

1991 ABSTRACT FORM

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**EFFECT OF A RESOURCE MANAGEMENT SYSTEM ON ICU LABORATORY UTILIZATION.** D. Roberts, T. Ostryzniuk, T. McEwen, Section of Critical Care Medicine, University of Manitoba, Winnipeg, Manitoba, Canada.

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We have instituted and evaluated the effect of a multi-disciplinary team-based effort to reduce the frequency of unnecessary tests in our adult medical and surgical intensive care units. Comprehensive data, including patient diagnoses, demographics, outcome, Acute Physiologic and Chronic Health Evaluation score (APACHE II), Therapeutic Intervention Scoring System (TISS) scores and frequency of 124 laboratory tests was collected for 639 consecutive admissions over a 7 month period to serve as control data. All information was entered into a multirelational database recently developed for critical care unit resource data collection and analysis. (Critical Care Manager, Template Master Series Ltd.). Detailed costing information was provided by an independent hospital finance committee.

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We then identified 8 cost saving opportunities among the 10 most frequently performed tests which included excessive number of blood gas and serum electrolyte determinations and unnecessary x-rays. Policies targeted to reduce utilization in these areas were then developed and instituted and complete data collected for the subsequent 12 months for 1,237 patients.

Patients studied pre and post policy intervention were not significantly different with respect to age, diagnoses, length of stay, TISS score ( $37.5 \pm 12.1$  vs  $34.2 \pm 12.9$ ), APACHE II score ( $19.9 \pm 4.9$  vs  $19.1 \pm 4.8$ ) and mortality (15.1% vs 14.0%). Frequency of several common laboratory tests and investigations including chest x-rays, blood gas and serum electrolyte analysis was reduced by 11.2% to 51.0%. Total annual cost reductions during the initial phase of the program amounted to \$156,000 and returned the cost of the program implementation four fold. We conclude that a comprehensive team-based management program can significantly improve resource utilization without adversely affecting patient care.

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