

## Decline in meningitis admissions in young children: vaccines make a difference

Hannah C Moore and Deborah Lehmann

**TO THE EDITOR:** Meningitis is one of the most serious infections in young children. The annual incidence of *Haemophilus influenzae* type b (Hib) meningitis between 1984 and 1988 was 150 per 100 000 population in Aboriginal children and 27 per 100 000 in non-Aboriginal children younger than 5 years.<sup>1</sup> A conjugate Hib vaccination program was introduced in Western Australia in January 1993, before a nationwide program commenced in July 1993. Subsequent marked declines in incidence of Hib meningitis have been reported.<sup>2-4</sup> However, there are no recent reports on trends in overall admissions for meningitis.

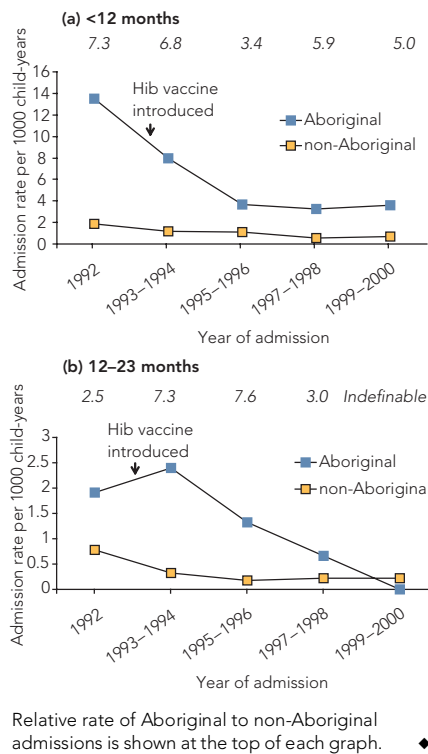
The WA Data Linkage System (WADLS) encompasses statewide population-based record linkage of the statutory birth and death registers, midwives' notification system, and hospital morbidity database,<sup>5</sup> and is one of few such resources worldwide. As part of a larger study to determine the burden of infection in a cohort of births between 1990 and 2000 using the WADLS, we investigated hospitalisation for all-cause meningitis (International classification of diseases, 9th revision, diagnosis codes 003.21, 036.0, 047, 049.0, 054.72, 320-322) in 17 296 Aboriginal and 252 775 non-Aboriginal children younger than 2 years between 1992 and 2000.

In Aboriginal infants (<12 months), the meningitis rate fell by 41% between 1992 and 1993-1994 and by a further 54% in 1995-1996, and has remained stable since (Box). In Aboriginal children aged 12-23 months, rates declined by 44% between 1993-1994 and 1995-1996 and again by 50% in 1997-1998, and no meningitis admissions were reported in 1999-2000.

In non-Aboriginal infants, meningitis rates declined by 36%, from 1.8 per 1000 child-years in 1992 to 1.2 per 1000 child-years in 1993-1994, with a further 50% decline in 1997-1998, since when rates have remained stable. Rates declined by 57% between 1992 and 1993-1994 in non-Aboriginal children aged 12-23 months, declined a further 47% in 1995-1996, and have since remained stable at about 0.2 per 1000 child-years.

With the decline in meningitis admissions, the disparity between Aboriginal and non-Aboriginal children has narrowed: the relative rate (RR) of Aboriginal to non-Aboriginal meningitis admissions fell from 7.3 in 1992

### Hospital admission rate for meningitis in Aboriginal and non-Aboriginal children aged (a) <12 months and (b) 12-23 months in Western Australia, 1992-2000



5.0 in 1999-2000 in infants, while in children aged 12-23 months, the RR was >7.0 in 1993-1996, fell to 3.0 in 1997-1998, and was indefinable in 1999-2000 (Box). In the absence of other relevant interventions, we attribute declines in meningitis admissions to the introduction of Hib vaccine. This is supported by other studies showing a reduction in Hib meningitis following vaccination.<sup>2-4</sup>

Retrospective data provide an opportunity to assess overall trends in admissions. Future linkages with immunisation and laboratory data will allow us to investigate pathogen-specific admissions and evaluate vaccination programs.

Our findings show that substantial improvements can be achieved given government commitment to implement appropriate preventive measures. Adequate funding and continued commitment is needed to ensure these measures are accessible to all WA children.

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## Increase in caesarean section rates among low-risk women in Queensland, 1990-2004

Trisha C Johnston and Michael D Coory

**TO THE EDITOR:** The current rate of caesarean sections in Australia (29% of all live births) is higher than the rate in other similarly affluent countries.<sup>1</sup> In addition, the rate is continuing to increase; for example, it was less than 20% in 1993.<sup>1</sup>

Some commentators have suggested that this increase is partly a result of caesarean sections undertaken for non-medical reasons, such as patient demand.<sup>2,3</sup> We examined trends in the rates of caesarean section for low-risk women using population-based perinatal data for Queensland over 15 years between 1990 and 2004. Our aim was to assess whether caesarean sections were becoming more common among women with no obvious medical indication for the procedure.

The increase in caesarean sections among low-risk women was most dramatic in the private health care sector, where the percentage increased from 10% to 19% (Box). This represents an average annual increase of 4.6% (95% CI, 4.3%-5.0%). In the public health care sector, the increase was less — from 6% to 8% — an average annual increase of 2.4% (95% CI, 2.0%-2.7%). The increase in the private sector in Queensland was similar to the increase reported in the United States.<sup>4</sup>

The appropriate use of caesarean section, as for any medical intervention, should be based on evidence about the benefits and harm, with doctors, women and their families choosing a method of delivery after considering balanced information on poten-