ask for help 3. Efficient/faster service 4. Support to do general life stuff, somewhere to live, getting a job 5. Key worker/ single point of contact (named person), an advocate 6. Alternative therapies 7. Don't know 8. ED/ specialist mental health ED
Avoiding crisis/ED	<ol style="list-style-type: none"> 1. Access to timely help – psych, GP, CMHT, HTT, crisis team, 2. Not possible – it was the right place to go 3. Consistent team – they rotate (drs) and you don't see the same one 4. Social worker/ key worker 5. Having somewhere to go/ stay for a few weeks – even a hotel – this would be cheaper than me going to A&E 6. Accurate diagnosis 7. Paramedics/police better trained in MH 8. Professionals they saw before attending to have a better attitude to mental health (GP, Drs in ED), to be taken seriously, 9. Not being signposted to ED

11.12 Appendix 5.1: Summary of Hospital Site Characteristics included in Chapter 5

Table 34 Summary of the three hospital sites' characteristics

	Barts	UCLH	Whittington
Address	Whitechapel (E1 1BB)	Euston Road (NW1 2BU)	Magdala Road (N19 5NF)
Boroughs served	Tower hamlets, Newham	Camden, Islington, Westminster	Islington, Haringey, Camden, Barnet
Mental health trust provider	East London NHST Foundation Trust	Camden & Islington	Camden & Islington
Place of safety	Yes (24/7) (Royal London Hospital)	Yes (24/7)	Yes (24/7)
Place of safety capacity	1	2	2
Index of Multiple Deprivation (ranked out of 32,844 where 1 is the most deprived)	Tower Hamlets (3,214) Newham (7,075)	Camden (9,951) Islington (7,574) Westminster (19,747)	Islington (7,574) Haringey (13,728) Camden (9,951) Barnet (8,397)

11.13 Appendix 5.2: Proforma used for data collection

UCLPartners Mental Health in the Emergency Department Audit

Patient study reference no:

Name of data collector:

Site:

Date of collection:

Table 35 Proforma used for data collection

Age		
Gender	Male	Female
Ethnicity Please record the ethnicity code from the A&E front page		
Is English the patient's first Language?	Yes <input type="checkbox"/> <input checked="" type="checkbox"/> If no, is the patient fluent in English? Yes <input type="checkbox"/> <input checked="" type="checkbox"/>	
Known Learning Disability Please record this including the ICD-10 code, referencing RIO if required	Yes <input type="checkbox"/> <input checked="" type="checkbox"/> If yes – please provide RIO code	
No. of A+E attendances in past year Please record here the number of A&E attendances in the past year – this should be extracted from the A&E records		
Please record the patient's presenting complaint as recorded in the A&E notes		
Please record the A&E discharge code that the patient has been given		
Primary reason for presentation at A&E (please detail reason for all that apply) – this is to be filled out after the formal assessment by mental health team	Dementia.....	

Alcohol intoxication

Please state
quantity.....

Substance intoxication

Please state substance &
quantity.....

Intentional overdose

Please state substance &
quantity.....

.....

.....

.....

Other Self Harm
Please record
details.....

.....

.....

.....

.....

Thoughts of self-harm

Please record
details.....

.....

.....

Secondary cause for presentations Please indicate if the incident was related to any of the following. Please detail all that apply.	Alcohol Please record details..... Substance intoxication Please record details..... Current mental health disorder Please record details..... Current social situation

	<p>(such as homelessness or not happy with current housing)</p> <p>Please record details.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Other secondary reason; please explain below</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Comorbidities</p> <p>Please look at mental health & A&E notes and record here any current or previous co-morbidity (mental health and medical/surgical)</p> <p>Please indicate ICD-10 code for mental health co-morbidities if possible</p> <p>In particular please indicate if the person has known (current or previous) alcohol or substance misuse problems.</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

Please indicate how the patient arrived at the ED Please tick all that apply	
	<p>Self-presentation Please record details.....</p> <p>..... </p>
	<p>Brought by relative/friend/carer/social worker Please record details.....</p> <p>..... </p>
	<p>Advice from 111 telephone line Please record details.....</p> <p>..... </p>

<p>Advice by primary care</p> <p>Please record details.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>Advice from secondary care mental health service</p> <p>Please record details.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>Police: voluntary (informally)</p> <p>Please record details.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	
<p>Police: s136</p> <p>Local Ambulance Service</p>	

	<p>Please record details.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Other (please provide details)</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
Is this patient out of area?	<p>Yes <input type="checkbox"/> No <input type="checkbox"/></p>
If the patient is out of area, please record their reason for attendance at this department	<p>s136, diverted from local area (local service at full capacity) Y/N</p> <p>s136, diverted from local area (local service lack of staff) Y/N</p> <p>s136, diverted from local area (medical co-morbidity requiring intervention) Y/N</p> <p>Conveyed by police/LAS (not on s136) Y/N</p> <p>Patients decision Y/N</p> <p>Patient away from home/overseas patient Y/N</p> <p>No fixed abode Y/N</p>

	Other (please provide details)
Is the patient under the care of a secondary care mental health service?	Yes <input type="checkbox"/> <input type="checkbox"/>
If yes, what type? Please indicate all that apply. These details should be obtained from all relevant patients using RIO notes.	Crisis/Home treatment team Y/N Community team (care coordinated) Y/N Community team (not care coordinated) Y/N IAPT Y/N Substance misuse service (statutory) Y/N Eating Disorder Y/N Specialist Personality Disorder Services Y/N Old Age mental health Team Y/N Other (please provide details)

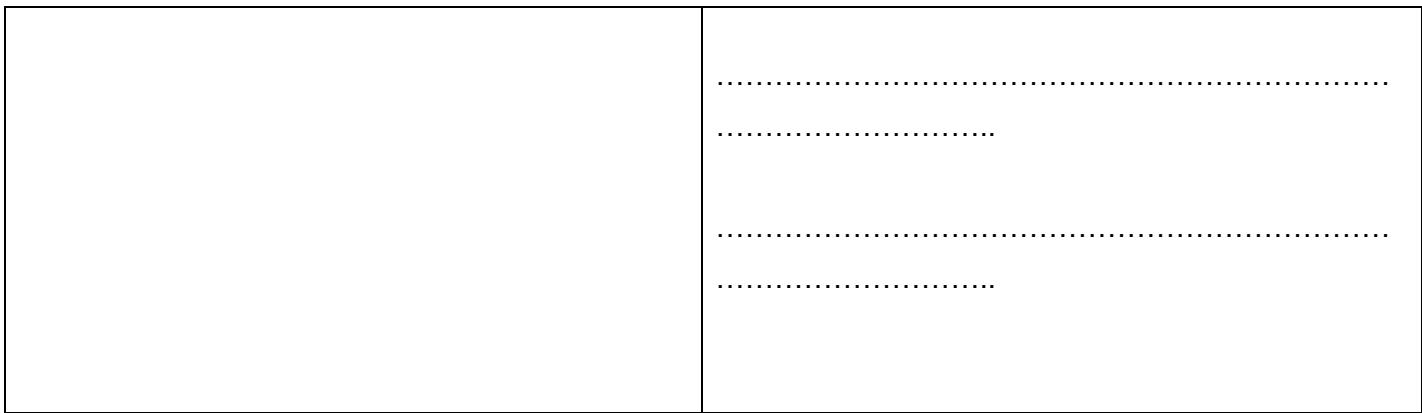
Time of arrival (24 hour clock) Time when booked into the department. This should be obtained from A&E notes.	
Time Patient was seen by triage nurse (24 hour clock) Time the patient was reviewed by ED. This should be obtained from A&E notes.	
Time patient was seen by A&E clinician (24 hour clock) Time the patient was first reviewed by A&E clinician. This should be obtained from A&E notes.	SHO..... Registrar..... Consultant..... Other (pls specify).....
Time referral was made to liaison/specialist mental health team. (24 hour clock) Time the patient was first referred by A&E clinician to the mental health liaison team (or equivalent). This should be obtained from A&E notes.	
Time mental health Liaison Team saw patient (24 hour clock) Time the patient was first seen by mental health Liaison clinician (or equivalent). This should be obtained from A&E notes or RIO.	Nurse..... Doctor..... Other (pls specify).....
Time that a final outcome was decided (24 hour clock) The time that an outcome for the patient was recorded. For example, the decision to discharge, refer to specialist team or admit.	
Was this a parallel assessment? For example, were medical or surgical investigations or review required and were they initiated at the same time as the mental health referral? Please give details.	Yes <input type="checkbox"/> o <input type="checkbox"/>

<p>Please provide the details of any additional medical assessments and investigations. Please indicate the specialty assessing, the time of assessment, the investigation and the time these were performed. This should be obtained from A&E notes. Please provide the details of all specialties reviewing the patient. If patient has been referred to more than two specialties, please provide information on additional pages.</p>	<p>Specialty 1 (e.g. medical):</p> <p>.....</p> <p>Time referred</p> <p>Time seen.....</p> <p>Investigations (eg bloods/imaging)</p> <p>.....</p> <p>Time decision about outcome made.....</p> <p>Recorded outcome:</p> <p>.....</p> <p>Specialty 2 (e.g. medical):</p> <p>.....</p> <p>Time referred</p> <p>Time seen.....</p>
---	---

	<p>Investigations (eg bloods/imaging)</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Time decision about outcome made.....</p> <p>Recorded outcome:</p> <p>.....</p> <p>.....</p>
<p>Time final decision about outcome made</p> <p>If patient absconds note time noticed, or the time that the patient was discharged/ left the department.</p>	
Time patient left Department (24 hour clock)	
<p>Please provide details about the attendance outcome, including the next stage of care and any teams that the patient needed to be reviewed by.</p> <p>This should be obtained from A&E notes and RIO.</p>	<p>Discharged Y/N</p> <p>Absconded Y/N</p> <p>Referred to:</p> <p>-Primary care Y/N</p> <p>-Mental health follow-up/assessment Y/N</p> <p>(please provide details)</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

	<p>Admitted:</p> <ul style="list-style-type: none"> -Inpatient mental health Y/N <p>Acute bed:</p> <ul style="list-style-type: none"> -Surgical Y/N -Medical Y/N -ITU Y/N -Assessment Y/N - Other (pls specify)
Breach Please indicate if the patient breached.	Yes <input checked="" type="checkbox"/> <input type="checkbox"/>
Please indicate the total amount of time the patient was in the A&E department (hours and minutes), from arrival to departure Please get this information from the A&E notes.	
Was the patient admitted to AMU/CDU/another A&E short term department Please indicate if the patient was admitted into a short stay decision unit or similar to avoid breach	Yes <input checked="" type="checkbox"/> <input type="checkbox"/> (please provide details)
Please identify any particular reasons for delays Please tick all that apply	Intoxicated patient Y/N Medical problem requiring assessment Y/N Medical/surgical investigations Y/N

	<p>Waiting for interpreter Y/N</p> <p>Communication with mental health services (local) Y/N</p> <p>Communication with mental health services (out of area) Y/N</p> <p>Awaiting crisis team assessment Y/N</p> <p>Awaiting MHA (AMPH) Y/N</p> <p>Awaiting MHA (S12 assessor) Y/N</p> <p>Awaiting mental health in-patient bed Y/N</p> <p>Awaiting acute in-patient bed Y/N</p> <p>Mental health team not on site Y/N</p> <p>High acuity – mental health Y/N</p> <p>High acuity - A&E Y/N</p> <p>Problems with handover times Y/N</p> <p>Other Y/N</p> <p>Please give specific details</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
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11.14 Appendix 5.3: Ethics Approval Documentation



NRES Committee London - Queen Square

HRA NRES Centre Manchester
Barlow House
3rd Floor
4 Minshull Street
Manchester
M1 3DZ

21 August 2015

Professor Peter Fonagy
Head of Department, Research Department of Clinical, Educational and Health Psychology
and the Freud Memorial Professor of Psychoanalysis,
Research Department of Clinical, Educational and Health Psychology
University College London
London
WC1E 6BT

Dear Professor Fonagy

Study title: Understanding how to improve the quality of Emergency Department care, as measured by process measures (length of time in ED), patient experience and safety (patients absconding from ED).
REC reference: 15/LO/0308
Amendment number: 1
Amendment date: 10 August 2015
IRAS project ID: 163469

The above amendment was reviewed at the meeting of the Sub-Committee held on 20 August 2015 held in correspondence.

Ethical opinion

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	Version	Date
Notice of Substantial Amendment (non-CTIMP)		10 August 2015
Participant consent form	1.2	04 August 2015
Participant information sheet (PIS)	1.2	04 August 2015
Research protocol or project proposal	1.5	30 July 2015

A Research Ethics Committee established by the Health Research Authority

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

R&D approval

All investigators and research collaborators in the NHS should notify the R&D office for the relevant NHS care organisation of this amendment and check whether it affects R&D approval of the research.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

15/LO/0308:	Please quote this number on all correspondence
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Yours sincerely



Signed on behalf of
Dr Eamonn Walsh
Vice Chair

Email: nrescommittee.london-queensquare@nhs.net

Enclosures: *List of names and professions of members who took part in the review*

Copy to: *Mr Subhir Bedi, CRN: North Thames*
Ms Suzanne Emerton, Joint Research Office UCL

NRES Committee London - Queen Square

Attendance at Sub-Committee of the REC meeting on 20 August 2015

Committee Members:

<i>Name</i>	<i>Profession</i>	<i>Present</i>	<i>Notes</i>
Mrs Jenny Johnson	Charity Trustee	Yes	
Dr Eamonn Walsh	Lecturer	Yes	

Also in attendance:

<i>Name</i>	<i>Position (or reason for attending)</i>
Ms Rachel Heron	REC Manager

11.15 Appendix 5.4: Hypothesised moderators together with rationale for inclusion in the model

Table 36 Showing the moderators and associated predictors, along with the rationale and hypothesised effect on the model.

Moderator	Predictor	Rationale	Predicated effect
Alcohol and or drug use or diagnosis	No fixed abode	Being intoxicated or having a known D&A problem is likely to lead to more co-morbidities (mental health and physical health), which is likely to make discharge planning particularly difficult if the patient is NFA.	Increase LOS
	AAU	Patients who are intoxicated are sometimes admitted straight to AAU to wait for blood alcohol to reduce to a level enabling assessment.	Reduce LOS
NFA	Presenting complaint	Being homeless is likely to make management plans particularly difficult for some presenting complaints, particularly those that do not require admission but do require risk management and follow up in the community to be robust in order to avoid admission.	Increase LOS
Presenting Complaint	OOA	Depending on the PC, creating effective management plans would be more difficult, particularly if it requires admission. This would require liaison with an unknown mental health team and potentially long distance transport.	Increase LOS
	Physical health comorbidity	The overlap in symptoms and increased complexity of assessment for patients with physical health co-morbidities is likely to make assessment and management more complex and require more senior assessment. E.g. patients	Increase LOS

		presenting with palpitations/ anxiety symptoms with a known cardiac history would require more thorough assessment from medics prior to being cleared as medically fit.	
Out of Area	Attending under s136	Patients attending under s136 are likely to be highly agitated and there is a high chance of admission to IP facility, or requirement for robust risk management plan in community. If also out of area, this is logistically more complex to arrange and likely to take longer.	Increase LOS
	Agitated	Patients attending because they are highly agitated or displaying abnormal behaviour that others feel needs to be assessed are more likely to require admission or robust community plans. If also out of area, this is logistically more complex to arrange and likely to take longer.	Increase LOS
	Existing diagnosis of schizophrenia	More likely that patient has relapsed and will need admission. If also out of area, this is logistically more complex to arrange.	Increase LOS
	Admitted to an IP unit	If also out of area, this is logistically more complex to arrange.	Increase LOS
Attending with police under s136	Suicidal ideation	Suicidal patients attending against their will are more likely to be identified as high risk and therefore require MHA assessment and/or admission.	Increase LOS

11.16 Appendix 5.5: Input factors that were considered as part of the multiple regression to determine patients at high risk of breach at arrival

Demographics

A1 Age
A1a Age Range Code
A2 Gender Code
A3 Ethnicity recode
A4.1 English first language
A4.2 Fluent in English
A5 Learning disability
A6 no fixed abode or hostel
A7 Out of area
A8 No. of previous A&E attendances in past year
A12 site code
A13 Day of collection
A14 Day of collection code

Pattern of mental health service use (D)

D1.1 Is patient currently under care of a secondary care MH service
D1.2 Has patient ever been under the care of/ in contact with secondary mental health services
D2.1 Crisis/home treatment plan/EIT
D2.2 CMHT
D2.4 IAPT
D2.5 Substance misuse service (statutory)
D2.3 Alcohol services
D2.6 Eating disorder
D2.7 Specialist personality disorder services
D2.8 Old age mental health team
D2.10 Recovery & Rehab team
D2.9 Other
D2.11 In patient
D2.12 LD team
D2.13 Under Social care
D2.14 Unknown services

Presenting complaint (B)

- B3.1 Dementia
- B3.2 Alcohol intoxication
- B3.3 Substance intoxication
- B3.4 Intentional overdose of medication or drugs with intent to harm self
- B3.5 Self Injury
- B3.6 Thoughts of self-harm
- B3.8 Agitation/abnormal behaviour requiring assessment
- B3.9 Trauma/interpersonal violence
- B3.10 Physical Health
- B3.11 Anxiety/Panic
- B3.12 Mood low / unhappy / down / distressed / crying
- B3.13 Side effect Meds
- B3.14 Routine care / prescription / not happy with routine care / advice
- B3.15 Recent change in management / treatment / prescription /stopped taking meds
- B3.16 Violence & Aggression Towards others
- B3.17 Thoughts of harming others
- B3.18 Stress / can't cope / abnormal experiences
- B3.23 Social reason
- B3.19 Suicidal Ideation

Contributing factors (B)

- B4.1 Alcohol
- B4.2 Substance intoxication
- B4.3 Current mental health disorder (excl D&A)
- B4.4 Current social situation

Mode of arrival ' (C)

- C1.1 Self presentation
- C1.2 Brought in by friend/relative/carer/social worker
- C1.3 Advice from 111 telephone line
- C1.4 Advice by primary care
- C1.5 Advice from secondary care MH service
- C1.6 Police: voluntary / arrest (informally)
- C1.7 Police: s136
- C1.8 Local Ambulance Service
- C1.9 Other NHS/LA provider

Mental Health diagnoses (B)

- B5a ANY mental health diagnosis
- B5b Alc/drug dependency/misuse (diagnosis not required)
- B5c Mental health Co-morb (Excl alc/drugs & LD)
- B5.1 Depression
- B5.2 Anxiety (incl PTSD, OCD, panic)
- B5.3 Schizophrenia / psychosis
- B5.3a BPAD
- B5.4 Personality/DSH
- B5.5 Autistic Spectrum
- B5.6 Dementia
- B5.7 MUS
- B5.8 Eating Disorder
- B5.9 ADHD/Conduct
- B5.10 Drugs & Alcohol (diagnosed problem)
- B5.11 unknown mental health co-morb

Physical Health diagnoses

- B6a PH Co-morb
- B6.1 Immunological
- B6.2 Oncology
- B6.3 Developmental (not pure mental health)
- B6.4 Infectious Diseases
- B6.5 Renal
- B6.6 ENT
- B6.7 Rheumatological/orthopaedic/connective tissue
- B6.8 Endocrine
- B6.9 Physical disability
- B6.10 Dermatological
- B6.11 Gastric (medicine)
- B6.12 Respiratory
- B6.13 Neurological
- B6.14 CVD
- B6.15 Surgical
- B6.16 Urinary (incl incontinence)
- B6.17 Chronic Pain
- B6.18 Gynaecological
- B6.19 hearing problems
- B6.20 Haematological

11.17 Appendix 5.6: Detailed Description of the Analysis of Input Factors

11.17.1 Demographic Factors

No demographic factors were found to be significantly associated with breach. Ethnicity and out of area status were significantly associated with site, as reported in the previous section and in Table 13.

11.17.2 Primary Presenting Complaint

Categories for the variable 'presenting complaint' were created during data cleaning by analysis of free text completed by data collectors, which was collected from the A&E and mental health assessment notes and included the narrative of why the patient attended. During cleaning, patients were allocated a 'primary reason for presenting', based on an assessment of their entire case. This assessment was carried in collaboration with one other trained psychiatrist. This variable was the called 'Primary Presenting Complaint'. Table 36 below shows the association between breach and presenting complaint. Of the 624 cases, the commonest primary reason for presentation was having thoughts of suicide or self-harm (25.8%). Cramer's V was calculated to assess the strength of this relationship (0.31), which was a medium sized effect (for an overview of the definition of effect sizes in relation to Cramer's V, see Appendix 5.10). This was a statistically significant association: $\chi^2(6) = 58.62$, $p < 0.0001$. The nature of the relationship is that patients with 'agitation/abnormal behaviours identified by others', or presenting with DSH are more likely to breach, whereas those with anxiety or 'abnormal experiences identified by themselves' are less likely to breach. Presenting complaint was not found to be associated with site.

Table 37 Association between Presenting Complaint and Breach

	No Breach	Breac		Statistical Tests
		h	Totals	
Agitation/ Abnormal Behaviours (identified by third party)	37 (36.27%) (10.51%))	65 (63.73%) (23.9%))	102 (100%) (16.35%))	$\chi^2(6) = 58.62$ $p < 0.0001$
	48	19	67	

		(71.64%	(28.36
Abnormal Experiences (identified by individual)	)	%)	(100%)
	(13.64%	(6.99%	(10.74
))	%)
Anxiety	45	8	53
	(84.91%	(15.09	
	)	%)	(100%)
	(12.78%	(2.94%	(8.49%
)))
DSH	50	66	116
	(56.9%		
	(43.1%)	)	(100%)
	(24.26	(18.59	
	(14.2%)	%)	%)
Physical Health	53	41	94
	(56.38%	(43.62	
	)	%)	(100%)
	(15.06%	(15.07	(15.06
)	%)	%)
Suicidal or DSH Thoughts	93	68	161
	(57.76%	(42.24	
	)	%)	(100%)
	(26.42%		(25.8%
	)	(25%))
Other	26	5	31
	(83.87%	(16.13	
	)	%)	(100%)
	(1.84%	(4.97%	
	(7.39%)))
<hr/> Total	352	272	624
	(56.41%	(43.59	
	)	%)	(100%)
	(100%)	(100%)	(100%)

11.17.3 Contributing Factors

These were underlying factors that were identified to have contributed to the attendance. They included alcohol intoxication, substance intoxication or a precipitating social situation. It was hypothesised that those who had either alcohol, substance misuse or social situations that contributed to their reason for presentation would be more likely to be associated with breaching due to increased complexity or severity. However none were identified to be associated with breach. To determine if this was because patients who were intoxicated were admitted to the acute assessment unit to avoid breach a Chi² analysis was done to look at the relationship between alcohol intoxication and discharge destination. The relationship was significant and showed that patients presenting with alcohol intoxication as a contributory factor were more likely to abscond or be admitted to AAU ($\chi^2(4) = 13.56$, $p = 0.009$), both of which are associated with a reduction in the likelihood of breach.

11.17.4 Service Use

Data was collected from A&E notes and mental health trust notes on the numbers of previous attendances and whether the patient was under drug/alcohol services. The hypothesis was that patients who were under mental health services would be more severe and therefore more complicated to assess in A&E, and therefore be more likely to breach. Although there was a significant variation between sites for patients who have ever been under mental health services ($\chi^2(2) = 37.99$, $p < 0.0001$. Cramer's V (0.27)) and those who were currently using alcohol or substance misuse services ($\chi^2(2) = 20.17$, $p < 0.0001$. Cramer's V (0.18)), no factors were significantly associated with breach.

11.17.5 Characteristics of attendance

This included factors such as the model of arrival, whether the police were involved in the attendance and the day of attendance. While day of attendance and model of arrival were significant in the preliminary study, this was not replicated in this study where no association was found between either breach or site.

11.17.6 Contributing Presenting Problems

In the preliminary study it was found that it was difficult to identify a single reason for presentation, for example it was common for patients to become intoxicated, start to feel very depressed which led them to feeling suicidal and culminated in them taking

an OD. Therefore, data collectors were asked to identify the 'primary' presenting complaint, and any factors that were associated with the presentation. They were asked to note this down in the data collection sheets and the free text was analysed to create a set of variables addressing the contributing factors for attending A&E. These were many and varied, and are summarised in Table 63.

Contributing reasons that were found to be associated with breach were intentional overdose on medication or self-injury, thoughts of self-harm or suicide and agitation/abnormal behaviour. These are reported in full in the following sections.

11.17.6.1 OD or DSH

Of the 626 patients, 165 attended with either deliberate self-harm or overdose and of these, 56.97% breached. Of the 461 not presenting with DSH or OD, 38.61% breached. Cramer's V was calculated (0.16), corresponding to a small effect size. This was nevertheless a statistically significant association: $\chi^2(1) = 16.67$, $p < 0.0001$. Patients presenting with DSH or OD were significantly more likely to breach than those who did not. Presenting with OD or DSH did not vary significantly across the sites.

Table 38 Association between OD or DSH and Breach

	No Breach	Breach	Totals	Statistical Tests
No DSH or OD	283 260.7 (61.39%) (79.94%)	178 200.3 (38.61%) (65.44%)	461 (100%) (73.64%)	$\chi^2(1) = 16.67$
DSH or OD	71 93.3 (43.03%) (20.06%)	94 71.7 (56.97%) (34.56%)	165 (100%) (26.36%)	$p < 0.0001$
Totals	354 (56.55%) (100%)	272 (43.45%) (100%)	626 (100%) (100%)	

11.17.6.2 Thoughts of DSH or Suicide

Unlike those in the DSH/OD category, these patients had not acted on their thoughts of self-harm and attended as they were concerned about the way they were feeling. 58.63% of the sample experienced thoughts of self-harm or suicide. Of those presenting without thoughts of self-harm/ suicide, 31.99% breached, whereas of those who did present with these thoughts 68.01% breached. Cramer's V indicated a small effect size (0.17). The relationship was statistically significant $\chi^2(1) = 16.67$, $p < 0.0001$. As the table below illustrates, patients who presented with thoughts of self-harm or suicide were significantly more likely to breach than those who did not.

Table 39 Association between Thoughts of Self-harm or Suicide and Breach

	No Breach	Breach	Totals	Statistical Tests
No Thoughts of DSH/Suicide	172.00	87.00	259.00	
	146.50	112.50	259.00	
	(66.41%)	(33.59%)	(100%)	
	(48.59%)	(31.99%)	(41.37%)	
				$\chi^2(1) = 17.48$
Thoughts of DSH/Suicide	182.00	185.00	367.00	$p < 0.0001$
	207.50	159.50	367.00	
	(49.59%)	(50.41%)	(100%)	
	(51.41%)	(68.01%)	(58.63%)	
Totals	354.00	272.00	626.00	
	(56.55%)	(43.45%)	(100%)	
	(100%)	(100%)	(100%)	

A hierarchical loglinear analysis of categorical variables was performed with the aim of predicting the patients who would breach because of suicidal thinking. This analysis indicated that waiting for a MHA assessor had the most significant relationship ($p=0.015$), followed by difficult patient behaviour ($p=0.023$) and then attending under s137 ($p=0.044$) and (3). This indicates that patients who breached because of suicidal thinking were more likely to wait for a MHA assessor, display difficult behaviour or attend under s137.

11.17.6.3 Agitation or abnormal behaviour

Patients with abnormal behaviour or agitation represented nearly 32% of the sample. Of those presenting without agitation, 38.41% breached, whereas of those who did present with agitation 54.27% breached. Cramer's V indicated a small effect size (0.15). The relationship was statistically significant $X^2(1) = 13.90$, $p < 0.0001$. Patients who presented with agitation were significantly more likely to breach than those who did not. Hierarchical loglinear analysis was performed to identify explanatory factors but none reached significance.

Table 40 Association between Agitation or Abnormal behaviour and Breach

	No Breach	Breach	Totals	Statistical Tests
No Agitation/abnormal behaviour	263.00	164.00	427.00	$X^2(1) = 13.90$ $p < 0.0001$
	241.50	185.50	427.00	
	(61.59%)	(38.41%)	(100%)	
Agitation/abnormal behaviour	91.00	108.00	199.00	
	112.50	86.50	199.00	
	(45.73%)	(54.27%)	(100%)	
Total	354.00	272.00	626.00	
	(56.55%)	(43.45%)	(100%)	
	(100%)	(100%)	(100%)	

11.17.7 Mental Health Diagnosis

Mental health diagnosis was gathered from the patient's mental health trust notes and A&E notes. Where there were discrepancies, the most recent diagnosis in mental health notes was used. When patients had more than one active diagnosis, all were recorded. The category of personality or recurrent deliberate self-harm was created to include those patients who had not received a formal diagnosis of Borderline PD, but who were likely to fit the diagnosis based on recurrent DSH.

The only diagnosis that was associated with breach was personality disorder or self-harm. None of the variation between sites reached significance.

11.17.7.1 Personality Disorder/ DSH

The table below shows the relationship between personality disorder diagnosis and breach. Of the 626 patients attending A&E, 175 had a pre-existing diagnosis. Of the patients without the diagnosis, 37.47% breached, whereas of those with the diagnosis 58.86% breached. Cramer's V indicated a small effect size (0.19). The relationship was statistically significant $\chi^2(1) = 23.47$, $p < 0.0001$. There was no variation found between sites.

Table 41 Association between Personality Disorder/DSH and Breach

	No Breach	Breach	Totals	Statistical Tests
	282.00	169.00	451.00	
	255.00	196.00	451.00	
	(62.53%)	(37.47%)	(100%)	
No Personality Disorder/ DSH	(79.66%)	(62.13%)	(72.04%)	$\chi^2(1) = 23.47$ $p < 0.0001$
	72.00	103.00	175.00	
	99.00	76.00	175.00	
	(41.14%)	(58.86%)	(100%)	
Personality Disorder/ DSH	(20.34%)	(37.87%)	(27.96%)	
Total	354.00	272.00	626.00	
	(56.55%)	(43.45%)	(100%)	
	(100%)	(100%)	(100%)	

11.17.8 Physical health co-morbidity

Patients medical records, A&E notes and mental health notes were assessed to identify current physical health diagnoses. Where there were multiple current comorbidities all were recorded. Historical diagnoses that were not current were not included. A trend was found in the association with breach, however this did not reach significance after Bonferroni adjustment $\chi^2(1) = 11.81$, $p < 0.001$. It is possible that with

a larger sample size this may reach significance. The rate of any physical health co-morbidity did not vary between sites.

11.18 Appendix 5.7: Detailed description of the analysis of throughput factors

11.18.1 Time taken to refer to psychiatry > 60 mins

Time taken to refer to psychiatry was not associated with breach; however it did vary between sites $\chi^2(2) = 53.29$, $p < 0.0001$. Of the 388 patients for whom we had this data, UCLH accounted for 55.38% of cases, Barts 27.96% and the Whittington 16.67%.

11.18.2 Clinicians seen in A&E

A range of variables were collected relating to the type of clinician seen as well as the way different teams worked together in A&E. These were informed by the literature, which indicated that seniority of the clinician undertaking assessment and creating management plans may predict breach, with more senior clinicians hypothesised to make decisions more quickly and therefore reducing the risk of breach, as previously described. When medical and psychiatric teams undertook parallel assessment, as opposed to patients being medically cleared prior to psych assessment, it has been shown to reduce length of stay in A&E. It was therefore hypothesised that early parallel senior involvement would reduce risk of breach. When more than one doctor was seen, the most senior was used for analysis. A small number of patients were seen only by foundation doctors, these were combined with senior house officers.

11.18.3 Approach to Assessment

11.18.3.1 Assessment by A&E Doctors

These patients required assessment by A&E medical staff. There was a small group who were referred straight to psychiatry at triage, or who were not severe enough to require medical assessment in A&E and saw an A&E nurse only. Of the 522 patients assessed by A&E Drs, 48.28% breached, whereas those who did not see an A&E Dr, 19.23% breached. Cramer's V indicated a small effect size (0.22). The relationship was statistically significant $\chi^2(1) = 29.78$, $p < 0.0001$. There was no variation found between sites.

Table 42 Association between Seeing A&E doctors and Breach

	No Breach	Breach	Totals	Statistical Tests
Did not see A&E Drs	84.00	20.00	104.00	

	58.80	45.20	104.00	
	(80.77%)	(19.23%)	(100%)	
	(23.73%)	(7.35%)	(16.61%)	
				$\chi^2(1) = 29.78, p < 0.0001$
	270.00	252.00	522.00	
	295.20	226.80	522.00	
	(51.72%)	(48.28%)	(100%)	
Saw A&E Drs	(76.27%)	(92.65%)	(83.39%)	
<hr/>				
Total	354.00	272.00	626.00	
	(56.55%)	(43.45%)	(100%)	
	(100%)	(100%)	(100%)	

A significant relationship was found between site and breach, displayed in the table below. Of the 524 patients that saw an A&E Dr, 42.94% were at UCLH, 35.5% were at Barts and 21.56% were at the Whittington. This was a significant relationship $\chi^2(2) = 42.83, p < 0.0001$. Cramer's V was showed the effect size to be medium (0.26).

Table 43 Association seeing A&E doctors and Site

	Whittington				
	Barts	UCLH	n	Totals	Statistical Tests
	70	13	21	104	
	42.4	39.4	22.2	104	
	(67.31)	(12.5)	(20.19%)	(100%)	
Did not see A&E					
Drs	(27.34)	(5.46)	(15.67%)	(16.56)	$\chi^2(1) = 20.71, p < 0.0001$
	186	225	113	524	
Saw A&E Drs	213.6	198.6	111.8	524	
	(35.5%)	(42.94)	(21.56%)	(100%)	
	(72.66)	(94.54)	(84.33%)	(83.44)	
<hr/>					
Total	256	238	134	628	

(40.76)	(37.9%)	(21.34%)	(100%)
(100%)	(100%)	(100%)	(100%)

11.18.3.2 Assessment by Psychiatry/RAID/Mental Health team

These patients were seen by the psychiatry team. Some patients were managed without referral to psychiatry or absconded. Of the 432 patients assessed by psychiatry, 58.8% breached, whereas those who did not see psych, 9.28% breached. Cramer's V indicated a moderate effect size (0.46). The relationship was statistically significant $\chi^2(1) = 133.60$, $p < 0.0001$. There was no significant variation found between sites.

Table 44 Association Seeing Psychiatry/RAID/Mental Health team and Breach

No		Statistical Tests	
	Breach	Breach	Totals
	176.00	18.00	194.00
	109.70	84.30	194.00
Didn't see	(90.72%)	(9.28%)	(100%)
psych	(49.72%)	(6.62%)	(30.99%)
			$\chi^2(1) = 133.60$, $p < 0.0001$
Saw psych	178.00	254.00	432.00
	244.30	187.70	432.00
	(41.2%)	(58.8%)	(100%)
	(50.28%)	(93.38%)	(69.01%)
Total	354.00	272.00	626.00
	(56.55%)	(43.45%)	(100%)
	(100%)	(100%)	(100%)

11.18.3.3 Parallel Assessment

Of the 432 patients assessed by psychiatry/mental health/RAID teams, 135 underwent a parallel assessment between the A&E and Psychiatry Teams. Of the patients who did not have a parallel assessment, 74.07% breached, whereas those without parallel assessment, 51.85% breached. Cramer's V indicated a small effect size (0.21). The

relationship was statistically significant $X^2(1) = 18.92$, $p < 0.0001$. There was no significant variation found between sites.

Table 45 Association between Parallel Assessment and Breach

No				Statistical Tests
	Breach	Breach	Totals	
	143.00	154.00	297.00	
	122.40	174.60	297.00	
No parallel	(48.15%)	(51.85%)	(100%)	
Assessment	(80.34%)	(60.63%)	(68.75%)	$X^2(1) = 18.92$, $p < 0.0001$
	35.00	100.00	135.00	
	55.60	79.40	135.00	
Parallel	(25.93%)	(74.07%)	(100%)	
Assessment	(19.66%)	(39.37%)	(31.25%)	
Total	178.00	254.00	432.00	
	(41.2%)	(58.8%)	(100%)	
	(100%)	(100%)	(100%)	

Although the relationship between sites was not found to be significant, a trend was evident with 11.1% of parallel assessments at the Whittington, 33.33% at UCLH and 55.56% at Barts $X^2(2) = 14.72$, $p = 0.001$.

11.18.4 Seniority of A&E Physician

The most senior grade of staff seen by the patient was recorded, with the following categories identified: nurse, F1, F2 or SHO, Registrar and Consultant. When more than one clinician was seen, the most senior was recorded. Data was collected for 290 patients. There was no relationship with the seniority of the A&E staff who saw the patient and the likelihood of breach $X^2(3) = 2.58$, $p = 0.46$.

11.18.5 Investigations

Data was collected on the investigations that patients underwent in A&E, including bloods, ECG, radiology and urine analysis.

11.18.5.1 Blood Tests

The table below shows the relationship between having blood tests and breach. Of the 626 patients attending A&E, 269 had bloods taken. Of these, 59.84% breached, whereas of those who did not have bloods taken, 31.37% breached. Cramer's V indicated a small effect size (0.28). The relationship was statistically significant $\chi^2(1) = 49.32$, $p < 0.0001$. There was no variation found between sites.

Table 46 Association between Bloods and Breach

No		Statistical	
	Breach	Breach	Totals
	Breach	Breach	Tests
No bloods	245.00	112.00	357.00
	201.90	155.10	357.00
	(68.63%)	(31.37%)	(100%)
	(69.21%)	(41.18%)	(57.03%)
		$\chi^2(1) = 49.32$ $p < 0.0001$	
Bloods	109.00	160.00	269.00
	152.10	116.90	269.00
	(40.52%)	(59.48%)	(100%)
	(30.79%)	(58.82%)	(42.97%)
Total	354.00	272.00	626.00
	(56.55%)	(43.45%)	(100%)
	(100%)	(100%)	(100%)

11.18.5.2 Radiological Tests

The table below shows the relationship between having radiological tests and breach. This included x-ray, USS, MRI and CT. Of the 626 patients attending A&E, 71 attended radiology. Of these, 66.2% breached, whereas of those who did not attend radiology, 40.54% breached. Cramer's V indicated a small effect size (0.16). The relationship was statistically significant $\chi^2(1) = 16.86$, $p < 0.0001$. Patients who had radiological tests were more likely to breach. There was no variation found between sites.

Table 47 Association between Radiological Tests and Breach

No		Statistical	
	Breach	Breach	Totals
	Breach	Breach	Tests

No Radiological Tests	330.00 59.46%) 93.22%)	225.00 (40.54%) (82.72%)	555.00 (100%) (88.66%)	
				$\chi^2(1) = 16.86$ $p < 0.0001$
	24.00 40.20	47.00 30.80	71.00 71.00	
Radiological Tests	(33.8%) (6.78%)	(66.2%) (17.28%)	(100%) (11.34%)	
Total	354.00 (56.55%) (100%)	272.00 (43.45%) (100%)	626.00 (100%) (100%)	

11.18.5.3 ECG Tests

The table below shows the relationship between having an ECG and breach. Of the 626 patients attending A&E, 221 had an ECG. Of these, 55.66% breached, whereas of those who did not have an ECG, 36.79% breached. Cramer's V indicated a small effect size (0.18). The relationship was statistically significant $\chi^2(1) = 20.71$, $p < 0.0001$. Patients who had ECGs were more likely to breach. There was no variation found between sites.

Table 48 Association between Radiological Tests and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
No ECG	256.00 229.00 (63.21%) (72.32%)	149.00 176.00 (36.79%) (54.78%)	405.00 405.00 (100%) (64.7%)	$\chi^2(1) = 20.71$ $p < 0.0001$
ECG	98.00 125.00 (44.34%) (27.68%)	123.00 96.00 (55.66%) (45.22%)	221.00 221.00 (100%) (35.3%)	

Total	354.00	272.00	626.00
	(56.55%)	(43.45%)	(100%)
	(100%)	(100%)	(100%)

11.18.6 Process Reasons for Delay

A range of reasons for delays were identified by drawing on the literature, the preliminary study and at the time of data collection. Data collectors were asked to identify reasons for delay at the time of attendance, including any that were relevant. They were also asked to note any additional factors in free text. The free text was analysed and additional factors were created from these.

Factors were not analysed if they accounted for less than 30 cases. These included: problems with transfer to next unit, handover and waiting for an interpreter.

Ten of the fourteen factors were found to be significantly associated with breach, all had a small effect size based on Cramer's V. The summary of these factors including those not found to be significant is found in Table 13.

11.18.7 Patient Intoxication

The table below shows the relationship between patient not being seen due to intoxication and breach. Of the 626 patients attending A&E, 166 had delays in being assessed because of intoxication. Of these, 56.63% breached, whereas of those who did not, 38.70% breached. Cramer's V indicated a small effect size (0.16). The relationship was statistically significant $X^2(1) = 15.96$, $p < 0.0001$. There was no significant variation found between sites.

Table 49 Association between Patient Intoxication and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
No	282.00	178.00	460.00	
intoxication	260.10	199.90	460.00	
	(61.3%)	(38.7%)	(100%)	
	(79.66%)	(65.44%)	(73.48%)	$X^2(1) = 15.96$
				$p < 0.0001$

Intoxication	72.00	94.00	166.00
	93.90	72.10	166.00
	(43.37%)	(56.63%)	(100%)
	(20.34%)	(34.56%)	(26.52%)
<hr/>			
Total	354.00	272.00	626.00
	(56.55%)	(43.45%)	(100%)
	(100%)	(100%)	(100%)

11.18.8 Waiting for Specialist Review

The table below shows the relationship between patients needing to wait for specialist review and breach. Of the 626 patients 36 had to wait for specialist review. Of these, 75% breached, whereas of those who did not have to wait, 41.53% breached. Cramer's V indicated a small effect size (0.16). The relationship was statistically significant $X^2(1) = 15.47$, $p < 0.0001$. There was no significant variation found between sites.

Table 50 Association between waiting for specialist review and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
	345.00	245.00	590.00	
No wait for specialist review	333.60	256.40	590.00	
	(58.47%)	(41.53%)	(100%)	
	(97.46%)	(90.07%)	(94.25%)	$X^2(1) = 15.47$ $p < 0.0001$
Wait for specialist review	9.00	27.00	36.00	
	20.40	15.60	36.00	
	(25%)	(75%)	(100%)	
	(2.54%)	(9.93%)	(5.75%)	
<hr/>				
Total	354.00	272.00	626.00	
	(56.55%)	(43.45%)	(100%)	
	(100%)	(100%)	(100%)	

11.18.9 Waiting for Investigations

The table below shows the relationship between patients needing to wait for investigations and breach. Of the 626 patients attending A&E, 225 had to wait for

investigations. Of these, 59.11% breached, whereas of those who did not have to wait, 34.66% breached. Cramer's V indicated a small effect size (0.24). The relationship was statistically significant $\chi^2(1) = 35.06$, $p < 0.0001$. There was no significant variation found between sites.

Table 51 Association waiting for investigations and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
No wait for investigations	262.00	139.00	401.00	$\chi^2(1) = 35.06$, $p < 0.0001$
	226.80	174.20	401.00	
	(65.34%)	(34.66%)	(100%)	
	(74.01%)	(51.1%)	(64.06%)	
Wait for investigations	92.00	133.00	225.00	
	127.20	97.80	225.00	
	(40.89%)	(59.11%)	(100%)	
	(25.99%)	(48.9%)	(35.94%)	
Total	354.00	272.00	626.00	
	(56.55%)	(43.45%)	(100%)	
	(100%)	(100%)	(100%)	

11.18.10 Patient has a medical problem requiring assessment

The table below shows the relationship between patients with a medical problem that required assessment and breach. Of the 626 patients attending A&E, 252 had to be medically assessed. Of these, 58.73% breached, whereas of those who did not require medical assessment, 33.16% breached. Cramer's V indicated a small effect size (0.25). The relationship was statistically significant $\chi^2(1) = 40.08$, $p < 0.0001$. There was no significant variation found between sites.

Table 52 Association waiting for investigations and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
No need for medical assessment	250.00	124.00	374.00	
	211.50	162.50	374.00	
	(66.84%)	(33.16%)	(100%)	

	(70.62%)	(45.59%)	(59.74%)	$\chi^2(1) = 40.08, p < 0.0001$
Medical	104.00	148.00	252.00	
Assessment	142.50	109.50	252.00	
Required	(41.27%)	(58.73%)	(100%)	
	(29.38%)	(54.41%)	(40.26%)	
<hr/> Total	354.00	272.00	626.00	
	(56.55%)	(43.45%)	(100%)	
	(100%)	(100%)	(100%)	

11.18.11 Patient has to wait for a MHA Assessor

The table below shows the relationship between those who needed to wait for MHA assessors and breach. Of the 626 patients attending A&E, 66 had to wait for a MHA assessor. Of these, 80.3% breached, whereas of those who did not have to wait, 39.11% breached. Cramer's V indicated a small effect size (0.26). The relationship was statistically significant $\chi^2(1) = 40.78, p < 0.0001$. There was no variation between sites.

Table 53 Association waiting for MHA Assessors and Breach

No		Statistical Tests	
	Breach	Breach	Totals
	341.00	219.00	560.00
No wait for	316.70	243.30	560.00
MHA	(60.89%)	(39.11%)	(100%)
Assessor	(96.33%)	(80.51%)	(89.46%)
			$\chi^2(1) = 40.78, p < 0.0001$
	13.00	53.00	66.00
Wait for	37.30	28.70	66.00
MHA	(19.7%)	(80.3%)	(100%)
Assessor	(3.67%)	(19.49%)	(10.54%)
<hr/> Total	354.00	272.00	626.00
	(56.55%)	(43.45%)	(100%)
	(100%)	(100%)	(100%)

11.18.12 Mental Health Team not on site

The table below shows the relationship between mental health team not being on site and breach. Of the 626 patients attending A&E, 34 had to wait because the mental health team was not on site. Of these, 79.41% breached, whereas of those who did not have problems with the mental health team not being on site, 41.39% breached. Cramer's V indicated a small effect size (0.17). Fishers Exact Test was used due to small numbers in some cells, and the relationship was statistically significant $X^2(1) = 18.92$, $p < 0.0001$. There was no significant variation found between sites.

Table 54 Association waiting for MHA Assessors and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
No problem with mental health team not on site	347.00 (58.61%) (98.02%)	245.00 (41.39%) (90.07%)	592.00 (100%) (94.57%)	$X^2(1) = 18.92$, $p < 0.0001$
Mental health team not on site	7.00 (20.59%) (1.98%)	27.00 (79.41%) (9.93%)	34.00 (100%) (5.43%)	
Total	354.00 (56.55%) (100%)	272.00 (43.45%) (100%)	626.00 (100%) (100%)	

11.18.13 Waiting to be medically cleared

The table below shows the relationship between waiting to be medically cleared and breach. Of the 626 patients attending A&E, 136 had to wait for medical clearance before the next stage in their care or discharge. Of these, 63.24% breached, whereas of those who did not have to be medically cleared, 37.96% breached. Cramer's V indicated a small effect size (0.21). The relationship was statistically significant $X^2(1) = 27.68$, $p < 0.0001$. There was no significant variation found between sites.

Table 55 Association between waiting to be medically cleared and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
No problem with waiting to be medically cleared	304.00 (62.04%) (85.88%)	186.00 (37.96%) (68.38%)	490.00 (100%) (78.27%)	$\chi^2(1) = 27.68$, $p < 0.0001$
Waiting to be medically cleared	50.00 (36.76%) (14.12%)	86.00 (63.24%) (31.62%)	136.00 (100%) (21.73%)	
Total	354.00 (56.55%) (100%)	272.00 (43.45%) (100%)	626.00 (100%) (100%)	

11.18.14 Delay in referral to psychiatry

The table below shows the relationship between delays in referral to psychiatry and breach. Of the 626 patients attending A&E, 39 patient's referral to psychiatry was delayed. Of these, 76.92% breached, whereas of those who did not have to be medically cleared, 41.23% breached. Cramer's V indicated a small effect size (0.17). The relationship was statistically significant $\chi^2(1) = 18.97$, $p < 0.0001$. There was no significant variation found between sites.

Table 56 Association between waiting to be medically cleared and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
No delay in referral to psychiatry	345.00 (58.77%) (97.46%)	242.00 (41.23%) (88.97%)	587.00 (100%) (93.77%)	$\chi^2(1) = 18.97$, $p < 0.0001$
Delay in referral to psychiatry	9.00 (23.08%) (2.54%)	30.00 (76.92%) (11.03%)	39.00 (100%) (6.23%)	

Total	354.00	272.00	626.00
	(56.55%)	(43.45%)	(100%)
	(100%)	(100%)	(100%)

11.18.15 Difficulty in managing Patient's Behaviour

The table below shows the relationship between delays caused by patient's difficult behaviour and breach. Of the 626 patients attending A&E, 119 were difficult to manage because of their behaviour in A&E. Of these, 68.91% breached, whereas for those whom there was not difficulty with behaviour, 37.48% breached. Cramer's V indicated a small effect size (0.25). The relationship was statistically significant $X^2(1) = 38.75$, $p < 0.0001$. There was no significant variation found between sites.

Table 57 Association between waiting to be medically cleared and Breach

	No		Totals	Statistical Tests
	Breach	Breach		
No difficulty with patient behaviour	317.00 (62.52%) (89.55%)	190.00 (37.48%) (69.85%)	507.00 (100%) (80.99%)	$X^2(1) = 38.75$, $p < 0.0001$
Difficulty with patient behaviour	37.00 (31.09%) (10.45%)	82.00 (68.91%) (30.15%)	119.00 (100%) (19.01%)	
Total	354.00 (56.55%) (100%)	272.00 (43.45%) (100%)	626.00 (100%) (100%)	

11.18.16 Difficulty communicating with mental health team

The table below shows the relationship between difficult communication with the mental health team and breach. Of the 626 patients attending A&E, for 53 there were difficulties in communicating with the mental health team. Of these, 84.91% breached, whereas for those whom there was not difficulty with behaviour, 39.62% breached. Cramer's V indicated a small effect size (0.25). The relationship was statistically significant $X^2(1) = 40.50$, $p < 0.0001$. There was no significant variation between sites.

Table 58 Association between difficulty communicating with mental health team and Breach

	No		Totals	Statistical Tests
	Breach	Breach		
No difficulty with communication with mental health team	346.00 (60.38%) (97.74%)	227.00 (39.62%) (83.46%)	573.00 (100%) (91.53%)	$\chi^2(1) = 40.50$, $p < 0.0001$
Difficulty communicating with mental health team	8.00 (15.09%) (2.26%)	45.00 (84.91%) (16.54%)	53.00 (100%) (8.47%)	
Total	354.00 (56.55%) (100%)	272.00 (43.45%) (100%)	626.00 (100%) (100%)	

11.19 Appendix 5.8: Detailed description of the analysis of output factors

11.19.1 Discharge Destination

The outcomes of the A&E attendances were recorded. Patients were classed as absconding if they left against medical advice before the end of their assessment. All the referrals made were recorded (e.g. specialist mental health teams, community care, GP referral). A summary factor was created in which patients could only be assigned one category from the following: discharge, absconding, admission to mental health inpatient, admission to acute trust inpatient, admit AAU.

The summary factor was significantly associated with breach $\chi^2(4) = 106.70$, $p < 0.0001$. Cramer's V indicated a very large effect size of 0.41 (>0.25 is considered large with four degrees of freedom). Patients who absconded were the least likely to breach, with only 10.94% breaching. This was followed by discharge, for whom 36.96% breached. Patients being admitted were more likely to breach, with those admitted to mental health units were the most likely to breach (84.88%), followed by acute IP units (74.07%). There was no significant variation between sites.

Table 59 Association between discharge destination and breach

	No			Statistical Tests
	Breach	Breach	Totals	
Discharge	261.00	153.00	414.00	$\chi^2(4) = 106.70$, $p < 0.0001$
	234.10	179.90	414.00	
	(63.04%)	(36.96%)	(100%)	
	(73.73%)	(56.25%)	(66.13%)	
Absconding	57.00	7.00	64.00	
	36.20	27.80	64.00	
	(89.06%)	(10.94%)	(100%)	
	(16.1%)	(2.57%)	(10.22%)	
Admit mental health				
IP unit	13.00	73.00	86.00	
	48.60	37.40	86.00	
	(15.12%)	(84.88%)	(100%)	

	(3.67%)	(26.84%)	(13.74%)
Admit Acute Trust IP	7.00 15.30 (25.93%) (1.98%)	20.00 11.70 (74.07%) (7.35%)	27.00 27.00 (100%) (4.31%)
Admit AAU	16.00 19.80 (45.71%) (4.52%)	19.00 15.20 (54.29%) (6.99%)	35.00 35.00 (100%) (5.59%)
Total	354.00 (56.55%) (100%)	272.00 (43.45%) (100%)	626.00 (100%) (100%)

11.19.2 Reasons for Delay

The same approach was taken to identify reasons for output delays. All three factors were found to be significantly associates with breach. The summary of these factors including those not found to be significant is found in Table 13.

11.19.3 Difficulties accessing mental health inpatient beds

The table below shows the relationship between difficulties in accessing inpatient mental health beds and breach. Of the 626 patients attending A&E, 81 had difficulties accessing mental health beds. Of these, 88.89% breached, whereas for those where there was no difficulty 36.7% breached. Cramer's V indicated a large effect size (0.35). The relationship was statistically significant $\chi^2(1) = 78.18$, $p < 0.0001$. There was no significant variation between sites. 86 patients were admitted to mental health units meaning 94.19% of admissions had difficulty accessing mental health IP beds.

Table 60 Association between difficulty in accessing mental health IP beds and Breach

No				Statistical Tests
	Breach	Breach	Totals	
No difficulty	345.00 308.20 (63.3%)	200.00 236.80 (36.7%)	545.00 545.00 (100%)	$\chi^2(1) = 78.18$, $p < 0.0001$
				0.0001

accessing			
IP beds	(97.46%)	(73.53%)	(87.06%)
Difficulty	9.00	72.00	81.00
Accessing	45.80	35.20	81.00
IP beds	(11.11%)	(88.89%)	(100%)
	(2.54%)	(26.47%)	(12.94%)
<hr/> Total	354.00	272.00	626.00
	(56.55%)	(43.45%)	(100%)
	(100%)	(100%)	(100%)

11.19.4 Difficulties accessing acute inpatient beds

The table below shows the relationship between difficulties in accessing acute inpatient beds and breach. Of the 626 patients attending A&E, 36 had difficulty accessing beds. Of these, 75% breached, whereas for those where there was no difficulty 41.53% breached. Cramer's V indicated a small effect size (0.16). The relationship was statistically significant $X^2(1) = 15.47$, $p < 0.0001$. There was no significant variation between sites. 62 patients were admitted to mental health units meaning 58.06% of admissions had difficulty accessing acute beds.

Table 61 Association between difficulty in accessing mental health beds and Breach

	No			Statistical Tests
	Breach	Breach	Totals	
No difficulty	345.00	245.00	590.00	
accessing	333.60	256.40	590.00	
acute IP bed	(58.47%)	(41.53%)	(100%)	
	(97.46%)	(90.07%)	(94.25%)	$X^2(1) = 15.47$, $p < 0.0001$
Difficulty	9.00	27.00	36.00	
accessing	20.40	15.60	36.00	
acute IP bed	(25%)	(75%)	(100%)	
	(2.54%)	(9.93%)	(5.75%)	
<hr/> Total	354.00	272.00	626.00	
	(56.55%)	(43.45%)	(100%)	

(100%) (100%) (100%)

11.19.5 Delay with transport or transfer

The table below shows the relationship between difficulties with transport or transfer and breach. Of the 626 patients attending A&E, 57 had difficulty with transport or transfer. Of these, 87.72% breached, whereas for those where there was no difficulty 39.02% breached. Cramer's V indicated a small effect size (0.28). The relationship was statistically significant $\chi^2(1) = 28.27$, $p < 0.0001$. There was no significant variation between sites.

Table 62 Association between difficulty with transport/transfers and Breach

No				Statistical Tests
	Breach	Breach	Totals	
No problems with transfer/transport	347.00 (60.98%) (98.02%)	222.00 (39.02%) (81.62%)	569.00 (100%) (90.89%)	$\chi^2(1) = 28.27$, $p < 0.0001$
Problems with transport/transfer	7.00 (12.28%) (1.98%)	50.00 (87.72%) (18.38%)	57.00 (100%) (9.11%)	
Total	354.00 (56.55%) (100%)	272.00 (43.45%) (100%)	626.00 (100%) (100%)	

11.20 Appendix 5.9: OOA Patients

Table 63 Showing the effect size and significance of Chi-2, comparing full sample with OOA patients

[^]fisher's exact used because of small n

	Variation between sites (current study) N=628, 3 sites	Variation between sites (current study, out of area patients only) N=243, 3 sites	Breach (current study) N=628, 3 sites	Breach (current study, out of area patients only) N=243, 3 sites
			Cramer's V	Cramer's V
Breach	0.18***	0.17	n/a	n/a
Input Factors				
Demographics	Age	0.09	0.18	0.08
	Gender	0.07	0.06	-0.02
	Ethnicity	0.30***	0.28***	0.13
	Learning Disability	0.06	0.14	0.006
	English 1 st Language	0.06	0.06	-0.05
	Fluent in English	0.13	0.11	0.03
	Out of area	0.19***	n/a	0.09
	No fixed abode	0.13	0.10	0.13
Complaints	Presenting complaint	0.13	0.20	0.31***
	Any physical health co-morbidity	0.06	0.10	0.14
	Alcohol/drug dependency (no diagnosis)	0.12	0.12	0.09
	No of previous attendances	\$0.09	\$15.66, p=0.110	\$-0.05, p=0.043

	Alcohol Intoxication	0.04	0.11	0.06	0.07
	Substance Intoxication	0.08	0.05	0.02	0.04
Contributing factors	Current social situation	0.07	0.12	0.05	0.04
	Contact with primary care	Not collected	Not collected	Not collected	Not collected
	Patients currently under mental health services	0.07	0.12	0.006	-0.02
Service Use	Patient has ever been under mental health services	0.27***	0.40***	0.11	0.26
	CRHTT	0.07	0.06	0.05	0.06
	CMHT	0.17	Not possible	-0.02	-0.05
	Alcohol or Substance misuse services	^0.18***	0.15	0.04	0.11
	Mode of arrival	0.12	^0.19	0.11	0.12
Characteristics of attendance	Under s137	0.07	0.19	0.14	0.18
	Informal police involvement	0.04	0.10	-0.0007	-0.05
	Any police involvement	0.04	0.09	0.11	0.12
	Advice from NHS	0.10	0.09	-0.02	-0.05
	Day patient attends (all days)	0.04	0.16	0.12	0.19
	Day patient attends (week day vs. weekend)	0.02	0.08	0.07	0.07
	Time of arrival	0.02	0.06	0.05	0.11
Contributing factors	Drug and/or Alcohol Intoxication	0.07	0.11	0.05	0.05
	Violence and/or aggression	0.11	0.19	0.08	0.13
	Problems with Care	0.04	0.15	0.01	-0.06

	OD or DSH	0.11	0.04	0.16***
	Thoughts DSH or suicide	0.11	0.14	0.17***
	Agitation / abnormal behaviour	0.10	0.21	0.15***
	Physical health problem	0.01	0.17	-0.08
	Anxiety	0.03	0.13	-0.08
	Low mood	0.02	0.08	0.009
	Stressed or can't cope with a situation	0.10	0.16	0.08
Mental Health Diagnoses	Any mental health diagnosis	0.11	0.10	0.04
	Any mental health (excluding Drugs, alcohol & learning disability)	0.04	0.05	0.10
	Alcohol and/or drug misuse problem	0.11	0.12	0.09
	Depression and/or Anxiety	0.06	0.03	-0.02
	Schizophrenia	0.10	0.02	0.09
	Bipolar (separate because of overlap with borderline)	0.04	0.06	0.04
	Personality disorder/ deliberate self-harm	0.08	0.16	0.19***
				0.27***
Physical Health	Any physical health co-morbidity	0.06	0.1	0.14
	Throughput Factors	Did p<0.01 from here...		
Time	Time taken to refer to psychiatry > 60 mins	0.37***	0.32***	0.16
	Time taken for psychiatry to arrive	Not collected	Not collected	Not collected

Process Reasons for delay	Patient can't be seen because of intoxication	0.02	0.08	0.16***	0.17
	Difficulty making referral to specialist team	Not collected	Not collected	Not collected	Not collected
	Waiting specialist review	0.09	n/a	0.16***	n/a
	Investigations	0.07	0.17	0.24***	0.12
	Medical assessment	0.02	0.02	0.25***	0.17
	Waiting for psych review	^0.08	n/a	^0.10	n/a
	Waiting to be seen in A&E	0.18***	n/a	-0.0005	n/a
	Waiting for MHA Assessor	^0.21***	^0.22	^0.26***	^0.26***
	Mental health team not on site	^0.14	n/a	^0.17***	n/a
	Psychiatry particularly busy	0.07	n/a	0.09	n/a
	A&E particularly busy	0.07	n/a	0.06	n/a
	Waiting to be medically cleared	0.07	n/a	0.21***	n/a
	Delay in referral to psych	0.11	n/a	0.17***	n/a
	Patient's behaviour	0.13*	0.13	0.25***	0.30***
	Difficulty with communication with mental health	0.16***	0.17	0.25***	0.27***
Type of clinician seen	Patients saw triage only	0.15	Not relevant	-0.23***	Not relevant
	ED Dr Assessment	0.26***	Not relevant	0.22***	Not relevant
	Seen by Psychiatry	0.15	Not relevant	0.46***	Not relevant
	Parallel Assessment	0.17***	Not relevant	0.33***	Not relevant
	Seen by ED SHO	0.14	Not relevant	0.08	Not relevant
	Seen by ED Registrar	0.21***	Not relevant	0.11	Not relevant
	Seen by ED Consultant	0.03	Not relevant	-0.004	Not relevant

	Seen by mental health Nurse only	0.10	Not relevant	0.15***	Not relevant
	Seen by mental health Dr	0.25***	Not relevant	0.29***	Not relevant
Investigations	Bloods	0.03	Not relevant	0.28***	Not relevant
	Radiology	0.04	Not relevant	0.16***	Not relevant
	ECG	0.03	Not relevant	0.18***	Not relevant
	Urine analysis	0.08	Not relevant	0.12	Not relevant
Output Factors					
Discharge Destination	Absconding	0.06	0.11	-0.24***	0.09
	Outcome of visit	0.110.0017606 00.110	Pr = 0.16	0.41***	0.42***
	Discharged Home	0.06	0.05	-0.17***	-0.17
	Referred to primary care	0.14	-0.11	-0.12	-0.08
	Referred to Specialist mental health for assessment	0.08	0.17	0.04	0.05
	Admitted to IP mental health	0.13	0.17	0.35***	0.38***
	Admitted into Acute Assessment Unit	0.12	0.15	0.09	0.09
Reasons for delay	Delays in accessing a mental health inpatient bed	0.15	0.21	0.35***	0.36***
	Delays waiting for an acute IP bed	0.07	Not done	0.16***	Not done
	Delay with transport or transfer	0.09	0.13	0.28***	0.31***

*: Kendall's Tau was used rather than Chi-squared

11.21 Appendix 5.10: Cohen's Interpretation of Cramer's V based on effect sizes

DF for Chi-Square is defined as $DF = (R-1)+(C-1)$.

Whereas for Cramer's V it is referred to as $DF^* = (R-1)$ or $(C-1)$. Where DF^* = always the smallest number $(R-1)$ or $(C-1)$. Many of my contingency tables have DF^* (4-1) and, thus I can still use these guidelines to interpret Cramer's V.

$df=1$ (small=.10, medium=.30, large=.50)

$df=2$ (small=.07, medium=.21, large=.35)

$df=3$ (small=.06, medium=.17, large=.29)

$df=4$ (small=.05, medium=.15, large=.25)

$df=5$ (small=.05, medium=.13, large=.22)

11.22 Appendix 5.11: Description of the categories making up the variable 'Primary Presenting Complaint'

Table 64 Description of the categories that make up the variable 'Primary Presenting Complaint, with examples.

Category	Description	Examples	Frequency (n=628) n, (%)
Abnormal behaviour that required assessment	<p>These patients were identified by others to be behaving strangely or out of character. Commonly this was by friends, family, work colleagues, the public or professional services (e.g. the police). These patients often appeared to be experiencing psychotic symptoms, confusion, delirium, under influence of drugs/alcohol/ or experiencing withdrawal etc. They were assessed as requiring medical assessment to rule out medical causes. Often were brought to A&E by friends/ family/ professionals rather than attending from personal choice. Some were on s136.</p>	<p>Believing they were part of a larger plan, being undressed or behaving inappropriately with no clear explanation, wandering around confused/lost.</p>	103 (16.45)
Abnormal experiences	<p>Patients self-identified as having abnormal experiences they could not explain. Patients often attended alone or because they wanted to, but brought friends/ families.</p>	<p>Hearing voices, strange visions, a feeling of doom.</p>	67 (10.70)
Anxiety	<p>Patients described feeling very anxious and not being able to manage these feelings without</p>	<p>Includes panic attacks, physical symptoms but</p>	54 (8.63)

	help or support. Often precipitated by an event, or circumstances the patient can't manage themselves.	the patient recognises these as anxiety.	
Deliberate self-harm	Patient has attended because they have harmed themselves and they need medical attention. Mix of attending through own decision and those who are brought by ambulance/ friends/ family etc.	Mix of severe lacerations/ overdoses requiring specialist input/ ITU, and those who attend after very minor injury or taking 3 or 4 paracetamol.	116 (18.53)
Physical health problems	Patients attend primarily for physical health concerns. During assessment it becomes clear it is a mental health problem primarily. Or patients that attend with physical health reasons, but who may be aware their problems are mental health in origin.	Chest pain or SOB that is diagnosed as anxiety, or patients with side effects from neuroleptics.	94 (15.02)
Suicidal or thoughts about deliberate self-harm	Patients feel suicidal and attend A&E as they want to come to a safe place. Some feel suicidal for the first time and don't know where else to turn whereas others have attended previously (some many times).		161 (25.72)
Other	Includes the reasons for presenting with a small representation. Also includes patients who presented with alcohol as their main reason and were referred to mental health.	Includes those attending for advice or prescriptions.	31 (4.95)

11.23 Appendix 5.12: Description of the variable 'contributing to presenting complaint'

Table 65 Description of variables 'Contributing to presenting complaint'

Presenting complaint variable code	Variable Name	Description	Frequency n, (%)
B3.1	Dementia	Co-morbid dementia diagnosed or expected	8 (1.27)
B3.2	Alcohol intoxication	Alcohol intoxication contributed to cause of attendances	148 (23.57)
B3.3	Substance intoxication	Psychoactive substance intoxication contributed to cause of attendances. Includes illegal and legal 'highs'.	75 (11.94)
B3.4	Overdose of medication	Intentional overdose of medication or drugs (prescribed or not) with intent to harm self	89 (14.17)
B3.5	Self-Injury	Injury to self. Excluding overdose. Includes cutting, hanging, drinking caustic fluids, jumping off high buildings/ in front of trains.	90 (14.33)
B3.6	Thoughts of self-harm	Thoughts of self-harm but patient has not acted on these thoughts.	367 (58.44)
B3.8	Agitation/abnormal behaviour requiring assessment	These patients were identified by others to be behaving strangely or out of character. Commonly this was by friends, family, work colleagues, the public or professional services (e.g. the police). These patients often appeared to be experiencing psychotic symptoms, confusion, delirium etc. They were assessed as requiring medical assessment to	200 (31.85)

		rule out medical causes. Often were brought to A&E by friends/ family/ professionals rather than attending from personal choice. Some were on s136.	
B3.9	Trauma/interpersonal violence	Includes domestic violence, physical altercations with others, injury by accident as examples.	19 (3.03)
B3.10	Physical Health	Patients attend with physical health concerns. During assessment it becomes clear a mental health is present that requires assessment. Or patients that attend with physical health reasons, but who may be aware their problems are mental health in origin.	191 (30.41)
B3.11	Anxiety/Panic	Patients described feeling very anxious and not being able to manage these feelings without help or support. Often precipitated by an event, or circumstances the patient can't manage themselves.	149 (23.71)
B3.12	Mood low	Patient describes feeling low, down, depressed. They describe being unhappy, or crying a lot.	203 (32.32)
B3.13	Side effect Meds	Patients attended because of side effects of prescribed psychiatric medications.	3 (0.48%)
B3.14	Routine care	Patients attend because of a problem with their mental health care, such as running out of prescription / not happy with routine care / wanting advice about their care. They often are not able to access services in timely manner and so attended A&E.	32 (5.10)

B3.15	Recent change in management / treatment /	Recent changes to medication, recently discharged from services, patient has stopped taking medication and deteriorated and so attends A&E as an emergency.	55 (8.76)
B3.16	Violence & Aggression Towards others	Patient is behaving violently towards others. Most often this is seen as uncharacteristic, or patient shows this behaviour when relapsing. Often attend with police under s136.	30 (4.78)
B3.17	Thoughts of harming others	Patient has thoughts of acting violently towards others. Often attends as they are afraid of acting on these.	26 (4.14)
B3.18	Stress / can't cope / abnormal experiences	Patient is feeling highly stressed and can't cope with the situation they are experiencing. This leads to abnormal experiences (eg voices/ physical symptoms) or for them to feel like they may 'do something'.	248 (39.49)
B3.19	Suicidal Ideation	Thoughts of committing suicide and patient attends A&E for help, or to be in a safe place.	312 (49.8)
B3.23	Social reason	Social factors are causing patient distress and they want help with this, or they are causing their symptoms. E.g. homelessness, exams, loss of job, death of friend/loved one, separation, loss of children to social services/ through divorce or separation, terminal illness.	261 (41.56)