

INFANT MORTALITY REPORT

INTRODUCTION

This report is an overview on infant mortality as it relates to Wirral. It outlines the national infant mortality target, gives information on Wirral's progress towards the achievement of this target and provides recommendations for action. This report will be of use to anyone with an interest in inequalities and child health.

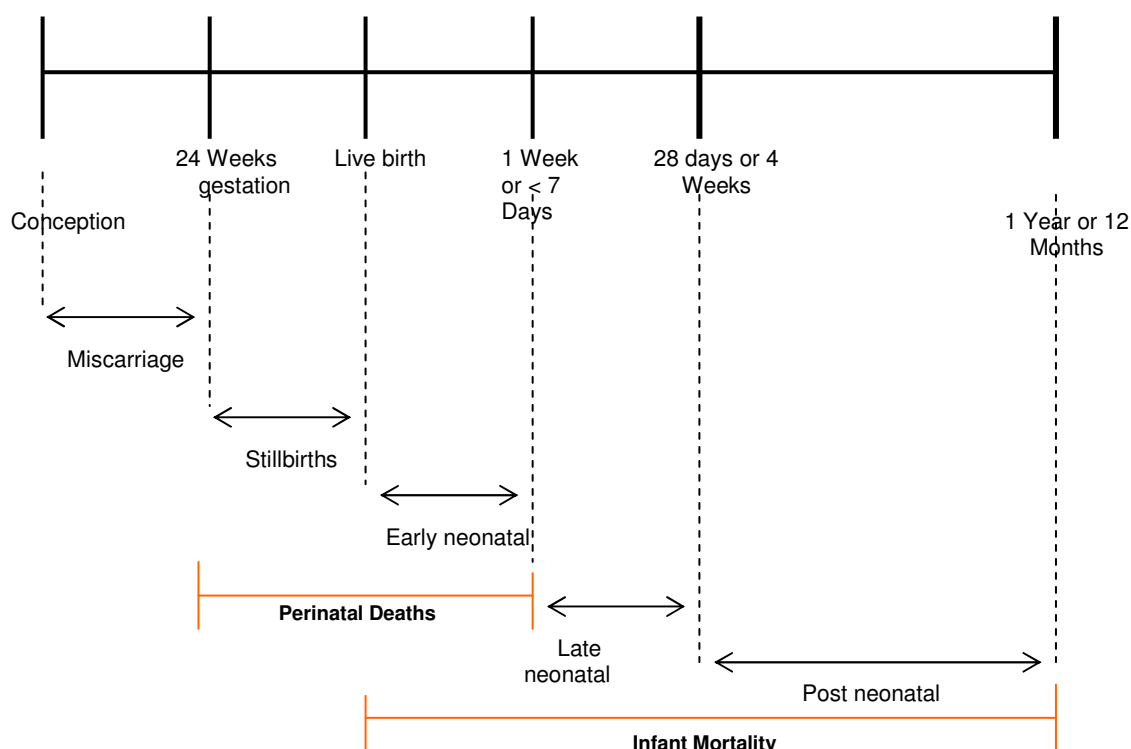
BACKGROUND

Infant mortality rates are calculated by 'the number of deaths of infants under one year per 1,000 live births'. It consists of two components:

- The neonatal mortality rate: The number of neonatal deaths (those occurring during the first 28 days of life) per 1,000 live births
- The post-neonatal mortality rate: The number of infants who die between 28 days and less than one year, per 1,000 live births

For a definition of infant deaths, please see Figure 1 below:

Figure 1: Definition of infant deaths



Infant mortality rate is also referred to as the infant death rate. It has long been used as a general indicator of the health of the population as it measures the well-being of

infants, children and pregnant women. Infant mortality can also be an important measure of the effectiveness of maternal and child health services and of equity of healthcare access among different population subgroups.

The majority of neonatal deaths are due to immaturity related conditions (caused by pre-term births), congenital conditions and sudden unexpected death in infancy (SUDI). These factors also demonstrate a socio-economic gradient; higher than average infant mortality rates for example have been found in babies whose mother were born outside England and Wales, young mothers, babies' whose fathers are in the routine and manual social class, babies registered by the mother alone and babies born in disadvantaged areas.

TARGETS

The national health inequalities target is: *Starting with children under one year, by 2010 to reduce by at least 10 per cent the gap in mortality between the routine and manual groups and the population as a whole. The baseline is 1997-99.*

Wirral's target is: *To decrease the infant mortality rate in Wirral by the same proportion as in England from 2000 to 2010.*

However, the target does not take into account all dimensions of health inequalities in infant mortality. Some particularly disadvantaged groups are excluded from the target and have a higher infant mortality rate than the general population, including:

- Births registered to lone mothers - socio-economic classification is based on the father's occupation. Additionally, this group has a higher proportion of teenage mothers, a quarter of births to teenage mothers are sole registrations compared to 6% of births in the population as a whole
- Occupational category determined as other - this includes the long-term unemployed, those who have never worked and students

This target is difficult to monitor at small geographic areas, such as Lower Super Output Area as the number of infant deaths in any given local authority among particular social class groups is very small and subject to random fluctuations year on year. However, monitoring infant mortality is essential so that trends in inequalities can be mapped.

DATA

The latest available national data (2005–07) confirm that rates in the routine and manual (R&M) group are continuing to improve. Although, the gap between the R&M group and the population as a whole widened to 19% from the target baseline of 13% in 1997–99, more recent data shows the gap to have narrowed slightly to 16% for 2005-07 (Department of Health, 2008). The infant mortality rate in England and Wales for 2005-07 was 4.9 deaths per 1,000 live births and the rate for those in the R&M group was 5.4 per 1,000 live births. The national health inequalities target to narrow this gap by 10% for infant mortality may be achieved (Department of Health, 2008).

The infant mortality inequities target is monitored using a three-year average rate to minimise problems caused by the relatively small number of infant deaths. Given the variations due to small numbers, local data should be analysed in the context of the range of local activities to reduce infant mortality in the target group, e.g. reducing teenage conceptions, smoking in pregnancy and incidence of SUDI. It is possible to monitor local progress in infant mortality using deprivation score as a proxy for socio-economic group (e.g. the target group). Wirral uses 20% most deprived LSOAs (lower super output areas), based on the Index of Multiple Deprivation 2004 as its proxy for data up to 2003-05. Data for the years 2004-06 and 2005-07 is based on the more recent Index of Multiple Deprivation 2007.

Infant mortality rate data are available from 1994 to 2007. These are extracted from the returns from the Office for National Statistics (ONS). Data are updated and provided on an annual basis. The infant mortality rate is very small at local authority level, so the data is provided as a three -year rolling average.

The latest Wirral figures available are from the period 2005-07. During this period the infant mortality rate was:

- 4.7 per 1,000 live births in Wirral
- 6.4 per 1,000 births in the 20% most deprived areas in Wirral

Data from 1999-2007 for England, Wirral, and the most deprived areas within Wirral are displayed in table 1 below.

Nationally infant mortality rates have shown a steady decline from 5.57 deaths per 1,000 live births in 1999-01 to 4.94 deaths per 1,000 live births in 2005-07. Local rates showed a downward trend until 2001-03, then during the 3 year period 2002-04 rates increased from 4.13 to 5.13 in 2003-05. This was followed by a slight decline in more recent years from 2004 to 2007. In general, from 2000 until 2007, Wirral rates have either been equal to, or slightly below the national average.

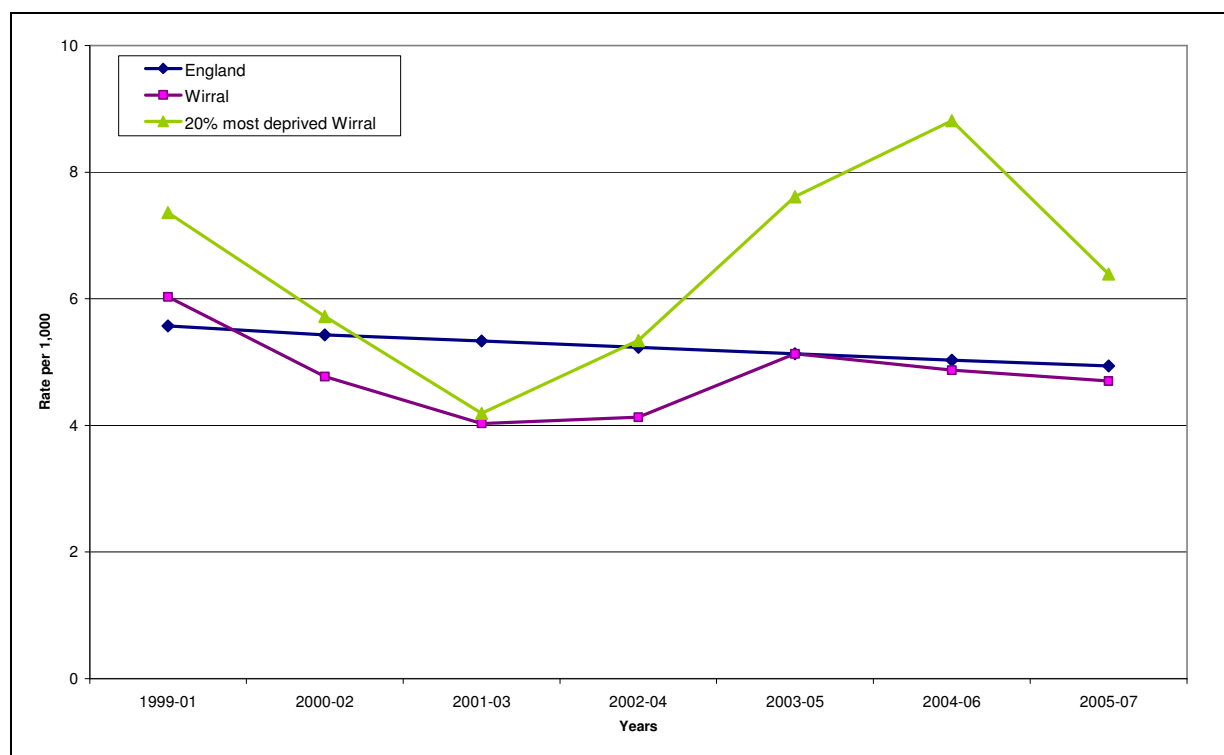
Table 1: Infant Mortality Rates per 1,000 in Wirral, 20% most deprived areas in Wirral, and England, 1999-2007 (3-year rolling rates)

Area	1999-01	2000-02	2001-03	2002-04	2003-05	2004-06	2005-07
England	5.57	5.43	5.33	5.23	5.13	5.03	4.94
Wirral	6.03	4.77	4.03	4.13	5.13	4.87	4.70
20% most deprived Wirral	7.36	5.72	4.19	5.34	7.61	8.81	6.39

Source: NCHOD (England rates), ONS Annual Birth & Death Extracts (Wirral rates)

The infant mortality trend for Wirral is further illustrated in Figure 2. The rolling 3 year average mortality rates for Wirral was below the national average from 2000-02 until 2002-04, but then rose to match that of England in 2003-05. In 2004-06 and 2005-07 it once again fell slightly to below the England rate. Mortality rates in the 20% most deprived lower super output areas (LSOA) have varied over time, but have generally been higher than Wirral and England. Fluctuations within these figures are to be expected due to the small number of infant deaths involved.

Figure 2: Infant Mortality Rates per 1,000 live births in Wirral and England, with 20% most deprived areas in Wirral 1999-2007 (3 year rolling rates)



Source: NCHOD (England rates), ONS Annual Birth & Death Extracts (Wirral rates)

EVIDENCE OF EFFECTIVENESS

Action to reduce the main causes of infant mortality

Immaturity related conditions

Pre-term birth (babies born less than 37 weeks gestation) is a significant cause of infant mortality. Prevention of deaths from immaturity related conditions focuses on preventing pre-term births and ensuring that babies who are born prematurely receive high quality healthcare through maternity and neonatal services. The following interventions are recommended to reduce the number of pre-term births:

- eliminate environmental factors, particularly smoking (discussed in greater detail below)
- ensure appropriate treatment of underlying medical disorders
- optimising preconceptual and prenatal maternal health
- reduce the number of teenage pregnancies
- provide targeted support for teenage parents

Congenital conditions

These are conditions or malformations present before or at the time of birth and include structural malformations, genetic and chromosomal defects, congenital infections and inborn errors of metabolism. Most congenital anomalies are detected

antenatally or in the neonatal period, hence the importance of effective screening programmes.

Early booking for antenatal screening tests by 10–12 weeks gestation allows for antenatal diagnosis and planned management. Ensuring that women in the R&M and black and minority ethnic groups book early and are able to access antenatal screening tests may help reduce infant mortality health inequalities. Newborn physical examination at birth and six weeks and newborn bloodspot screening may prevent infant deaths by detecting life-threatening congenital anomalies (e.g. congenital heart disease) before symptoms develop. However, current evidence suggests that uptake of neonatal screening programmes is not related in socio-economic factors. Consequently, newborn screening is unlikely to contribute significantly to reducing inequalities in infant mortality although it is likely to prevent infant deaths as a whole.

Sudden unexpected death in infancy (SUDI)

SUDI is most common within the first eight months of life. The risk is higher for males, pre-term and low birth weight babies and those sleeping in non-supine (on their front or side) positions. SUDI is more common in disadvantaged populations. There are a number of effective actions to prevent SUDI:

- ensuring infants sleep in the supine position
- ensuring infants sleep in a separate cot especially if parents smoke, have been drinking alcohol or have taken drugs
- ensuring infants sleep in the same room as their parents
- reducing parental smoking

SUDI have fallen in recent years, but evidence suggests that although these messages have been taken up by those in higher socio-economic groups, they have not been taken up by the R&M group.

Modelling suggests that a 1.4% reduction of the gap (of the 10%) required could be achieved if 1 in 10 of mothers from the R&M group currently sharing a bed with their baby or putting it down to sleep on it's front, could be persuaded to avoid doing so.

Key public health interventions to reduce the risk of infant mortality

Reducing smoking in pregnancy

Babies of mothers who smoked during pregnancy:

- are more likely to be born prematurely
- twice as likely to have a low birth weight
- up to three times as likely to die from SUDI

Smoking in pregnancy increases infant mortality by about 40% and is much higher in certain groups such as mothers from R&M groups and younger mothers. Among mothers aged under 20, 45% smoked through their pregnancy. This is almost three times higher than smoking rates for all pregnant women.

Modelling suggests that meeting the national target to reduce smoking in pregnancy – “to reduce the percentage of women who smoke during pregnancy from 23% to 15% by the year 2010” – in the R&M group would reduce the gap by 2%.

Reducing teenage pregnancies

In 2007, there were 40,298 births conceived to mothers under the age of 18 in England. Young women from the poorest backgrounds are 10 times more likely to become teenage mothers than young women from professional backgrounds. Infant mortality rates for babies born to mothers under the age of 20 are around 60% higher than for babies born to mothers aged 20 to 39 (7.6 per 1,000 live births compared to 4.7 per 1,000 live births for 2002–04).

Modelling suggests that achieving the teenage pregnancy target would make a 1% contribution to reducing the gap.

Improving maternal nutrition

Good maternal nutrition (preconceptually) is important for maternal and infant health. Neonatal deaths are more common in women who are underweight, overweight or obese before they conceive. High rates of obesity are seen in lower socio-economic groups and in black African or black Caribbean ethnic groups. Breastfeeding should also be actively encouraged to all mothers, particularly in the R&M group as they are less likely to initiate breastfeeding.

It is estimated that if the prevalence of obesity in women in the R&M group were to fall by 23% to the current levels of obesity in the population as a whole, this could equate to a 2.8% contribution to the infant mortality target.

Improving immunisation uptake

Immunisation protects children against diseases that can kill or cause serious long-term ill-health. Babies routinely receive vaccines to prevent illnesses in their first year of life. Inequalities in immunisation uptake are persistent and result in lower coverage for poorer families. PCTs should examine immunisation uptake rates to develop local plans to improve immunisation uptake for those most in need.

RECOMMENDATIONS

Wirral is currently exceeding the national and local targets set for infant mortality. Public health and other stakeholders should become complacent however, as very small differences in numbers can considerably affect percentage rates.

There are a number of initiatives that could contribute towards the inequalities in infant mortality:

- Reduce the number of teenage pregnancies in the R&M group, target prevention work with at-risk teenagers and provide targeted support for pregnant teenagers and teenage parents

- Reduce the incidence of SUDI in the R&M group, maintain current information to mothers and provide additional support to the target groups
- Reduce the smoking rate in pregnancy; provide smoking cessation support for the whole family before and after pregnancy and promote the risks of second-hand smoke on child health
- Reduce the prevalence of obesity in the R&M group; provide information and advice to the target group and encourage participation in effective weight loss programmes
- Ensure immunisation uptake is equitable and improve uptake for those most in need
- Target R&M and BME groups for early antenatal screening; complete a HEA of women booked by 12 weeks and > 22 weeks
- Ensure local implementation of the NICE guidelines for antenatal and postnatal care
- Long term actions should include; improving infant nutrition, reducing poverty and improving housing and reducing homelessness

If these initiatives were implemented, a reduction in the infant mortality rate in Wirral could be observed, particularly in the more disadvantaged areas.

References:

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