

## EDITORIAL

# Why quality matters

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In 1999 the Institute of Medicine (IOM) issued its seminal report 'To Err is Human' in which it stated that 44 000 to 98 000 patients die each year in US hospitals due to medical errors.<sup>1</sup> Could this figure be an underestimate? The IOM further estimated the national cost of preventable adverse events between 17 and 29 billion dollars. Later in 2001, the Institute published a follow-up report entitled 'Crossing the Quality Chasm'<sup>2</sup> in which it stated:

In its current form, habits, and environment, American health care is incapable of providing the public with the quality health care it expects and deserves.

This set the stage and issued a challenge to all clinicians. It was clear that we needed to do a better job.

Making the necessary transition to a model of health care that emphasized the quality of our outcomes required a steep learning curve. Medicine turned to industry where quality improvement was ingrained in the culture and the methodology existed for many years. Walter Shewhart held a doctorate in physics from UC-Berkeley and then worked as an engineer for Western Electric and Bell Labs from 1918 to 1924. He is considered the father of statistical control and developed the control chart to assess variation in a process. In 1939, he wrote *Statistical Method from the Viewpoint of Quality Control*<sup>3</sup> that laid the groundwork for the Plan-Do-Study-Act methodology so commonly employed in quality improvement projects. W Edwards Deming, another physicist, was considered visionary in the world of quality improvement. He was ahead of his time and American industry was not ready for his process changes. Therefore, Deming went overseas to advance his programs. He did his most influential work in Japan and was a driving force behind their economic rise in the wake of the Second World War. He worked along side others such as Kaoru Ishikawa who developed the well-utilized quality improvement (QI) tool, the 'Fishbone Diagram'. In his book, *What is Total Quality Control – The Japanese Way*,<sup>4</sup> Ishikawa acknowledged that 'Failure is the Seed of Success'. This became the mantra of highly reliable organizations, but medicine lagged behind in adopting this philosophy. Other QI methodologies that trickled down to medicine from industry included the Lean approach developed by the Toyota Company, which emphasized efficiency; Six Sigma promoted by the Motorola Company, which focused more on reducing variation. The combination of these two programs, called Lean Six Sigma has now been adopted by many health-care systems to add structure to their QI efforts.

Although many consider the recent interest in medical QI to be new, it is actually more of a renaissance. As early as 1858, Florence Nightingale was using statistical methods to demonstrate the effects of unsanitary conditions in military hospitals. Ernest Codman, an American surgeon, is considered the founder of medical outcomes management. In 1920 he advocated that hospitals and physicians track their practices and evaluate their patient outcomes. Codman's work led to the formation of the American College of Surgeons and the Joint Commission. In the 1980s, Lucian Leape and Donald Berwick were considered the modern pioneers of medical QI. Over the past quarter century, they have been tireless advocates for an aggressive agenda to set patient safety goals. Organizations such as the Joint Commission,

the National Quality Forum and the Institute for Healthcare Improvement have heeded their call.

In neonatal medicine we have been very fortunate to be on the cutting edge of this movement. Organizations such as the Vermont Oxford Network, the National Perinatal Information Center, Pediatrix Medical Group and Statewide Consortia in places such as Ohio and California have allowed us to track outcomes of large numbers of our patients. This has permitted us to identify where opportunities for improvement exist.

Besides our own desire to improve the care we deliver, there are external drivers of the QI movement. These forces include outside organizations that monitor specific outcome metrics in our patient population. For example, the Joint Commission tracks health-care-associated blood stream infections and exclusive breastfeeding. The National Quality Forum is monitoring infants < 1500 g not delivered at the appropriate level of care and unexpected term newborn complications. The Agency for Health Care Quality and Research measures death rates in low-mortality diagnosis-related groups. Undoubtedly, some of these neonatal metrics will be used in pay-for-performance (P4P) programs that already exist in other fields of medicine. The Center for Medicare and Medicaid Services is currently denying payments to hospitals and physicians when an adult patient develops a health-care-associated infection and is imposing penalties on hospitals with higher than expected rates of readmission for adults with heart failure, stroke and acute myocardial infarction. Can neonatal P4P and added penalties be far behind?

Another important driver of QI is the need to satisfy educational requirements. Fellows in neonatology must now complete a QI project as part of their training, and fellowships must offer a curriculum in 'improvement science'. This presents a unique challenge as many faculties have not been adequately trained in this field. Furthermore, practicing clinicians must document participation in quality improvement projects in order to maintain their specialty or subspecialty certification. These factors have provided an additional impetus to join the QI movement.

For all of these reasons, the *Journal of Perinatology* has recognized the need to create a section for QI manuscripts. We view it as an essential component of our mission to disseminate information from well-done QI projects to enable us to learn from one another and improve our processes of care. We are seeking manuscripts that are robust, methodologically sound and report original projects that provide unique new insights into Quality Improvement and Patient Safety initiatives. The publishing guidelines will shortly be published in the Instructions to Authors on our website (<http://mts-jper.nature.com>). These will be similar to our current guidelines for Original Articles, but they will also incorporate the SQUIRE guidelines for QI publications.<sup>5</sup> This will help bring certain uniformity to these papers. The line between individual institution ethics review requirements for reporting original research and QI can sometimes get blurry and is the subject of considerable debate. However, we expect that prior Institutional Review Board approval and, when appropriate, parental permission will be obtained for quality/safety studies submitted for publication.

To provide print space for this new section we are discontinuing the Casebook Presentation and Imaging Case Report sections.

The Journal looks forward to receiving your manuscripts on Quality Improvement and Patient Safety initiatives. We are excited to offer a new venue for the publication of these important works. As W Edwards Deming famously said,

'In God we trust, all others must bring data.' Perhaps by working together we will someday soon be able to offer our patients the health care they expect and deserve.

#### CONFLICT OF INTEREST

The author declares no conflict of interest.

S Pearlman

*Division of Neonatology, Christiana Care Health System,  
Newark, DE, USA*

*E-mail: [spearlman@christianacare.org](mailto:spearlman@christianacare.org)*

#### REFERENCES

- 1 Kohn LT, Corrigan JM, Donaldson MS. *To Err is Human: Building a Safer Health System*. National Academy Press: Washington, DC, USA, 1999.
- 2 Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the Twenty First Century*. National Academy Press: Washington, DC, USA, 2001.
- 3 Shewhart WE. *Statistical Method from the Viewpoint of Quality Control*. Graduate School of the Department of Agriculture: Washington, DC, USA, 1939.
- 4 Ishikawa K, Lu DJ. *What is Total Quality Control – The Japanese Way*. Prentice Hall: Englewood Cliffs, NJ, USA, 1985.
- 5 Ogrinc G, Mooney SE, Estrada C, Foster T, Goldmann D, Hall LW *et al*. The SQUIRE (Standards for Quality Improvement Reporting Excellence) guidelines for quality improvement reporting: explanation and elaboration. *Qual Saf Health Care* 2008; **17**(Suppl 1): i13–i32.