CHAPTER 3

ANTENATAL SCREENING SERVICES

Scope of antenatal screening

3.1 The antenatal screening of women and foetuses is an issue generating considerable interest and concern among consumers, clinicians and health administrators. This interest was reflected in evidence to the Committee. Major concerns consistently raised in the evidence relate to the increasing range of screening tests offered to women and the frequency with which they are performed, the concomitant growth in expenditure on screening and lack of evidence on the efficacy of many of the tests now performed. Each of these concerns is discussed in this chapter.

3.2 There is no agreement on the basic elements of antenatal screening. Some witnesses interpreted antenatal screening quite narrowly.

> Best practice in antenatal (pre-natal) screening standards is simple and natural. In a healthy woman there is little need for pre-natal screening - there is no reason to suspect that anything is wrong. At the very most, women may feel more secure that all is well by conducting checks on urine contents, blood pressure, weight gain, uterine shape and growth, foetal heart beat, movement and position, and general nutrition and well-being. Further screening is unnecessary unless a problem is indicated.[1]

3.3 Others defined it more explicitly, to encompass psychosocial as well as purely medical risks.

> Antenatal screening does not only encompass pathology and ultrasound testing, but also screening for example domestic violence, psychosocial conditions, that have major implications for not only the pregnancy but for the family unit as a whole.[2]

3.4 There is no agreement on the optimal range and number of screening tests for low risk women.

> Currently, no Australian antenatal screening standards exist. Recommendations regarding screening tests in pregnancy exist, but it appears from the early work of the Women's Hospitals of Australia Group, that those recommendations are interpreted differently across Australia. Medical and midwifery literature related to antenatal screening tests appears

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1 Submission No. 94, p.3 (Home Midwifery Association, Qld Inc).

2 Submission No. 69, p.9 (Women's Hospitals Australia and Australian Healthcare Association).

> to be inconclusive and most certainly has not been validated to the Australian population.[3]

3.5 A number of witnesses focussed on more recent, technological advances in screening, especially ultrasound. One witness saw screening as extending to in utero treatment of damaged foetuses. He chided the Committee for what he saw as its preoccupation with birth procedures rather than the potentially more rewarding study of in utero treatment.

> Labour and birth are not much of a biological event for the child. Birth is not an event for the foetal brain. The foetal brain does not really acknowledge the moment of birth. The foetal brain development has proceeded a long time before birth and it will proceed a long time after birth – birth is just another day in its life…we need to appreciate that labour is not the whole game...
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> What I am trying to get across is that we need some lateral thinking. Instead of having an entire inquiry based on birthing procedures, we need to understand that it is not the main game. The main game from government should be to de-focus off the moment of birth and to start focusing on the amazing opportunities we have to improve the life of our community by steps at earlier times.[4]

3.6 While acknowledging the emergence of foetal research and treatment in utero, the Committee is not persuaded by Professor Newman's claims, neither his assessment of the limits of its Inquiry nor of the insignificance of birth for the foetus.

3.7 The Committee accepts that antenatal screening refers to the tests and examinations offered to pregnant women, which range from straightforward measurement of blood pressure and determination of blood type through to very sophisticated ultrasound screening, for example nuchal fold screening.

3.8 Despite the range of views on antenatal screening procedures however, there was substantial agreement, at least among clinicians, on routine procedures to establish health status, enabling corrective action to be taken where appropriate. The Royal Australian College of General Practitioners, for example, advised:

> Generally accepted antenatal screening procedures include:
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> Routine blood and urine tests for blood group, anaemia, tests for preventable or treatable conditions such as rubella, syphilis, Hepatitis B and

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3 Submission No. 150, p.3 (Royal North Shore Hospital, NSW).

4 *Committee Hansard*, 8.9.99, pp.303-304 (Professor Newman, King Edward Memorial Hospital, WA).

5 Submission No. 150, p.3 (Royal North Shore Hospital, NSW).

6 Submission No. 94, p.3 (Home Midwifery Association, Qld Inc).

7 *Committee Hansard*, 8.9.99, p.303 (Professor Newman, King Edward Memorial Hospital, WA).

> identification of diseases such as HIV or Hepatitis C. Routine anatomy ultrasound at 18 weeks gestation is accepted practice.[8]

3.9 The Royal Australian and New Zealand College of Obstetricians and Gynaecologists suggested the following (broadly similar) base line investigations in apparently normal pregnancies, to be carried out at the first antenatal visit.

> *Tests at first antenatal visit:*
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> 1. Blood group and antibody screen
> 2. Full blood picture
> 3. Rubella antibody status
> 4. Syphilis serology
> 5. Hepatitis B serology
> 6. Hepatitis C serology
> 7. HIV serology
> 8. Cervical cytology[9]

3.10 Despite the guidelines issued by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists, referred to above, which recommend that screening for HIV should be universally provided to pregnant women, it is not routine practice to provide it. Practice varies from one institution to another and from one practitioner to another. Women's Hospitals Australia, for example, advised of significant variations between its member hospitals.[10]

3.11 There was much less agreement on a range of other tests such as short glucose tolerance tests for gestational diabetes, as indicated in the following excerpts from submissions to the Committee.

> An entire medical history has grown up around diagnosing and treating gestational diabetics in the belief that in doing so it will improve outcomes for mothers and their babies. The exact reverse may in fact be the reality. We need to challenge the gestational diabetes 'gravy train' and accurately reveal the costs of routine screening. 'Large amounts of money and resources that are tied up in diagnosing and treating this 'condition' could be diverted into areas where they might be more effective'.[11]

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8 Submission No. 70, p. 2 (Royal Australian College of General Practitioners).

9 Submission No. 17, Appendix 1 (Royal Australian and New Zealand College of Obstetricians and Gynaecologists).

10 See *Committee Hansard*, 27.8.99, p.71 (Women's Hospitals Australia).

11 Submission No. 38, p.4 (NSW Midwives Association).

> A review of antenatal screening was performed at Monash Medical Centre and certain recommendations were made, including the removal of screening for gestational diabetes on **all**. It was proposed to screen only those women considered at high risk for gestational diabetes and those women showing glucose in their urine…The policy for screening all women [for gestational diabetes] was in situ and as the senior obstetricians had opposing viewpoints the policy in situ remained. This suggests that it is easy to introduce policies that increase interventions but more difficult to show evidence to remove them.[12]

3.12 Witnesses from Women's Health Australia advised that screening for gestational diabetes is currently the subject of a comprehensive National Institute of Health (America) study which may provide more definite answers to the unresolved question of whether this intervention can be justified as part of routine screening.[13]

3.13 The Committee was advised that at present there was considerable variation in the usage of tests for gestational diabetes, whereas the routine tests referred to earlier were offered almost universally to pregnant women.

3.14 Several witnesses pointed out that non standard tests were more beneficial if selectively applied to at risk populations rather than universally applied.

> The decision to implement or suspend antenatal screening is related to the setting of the antenatal care. Whilst all women must have equal access to quality care, regardless of their geographic location or insurance status, what defines that quality may vary depending on the local incidence of disease, the ethnic mix of the local population, and whether the intervention used is Medicare rebatable.[14]

3.15 Widely different views were also presented to the Committee on the value of antenatal screening of any kind for low risk women. Some witnesses considered it unnecessary, as indicated in the submission from the Queensland Home Midwifery Association quoted earlier in this chapter.

3.16 Others believed antenatal screening an essential contributor to Australia's enviable record on childbirth outcomes.

> Current data suggests that there is correlation between the provision of antenatal services and screening with improved childbirth outcomes. (indicated by morbidity and mortality figures). Whilst it is widely accepted that there is benefit derived from the provision of antenatal care and

12 Submission No. 47, p.4 (Ms Carole Gilmour, NSW).

13 See *Committee Hansard*, 27.8.99, p.73 (Women's Health Australia).

14 Submission No. 104, p.4 (Central Sydney Area Health Service).

> screening, there is not, as yet, a consensus as to what constitutes "best practice".[15]

3.17 The Committee supports a definition of antenatal screening which includes basic, routine tests and measurements such as blood pressure and haemoglobin counts as well as more sophisticated tests such as ultrasound. The Committee is convinced of the importance of screening in improving outcomes for mothers and babies.

3.18 In evidence to the Committee, and in the literature generally, most concerns about antenatal screening have focussed on ultrasound scanning.

Ultrasound scanning

3.19 Ultrasound techniques were first developed in the 1950s to examine babies in utero. Their use has since become almost universal in Australia.

> In a 1994 Australia's Parents survey, 99.5% of respondents reported having at least one ultrasound in their last pregnancy.[16]

3.20 They absorb a significant proportion of the medical costs associated with childbirth. The Committee received many comments on this issue.

> Ultrasound is like a vast, bottomless pit.[17]
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> We spend more on taking pictures of babies than we do on delivering them.[18]
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> It does concern me that too much ultrasound is undertaken in pregnancy… diagnostic ultrasound HIC costs more than the whole of obstetric services – not just antenatal care, but antenatal care, confinement and postnatal care. That was two years ago.[19]
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> Figures from the Health Insurance Commission show the cost of obstetric ultrasound for 1997/8 was $39 million. Total number of obstetric ultrasounds 472 026 for 280 000 births. Cost of all other obstetric care from MBS obstetric items was $54 million. On top of this there will be

15 Submission No 16, p.3 (Royal Women's Hospital Health Service District, Brisbane).

16 Buckley S. *Ultrasound – Reasons for Caution.* First published in Australia's Parents, Summer 1999, as *All about Ultrasound.*

17 *Committee Hansard*, 6.9.99, p.158 (Royal Women's Hospital, Vic).

18 *Committee Hansard*, 8.9.99, p.325 (Royal Australian College of General Practitioners).

19 *Committee Hansard*, 8.9.99, p.340 (Professor Michael, St John of God Health Care).

> underestimates, as they do not include the private fee on top of medicare which can be the same again, or more.[20]

3.21 The most recent figures from the Health Insurance Commission, which exclude services provided by hospital doctors to public patients in public hospitals, show that in the period July 1998 to June 1999 expenditure was:

- $38.6 million on ultrasound (almost all of it routine scanning);
- $27.6 million on labour and delivery (including complex births, Caesarean sections and immediate post natal care); and
- $30 million on antenatal visits.[21]

3.22 The increase in the number of ultrasound tests performed, and the concomitant rise in costs, is especially troubling to some.

> Of particular concern is the cost of numerous ultrasound examinations. It is our current experience that it is not unusual for women to have undergone three ultrasound examinations before their pregnancy reaches twenty weeks of gestation.[22]

3.23 There is no clear evidence of what has caused the dramatic increase in ultrasound screening. Fear of litigation on the part of clinicians seems to be a significant contributing factor.

> Of particular concern to all parents is the risk of an abnormality in their baby. Consumer demand for reassurance in this regard is becoming overwhelming and the birth of an undetected abnormal child may often be followed by attempts at litigation. Failure to perform an ultrasound, cardiotocograph or other medical tests at an appropriate time are commonly cited in writs against doctors, midwives and hospitals.
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> The adverse medico-legal climate in Australia has created a drift to a much more defensive style of medical practice with a greater need to demonstrate reassuring negative test results to consumers.[23]

3.24 The increasing use of diagnostic ultrasound in pregnancy parallels its increasing use more generally.

> There has been continuous (nominal) growth in the use of ultrasound. In 1990-91, 77 ultrasound services were claimed for every 1000 persons, by 1996-97 this rate had increased to 139 per 1000 persons. For the last seven years (1990-91 to 1996-97), there has been an average annual growth rate of

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20 Submission No. 38, p.3 (NSW Midwives Association).

21 Health Insurance Commission Medicare Benefits Schedule Item statistics generated 5 October 1999.

22 Submission No. 150, p.3 (Royal North Shore Hospital, NSW).

23 Submission No. 17, p.3 (Royal Australian and New Zealand College of Obstetricians & Gynaecologists).

> 10.4 per cent in ultrasound services per 1000 population compared with a rate of 2.7 per cent for all diagnostic imaging services [including radiology, nuclear medicine etc].[24]

3.25 The growth in routine ultrasound screening is of particular concern given the lack of consensus on its value.

3.26 There is no doubt that ultrasound is beneficial where difficulties are identified or suspected, for example when bleeding occurs early in pregnancy or a breech position is suspected. Accurate dating through ultrasound may be helpful in preventing unnecessary induction of birth and in ensuring that other screening tests are performed at a time when they will provide the most accurate results.

3.27 The value of routine ultrasound scanning is more controversial. Some witnesses before the Committee believed ultrasounds are no more accurate in determining due date than are women themselves, or their doctors or midwives. Others questioned their accuracy in detecting foetal abnormalities. Whilst 'ultrasound is regarded as the gold standard for the establishment of the viability of pregnancy' its accuracy in determining physical abnormalities is very questionable.[25] Scans do not generally identify intellectual disabilities.

> While many women are reassured by a normal scan, in fact RPU [routine prenatal ultrasound] detects only between 17% and 80% of the 1 in 50 babies that have major abnormalities at birth. A recent Brisbane study showed that ultrasound at a major women's hospital missed around 40% of abnormalities, with many of these being difficult or impossible to detect.[26]

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> Despite this epidemic of ultrasound examinations, which are supposed to give reassurance, at least one in five perinatal deaths are associated with lethal anomalies, many – if not most of which – are diagnosable by ultrasound.[27]

3.28 In the view of the Australian Health Technology Advisory Committee the accuracy of the ultrasound test is related to the training and expertise of the operator (normally a radiologist) in conducting the test and the skill and practice of the physician in interpreting it. Staff in major centres with high exposure to foetal abnormalities have greater detection rates than staff in centres conducting fewer

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24 Australian Health Technology Advisory Committee. *Diagnostic Ultrasound. Discussion Paper – Forum on Ultrasound,* Sydney, 13-14 June 1998, p.v. These figures are based on data from the MBS, which excludes public patients in the public health system.

25 Ibid, p.46.

26 Buckley S. *Ultrasound – Reasons for Caution.* First published in Australia's Parents, summer 1999, as *All about Ultrasound.*

27 *Committee Hansard,* 15.9.99, p.513 (Professor James King).

tests.[28] The Committee was concerned to learn that there are currently no standards governing the training of those who operate ultrasound equipment, a situation which it considers unacceptable given the number of tests performed, their cost and the impact on women and their families of inaccurate diagnoses.

3.29 Inaccuracy in determining abnormalities is not the only concern. Another is the fact that for the majority of abnormalities detected, there is no possibility of remedial treatment. A further concern is that in a small number of cases false positive diagnoses are made, where the baby is said to be damaged when it is in fact normal. In a greater number of cases, (possibly up to 10%)[29] scans are unclear. In each of these situations families must endure months of needless anxiety. In some instances normal babies have been aborted because of false-positive diagnoses.

> We generate an enormous amount of anxiety by some of these screening tests and I am not sure that all of them are actually worth while.[30]

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> Most women choose to have prenatal diagnosis, because they want the reassurance that their baby is normal. However our current tests cannot give this guarantee. Perhaps we are expecting too much of this technology, and in our striving for the perfect baby, we are producing a system that has its own share of heartache.[31]

3.30 A more realistic expectation of what can be achieved, and its costs as well as its benefits, would assist in considering future priorities and directions for antenatal screening.

3.31 There appears to be inadequate counselling of women about the nature of a screening test. Women are often not aware of the possible adverse consequences of routine scanning, and the difficult decisions they may face as a result of it.

> I find that most women, once aware of the likelihood of false positive or false negative results with regard to ultrasound do not want the screening. My impression of the general public is that they are very poorly informed about ultrasound and that it is becoming a part of culture that there is a photo of the baby before birth.[32]

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28 Australian Health Technology Advisory Committee. *Diagnostic Ultrasound, Discussion Paper – Forum on Ultrasound,* Sydney 13-14 June 1998, p.42.

29 See Sparling J. W. et al. *The relationship of obstetrical ultrasound to parent and infant behaviour.* Obstetrical Gynaecology 1988, vol. 72, no. 6, pp.902-7.

30 *Committee Hansard*, 7.9.99, p.202 (Professor Marshall, Flinders Medical Centre).

31 Buckley S, *What's new in prenatal diagnosis,* p.3, 1998. Attachment to Submission No. 110.

32 Submission No. 7, p.1 (Ms Jenny Parratt, Vic).

3.32 Evidence to the Committee suggests that the position in Australia is fast approaching that in the United States where a 1993 editorial in *U.S.A. Today* proclaimed:

> Baby's first picture…a $200 sonogram shot in the womb…is a nice addition to any family album.[33]

3.33 There are growing concerns in the medical profession about the safety of ultrasound for mother and baby, although there is no conclusive evidence to support the case for suspension or limitation of routine tests. Concerns are heightened by the absence of standards in Australia governing the level of the dose used in ultrasound scans (which may vary by up to 5,000 times according to the machine used) and the training of operators. Since the level of the dose used does not affect the accuracy of ultrasound results, the Committee considers that standards governing the safety of ultrasound equipment should be introduced without delay.

3.34 Despite these concerns, routine ultrasound scanning (one scan at 18 weeks) remains almost universal. Evidence to the Committee suggested few variations in this practice between hospitals, States, or public and private patients. However, there is a much greater variation in the multiple use of ultrasound scans and in the use of more sophisticated ultrasound scans.

3.35 A very large randomised study in the United States (the RADIUS trial) involving 15,151 pregnant women at low risk for perinatal problems, to determine the impact of ultrasound screening on perinatal outcomes concluded:

> Potential benefits such as satisfying patients' desires for assurance that there are no fetal anomalies must be weighed against the unnecessary anxiety entailed in the examinations and the risks of overtreatment due to false positive diagnoses. The adoption of routine ultrasound screening in the United States would add considerably to the cost of care in pregnancy, with no impact on perinatal outcome.[34]

3.36 An analysis of nine trials undertaken through the Cochrane Pregnancy and Childbirth Group trials concluded:

> Routine ultrasound in early pregnancy appears to enable better gestational age assessment, earlier detection of multiple pregnancy and earlier detection of clinically unsuspected fetal malformation at a time when termination of pregnancy is possible. However the benefits for other substantive outcomes are less clear.[35]

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33 From Wagner M. *Ultrasound: More Harm than Good?* ACE Graphics, 2 November 1998, p.1.

34 Ewigman B.G. et al. *The Effect of Prenatal Ultrasound Screening on Perinatal Outcome.* New England Journal of Medicine, 16 September 1993: 329, pp.821-827.

35 Neilson J. P. *Ultrasound for fetal assessment in early pregnancy*. Cochrane Review. In Cochrane Library, Issue 3, 1999, Oxford: Update Software.

3.37 The only large, randomised study undertaken in Australia, the Raine study, compared the effects on children of mothers who had had a single ultrasound at 18 weeks with the children of those mothers who had had five ultrasounds. It showed no long term, demonstrable adverse effects.

> It was the world's only randomised trial of multiple ultrasounds in pregnancy that has ever been performed. It showed that there were no deleterious effects on the children whatsoever, apart from a one per cent shift in the birth weigh curve to the left in the babies that had had frequent ultrasounds. In other words, about a 30 gram overall reduction…By one year of age, the effect had gone.[36]

3.38 The Committee considers that routine ultrasound screening in pregnancy is an obvious area for the development of evidence based guidelines which will minimise unnecessary testing without compromising maternal or foetal health and ensure that funds are directed to areas of maximum benefit to the health of mother and child. Many submissions pointed to the need for such guidelines, and for further research on which to base them. This issue will be discussed in a later chapter, as one aspect of best practice guidelines in antenatal care.

Recommendation

The Committee RECOMMENDS that the National Health and Medical Research Council develop standards for the training of operators of all obstetrical ultrasound equipment and for those who interpret the results of those tests.

Recommendation

The Committee RECOMMENDS that the National Health and Medical Research Council develop guidelines governing the safe use of all obstetrical ultrasound equipment.

Recommendation

The Committee RECOMMENDS that the National Health and Medical Research Council develop or coordinate the development of evidence based assessments of the efficacy of routine ultrasound scanning in pregnancy and that it conduct a cost benefit analysis of current ultrasound practices.

3.39 Although most evidence to the Committee on high technology antenatal screening focussed on routine ultrasound screening, other antenatal tests were also discussed. Those receiving most attention are described below.

Nuchal fold test

3.40 The nuchal fold test, also known as the nuchal translucency test, is a relatively new, specialised ultrasound screening test, performed at 11 – 13 weeks, to measure the

36 *Committee Hansard*, 8.9.99, p.308 (Professor Newnham, King Edward Memorial Hospital, WA).

fluid level at the back of the neck of the foetus. Babies with extra fluid have a higher risk of Down's Syndrome. In cases where this is suspected after ultrasound, mothers may be offered amniocentesis or chorionic villus sampling (CVS) for chromosomal analysis.

3.41 Similar concerns have been raised in connection with the nucal translucency test as with ultrasound. These include: inaccuracies in results; insufficient training of those who operate the equipment and those who interpret the results; the impact on women of false positive diagnoses, especially for those women who have received inadequate counselling and information before undertaking the procedure; and its costs. All of these concerns were raised in a submission from the NSW Midwives Association.

> More recently, the widespread use of ultrasound for screening women for Down Syndrome using the Nuchal Translucency test has emerged. This is increasingly being offered to women regardless of their age or risk factors. Often they are not adequately informed of the subsequent investigations that may need to follow, such as amniocentesis with its inherent complications. The high false positive rate of Nuchal Translucency testing is well known. Many untrained practitioners are beginning to use this technique because of the potential financial gains. Once again, we are not evaluating a technology before implementing it and like so many interventions in childbirth, once the procedure is established it is impossible to withdraw it.[37]

3.42 The disturbingly high rate of false positive results from nuchal translucency testing, and its deleterious consequences for the women and families concerned, were highlighted in a recent article by Dr Sarah Buckley.

> With Nuchal translucency, for example, 19 out of 20 women who get a "positive" result will not have been carrying an affected baby, but will go through counselling and amniocentesis (with a 1% risk of miscarriage), and then wait for days or weeks before reassuring results are back. Some women who have been through this experience report that they felt anxious about their baby even after this reassurance, and others believe that it has permanently affected their relationship with their child.[38]

3.43 Suggestions for controlling the growth in nucal fold screening were made in a submission from the Director of Obstetrics and Gynaecology at Queen Elizabeth Hospital in South Australia.

> There should be support for an Australian multicentre trial of nuchal fold screening; otherwise it will creep in by stealth with no adequate quality

37 Submission No. 38, pp.3-4 (NSW Midwives Association).

38 Buckley S. *What's new in prenatal diagnosis,* 1998. Attachment to Submission No. 110.

> control. One could mount an argument for certified training in the technique (which is available) before allowing a charge on Medicare to be made.[39]

3.44 The Committee believes there is merit in this suggestion and that it should be further investigated.

3.45 The nuchal translucency test, because it requires sophisticated equipment, is generally not available to women outside major metropolitan centres.

> This latest form of screening [nuchal fold] has been introduced and now appears to be a part of "routine screening". It appears that this sophisticated screening tool is primarily available to women in most urban areas. The question that must be asked, is whether there is equity of access to this screening for the majority of women in Australia?[40]

Recommendation

The Committee RECOMMENDS that the National Health and Medical Research Council conduct or oversee the conduct of an Australian multicentre trial of nuchal fold screening to determine its efficacy for use among pregnant women generally, and among those considered at particular risk of carrying babies with Down's Syndrome.

Recommendation

The Committee RECOMMENDS that earlier recommendations relating to the training of operators and the regulation of equipment used in routine ultrasound screening should also apply to nuchal fold screening.

Maternal serum screening (MSS)

3.46 This is a blood test undertaken at 15-18 weeks of gestation and designed to detect babies at high risk of Down's Syndrome and neural tube defects such as spina bifida. The accuracy of the test is severely compromised in cases in which exact gestational age is in doubt. This is one reason given as justification for the increasing number of ultrasounds being performed early in pregnancy. Accurate determination of foetal age, it is claimed, can ensure that other tests are performed at a time when their accuracy is maximised.

3.47 The tests were developed as one means of ensuring that only those babies most likely to have an abnormality would be subjected to amniocentesis and CVS tests, which carry a chance of miscarriage. (There is a 1% chance in the case of amniocentesis, for example). Again, similar concerns were raised with the Committee as in the case of the other screening tests discussed. Inadequate information to women undertaking the test was a particular concern for MSS.

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39 Submission No. 5, p.1 (Dr B R Pridmore, Queen Elizabeth Hospital, SA).

40 Submission No. 150, p.4 (Royal North Shore Hospital, NSW).

> Many of the informed consent problems with Ultrasound apply to prenatal diagnosis, and particularly MSS, where the blood test may be taken as part of the standard pregnancy screen, without the necessary counselling and discussion.[41]

3.48 Rates of MSS are very variable between States.

> Each State coordinates its own blood testing, or maternal serum screening (MSS), and rates vary from state to state – eg around 75% in S.A. and about 20% in Victoria, depending on the enthusiasm of the institution involved.[42]

Amniocentesis and chorionic villus sampling (CVS)

3.49 These are diagnostic tests rather than screening tests like ultrasound. They can therefore determine with certainty whether the foetus has the abnormality for which it is being tested.

3.50 Each of these tests is used to determine whether the foetus has Down's Syndrome or other chromosomal abnormalities. In the case of amniocentesis, a sample of the amniotic fluid which surrounds the baby is withdrawn for examination. In the case of CVS a small fragment of the placenta is removed. This test is preferred by some women because it can be conducted at 10-12 weeks when, in the event of a positive diagnosis, an early termination is possible.

3.51 This discussion of antenatal screening has been confined to the tests in common use, and about which the greatest concern has been expressed. The Committee received little information on other tests, such as genetic tests for families at risk of specific inherited conditions.

41 Submission No. 110, p.4 (Dr Sarah Buckley, Qld).

42 Ibid, p.4.