NCEPOD: benchmarking and shaping practice in surgical care and beyond

This month's quality improvement article (p. 163) emphasizes the importance of high-quality surveys and their role in benchmarking national standards of care. Wilkinson and colleagues discuss the most recent National Confidential Enquiry into Patient Outcome and Death (2014) report, 'On the Right Trach', a review of UK hospital tracheostomy care, undertaken with previously well-described National Confidential Enquiry into Patient Outcome and Death methodology. This nationwide survey comes in the wake of the 4th National Audit Project (NAP-4), which implicated tracheostomy devices as the source of considerable morbidity and mortality (Cook et al, 2011).

In 'On the Right Trach', the assessment of 2000 patients undergoing tracheostomy resulted in 25 key recommendations, focusing on the importance of staff training, familiarisation with equipment and emergency protocols. These recommendations will not surprise staff regularly engaged in tracheostomy care. These guidelines provide an invaluable framework for those who lack confidence or experience to identify and correct deficiencies in their own knowledge. The question remaining is: as clinicians, are we taking due notice of these high quality data and the opportunities they afford or will we continue to stumble in the dark, exposing our patients to undue risk?

History of NCEPOD

Since its inception in 1982 the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) has continued to play a significant role in developing robust clinical standards. By shining a light on a wide range of UK clinical practice, such work has consistently been the catalyst for change and systems improvement.

The National Confidential Enquiry into Patient Outcome and Death grew to national prominence from original work developed by Lunn and Mushin (1982). Their confidential and anonymous survey into anaesthetic morbidity and mortality, across England, Wales and Scotland, identified that 0.6% of patients died within 6 days of a surgical procedure, with the risk of death reported to be directly attributable to anaesthesia in 1:10 000 cases. This pilot study led to collaboration between surgery and anaesthesia professionals as the Confidential Enquiry into Perioperative Death. This would ultimately go forward as the National Confidential Enquiry into Perioperative Death in 1988.

Between 1991 and 2000, the National Confidential Enquiry into Perioperative Death produced important annual reports and broadened its terms of reference in 2002, becoming the National Confidential Enquiry into Patient Outcome and Death (NCEPOD). NCEPOD has since covered medical specialities beyond its early surgical remit. Reports are aimed at clinicians, commissioners and the general public, and seek to review key components of practice where national standards do not exist. The reports provide recommendations which act as benchmarks to quality improvement projects at both the national and local level.

Original NCEPOD data identified unacceptable numbers of surgical procedures being performed in the absence of a consultant in the operating theatre. Such data highlighted the need for closer supervision of doctors in training and in part has been instrumental in the restructuring of on-site surgical and anaesthetic services in UK hospitals. NCEPOD reports dating from the 1990s indicated the need for improvements in service provision for emergency operations. This led to the adoption of the so-called 'NCEPOD operating list', whereby patients underwent timely emergency surgery in dedicated and properly staffed operating theatres, separated from the hospital's elective workload.

Improving outcomes

Switching attention from 'who operates when', NCEPOD moved its focus to characterizing the surgical patient profile and in 2010 'An Age old problem' reported the vulnerabilities of an ageing surgical population (NCEPOD, 2010). In 2011, 'Knowing the risk' (NCEPOD, 2011) further characterized the perioperative care of patients undergoing surgery and identified that only 49% of high-risk surgical patients received acceptable levels of care, with mortality rates as high as 79% in some high-risk patient groups. Inadequate access to preoperative anaesthetic and surgical assessment clinics, lack of early warning of patient deterioration and insufficient critical care facilities postoperatively were considered important contributory causes to poor patient outcomes.

The lack of robust early warning scores, in part, led to the Royal College of Physicians (2012) releasing the restructured National Early Warning Score. 'Knowing the risk' (NCEPOD, 2011) highlighted low uptake of the goal-directed fluid therapy techniques for optimal fluid management, despite prior recommendations by Powell-Tuck et al (2008) and the National Institute for Health and Care Excellence (NICE, 2011). With its emphasis on integrated care, 'Knowing the risk' (NCEPOD, 2011) was endorsed by the Royal College of Anaesthetists and the Faculty of Intensive Care Medicine and is now helping define a new role for anaesthetists as perioperative physicians, increasing workforce numbers and improving availability of critical care beds.

In 2012 the Health Foundation's Shine Programme funded a multi-centre Emergency Laparotomy Pathway Quality Improvement Care Bundle (ELPQuIC). Directly addressing earlier NCEPOD recommendations, it comprises five elements of care including the use of patient early warning scores, timely administration of antibiotic therapy, surgical intervention, the use of goal-directed fluid therapy and better use of postoperative intensive care facilities. The Enhanced Peri-Operative Care for High-risk patients (EPOCH) trial (www.epochtrial.org/epoch.php) is

currently testing the quality improvement principles learned from studies including ELPQuIC on a national scale. Additionally it assesses quality of life measurements and health economic data.

What is quality care?

As clinicians, we aspire to deliver the highest quality care but do not always succeed. Therefore it is important to understand what quality care means if we are to set an agenda for improvement and change. A workable definition is provided by the US Institute of Medicine (2001) and considered in six domains: safe, effective care which is patient centred, efficient, timely and equitable. The Patient Safety First Campaign put it more simply as 'no avoidable death and no avoidable harm'.

The NCEPOD reporting of clinical service deficiencies has been instrumental in triangulating our relative position on the journey towards improving patient care. Building on such data, improvement science provides the framework for service transformation. Improvement science methodology adopted by health care derives from the pioneering work of Edward Deming, who is regarded by many as the father of 'quality evolution'. Deming became famous for helping transform the Japanese economy, which had collapsed during the Second World War. Deming's 'System of Profound Knowledge' offers a framework of thought and action for those wishing to transform practice and consists of four parts (The W. Edwards Deming Institute, 2014):

1. 'Knowledge of the system': understanding the interdependence of different parts of the organization
2. 'Knowledge of variation': considering the causes of error, delay, defects and the positive outcomes
3. 'Knowledge of psychology': understanding what motivates individuals and how to optimize their abilities
4. 'Knowledge of theory': continuous learning and testing theories through Plan Do Study Act cycles.

The Plan Do Study Act cycle, developed by Walter Shewhart and adapted by Deming, aims to apply 'small tests of change', analyse the results, identify the pitfalls and repeat the process with an enhanced idea.

The best examples of national surveys identify variance in health-care practice and associated outcomes. These allow the critical analysis of what attributes are shared by high-quality performers. The list of NCEPOD influences on clinical practice is long and stretches beyond its early surgical remit. In 2005 'An acute problem' (NCEPOD, 2005), demonstrating lack of vigilance to patients deteriorating on the wards, played a part in the development of NICE guidelines on recognition of and response to acute illness in adults in hospital. In 2009 'Adding insult to injury' (NCEPOD, 2009) reviewed the care of inpatients with acute kidney injury. Its key recommendations, addressed in the NICE guidelines of 2013, form the basis of local protocols and pathways, e.g. the London Kidney Injury Network. As a result of the most recent report 'On the Right Trach', the UK Intensive Care Society (2014) has published updated standards for the care of adult patients with temporary tracheostomy.

Conclusions

Thirty years after Lunn and Mushin collected surgical outcome data the challenge remains to deliver high quality care in a more affordable health-care system. To achieve this, health-care organizations must embrace continuous measurement and improvement science, as important ingredients to facilitate change. The work of NCEPOD and similar organizations will continue to be central to this process, while we, as doctors, have a professional duty to take note of such findings and use them effectively for improving patient outcomes and satisfaction. BJHM

KEY POINTS

- Well-conducted national surveys can be used to identify variance in health-care practice and patient outcomes.
- High quality survey recommendations may offer useful leverage to improvements in patient care.
- The National Confidential Enquiry into Patient Outcome and Death has a strong track record and historical reports have been important catalysts to change.
- Improvement science methodology, adopted from industry models, offers a framework for improvement in health care, which must be understood by health-care workers if sustained change is to be achieved.

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