

Research letter

# The natural history of smoking during pregnancy among women in Nova Scotia

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Smoking during pregnancy is a serious public health problem, with adverse effects for both mother and baby.<sup>1-4</sup> It is estimated that 25%–40% of women smokers try to stop smoking on their own upon learning that they are pregnant,<sup>5</sup> yet little information is available at a population level on smoking patterns during pregnancy. In this report we describe the prevalence of smoking among pregnant women in Nova Scotia in 1997.

Information concerning all hospital births in Nova Scotia in 1997 that was routinely collected by the Nova Scotia Atlee Perinatal Database was used in our study. Standardized forms were completed prospectively by medical personnel at prenatal visits, during labour and delivery, and in the postpartum period up to the time of discharge. Infor-

mation on smoking included self-reported smoking status and the mean number of cigarettes smoked per day.

A total of 9808 women in Nova Scotia delivered a live infant in hospital in 1997. The figures reported here concern 8528 women whose smoking status before their pregnancy is known. The overall rate of smoking before pregnancy ( $n = 2822$ ) was 33.1% (95% confidence interval [95% CI] 32.1%–34.1%).

Fig. 1 presents the changes in smoking status that occurred from before pregnancy to the first prenatal visit, and then to the time of admission for delivery. Of the 2822 women who were smokers before their pregnancy, 1973 (69.9%) remained smokers throughout their pregnancy (95% CI 68.2%–71.6%). Another 8.4% (237/2822) were

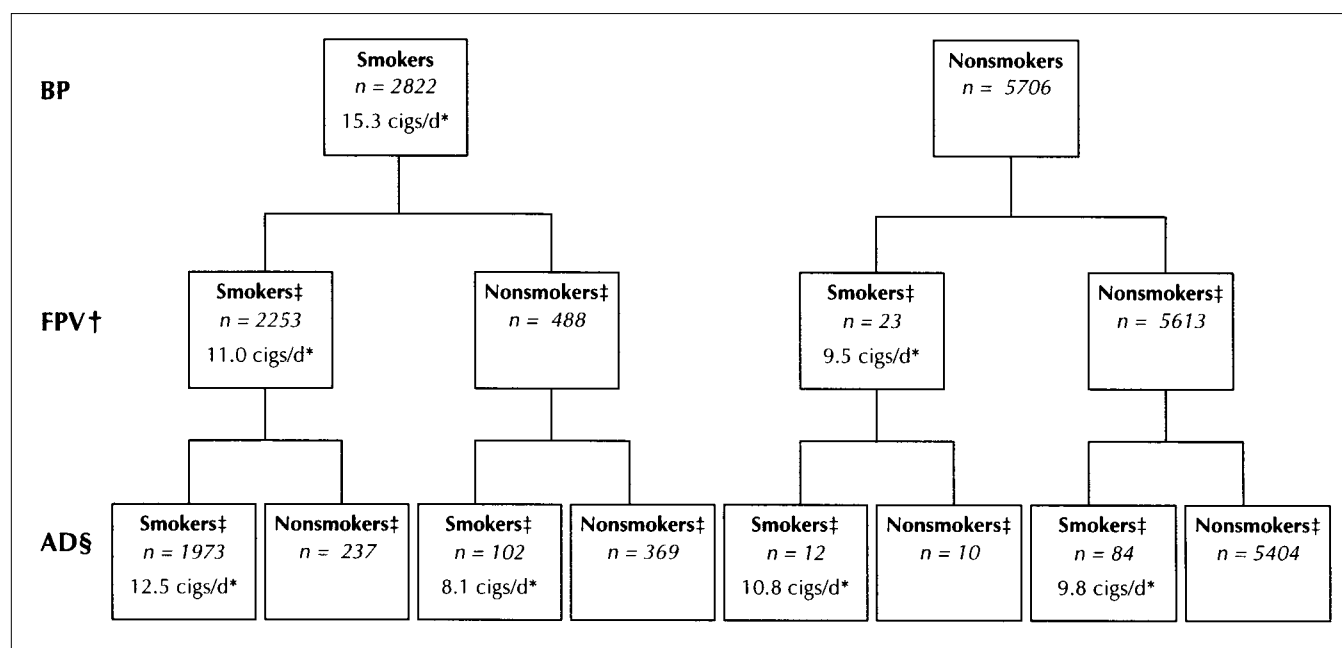


Fig. 1: Smoking status of pregnant women in Nova Scotia in 1997. BP = before pregnancy, FPV = first prenatal visit, AD = admission for delivery. \*Mean number of cigarettes smoked per day. †Includes only women with known smoking status before pregnancy. ‡Some information is missing. §Includes only women with known smoking status before pregnancy and at first prenatal visit.

smoking at the time of their first prenatal visit but stopped smoking by the time of their delivery. A further 13.1% (369/2822) had stopped smoking by their first prenatal visit and maintained their nonsmoking status at the time of delivery. A small number of women who were nonsmokers before their pregnancy were smoking at the time of their first prenatal visit (23/5706) or at the time of delivery (96/5706).

The number of cigarettes smoked was also examined according to smoking status subcategories at each point when the information was collected (Fig. 1). Among the women who smoked before their pregnancy, the mean number of cigarettes per day was 15.3 before pregnancy (95% CI 15.0–15.6), 11.0 at the time of the first prenatal visit (95% CI 10.7–11.3) and 12.5 around the time of admission for delivery (95% CI 12.2–12.8). In all subcategories the mean number of cigarettes per day during pregnancy was lower than that smoked before pregnancy.

Several cautions should be noted in interpreting the data. Smoking status was self-reported and represented only 3 discrete points from before pregnancy to delivery. Additional changes may have occurred at intermittent periods but were not included in the database. Moreover, information on smoking status before pregnancy was reported retrospectively at the first prenatal visit. Systematic underreporting of smoking status and the number of cigarettes smoked, termed self-deception, has been estimated in one study to be as high as 25%.<sup>6</sup> Therefore, both smoking prevalence and the number of cigarettes smoked, as determined by self-report, are likely to be conservative estimates of the true values.

Among the women who smoked before their pregnancy 21.5% (95% CI 20.0%–23.0%) had stopped by the time of their delivery. This proportion is slightly lower than the estimates given for self-initiated cessation attempts in early pregnancy.<sup>5</sup> However, in our study at least 13.1% of all the women who had been smokers before their pregnancy sustained their attempt to stop smoking at 2 subsequent time points. Given that smoking is thought to have the greatest

impact on birth weight during the last trimester,<sup>7–9</sup> there are likely to be benefits from smoking cessation even late in pregnancy. It appears that women who continue to smoke during pregnancy reduce the number of cigarettes smoked, although whether this reduction is beneficial to the fetus and newborn remains to be determined.

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*This article has been peer reviewed.*

Competing interests: None declared.

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