

2.19 Tobacco smoking during pregnancy

The proportion of Indigenous mothers who smoked during pregnancy

Data sources

Data for this measure mainly come from the AIHW National Perinatal Data Collection.

National Perinatal Data Collection

There is currently no data element in the Perinatal National Minimum Data Set (NMDS) for smoking during pregnancy but a program for national data development has been under way since 2006 and it is expected that smoking during pregnancy will be added as a data element in the NMDS by 2009 or 2010. From 2005, data are available for seven jurisdictions (New South Wales, Queensland, Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory). Queensland began collecting smoking data from 1 July 2005, so data are available for 6 months only in 2005. Data for Victoria on smoking during pregnancy is not currently collected.

Note that the definitions used for smoking during pregnancy differ among the jurisdictions. Seven of the states and territories currently collect at least one smoking question as part of their routine perinatal data collections. The smoking questions currently collected by the states and territories are presented in Table 2.19.1 below.

Table 2.19.1: Current smoking questions and data domains on perinatal forms, by state and territory

	NSW	Vic	Qld ^(a)	WA	SA	Tas ^(a)	ACT	NT
Question 1	Did the mother smoke at all during pregnancy?	n.a.	Did the mother smoke at all during this pregnancy?	Smoking during pregnancy	Tobacco smoking status at first visit	During this pregnancy has the mother smoked tobacco	Did mother smoke during pregnancy?	Smoking at 1st antenatal visit
Data domain	Yes/no	—	Yes/no	Yes/no	Smoker Quit in pregnancy before first visit Non-smoker Unknown smoking status	Yes/no	Yes/no	Yes/no /unknown
Question 2	If yes, how many cigarettes each day on average in the second half of pregnancy?	—	If yes, how many cigarettes were smoked each day on average after 20 weeks gestation?	—	Average number of tobacco cigarettes smoked per day in 2nd half of pregnancy	If yes, amount of tobacco smoked	Average number of cigarettes per day during the second half of pregnancy	Smoking at 36 weeks

(continued)

Table 2.19.1(continued): Current smoking questions and data domains on perinatal forms, by state and territory

	NSW	Vic	Qld ^(a)	WA	SA	Tas ^(a)	ACT	NT
Data domain	None	—	None	—	None	< 10 cigarettes	NN	Yes/no
	≤ 10 per day		≤ 10 per day		No. per day =	per day	(numeric	/unknown
	> 10 per day		> 10 per day		> 10 cigarettes	field)	
	Unknown		Unknown		< 1	per day		
					(occasional)			
					Unknown no.			

(a) For Tasmania and Queensland, questions on smoking have been collected since 1 January 2005 and 1 July 2005 respectively.

n.a. Not available. For Victoria, data on smoking in pregnancy are not currently collected as part of the perinatal collection. Victoria currently uses other mechanisms to monitor smoking in pregnancy.

Source: AIHW: Laws et al 2006.

Given the different questions currently asked in the seven jurisdictions, comparisons between states and territories should be interpreted with caution (AIHW: Leeds et al. 2007). Data on mothers for whom Indigenous status was not stated have been excluded from analysis.

Data analyses

Proportions have been directly age-standardised to account for differences in the age structure of the Indigenous and non-Indigenous female populations who give birth.

Smoking during pregnancy

- Approximately 4.6% of mothers in New South Wales, Queensland, Western Australia, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory identified as Aboriginal or Torres Strait Islander in 2005. Approximately 4,108 Indigenous mothers in these jurisdictions reported they smoked during pregnancy, 3,392 reported they did not and for 237 Indigenous mothers, smoking status was not known.
- When the effect of age was controlled for, Aboriginal and Torres Strait Islander mothers in the seven jurisdictions smoked during pregnancy at around three times the rate of non-Indigenous mothers in these jurisdictions (52% compared with 16%).

Smoking during pregnancy by state/territory

The number and proportion of mothers who smoked during pregnancy are presented by Indigenous status and state/territory for 2005 in Table 2.19.2 and Figure 2.19.1.

- Aboriginal and Torres Strait Islander mothers in New South Wales and Western Australia smoked during pregnancy at around four times the rate of non-Indigenous mothers, in Queensland and South Australia at around three times the rate, and in Tasmania, the Australian Capital Territory and the Northern Territory at twice the rate.

Table 2.19.2: Tobacco smoking status of mothers during pregnancy, by Indigenous status, NSW, Qld, WA, SA, Tas, ACT and NT, 2005^{(a)(b)}

Smoking status	NSW	Qld ^(c)	WA	SA ^(d)	Tas	ACT	NT ^(e)	Total
Number								
Indigenous								
Smoked	1,367	803	820	319	115	45	639	4,108
Did not smoke	1,106	646	787	150	101	58	544	3,392
Not stated	1	19	0	18	2	0	197	237
Total	2,474	1,468	1,607	487	218	103	1,380	7,737
Non-Indigenous								
Smoked	11,365	4,740	3,704	3,830	1,490	680	492	26,301
Did not smoke	75,073	20,719	21,218	13,385	4,018	4,212	1,688	140,313
Not stated	131	233	0	194	94	0	78	730
Total	86,569	25,692	24,922	17,409	5,602	4,892	2,258	167,344
Proportion^(f)								
Indigenous								
Smoked	54.2	52.3	53.6	65.9	44.9	35.9	42.5	51.9
Did not smoke	45.8	46.4	46.4	31.4	53.9	60.7	42.2	45.2
Total^(g)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Non-Indigenous								
Smoked	13.5	18.0	14.9	21.7	24.4	15.3	21.2	15.8
Did not smoke	86.3	81.1	85.1	77.2	73.8	84.7	75.3	83.7
Total^(g)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Ratio^(h)								
Smoked	4.0	2.9	3.6	3.0	1.8	2.3	2.0	3.3
Did not smoke	0.5	0.6	0.5	0.4	0.7	0.7	0.6	0.5

(a) Excludes births where the mother's Indigenous status was not stated.

(b) State-level data are based on place where birth occurred, not place of usual residence. Cross-border issues need to be considered here; for example, a high proportion of births in ACT hospitals are for mothers resident in New South Wales.

(c) For Queensland, smoking status data were collected from 1 July 2005; therefore, the numbers and proportions shown are for the July–December 2005 period only.

(d) For South Australia, 'smoked' includes women who quit before the first antenatal visit.

(e) For the Northern Territory, smoking status was recorded at the first antenatal visit.

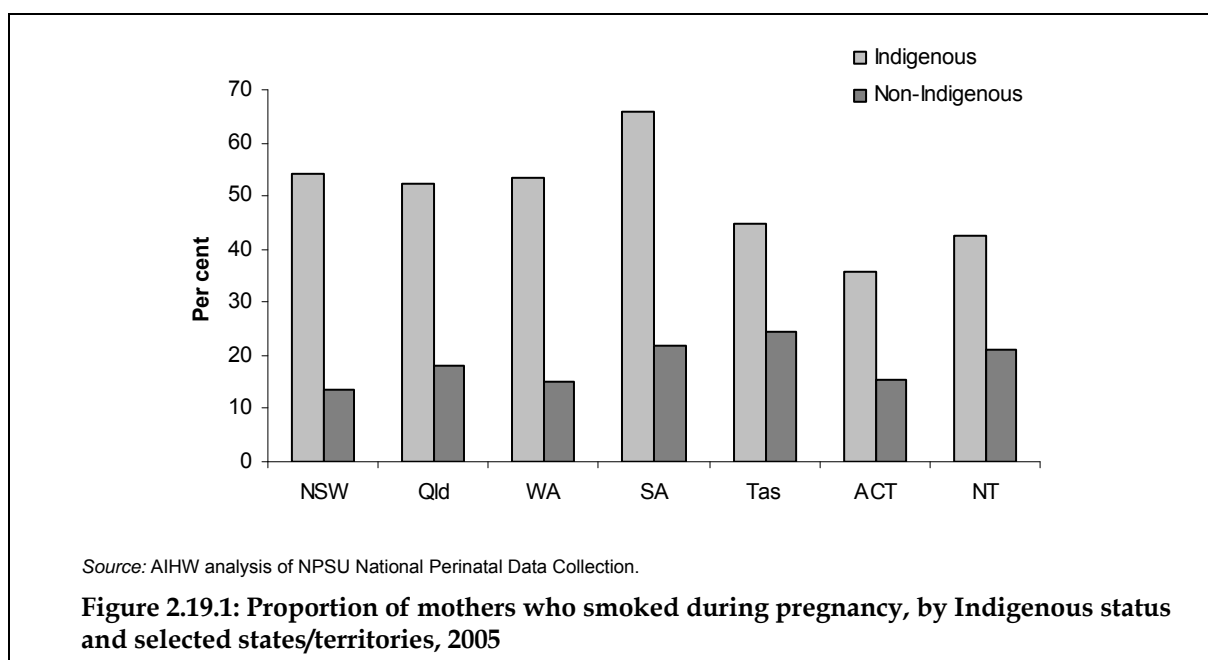
(f) Proportions are directly age-standardised using the Australian female population aged 15–44 years who gave birth in 2005.

(g) Includes mothers for whom smoking status was not stated.

(h) Rate ratio is the rate for Indigenous mothers divided by the rate for non-Indigenous mothers.

Note: Data not available for Victoria.

Source: AIHW analysis of National Perinatal Statistics Unit (NPSU) National Perinatal Data Collection.



Smoking during pregnancy by maternal characteristics

- In 2005, the proportion of Indigenous mothers who smoked during pregnancy was very similar across geographic areas ranging from 51% in Major Cities and Very Remote areas to 56% in Inner Regional and 55% in Outer Regional areas. In Remote areas, 54% of Indigenous mothers smoked during pregnancy (Table 2.19.3). In contrast, for non-Indigenous mothers there are large differences in smoking rates by remoteness, with 13% smoking in Major Cities to 24% in Outer Regional areas.
- Indigenous mothers in Major Cities were almost four times as likely as non-Indigenous mothers to smoke during pregnancy. In Inner Regional, Remote and Very Remote areas Indigenous mothers were almost three times as likely, and in Outer Regional areas twice as likely, to smoke during pregnancy as non-Indigenous mothers.
- The rate of smoking by Indigenous mothers varies little by age group. Those aged 20–24 were most likely to smoke during pregnancy (56%), followed by those aged 40 years and over (55%) and those aged less than 20 years (54%). For non-Indigenous mothers there was a very significant difference in smoking rates by age group, with 39% of those under 20 years smoking compared with 10% of those 40 years and over.
- Indigenous mothers aged 30 years and over were five times as likely as their non-Indigenous counterparts to smoke during pregnancy. Those aged 20–24 years were twice as likely, and those aged 25–29 years were three times as likely to do so as their non-Indigenous counterparts (Table 2.19.3).

Table 2.19.3: Smoking during pregnancy by Indigenous status and maternal characteristics, NSW, Qld, WA, SA, Tas, ACT and NT, 2005

	Indigenous proportion			Non-Indigenous proportion			Rate ratio ^(a)
	Smoked	Did not smoke	Not stated	Smoked	Did not smoke	Not stated	Smoked
Remoteness^(b)							
Major Cities	50.8	48.6	0.6	12.6	87.1	0.3	3.6
Inner Regional	56.2	43.3	0.5	21.8	77.6	0.6	2.6
Outer Regional	54.9	42.7	2.4	24.4	74.8	0.7	2.4
Remote	53.5	42.5	4.0	21.2	77.8	0.9	2.6
Very Remote	51.0	40.7	8.3	19.3	79.8	0.9	2.9
Total^(b)	53.1	43.8	3.0	15.7	83.9	0.4	3.3
Age of mother							
< 20	53.7	42.9	3.4	39.3	60.2	0.5	1.4
20–24	55.7	40.8	3.5	28.7	70.9	0.4	1.9
25–29	50.8	47.0	2.2	15.8	83.9	0.4	3.2
30–34	51.1	45.7	3.2	10.5	89.1	0.4	4.9
35–39	51.3	46.5	2.2	10.4	89.2	0.4	4.9
40+	54.9	42.7	2.4	10.3	89.3	0.4	5.3
Total^(b)	53.1	43.9	3.0	15.7	83.9	0.4	3.3

(a) Rate ratio: proportion for Indigenous divided by proportion for non-Indigenous.

(b) Rate ratios for remoteness categories and the total are derived from the directly age-standardised proportions for Indigenous and non-Indigenous using the Australian female population aged 15–44 years in all states excluding Victoria and the first 6 months of 2005 for Queensland who gave birth in 2005 as the standard.

Source: AIHW analysis of NPSU National Perinatal Data Collection.

Smoking during pregnancy by baby outcomes

- In 2005, approximately 16% of live-born babies born to Indigenous mothers who smoked during pregnancy were of low birthweight compared with 9% of babies born to Indigenous mothers who did not smoke during pregnancy (Table 2.19.4). Babies born to Indigenous mothers had higher rates of low birthweight overall compared with babies born to non-Indigenous mothers. In addition, the relationship between smoking and low birthweight was stronger for non-Indigenous mothers. These findings indicate that smoking is only one of the many factors influencing low birthweight.
- A similar proportion of babies born to Indigenous mothers who smoked during pregnancy and babies born to Indigenous mothers who did not smoke during pregnancy had an Apgar score of less than 7 at 5 minutes after birth (1.9% and 2.3%).
- The perinatal death rate for babies born to Indigenous mothers who smoked during pregnancy was 18 per 1,000 births. This was the same rate as for babies born to Indigenous mothers who did not smoke during pregnancy.
- A higher proportion of babies born to Indigenous mothers who smoked during pregnancy were born pre-term than babies born to Indigenous mothers who did not smoke during pregnancy (15% compared with 12%).
- The perinatal death rate of babies born to Indigenous mothers who smoked during pregnancy and babies born to Indigenous mothers who did not smoke during pregnancy was similar (around 18 per 1,000 live births).

These data suggest that smoking status has little bearing on baby outcomes, but rather Indigenous status is more of a predictor of poor baby outcomes.

Table 2.19.4: Smoking during pregnancy by Indigenous status and baby outcomes, NSW, Qld, WA, SA, Tas, ACT and NT, 2005

	Indigenous proportion		Non-Indigenous proportion		Ratio ^(a)
	Smoked	Did not smoke	Smoked	Did not smoke	Smoked
Pre-term birth	15.3	11.5	10.1	7.2	1.5*
Low birthweight^(b)	15.9	9.4	10.0	5.2	1.6*
Apgar score^(b)					
0–3	0.4	0.6	0.4	0.3	1.2
4–6	1.5	1.7	1.3	1.0	1.2
7+	97.6	97.4	98.1	98.7	1.0
Perinatal deaths per 1,000 births	17.6	18.3	12.5	8.3	1.4*

(a) Rate ratio: proportion for Indigenous divided by proportion for non-Indigenous.

(b) Live births only.

Note: Excludes Victoria and the first 6 months of 2005 for Queensland.

Source: AIHW analysis of NPSU National Perinatal Data Collection.

Smoking during pregnancy by average number of cigarettes smoked per day

Data on the average number of cigarettes smoked per day during the second half of pregnancy is available from New South Wales, South Australia and the Australian Capital Territory for the period 2003–2005 and is presented in Table 2.19.5.

- Of Indigenous mothers who reported smoking during pregnancy in the three jurisdictions combined, almost half (47%) smoked an average of more than 10 cigarettes per day.
- In New South Wales, approximately 51% of Indigenous mothers who smoked during pregnancy smoked an average of more than 10 cigarettes per day. In South Australia and the Australian Capital Territory, 30% smoked an average of more than 10 cigarettes per day.

Table 2.19.5: Indigenous mothers who smoked during pregnancy, by average number of cigarettes per day during second half of pregnancy, by state/territory, 2003–2005

Average number of cigarettes smoked per day	NSW	SA	ACT	Total ^(a)
		Number		
None	74	54	0	128
10 or less	1,656	468	69	2,193
More than 10	1,990	258	34	2,282
Not stated	181	91	12	284
Total	3,901	871	115	4,887
		Proportion		
None	1.9	6.2	0.0	2.6
10 or less	42.5	53.7	60.0	44.9
More than 10	51.0	29.6	29.6	46.7
Not stated	4.6	10.4	10.4	5.8
Total	100.0	100.0	100.0	100.0

(a) Includes New South Wales, South Australia and the Northern Territory only.

Source: AIHW analysis of NPSU National Perinatal Data Collection.

Data quality issues

Perinatal data

Under-identification

All jurisdictions collect the Indigenous status of the mother. However, this does not provide the Indigenous status of the baby and will underestimate Indigenous births. In addition, not all jurisdictions use the standard wording for the Indigenous status question in the National Perinatal Data Collection. This affects the quality and comparability of the data collected. There are also problems with the accuracy of the identification of Indigenous mothers.

Studies linking perinatal data with birth registration data and hospital admissions show that Indigenous women are under-identified. However, there has not been a systematic audit of the accuracy of these data across the nation. Therefore, at this stage, it is not possible to quantify or adjust for errors in identification. All jurisdictions are working towards improving the quality of the Indigenous status data (AIHW: Laws & Sullivan 2004).

Smoking during pregnancy data

Smoking during pregnancy data are not currently included in the Perinatal National Minimum Data Set (NMDS). Data on smoking during pregnancy are currently available from seven states and territories (New South Wales, Queensland, Western Australia, South Australia, the Australian Capital Territory and the Northern Territory). Tasmania and Queensland began collecting data in 2005. Victoria collects information on smoking during pregnancy using mechanisms other than their perinatal data collection.

Work has been under way from 2006 to develop a national definition for inclusion in the Perinatal NMDS.

Under-reporting of smoking status has been found to range from 5% to 25% depending on the circumstances (AIHW: Laws & Sullivan 2004). In addition, the accuracy of recall could be a problem depending on when the questions are asked.

Given the small numbers involved, small errors in Indigenous identification can result in large proportional differences and changes over time and between jurisdictions. Fluctuations in the smoking status during pregnancy of Indigenous mothers over time partly reflect changing levels of identification of Indigenous women in the perinatal data. Caution should be exercised in assessing trends over time or comparisons with the non-Indigenous population. Given the different questions currently asked in the seven jurisdictions, it is recommended that no comparisons between jurisdictions be undertaken at this stage.

References

AIHW (Australian Institute of Health and Welfare): Laws PJ & Sullivan EA 2004. Report on the evaluation of the Perinatal National Minimum Data Set. Perinatal statistics series no. 14. Cat. no. PER 27. Sydney: AIHW National Perinatal Statistics Unit.

AIHW: Leeds K, Gourley M, Laws P, Zhang J, Al-Yaman F & Sullivan EA 2007. Indigenous mothers and their babies 2001–04. Perinatal statistics series no. 19. Cat. no. PER 38. Canberra: AIHW.

AIHW: Laws PJ, Grayson N & Sullivan EA 2006. Smoking and pregnancy. Cat. no. PER 33. Sydney: AIHW National Perinatal Statistics Unit.