

A survey of intrapartum fetal surveillance education practices in Victorian public hospitals

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Abstract

Background: The inappropriate use or interpretation of intrapartum fetal surveillance (IFS) continues to be a major contributor to adverse obstetric outcomes, suggesting that training in IFS is deficient. What professional education in intrapartum fetal surveillance currently exists in Victorian public hospitals is unknown.

Aims: To map the current formal IFS education and competency assessment practices in Victorian public hospitals.

Methods: A structured survey comprising 25 questions was developed and mailed to both a senior obstetric and a midwifery manager in all public maternity hospitals in Victoria. Non-respondents were followed up at 2 months.

Results: One hundred and twenty surveys were sent to 60 hospitals, of which 103 replies from 58 hospitals were received, representing a 97% hospital response rate. Only 19 (33%) of respondent hospitals had an existing education program. Hospitals with > 2000 births per annum were more likely to have a program than those with < 1000 births per annum (86% vs 23%, $P = 0.004$). Of the 19 existing education programs, only nine contained any fetal physiology. All respondents thought that IFS education should be compulsory for relevant staff. Only six (10%) of the hospitals had any assessment of competency but 90% of respondents thought that such an assessment should be compulsory.

Conclusions: These data reveal important deficiencies in the provision and quality of current IFS education practices in Victoria, particularly in smaller and rural hospitals. However, these deficiencies seem to reflect a lack of opportunity rather than a lack of interest.

Key words: competency, CTG, education, fetal surveillance, intrapartum.

Introduction

The incorrect use and/or interpretation of intrapartum fetal surveillance (IFS) have been identified as important contributors to adverse perinatal outcomes both in Australia and elsewhere.¹⁻⁴ In the UK the confidential enquiry into stillbirths revealed that failures in the use and interpretation of cardiotocographs (CTGs) were present in more than half of intrapartum-related deaths.⁴ Similarly, in Victoria over the last 10 years the Consultative Council on Obstetric and Paediatric Mortality and Mortality has repeatedly highlighted that a significant number of intrapartum stillbirths and early neonatal deaths are secondary to peripartum hypoxia where intrapartum care was deficient.^{2,5-7}

In the UK, these disturbing findings led to the recommendation that every hospital offering intrapartum care should have a training program in the use of CTGs for professionals working in a birthing suite environment. We are not aware of a similar call for improved training in Australia at a national level. However, in Victoria the Victorian Managed Insurance Authority, the public hospital insurer, and the Victorian

Government Department of Human Services recently funded the development of an education program,⁸ presumably in response to a perceived need for better training in that State.

We undertook this study to map existing fetal surveillance training practices in Victoria and to identify any shortcomings in the availability and/or quality of fetal surveillance education resources in Victorian public hospitals.

Methods

A 25-item structured multiple choice questionnaire was developed to explore current formal IFS education and

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competency testing practices and future needs in these areas (Appendix A). The questionnaire was scannable to facilitate data acquisition and to minimise data entry error. In February 2004 the questionnaire was mailed, with a prepaid return envelope, to both a senior medical and a midwifery representative in each of the 60 Victorian public hospitals that the Department of Human Services identified as offering intrapartum care. The medical and midwifery representatives had been identified previously by initial telephone contact from one of the authors (MB). After eight weeks, non-respondents were contacted by telephone and a duplicate questionnaire sent as required.

For the purpose of data analysis, on an a priori basis, hospitals were divided into small (< 1000 births per annum), medium (1000–2000 births per annum) and large (> 2000 births per annum).

Where factual data from an individual hospital differed between the respondents (eg the existence of an education program) a follow-up phone call was made to clarify the correct response.

Statistical analyses were performed using STATVIEW (SAS, Cary, NC, USA). Significance was accorded when $P < 0.05$.

Results

Of the 120 questionnaires sent to 60 hospitals, 103 (86%) were returned from 58 hospitals (97%). Both of the non-respondent hospitals were small, undertaking less than 100 births per year. Of the 58 respondent hospitals, 45 (78%) had less than 1000 births per annum, six (10%) had 1000–2000 births per annum and seven (12%) had more than 2000 births per annum.

Of the 103 individual respondents, representing the 58 hospitals, 55 (53%) were midwives, 25 (24%) were general practitioners, 21 (20%) were obstetricians and two (2%) were directors of nursing. Thus, 57 of 60 (95%) midwifery and 46 of 60 (77%) medical personnel surveyed replied.

Existing education programs

Nineteen (33%) of the respondent hospitals provided formal IFS education to their staff. Large hospitals (> 2000 births per annum) were more likely to have an education program than smaller (< 2000 births per annum) hospitals (six of seven vs 13 of 51; $P = 0.004$, Fisher's exact test). Of the medium-sized hospitals (1000–2000 births per annum), only two of the six provided education to their staff.

Of the 19 hospitals that provided formal IFS education for their staff, 11 provided their own education while the other eight purchased education from an external provider. The size of the hospital was not related to whether it provided education or out-sourced it (data not shown). Fifteen of the 19 hospitals (80%) with an education program offered the program once a year. The remaining four hospitals ran two programs per year.

When asked about the quality of their IFS education, of the 35 individual respondents (from 19 hospitals) whose

hospital had an existing education program, 33 responded regarding the quality of that program. Twenty-one (64%) of the 33 rated their education program as good or excellent and 11 (36%) rated their education program as adequate or poor. There were no differences between medical and midwifery staff regarding perceptions of education quality (data not shown).

One hundred and two (99%) of the 103 individual respondents thought that IFS education should be compulsory for staff working in an intrapartum environment. Forty-one respondents (40%) thought that the education should be undertaken on an annual basis, 21 (20%) twice yearly and ten (10%) thought every two years would be appropriate. The remaining 31 (30%) indicated a preference for the education to be a continuous self-directed learning.

Regarding possible formats of future education and allowing for more than one response per respondent, the preferred formats of the respondents were face-to-face workshops (82%), an interactive CD/DVD for self-directed learning (58%), a book (35%), printed handouts (33%), and web-based education (31%). There were no differences between medical and midwifery staff regarding preferred formats of education delivery (data not shown).

Competency testing

Six (10%) of the 58 respondent hospitals surveyed had an existing IFS credentialing or competency testing process for their staff. Of those six hospitals, five required their staff to undergo assessment on an annual basis. The remaining hospital undertook testing every two years.

In contrast, of the 102 respondents who commented on the desirability of competency testing, 92 (90%) thought that a compulsory competency testing process would be beneficial. Ten respondents (10%) could see no value in such a process. Divided by profession, 54 of the 55 midwifery respondents (98%) saw benefit in compulsory competency assessment, while 38 of 47 medical respondents (81%) saw value in formal assessment ($P < 0.0001$, Fisher's exact test).

Of the 92 respondents who saw benefit in formalised competency assessment, 85 indicated a preference for a frequency of such testing. Four (5%) thought that it should be undertaken every six months, 43 (62%) annually and 28 (33%) thought that it should be undertaken every two years. When asked who should manage the competency assessments, 89 (97%) of the 92 respondents who wished testing indicated a preference: 49 of 89 (55%) thought that an external provider should administer it, 37 (42%) believed that testing should be done internally and three (3%) indicated that a combination of both would be appropriate.

Discussion

Here we have reported the results of a comprehensive survey of fetal surveillance education resources and their use in Victorian public maternity hospitals showing that only a minority of hospitals had established formal education in

2004. In contrast, almost all hospitals believed that such education should be compulsory. We believe that these findings have important implications for the providers of maternity care in Victoria and elsewhere in Australia.

Compromised IFS is a common and recurrent finding underlying adverse perinatal outcomes in Australia and elsewhere.^{2,4-7,9,10} Indeed, in the UK, of all perinatal deaths, intrapartum deaths have the greatest proportion of cases, almost 75%, where substandard care was evident.⁹ It is not surprising that inadequate IFS or the failure to respond appropriately to an abnormal CTG in labour is also a major contributor to medical litigation in Australia¹¹ and elsewhere.^{12,13} It is commonsense that appropriate, safe and high-quality intrapartum care can be provided only if the attending personnel are skilled in fetal surveillance. However, what is less clear is how those staff become skilled and, more importantly, whether they are currently ever required to become skilled.

In Australia, an understanding of fetal physiology and the use and interpretation of cardiotocography are components of the curriculum for examination for membership of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists¹⁴ and are thus required knowledge for trainees. However, until very recently,⁸ the College itself has not provided a formal education program in IFS for trainees, instead anticipating that trainees would be taught by their hospitals and through clinical exposure. The same is presumably true for midwifery staff. Our survey has shown that in Victoria this has clearly not been occurring with only a third of all public hospitals providing any formal education and only 25% of smaller hospitals doing so. Furthermore, in about a third of the hospitals providing education, the perceived quality of those education programs was not high. Similar findings have been reported elsewhere. In the USA, a national survey of education in fetal surveillance revealed that the majority of training obstetricians acquired their knowledge from clinical exposure rather than from formal education.¹⁵ In the early 1990s, only about 40% of hospitals in Canada provided any formal IFS education for their staff.¹⁶ These findings led to calls for the provision of formalised and multidisciplinary education in IFS.^{15,17,18} It would appear from our survey that there are similar and urgent needs in Victoria and most likely Australia.

In contrast, in the UK the recurrent observation that intrapartum stillbirths were most often associated with suboptimal care led to the recommendation that all maternity units should provide formal fetal surveillance (CTG) education.^{4,10} In 1999 a survey of maternity units in England and Wales was undertaken to assess compliance with this recommendation, showing that over 96% of hospitals provided education to their medical and midwifery staff and that in about 80% of hospitals that education was multidisciplinary. In about half of the hospitals that provided education the education was compulsory.¹⁰

Why formal education was not been widely available or used in Victoria is not clear. Our survey has clearly shown that education is not only wanted but that 99% of respondents believed that education should be compulsory. In this regard, in the UK the NHS Litigation Authority, the major insurer

of public hospitals, requires hospitals participating in its Clinical Negligence Scheme for Trusts to demonstrate that all staff are receiving regular CTG education. The responses to our survey suggest that a similar obligation from Australian public hospital insurers, like the Victorian Managed Insurance Authority, would be well received. Indeed, 90% of respondents to our survey not only thought that education should be compulsory but also that staff should be required to undergo regular competency testing in fetal surveillance. Our survey also suggests what formats of education and their frequency of delivery that the workforce is likely to find most appealing.

It would be hoped that the provision of compulsory high-quality education and assessment would lead, in time, to a better skilled workforce and fewer adverse events related to substandard care. It is not yet clear from the UK whether the widespread availability and uptake of education have translated into better care. In this regard it is interesting that while the provision of education has been recommended by expert reviews,^{4,10} and more recently mandated by the NHS hospital trust insurers, there is as yet no requirement for staff to demonstrate competence, despite evidence that formalised training in CTG interpretation can be shown to improve levels of knowledge and clinical consensus.^{19,20}

We believe, like others before us,¹⁸ that formal and recurrent education in fetal surveillance, founded on basic principles of fetal physiology, should be compulsory for all staff caring for women in labour and that this education should be supported by compulsory competency testing. Our survey demonstrates widespread support for such an initiative. Without such a formal approach to improving the use and interpretation of IFS, it is likely that unnecessary adverse perinatal outcomes, and their attendant litigation, will continue unabated into the decades to come as they have been present in the past decades.

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APPENDIX



**The Royal Australian and New Zealand College of
Obstetricians and Gynaecologists**



A Victorian Public Hospital Survey of Education and Credentialing in Intrapartum Fetal Surveillance

**A copy of this survey will be sent to a medical and a midwifery representative in each organisation.
* You are filling this out as a representative of your peers; feel free to consult with them.*

<p>Completely fill in the response box Use black/blue pen or pencil Do NOT use a red or felt-tip pen Erase or white-out errors completely Make no stray marks Please DO NOT use ticks or crosses anywhere in the survey</p>	<p><u>Mark your answers by filling in the responses as shown:</u></p> <p style="text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> </p>
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About you.

Printed label with contact details	Amended details
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1. Are you mailing/contact details correct and complete? Please amend as required
 Yes No

2. Are you a:
 GP Midwife Obstetrician Other, please specify:

3. Your primary role is that of:
 NUM Administrator Educator Clinician Director
 Other, please specify:

4. Approximately, how many **PUBLIC** births per annum are there in your hospital?
 <100 101–200 201–500 501–1000 1001–2000 >2000

Current CTG education practice

5. Does your hospital/service currently have a formalised or structured CTG education program? Yes No. If no, proceed to Q11

6. Which of the following elements does it contain? (please mark all that apply):
 Fetal physiology The normal CTG
 The abnormal CTG Management of the abnormal CTG Abnormal uterine activity Fetal Assessment
 CTG Workshop Other, please specify:

7. How often does it take place? Six monthly Yearly Other, please specify:

8. Who provides your current CTG education? Internal provider External provider
 Other, please specify:

9. In what format is it presented? (please mark all that apply) Lectures CTG trace review
 Case review Workshop Other, please specify:

PLEASE TURN OVER

