## Smoking during Pregnancy

The data for this profile are taken from both publicly available data (Office for Health Improvement and Disparities 'Smoking Profile', referenced hereafter as 'SP') and from locally sourced maternity provider datasets (referenced hereafter as 'MPD'). At times there are small disparities between these figures. This is typically due to differences in how the statistics are calculated, or the timeframe for the data used in each instance. Throughout this profile, the authors will identify the source of the data and note any relevant discrepancies.

### Summary points

- 8.4% of all maternities in Bristol, North Somerset and South Gloucestershire (BNSSG) ICB are smoking at the time of delivery (SP, 2022/2023).
- In Bristol, local maternity provider data suggests that 8.3% of women are smoking in early pregnancy (at the time of maternity 'booking appointment'), and this reduces to 7.4% at the time of delivery (MPD, 2023/2024).
- Rates of smoking in pregnancy vary across the city, associated to a large extent with patterns of socioeconomic deprivation

All smoking is harmful. Smoking during pregnancy is very likely to be harmful for the baby, potentially leading to reduced blood supply to the developing baby and poor growth. It is the major risk factor associated with miscarriage, still birth, premature birth and neonatal mortality.

Although Bristol's rates for neonatal death and still-birth (both strongly associated with smoking) are similar to the English average, further work is required to understand the geographical variations across the city. For more information refer to the Smoking Profiles - see 'Further data' below.

Pregnant women who smoke are encouraged and supported to give up at multiple points along the maternity care pathway. Women are asked about their smoking status at their first antenatal appointment (the 'booking' appointment) and at the time of delivery of their baby.

Smoking in early pregnancy has been steadily reducing in Bristol, from 15.1% in 2013/14 to 8.3% in 2023/24. Smoking at time of delivery has been reduced similarly, from 14.1% to 7.4% over the same timeframe. This data suggests a crude estimate of 'apparent quits' between 4-11% of all pregnant women will quit between time of booking and time of delivery. See figures 1 and 2 for more details.
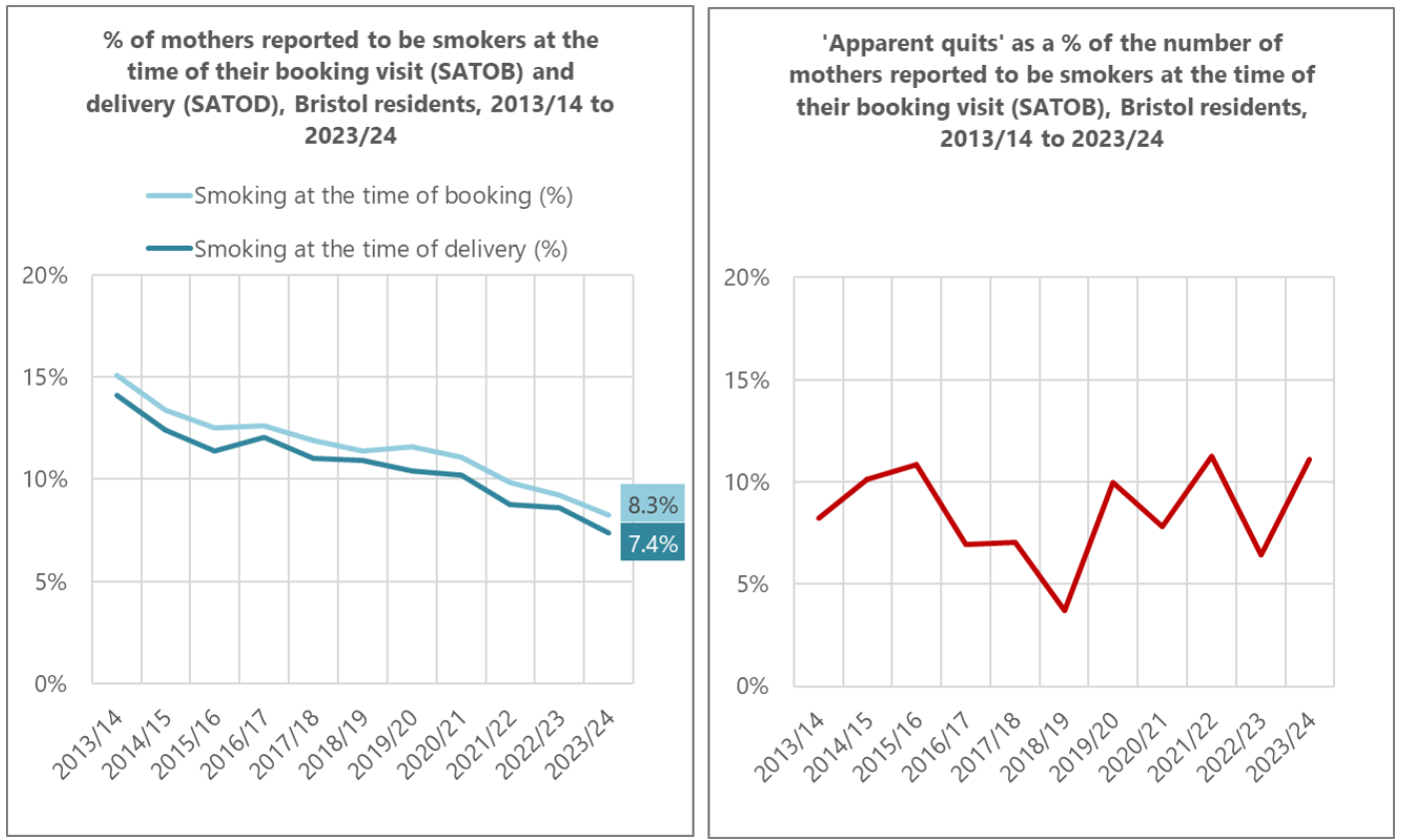
Figures 1&2: % of mothers reported to be smokers at the time of booking (SATOB) and delivery (SATOD), and 'apparent quits', Bristol maternities, 2013/14 to 2023/24.Data Source: Local maternity provider dataset collated by Public Health, Bristol City Council

Figure 3 below shows that the proportion of women who are smoking at time of delivery has been very similar to the England rate since 2014/15, and has declined at a similar rate since then.
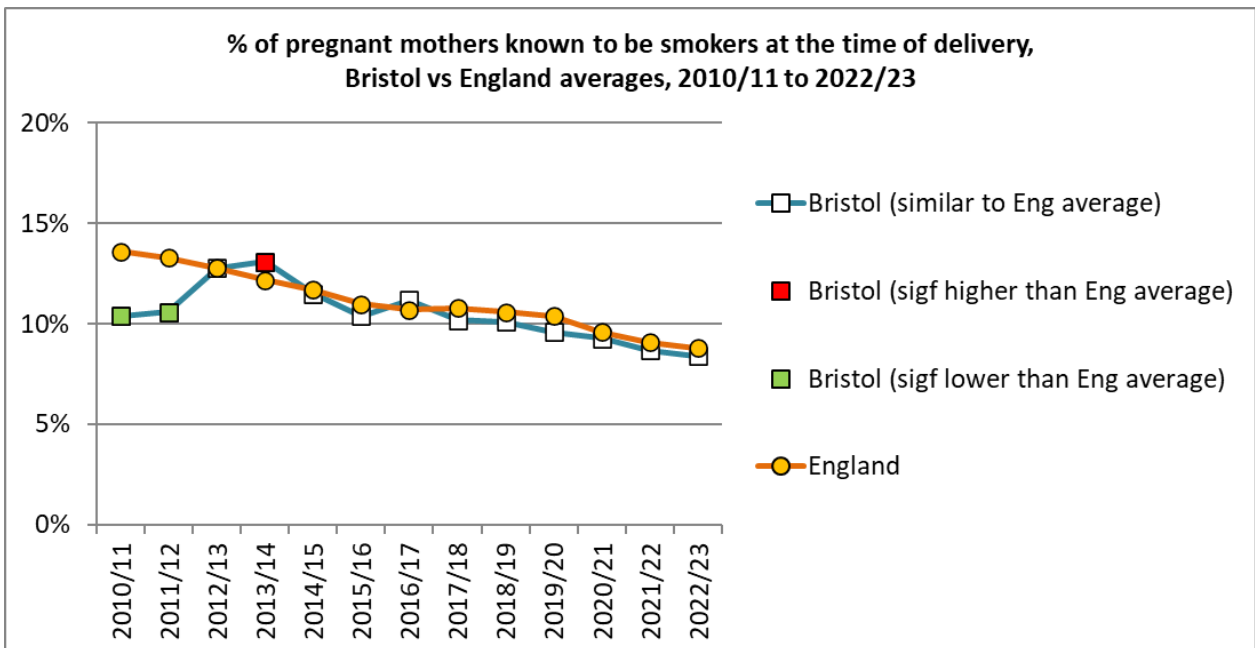


Figure 3: % of pregnant mothers known to be smokers at the time of delivery, Bristol vs England averages, 2010/11 to 2022/23. Data  source: local tobacco control profiles: Smoking Profile - OHID (phe.org.uk)

There is significant variation in rates of smoking at the time of delivery across the city particularly associated with socio-economic deprivation.  Groups such as lone parents, some ethnic groups, and people with mental health issues are also more likely to have higher rates of smoking in pregnancy[1]. Figures 4 and 5 (overleaf) show the variation in the prevalence in smoking at time of booking and smoking at time of delivery in wards across the city.
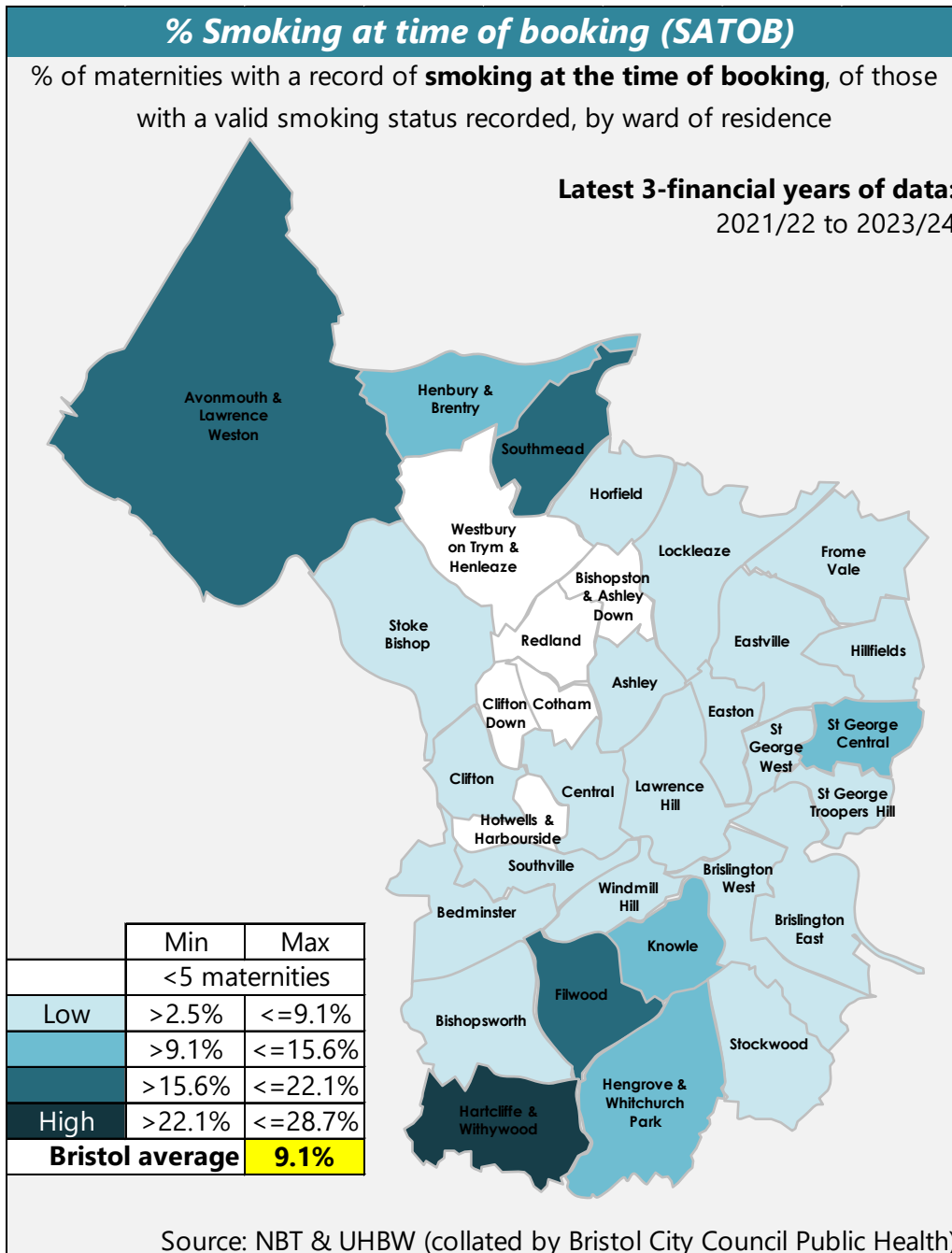


Figure 4: % of pregnant mothers reported to be smokers at the time of their booking visit (SATOB). Data source: local maternity provider dataset, collated by Public Health, Bristol City Council

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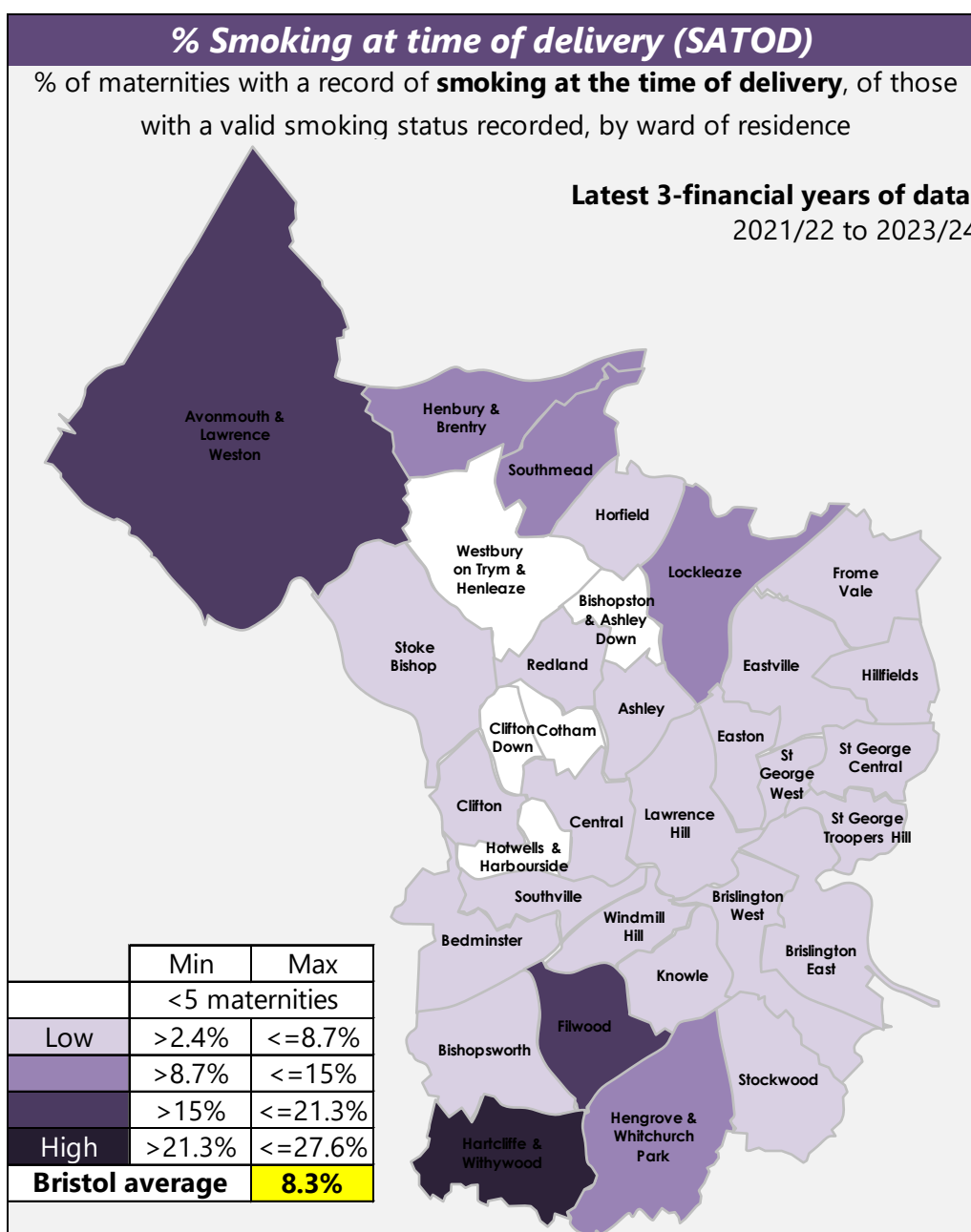[1] Smoking, Pregnancy and Fertility - ASH

Figure 5: % of pregnant mothers reported to be smokers at the time of delivery (SATOD). Data source: local maternity provider dataset, collated by Public Health, Bristol City Council

Analysis of local maternity provider data suggests that the three characteristics most strongly associated with risk of smoking at booking and smoking at delivery in Bristol are deprivation, age and ethnicity. Maternities from within the most deprived 20% of Bristol are the most likely to smoke at time of booking (17.2% during the latest three years of data 2021/22 to 2023/24) and at time of delivery (15.8%). Among maternities from the least deprived 20% of Bristol, 1.6% related to smokers at time of booking and 1.5% to smokers at time of delivery, over the same timeframe. Since 2013/14, it has been residents in the most deprived parts of the city that have experienced the greatest reduction in smoking rates during pregnancy, reducing the 'deprivation gap' (rates in the most deprived vs least deprived quintiles) by almost half from around 25% to 13% or less over this period. See figure 6 overleaf for more details.
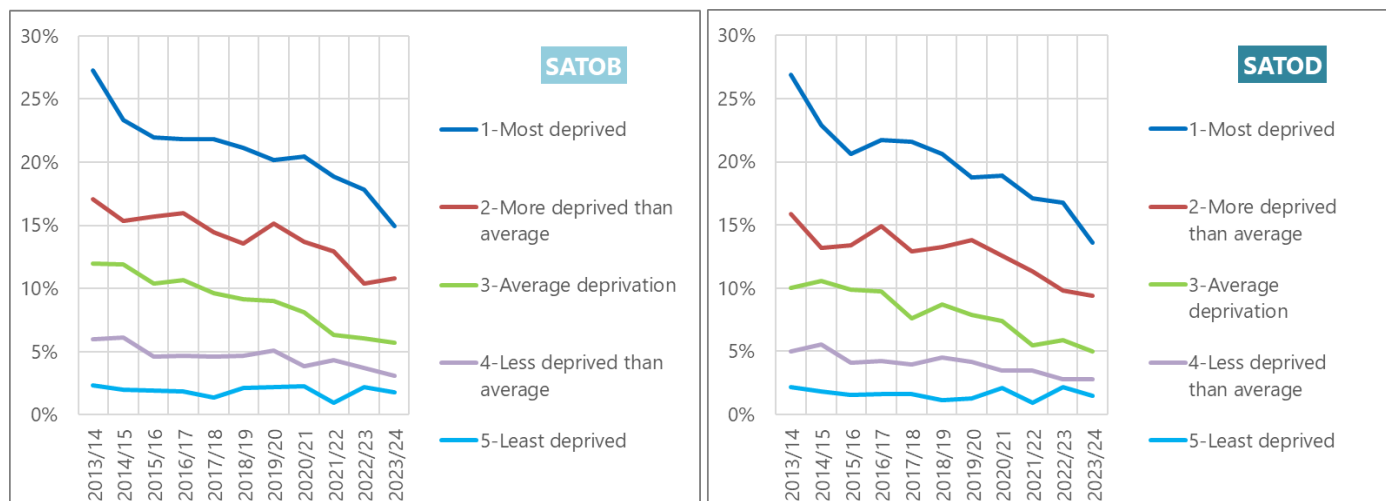
Figure 6*: % of mothers reported to be smokers at the time of booking (SATOB) and delivery (SATOD), by deprivation quintile of their area of residence (IMD 2019), Bristol maternities, 2013/14 to 2023/24.Data Source: Local maternity provider dataset collated by Public Health, Bristol City Council

Older mothers, those aged 40 years or older are the least likely to smoke (4.4% at booking and 4.0% at delivery, during the latest three years of data 2021/22 to 2023/24) and young mothers aged under 20 are the most likely to smoke at booking (30.9%) and delivery (26.2%). Similar to the observations in relation to deprivation, it has been the youngest mothers with the highest smoking in pregnancy rates that have experienced the most significant reductions in smoking prevalence over the last 10 years, considerably reducing the variation by maternal age over this period. See figure 7 for more details.
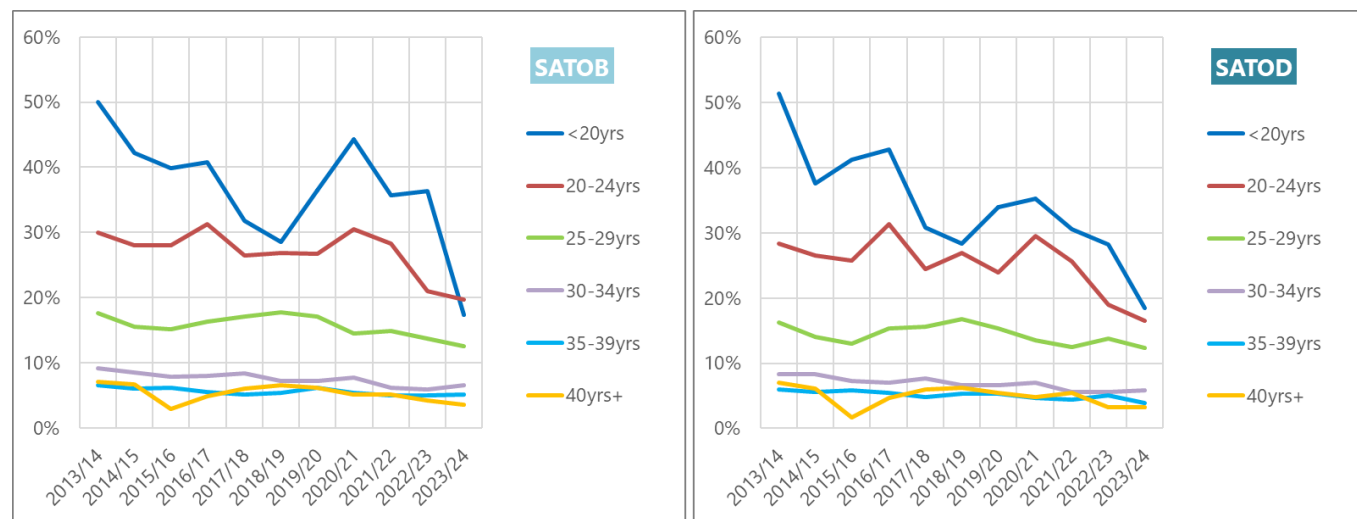


Figure 7: % of mothers reported to be smokers at the time of booking (SATOB) and delivery (SATOD), by maternal age-group, Bristol maternities, 2013/14 to 2023/24.Data Source: Local maternity provider dataset collated by Public Health, Bristol City Council

An analysis of the local maternity data for the latest three years (2021/22 to 2023/24) by broad ethnicity has shown that women of white ethnicity and mixed ethnic heritage are most likely on average to smoke at both booking (11%) and at delivery (11% mixed, 10% white). Women from an Asian ethnic background are the least likely to smoke in Bristol, with 1.1% prevalence at booking and 0.9% at delivery. Smoking in pregnancy prevalence has reduced most notably for mothers of white and/or mixed ethnicity since 2013/14, while changing little overall for other ethnic groups where smoking rates during pregnancy were already much lower and remain so. See figure 8 below for more details.
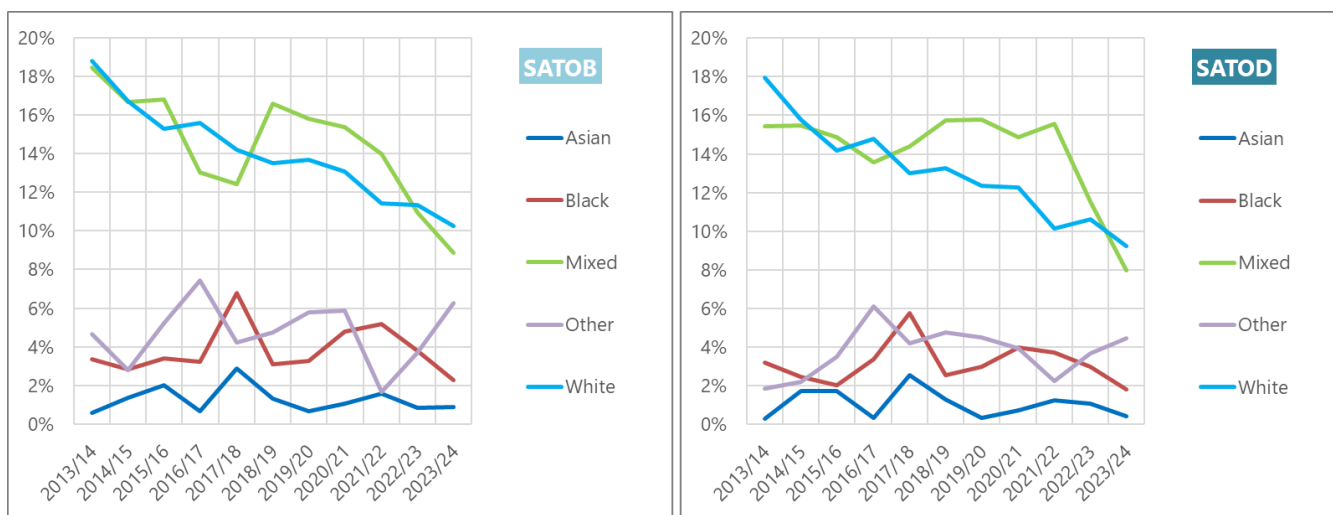


Figure 8: % of mothers reported to be smokers at the time of booking (SATOB) and delivery (SATOD), by maternal ethnicity (broad categories), Bristol maternities, 2013/14 to 2023/24.Data Source: Local maternity provider dataset collated by Public Health, Bristol City Council

## Bristol, North Somerset and South Gloucestershire (BNSSG) Comparisons

The BNSSG average for smoking at time of delivery was 7.1% in 2023/24, which is lower than the England average of 7.6%. Within these BNSSG figures, Bristol had the highest numbers of maternities recorded as smoking at time of delivery (an estimated 345 maternities in 2023/24 at our two local Bristol based NHS providers) and the highest smoking at the time of delivery rate also compared to the other two BNSSG local authorities (Bristol = 7.4%, North Somerset = 6.5%, South Glos = 7.0%).

## Covid 19 Impact

The full impact of the Covid-19 pandemic upon smoking during pregnancy remains to be seen. Research carried out by Action on Smoking and Health summarised that the impact of covid upon individual motivation to quit was extremely variable and did not necessarily encourage more women to quit smoking. Nonetheless, the pandemic had a significant impact upon routine delivery of care from service providers, and consequently the number of referrals to the smoking cessation service and engagement with the service. Accuracy of data recording may also have been impacted.

The analysis of trends in the demographics of maternities in Bristol during the pandemic, and in the 2 years following its onset indicate that for a short period of time there were notable changes in the average maternal demographics around 2022. During this time there was a greater average tendency towards lower maternal age, and for more of the maternities in Bristol to occur for residents living in more deprived parts of the city, slightly at odds with the longer-term trends before and since the pandemic. These aspects of maternal demographics are known to be associated with poorer maternity outcomes in terms of infant feeding and behaviours such as smoking during pregnancy, and so accordingly these trends appear to have had a short-term effect on the trends for these outcomes/risks. In some of the trend charts within this section a slowing or reversal in the decline in smoking in pregnancy rates can be seen over the period in question, before a more obvious improvement follows. This is unlikely to explain all the trends in these measures associated with the pandemic, and the previous paragraph explains some of the other factors that may have impacted on the smoking in pregnancy rates reported here, but this apparent maternity demographic shift is very likely to explain at least some of them.

At this time it appears this effect was relatively short-lived and the longer term trends present before the pandemic have largely continued since the pandemic disruption has largely passed.

**Further data / links:**

- Office for Health Improvement and Disparities [Smoking Profile - OHID (phe.org.uk)](#)

- [ASH/Bluegrass 1/4: Experiences of quitting, relapsing & accessing support during Covid-19 & the Cost of Living Crisis - ASH](#)

**Date updated:**  June 2024                    **Date of next update:**  June 2025