RESEARCH

Are recommendations about routine antenatal care in Australia consistent and evidence-based?

Jennifer M Hunt and Judith Lumley

ABSTRACT

Objective: To describe the variability and evidence base of recommendations in Australian protocols and national policies about six aspects of routine antenatal care.

Design: Comparison of recommendations from local protocols, national guidelines and research about number of visits, screening for gestational diabetes (GDM), syphilis, hepatitis C (HCV), and HIV, and advice on smoking cessation.

Setting: Australian public hospitals with more than 200 births/year, some smaller hospitals in each State and Territory, and all Divisions of General Practice were contacted in 1999 and 2000. We reviewed 107 protocols, which included 80% of those requested from hospitals and 92% of those requested from Divisions.

Main outcome measures: Frequency and consistency of recommendations.

Results: Recommendations about syphilis testing were notable in demonstrating consistency between local protocols, national policies and research evidence. Most protocols recommended screening for GDM, despite lack of good evidence of its effectiveness in improving outcomes. Specific approaches to screening for GDM varied widely. Coverage and specific recommendations about testing for HIV and HCV were also highly variable. Smoking-cessation information and advice was rarely included, despite good evidence of the effectiveness of interventions in improving outcomes. No national policies about the number of routine visits and smoking cessation could be identified. There were inconsistent national policies for both HIV and GDM screening.

Conclusions: Antenatal care recommended in protocols used in Australia varies, and is not always consistent with national policies or research evidence. Producing and disseminating systematic reviews of research evidence and national guidelines might reduce this variability and improve the quality of Australian antenatal care.

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ALMOST ALL THE 250 000 women who give birth in Australia each year receive some antenatal care.[1] Providing healthcare with the specific aim of improving the health of pregnant women and their babies dates back to the early 1900s, and since then "views and practices have altered in kaleidoscopic fashion".[2] Using an evidence-based approach to develop guidelines has been increasingly promoted in Australia and elsewhere to improve the quality of healthcare.[3] However, in Australia, there have been no comprehensive national guidelines about antenatal care since the National Health and Medical Research Council (NHMRC) rescinded its guidelines in 1995.

International reviews of antenatal care policies have found substantial variation in what is routinely recommended.[4,5] A recent editorial in the Journal highlighted this issue in an Australian context.[6]

Our aim in this project was to assess the variability of and explore the evidence supporting local protocols and national policies developed and used by providers of routine antenatal care in Australia. This report focuses on the results for six aspects of antenatal care: the number of routine visits; screening for gestational diabetes, syphilis, hepatitis C, and HIV; and the provision of information and advice about smoking cessation. These six areas were chosen because each is the subject of current debate or interest. They illustrate rather than exhaustively describe the many elements of antenatal care that may be considered routine.

METHODS

Public hospitals and Divisions of General Practice were contacted by telephone or email between November 1999 and March 2000. In each State and Territory, all Divisions of General Practice and all hospitals with more than 200 births each year were contacted, as well as some hospitals having fewer births. Protocols for routine antenatal care were requested from each organisation. Information was also sought from hospitals about birthing and antenatal care services provided.

All information sent by each organisation was included as one "protocol". Recommendations about specific areas of antenatal care were identified in each protocol and entered into a database. Excel[7] was used for collation and to calculate the proportions of protocols making specific recommendations. Recommendations about screening were classified as "universal", "selective" or "unclear". If a test was included on a checklist, clinical record or form with-

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Centre for the Study of Mothers' and Children's Health, La Trobe University, Melbourne, VIC.
Jennifer M Hunt, MPH, FAFPHM, PhD student;
Judith Lumley, PhD, FFPHM(UK), Professor, and Director.
Reprints will not be available from the authors. Correspondence: Dr J M Hunt, Centre for the Study of Mothers' and Children's Health, La Trobe University, 251 Faraday Street, Carlton, VIC 3053.
jennymh@bigpond.com

out selection criteria being specified, the recommendation about screening was classified as "universal".

Australian national policies were found through searches of the Commonwealth Department of Health and Aged Care policy documents, medical journals, and policy documents of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists[8] and other professional bodies.

It was not feasible to conduct systematic reviews for each content area. Instead, we searched for evidence supporting recommendations, and any current debates. MEDLINE, the Cochrane Library,[9] the Database of Abstracts of Reviews of Effectiveness (DARE)[10] and the Turning Research into Practice (TRIP) database[11] were searched to identify systematic reviews. *A guide to effective care in pregnancy and childbirth*[12] was a major secondary source of evidence.

RESULTS

Of 227 selected hospitals, 225 were contacted. Birthing and antenatal care services were provided by 218 (97%) and 125 (56%) contacted hospitals, respectively. Of hospitals with more than 200 births per year, the proportions providing antenatal care were less in Victoria (39%) and South Australia (43%) than in Western Australia (57%) and New South Wales (60%). All hospitals contacted in the Australian Capital Territory, the Northern Territory, Queensland and Tasmania provided antenatal care.

Overall, 119 hospitals (53% of those contacted) reported having some form of routine antenatal care protocol, including 113 (90%) of the 125 hospitals providing antenatal care services and six of the 100 hospitals not providing antenatal care. We identified two protocols as duplicates at this stage, and requested 117 protocols, of which 93 (80%) were received.

Twenty-five Divisions of General Practice reported having been involved in antenatal care protocol development, leading to the receipt of 23 (92%) protocols.

After exclusion of duplicates, 107 protocols were analysed. Five protocols had been produced by Divisions of General Practice alone, and 82 by one or more hospitals; 20 protocols had involved collaboration between Divisions and one or more hospitals. Numbers of protocols from each State and Territory were 33 for NSW, 25 for Queensland, 20 for Victoria, nine each for SA and WA, five for the NT, four for Tasmania and two for the ACT. Tertiary hospitals, defined as those with Level 3 neonatal intensive care units, had been involved in the production of 22 of the protocols reviewed.

Protocols varied widely in format and quantity of information, and included checklists, guidelines, clinical records or forms, and information designed for women as well as for practitioners. References to research papers or other sources of evidence were very infrequent.

Recommendations in the protocols

Number of routine visits

Eighty protocols (75%) included a recommendation about the number and timing of visits for routine antenatal care. A "standard" schedule of antenatal visits was frequently referred to as every four weeks until 28 weeks' gestation, then every two weeks until 36 weeks, then every week until 40 weeks or delivery. Most protocols (63; 79% of those covering the issue) recommended this standard schedule. Fewer visits or a more flexible approach were described in 12 protocols (15%), and extra routine visits, all relating to shared-care arrangements, were recommended in five (6%).

Screening for gestational diabetes

Most protocols (96; 90%) included a recommendation about screening for gestational diabetes mellitus (GDM): 78 protocols (81% of those covering the issue) recommended universal testing, 15 (16%) recommended testing specific groups of women only, and three (3%) had unclear recommendations. Protocols involving tertiary hospitals were more likely to recommend selective testing (29%) than non-tertiary-hospital protocols (13%). No protocols recommended against screening for GDM. Testing was most commonly (80% of protocols) recommended at gestation between 26 and 28 weeks.

Screening tests recommended in different protocols most commonly included glucose challenge and tolerance tests, as well as HbA_{1c} and random blood sugar levels. Different names were used for glucose challenge and tolerance tests in different protocols, and in some cases the same term was used to describe different tests. For example, the term "modified glucose tolerance test" was used in different protocols to describe a 50 g one-hour test and a 75 g two-hour test.

Screening for syphilis

Most protocols (98; 92%) included a recommendation about screening for syphilis: 93 (95% of these protocols) recommended testing all women at the first visit. The remaining protocols were unclear, and no protocols recommended against testing.

Screening for HIV

Just over half the protocols (59; 55%) included a recommendation about HIV screening. Of these, 33 (56%) recommended testing selected groups of women for HIV. This included 67% of protocols involving tertiary hospitals, and 54% of those not involving tertiary hospitals. The remaining 26 protocols (44% of protocols covering the issue) recommended testing all women for HIV.

Screening for hepatitis C virus

About half the protocols (52; 49%) included a recommendation about hepatitis C virus (HCV) screening. Of these, 32 (62%) recommended testing selected groups of women for HCV. These included 91% of protocols involving tertiary hospitals and 55% of those not involving tertiary hospitals. The remaining 20 protocols (40%) recommended testing all women for HCV.

Smoking cessation

Most protocols (96; 90%) did not include written information and advice about smoking cessation, although 30 of these protocols (28% of the total sample) included smoking as an item on a checklist. Of the 11 protocols including written information and advice, only

two gave comprehensive details of how women could best be advised and supported in quitting smoking.

National policies

Identified national policies and guidelines are summarised in the Box.

DISCUSSION

Almost all public hospitals providing antenatal care reported having some form of protocol for routine care. However, protocols obtained from public hospitals and Divisions of General Practice varied substantially in their form and content. More importantly, specific recommendations often differed and were not consistent with existing national guidelines.

Number of routine antenatal care visits

The source of Australia's predominant "standard" schedule is a 1929 policy statement from the United Kingdom,[16] and its continued currency in Australia 70 years later is surprising.

A recent systematic review by the World Health Organization concluded that reduced schedules of visits are not associated with worse outcomes for mothers or babies.[17] Some trials found women to be less satisfied with schedules of less frequent visits. Although this finding is of concern, women's experiences will be influenced by the expectations of women and providers about what is "standard".[18] Approaches with fewer prescribed visits could offer women more flexibility in antenatal care, and may become a new standard.

Screening for GDM

Although most Australian providers of antenatal care recommend screening for GDM, this practice remains controversial. Advocates of screening most frequently cite reports of associations between a diagnosis of GDM and increased frequencies of adverse outcomes for women or babies.[13,19] However, the many other possible explanations for these associations mean the contribution of GDM as a "cause" of adverse outcomes remains contentious.[12,20] Improved outcomes for women or babies attributed to screening for and managing GDM have not been clearly demonstrated.[21,22] In addition, labelling women as "high risk" during and after pregnancy, giving prescriptive advice about diet and exercise, and managing women with insulin may each have adverse effects.[12,21] The national guidelines and protocols reviewed here, and Australian hospital practices reported elsewhere,[23] recommend many different specific approaches to screening for GDM. There is a need for a comprehensive systematic review of the evidence regarding screening for GDM to better inform policy and practice in Australia.

Screening for syphilis

For syphilis screening, there was concordance between recommendations in the protocols, a national policy, and research evidence. A systematic review evaluating all aspects of antenatal screening for syphilis was recently conducted in the UK in response to concerns about the cost effectiveness of screening for a condition of very low prevalence.[24] In recommending the continuation of universal screening, the review highlighted the availability of simple, safe and effective treatment, the small potential gain in resources from stopping screening, and the likely ineffectiveness and unacceptability of targeted screening.

Screening for HIV

Effective intervention to reduce vertical transmission of HIV was first reported in 1994, and good evidence of the effectiveness of treatment and other management strategies has accumulated since then.[25] In Australia, HIV is uncommon among pregnant women. Consequently, HIV testing, although having very high specificity, might result in some false-positive and indeterminate results.[15,26] Although women are generally accepting of antenatal HIV testing,[27] the process of testing and indeterminate or false-positive test results may have negative psychosocial effects.

The merits of different approaches to antenatal screening for HIV are being debated in Australian and international publications.[28-30] Antenatal testing of all pregnant women is increasingly promoted in Australia and other affluent countries, prompted by concern about persistent reports of vertical transmis-

Australian national policies or guidelines about specific aspects of antenatal care

Number of routine visits

No national guidelines identified.

Screening for gestational diabetes mellitus

Australian Diabetes in Pregnancy Society: "Universal screening is recommended. If selective screening is considered more appropriate (because of limited resources or known low GDM incidence), screening may be reserved for those at higher risk."[13]

RANZCOG "does not currently recommend routine screening of all antenatal patients".[8]

Screening for syphilis

RANZCOG: Syphilis serology is listed as a routine screening test.[8]

Screening for HCV

RANZCOG: "All pregnant women with a significant risk factor for HCV should be screened."[8]

NHMRC: ". . . antenatal screening for HCV infection should be confined only to those women who provide a history of risk factors, or request screening when counselled about relevant risk."[14]

Screening for HIV

RANZCOG recommends "that screening be offered to all pregnant women, but only after appropriate counselling is given."[8]

Australian National Council on AIDS and Related Diseases and the Intergovernmental Committee on AIDS and Related Diseases: "Women found to be at higher risk of HIV infection or exposure should be encouraged to undergo HIV antibody screening."[15]

Information and advice about smoking

No national guidelines identified.

RANZCOG = Royal Australian and New Zealand College of Obstetricians and Gynaecologists.
NHMRC = National Health and Medical Research Council.

sion of HIV.[28] The two Australian national guidelines about HIV screening, and the inconsistent recommendations of local protocols, may reflect differing and changing opinions about this issue.

Informed consent is particularly relevant in the context of a trend towards universal testing for HIV during pregnancy. Antenatal tests considered "routine" can be presented to women without adequate information or real opportunities to refuse testing.[31] Current best practice for HIV testing in Australia requires that any person have enough information, and the opportunity, to choose whether they are tested.[15] The extent to which this is reflected in practice in Australian antenatal settings remains unclear.

Screening for HCV

That 40% of reviewed protocols recommended universal testing of pregnant women for HCV is of concern. The two national policies recommend selective testing,[8,14] and no published reports were found in support of universal antenatal HCV testing. The risk of vertical transmission of hepatitis C is estimated as 6% if a woman is HCV RNA positive, and negligible if she is HCV RNA negative.[32] There are currently no interventions that reduce the risk of transmission of HCV from mother to baby. A diagnosis of HCV can result in significant psychosocial morbidity. Stigmatisation and discrimination, including by health service staff, are commonly reported for people who are HCV positive.[33] If nothing can be done to improve outcomes, during pregnancy may not be the best time for a woman to have an HCV test, nor to find out she is HCV positive.

Smoking cessation

There is good evidence that smoking-cessation programs during pregnancy can be effective in assisting women to stop smoking, and in reducing low birth weight and preterm birth rates.[34] That smoking cessation was not mentioned in most of the protocols suggests that an effective intervention is not being promoted as part of routine antenatal care. It is possible that separate protocols dealt with the issue of smoking in pregnancy. However, other studies confirm significant barriers to smoking cessation being adopted as a priority issue by many antenatal care providers in Australia.[35,36]

Although no Australian national policy or guidelines about smoking cessation in pregnancy were identified, a 1999 national consensus conference endorsed their development.[37] Our results indicate a need for this policy and other strategies to encourage providers to include smoking-cessation programs as part of routine antenatal care.

CONCLUSIONS

Routine antenatal care involves many more content areas than are considered here. For each Australian organisation providing antenatal care to undertake systematic reviews of research evidence in each area would be unrealistic, and an inefficient use of resources. In Victoria, three tertiary maternity hospitals have combined resources to develop evidence-based consensus guidelines, aiming to standardise routine antenatal care in these institutions.[38] Extending this effort nationally to produce and disseminate systematic reviews of research evidence and practice guidelines could assist local providers of care to develop evidence-based protocols for practitioners and women, and reduce the inconsistencies in recommended antenatal care. The existence of guidelines and protocols does not guarantee effective and appropriate care. However, it seems likely that a substantial effort to increase the access of practitioners and women to information about the best available evidence would aid this quest.

COMPETING INTERESTS

None declared.

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