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A preliminary look at the rates of cigarette smoking among mothers giving birth in Queensland

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Summary

- Smoking in pregnancy is an important and modifiable cause of poor health among newborn babies. Encouraging and supporting expectant mothers to quit smoking would greatly improve the health of newborn babies in Queensland.
- The Queensland Perinatal Data Collection started collecting data on the smoking status of all mothers who gave birth in Queensland on 1 July 2005. The first 18 months of data (1 July 2005 – 31 December 2006) are now available and are summarised in this Information Circular. This data means that, for the first time, we have a comprehensive picture of smoking during pregnancy among mothers who gave birth in Queensland.
- Smoking rates among teenage mothers (44%), Aboriginal mothers (58%) and Torres Strait Islander mothers (43%) are much higher than the overall, average smoking rate for all mothers who gave birth in Queensland (20.5%).
- Mothers who have their babies in the private sector have low rates of smoking (4%).
- 6.5% of Queensland mothers who smoke in early pregnancy have stopped by the middle of their pregnancy (i.e., 20 weeks gestation) however, in the private sector the corresponding percentage who stop smoking is 14%.
- There is overwhelming evidence that attention to smoking behaviour together with support for smoking cessation and relapse prevention is effective in reducing rates of maternal smoking. For example, the US Preventive Services Task Force has given such interventions its highest category recommendation (Category A).
- However, quitting smoking is difficult and 'victim-blaming', or the perception of 'victim-blaming' should be avoided.
- Attention to smoking behaviour together with support for smoking cessation and relapse prevention need to be a routine part of antenatal care.

Introduction

- There is a large body of research evidence that conclusively shows that the babies of mothers who smoke are more likely than other babies to be born too early (preterm) or too small (low birth-weight) [1,2].
- Being born too early or too small increases the risk of neonatal death, and sudden infant death syndrome (SIDS) [3,4].
- Other poor birth outcomes that have been conclusively linked with smoking in pregnancy include fetal death, placenta praevia and placental abruption [1,2].
- Interventions to help expectant mothers stop smoking are effective in reducing these poor outcomes [5].
- The Queensland Perinatal Data Collection (QPDC) started collecting data on the smoking status of all mothers who gave birth in Queensland on 1 July 2005 [6]. Details of the data items are given at the end of this Information Circular.
- The first 18 months of data (1 July 2005 – 31 December 2006) are now available (although preliminary) and are summarised in this Information Circular.
- The availability of this data means that, for the first time, we have a comprehensive picture of smoking during pregnancy among mothers who gave birth in Queensland.

Data

- Data on all Queensland resident mothers who gave birth in Queensland during the 18 month period 1 July 2005 – 31 December 2006 was extracted from the QPDC which records details of all births in Queensland of at least 400g birthweight or 20 weeks gestation.
- Of the 79,346 mothers resident in Queensland who gave birth in the period of interest, a further 902 mothers (1.1%) were excluded from the cohort because they had an unknown indigenous or smoking status, or gave birth outside of hospital or in a birthing centre. This left 78,444 mothers in the study group.

- The data for mothers who gave birth in 2006 is still preliminary and data presented in this circular may be subject to changes. The data presented here was extracted on 6 December 2007.

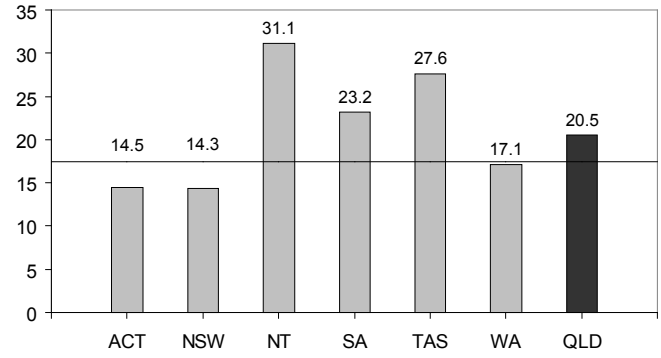
Results

The following results are divided into two sections: firstly, the percentage of all mothers who gave birth and smoked at any time during their pregnancy; and secondly, the percentage of mothers who gave birth and smoked in early pregnancy but who had quit by the middle of pregnancy (20 weeks gestation).

1. *Percentage of mothers who smoked at any time during pregnancy, Queensland, July 2005 – December 2006*
(See Figures 1-2 and Tables 1-3)

- The overall smoking rate for all mothers giving birth in Queensland is 20.5%. In comparison, the ACT and New South Wales have smoking rates as low as 14% [7]. Although the Northern Territory (31%), Tasmania (28%) and South Australia (23%) have reported smoking rates higher than Queensland [7], the Queensland rate remains higher than the national average of 17.4% (figure 1).
- There are large variations in smoking rates with age, Indigenous status, sector of confinement (public versus private) and antenatal care provider.
- Smoking is more than three times as common among teenage mothers (44%) compared with mothers older than 35 years (14%).
- Smoking is three times as common among Aboriginal mothers (58%) than non-Indigenous mothers (19%). For Torres Strait Islanders mothers the smoking rate is 43%.
- There are also large variations by Health Service District (figure 2).
- The rate of smoking among mothers who have no antenatal care is more than 13 times that of mothers whose antenatal care is provided by a private medical practitioner. Mothers having antenatal care in a public hospital clinic are almost 7 times as likely to smoke as mothers receiving antenatal care from a private practitioner.
- Mothers who have their babies in public hospitals are 7 times more likely to smoke than mothers who have their babies in private hospitals (28% versus 4%).

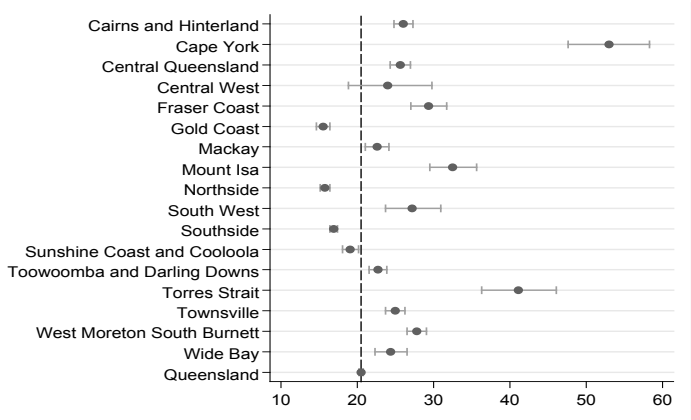
Figure 1: Interstate comparison of rates of smoking during pregnancy



Horizontal line represents Australian rate of 17.4%

Interstate data source: AIHW Mothers and Babies, 2005
Queensland data source: Queensland Perinatal Data Collection, Queensland Health, July 2005 – December 2006 (preliminary, extracted 6 December 2007)

Figure 2: Percentage of mothers who gave birth and smoked at any time during their pregnancy by Health Service District, Queensland, July 2005 - December 2006

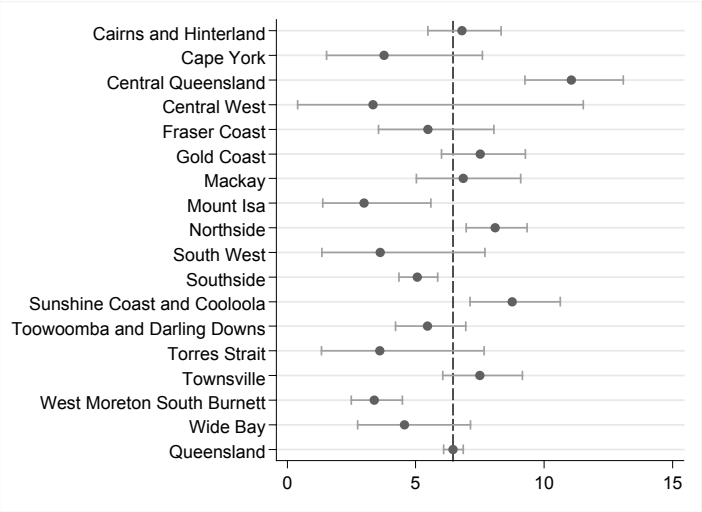


Horizontal bars represents 95% confidence intervals
Source: Queensland Perinatal Data Collection, Queensland Health

2. *Percentage of mothers who smoke in early pregnancy who have quit by the middle of pregnancy, Queensland, July 2005 – December 2006*
(See Figure 3 and Tables 1-3)

- Overall, 6.5% of mothers who smoke in early pregnancy have stopped by the middle of pregnancy.
- Of all Aboriginal mothers who smoke, 3% are able to quit smoking during pregnancy. This small decrease suggests that some mothers have trouble quitting smoking during pregnancy and may lack the support to do so.
- 14% of smoking mothers who have their babies in private hospitals stop smoking by the middle of their pregnancy.

Figure 3: Percentage of mothers who gave birth and smoked in early pregnancy but quit by the middle of pregnancy, Queensland, July 2005 - December 2006



Horizontal bars represents 95% confidence intervals
Source: Queensland Perinatal Data Collection, Queensland Health

Conclusions

- There is overwhelming evidence about the benefits of helping expectant mothers reduce smoking and this has prompted the US Preventive Services Task Force to give the intervention its highest category recommendation (Category A). This is higher than the recommendations given to other interventions during pregnancy such as screening for iron-deficiency anaemia in pregnancy (Category B) or screening for gestational diabetes (Category C) [8].
- Large reductions in smoking rates are possible. For example, in Sweden sustained campaigns targeted at both the general population and specifically at expectant mothers have been conducted and the rates of smoking in early pregnancy have fallen from 31% in 1983 to 12% in 2000 [9].
- Attention to smoking behaviour together with support for smoking cessation and relapse prevention needs to be a routine part of antenatal care.
- However, quitting smoking is difficult and 'victim-blaming', or the perception of 'victim-blaming' should be avoided.

References

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Appendix

- The Queensland Perinatal Data Collection (QPDC) has collected information on smoking status since 1 July 2005. Items recorded include whether the mother smoked at all during the pregnancy and if so, the number of cigarettes the mother smoked on average each day after 20 weeks gestation (0, ≤10, >10)
- Health sector was defined on the basis of the facility at which the birth episode occurred.

Table 1. Smoking status during pregnancy of mothers who gave birth in Queensland by selected demographic variables, July 2005 – December 2006

	Mothers	No. Smoked at all during pregnancy		No. Ceased smoking by 20 weeks gestation		No. Cigarettes smoked per week after 20 weeks by those still smoking			
		No.	*%*	*No.*	*%*	*≤10*	*%*	*>10*	*%*
All Queensland Mothers	78,444	16,068	**20.5**	1,037	**6.5**	7,877	**52.4**	6,783	**45.1**
Age									
<20	4,314	1,905	**44.2**	126	**6.6**	1,021	**57.4**	710	**39.9**
20-24	13,748	4,617	**33.6**	300	**6.5**	2,361	**54.7**	1,851	**42.9**
25-34	45,991	7,579	**16.5**	509	**6.7**	3,638	**51.5**	3,268	**46.2**
35+	14,391	1,967	**13.7**	102	**5.2**	857	**46.0**	954	**51.2**
Indigenous Status									
Aboriginal	2,973	1,712	**57.6**	52	**3.0**	771	**46.4**	818	**49.3**
Torres Strait Islander (TSI)	780	336	**43.1**	17	**5.1**	159	**49.8**	150	**47.0**
Aboriginal and TSI	416	201	**48.3**	6	**3.0**	95	**48.7**	98	**50.3**
Non Indigenous	74,275	13,819	**18.6**	962	**7.0**	6,852	**53.3**	5,717	**44.5**
Health Sector of Facility of Confinement									
Public	53,265	15,093	**28.3**	899	**6.0**	7,354	**51.8**	6,492	**45.7**
Private	25,179	975	**3.9**	138	**14.2**	523	**62.5**	291	**34.8**
Antenatal Care Type									
Public hospital clinic	26,696	8,249	**30.9**	502	**6.1**	3,925	**50.7**	3,612	**46.6**
Shared care	25,185	6,486	**25.8**	388	**6.0**	3,284	**53.9**	2,702	**44.3**
Private medical practitioner	26,337	1,212	**4.6**	147	**12.1**	628	**59.0**	404	**37.9**
Private midwifery practitioner	31	2	**6.5**	0	**0.0**	1	**50.0**	0	**0.0**
No antenatal care	190	116	**61.1**	0	**0.0**	38	**32.8**	63	**54.3**
Unknown	5	3	**60.0**	0	**0.0**	1	**33.3**	2	**66.7**
Socio-economic status†									
Most disadvantaged 10%	7,276	2,631	**36.2**	103	**3.9**	1,160	**45.9**	1,282	**50.7**
Middle	67,379	13,237	**19.6**	912	**6.9**	6,602	**53.6**	5,443	**44.2**
Least disadvantaged 10%	3,789	200	**5.3**	22	**11.0**	115	**64.6**	58	**32.6**

Source: Queensland Perinatal Data Collection, Queensland Health (preliminary, extracted 6 December 2007).
Excludes: Interstate residents, birthing centres, home births and not stated indigenous or smoking status.

† Socio-economic status is based on the Australian Bureau of Statistics' Socioeconomic Index for Areas (SEIFA) [10].

Table 2. Smoking status during pregnancy of mothers who gave birth in Queensland by Health Service District, July 2005 – December 2006

	No. Mothers	No. Smoked at all during pregnancy		No. Ceased smoking by 20 weeks gestation		No. Cigarettes smoked per week after 20 weeks by those still smoking			
		No.	*%*	*No.*	*%*	*≤10*	*%*	*>10*	*%*
All Queensland Mothers	78,444	16,068	**20.5**	1,037	**6.5**	7,877	**52.4**	6,783	**45.1**
Health Service District									
Cairns and Hinterland	4,856	1,265	**26.1**	86	**6.8**	629	**53.4**	533	**45.2**
Cape York	351	186	**53.0**	7	**3.8**	87	**48.6**	83	**46.4**
Central Queensland	4,230	1,085	**25.7**	120	**11.1**	421	**43.6**	476	**49.3**
Central West	250	60	**24.0**	2	**3.3**	23	**39.7**	35	**60.3**
Fraser Coast	1,493	438	**29.3**	24	**5.5**	213	**51.4**	192	**46.4**
Gold Coast	6,857	1,064	**15.5**	80	**7.5**	599	**60.9**	366	**37.2**
Mackay	2,842	642	**22.6**	44	**6.9**	302	**50.5**	290	**48.5**
Mount Isa	929	302	**32.5**	9	**3.0**	138	**47.1**	134	**45.7**
Northside	13,557	2,138	**15.8**	173	**8.1**	1,097	**55.8**	799	**40.7**
South West	610	166	**27.2**	6	**3.6**	83	**51.9**	74	**46.3**
Southside	20,336	3,439	**16.9**	174	**5.1**	1,723	**52.8**	1,481	**45.4**
Sunshine Coast and Cooloola	5,506	1,051	**19.1**	92	**8.8**	544	**56.7**	405	**42.2**
Toowoomba and Darling Downs	5,004	1,136	**22.7**	62	**5.5**	549	**51.1**	507	**47.2**
Torres Strait	406	167	**41.1**	6	**3.6**	78	**48.4**	76	**47.2**
Townsville	4,699	1,173	**25.0**	88	**7.5**	575	**53.0**	486	**44.8**
West Moreton South Burnett	4,902	1,362	**27.8**	46	**3.4**	638	**48.5**	665	**50.5**
Wide Bay	1,616	394	**24.4**	18	**4.6**	178	**47.3**	181	**48.1**

Source: Queensland Perinatal Data Collection, Queensland Health (preliminary, extracted 6 December 2007).
Excludes: Interstate residents, birthing centres, home births and not stated indigenous or smoking status.

Table 3. Relative risk of smoking and smoking cessation for mothers who gave birth in Queensland, July 2005 – December 2006

	Relative risk of smoking‡ *(95% CI)*	Relative risk of ceasing smoking§ *(95% CI)*
Age		
<20	3.2 (3.1 - 3.4)	1.3 (1.0 - 1.6)
20-24	2.5 (2.3 - 2.6)	1.3 (1.0 - 1.6)
25-34	1.2 (1.2 - 1.3)	1.3 (1.1 - 1.6)
35+	1.0*	1.0*
Indigenous Status		
Aboriginal	3.1 (3.0 - 3.2)	0.4 (0.3 - 0.6)
Torres Strait Islander (TSI)	2.3 (2.1 - 2.5)	0.7 (0.5 - 1.2)
Aboriginal and TSI	2.6 (2.3 - 2.9)	0.4 (0.2 - 0.9)
Non Indigenous	1.0*	1.0*
Health Sector of Facility of Confinement		
Public	7.3 (6.9 - 7.8)	0.4 (0.4 - 0.5)
Private	1.0*	1.0*
Antenatal Care Type		
Public hospital clinic	6.7 (6.3 - 7.1)	0.5 (0.4 - 0.6)
Shared care	5.6 (5.3 - 5.9)	0.5 (0.4 - 0.6)
Private medical practitioner	1.0*	1.0*
Private midwifery practitioner	1.4 (0.4 - 5.4)	-
No antenatal care	13.3 (11.7 - 15.1)	-
Unknown	13.0 (6.4 - 26.7)	-
Socio-economic status†		
Most disadvantaged 10%	6.9 (6.0 - 7.9)	0.4 (0.2 - 0.6)
Middle	3.7 (3.2 - 4.3)	0.6 (0.4 - 0.9)
Least disadvantaged 10%	1.0*	1.0*

Source: Queensland Perinatal Data Collection, Queensland Health

*Category used as standard for comparison
† Socio-economic status is based on the Australian Bureau of Statitsics' Socioeconomic Index for Areas (SEIFA) [10]
‡ Relative risk greater than 1.0 indicates a higher percentage of expectant mothers were smokers compared with the reference group
§ Relative risk greater than 1.0 indicates that a higher percentage of smokers were able to stop smoking by 20 weeks gestation if they smoked at all compared to the reference group.