

Learning from Adverse Events in Obstetrics: Is a Standardized Computer Tool an Effective Strategy for Root Cause Analysis?

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Abstract

Objective: Adverse events occur in up to 10% of obstetric cases, and up to one half of these could be prevented. Case reviews and root cause analysis using a structured tool may help health care providers to learn from adverse events and to identify trends and recurring systems issues. We sought to establish the reliability of a root cause analysis computer application called Standardized Clinical Outcome Review (SCOR).

Methods: We designed a mixed methods study to evaluate the effectiveness of the tool. We conducted qualitative content analysis of five charts reviewed by both the traditional obstetric quality assurance methods and the SCOR tool. We also determined inter-rater reliability by having four health care providers review the same five cases using the SCOR tool.

Results: The comparative qualitative review revealed that the traditional quality assurance case review process used inconsistent language and made serious, personalized recommendations for those involved in the case. In contrast, the SCOR review provided a consistent

format for recommendations, a list of action points, and highlighted systems issues. The mean percentage agreement between the four reviewers for the five cases was 75%. The different health care providers completed data entry and assessment of the case in a similar way. Missing data from the chart and poor wording of questions were identified as issues affecting percentage agreement.

Conclusion: The SCOR tool provides a standardized, objective, obstetric-specific tool for root cause analysis that may improve identification of risk factors and dissemination of action plans to prevent future events.

Résumé

Objectif : Des événements indésirables se manifestent dans jusqu'à 10 % des cas obstétricaux et jusqu'à la moitié de ces événements sont évitables. Les analyses de cas et l'analyse des causes fondamentales au moyen d'un outil structuré pourraient aider les fournisseurs de soins à tirer des leçons des événements indésirables et à identifier les tendances et les problèmes systémiques récurrents. Nous avons cherché à établir la fiabilité d'un logiciel d'analyse des causes fondamentales connu sous le nom de *Standardized Clinical Outcome Review* (SCOR).

Méthodes : Nous avons conçu une étude faisant appel à des méthodes mixtes pour évaluer l'efficacité de l'outil. Nous avons mené une analyse qualitative du contenu de cinq dossiers ayant été analysés tant au moyen des méthodes traditionnelles d'assurance de la qualité en obstétrique qu'au moyen de

Key Words: Root cause analysis, quality assurance, mixed methods

Competing Interests: None declared.

Received on February 10, 2015

Accepted on March 31, 2015

l'outil SCOR. Nous avons également déterminé la fidélité interévaluateurs en demandant à quatre fournisseurs de soins d'analyser les cinq mêmes dossiers au moyen de l'outil SCOR.

Résultats : L'analyse qualitative comparative a révélé que le processus traditionnel d'assurance de la qualité dans le cadre de l'analyse des cas utilisait un langage hétérogène et formulait de sérieuses recommandations personnalisées à l'endroit des intervenants du dossier. En revanche, l'analyse au moyen de l'outil SCOR fournissait un format uniforme pour les recommandations et une liste de points de décision, en plus de faire ressortir les problèmes systémiques. Le taux moyen d'entente (en pourcentage) entre les quatre évaluateurs pour les cinq dossiers en question était de 75 %. Les autres fournisseurs de soins ont procédé à la saisie des données et à l'évaluation des dossiers de façon semblable. L'absence de certaines données dans les dossiers et la mauvaise formulation des questions ont été identifiées comme étant des problèmes affectant le taux d'entente.

Conclusion : L'outil SCOR permet la tenue d'une analyse des causes fondamentales de façon standardisée, objective et centrée sur l'obstétrique, ce qui pourrait améliorer l'identification des facteurs de risque et la dissémination des plans d'action pour la prévention de futurs événements.

J Obstet Gynaecol Can 2015;37(8):728–735

INTRODUCTION

An adverse event, defined as an unexpected incident directly associated with the care of the patient, or an incident that results in injury or death, occurs in up to 10% of obstetric cases, and up to half of these could be prevented.^{1–3} Seventy percent of adverse events have been traced to failures of teamwork and communication.⁴

The labour and delivery environment is uniquely vulnerable to adverse events due to the presence of multiple health care providers from a variety of disciplines, the acuity of cases, and the unpredictable timing of events. Further, the management of a particular case often brings together individuals who have not previously worked together.⁵

Minimizing adverse events during the antenatal, intrapartum, and postnatal periods and developing a culture of patient safety within obstetrics requires effective strategies for implementing and measuring culture change.⁴ Comprehensive multi-component programs for improving patient safety in obstetrics created by hospitals in the United States and the United Kingdom have demonstrated

a reduction in the number of adverse events and the costs of compensating liability cases.^{6–9} In Canada, the Managing Obstetrical Risk Efficiently program sought to provide a comprehensive patient safety and professional development program for hospitals.⁹

A key component of these comprehensive patient safety programs was the formal review of adverse events.^{10,11} MORE^{OB} specifically recommended the use of peer case reviews and root cause analysis but did not provide specific details of how to conduct case reviews. The crux of formal RCA is to improve the identification of adverse events and to make the dissemination of lessons learned from the case more effective.¹ RCA aims to determine what happened, why it happened, and to prevent future similar incidents.¹² The central principle is that effective peer review is essential in improving practice.⁸ Standardized mechanisms for both identification of the cases requiring review and for conducting the review to identify risk factors and recommendations for action are critical to this process.^{2,6,9–13} There is evidence that systematic formal case reviews have a positive impact on the patient safety culture at an institution and on decreasing the rates of adverse events.¹⁴ A systematic review of interventions aimed at behaviour change within obstetrical practice demonstrated a positive impact of “audit and feedback” techniques in changing practice.¹⁵ In addition to the benefits of audit and feedback, there was evidence that standardizing the process itself was often a factor in the improved outcomes.⁹ Further, the use of a structured tool to investigate and learn from adverse events through RCA was recommended.¹⁴ Formal, standardized mechanisms for reporting adverse events and near misses facilitated the recognition of trends and addressed the failure to learn from critical incidents.^{2,16}

Despite the evidence of the impact of RCA and systematic case review, the current standard at most obstetric units in Canada involves the review of individual cases in isolation from larger systems issues and without a standardized approach. At our tertiary obstetric unit, which completed the MORE^{OB} program over five years ago, it was the remit of the Obstetric Quality Assurance Committee to review cases involving adverse outcomes or near misses. The committee was interprofessional in its composition and included midwives, nurses, obstetricians, and paediatricians. The group met monthly or at the call of the chair. Cases requiring review were identified through an informal ad hoc process. The committee reviewed all maternal deaths and all unexpected stillbirths, together with any case brought to the attention of the chair. One member of the committee was assigned to review the clinical chart and present the case to

Abbreviations

MORE ^{OB}	Managing Obstetrical Risk Efficiently
OBSQA	Obstetric Quality Assurance
RCA	root cause analysis
SCOR	Standardized Clinical Outcome Review
UK	United Kingdom

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