

Paper

Current trends in Antenatal Screening Services: Results from a regional survey

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ABSTRACT

Objective To identify variations in current antenatal screening programmes across one region and compare results with a previous survey.

Design A cross section descriptive survey.

Setting All maternity units within the region of Northern Ireland.

Sample Eleven maternity units were invited and ten agreed to participate.

Main outcome measures The number of written policies for individual screening tests; the range of screening tests offered; the frequency of training opportunities for health professionals; and the information systems in place to record data.

Results There is variation in service provision across maternity units and, in particular, inconsistency in the offer of serum screening tests for Down syndrome. A lack of training opportunities for health professionals involved in offering screening was highlighted, and no common information system employed.

Conclusion While improvements have been made since 2002, variations persist. This is leading to inequalities in the provision of antenatal screening services across Northern Ireland.

Keywords Antenatal screening, policy, survey

INTRODUCTION

Ten years ago a Health Technology Assessment¹ (HTA) review on antenatal screening warned that the screening practices employed in Britain were inequitable, fragmented and incomplete. More recent evidence has indicated this may not have significantly changed despite policy amendments regarding provision of screening^{2,3}. Current guidelines by the National Institute for Clinical Excellence in Health (NICE)⁴ and recommendations from the National Screening Committee (NSC) indicate that all pregnant women should be routinely offered screening for infections including asymptomatic bacteriuria, Hepatitis B, HIV, Rubella, and syphilis, anaemia, blood group and antibodies, and fetal anomaly screening. Recommended routine fetal anomaly screening consists of an ultrasound scan between 18 & 20+6 weeks gestation and serum screening for Down's syndrome, preferably the combined test but where not possible then either the triple or quadruple test⁴. This policy has been in place throughout the United Kingdom (UK), since 2003, however, these measures have not been implemented to the same degree in Northern Ireland (NI), and as a result antenatal screening practice has not been consistent^{5,6}. Current NI serum screening policy covers infectious diseases in pregnancy, including Hepatitis, HIV, Rubella and syphilis⁷ and it is proposed to offer Down's syndrome screening to all women by 2011⁸.

In 2002 a baseline survey on screening services was commissioned by the Department of Health, Social Services and Public Safety (DHSSPS) in NI to establish the current provision of screening and inform how recommendations by the UKNSC could be developed⁹. It identified a regional service that echoed the warning made by the HTA¹ in 1999: inequitable, fragmented and incomplete. Since the baseline survey there have been a number of changes, both regionally and nationally, including the offer of HIV screening to all pregnant women, the introduction of antenatal screening coordinators and limited serum screening for Down's syndrome. This survey aimed to identify the impact of these changes on the current provision of antenatal screening.

METHODS

Study Design

A cross section descriptive survey technique was employed. The baseline survey⁹ on antenatal screening provision, carried out by the DHSSPS in 2002, was adapted to take account of developments in the structure of antenatal screening services.

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These modifications were minor, for example the inclusion of items relating to antenatal screening coordinators, providing a questionnaire that enabled respondents to disclose any changes and provide a full picture of the offer, provision and management of screening programmes since the original survey.

Method of data collection

The survey was sent to the Clinical Director of Obstetrics and Gynaecology within each maternity unit. Participants were asked to complete the questionnaire with the Midwifery Manager of the unit to ensure consistency of responses and, if necessary, consult with other departments or individuals to ensure full disclosure of current practice. The units were given four weeks to complete and return the survey. Those who had not returned within the time frame were given a telephone reminder. In two cases a duplicate survey was supplied.

Population sample

There are a total of eleven maternity units across Northern Ireland, who were invited to take part. One unit declined, due to time constraints, resulting in a total sample size of ten.

Data analysis

The responses provided were analysed using a statistical database (Microsoft Excel) with descriptive statistics calculated. Results from the 2002 survey were obtained to assist in the analysis, looking specifically at changes in practice over time and highlighting current trends.

RESULTS

Service policies

The majority of maternity units (n=8) had an antenatal screening policy in place. With respect to individual screening tests, an average of 5.3 (SD = 2.4) policies per unit was reported. This compares to an average of 3.4 (SD = 3.4) in 2002. Figure 1 illustrates the expansion in the number of written policies for individual tests from 2002 to 2005.

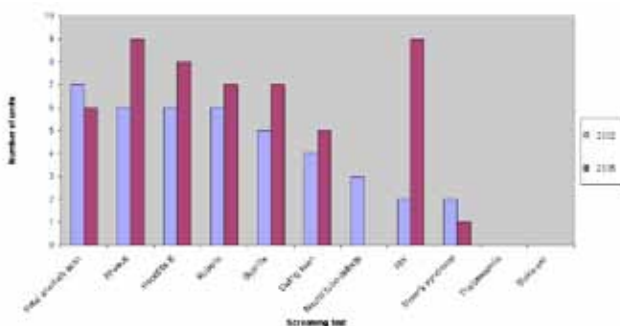


Fig 1. Number of maternity units with written policies for specific screening tests, as reported in 2002 and 2005

Current screening programmes offered

All units offered the maternal screening tests of rubella immunity, syphilis, hepatitis B, HIV and atypical red cell antibody screening (including rhesus) to all women, with every pregnancy. Of particular note is the number of units

offering HIV screening to all women: from two units in 2002 to all 10 units surveyed in 2005. Screening for the conditions of B thalassaemia and sickle cell was offered to selected women in 80% (n=8) of the units. Two of these eight units indicated the selection criterion as 'ethnic origin' and 'if clinically indicated'.

For fetal screening tests, which are designed to assess the health of the baby, respondents provided details on the basis of the offer to women attending their unit. Table 1 presents results for all ten units. Those units that offered fetal screening tests to selected women were asked to report on the criteria under which this selection took place. 33% (n=3) of respondents provided details, citing 'family history', 'genetic clinic referral' and 'over 35' as the specified criterion. With the early pregnancy dating scan one unit disclosed that it was offered to selected women on the basis of, 'poor obstetric history, abdominal pain, PV staining'.

The main difference identified between 2002 and 2005 was
TABLE 1

Number of Maternity units offering fetal screening tests

Screening test / Policy of offer	Serum AFP	Serum Down's screening	Nuchal Translucency	Dating scan	Anomaly scan	Ultrasound Markers
All women	1	1	-	9	10	3
Maternal request or private/ payment	2	6	4	-	-	-
Selected women	4	4	3	1	-	1
Test not offered	3	-	3	-	-	6

the fall in the number of units offering serum screening to selected women. In its place women are being offered the test on a private/payment basis. 50% (n=5) of the maternity units surveyed offered screening for Down's syndrome on a private/payment basis alone compared with 16.6% (n=2) in 2002. The results from both surveys also highlight a shift from using the double test to the triple test for Down's serum screening. In 2002 four units offered the double test to screen for Down's syndrome, compared with only one unit by 2005.

The multi-professional team

Six units (60%) employed an antenatal screening coordinator. One antenatal screening coordinator performed their job within two maternity units, sharing their time in relation to the size of the units. Three of the five antenatal screening coordinators reported attendance at training days within their local health board, with one coordinator also attending a one week workshop in addition to university-based study days. The subjects of these courses reported included antenatal screening and abnormalities, bereavement, ultrasound scanning, HIV and rhesus negative screening.

With regards to the remaining health professionals involved in the screening programme, there was a lack of training opportunities available to them across all the units surveyed. Ad hoc study opportunities were most frequently cited, with 40% (n=4) of units indicating that opportunities were ad hoc across all health professional groups (midwives, consultants, junior doctors and ultrasonographers). One unit provided no access to training for consultants, junior doctors or ultrasonographers. Midwives were the only group

that received training opportunities annually (n=1) or every 3 months (n=2), while junior doctors received training every 6 months within one unit.

Information systems

There was no unique information system reported by respondents that covered the whole region. Within the units a wide range of databases and information systems were employed. Seven units used NIMATS to record information for a number of antenatal services (booking, biochemistry, haematology, microbiology results, procedures, notification of birth and congenital anomalies). Laboratory test data was recorded mostly on laboratory systems (7 units). PAS was used in particular for booking and administration (5 units), but also referred to by at least one maternity unit across all the antenatal services' systems. Radiology systems (NIRADS) were mentioned by three units, and one unit referred to the NIBTS system for haematology systems. An average of 2.5 (SD = 1.4) information systems were used within the maternity units and pattern of data use and storage is similar to that reported in 2002.

DISCUSSION

The regional survey confirmed that antenatal screening services offered to pregnant women in NI remains inconsistent between and within maternity units. On a national setting, the contrast between practice in NI and recommendations by the UKNSC and NICE is most evident in the provision of serum screening for Down's syndrome. The UKNSC and NICE guidelines⁴ have recommended that all pregnant women, irrespective of age, should be offered second trimester serum screening if first trimester screening is not possible, reflecting that Down's syndrome serum screening should be offered to all women with every pregnancy. Only one unit offered universal screening in the survey. The remaining eight units did not offer this test to all women and are, therefore, not meeting these national standards.

At the time of survey in 2005 the DHSSPS position reflected a lack of consensus about the provision of Down's syndrome screening in NI. Subsequent research has indicated that not all health professionals are supportive of the current test (triple test) offered⁶ and midwives report feelings of both personal and professional conflict when discussing it with women partly because of the current legal status in NI, where The Abortion Act 1967, which legalised termination of pregnancy in Britain, does not apply. This creates a tension when offering screening in a context where very limited termination of pregnancy is available. Since data collection, guide lines for health professionals regarding termination of pregnancy have been released¹⁰. Other factors reported to impact on the discussion with women include the actual time available to give women information about the test on offer, the lack of education and training provided for midwives in relation to offering screening tests, the structure and organisation of antenatal care and the underlying social, moral or religious context in which the test is offered^{5, 6 & 11}. As a result, the offer and discussion of screening is a complex interaction of several factors, some of which are not easily addressed. It is planned to introduce Down's syndrome screening for all women in NI by 2011 as noted earlier⁸ and this survey would suggest there is significant discussion and work needed to

achieve this target. However, developments in screening techniques for Down's syndrome, particularly in relation to tricuspid regurgitation, ductus venosus waveform and nasal bone evaluation, may shift benchmarks for screening practice even further by this time¹².

None of the maternity units surveyed offered the 'combined test', which NICE guidance, both in 2003 and the updated version of 2008⁴, have highlighted as the most effective before 14 weeks' gestation. The introduction of a nuchal translucency scan would require a substantial shift in the pattern of antenatal care offered and in the training needs of those offering the screening service, which would lead to both financial and human resource implications. As a result, an initiative, led by the DHSSPS, would be required if recommendations by the UKNSC concerning testing for Down's syndrome were to be introduced across all maternity units in the region.

A lack of training opportunities available to health professionals involved in the provision of screening tests was identified by both the survey of 2005 and 2002. Training was offered largely on a need-to-know basis only. For example, HIV study days were brought in to facilitate the introduction of HIV testing on a routine basis. This survey shows the antenatal screening co-ordinators have been successfully incorporated into current practice and could play a fundamental role in identifying areas where there are training needs among all health professional groups involved in antenatal screening. A report carried out by the Regional Antenatal Screening Teams for the UKNSC¹³ recommended that antenatal screening co-ordinators should assume responsibility for the education and training of the multidisciplinary team. While the introduction of screening coordinators within six units does not appear to have positively affected the amount of training opportunities reported, they are potentially an invaluable resource for future training of the multi-professional team.

Both survey reports have informed us of the limited auditing of antenatal screening, with the uptake and outcomes of screening tests relatively unknown. The inability of eight maternity units to report on the uptake of individual screening tests reflects the weaknesses of the current systems. The systems in place provide limited and fragmented information on the offer of prenatal screening, uptake rates and results. The need for a common universal maternity information system needs to be addressed in order to help with the recording of all screening tests taken and their results, as antenatal screening is now a significant component of antenatal care. Dedicated systems for collecting screening and fetal medicine data do exist, but are not being used in NI. The UK government initiative, NHS Connecting for Health, has a primary aim of supplying the NHS with new, integrated IT systems and services to enable information to be shared effectively. An integrated IT system would provide benefits for both staff and patients involved in the antenatal screening programme.

CONCLUSIONS

The survey identified a number of areas where improvements could be made to enhance the provision and management of antenatal screening services across Northern Ireland:

- Consistency in the serum screening programme for Down's syndrome.
- Improvement in the training opportunities for all professional groups involved in the provision of antenatal screening tests.
- Development of a common information system to operate across all sections of the antenatal screening services.

The authors have no conflict of interest to declare

REFERENCES

1. Wald NJ, Kennard A, Hackshaw AK, McGuire A. Antenatal screening for Down's syndrome. *Health Technol Assess*. 1998; **2 (1)**: i-iv, 1-112. Available online from: www.hta.ac.uk/fullmono/mon201.pdf Last accessed October 2009.
2. Rowe R, Puddicombe D, Hockley C, Redshaw M. Offer and uptake of prenatal screening for Down syndrome in women from different social and ethnic backgrounds. *Prenat Diagn*. 2008; **28 (13)**: 1245-50.
3. Dormandy E, Michie S, Hooper R, & Marteau TM. Low uptake of prenatal screening for Down syndrome in minority ethnic groups and socially deprived groups: a reflection of women's attitudes or a failure to facilitate informed choices? *Int J Epidemiol*. 2005; **34 (2)**: 346-52.
4. National Collaborating Centre for Women's and Children's Health. National Institute for Health and Clinical Excellence. *Antenatal Care: routine care for the healthy pregnant woman* 2008. London: Royal College of Obstetricians and Gynecologists. Available from: www.nice.org.uk. Last accessed October 2009.
5. Alderdice F, McNeill J, Rowe R, Martin D, Dornan J. Inequalities in the reported offer and uptake of antenatal screening. *Public Health*. 2008; **122(1)**: 42-52.
6. McNeill JA, Alderdice FA. Exploring the perspective of midwives involved in offering serum screening for Down's syndrome in Northern Ireland. *J Clin Nurs*. 2009; **18(20)**: 2888-96.
7. Department of Health, Social Services and Public Health. The UK National Screening Committee (UK NSC). Screening in Northern Ireland. Infectious diseases in pregnancy. Available from: <http://www.screening.nhs.uk/infectiousdiseases-northernireland>. Last accessed October 2009.
8. Department of Health, Social Services and Public Health. The UK National Screening Committee (UK NSC). Screening in Northern Ireland. Fetal anomaly. Available from: <http://www.screening.nhs.uk/fetalanomaly-northernireland>. Last accessed October 2009.
9. Boyle M. Antenatal Screening Provision in Northern Ireland: a baseline assessment. *Department of Health, Social Services and Public Safety in Northern Ireland (DHSSPSNI), 2003*.
10. Northern Ireland. Department of Health, Social Services and Public Health. *Guidance on the termination of pregnancy; the law and clinical practice in Northern Ireland, 2009*. Available from: <http://www.dhsspsni.gov.uk/hss-md-9-2009-attachment.pdf>. Last accessed October 2009.
11. McNeill J, Alderdice F, Rowe R, Martin D, Dornan JC. Down's syndrome screening in Northern Ireland: women's reasons for accepting or declining serum testing. *Evid Based Midwifery*. 2009; **7(3)**: 76-83.
12. McGee DC. Evaluation of first-trimester tricuspid regurgitation for Down syndrome screening. *J Perinat Neonat Nurs*. 2008; **22(4)**: 282-90.
13. Harcombe J, Fairgrieve S. *National training needs analysis for antenatal screening services across England Report to the UK National Screening Committee*. London: National Screening Committee, 2004.