

12. Conclusion: The social dimension of infant well-being Nicola Shelton
The conclusion opens with a discussion of the question: was infant mortality a social problem or were social problems the cause of high infant mortality? It seems almost implicit in Newman's book title that either society as a whole had a problem because of high infant mortality rates or that individuals were to blame for their irresponsibility. Yet Newman recommended targeted social interventions. This concluding chapter then reviews each of the chapters drawing together significant themes.

Infant mortality: a continuing social problem?

Introduction

When Newman began writing 'Infant mortality' he would have been unaware that the sustained decline of infant mortality in England and Wales was probably underway and that levels would never return to those he was familiar with at the turn of the twentieth century. Newman proposed that infant mortality was a social problem. Rather than focusing on ascertaining what were the aetiological causes of the diseases of infant mortality he instead focused on the social conditions that led to the productions of these diseases. His thesis was that three sets of factors caused infant mortality, attributable to: the mother; the environment and the child. This chapter returns to this thesis in light of the work in this book and reviews the agenda for research set out in Chapter 3. Newman's approach involved social science in several ways. He did not believe in looking for a single cause for high infant mortality and as a social epidemiologist he was very keen on looking at the national picture, though he was aware that infant mortality varied greatly over space. By moving away from a mechanistic approach to public health medicine Newman reintroduced people and society into the equation, but this both humanised public health and demonised the people.

Newman's thesis

Infant Mortality was organised into eleven chapters (see Chapter 3 in this book). In chapter 1 Newman was concerned with the present position and incidence of infant mortality. The worry was that the infant mortality rate (IMR) was rising at a time of falling general death rates "despite immense improvements in the social and physical life

of the people” (Newman, 1906, p??). In chapter 2, which was concerned with the distribution of infant mortality in Great Britain, Newman pointed out that industrial areas in the north of England (including mining and textile areas) experienced higher than average infant mortality areas. He argued that the high IMR in the north, was not due to climate and topography or habits and customs as these had “like the climates much in common” and as people “on the whole treat their infants the same” (Newman 1906, p26). He then argued that “mere density of population” was also not one of the main causes of infant mortality, as London did not have the highest rate and that “density is an effect of the towns only” (Newman, 1906, p31). It was unclear at this point in the book what he believed to be the problem. In Chapter 3 Newman concentrated on the fatal diseases of infancy. He was concerned by increasing levels of diarrhoea, pneumonia and bronchitis and prematurity despite the introduction of vaccination, antitoxin and more general improvements in sanitation and public health. Ante-natal influences on infant mortality (chapter 4) were considered in detail. Much blame was cast on the poor health of parents caused by infections such as tuberculosis and syphilis and exposure to toxæmias through heavy metal poisoning (e.g. lead) and alcoholism. Long hours at work were also criticised and he recommended ‘no laborious toil’ for women during the last two months of pregnancy. In Chapter 5 Newman investigated the role of the occupation of women and infant mortality. He drew on commentary from John Simon that blamed mothers: “infants perish under the neglect and mismanagement which their mothers’ occupation implies” (Simon quoted in Newman, 1906 p??). Newman reported that the Factory Act of 1891 that prohibited mothers from returning to work within a month of birth was not being observed or enforced. Newman also drew on more feminist theories such as that of Collett who blamed the environment not the mother.

It was often unclear whether Newman’s own beliefs were in contradiction or support of those of the other reformers he reported. He reported that the type of work that (especially pregnant) women undertook was unsuitable. But then he sympathised that that they did so because their husbands were too sick to work or their wages too low. He criticised the length of the working day for women and numbers of days they worked and that there was no regulation of any housework and homeworking they also did. He

reported that there were problems with sanitation in factories; direct and indirect industrial injury and poor housing. Yet then he would blame the high IMR on bad feeding quoting from other reformers that there was “blind adherence to customs long since deservedly condemned”.

At the turn of the nineteenth century there had been a series of hot summers and the numbers of infant (especially diarrhoeal) deaths had soared so epidemic diarrhoea was an unsurprising focus of chapter 6. Newman blamed the inflated IMR on the combination of temperature, water supply and sewerage problems aggravated by flies and dirt floors. He reported that the milk supply was contaminated at source, in transportation and in storage. He noted that more infants born into higher social classes survived even when bottle fed, he believed due to better hygiene. It was in Chapter 7 on the influence of domestic and social conditions that Newman revealed his real beliefs about the causes of infant mortality. He essentially believed that it was not urbanisation, but urbanism that was to blame for the high IMR and he argued that the state needed to protect people from themselves. Perhaps unsurprisingly given his Quaker origins (see Chapter 2) Newman feared that it was drink to blame with the proximity to alcohol in urban settings.

In infant feeding and management (chapter 8) Newman returned to the topic of carelessness and alcoholism. Again the effects of the environment were dismissed; he reported that overcrowding was just as bad in Scotland and Ireland, but the IMR was lower and that it was feeding that made the difference. (It should be noted that much of the overcrowding in Scotland and Ireland would have been in rural areas). Newman clearly stated that “Infant mortality is a social problem concerning maternity” and that ignorance and carelessness directly caused a large proportion of the infant mortality (Newman 1906, p221). He emphasised this with the point that in some families in the worst districts all their children survived and in some families living in the best areas not all their children survived. He believed this was due to differences in knowledge, attention and care. This was clearly in contradiction with his tenet at the beginning of the book that behaviour and custom were the same everywhere.

Newman certainly believed that international and ethnic/religious cultural differences in behaviour existed. He discussed the benefits of prolonged nursing. He suggested that the higher IMR in England due to convulsions was brought on by meat being introduced into an infant's diet at three months in England compared to nine months in Scotland. He extolled the virtues of Norway and Sweden whose mothers used extended breastfeeding as a birth spacing strategy, and consequently also had lower infant mortality, but admitted they also had the advantage of lower summer temperatures, a smaller urban population and dry soil. The higher IMR in France was blamed on higher rates of wet nursing and infant feeding of pap (flour and water) in combination with poor accommodation and maternal occupation preventing breastfeeding. In Austria their much higher IMR was blamed on geography and the use of brandy in crèches. In Russia where rates were much higher again, Newman blamed a variety of problems: early marriage, poor hygiene, a lack of separate beds for infants, a lack of medical aid combined with ignorance and superstition and no breastfeeding because mothers were out at work.

Having more or less dismissed regional variations in the first chapter, Newman made comparisons between Derby, Finsbury and Brighton in Chapter 8. In Derby the higher IMR was blamed on the use of modified milk including the use of sweetened condensed milk, which was skimmed. Newman recommended this should be replaced with diluted cow's milk. In Finsbury, he found that the infants who were healthy at one month were mainly those who were breastfed and fewer artificially fed infants had survived to nine months. Newman suggested that diarrhoeal deaths in breastfed infants were due to dust and dirt on their comforters and their mothers' hands. He recommended the use of floor tiles and dustbins. In Brighton he reported that there were large numbers of diarrhoeal deaths due to artificial feeding with condensed milk, which gave less nutrition and was more liable to contamination. In Dorset the IMR and diarrhoeal rates were lower; Newman suggested this was due to the higher breastfeeding rates and that there was no factory employment. He also acknowledged that there had been sanitary improvement in the area and there was little overcrowding, wages were good and there was low unemployment, there was lower alcohol consumption, a good milk supply and medical aid was available.

In the final three chapters Newman made three sets of preventative recommendations to reduce infant mortality. These were based around the mother, the child and the environment. In Chapter 9 the focus was the mother. He recommended that there be a re-organisation of the care of mothers. He cited the lack of maternity insurance compared with Germany which offered a post and ante natal occupational maternity fund. France had a society for nursing mothers for the period of childbirth and first year postnally. The policy was to “feed the mother” in dining rooms (Newman, 1906, p260) partly to improve her breastmilk supply, but also because this cheaper than supplying infant milk. Returning to the argument that ignorance and carelessness were the causes of infant mortality, Newman also recommended education of mothers. He recommended that this education should involve the instruction of mothers, the appointment of medically trained lady health visitors, who would act as a friend and not an inspector offering advice and sympathy with tact, (see Reid, 2006) and the education of (school) girls in domestic hygiene. He thought that written instruction was not successful due to the low literacy levels. Despite in several earlier chapters Newman having extensively criticised maternal employment, in his recommendations he described it as “a necessary evil” and that mothers who worked should be offered support rather than being prevented from working. He recommended extending the Factory Act of 1861 to improve workplace sanitation and increase the provision of crèches. He also recommended an increased period of maternity leave from 4 weeks to 3 months post-natally and 1 month ante-natally to bring Great Britain more in line with the Swiss and Germans. Newman also suggested the introduction of maternity pay.

In chapter 10 Newman focused on the child: he recommended improved birth and other child related registrations including childcare, and improved feeding. He commented that artificial feeding occurred because mothers were unable or unwilling or found they breastfeeding impractical. As an alternative he recommended pure sterilised (cow’s) milk and improvements in the cleanliness of milking. He gave evidence of where artificial milk supply was improved infant mortality declined. Though sterilised milk did not prevent diarrhoea, weight loss was less than with other methods of artificial feeding.

Despite having focused much on the behaviour and attitude of mothers Newman did recommend improvements to the environment in his final chapter. He recommended urban cleanliness and again the control of the milk supply, improved sanitation in factories and homes, and the supervision of mothers' employment in dangerous trades with prohibition of employment before and after confinement. He drew upon the Report of Health of Sheffield (1904) suggesting improvements for urban cleanliness. These included abolishing privy middens, providing water closets, emptying dustbins, repairing defective drains and sewers, paving of streets and yards, and increased street cleaning. To control the milk supply, he recommended that milk production should be clean and sanitary, dairy cows should be healthy and that they should undergo veterinary inspection. He recommended improved standards in the sale and distribution including the use of bottling and that like in the US pasteurization should be replaced with sterilisation. Newman's book ended somewhat abruptly with this chapter.

What is this book about?

Garrett provided a brief overview of the reasons for marking the centenary of the publication of *Infant Mortality*: a social problem; the concepts underlying the structure of the book and an outline of the contents. The 1906 study was divided into eleven chapters which focused on, among other topics: the factors affecting infant mortality rates; infant and childhood diseases; ante-natal influences; female employment; domestic and social conditions; and preventive measures involving the mother, the child and the environment. and how do the chapters in this book fall into the three areas of mother child and the environment

Galley described the history of the work of Newman and his contribution to the debate on the social dimensions of infant mortality. Galley explained how and why George Newman came to write *Infant Mortality*. Birth in 1870 into a Quaker family gave Newman strong ideological views on society and welfare, and he developed his interest in public health through medical training. The work of Newman in several posts as Medical Officer of Health and other voluntary positions gave him exposure to society's worst problems and conditions and he developed a strong belief in social change as the operant condition for health improvement. He retained his Quaker faith and campaigned

solidly for temperance. Galley discusses the development of infant mortality as a problem of national importance at the end of the nineteenth century. The anticipated decline in infant mortality had not occurred despite sanitary improvement. Newman was appointed in 1900 as the MOH for Finsbury and by 1904 he had begun to write on infant mortality and feeding in the area. The publication of the Physical Deterioration Report in 1904 which looked at the causes of poor health in British Army recruits focused the nation's interest on infant mortality and the publication of *Infant Mortality* in 1906 was timely. Efforts did begin to focus on mothers, but it took time for many of Newman's recommendations to be implemented.

Woods considered the role of *Infant Mortality* as an agenda for research both at the time of writing and as a marker for such research during the twentieth century and beyond. Woods argued that Newman's study was especially influential in establishing infant and child health as a social as well as a medical problem. Newman's focus was on the persistently high levels of infant mortality especially in towns and cities and the timing within the first year of life of infant deaths. Contemporary analysis remains much the same. Newman then focused on epidemiological matters especially the influence of diarrhoea. Woods discussed how Newman's approach focused on the influence of the mother and the home and how this proved controversial. He also noted that Newman was in some conflict over which theories of his contemporaries to follow and unlike some of his peers also took poverty into account in explaining high IMR. Woods argued that Newman's work on alcohol (presumably influenced by his Quaker background see Galley, Chapter 2) was less stringent. Special prominence was also given by Newman and his contemporaries to infant feeding which then placed mothers even more centrally responsible for infant care. Woods criticized Newman's thesis of maternal indifference as responsible for high infant mortality. With the benefit of hindsight modern day observers have been able to isolate the reduction of poverty (including diet and living conditions) as the key influence in reducing infant mortality in the developed world. This was combined with external factors such as reduction in family size and affordable medical and ante natal care. Newman's reorientation of infant health onto the individual from the disease marked a departure in medical science and blame could then be cast on mothers.

But he also helped focused policy towards improved the welfare of mothers which paved the way for many of the maternal and infant health and welfare policies of today.

Smith and Oeppen

Sneddon brought to light some of the deficiencies in the analysis of late nineteenth observers of infant health. Following the mapping of infant mortality at registration district level by Woods and Shelton (1997) it became very clear that there were areas in England and Wales that had much higher infant mortality than might have been expected from their population density alone. Back in 1906 Newman had observed that population density was not the only cause of high infant mortality as London did not have the highest IMR nationally, but these deviations were not explored. Possibly the focus on non urban high IMR would have taken the weight off Newman's thesis of urbanism and were so ignored. More likely as it was large population centres that attracted full-time MOHs (Shelton, 2000), infant mortality in rural areas was not brought to a national focus.

Sneddon used data from the essentially rural and agricultural areas of the Fens, to illustrate a 'fenland penalty' with levels of infant mortality that were more comparable with towns like Leeds, Liverpool and Manchester from the 1850s until about 1880. This chapter illustrated that there was more to explain in the history of infant mortality than either population density or urbanism and that Newman was wrong to be dismissive of local cultural practices and environments affecting infant well-being.

Hall identified further geographical variation in infant mortality looking at the contribution of diarrhoeal mortality in Victorian and Edwardian Ipswich. Newman attributed many infant deaths to epidemic diarrhoea, particularly during hot and dry summer months. Many authors have also identified the rise in infant mortality rates in urban England and Wales at the end of the nineteenth century from this cause. In this chapter infant death registers were used to provide the actual dates of birth and infant death and therefore allow exploration of the seasonality and spatiality of death in rural and small town environments. The seasonal trajectory of deaths was found to be similar even where levels were different. In years were seasonal diarrhoeal rates were especially high infants born in all classes suffered from similarly elevated levels of mortality.

Finally Hall concludes that tackling the social problems of infant mortality through work of the local Medical Officer of Health and the lady health visitors were influential in the declines in infant mortality in Ipswich after 1900 and the improvements to the sanitary system were a necessary but not sufficient to initiate the fall.

Garrett and Davies analysed urban-rural differences in infant mortality in Skye and Kilmarnock. Newman had argued that the distribution of infant mortality in England and Scotland suggested ‘that there may be, broadly, a line of cleavage between urban and rural conditions’, the ‘study of which may throw some light on to the causes of infant mortality’. This chapter used the civil registers of births, marriages and deaths covering the Isle of Skye and Kilmarnock, during the later nineteenth century to provide such a study. Newman argued that rural life was better for infants because of ‘social conditions and domestic habits’. Garrett and Davies illustrated that the urban area of Kilmarnock had better life chances for part of the nineteenth century than would be expected for their urban environment. Garrett and Davies illustrated that the causes of death data for the two areas differs in quality. There were fewer medically certified deaths on Skye and more deaths certified to unclassifiable or ambiguous causes. The seasonality of deaths was used to infer causal patterns and respiratory diseases were seen to be more influential on mortality patterns on Skye which is unsurprising given the poor quality of housing. Garrett and Davies also identified an unusual pattern of neonatal mortality on Skye which may have been attributable to tetanus, possibly due to the methods of dressing the umbilical cord stump. It is likely that the social conditions and domestic customs on Skye were deleterious to *rural* infant health on Skye, which is in stark contrast to the view of Newman and his contemporaries.

Mooney and Tanner focused on the Notting Dale Special Area in Kensington, London and considered the establishment, at the turn of the twentieth century, of a bounded network of five streets identified as constituting a blemish on the reputation of larger districts. Special areas were identified as _____ and then interventions directed at these areas were then implemented as a spatialized remedy for socio-pathological evils. Overcrowding especially in common lodging houses, street

paving and road asphaltting were improved and access to clean water and lavatories were increased. Few policies were directly aimed at infants in the area despite local contemporary commentary that people too many children and a better class of mother was required, blaming parental neglect for the extremely high local infant mortality rates. The chapter discussed how the relationship between poor health and low morality was emphasized by commentators for an area that experienced infant deaths at the rate of 1 in 2 births in 1899, though some commentators acknowledged mothers were not deliberately neglectful, but rather ignorance led to neglect. Mooney and Tanner then illustrated how one scheme which was aimed at infants: the provision of crèches as had been suggested by Newman was received. Some observers criticised the provision arguing it encouraged mothers to work whereas other acknowledged that the female labour (mainly employed in laundries and cleaning) market was crucial, both to the women themselves and (more silently acknowledged) to the local upper classes. Similarly to previous chapters this work illustrated the importance of local circumstances in creating environments deleterious to the health of infants that was often ignored by Newman and also examines one of the mechanisms developed to counter these. Maternal employment as described as a necessary evil by Newman is well illustrated here.

Reid discussed the implementation of one of Newman recommendations through the instruction of mothers by domiciliary health visitors particularly in Derbyshire in the early 1900s. The increased regulation of the registration of births as recommended by Newman was instrumental in the health visitors knowing where and when to visit. Reid argued that it was difficult to establish the success of the schemes in reducing infant mortality as provision varied greatly and generally those living in worse of conditions were visited more often. Despite this certain groups in Derbyshire had lower than expected post neonatal mortality including those infants who were both artificially fed and received an early visit. The success of the healthy visiting schemes led to their adoption nationally for all mothers and the schemes remain in place today.

Dorling discussed how the patterns of infant mortality have changed in the twentieth century and that the largest decline was seen post 1951. Dorling argued that reduction in

poverty and access to affordable health care for all and development have brought about declines in all social groups. Key factors in the decline were the introduction of infant welfare schemes and the National Health Service, in the post second world war period. Despite very low levels of infant death in contemporary England and Wales inequalities still remain. Dorling attributed these to poverty. The continued evidence for infant mortality being a social problem throughout the twentieth century was presented here.

Kelly brought the volume to a close to with discussion of Britain's history for conducting birth cohort studies and results from the most recent study. Successive national birth cohorts (begun in 1946, 1958, 1970) and the regional Avon Longitudinal Study of Pregnancy and Childbirth in 1991/2) have shown the importance of early life environments for social and health inequality not just in infancy, but throughout the lifecourse. Since 1970 the demographic make-up of the UK population has changed dramatically and over 18,000 babies born during a 12 month period spanning the years 2000-01 were recruited into the Millennium Cohort Study (MCS). Kelly showed that although infant mortality was no longer a significant problem in the new millennium, social inequalities in infant health remained important and new inequalities, such as ethnicity, could now be identified.

Newman's legacy

Dorling has shown that there have been huge changes in the level of infant mortality. Reduction in infant mortality has occurred in all social groups and levels now in the UK are amongst some of the lowest in the world. Does inequality still remain? One of challenges in answering this question is how do we measure inequality across time, space and between social groups. The challenge in measuring inequality across time is two-fold alone. Due to the massive decrease in infant mortality rates between the nineteenth and the twenty-first century it is difficult to argue that the differences between rates of 200 and 100 per 1000 could be found in a society with half the inequality than that between rates of say 4 and 1 per 1000. Also the absolute numbers of infants experiencing the worst levels of mortality has declined, partly due to the significant declines in birth

rates in the twentieth century. Statistically as death rates tend toward zero, inequalities can tend towards infinity.

Wilkinson's hypothesis

Regardless of the level of inequality, the differences between mortality rates in the best and worst areas, or the richest and poorest groups (these may not always be interchangeable) highlight that potentially avoidable infant deaths still occur due to social inequity 100 years after Newman identified infant mortality as a social problem. The remainder of this chapter discusses Newman's legacy in terms of how contemporary policy relates to Newman's agenda for prevention and how contemporary debate on the subject of the social problem of infant mortality (and more wider infant health inequalities and morbidity) differ in their focus and policies. This chapter discusses whether blaming mothers/parents is supposed to help by virtue of then making them responsible and is still seen as the first step to educating them? And why is knowledge (perceived as) so partial and so divided by social class?

If Newman had been writing this book today how would have his approach to the social problem that was infant mortality been different? Certainly his audience would have changed. For the mother Newman wanted her educated through the appointment of lady health visitors and domestic hygiene education for girls. Both of these recommendations were adopted nationally. Currently marriage and parenting skills and personal hygiene now form part of the school National Curriculum for boys and girls; whereas domestic science education in schools was aimed primarily at girls until the 1970s. Newman encouraged local authorities to increase health visiting schemes. Though these are still run at local level they are now funded centrally. Newman would probably be pleased that interventionist models of medical provision that beleaguered his work towards the end of his career (see Galley, Chapter2) have been supplemented by if not replaced by a return to the provision public health information and education. The problem remains as to how well this information is targeted at and received by different social groups and the

education and instruction of (especially lower social class) mothers remains a thorny issue today.

All pregnant women in Britain are offered free antenatal education, but this concentrates mainly on the labour and the initiation of breastfeeding. Mothers are then visited for 10 to 14 days by a community midwife and then regularly by a health visitor for up to six months (National Collaborating Centre for Women's and Children's Health, 2003). Plans to increase postnatal midwifery support to between 1 and up to three months has been suggested in the Maternity Standard National Service Framework for Children, Young People and Maternity Services (DoH, 2004). Though the Acheson Report (Acheson, 1998) identified health visitors as the key workers providing services to mothers and babies and that evidence supported the importance of this early intervention to outcomes in later life. The regulatory body for health visitors CPHVA has criticised that the recommendation made in the Acheson Report to expand health-visiting services is the only recommendation that has not been taken on board and incorporated into policy and that health visiting is being marginalised by the National Service Framework for Children, Young People and Maternity Services. (CPHVA, 2005).

Recent plans in Scotland to stop health visiting after six weeks to higher social class mothers, who were not experiencing problems, have been heavily criticised (Scotsman.com, 30th November, 2005). The idea that high social class families do not need health visiting after six weeks suggests a view that they are more competent to deal with problems that might occur after six weeks than those who are poorer, not just that they will have fewer problems. The view of ignorance in poor mothers still persists. A further example is found in the guide for health professionals produced by the Maternity Alliance with funding from the Department of Health, on how to give effective healthy eating advice to disadvantaged pregnant women, as part of the Government's 'Healthy Start' scheme (Maternity Alliance, 2005). Again the suggestion is that ignorance remains in the lower social classes.

Newman's recommendation to ensure a good, clean, affordable milk supply for women who do not breastfeed has also (largely) been accomplished. Despite occasional alarming reports on contaminated (with for example botulism) formula milk, generally the supply is 'safe' and infant mortality from the use of formula in developed countries is rare (Scientific Panel on Biological Hazards, 2004; DOH, 2005). However its nutritional content remains somewhat in question. Powdered formula requires sterile preparation with the addition of clean, cooled boiled water. In one study 90% of formula feeds were found to have been incorrectly made up, putting the infant at risk of either dehydration or under-nourishment (reference). Also formula milk does not vary in its composition in the way that breastmilk does especially during the first six months of the infant's life. Recent work has recommended modifying the traditional National Center for Health Statistic/World Health Organisation curves of weight gain for infants (which were based on formula fed infants). Breastfed infants have been found to have slower weight gain after the first few months of feeding compared to formula fed infants, (de Onis and Onyango, 2003). The existing curves may have encouraged recommendations to mothers to supplement or replace breastmilk with formula as the babies would not necessarily have developed in line with the curves. There is an increased risk of obesity in later life for formula infants (Bandolier, 2005). This arguably abnormal weight gain by formula fed infants may also be one of the causes of this obesity.

Until very recently poorer mothers (mainly those on income support) in England and Wales were entitled to vouchers for free powdered formula milk, a scheme which had been in place since the 1940s. Breastfeeding mothers were offered vouchers to a much lower value than the formula ones for fresh milk for themselves (reference). This scheme was replaced in 2005 with a scheme to supply poor mothers with fresh milk, formula milk or healthy food vouchers (see Dorling chapter). The disenfranchisement of mothers may feel given that this policy suggests that they cannot decide on their own nutrition or as to what constitutes healthy food, is as yet unknown. This harks back to Newman's opinions on the ignorance of mothers. Feeding poor mothers had been suggested by Newman and his recommendation has now some 100 years later come into force.

Newman was concerned about pregnant women and mothers' exposure to environmental hazards. Conditions in the workplace have significantly improved and legislation to protect the health of pregnant women and nursing mothers is extensive (HSE, 2003). Exposure in pregnancy to lead and mercury as Newman rightly identified are harmful, and risk assessment in the workplace covers this and other hazards and changes are made to the work of women to prevent their exposure. Newman might be less pleased about the current policy towards alcohol consumption as it is more tolerant of alcohol than the attitude in his day. Mothers are warned about the dangers of alcohol and smoking in pregnancy. In Britain today pregnant women are a target group to be advised to stop smoking altogether (DOH, 1998), but Department of Health Policy recommends they may drink in moderation, defined as 1 to 2 units (2 glasses of wine, 1 pint of beer, 2 measures of spirits) per week (DOH, 2006). These limits are set despite the fact that all alcohol goes into the baby's bloodstream and there is no evidence that this is not harmful (Konovalov, Kovetsky, Bobryshev, Ashwell; Abel and Hanningan). In several other countries including France and the US the policy is zero alcohol consumption for pregnant women (Surgeon General, 2005; ICAP, 1999).

Newman recommended increased maternity leave (to give mothers a chance to breastfeed) and maternity pay (so they could afford to stay at home and continue to breastfeed). He had been trying to persuade employers to introduce maternity benefits and maternity leave schemes whereas now these are largely the responsibility of central Government. Maternity leave was introduced in England and Wales by the time Newman was writing, and in 1919 the ILO Convention on Maternity Protection led to the establishment of maternity benefits for working mothers (International Labour Organization, 1919). Since 2003, six months of paid leave (at 90% full pay for 6 weeks and £106 per week thereafter) are available to women in the UK who have been with employer for at least a year before the birth of the child and six months of unpaid leave for those with the employer less than one year (DTI, 2005). Contemporary international comparisons have shown that an extension in paid maternity leave is associated with lower infant mortality, whereas an extension in unpaid level does not (Ruhm 2000, Tanaka 2005).

In 2003 a World Health Organisation policy was introduced recommending increased exclusive (no artificial milk, water or other food) breastfeeding duration from four to six months for all infants (WHO, 2003). This was adopted by the Department of Health for England and Wales in 2004, though not as yet in Scotland (Shelton, 2005). This however is not currently matched by six months paid post-natal maternity leave. Maternity leave can be commenced at the request of the mother as early as 11 weeks before the expected date of delivery until the day of delivery. But if the mother takes one day or more of maternity related sick leave in the last four weeks prior to the expected date of delivery maternity leave commences that day (DTI, 2005). A mother would therefore have her post-natal maternity leave reduced to just 22 weeks without her choice. Plans to increase paid maternity leave to nine months are due to be brought in 2007 (DTI, 2005a). Only three weeks of post-natal maternity leave is compulsory (despite recommendations that women having a caesarean section, currently over 20% of deliveries (DoH, 2005) should refrain from heavy activities until they are recovered (NICE, 2005)). The short compulsory post-natal leave may encourage women (perhaps especially those who are self-employed) to return to work before they themselves are fit and at the expense of the best interests of the baby. Early maternal return to work (within six weeks of birth) has been found in the US to have negative effects on child health outcomes (Berger, et al 2002).

Nor does the WHO exclusive breastfeeding extension recommendation necessarily help to reduce social inequality. Specific breastfeeding initiation interventions aimed at lower income/social class mothers are usually required to this (Dyson, McCormick and Renfrew, 2005). No-one can be breastfeeding at six months who did not even initiate it. In 2000 91% of mothers whose partners were in social class I initiated breastfeeding compared to just 57% of mothers whose partners were in social class V and 50% of mothers who did not have a partner or whose partner's occupation was unclassified (IFS, 2000). Few women remained breastfeeding at four or six months in 2000, (possibly unsurprising given statutory maternity leave was then only 18 weeks). Extended breastfeeding (in addition to the supplementation with food) is now also recommended

after six months to over two years, (WHO, 2003) but only unpaid maternity leave is available for up to a further six months and only to those women who have been with same employer for at least a year prior to the birth. Those on low incomes or families where the mother is sole or major wage earner presumably cannot afford the luxury of such a long period without pay, creating a potential social inequality for infant health. Plans to introduce extended paternity leave (increasing the current two weeks paid leave to six months unpaid leave) have met criticism from the CBI due to the potential negative impact especially on small businesses (Politics.co.uk, 2005). The value of men in the wage economy is still clearly viewed differently to that of women some 100 years after Newman described the labour force participation of women (with children) as a necessary evil. Given that most childbearing women will average two pregnancies, at least two years outside of the labour force is acceptable for women, but a total of 12 months is viewed as unacceptable for men.

Newman's recommendation to increase the regulation of childcare was adopted. Local authorities were responsible for this until 2001 when OFSTED a national education monitoring body took over (OFSTED, 2003). Childcare registration is required and the quality of childcare is monitored, but there has been no Government policy to encourage the introduction of workplace childcare. Some employers do offer workplace crèche facilities and in some cases have discounted these especially where it is hard to attract staff e.g. London. As an alternative some employers have offered schemes to discount childcare payments to registered childcare providers through salary sacrifice (HMRC, 2004). In 2005 central Government introduced tax relief towards registered childcare for all employees and in 2001 also increased benefits for those families who are working and paying for registered childcare, but are on low income (Inland Revenue, 2005). Governmental and often employers' policies now encourage women with children to participate in the labour market.

As discussed above the targeting of policies at particular social groups (e.g. lower social class women, or poor mothers on benefits) one way of focusing services both historically (see Mooney and Tanner, 2006) and today without closely identifying individuals and

groups is to deliver national and local based initiatives. Following the Acheson report on inequalities in health (Acheson, 1998) the popularity for the delivery of services to geographically defined 'communities' was revitalised. Children were identified in the report as a group to which services should be focused. Sure Start was developed as a Government funded area level based initiative which aims to achieve better (health and well-being related) outcomes for children, parents and communities by increasing the availability of childcare for all children; improving and emotional development for young children and supporting parents as parents and in their aspirations towards employment. This aim was for this to be achieved first by helping services development in disadvantaged areas alongside financial help for parents to afford childcare and then rolling out the principles driving the Sure Start approach to all services for children and parents (SureStart, 2005). The Sure Start Programme currently comprises early education for all with free part-time early education for three and four year olds; more and better childcare (at least 250,000 new childcare places by March 2006), the development of children's centres which offer childcare and other support services, where they are needed most (defined as being the most deprived wards) and other locally developed and implemented programmes. All children (aged under 4) and their parents who are resident in SureStart areas are eligible to receive the services provided regardless of the parents' social status. Examples of the positive impact of local SureStart programmes include improvements children's behaviour, language development, improved interactions between mothers and children and a general improvement in family support services.

Other factors that led to the decline infant mortality

Partly due to Newman's social rather than aetiological approach and partly due to immense technological advances in the twentieth century there were several areas where he did not focus on potential change to improve infant welfare. Many things which have improved could have caused the changes he was hoping for. The biggest of these were improved medical care and the decline in poverty (see Woods and Dorling). Especially since the introduction of the National Health Service, many medical interventions have been aimed at maternal and infant welfare. These include immunisation, antibiotics and antiseptics for the control of infectious disease, and prescription medication and dental

care made free of charge to children, pregnant women and new mothers. Improved maternal care has also come in the form of obstetric care and antenatal and postnatal screening and monitoring. The poverty decline in the twentieth century came combined with technological change which made washing facilities and heating accessible and affordable. Improved maternal and infant diets with access to safer, better quality food led to increased disease resistance and decreased disease exposure. Targeted financial assistance such as child benefit introduced in 1977 also helped (reference). Demographic factors also played a part – the decline in fertility of which Newman’s contemporaries were so fearful led to a decline in later order ‘risky’ births and a decline in family poverty and overcrowding. Declines in both maternal (and possibly to some extent paternal) mortality also offered better survival chances for infants.

Inequalities in uptake (HSE SHS)

The health of our children

Newman’s legacy was that many of his recommendations have been developed into arguably successful policies. Unfortunately casting blame on mothers and the need for educating them remains a theme of current policy. Knowledge of good motherhood is still perceived as partial and divided by social class. Infant health and welfare is now also frequently monitored at the national level. Statistics including delivery type, breastfeeding initiation and immunisation uptake are routinely collected both at national level and also in sample surveys such as the Health Survey for England, the Scottish Health Survey and the Infant Feeding Survey and in cohort studies (references). Risk factor data such as income, single parenthood, ethnicity and mother’s age is also collected and the health of infants remains a social concern today. Regrettably potentially avoidable infant deaths and inequalities in infant health still occurs in Britain due to social inequity 100 years after Newman identified infant mortality as a social problem.

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