

1. Robertson AG. Bioterrorism — an Australian perspective. *ADF Health* 2000; 1: 99-106.
2. Emergency Management Australia. Health aspects of chemical and radiological hazards. Provisional ed. Australian emergency manuals series. Manual 3, Vol 2, Part 3. Canberra: EMA, 2000.
3. MacKenzie D. Home truths. Did the anthrax attacker get their supplies from a military lab? *New Scientist* 2001; Dec 22/29: 5.
4. Bioterrorism: safeguarding the public's health [editorial]. *Lancet* 2001; 358: 1283.
5. Henderson DA. Smallpox. Clinical and epidemiologic features. *Emerg Infect Dis* 1999; 5: 537-539.
6. Statement to the press by the Director General of the World Health Organization, Dr Gro Harlem Brundtland — World Health Organization announces updated guidance on smallpox vaccination. Statement WHO/16, 2 Oct 2001. Available at <<http://www.who.int/inf-pr-2001/en/state2001-16.html>> Accessed Feb 2002.
7. Centers for Disease Control and Prevention. Interim smallpox response plan and guidelines, 26 November 2001. Available at <<http://www.cdc.gov/nip/smallpox/>> Accessed Feb 2002. □

## Guiding antenatal care

### *Current practices should be re-examined in light of current evidence*

ANTENATAL CARE includes screening asymptomatic pregnant women, with the aim of detecting, and thereby preventing, both maternal and neonatal adverse events. The introduction of antenatal care in 1913 has been widely attributed to the efforts of Ballantyne at the University of Edinburgh. He suggested that the high maternal and perinatal mortality rates observed at the beginning of the 20th century reflected inadequate maternity care during pregnancy and lack of supervision of the progress of labour. Ballantyne's flow diagram, an antecedent of guidelines, defined interactions of many disciplines in antenatal care.

During the 1930s, there was increased emphasis on educating healthcare professionals who provided maternity care. Women were encouraged to present during pregnancy, and were advised to give birth in hospital. The subsequent fall in perinatal mortality rates was attributed to antenatal care, without consideration of the contribution from social and other medical improvements.<sup>1</sup> The falling mortality rates corresponded with a gradual increase in the number of antenatal visits recommended. By the 1950s, a schedule of monthly visits to 28 weeks, fortnightly visits to 36 weeks, and then weekly visits until birth had become standard.<sup>1</sup> Although programs with fewer visits have been proposed, this schedule is widely accepted in clinical practice. This has remained largely unchallenged, as noted by Archie Cochrane, who stated "by some curious chance, antenatal care has escaped the critical assessment to which most screening procedures have been subjected".<sup>2</sup>

Traditional antenatal care was critically appraised in a retrospective review of 1907 pregnant women who gave birth at the Aberdeen Maternity Hospital in 1975.<sup>1</sup> Antenatal and birth records were reviewed to determine the rates at which complications were diagnosed, misdiagnosed and overdiagnosed, in addition to the rate at which complications occurred despite routine antenatal care. Breech presentation and pre-eclampsia were the only complications reliably detected in the antenatal period, and the benefit in the detection of pre-eclampsia was confined to primigravid women beyond 34 weeks' gestation. Most antenatal admissions, apart from admissions for labour and birth, were for conditions that had arisen despite routine

antenatal care — conditions that had not been prevented or detected by it.

More recently, randomised controlled trials have assessed the optimal frequency of antenatal visits in preventing maternal and fetal complications. The main hypothesis tested in these trials is that models of care with fewer antenatal visits are as effective as the traditional model in terms of clinical outcomes and maternal satisfaction.<sup>3</sup> A systematic review of seven randomised controlled trials involving 57 418 women found no differences in the detection of pre-eclampsia (odds ratio [OR], 0.91; 95% CI, 0.66–1.26), urinary tract infection (OR, 0.93; 95% CI, 0.79–1.10), low birthweight (OR, 1.04; 95% CI, 0.93–1.17) or maternal mortality (OR, 0.91; 95% CI, 0.55–1.51) when a schedule of reduced antenatal visits was compared with more traditional regimens of antenatal visits.<sup>4</sup> However, women were more dissatisfied with fewer visits. Whether increased maternal satisfaction is of measurable benefit in terms of pregnancy and birth outcomes remains less certain.

Clinical practice guidelines should define best practice, limit variations in the provision of care, recommend care that is cost-effective, and provide care in a way that meets the needs of all patients. In this issue of the *Journal* (page 255), Hunt and Lumley have reviewed guidelines used in Australian maternity units. They found that recommendations for the content of antenatal visits and screening procedures vary considerably across Australia. The value of certain tests or interventions can be readily appreciated in terms of a low cost treatment capable of disease modification (eg, provision of anti-D to rhesus-negative women); however, evidence of benefit is lacking in other circumstances (eg, routine screening for carbohydrate intolerance), although current clinical trials will address some of these issues. Routine antenatal screening for syphilis, although low cost and with effective therapy available for patients testing positive, could be questioned given the low prevalence of the disease among pregnant white Australians. However, selective testing and treatment has not been supported.<sup>6</sup>

Hunt and Lumley also demonstrate the other end of the clinical spectrum, where good-quality evidence exists to support a treatment or policy but institutions have no

relevant guidelines. Good-quality evidence exists to support the cessation of smoking during pregnancy,<sup>7</sup> and yet remarkably few institutions had a guideline providing practical information for caregivers to support women in smoking cessation. This also highlights the difficulty of implementing changes in policy, despite evidence of an important clinical effect, and reflects the wider challenges of translating research findings into clinical practice.

The article by Hunt and Lumley describes the broad range of accepted antenatal care in Australia. Where to from here? The purpose of antenatal care needs to be redefined. The aims may differ for consumers and caregivers, and both should be incorporated into the “ideal” model of care. In addition, current practices (including timing and frequency of visits, and “routine” screening investigations) should be questioned in light of predetermined outcome measures and best available evidence. The principles of antenatal care were adopted over half a century ago; their maintenance can only be supported when rigorously tested against the best

currently available evidence, which can then be incorporated into national guidelines for best practice.

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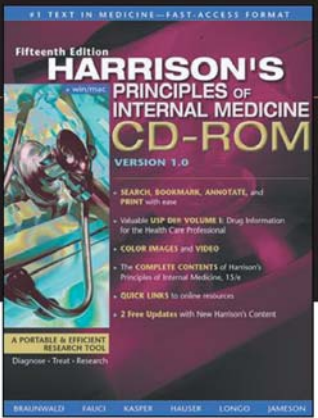
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- Hall MH, Chng PK, MacGillivray I. Is routine antenatal care worthwhile? *Lancet* 1980; ii: 78-80.
- Cochrane A. Effectiveness and efficiency. Random reflections on health services. London: Nuffield Provincial Hospitals Trust, 1972.
- Villar J, Ba'aqeel H, Piaggio G, et al. WHO antenatal care randomised trial for the evaluation of a new model of routine antenatal care. *Lancet* 2001; 357: 1551-1564.
- Carroli G, Villar J, Piaggio G, et al. WHO systematic review of randomised controlled trials of routine antenatal care. *Lancet* 2001; 357: 1565-1570.
- Hunt JM, Lumley J. Are recommendations about routine antenatal care in Australia consistent and evidence-based? *Med J Aust* 2002; 176: 255-259.
- Public Health Laboratory Service Syphilis Working Group. Antenatal syphilis screening in the UK: a systematic review and national options appraisal with recommendations. 1998. <<http://www.phls.org.uk/publications/syphil~1.pdf>>.
- Lumley J, Oliver S, Waters E. Interventions for promoting smoking cessation during pregnancy (Cochrane Review). In: *The Cochrane Library*, Issue 4, 2001. Oxford: UpdateSoftware. □

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