

# **Isle of Wight JSNA Briefing Note: Smoking in Pregnancy**

## Smoking in Pregnancy

### Background

#### Smoking in Pregnancy

Smoking impacts on the health of both mother and baby. On average, smokers have more complications during pregnancy and labour. Babies whose mothers smoke during pregnancy are more vulnerable to breathing problems, and are also significantly lighter and shorter than those born to non-smokers<sup>1</sup>.

Information on the smoking status of pregnant women at the time of their babies' delivery is collected routinely by the Isle of Wight NHS Maternity Department to report to the Department of Health, and this data is shown below.

IT constraints mean that it is not possible to analyse this data in detail, therefore additional datasets have been developed in order to assist our understanding of women who smoke during pregnancy:

- **Smoking at Booking data:** the Maternity Department collates data for all pregnant women who book for maternity services at the start of or during their pregnancy. This enables analysis by age of pregnant woman and by geography.
- **Smoking at Delivery data as recorded at the 6-8 Week Infant Checks:** the Health Visiting Department collates data for women at their infants' 6-8 week checks. This enables analysis by age of mother and geography, as well as an analysis of the correlation with other variables including birthweight and breast-feeding status at 6-8 weeks.

<sup>1</sup> Extracted from statement by the Chief Medical Officer, 2007, accessed at:

<http://www.dh.gov.uk/en/Aboutus/MinistersandDepartmentLeaders/ChiefMedicalOfficer/Archive/SmokefreeEngland/Smokingduringpregnancy/index.htm>

**Contents and Key Points**

The data and charts below show, for the Isle of Wight:

**Smoking at Delivery:**

- Nearly 300 babies each year are born to Island women who are current smokers.
- The Island's rate of smoking at delivery (% of new mothers who are current smokers) has consistently been very significantly higher (worse) compared with England.
  - In 2010/11 the Island rate was 22.1%,
  - In 2011/12 (Qs 1-3 aggregate) the rate is 22.9%.

**Smoking at Booking**

- Since 2008/09 the rate of smoking at maternity booking has averaged 22.8%, suggesting that relatively few pregnant women are giving up smoking during their pregnancy.
- There is a correlation between smoking status and age: smoking rates are highest among younger pregnant women.
- Geographically, the highest **numbers** of smokers are in Ryde and The Bays Children's Centre catchment areas, partly reflecting the higher numbers of births to women resident in these areas. Smoking **rates** are also slightly higher in these 2 areas, but they are among 6 of the Island's 8 Children's Centre catchment areas which have smoking rates higher than 20%.
- There is a correlation between smoking status and deprivation: smoking rates are highest among pregnant women resident in the more deprived areas of the Island.

**Smoking at Delivery – Data Collected at the 6-8 Week Infant Check**

- According to this dataset, the average rate of smoking at delivery since Jan 2009 is 20.1%. Annual rates are slightly lower than those collected by the Maternity Department at the time of delivery, as shown below.

smoking rate at delivery	2009/10	2010/11
collected by Maternity Dept at delivery	21.5%	22.1%
collected by Health Visiting Service at 6-8 week infant checks	18.4%	21.3%

- However this dataset does not exactly match the Maternity Department dataset, it does confirm that the IW smoking at delivery rate is considerably higher than the England average.
- This data shows the same patterns evident in the Smoking at Booking data – smoking rates are higher among younger mothers and those resident in more deprived areas, and the geographical patterns are similar.

**Correlation between Smoking at Delivery and Breast-Feeding at 6-8 Weeks**

- The rate of breast-feeding is considerably lower among mothers who smoked at delivery. Essentially the same group of mothers who were smoking at delivery have also stopped breast-feeding by the time of the infant 6-8 week checks.

**Correlation between Smoking at Delivery and Low Birthweight**

- Smoking prevalence at delivery (the % of mothers who smoked) is considerably higher (worse) among infants of low birthweight.

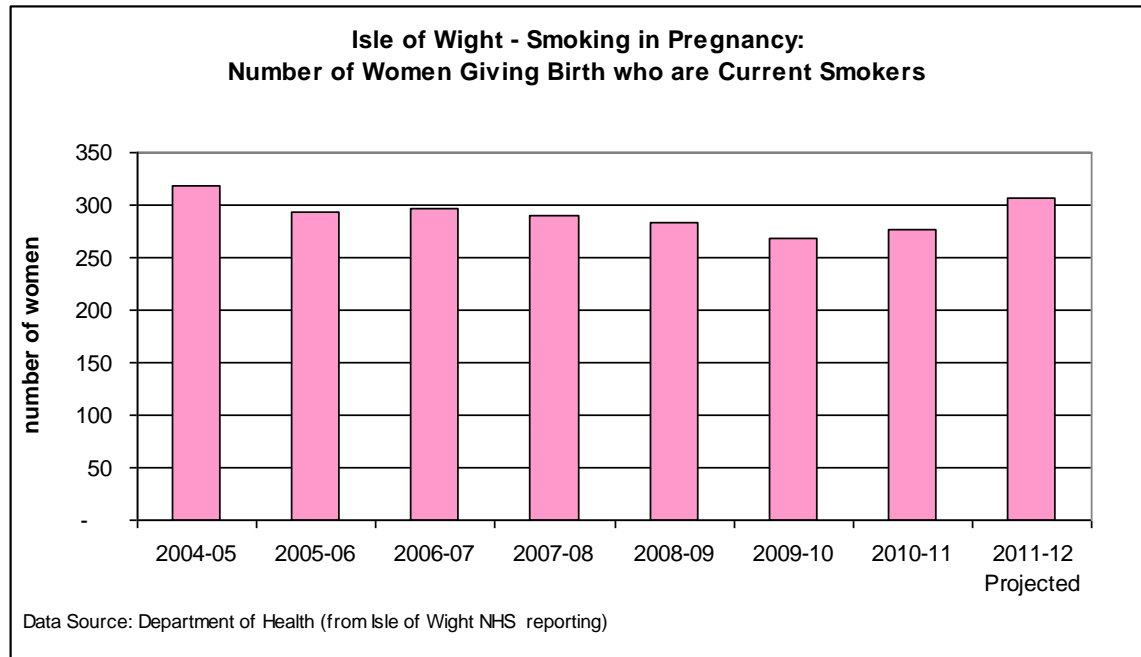
**Smoking at Delivery – Number of New Mothers who are Current Smokers**

**Isle of Wight – Number of Women who are Current Smokers at Delivery**

The chart alongside shows that nearly 300 babies each year are born to Island women who are current smokers.

Based on Qs 1-3 data, the 2011/12 number is projected to be slightly over 300.

Data Source: IW NHS Maternity Department reporting to the Department of Health



**Smoking at Delivery - % of New Mothers who are Current Smokers**

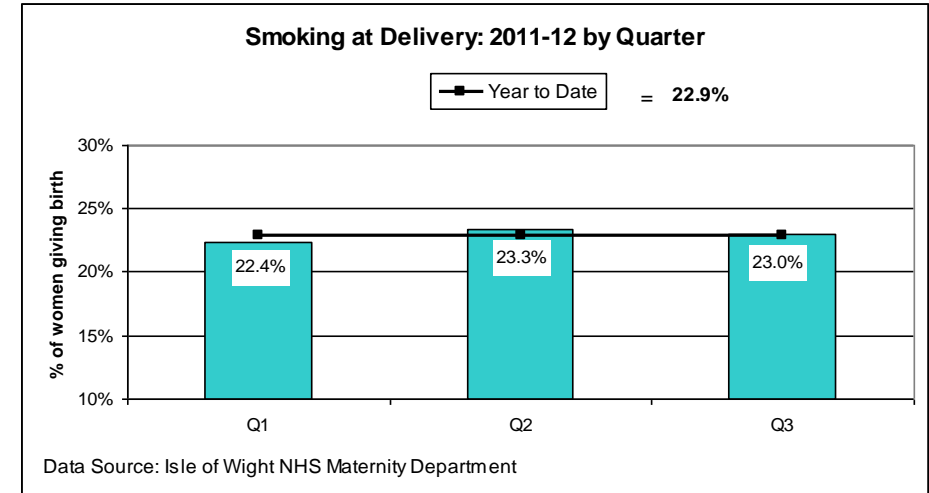
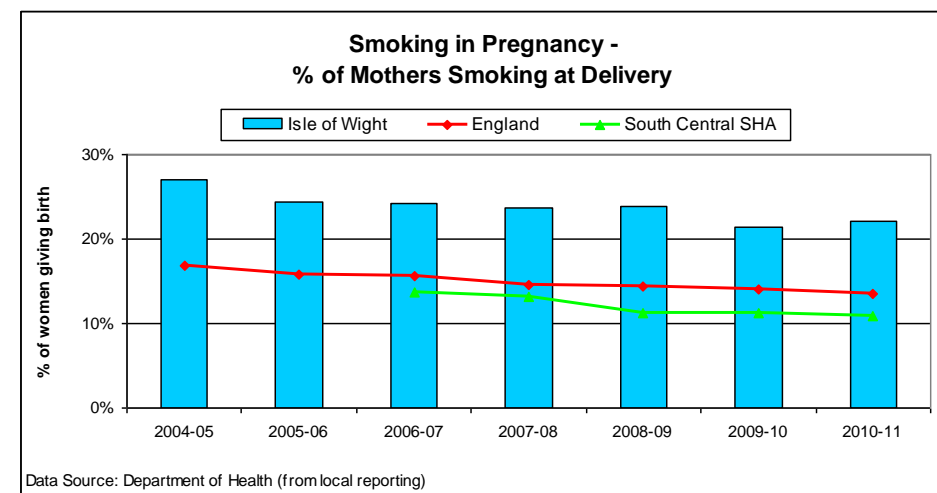
**IW & Comparative Rates of Smoking at Delivery**

The IW rate of smoking at delivery has consistently been very significantly higher (worse) than the comparative rate for England, the worst in South Central Strategic Health Authority and one of the worst in England.

The Island's 2010/11 rate was 22.1%, compared with 13.5% in England.

**IW Smoking at Delivery Rates – 2011/12 To Date**

The IW rate has continued at an average of 22.9% for the year to date in 2011/12.



**Smoking at Booking - % of Pregnant Women who are Current Smokers**

Detailed data on women’s smoking status at the time of their maternity booking is available for the period starting in January 2007.

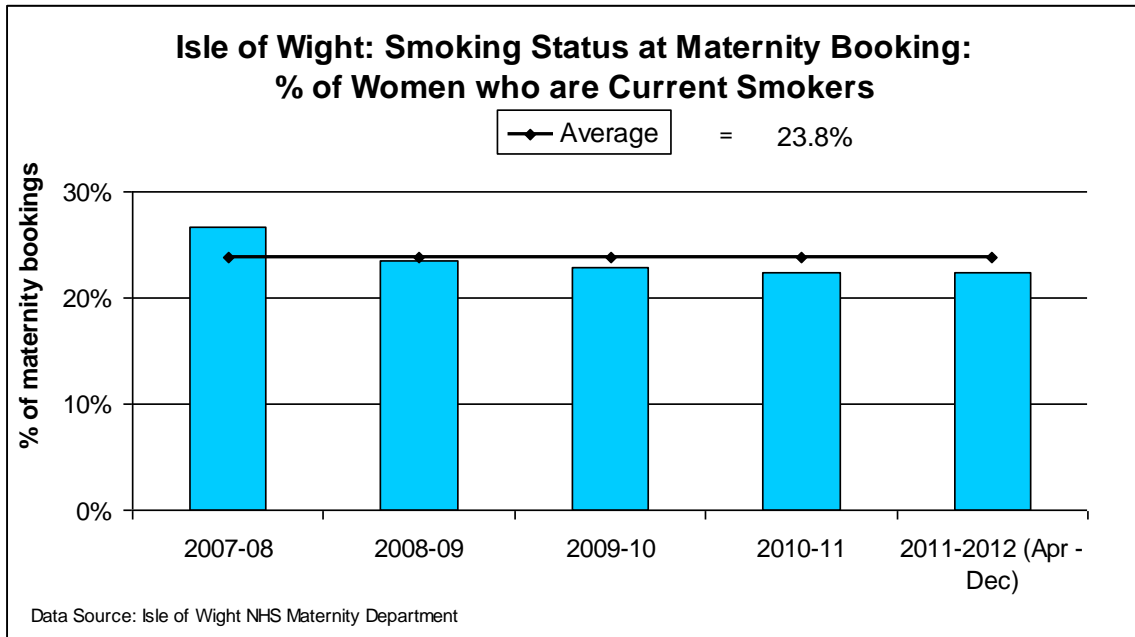
**IW Smoking at Booking Rates**

In 2007/08 the smoking at booking rate was 26.6% and, including that rate, the average since then has been 23.8%.

Since 2008/09 annual rates have been within a range of 22.3% - 23.5%, and have averaged 22.8%.

Although IT constraints mean that it is not possible to make a direct comparison between this dataset and the Smoking at Delivery dataset, there are relatively small differences between these smoking at booking rates and the smoking at delivery rates shown above. This would imply that relatively few smokers have given up smoking during their pregnancy.

Data Source: IW NHS Maternity Department data provided to the Public Health Department

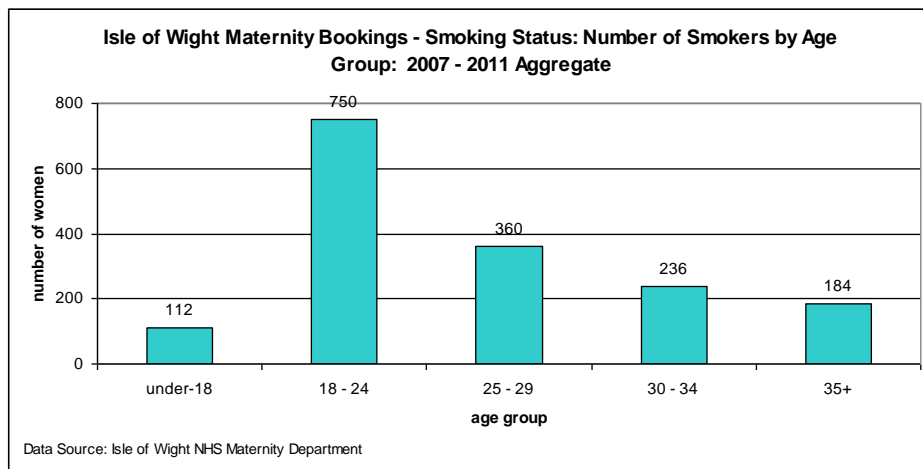


### Smoking at Booking: Age of Current Smokers

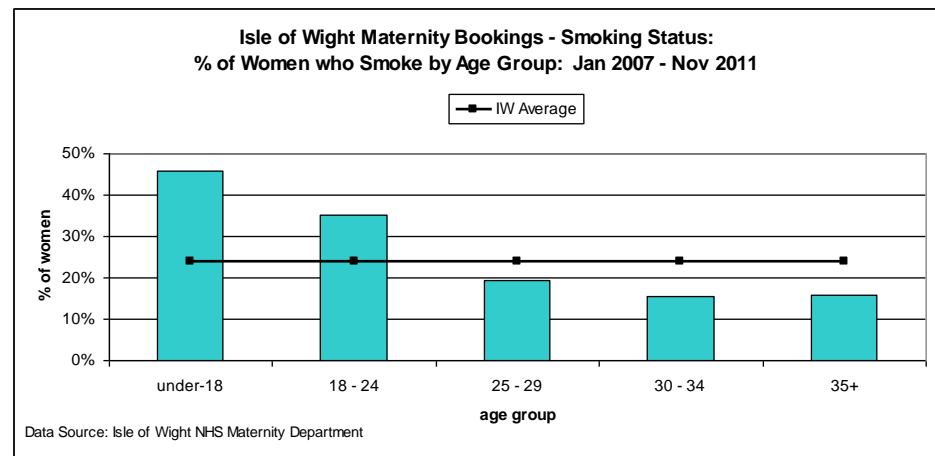
The charts below show a close correlation between smoking status at booking and age, in that, in the period 2007 – 2011 aggregate:

- Over 50% of current smokers were aged under 25.
- The highest smoking rates were in the younger age groups.

#### Number of Smokers by Age Group



#### % Rate of Smokers by Age Group



### Smoking at Booking: by Children's Centre Catchment Area

Smoking status has been measured for Children's Centre catchment areas, which provide a convenient sub-Island geography and the data is also relevant for Children's Centres' commissioners and for the Centres themselves.

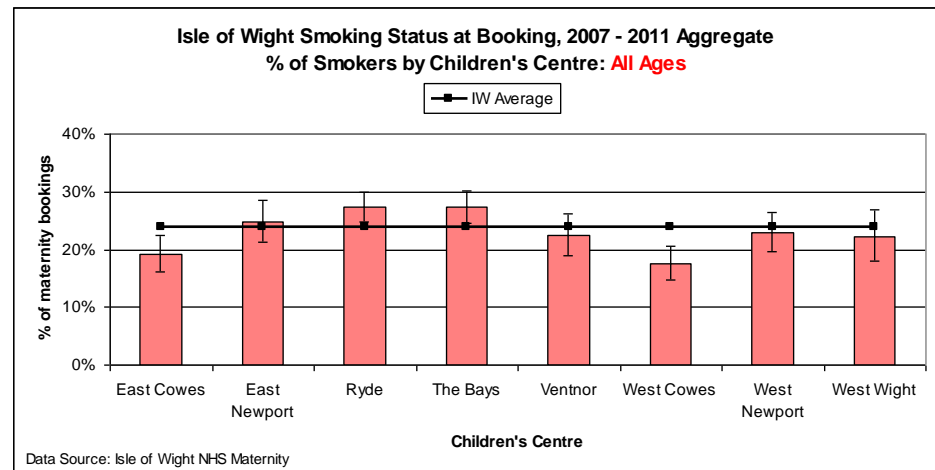
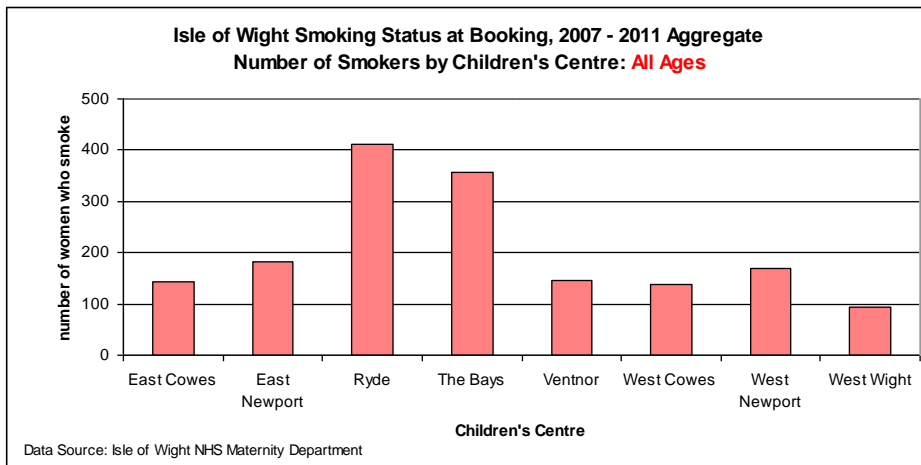
#### Number of Smokers by Children's Centre Catchment Area

The highest **numbers** of smokers are in Ryde and The Bays catchment areas. This partly reflects the fact that there are more births to women resident in these areas.

#### % Rate of Smokers by Children's Centre Catchment Area

The highest **% rates** of smoking are also in Ryde and The Bays catchment areas. However 6 of the Island's 8 Children's Centre catchment areas have smoking rates higher than 20%.

The confidence intervals of these rates largely overlap with each other and with the Island average rate, so the differences between them might not be statistically significant.



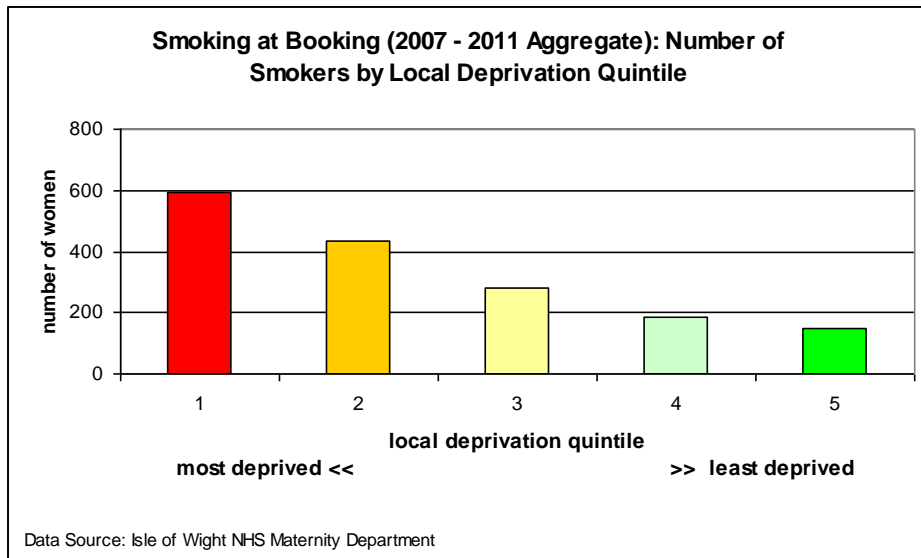


### Smoking at Booking: Correlation with Deprivation

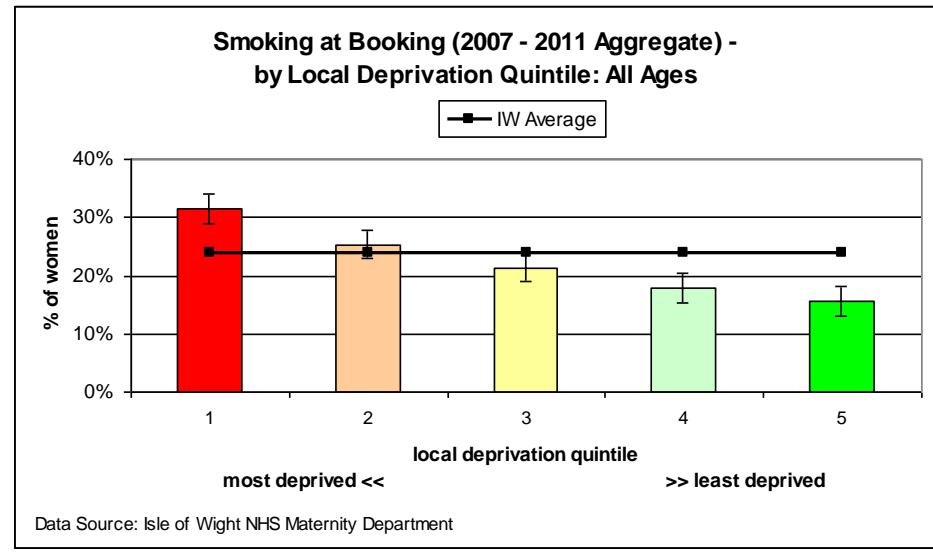
The charts below show a close correlation between smoking status and deprivation (based on the 2010 Index of Multiple Deprivation), in that, in the period 2007 – 2011 aggregate:

- 36% of current smokers lived in the areas among the 20% most deprived on the Island; and 63% lived in the areas among the 40% most deprived.
- The highest smoking rates were in the most deprived areas of the Island.

#### Number of Smokers by Local Deprivation Quintile



#### % Rate of Smokers by Local Deprivation Quintile



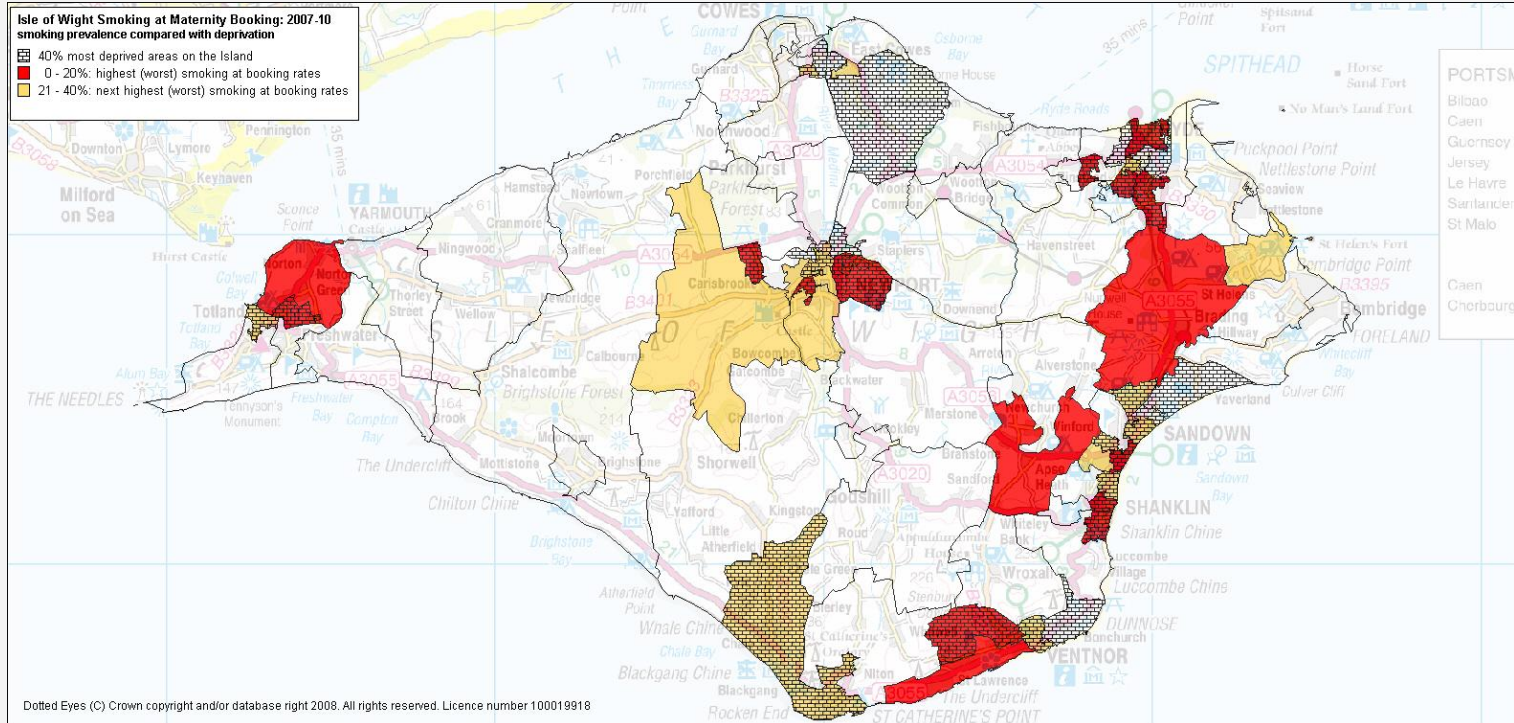
## Smoking at Booking: Correlation with Deprivation (continued)

### Smoking at Maternity Booking - Correlation with Deprivation

The map alongside shows:

- Areas of the Island with the highest prevalence (red shading) and next highest prevalence (amber shading) of smoking prevalence at maternity booking.
- Areas of the Island which are among the 40% most deprived on the Island (patterned background).

The map shows some overlap between areas of **high smoking prevalence** and **high deprivation**. However as shown on the previous page, the overall correlation between the two is very strong.



**Smoking Status at Delivery – data collected at 6-8 Week Infant Checks**

Since 2008-09, the NHS has been required to collect and report data on infants’ breast-feeding status at the time of their 6-8 week checks. This data is collected by the NHS Health Visiting Service, which has collated for the Public Health Department additional details about mothers’ smoking status at their infants’ delivery, and the mothers’ age and postcode of residence, enabling geographical analysis.

This data is available from the start of 2009. It has not been possible to collect this data for 100% of infant 6-8 week checks because of capacity issues in the Health Visiting service. However the dataset includes details for approximately 80% of all live births since then.

Data Source: Isle of Wight NHS Health Visiting Service

**IW Smoking at Delivery Rates – collected at 6-8 Week Infant Checks**

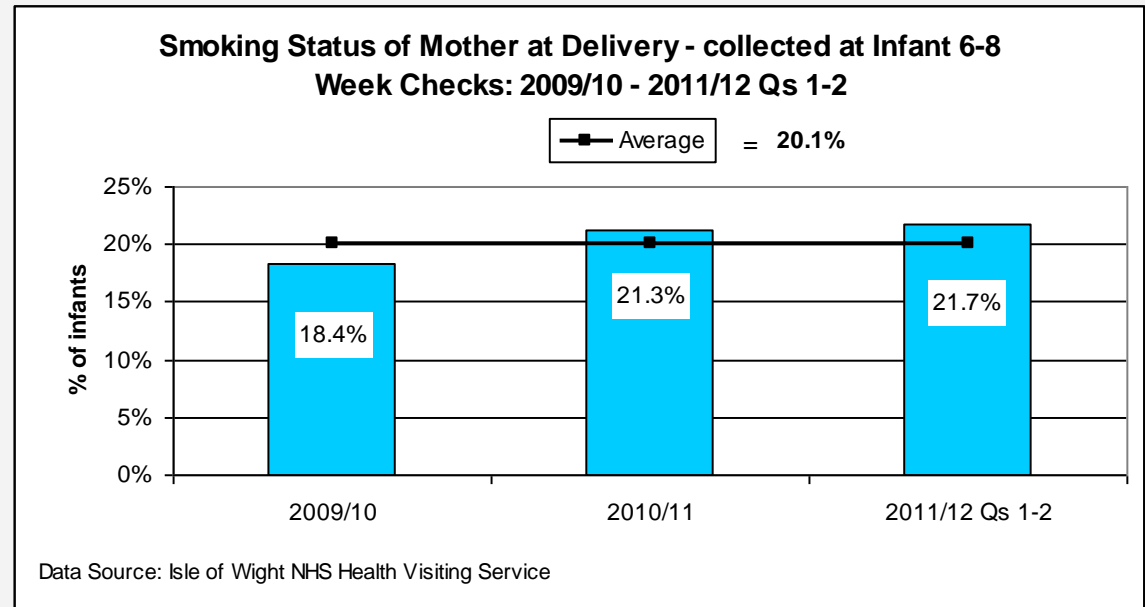
The chart alongside shows smoking at delivery rates based on data collected by the Health Visitors at the 6-8 week infant checks.

These rates are slightly lower than those collected by the Maternity Department at the time of delivery, as shown below.

smoking rate at delivery	2009/10	2010/11
collected by Maternity Dept at delivery	21.5%	22.1%
collected by Health Visiting Service at 6-8 week infant checks	18.4%	21.3%

As stated above the Health Visiting data is less comprehensive than the Maternity data. There will also be an in-built mismatch, since some infants born late in one year will have their 6-8 week check early in the following year.

However the Health Visiting dataset does provide a cross-check with the Maternity dataset, and confirms that the IW smoking at delivery rate is considerably higher than the England average (13.5% in 2010/11).



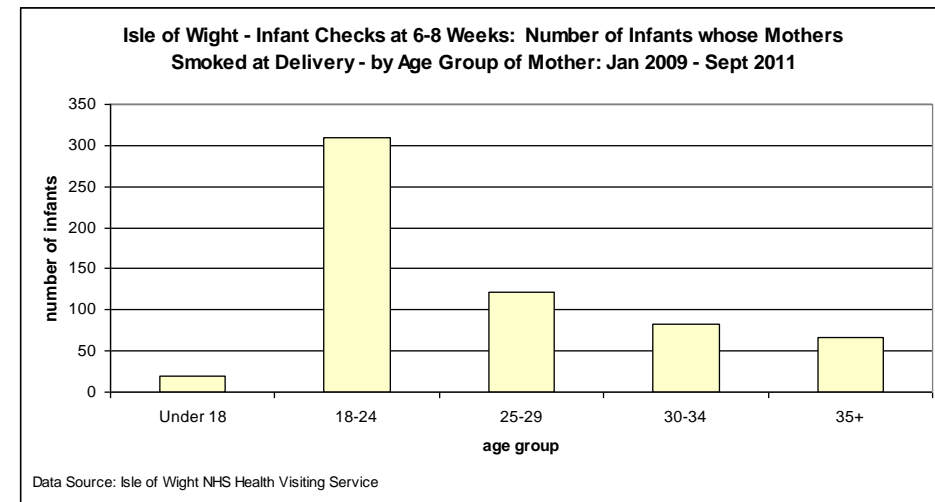
**Smoking Status at Delivery – data Collected at 6-8 Week Infant Checks**

The analyses undertaken for smoking at booking data above have also been undertaken for the smoking at delivery data collected at the infant 6-8 week checks. Aggregate data for Jan 2009 – Sept 2011 broadly shows the same patterns for age of mother, Children’s Centres and deprivation, as shown below.

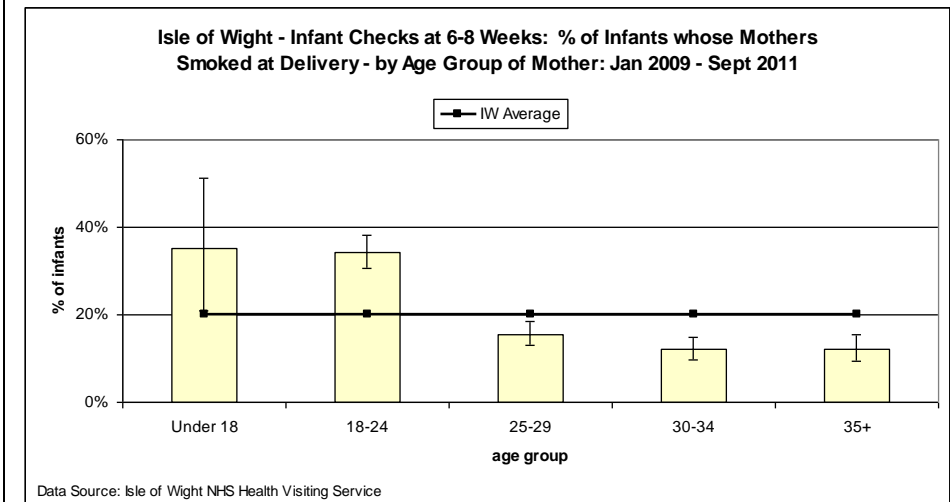
**Smoking Status by Age**

The charts below show a close correlation between current smoking status and age – younger mothers are more likely to smoke.

**Number of Smokers by Age Group**



**% Rate of Smokers by Age Group**

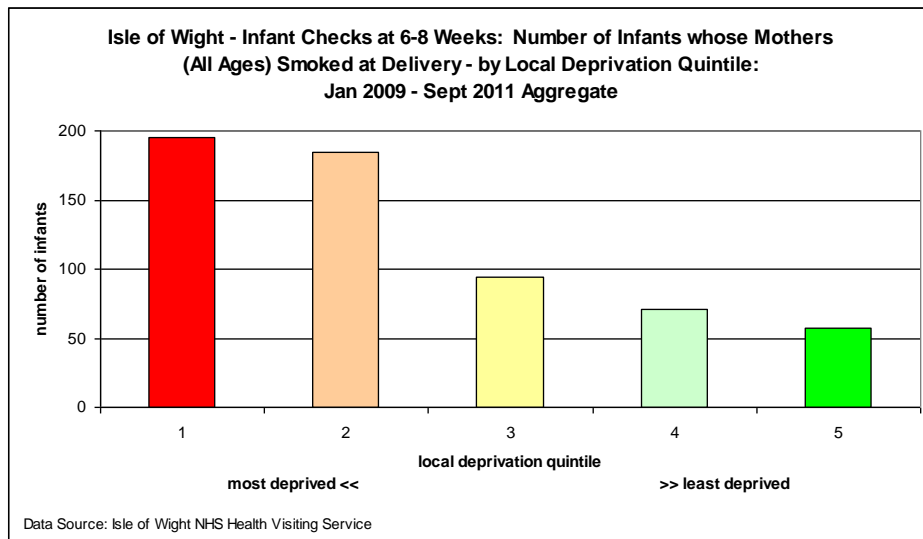


**Smoking Status at Delivery – data Collected at 6-8 Week Infant Checks**

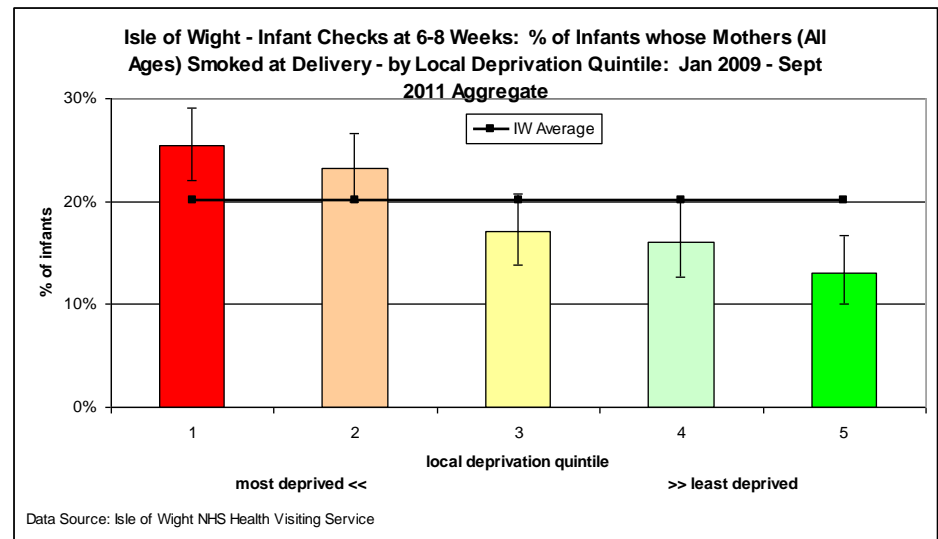
**Smoking Status by Deprivation**

The charts below show a close correlation between current smoking status and deprivation – the majority of mothers who smoke are resident in more deprived areas, and smoking rates are higher in more deprived areas.

**Number of Smokers by Local Deprivation Quintile**



**% Rate of Smokers by Local Deprivation Quintile**



**Smoking Status at Delivery – data Collected at 6-8 Week Infant Checks**

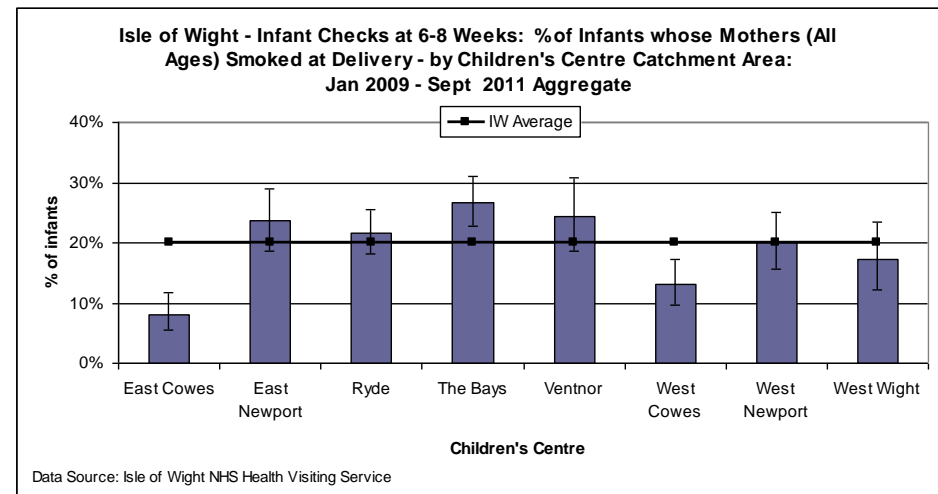
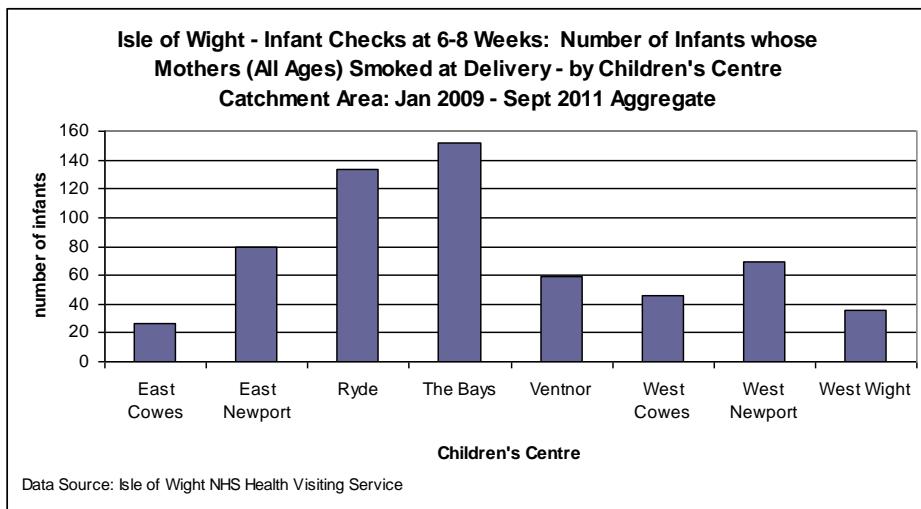
**Smoking Status by Children’s Centre Catchment Area**

**Number of Smokers by Children’s Centre Catchment Area**

The highest **numbers** of smokers are in The Bays and Ryde catchment areas.

**% Rate of Smokers by Children’s Centre Catchment Area**

The highest **rates** of smoking are in The Bays and Ventnor, followed by East Newport and Ryde.



### Smoking Status at Delivery and Breast-Feeding Status

Breast-feeding status and smoking status at delivery are both collected at the infant 6-8 week checks, enabling an analysis of the correlation between them. This is shown in 2 ways below.

The key point is that essentially the same group of mothers who were smoking at delivery have also stopped breast-feeding by the time of the infant 6-8 week checks.

#### Infants whose Mothers Breast-Feed (Fully or Partly) by Mothers' Smoking Status

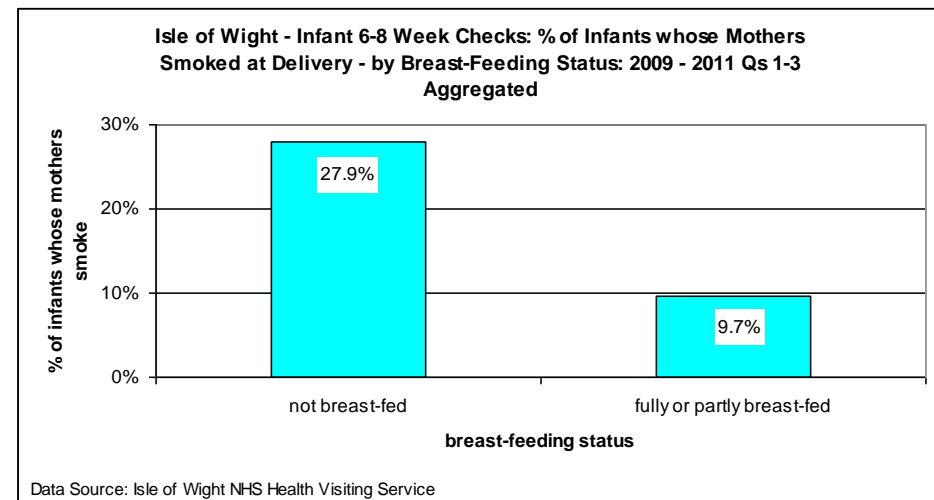
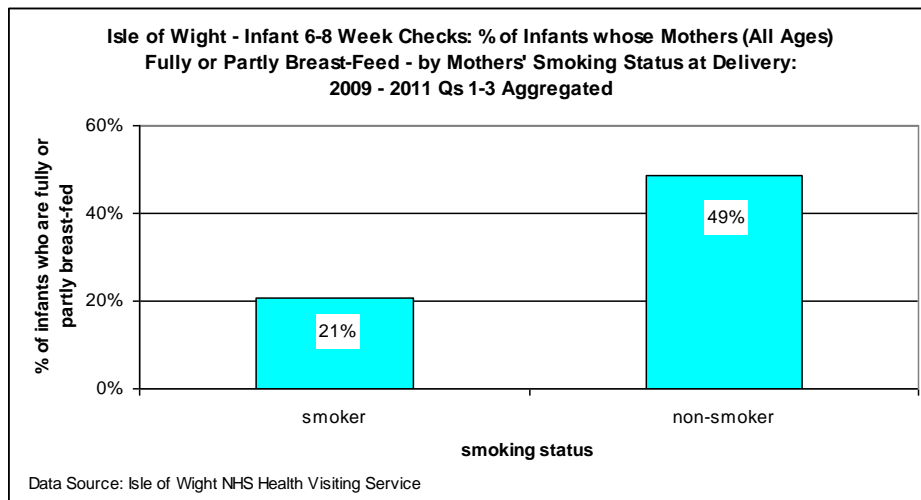
This chart shows that the rate of breast-feeding is considerably lower among mothers who smoked at delivery. The % of mothers who breast-feed (fully or partly) at the 6-8 week infant check is:

- 49% among mothers who did not smoke at delivery.
- 21% of mothers who did smoke at delivery.

#### Infants whose Mothers Smoke by Breast-Feeding Status

This chart shows that smoking prevalence is considerably higher among mothers who do not breast-feed. The % of mothers who smoked at delivery is:

- 27.9% among mothers who do not breast-feed at all at the 6-8 week infant check.
- 9.7% among mothers who do breast-feed (fully or partly) at the 6-8 week infant check.



### Smoking Status at Delivery and Low Birthweight

Mothers' smoking status at delivery is collected and infant birthweight is recorded at the infant 6-8 week checks, enabling an analysis of the correlation between them.

In the aggregate period Jan 2009 – Sept 2011, 6.6% of infants in this dataset were recorded as being of low birthweight. This is slightly lower than the IW average for this period (7.5%), probably reflecting the gaps in this dataset mentioned earlier. However it is sufficiently close for the dataset to be considered robust enough to undertake this analysis.

The chart alongside shows the % of mothers who smoked at delivery among infants with a:

- Low birthweight (under 2,500g): 35.5% of these infants had mothers who smoked at delivery.
- Healthy birthweight (2,500g & over): 19% of these infants had mothers who smoked at delivery.

The confidence intervals of the 2 groups do not overlap, suggesting that this is likely to be a statistically significant finding.

The key point is that smoking prevalence at delivery (the % of mothers who smoked) is considerably higher (worse) among infants of low birthweight.

