

Bringing Data to the Continuous Quality Improvement (CQI) Process

The PPESO Perinatal Database: From Low Tech to High Tech

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OBSTETRICAL SERVICES ARE ONE OF THE HIGH-volume services in hospitals in Canada. As such, it is essential that hospital managers have access to timely, high-quality perinatal information on the characteristics of the women using their services, the use of interventions, and health outcomes. Ideally, this information is used as an integral part of a formal continuous quality improvement (CQI) process.

Individual hospitals, mainly teaching hospitals, have developed their own clinical databases to provide perinatal information for research and management purposes. The Eastern Ontario region took a different approach. Under the direction of the Perinatal Partnership

Program of Eastern and Southeastern Ontario (PPESO), the hospitals collaborated on the development of a common database.

The PPESO Perinatal Database (electronic

version) was launched January 1, 1997, as a tool to collect and disseminate perinatal information in the Eastern and Southeastern Ontario region. It was based on a hand-counted, paper logbook system that had been utilized since the early 1980s in the hospitals in Ottawa.

In Phase 1, the partner hospitals and health units jointly identified and standardized 42 critical variables. A common logbook was developed to collect the data in the case room, and data were entered into a simple FoxPro program. Every quarter the data were sent to the central office for collation and analysis. Annual reports were prepared for each hospital and for the

region as a whole comparing teaching, large and small community hospitals.

The database was used to influence and improve practice and to monitor the impact of

“The database enables us to move from hospital based to population based information. This is of great benefit in planning preventive services.”

Dr. Geoff Dunkley
 Associate Medical Officer of Health
 City of Ottawa

interventions to improve quality of care. A unique feature of the database was its ability to provide the community with a research base for benchmarking because all the hospitals are participating with a common set of indicators.

Although the perinatal database was extremely successful, by 2000 a number of issues had arisen: the technology was dated and thus technological support to maintain the system and to troubleshoot was significant; the data collection process was becoming cumbersome; and partners' access to the data was limited. The development of a newer version of this system was therefore initiated

In Phase 2, a proposal was put forward to the Ministry of Health and Long-Term Care (MOHLTC) in 1999 for the development of an expanded and enhanced perinatal system. The MOHLTC recognized the value of the information that was being produced and suggested the use of an existing hospital partnership supported by the MOHLTC (Criticall) as a cost-effective option to house the enhanced perinatal database. Criticall is an Internet-based system that tracks a variety of hospital statistics, including bed availability, emergency department status, and physician on-call information.

The enhancements to the database were determined by a Perinatal Database Steering Committee,* who also provided the overall direction and guidance for the project. A Working Group** was also created, who were responsible for the coordination of the project and the actual development of the system. Both groups were essential to the overall success of this project and enabled input from a broad range of users. A project manager, who was a member of both groups, was in place to ensure that all deliverables were achieved. The development and programming of the database application within Criticall was performed by Rincon Technologies, an Ontario-based company that specializes in healthcare resource management systems. Project planning, database development and the majority of the training took place over a 12-month period. Total cost for the development and implementation of this enhanced database was

approximately \$170,000. It is anticipated that ongoing operating costs will be \$150,000 per year. Stable ongoing funding for the next phase of this project is currently being sought.

The Criticall system now provides the platform for the perinatal database, allowing real-time access via the Web. The selection of the Criticall system allowed significant savings in development time and costs by preventing duplication of efforts and technology. Most Ontario hospitals already had access to Criticall, thus eliminating the need for additional hardware or software. All the sophisticated security measures Criticall has in

“Maintaining a current, active database will allow us to not only have ongoing Quality Assessment (even on a monthly basis), which may impact on our practice management more rapidly than in the past, but also to provide a tool for research and/or grant proposals. The only current limitation is the amount of data that is collected ... but this is potentially limitless!”

Dr. Graeme Smith
Department of Obstetrics and Gynaecology
Kingston General Hospital

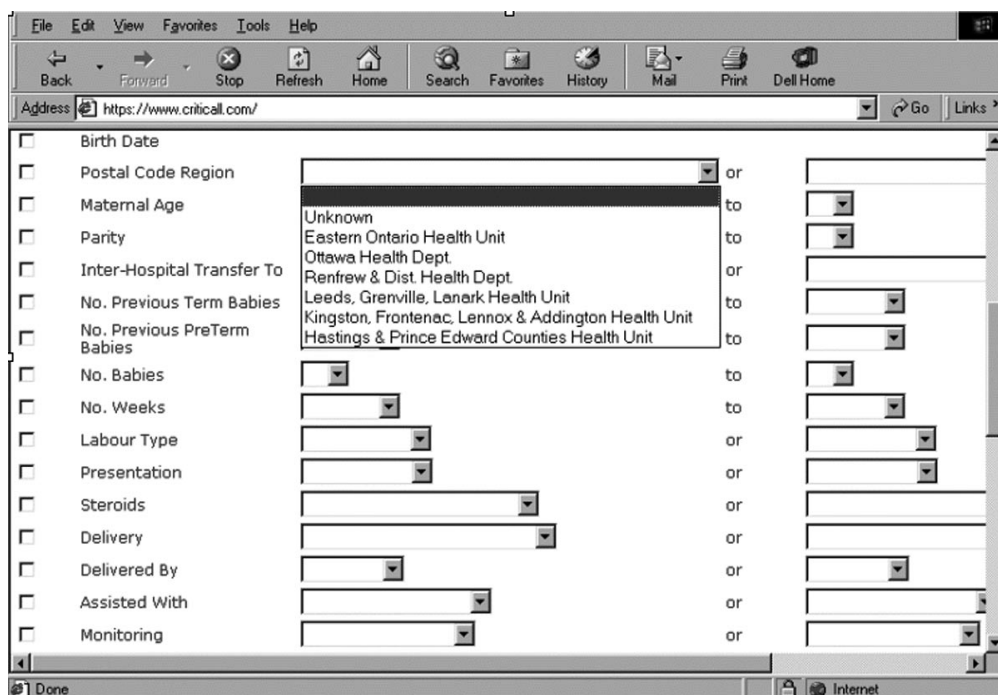
place also apply to the perinatal database. The data structure of the original perinatal database has been retained, while Criticall technology has allowed significant improvements in accessibility, efficiency and reporting functionality. Improved technology infrastructure and support also facilitate more timely data entry and access.

The hospitals are able to enter data directly into the database and generate their own reports in real time, using a flexible, user-friendly format, as shown in Figure 1. Some

hospitals have been able to eliminate some of the paper records that have been traditionally used, and others are considering similar actions in the future. All 16 hospital sites providing obstetrical services in Eastern and Southeastern Ontario are using the system, enabling hospitals not only to assess their own performance, but also to compare themselves to “like” hospitals (i.e., teaching, large or small community

use the database for service and program planning and evaluation, allowing the database to realize its potential to enhance the quality of perinatal care in the region. A perinatal database newsletter is being developed to communicate any changes or updates to the system, and will serve as a tool to highlight some of the successes that partners achieve as a result of the database. An evaluation of the

FIGURE 1



hospitals), ultimately assisting in evaluating care, quality improvement and benchmarking projects. Health units can also do analyses based on place of residence rather than place of birth.

In order to implement this project effectively, a training program was initiated, ensuring that all users in the region have a thorough understanding of the system and receive training material for reference in the future. All users are also encouraged to contact the PPPESO Program for any follow-up comments or questions, or to offer any suggestions for future versions of the database. PPPESO will continue to assist its partners to

system is also being initiated, which will not only determine the use of the database (i.e., user satisfaction, frequency of uses, etc.), but also the impact that the system has made on clinical decision-making.


This initial phase of enhancements to the database is only the beginning. In the coming year, the PPPESO professional team will work with the region’s midwives to add data on home births in the region. Other additions to the system are being considered, including the creation of a neonatal module and an enhanced obstetrical module. The database could also be expanded to incorporate the use of other technology, such as hand-held input devices,

which would permit women to record data on antenatal behaviours and use of services that could be entered into the database. This would expand our ability to track critical factors that influence perinatal health. Other perinatal programs in the province are also interested in using the database for their regions. This has the potential to create a database with the capacity for an overall provincial picture of perinatal care and health and also to permit comparisons across the province.

This innovation is one more example of the power of partnership and collaboration, the hallmark of the Perinatal Partnership Program of Eastern and Southeastern Ontario. The following groups were involved in initiating, developing and implementing the enhanced perinatal database:

- The Eastern Ontario Regional Office of the Ministry of Health and Long-Term Care provided funding for the project.
- CritiCall contributed its system as the platform for the application and funding for

the software development.

- The professional team at PPEESO provided the expertise to guide the project.
- The PPEESO partner hospitals provided financial contributions and the staff to enter the data.
- The PPEESO partner health units provided financial contributions and epidemiological expertise.
- The Ontario government Healthy Babies/Healthy Children programs will, it is hoped, become increasingly involved in the future with the addition of data from the community support program for families with newborns and young children. 

For more information on this initiative, please contact the Perinatal Partnership Program of Eastern and Southeastern Ontario at: Tel: 613.737.2660
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** Members of the Steering Committee included: Peter Finkle (Co-Chair), Patricia Niday (Co-Chair), Paul Mahood (Project Manager), Paula Stewart, Claudette Nadon, Geoffrey Dunkley, Karen Chan, Lynne Livingstone, Kathleen Graham, Barry McKee, Shelley Moneta, Dr. Carl Nimrod, Randy Reid.*

*** Members of the Working Group included: Paul Mahood (Project Manager), Ann Mitchell, Shelley Moneta, Monica Prince, Dr. Paula Stewart, Pam Carr, Greg Forestell, Dr. Graeme Smith, Rita Tsang, Dr. Mark Walker, Dr. Robin Walker.*

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ABOUT THE PERINATAL PARTNERSHIP PROGRAM OF EASTERN AND SOUTHEASTERN ONTARIO (PPPEESO)

The Perinatal Partnership Program of Eastern and Southeastern Ontario (PPPEESO), founded in 1980, works together with hospitals, health departments, community agencies, academic institutions, private practitioners and consumers to provide perinatal care, health-status and performance measurement, information and resource development as well as program and professional development. A partnership agreement with 37 organizations formally acknowledges the value gained by the program during the 20 years of its existence and the commitment of this community to work together.

Each of the partners provides services to pregnant women, babies and their families. PPPEESO assists the organizations and individual practitioners to function in a collaborative way by sharing policies, data, guidelines for practice, knowledge, continuing education, planning processes and evaluation. PPPEESO receives funding from a variety of sources to conduct its work.