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Excellence in Nutrition Therapy

Lessons from the International Nutrition Survey and the Best of the Best Awards

Over recent years, nutrition therapy for critically ill patients has gained momentum as an essential part of patient care. Research into this often undervalued intervention has escalated, demonstrating that providing the right amount of nutrition in general, and of specific nutrients in particular disease states, can affect the patient's hospital journey. Recently, several landmark papers on nutrition therapy in the critically ill have caused debate, stimulating further discussion and research (Alberda et al. 2009; Arabi et al. 2011; Casaer et al. 2011, Rice et al. 2011; ARDS Network 2012). An additional focus for future research is to determine the factors that enable (or inhibit) the provision of evidence-based nutrition therapy in the ICU.

Introduction

Since 2007, the Critical Care Nutrition team in Canada, led by Professor Daren Heyland, has co-ordinated the International Nutrition Survey (INS), which aims to describe and improve the provision of nutrition therapy to critically ill patients. The value of participation in this survey by ICUs includes receipt of an individual site report, comparing its practice patterns to the Canadian guidelines and to other participating sites. This benchmarking opportunity enables units to understand their strengths, weaknesses, and opportunities, and to locate where improvements in nutrition therapy can be made. Since its inception, the INS has observed that some ICUs are clearly able to achieve higher degrees of compliance with clinical practice guidelines than other sites (Cahill et al. 2010).

The variability that exists allows us to understand what the top performing ICUs do, and by sharing their trade secrets, lower performing ICUs can be assisted to improve the nutrition therapy they provide and ultimately their patient outcomes (Heyland et al. 2010).

Recognition and Reward: Lessons for Healthcare From the Business Sector

Recognition and reward have long been used to improve performance in business. By highlighting high achievers, others are encouraged to mirror or continue the same behaviour (Bickingham and Coffman 1999). Such a strategy is not regularly exercised to improve healthcare quality; however, the Canadian group postulated that by using a similar strategy, the level of nutrition therapy could be improved. As a result, the Best of the Best (BOB) award was developed and has subsequently been awarded in 2008, 2009 and 2011.

Methods and Metrics

To be considered for the BOB award, participating ICUs must:

- Have a feeding protocol;
- Finalise complete data collection on at least 20 patients; and
- Be willing to comply with data verification.

The criteria for the BOB award were developed in consultation with the Canadian Clinical Practice Guidelines Committee. Adequacy of energy delivery is the most important criterion and is based on the delivery of enteral nutrition (EN) and appropriately- prescribed parenteral nutrition (PN) as a proportion of the overall energy prescription. In addition, glycaemic control is included in the scoring system to determine the rate of hyperglycaemic episodes (fewest is best). The remaining metrics relate to internationally recognised strategies that improve delivery of nutrition, such as introducing EN early, using promotility drugs and placing small bowel tubes where appropriate.

Overall BOB scores are achieved by ranking eligible sites against each of the five determinants. The top performing site achieves a score of 'n' points (n = number of participating sites), the second site achieves n-1 and so on. Each of these scores are multiplied by the weighting points and the total points summed up to determine the overall BOB award rankings.

Factors Associated With a Higher Ranking

In the 2008 BOB analysis, multiple linear regression was used to determine which hospital and ICU characteristics were positively associated with a higher BOB ranking. ICU management in a closed structure (compared to an open ICU structure), presence of a dedicated ICU dietitian and the geographic region of the ICU were all determined to be associated with a higher BOB ranking. When these associations were adjusted

in a multivariable analysis, the independent predictors of a higher ranking were: being in Canada compared to China or the United States (BOB ranking 30.4 places worse if ICU from China and the United States compared to Canada) and the presence of an ICU dietitian (BOB ranking 23.5 higher if there was a dietitian in the ICU ($p=0.005$)).

Learning Opportunities

The Alfred Hospital in Melbourne, Australia has been awarded the BOB award twice: jointly in 2009 and solely in 2011. The data obtained from the INS have played an integral part in the quality improvement process at the hospital. It was observed from the 2008 data that 53% of patients commenced EN within 24 hours of ICU admission and 47% of patients commenced after 24 hours. Commencement of nutrition therapy within 24 hours of ICU admission is a key performance indicator (KPI) for the nutrition department; hence, this data highlighted an area for improvement. At this time The Alfred Hospital did not allow EN to commence prior to dietitian review (either in person or on the phone) and this was a recognised source of delay. Access to standard EN solutions for commencement without prospective dietitian approval was instigated. In the subsequent surveys an improvement was observed in the promptness of feeding: 72% and 80% of patients commenced EN within 24 hours in 2009 and 2011 respectively.

A Story of Success

Contributing factors to the achievement at The Alfred Hospital that other healthcare providers may find useful include:

- **Dedicated ICU dietitians:** This is a key element of success. The Alfred Hospital's ICU has 37 beds divided into three service areas. There are 1.1 full-time equivalent dietitians (0.3 per 10 beds), with services allocated to three dietitians. Provision of consistent and well regarded staff in the ICU is also a key feature of this success.
- **Strong Leadership**, with a focus on excellence, from both the Director of ICU and the Manager of Nutrition, including dietetic resource allocation.
- **Attendance of the Dietitian on the Daily Ward Round**: The dietitian can thus advocate for nutrition therapy and ensure that nutrition is seen as a clinical priority.
- **Clinical Practice is Guided by an Evidence-Based Feeding Protocol.**
- **A KPI Relating to the Provision of Therapy to Patients in the ICU Within 24 Hours of Admission** is part of the nutrition department's quality business improvement plan, which is regularly audited.
- **A Dietitian is in Attendance in the ICU Seven Days a Week**, and when the dietitian is not present in the hospital an on-call facility is in place until 8pm daily.
- **Good Working Relationships and Communication Channels** have been developed between medical, nursing and nutrition staff, regardless of seniority.
- **Regular Quality and Audit Processes** occur with timely feedback (including internal projects and audits, and external projects such as the INS).
- **There is Access to Standard EN and PN Solutions** for commencement of nutrition therapy after standard office hours.
- **There is a Culture of Research and Best Practice** in nutrition therapy in the ICU and the nutrition department.
- **Nutrition Therapy is Appreciated in the ICU** and it is embedded into the organisational culture.
- **There is Regular Participation in Formal and Informal Teaching Processes** by medical and nursing staff, and hosting of an external conference on ICU nutrition to share successes and facilitate best practice for others.
- **Constant System Improvement:** A computerised data system has been developed to capture real-time data and allow analysis of outcomes associated with nutrition therapy.

Barriers to Change

Unfortunately, the delivery of nutrition therapy does not always amount to best practice in all ICUs, despite the efforts and intentions of those involved. Barriers to change in the hospital setting are well documented, and the area of nutrition offers no exception, but surveys such as the INS can assist in identifying areas for change. In conjunction with the Critical Care Nutrition group, Cahill has led the movement to identify why best practice nutrition therapy guidelines are not adhered to in the ICU. Cahill and Heyland discussed these difficulties in several papers and were able to identify that adherence to guidelines is a response to multiple factors that act as barriers or enablers (Cahill and Heyland 2010; Cahill et al. 2010). From this work it would seem that a tailored approach to implementation of best practice guidelines rather than a 'one size fits all' approach is more effective (Cahill et al. 2010). This, however, requires identification of the barriers, which can be very difficult. To help address this, a barriers assessment was added to the 2011 International Nutrition Survey. This element will assist sites to understand the barriers and enablers to provision of nutrition therapy that are specific to them.

Nutrition As a Measure of Quality in ICU

Quality measures in critical care are recognised as important in ensuring patient safety and optimal clinical outcomes. Markers of quality healthcare in critical care have long been established and include the use of stress ulcer and deep vein thrombosis prophylaxis, central venous catheterisation care and management of blood glucose levels (Pronovost et al. 2001). Measurement of the time until EN commences readily lends itself to being another key marker of quality ICU management. Data such as that collected in the INS can assist with monitoring and

benchmarking processes. The recent introduction of the BOB award also provides some healthy competition between both ICUs and colleagues, which should ultimately lead to improved patient outcomes by encouraging continued high performance or improved performance in subsequent years.

Conclusion

Relatively simple but significant data collection strategies such as the INS can serve as vital tools for improvement of healthcare quality in intensive care. They also provide important opportunities to benchmark care internationally, against past performances and within similar geographic regions. The INS and the BOB criteria have provided a unique opportunity to recognise and document best practice in the provision of nutrition therapy, which can now be shared with our colleagues to improve patient care.

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