

1 **Predictors of move-on from mental health supported accommodation in England; a**
2 **national cohort study.**

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70 **Declaration of interests**

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74

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85

86 **Author contribution**

87 HK, SP, MK, SE, PMcC, MA, SC, GL and GS conceived and designed the study. SD, IH,
88 JK, PMcP, CD-L and RMcG collected and collated the data which were analysed by LG and
89 ZZ with supervision from SE. PMcC carried out the health economic analysis. All authors
90 were involved in the interpretation of the data. HK drafted the article which was reviewed
91 and revised by all authors. All authors approved the final version of the manuscript and
92 agreed their accountability in ensuring that any questions related to the accuracy or integrity
93 of any part of the work were appropriately investigated and resolved.

94

95 **Data availability**

96 All data supporting our findings will be shared on request made to the corresponding author.

97

98 **Abstract**

99 **Background**

100 Around 60,000 people in England live in mental health supported accommodation. There are
101 three main types; residential care (RC), supported housing (SH), and floating outreach (FO).
102 Both SH and FO aim to support service-users to move on to more independent
103 accommodation within two years, but there has been little research investigating their
104 effectiveness.

105

106 **Aims**

107 To conduct a 30-month prospective cohort study investigating outcomes for users of mental
108 health supported accommodation across England.

109

110 **Methods**

111 We used random sampling, that accounted for geographical variation in factors relevant to
112 mental health supported accommodation, to recruit 87 services (22 RC, 35 SH and 30 FO)
113 and 619 service-users (RC=159; SH=251; FO=209) across England. We contacted services
114 every three months to investigate the proportion of service-users who moved on to more
115 independent accommodation successfully. Multilevel modelling was used to estimate how
116 much of the variation in outcome and costs of care was due to service type and quality, after
117 accounting for service-user characteristics.

118

119 **Results**

120 Overall, 243/586 (41.5%) participants achieved successful move-on (RC 15/146 [10.3%], SH
121 96/244 [39.3%], FO 132/196 [67.3%]). This was most likely for FO service-users (vs RC,
122 OR=7.96 [95% CI 2.92-21.69, p<0.001]; vs SH, OR=2.74 [95% CI 1.01-7.41, p<0.001]) and
123 associated with reduced costs of care and two aspects of service quality; promotion of human
124 rights and recovery based practice.

125

126 **Conclusions**

127 Most people do not move-on from supported accommodation within the expected timeframe.
128 Greater focus on human rights and recovery based practice may increase the clinical and cost-
129 effectiveness of these services.

130

131

132 **Introduction**

133 Supported accommodation is a key component of the ‘whole system care pathway’ for people
134 with complex, longer term mental health problems^{1,2} serving around 60,000 people in
135 England. Despite the substantial costs of providing these services, there is a dearth of
136 empirical research evaluating their effectiveness. The most recent Cochrane Review in the
137 field (updated 2010), identified no relevant randomised controlled trials of adequate
138 quality^{3,4}. A recent trial in Canada showed benefits in housing stability for recipients of an
139 outreach model targeting homeless people, but well conducted studies of other models are
140 rare^{5,6}. The QuEST study (Quality and Effectiveness of Supported Tenancies for people with
141 mental health problems) was the first research programme to investigate the effectiveness of
142 mental health supported accommodation services in England (www.ucl.ac.uk/quest). It
143 comprised: adaptation of a quality assessment tool⁷; a national survey⁸; a cohort study
144 investigating longer-term outcomes; a qualitative investigation of staff and service-user
145 experiences⁹; a feasibility randomised trial comparing the effectiveness of two service types.
146 This paper reports on the cohort study. Our national survey described the three main types of
147 mental health supported accommodation in England; residential care, supported housing, and
148 floating outreach⁸. Residential care (RC) homes comprise communal facilities, staffed 24
149 hours, where day to day needs are provided (e.g. meals, supervision of medication and
150 cleaning) and placements are not time limited. Supported housing (SH) is provided in shared
151 or individual self-contained, time-limited tenancies with staff based on-site up to 24 hours a
152 day who assist the person to gain skills to move on to less supported accommodation.
153 Floating outreach (FO) services provide support to people living in time-unlimited, self-
154 contained, individual tenancies. Staff are based off-site and visit for a few hours per week,
155 providing practical and emotional support, with the aim of reducing support over time to
156 zero. Staff are not mental health professionals but usually undertake relevant training (e.g.
157 National Vocational Qualifications). In England, individuals often move from higher to
158 lower supported accommodation every few years as their skills improve, with the goal of
159 managing an independent tenancy. The aim of the cohort study was to assess the proportion
160 of people who successfully moved on to more independent accommodation over 30-months,
161 and to identify service and service-user factors (including costs) associated with this. Our
162 specific research questions were:

- 163 1) What proportion moved on to more independent accommodation and sustained it for
164 30-months?

165 2) How much of the variation in outcome was due to service type and service quality,
166 before and after accounting for service-user characteristics (age, sex, diagnosis, length of
167 stay, morbidity)?

168

169 **Methods**

170 The study was approved by Harrow Research Ethics Committee (reference 12/LO/2009). The
171 full protocol for the study is available on the corresponding author's institution's website
172 (www.ucl.ac.uk/quest/protocol). The cohort comprised all service-users participating in the
173 national survey component of the QuEST programme. Full details of the sample size
174 calculation, sampling and recruitment are described elsewhere⁸. In brief, between October
175 2013 and October 2014, we recruited 619 users of mental health supported accommodation
176 across England (159 RC, 251 SH, 209 FO), randomly sampled from 87 services (22 RC, 24
177 SH, 25 FO). These services were randomly sampled from 14 nationally representative Local
178 Authority areas using an index developed by Priebe et al¹⁰ that includes characteristics
179 relevant to mental health supported accommodation (e.g. mental health morbidity, social
180 deprivation, provision of community mental health care, housing demand). A mean seven
181 service users were recruited per service. Written informed consent was obtained from all
182 participants. The sample size was calculated to estimate the difference in proportion of people
183 moving on from each of the three types of supported accommodation 30 months after
184 recruitment to within 5%. Recruitment took place from 1st October 2013 to 31st October
185 2014.

186

187 The sample is fully described elsewhere⁸. In summary, users of RC and SH had more severe
188 mental health problems than users of FO (primary diagnosis of psychosis; 83% RC, 72% SH;
189 52% FO) and those in RC had the highest needs and longest contact with mental health
190 services (mean [range] years RC 23 [15-33]; SH 11 [5-20]; FO 15 [8-24]). Over half of all
191 users were considered at risk of self-neglect (72% RC, 52% SH, 50% FO) and over a third
192 vulnerable to exploitation (41% RC, 37% SH, 36% FO). At recruitment, each service's
193 quality was assessed using the Quality Indicator for Rehabilitative Care - Supported
194 Accommodation (QuIRC-SA) which rates seven domains: Living Environment; Therapeutic
195 Environment; Treatments and Interventions; Self-management and Autonomy; Social
196 Interface; Human Rights; Recovery-Based Practice⁷. Data on service-user participants were
197 collected from key staff as follows: clinical and risk history; challenging behaviours - Special
198 Problems Rating Scale (SPRS)¹¹; needs - Camberwell Assessment of Needs Short

199 Assessment Scale (CANSAS)¹²; substance use - Clinician Alcohol and Drug Scale (CADS)¹³;
200 social functioning - Life Skills Profile (LSP)¹⁴. Sociodemographic details were collected from
201 service-user participants along with ratings of their: quality of life - Manchester Short
202 Assessment of Quality of Life (MANSA)¹⁵; autonomy - Resident Choice Scale (RCS)¹⁶; and
203 satisfaction with services - the Client Assessment of Treatment Scale¹⁷.

204

205 The primary outcome, ‘successful move-on’ was defined as the proportion of participants
206 who moved to more independent accommodation without placement breakdown over the 30-
207 month follow-up period. Since FO is provided to people living in a permanent tenancy, the
208 primary outcome for this group was defined as managing with fewer hours of support per
209 week rather than moving home.

210

211 We also investigated a secondary outcome, defined as the proportion who sustained move-on
212 to more independent accommodation for 30-months, without hospital admission/s (an indirect
213 marker of community tenure).

214

215 *Data collection*

216 During follow-up, the researchers contacted services every three months to monitor
217 participants’ moves to other accommodation and hospital admissions. For any that moved to
218 another supported accommodation, staff contact details at the new service were obtained. If
219 the service-user moved on to fully independent accommodation, with no supported
220 accommodation staff involvement, their care co-ordinator (where applicable) was contacted
221 for ongoing monitoring.

222

223 At 30-month follow-up, the researchers completed telephone interviews with supported
224 accommodation staff or care co-ordinators and corroborated details of any moves or hospital
225 admissions, including the length of time in each accommodation and/or admission, during the
226 30-months. An overall assessment of the primary and secondary outcomes was made from
227 this information. If a relevant staff member could not be identified (e.g. if the service-user
228 had moved to a fully independent tenancy and been discharged from mental health services),
229 NHS case records were accessed to collect outcome data on move-on. Case notes of all
230 participants were reviewed to clarify the number and length (in days) of any hospital
231 admissions.

232

233 To estimate service use costs, information was collected from staff using a short version of
234 the Client Service Receipt Inventory¹⁸ on the frequency of the service-user's contact with
235 specific professionals in the previous three months and whether contacts were one-to-one or
236 in groups. It was assumed that group sessions involved four participants on average. Total
237 inpatient days during the whole 30-month follow-up were collected as described above. Other
238 costs (based on the previous three months) were not extrapolated across the 30-month period.

239

240 *Data Analysis*

241 Data were entered into a bespoke database. Data checks were completed on all records,
242 comparing collected and entered data. After cleaning, data were transferred to Stata statistical
243 software for analysis¹⁹. Descriptive analyses were conducted for all variables.

244

245 *Primary outcome*

246 For the primary outcome (successful move-on), a logistic mixed effects model was fitted
247 using xtmeologit, with a random intercept for service and a fixed effect for area as this was
248 used in the sampling frame as a design variable. Univariate analysis was used to identify
249 service and service-user variables with a significant association ($p < 10\%$) with the primary
250 outcome. The QuIRC-SA Therapeutic Environment domain score was not included in the
251 analysis because this domain and the Recovery Based Practice QuIRC-SA domain were very
252 highly correlated (Spearman's $\rho = 0.87$) and the variance inflation factor (VIF) exceeded
253 10. We chose to remove this domain as the Recovery Based Practice domain score had
254 previously been shown to predict successful discharge from inpatient rehabilitation
255 services²¹. The QuIRC-SA domains included in the univariable analysis were therefore
256 restricted to Treatments & Interventions, Self-Management & Autonomy, Social Interface,
257 Human Rights and Recovery Based Practice. Living Environment was excluded as it does not
258 apply to FO services. The following service-user variables were included in the univariable
259 analysis: socio-demographic characteristics (age, sex), diagnosis (non-psychotic vs. psychotic
260 disorder), length of stay with supported accommodation service, social functioning (LSP),
261 total unmet needs (CANSAS), substance misuse (CADs), challenging behaviours (SPRS),
262 risk of self-neglect and/or vulnerability to exploitation, risk to others, risk of self-harm.

263

264 *Sensitivity analyses*

265 In order to address factors that may have influenced our primary outcome, the following
266 sensitivity analyses were conducted:

- 267 • We calculated propensity scores from the following variables: social function (Life
268 Skills Profile score) at recruitment; age; diagnosis of psychosis/no-psychosis; a
269 composite risk variable (vulnerability to risk of exploitation +/- risk to others +/- self-
270 harm in the last two years). We used inverse probability of treatment weighting based
271 on these propensity scores to create a synthetic sample in which covariates were
272 balanced between intervention and treatment groups, thus mimicking a trial
273 population, and enabling us to estimate an Average Treatment Effect (ATE)²⁰ free of
274 bias due to confounding.
- 275 • Excluding participants who did not have a diagnosis of psychosis.
 - 276 • Replacing the geographical area variable with the geographic area sampling index
277 score¹⁰.
 - 278 • Only categorising FO service-users as having a positive outcome if the number of
279 hours per week of support had reduced by at least 50% since recruitment.
 - 280 • Comparing service-users who had been in the supported accommodation for less than
281 nine months at recruitment with those who had been there for over nine months.

282

283 *Secondary outcome*

284 A logistic mixed effects model was fitted using *xtmelogit*, with a random intercept for service
285 and a fixed effect for area to assess the secondary outcome by service type.

286

287 *Costs of care*

288 Care costs at 30-month follow-up were compared between the original service settings. This
289 used a mixed-effects model with service settings entered as the main independent variables
290 and adjustment made for background characteristics. These were socio-demographic
291 characteristics (age, sex), diagnosis (non-psychotic vs. psychotic disorder), and whether there
292 were problems with alcohol or drug use. Cost data are usually skewed but mean costs are still
293 relevant in economic evaluations and the sample size was large enough to produce robust
294 results.

295

296 The association between primary outcome and costs was investigated in two ways. First,
297 costs were compared for each service type for those who did and did not achieve the primary
298 outcome. Second, multilevel models were used to investigate the relationship between costs
299 and the primary outcome. We expected that movement to less supported accommodation

300 would have lower costs and the model was therefore adjusted for participant characteristics to
301 quantify the impact more precisely. The variables included are as listed above.

302

303 **Results**

304 Participant flows in the cohort are shown in supplementary Figure 1 available at <hyperlink>.
305 After accounting for withdrawals ($n=7$) and deaths ($n=26$), we followed 586/619 (95%)
306 participants over 30-months (RC=146; SH=244; FO=196). There were very little missing
307 primary or secondary outcome data.

308

309 *Descriptive data*

310 Participants' hospital admissions and risk incidents over 30-months by service type are
311 shown in Table 1, along with the number (%) ready for move-on but awaiting a suitable
312 vacancy in a less supported service. Overall, 110/586 (18.8%) had a hospital admission
313 during follow-up. Incidents of risk to others were highest amongst RC service-users (14.0%
314 RC, 11.5% SH, 4.1% FO) and self-harm was most common amongst SH and FO service-
315 users (4.2% RC, 17.3% SH, 14.8% FO). Around one third of SH service-users who had not
316 moved on were considered by staff as ready to do so (8.5% RC, 30.5% SH, 6.9% FO).

317

318 *Table 1 about here*

319

320 *Primary outcome*

321 Overall, 243/586 (41.5%) participants achieved successful move-on to less supported
322 accommodation (RC 15/146 (10.3%), SH 96/244 (39.3%), FO 132/196 (67.3%). The odds
323 ratio of achieving the primary outcome for users of FO vs RC was 7.96 (95% CI 2.92-21.69,
324 $p<0.001$), for FO vs SH service-users 2.74 (95% CI 1.01-7.41, $p<0.001$) and for users of SH
325 vs RC 2.90 (95% CI 1.05-8.04, $p=0.04$).

326

327 The multivariable analysis identified positive associations between the primary outcome and
328 service quality, specifically the QuIRC-SA domain scores for Human Rights (OR 1.09, 95%
329 CI 1.02-1.16, $p=0.007$) and, marginally, Recovery Based Practice (OR 1.04, 95% CI 1.00-
330 1.08, $p=0.054$) assessed at recruitment. The QuIRC-SA Social Interface domain score was
331 negatively associated with the primary outcome (OR 0.95, 95% CI 0.91-0.98, $p=0.001$).

332 Service-user total unmet needs, length of time in the supported accommodation service and a

333 composite risk variable (vulnerability to exploitation +/- self-harm) at recruitment were also
334 negatively associated with the primary outcome. See Table 2.

335

336 *Table 2 about here*

337

338 *Sensitivity analyses*

339 The results of the sensitivity analyses are shown in supplementary Table 1 available at
340 <hyperlink>. All showed a similar pattern of results to the main adjusted and unadjusted
341 models.

342

343 *Secondary outcome*

344 Few (17/243, 7%) individuals who moved on to less supported services had a subsequent
345 admission during the 30-month follow-up (0/15 RC [0%], 12/96 SH [12.5%], 5/132 FO
346 [3.8%]). The odds ratios associated with the secondary outcome show a similar pattern to the
347 primary outcome results, with successful move-on and no subsequent admission being more
348 likely for users of FO than SH (OR 1.65, 95% CI 0.97- 2.33, $p < 0.001$) and RC (OR 3.15,
349 95% CI 2.28-4.02, $p < 0.001$), and more likely for users of SH than RC (OR 1.65, 95% CI
350 0.97-2.33 $p < 0.001$).

351

352 *Costs of care*

353 From the staff-reported service use information reported in Table 3 it can be seen that SH
354 service-users were more likely to have had care co-ordinator contacts in the three-month
355 period prior to the 30-month follow-up than users of RC or FO. Contacts with psychiatrists
356 and other doctors were relatively common, although less so for FO service-users. Planned
357 face-to-face and group contacts with supported accommodation staff were most likely for RC
358 service-users. During the 30-month follow-up period, SH service-users were twice as likely
359 as FO service-users to have a psychiatric admission. There was little difference in the
360 proportions having inpatient stays due to physical health problems between the three service
361 types and little difference in the intensity of service use amongst those in contact with
362 services. The average number of planned face-to-face contacts with supported
363 accommodation staff was highest for FO service-users. For those who had a psychiatric
364 admission, the number of inpatient days over the 30-month period was highest for RC
365 service-users.

366

367 *Table 3 about here*

368 Table 3 also shows the costs of care. Excluding inpatient days, care costs over the previous
369 three months were around twice as high for RC service-users (£1434) compared to SH (£718)
370 and FO (£640), with the highest costs attributed to personal care, planned face-to-face
371 contacts with supported accommodation staff, and contacts with a doctor other than the
372 psychiatrist. The standard deviations were very high which is common for cost data, with
373 interquartile ranges £298-1275 for RC, £213-884 for SH and £0-572 for FO. Amongst SH
374 service-users, the highest costs were for planned face-to-face contacts with supported
375 accommodation staff followed by contacts with care co-ordinators. Planned face-to-face
376 contacts with supported accommodation staff was also the highest service cost for FO
377 service-users. After controlling for demographic and clinical variables in the multi-level
378 regression model, users of RC had costs that were on average £440 more than those for SH
379 service-users (95% CI, -£245 to £1124) and £601 more than FO service-users (95% CI, -£54
380 to £1257) but these differences were not statistically significant.

381 Psychiatric inpatient costs (assessed over the 30 month follow-up period) were similar for
382 users of RC and SH and about twice that of FO service-users. After controlling for
383 demographic and clinical variables, RC service-users' inpatient costs were on average £5214
384 more than for SH (95% CI, -£2844 to £13,272) and £7481 more than for FO service-users
385 (95% CI, -£210 to £15,172) but again, these differences were not statistically significant.

386 Table 4 shows the costs for users of each of the three service types at 30-month follow-up for
387 those who did and those who did not achieve the primary outcome. Unsurprisingly, costs
388 were lower for those who moved to less supported services. In the unadjusted multilevel
389 regression model, not including the costs of inpatient care, those who achieved the primary
390 outcome had mean (SD) service costs at follow-up of £388 (£700) while those who did not
391 had mean (SD) costs of £1214 (£2594). After adjustment, those who moved on to less
392 supported services had costs that were on average £427 lower than those who did not (95%
393 CI, £43 to £811). The mean (SD) inpatient costs for those who achieved the primary outcome
394 were £2713 (£10,062) and for those who did not £15,142 (£40,463). The adjusted multilevel
395 model revealed that inpatient costs for those who moved on were £14,608 less than for those
396 who did not (95% CI, £8593 to £20,624).

397 *Table 4 about here*

398 **Discussion**

399 We conducted the first national cohort study investigating outcomes for users of mental
400 health supported accommodation in England. We achieved a high follow-up rate, collecting
401 primary outcome data on 95% of participants at 30-month follow-up, enabling robust
402 assessment of the proportion who successfully moved on from RC or SH to more
403 independent accommodation or, for those receiving FO services, were able to manage with
404 less support.

405 In our primary outcome analysis, 42% of participants achieved move on (two-thirds of those
406 receiving FO services, one third of those in SH and one in ten of those in RC), and very few
407 of those who moved on had a subsequent hospital admission (our secondary outcome). Our
408 sensitivity analyses supported the findings of our primary outcome analyses. In England,
409 most SH and FO services are contracted to work with individuals for around two years, in
410 keeping with the Government's 'short-term supported accommodation' model. Our results
411 show a clear divergence between this expected timeframe and reality which could pose a risk
412 to individuals who require longer-term support, placing them and service staff under
413 inappropriate pressure to move-on prematurely.

414 Users of different services had similar levels of risk at 30-month-follow-up as at recruitment⁸,
415 with around one quarter of those living in SH and FO considered at risk of self-harm.
416 Service-users with more unmet needs, more risks and longer length of stay in the service (all
417 of which are indicators of greater morbidity) were less likely to achieve successful move-on.
418 After adjusting for these characteristics, FO service-users were more likely than those in RC
419 and SH to move-on successfully, and those in SH were more likely to move-on successfully
420 than those in RC. Whilst service costs between the three service types did not vary once
421 sociodemographic and clinical variables were accounted for, service costs for those who
422 moved on were significantly lower than for those who did not, even after adjustment.

423 Successful move-on was positively associated with service quality, specifically the degree to
424 which the service promoted service-users' Human Rights and adopted Recovery Based
425 Practice (as assessed by the QuIRC-SA). The Human Rights domain includes the degree to
426 which the service protects service-users' privacy and dignity, their legal rights and their
427 access to advocacy. The Recovery Based Practice domain includes: the degree to which the
428 service promotes collaboration between staff and service-users in care planning; involves
429 service-users in the running of the service; helps service-users to gain independent living

430 skills; holds a culture that embodies hope for service-users to progress, including a maximum
431 expected length of stay. The association between successful move-on and Recovery Based
432 Practice concurs with a previous national cohort study in England that investigated service
433 characteristics associated with successful community discharge from inpatient mental health
434 rehabilitation services²¹. This therefore suggest that gaining skills in Recovery Based Practice
435 is key for staff that work with this service-user group. The association between the promotion
436 of Human Rights and our primary outcome highlights the importance of access to advocacy
437 services and legal representation to assist progression through the supported accommodation
438 system.

439 The negative association between the QuIRC-SA ‘Social Interface’ score and successful
440 move-on may seem paradoxical, but this domain includes the degree to which family
441 members are involved in service-users’ care and to which the service engages service-users
442 with local community resources. It is possible that services that facilitate greater family
443 engagement may experience greater resistance from family members for service-users to
444 move on to more independent accommodation, an issue identified in previous studies²².
445 Additionally, services that facilitate service-users’ engagement with local community
446 resources may find them more reluctant to move to alternative accommodation in a different
447 locality.

448
449 Almost one third of SH user groups (and 16% of the whole sample) were considered ready to
450 move-on by staff, suggesting that there is under provision of supported accommodation
451 nationally.

452

453 *Limitations*

454 Our findings must be viewed in light of a number of limitations. First, successful move-on for
455 FO service-users was operationalised as managing with fewer hours of support per week than
456 at recruitment; arguably, this is a lower threshold for ‘success’ than that applied to users of
457 residential care and supported housing services and thus the proportion of successful move-
458 on we found for FO service-users may have been over estimated. Nevertheless, our
459 sensitivity analysis that reclassified FO service-users as having a successful outcome only if
460 the number of hours of support they were receiving had reduced by at least half, found
461 similar results. Second, although we designed our study to ensure that primary and secondary
462 outcomes could be collected from case notes (a strength of our design), this may have led to

463 further over estimation of successful move-on, particularly for those in FO. Specifically,
464 since outcome data for service-users who had been discharged from the supported
465 accommodation service had to be collected from clinical case notes (as they no longer had a
466 key staff member to report on their outcomes), it is possible that some of this group may have
467 returned to some form of supported accommodation without being taken on again by clinical
468 services and thus this would not be reported in their case notes. Third, for service-users
469 whose follow-up data could only be collected from case-notes, other data, such as contacts
470 with family (used in our costs of care analysis) could not be collected. Fourth, service use
471 data provided by staff (also used in our health economic analysis) may have been prone to
472 recall error. However, the period of interest was three months, short enough to mitigate
473 against this possibility, and any recall bias would apply equally to all three service types.

474

475 **Conclusion**

476 Mental health supported accommodation services are crucial to the ‘whole system pathway’
477 that enables recovery for individuals with complex mental health needs²³ and achieving
478 successful move-on is one of their main aims. We found that most people do not move on
479 from SH and FO services within the expected two-year timeframe, suggesting a need for
480 greater flexibility. However, investment in staff training to enhance delivery of the aspects of
481 service quality that facilitate successful move-on (recovery based practice and the promotion
482 of human rights) may increase the clinical and cost-effectiveness of these services.

483

Table 1. Service-user admissions and risk incidents at follow-up by service type

	Residential Care N=146 (%)	Supported Housing n=244 (%)	Floating Outreach n=196 (%)	Total N=586 (%)
Number of psychiatric admissions	n=144	n=243	n=196	n=583
0	117 (81.3)	183 (75.3)	173 (88.3)	473 (81.1)
1	16 (11.1)	31 (12.8)	11 (5.6)	58 (9.9)
>1	11 (7.6)	29 (11.9)	12 (6.1)	52 (8.9)
Number of involuntary psychiatric admissions				
0	125 (86.8)	201 (82.7)	182 (92.9)	508 (87.1)
1	11 (7.6)	27 (11.1)	8 (4.1)	46 (7.9)
>1	8 (5.6)	15 (6.2)	6 (3.1)	29 (5.0)
Any episodes of being in prison?	n=143	n=243	n=196	n=582
	5 (3.5)	9 (3.7)	2 (1.0)	16 (2.7)
Any incidents of violence?	n=143	n=243	n=196	n=582
	20 (14.0)	28 (11.5)	8 (4.1)	56 (9.6)
Any episodes of self-harm?	n=143	n=243	n=196	n=582
	6 (4.2)	42 (17.3)	29 (14.8)	77 (13.3)
Any incidents of fire-setting?	n=142	n=242	n=196	n=580
	1 (0.7)	4 (1.7)	1 (0.5)	6 (1.0)
Any incidents of sexual offending?	n=141	n=243	n=195	n=579
	4 (2.8)	4 (1.6)	0 (0.0)	8 (1.4)
For participants who have not moved on, are they considered ready to do so?	n=94	n=95	n=72	n=261
	8 (8.5)	29 (30.5)	5 (6.9)	42 (16.1)

486 **Table 2. Results of the univariable and multivariable analyses of the primary outcome -**
 487 **move-on without subsequent placement breakdown**

	Odds Ratio	95% CI	P-value
Primary Analysis - unadjusted			
Supported Housing vs Residential Care	5.64	(2.30, 13.84)	<0.001
Floating Outreach vs Residential Care	28.81	(11.53, 72.02)	<0.001
Floating Outreach vs Supported Housing	5.11	(2.47, 10.57)	<0.001
Primary Analysis - adjusted*			
Supported Housing vs Residential Care	2.90	(1.05, 8.04)	0.04
Floating Outreach vs Residential Care	7.96	(2.92, 21.69)	<0.001
Floating Outreach vs Supported Housing	2.74	(1.01, 7.41)	<0.001
Association of service-user variables and primary outcome			
Age (years)	0.99	(0.97, 1.01)	0.373
Psychosis	0.63	(0.36, 1.09)	0.101
Length of stay with service (months)	0.99	(0.98, 0.99)	<0.001
Social function (LSP total)	1.01	(0.99, 1.03)	0.498
Unmet needs (CANSAS total unmet)	0.81	(0.70, 0.94)	0.006
Challenging behaviours (SPRS total)	0.98	(0.84, 1.13)	0.739
Drug use (CADS problematic use)	0.83	(0.39, 1.79)	0.642
Self-neglect &/or vulnerable to exploitation	0.58	(0.35, 0.98)	0.040
Association of service variables and primary outcome			
QuIRC-SA Social Interface domain score	0.95	(0.91, 0.98)	0.001
QuIRC-SA Human Rights domain score	1.09	(1.02, 1.16)	0.007
QuIRC-SA Recovery-Based Practice domain score	1.04	(1.00, 1.08)	0.054

488 All models fitted using xtlogit with a random intercept for service and fixed effect for area
 489 and service type

490 *adjusted for QuIRC-SA domains (Social Interface, Human Rights, Recovery-Based
 491 Practice), participant age, whether the participant had psychosis, length of stay with service in
 492 months, LSP total at baseline, CANSAS unmet needs at baseline, SPRS total at baseline, drug
 493 use assessed by CADs at baseline, self-neglect and/or vulnerability to exploitation.

494

Table 3. Service use and costs at 30-month follow-up.

Service	Residential care (n=141)			Supported housing (n=242)			Floating outreach (n=193)		
	N (%) using services	Mean (SD) contacts by users	Mean (SD) cost (£s)	N (%) using services	Mean (SD) contacts by users	Mean (SD) cost (£s)	N (%) using services	Mean (SD) contacts by users	Mean (SD) cost (£s)
<i>External staff</i>									
Care coordinator	65 (46)	3.2 (3.4)	55 (106)	144 (60)	4.0 (3.6)	91 (131)	48 (25)	4.2 (4.7)	40 (113)
Psychiatrist	55 (39)	1.2 (0.4)	49 (67)	101 (42)	1.2 (0.5)	55 (76)	42 (22)	1.3 (0.7)	30 (67)
Other doctor	92 (65)	3.1 (2.6)	91 (131)	124 (51)	2.7 (2.9)	59 (105)	84 (44)	3.0 (3.1)	57 (108)
Psychologist	7 (5)	2.3 (1.9)	16 (87)	8 (3)	1.8 (0.5)	6 (37)	6 (3)	3.3 (2.2)	14 (93)
CMHN	23 (16)	2.7 (1.9)	16 (46)	43 (18)	5.1 (4.6)	32 (99)	21 (11)	3.9 (2.5)	15 (53)
OT	5 (4)	3.0 (1.9)	2 (14)	14 (6)	2.3 (2.9)	3 (19)	17 (9)	1.5 (0.6)	3 (10)
Social worker	14 (10)	1.9 (1.4)	7 (27)	18 (7)	2.4 (1.8)	7 (31)	10 (5)	3.9 (7.1)	8 (70)
Counsellor	2 (1)	7.0 (4.2)	2 (21)	3 (1)	6.7 (4.7)	2 (20)	5 (3)	8.8 (6.9)	3 (21)
Art therapist	7 (5)	6.7 (5.5)	20 (148)	5 (2)	11.0 (8.6)	10 (84)	5 (3)	6.6 (4.5)	8 (51)
<i>Contact with supported accommodation staff</i>									
Planned face-to-face session	98 (70)	12.2 (11.4)	240 (417)	144 (60)	16.6 (16.1)	344 (683)	81 (42)	22.8 (34.6)	445 (1470)
Group session	93 (66)	9.5 (11.4)	63 (91)	96 (40)	11.4 (11.4)	62 (172)	15 (8)	4.6 (6.8)	4 (24)
Personal care	41 (29)	70.1 (49.8)	849 (3356)	5 (2)	97.4 (51.6)	46 (395)	0 (0)	-	0 (0)
Total non-inpatient costs			1434 (3501)			718 (906)			640 (1584)
<i>Inpatient care</i>									
Psychiatric inpatient	27 (18)	176.3 (211.1)	11,376 (39,336)	60 (25)	126.0 (149.1)	10,816 (31,900)	23 (12)	122.3 (175.5)	5011 (24,763)
Physical inpatient	20 (14)	8.4 (7.3)	671 (2286)	41 (17)	13.8 (27.0)	1352 (7068)	23 (12)	10.7 (23.2)	729 (4963)
Total inpatient costs			12,046 (39,356)			12,169 (32,281)			5739 (25,144)

Table 4. Mean (SD) costs by achievement of primary outcome

	Residential care		Supported housing		Floating outreach	
	Yes	No	Yes	No	Yes	No
Non-inpatient care	398 (317)	1552 (3676)	590 (713)	801 (1005)	240 (687)	1517 (2432)
Inpatient care	0 (0)	13,426 (41,339)	4754 (12,955)	16,978 (39,433)	1537 (7747)	14,407 (41,458)

Note: costs in 2013/14 £s

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