

Original Article

Participant evaluation of the RANZCOG Fetal Surveillance Education Program

Annie KROUSHEV,¹ Mark BEAVES,² Valerie JENKINS² and Euan M. WALLACE^{1,3}

¹Women's and Children's Program, Monash Medical Centre, Southern Health, Clayton, ²Royal Australian and New Zealand College of Obstetricians and Gynaecologists, East Melbourne, and ³Department of Obstetrics and Gynaecology, Monash Institute of Medical Research, Monash University, Clayton, Victoria, Australia

After a 'needs assessment', in 2004 the Royal Australian and New Zealand College of Obstetricians and Gynaecologists developed and introduced the Fetal Surveillance Education Program (FSEP) to provide high quality education to all clinicians caring for labouring women in Australia and New Zealand. A formal evaluation of the program was planned from the inception of FSEP. We report here the participant feedback from the first 4439 participants in 2004–2006. Overall, FSEP was considered a high quality resource, rated equally well by midwives and obstetricians. This is the first large-scale evaluation to be reported for any fetal surveillance education program.

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

Introduction

Errors in the correct use and interpretation of intrapartum fetal surveillance (IFS) have been identified as important contributors to adverse perinatal outcomes in Australia and elsewhere.^{1–5} Indeed, deficient care has been identified in as many as 75% of cases of intrapartum-related stillbirths and neonatal deaths,^{5,6} leading to a call for regular training in IFS for all clinicians involved in the care of labouring women.¹ However, a recent survey of Victorian public hospitals revealed a distinct lack of provision of quality IFS education,⁷ particularly in smaller and regional hospitals. Recognising the urgent need for effective education, the Royal Australian and New Zealand College of Obstetrics and Gynaecology (RANZCOG) developed and introduced the Fetal Surveillance Education Program (FSEP) with funding from the Victorian Government's Department of Human Services and the Victorian Managed Insurance Authority.

The FSEP was introduced in late 2004 and currently provides education to public and private hospitals in all Australian states and territories and in New Zealand. It has also been incorporated as part of midwifery teaching by a number of Australian universities and offers education to individual specialists through a variety of workshop days organised at College House or in collaboration with

RANZCOG Regional Committees or RANZCOG Annual Scientific Meetings. The main objectives of the program were to develop, implement, evaluate and deliver, on an ongoing basis, comprehensive education in fetal surveillance, thereby improving professional levels of understanding and confidence in fetal surveillance across the different professional groups involved with maternity care. A key component of the success of the FSEP that was identified from the outset was participant evaluation.⁷ Here we report on the feedback received from all participants who provided their evaluation of the program between 2004 and 2006.

Methods

A structured participant evaluation questionnaire (Appendix I) was developed by two of the authors (MB, EMW), exploring different aspects of the education program. The format of the questionnaire was broadly based on that used by RANZCOG to assess other education activities, adjusted by early phase piloting in the first few sessions. It consisted of 12 questions to which participants were required to respond on a scale of 'strongly disagree', 'disagree', 'agree' and 'strongly agree'. The feedback forms were able to be scanned to ease data collection and prevent transcription errors. The final question prompted a free-text comment to the statement 'What advice would you give to the course organisers in their preparation for the next course?' After completing the six hours FSEP, all participants were asked to complete an evaluation form. They were prompted to identify their designation, hospital ID and date of completing the program.

The education program is an all-day workshop. In addition to pre-education and post-education assessments (30 min

Correspondence: Professor Euan M. Wallace, Department of Obstetrics and Gynaecology, Monash Institute of Medical Research, Monash University, Monash Medical Centre, 246 Clayton Road, Clayton, Vic. 3168, Australia.
Email: euan.wallace@med.monash.edu.au

Received 10 September 2008; accepted 19 December 2008.

Table 1 Responses, number (%), from 4439 participants in the RANZCOG Fetal Surveillance Education Program 2004–2006

	Strongly agree	Agree	Disagree	Strongly disagree	No response
The course enabled me to review and update knowledge in the topics	3508 (79%)	886 (20%)	6 (0.1%)	5 (0.1%)	34 (0.8%)
The course enabled me to enhance my understanding in the topics	3409 (76.8%)	978 (22%)	15 (0.3%)	4 (0.1%)	33 (0.8%)
The sessions featured relevant and practical case presentations	3452 (77.8%)	940 (21.1%)	7 (0.2%)	0	40 (0.9%)
The course has improved my confidence in cardiocotograph interpretation	2179 (49.1%)	2098 (47.3%)	117 (2.6%)	5 (0.1%)	40 (0.9%)
The fetal heart rate physiology session was useful	2982 (67.1%)	1348 (30.4%)	26 (0.6%)	0	83 (1.9%)
The fetal assessment information was helpful	2988 (67.3%)	1339 (30.2%)	26 (0.6%)	0	86 (1.9%)
The normal and abnormal cardiocotograph information was useful	3301 (74.4%)	1050 (23.7%)	13 (0.3%)	0	75 (1.7%)
The intrapartum cardiocotograph workshop was helpful	3283 (74%)	981 (22.1%)	27 (0.6%)	0	148 (3.3%)

each), the workshop comprises several different sessions: (i) the physiology of utero-placental function and fetal heart rate control (one hour); (ii) other forms of fetal surveillance such as amniotic fluid volume, Doppler flow studies and biophysical profile (30 min); (iii) the normal cardiocotograph (CTG) (one hour); (iv) the abnormal CTG (one hour); (v) management of an abnormal CTG (30 min); and (vi) interactive CTG interpretation (one hour).

Although some statements in the questionnaire were thematically related they were treated as independent for statistical calculations. Where individual responders did not provide a score for a particular question they were excluded for calculation purposes for that question only. The participant responses were further classified by year of participation and by professional craft group (e.g. student midwives, trainees, midwives, general practitioners (GP), obstetricians). The 'trainees' group encompassed all medical trainees (e.g. residents, unaccredited and integrated training program registrars, senior registrars). Responders who did not detail their designation were included in the overall analyses but excluded from analyses of results by craft group. Analysis of the free-text comments was undertaken by one of the authors (AK), blinded to craft group. Formal thematic free-text analysis was not undertaken.

As this review conforms to the standards established by the National Health and Medical Research Council for ethical quality review,⁸ ethics approval was not sought.

Statistical analyses were performed using SPSS, version 12 (SPSS Inc., Chicago, IL, USA). Differences between groups were analysed using Pearson chi-square. Statistical significance was conferred when $P < 0.05$.

Results

A total of 4439 participants provided feedback on the FSEP. In 2004, 2005 and 2006 there were 419, 1839 and 2181 participants, respectively. Of these, 229 (5%) were student midwives, 3116 (70%) were midwives, 281 (6%) were medical trainees, 229 (5%) were GPs and 262 (6%) were obstetricians. Three hundred and twenty-two (7%) participants did not provide their designation.

Participant evaluation of FSEP was very positive (Table 1). Almost all participants reported that they either

'strongly agreed' or 'agreed' that the program was relevant to their practice and that it improved their knowledge and understanding of IFS. Of all the questions asked, participants were least certain that the workshop had increased their confidence in interpreting cardiocotographs, although this was still rated highly. There were no significant differences between the participant responses across the three years (data not shown), nor between the different craft groups (Table 2).

It is not feasible to present all the free-text comments from such a large sample of participants. Specific positive remarks concern the excellence of the program and its high educational value. The use of fetal physiology as a foundation to the cardiocotograph interpretation was particularly commented upon as a useful approach. A number of participants, especially among the medical participants requested additional intrapartum cardiocotographs and further discussion with regard to the interpretation and management of these. Multiple participants suggested that the program should be undertaken on an annual basis to update and revise knowledge. Negative remarks were mostly centred on the relative lack of time available for such a comprehensive program. Many thought that running the program after a busy work day detracted from their learning experience. There were also comments regarding inadequate accommodation facilities provided by the various hospitals for running of the program. Lastly, some participants were clearly overwhelmed with the amount of new material presented in the available time. However, the majority suggested that this could be overcome by providing pre- and post-workshop reading material.

Discussion

Here we have reported evaluation results from 4439 participants in the FSEP between 2004 and 2006, demonstrating that the education program is highly valued by the users to date. To our knowledge, no other fetal surveillance education program has undertaken and published such extensive evaluation data.

While we believed that user evaluation of the FSEP was central to the development of a high quality education product, there are other educationally important reasons to

Table 2 Responses (%) from 4117 participants who provided their designation in the RANZCOG Fetal Surveillance Education Program 2004–2006, by professional group

Number	All midwives					GPs					Trainees					Specialist obstetricians				
	Strongly agree	Agree	Disagree	Strongly disagree	Strongly agree	Agree	Disagree	Strongly disagree	Strongly agree	Agree	Disagree	Strongly disagree	Strongly agree	Agree	Disagree	Strongly disagree	Strongly agree	Agree	Disagree	Strongly disagree
	81	18.1	0.2	0.1	81.7	18.3	0	0	69.4	28.8	0.4	0.4	65.6	33.6	0	0	63.7	30.2	1.1	0
The course enabled me to review and update knowledge in the topics	78.8	20.2	0.3	0.1	83	16.6	0.4	0	67.6	29.5	0.7	0	62.2	36.3	0.4	0	63.4	34	0.8	0
The course enabled me to enhance my understanding in the topics	79.3	20	0.1	0	77.3	20.5	0.4	0	70.8	28.1	0	0	67.6	30.5	0.8	0	63.4	34	0.8	0
The sessions featured relevant and practical case presentations	49	47.2	2.9	0.1	63.8	35.4	0.9	0	49.8	47	2.1	0	39.3	57.6	2.7	0	63.4	34	0.8	0
The course has improved my confidence in cardiococograph interpretation	67.4	30.3	0.5	0	67.7	28.4	1.3	0	69.4	28.1	0.4	0	63.4	34	0.8	0	63.4	34	0.8	0
The fetal heart rate physiology session was useful	69.6	28.1	0.2	0	67.2	30.6	0.9	0	58	37	2.1	0	49.6	46.2	3.4	0	63.4	34	0.8	0
The fetal assessment information was helpful	76.2	21.7	0.3	0	74.7	23.6	0	0	67.3	31.3	0	0	59.5	37.8	0.8	0	63.4	34	0.8	0
The normal and abnormal cardiococograph information was useful	75.6	20.6	0.7	0	75.1	22.3	0	0	65.8	29.9	1.1	0	63.7	30.2	1.1	0	63.4	34	0.8	0
The intrapartum cardiococography workshop was helpful																				

The total in each craft group may not equal 100% because of non-responders not detailed in this table.

evaluate programs such as this. While it is clear, and not surprising, that participant satisfaction with medical education is directly related to participant performance in the education there is not a great deal of information regarding evaluation of medical education and the subsequent impact of that education on patient outcomes.⁹ That said, the evidence that does exist suggests, albeit indirectly, that medical education which is evaluated highly by participants improves the clinical practices of those participants.¹⁰⁻¹² Some studies deduce the impact of the medical education by self-reported improvement in practice by participants,^{13,14} while others assess improvements by assessing for positive differences in the pretest and post-test scores of the participants.^{15,16} Both of these approaches have inherent problems. Self-reported improvements are clearly subject to bias, while longitudinal studies assessing post-education test scores at various time intervals following the education have shown that improvements in knowledge dissipate over time. Indeed, such studies suggest that repeat delivery of short educational programs is necessary to sustain ongoing improvements in medical practice.^{17,18} Despite these limitations, it is apparent that positive user-evaluation of any education is more likely to translate into improvements in practice and, in turn, outcomes of care. Accordingly, we believe that the highly positive feedback received from the FSEP participants reflects a high educational value of the program and a high likelihood that it will improve clinical outcomes. Of course, that will be much more challenging to demonstrate.

A feature of the evaluation that was particularly pleasing was that midwifery and medical staff perceived the value, quality and relevance of the education similarly. One of the underlying principles of the program was that the education was to be provided to mixed craft group audiences within an individual institution. During development of the program we were concerned whether the perceived different needs of midwives and doctors, particularly specialists, could be effectively met in a single multidisciplinary workshop. However, the feedback demonstrated that the needs of the craft groups were, on the whole, similar. Specialist obstetricians in particular requested more examples of intrapartum cardiotocographs to 'workshop' in the interactive session. We did not ask specifically whether participants valued the opportunity to learn in a multidisciplinary environment. We would like to believe that one of the reasons that the program was so highly rated by participants was the opportunity to learn together. While there is very limited literature addressing the strengths and weaknesses of interprofessional learning, there is evidence that it enhances learning, particularly if the resource was developed through a multidisciplinary process,¹⁹ as we did. Indeed, our approach of using fetal physiology as the foundation stone on which the interpretation of CTGs was specifically constructed with midwifery and medical inputs. We believe that this aspect of FSEP equally valued by all professional groups reflects our multidisciplinary design and learning environments.

Nonetheless, there was a non-significant trend for medical practitioners, particularly specialist obstetricians, to 'strongly agree' less often than other participant groups. Within the

medical group fewer obstetricians and trainees placed their responses in the 'strongly agree' category compared to GPs. This more critical appraisal possibly reflects the higher starting knowledge of the obstetricians and the trainees and potentially their higher expectations of the FSEP. Unfortunately, because the evaluations were anonymous, we were unable to link feedback with pre- and post-education assessment scores to test this possibility. Nonetheless, such feedback has been important to the ongoing development of additional FSEP modules to more effectively cater for the different knowledge levels of the participant groups.

Many participants highlighted that the scheduling of the FSEP relative to other duties is important. Undertaking the FSEP after a normal full day at work was not thought optimal and not conducive to good learning. Thus, for such education to be most effective, the workforce needs to be provided with dedicated time. This insight also has implications for online learning packages where hospitals expect staff to participate during their normal rostered hours. We believe that such an approach is not likely to be successful, resulting in wasted resources.

In summary, the RANZCOG FSEP appears to be highly valued by participants, irrespective of whether they are midwives, GPs, trainees or specialists. What remains to be seen is whether the perceived educational value translates into sustained longer term educational benefits to the work force and, ultimately, to a reduction in the perinatal mortality and morbidity associated with poor IFS practice. In contrast to before 2004,⁷ at least clinicians in Australia and New Zealand now have access to a high quality education product, irrespective of who they are or where they practice.


References

- 1 Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG). *Intrapartum Fetal Surveillance Clinical Guidelines*. East Melbourne, Victoria: RANZCOG, 2006.
- 2 Murphy KW, Johnson P, Moorcraft J, Pattinson R, Russell V, Turnbull A. Birth asphyxia and the intrapartum cardiotocograph. *Br J Obstet Gynaecol* 1990; **97**: 470-479.
- 3 The Consultative Council on Obstetric and Paediatric Mortality and Morbidity. Annual report for the year 2004. *Incorporating the 43rd Survey of Perinatal Deaths in Victoria, Melbourne 2005*. Victoria: Department of Health Services.
- 4 Maternal and Child Health Research Consortium. Confidential enquiry into stillbirths and deaths in infancy. Fourth annual report. London: Maternal and Child Health Research Consortium, 1997; 35-44.
- 5 Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI). 7th Annual Report Focusing on Stillbirths, European Comparisons of Perinatal Care, Paediatric Post Mortem Issues, Survival Rates of Premature Babies: Project 27/28. London, 2001.
- 6 Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI). Annual Report for 1 January-31 December 1993. Part 1: Summary of methods and main results. London, 1995.


- 7 Beaves M, Jenkins V, Wallace EM. A survey of intrapartum fetal surveillance education practices in Victorian public hospitals. *Aust N Z J Obstet Gynaecol* 2007; **47**: 95–100.
- 8 National Health and Medical Research Council. *When Does Quality Assurance in Health Care Require Independent Ethical Review? Advice to Institutions, Human Research Committees and Health Care Professionals*. [Accessed on 9 February 2009] Available from URL: http://www.nhmrc.gov.au/publications/_files/e46.pdf.
- 9 Prystowski JB, Bordage G. An outcomes research perspective on medical education: The predominance of trainee assessment and satisfaction. *Med Educ* 2001; **35**: 331–336.
- 10 Anderson DC, Harris IB, Allen S *et al.* Comparing students' feedback about clinical instruction with their performance. *Acad Med* 1991; **66**: 29–34.
- 11 Steinert Y, Mann K, Centeno A *et al.* A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME Guide, 8. *Med Teach* 2006; **28**: 497–526.
- 12 Allen CW, Jeffrey H. Implementation and evaluation of a neonatal educational program in rural Nepal. *J Trop Paediatr* 2006; **52**: 218–222.
- 13 Curran V, Lockyer J, Sargeant J, Fleet L. Evaluation of learning outcomes in Web-based continuing medical education. *Acad Med* 2006; **81**: S30–S34.
- 14 Jha V, Duffy S, McAleer S. Evaluation of a distance interactive learning in Obstetrics and Gynaecology (DIALOG). *Br J Obstet Gynaecol* 2002; **109**: 456–461.
- 15 Rosner E, Gould B, Gashcler L, Howard S, Rarick B. Evaluation of a satellite educational program. *Clin Lab Sci* 1996; **9**: 30–34.
- 16 Davis P, Kvern B, Donen N, Andrews E, Nixon O. Evaluation of a problem-based learning workshop using pre- and post-test objective structured clinical examinations and standardized patients. *J Contin Educ Health Prof* 2000; **20**: 164–170.
- 17 Trevisanuto D, Ferrarese P, Cavicchioli P, Fasson A, Zanardo V, Zacchello F. Knowledge gained by pediatric residents after neonatal resuscitation program courses. *Paediatr Anesth* 2005; **15**: 944–947.
- 18 Levitt C, Kaczorowski J, Outerbridge E, Jimenez V, Connolly B, Slapcoff B. Knowledge gained following neonatal resuscitation program courses. *Fam Med* 1996; **28**: 403–406.
- 19 Nestel D, Taylor S, Spender Q. Evaluation of an inter-professional workshop to develop psychosocial assessment and child-centred communication programme for paediatricians in training. *BMC Med Educ* 2004; **4**: 25 [Accessed on 19 December 2008.] Available from URL: <http://www.biomedcentral.com/1472-6920/4/25>

Appendix I. Participant feedback form

1080175350



FSEP
FETAL SURVEILLANCE EDUCATION PROGRAM



The Royal Australian and
New Zealand College of
Obstetricians and
Gynaecologists

PARTICIPANT FEEDBACK FORM

In this questionnaire, you are asked to give feedback about your learning in the Fetal Surveillance Education Program. Your feedback is valuable and will help us ensure that the course is appropriate to the learning needs of all professionals involved in fetal surveillance

The learning objectives for participants in this course are:

- * To review and update knowledge.
- * To enhance understanding.
- * To improve confidence in CTG interpretation.

INSTRUCTIONS:
Please fill in and submit the questionnaire before you leave.
Please write clearly in **BLOCK LETTERS**
Do not use a red or felt-tip pen
Erase or white-out errors completely
Make no stray marks
For Multiple Choice Questions, mark your answer like this

Hospital ID

--	--	--

Designation

GP

Midwife

Obstetrician

Registrar

Resident

Student Midwife

Other

Date of Session (DD/MM/YY)

--	--	--	--	--	--

OVERALL RATING OF THE COURSE

Using the following criteria, please rate the characteristics of the course as a whole:

	Agree Strongly	Agree	Disagree	Disagree Strongly
Q1. The course enabled me to review and update knowledge in topics presented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q2. The course enabled me to enhance my understanding in the topics presented	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q3. Sessions featured relevant and practical case presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q4. There was adequate time for discussion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q5. The course has improved my confidence in CTG interpretation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q6. Overall, the length of each session was appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q7. The meeting facilities provided a satisfactory environment for learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q8. The presenter's style enhanced my learning experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SESSIONS				
Q9. The fetal heart rate physiology was useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q10. The fetal assessment information was helpful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q11. The normal and abnormal CTG information was useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q12. The CTG workshop was helpful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q13. What advice would you give to the course organisers in their preparation for the next course?				

Comments:

END OF SURVEY - THANK YOU FOR YOUR FEEDBACK