

# Progress in public reporting in New Zealand since the Ombudsman's ruling, and an invitation

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“The purpose is to unleash the power of data to change lives.”<sup>1</sup>

*Statistics NZ CEO Liz MacPherson*

The process of increasing transparency around New Zealand healthcare has shown startling progress in the last two years. We summarise recent developments and suggest a way ahead.

In June 2016 Ombudsman Professor Ron Paterson ruled on a complaint by Martin Johnston of the *New Zealand Herald*.<sup>2</sup> Johnston had requested the volumes and types of operations performed by individual surgeons at five district health boards (DHBs) under the Official Information Act (the Act). He also requested rates and total, unadjusted numbers of mortality, readmissions and complications by individual surgeon, and was either turned down or provided with numbers at abstracted levels by DHBs.

Johnston's complaint, and a prior ruling by the Ombudsman (December 2014)<sup>3</sup> that Tairāwhiti DHB should release surgeon-specific case volume data, prompted considerable attention and debate in the sector. A discussion paper by the Medical Council<sup>4</sup> generated 57 response submissions, from the New Zealand Medical Association,<sup>5,6</sup> the Association of Salaried Medical Specialists (ASMS),<sup>7</sup> the New Zealand Society of Anaesthetists<sup>8</sup> and the New Zealand National Committee of the Australian and New Zealand College of Anaesthetists (ANZCA) among others.<sup>9</sup> In March 2016 the Health Quality & Safety Commission (the Commission), after consultation with these and other concerned organisations, including consumers in a day-long consumer

workshop conducted with the Ministry of Health,<sup>10</sup> published a position paper on the public reporting of data, including surgical outcome data, with an accompanying editorial in this journal.<sup>11,12</sup>

## The Ombudsman's ruling

Ultimately, the Ombudsman ruled that under the Act, DHBs were not obliged to provide individual surgeons' mortality and complications data on the broad basis that such data are not risk-adjusted and their publication would risk misinforming the public.<sup>2</sup> DHBs were required to provide data by individual surgeon on volume and type of procedure performed. The Ombudsman's opinion was widely covered in the media.<sup>13-17</sup>

The Ombudsman noted in his opinion that one of the purposes of the Act is “to progressively increase the availability of official information to the people of New Zealand”. The Ombudsman has also suggested, in his 2014 opinion, that “New Zealand lags behind [international] developments” in the “proactive disclosure of performance and outcome information”.<sup>3</sup> For these reasons, he appended the following new recommendation:

“that the Ministry of Health and Health Quality & Safety Commission work together to provide a publicly available annual update (commencing in June 2017) on the sector's progress towards, in five years (ie, by June 2021), the selection, development and public reporting of a range of quality of care measures (including outcomes data) across specialties that:<sup>2</sup>

- are meaningful to health care consumers;
- are meaningful to the clinicians who provide their care;
- are meaningfully attributable to the clinicians or service providing that care; and
- increase the availability of information to the people of New Zealand.”

The Ministry of Health and the Commission, with the support of the

Accident Compensation Corporation (ACC) and the Health and Disability Commissioner, have now jointly agreed a set of guiding principles that should apply to future publication of additional clinical performance and outcome information (see Figure 1).

These principles attempt to frame an evidence-based rationale of public reporting specific to New Zealand’s current healthcare landscape and information technology architecture.

**Figure 1:** Guiding principles: towards the publication of clinical performance and outcome data (adapted for publication).

These guiding principles form a common platform from which to operate consistently to achieve effective public reporting of clinical performance and outcome information. They reflect the points in the process of public reporting: purpose; design; data capture and treatment; and publication.

Public reporting of clinical performance and outcome data is continuing to evolve in New Zealand and these principles for such reporting are based on current evidence. Through consultation, these principles have the support of consumers, regulatory and professional bodies, and key groups in the sector. The principles are aligned with key themes of the New Zealand Health Strategy 2016<sup>18</sup> and with the strategic directions of other key healthcare organisations, and with processes that oversee professional competency. The principles will be regularly reviewed to ensure they remain current with changing strategic and legislative documents. Innovations or changed models in healthcare should, where possible, incorporate these principles prospectively as part of implementation.

**Our purpose is quality improvement and patient safety**

The aim of publication of clinical performance and outcome information is to facilitate continuous improvement in the quality and safety of health services and to generate public trust and confidence in our system. Focuses for improvement include better service experience for consumers; practitioner learning and performance; and accountability to the public.

**Co-designed publications and measures**

Consumers, colleges, professional bodies, clinicians and employers have an important role to play in defining and selecting relevant outcomes and process measures. Strong measures should reflect the different needs of the interested parties, be outcomes-focused, reflect consumer experience and serve to assure quality and safety and drive improvement. Publication of data should promote a culture of continuous improvement, stimulate clinical focus and encourage open and honest reporting.

**National standards**

Digital technology supports the capture and management of clinical performance and outcome information during routine care. Wherever possible and appropriate, there should be agreed national standards of data collection with consistent definitions and measures across New Zealand.

Where possible, data should be risk-adjusted and/or accompanied by relevant contextual information to account for case complexity and risk. When measures are attributed to clinicians or services, attribution should be accurate and inferences should be statistically sound. The measures should be clinically credible and reliable and should provide the public, clinicians, healthcare providers, administrators and/or policymakers with useful and meaningful information.

**Accessibility and clarity**

Data should be published in different formats and media to ensure that the information is accessible to people of all levels of health literacy and acceptable and comprehensible to target audiences.

Data can be analysed and reported at multiple levels (national, regional, service, individual). Choice of level should, where appropriate, be related to purpose and audience, to facilitate understanding of causes, contributing factors and opportunities for improvement.

**Quick look**

• Consumer-focused	• Consistent national definitions and measures
• Co-designed measures	• Risk-adjusted
• Co-designed publications	• Contextualised
• Outcomes-focused	• Meaningfully attributable to clinician/s or service
• Data capture part of routine care	• Accessible formats and media
• Electronic capture	• Related to purpose and audience
• Agreed national standards of data collection	

## Present developments in public reporting

At present, most public reporting in New Zealand has a clinician rather than consumer focus. Data on the outcomes of certain surgical units in New Zealand have been reported in the peer-reviewed literature for decades.<sup>19–23</sup> Publication of various measures of the quality and safety of healthcare is also already a regular part of the work of the Ministry of Health, the ACC and the Commission. For example, the Commission presently publishes over 250 quality of care indicators for each DHB. These indicators link to the Ministry's System Level Measures (SLM) framework (see below).<sup>24</sup> Currently, these indicators are spread across different publication formats, such as the New Zealand Atlas of Healthcare Variation, the Health Quality and Safety Indicator set and the Quality and Safety Marker set. Work progresses toward the presentation of a selection of these indicators as one DHB-specific dashboard, which can be organised in relation to the Ministry's SLM framework.

The Ministry's SLM Framework is a system-level performance measurement and incentive system co-developed with the sector and designed to demonstrate district alliance progress towards agreed targets in line with the 2016 New Zealand Health Strategy.<sup>24</sup> The Framework consists of a set of system level measures with nationally consistent definitions that will be reported nationally. Contributory measures, designed to drive change at a local level and contribute to the system level measures, are selected locally and will not be reported. At present, DHBs and PHOs are required to develop and submit an improvement plan to meet agreed milestones for each system level measure on behalf of their district alliance.

The System Level Measures implemented from 1 July 2016 (apart from the latter two, which are still in development) and reported publicly are:<sup>25</sup>

- Ambulatory Sensitive Hospitalisation (ASH) rates per 100,000 for 0–4 year olds
- Acute hospital bed days per capita
- Patient experience of care

- Amenable mortality rates
- Number of babies who live in a smoke-free household at six weeks post-natal
- Youth access to and utilisation of youth-appropriate health services.

DHBs are in general already encouraged to collect and report outcome information, and DHBs approach this differently. For example, Waitemata DHB has recently published unit-level outcome information on their website for 2014 and 2015 in relation to gastro-oesophageal, hepatic, pancreatic and biliary surgery.<sup>26</sup> The information includes leak rates and 30-day/90-day mortality, with contextual information to assist lay readers. Work on development of a DHB-wide framework of patient-reported outcome measures (PROMs) and patient-reported experience measures (PREMs) linked to outcomes is in process. (Pers. comm. Grayson D. O'Brien J. May 2017.).

### Registries and opportunities

New Zealand already has several active registries and some in development, many that may provide opportunities for consumer-focused publication of risk-adjusted measures of the outcomes of certain aspects of patient care that fit the criteria we have outlined for effective public reporting.

The All New Zealand Acute Coronary Syndrome Quality Improvement programme (ANZACS QI),<sup>27</sup> for example, is a clinical registry of patients with acute coronary syndrome (ACS) and other cardiac problems admitted to hospitals across New Zealand. The registry currently covers 41 public hospitals across New Zealand where acute cardiac patients are admitted. As at June 2015, 25,273 patients with suspected ACS and 30,696 referred for coronary angiography were registered. The registry explicitly has a quality improvement arm as well as a research arm—to identify and address variation in evidence-based practice (in timeliness of assessments and interventions and in the utilisation of secondary prevention therapy, for example). Publications arising from the registry are numerous and ongoing, and the clinicians involved are exploring other options for reporting.<sup>27–40</sup>

The New Zealand cardiac registry published their first New Zealand annual report in December 2016.<sup>41</sup> The report

presents analysis of all cardiac surgical procedures undertaken at the five DHBs performing publicly-funded cardiac surgery in New Zealand (Auckland, Waikato, Capital and Coast, Canterbury, Southern) between 1 January 2015 and 31 December 2015. The data present volumes, risk factors, and benchmarked, risk-adjusted outcomes such as mortality and measures of complications, including deep sternal wound infection, return to theatre and readmission rates following isolated coronary artery bypass grafting (CABG), isolated aortic heart valve replacement (AVR) and combined AVR and CABG. The registry also publishes some additional quality of care measures, including hours of mechanical ventilation, time spent in the intensive care unit and hospital length of stay. All measures are for the country or by the five DHBs with cardiac units.

The New Zealand Joint Registry publishes its report annually and now has more than 17 years of accumulated data of New Zealand joint arthroplasty practice encompassing both public and private settings. These data include metrics that are relevant to both consumers and to clinicians in terms of quality improvement work, such as prosthesis revision rates and more than 15 years of data from the Oxford Hip and Knee outcomes questionnaire, an arthroplasty-specific patient-reported outcome measure (PROM).<sup>42</sup> Surgical site infection data for hip and knee arthroplasties, which may be relevant to consumers, are also available at DHB level from the Commission.<sup>43</sup>

New Zealand has other registries at varying levels of sophistication and maturity, including the New Zealand stroke thrombolysis registry.<sup>44</sup> Stroke registry data are emerging in the literature,<sup>45,46</sup> and the registry has been used to raise awareness of regional variation in thrombolysis provision.

These and other instances are opportunities for development of measures to be reported along the lines of the principles in Figure 1—in the first instance, with a consumer focus.

## Background developments internationally

Johnston's Official Information Act request and subsequent complaint has in part acted as a challenge for New Zealand healthcare, put by the media in much the way it was in the US in the 1990s and in England and the UK in the 2000s.

### England

In England, a 2005 request by the *Guardian* under the Freedom of Information Act in the wake of the paediatric cardiac surgery scandal at Bristol Royal Infirmary<sup>47</sup> has now resulted in the publication of multiple metrics on the *NHS Choices* website, including mortality, complications and other metrics by individual surgeon across 20 specialties.

As the Commission reported in their March 2015 position paper, "Outcomes have clearly improved in the NHS [UK National Health Service] in the period since publication ... [but] a causal link from publication to reduced mortality has not been shown."<sup>11,48–50</sup> The UK Society for Cardiothoracic Surgery has written to NHS England calling for the scheme to be abandoned, claiming "a damaging effect on individual surgeons, with destruction of confidence, disruption of functional teams and inappropriate suspensions, with unfair media attention."<sup>51</sup> *NHS Choices* data appear to show low public usage of the service: in the year between 7 March 2016 and 12 March 2017, the collected specialty sites had only 8,387 unique visitors, with the fewest looking up Interventional cardiology (192 visits). Hip replacement surgery outcomes by individual surgeon was the most popular, with 969 unique visits in the year. (Pers. Comm. NHS Choices Service Desk, 9 March 2017.) There were, however, approximately 100,000 hip replacement procedures performed in England and Wales in 2015.<sup>52</sup> Has the initiative improved care? The answer is unclear.

Several authoritative groups have warned of the dangers arising from insufficient statistical power to reliably detect variations in the performance of individual UK surgeons. Surgeons in the UK seldom, if ever, do enough procedures to reliably identify outliers on the basis of mortality. The risks lie both in the possibility of falsely (and unjustly) identifying an individual as a poor performer and in failing to identify one that really is performing poorly within a useful timeframe. The problem of volume and statistical significance is certainly even more the case in New Zealand.<sup>53,54</sup>

US

In New York in the US, a suit by newspaper *Newsday* resulted in publication by the Society of Cardiothoracic Surgeons (SCTS) of the risk-adjusted mortality and complications data of named individual surgeons. The New York cardiac reporting showed 41% decreased mortality in a year, in much-studied and contested results that are perhaps the most famous example of public reporting and its potential effects.<sup>55-62</sup>

In the US since, there has been a proliferation of forms of public reporting of quality information, from journalistic associations at the grassroots to the major agencies, alongside a proliferation of methodologies, standards and data sources.<sup>63</sup> At the centre, the US Affordable Care Act 2010 requires the Centers for Medicare & Medicaid Services (CMS) to make “publicly available through Physician Compare [a CMS website to help consumers find and choose physicians and other health care professionals enrolled in Medicare] information on physician performance that provides comparable information on quality and patient experience measures”.<sup>64</sup>

States, regions, collaboratives, health systems and hospitals all publish their own self-reported metrics. Multiple independent for- and non-profit organisations are now publishing ranking and rating information, such as US News, HealthGrades, and Consumer Reports, targeted at consumers. These rating systems differ in their methodologies, measures and data sources, and in practice, their ratings rarely agree<sup>65</sup> and are disputed by clinicians.<sup>66,67</sup> They lack therefore the clinical buy-in necessary to incentivise quality improvement, though they have the merit of being increasingly consumer-focused. Indeed, many of these independent ratings systems provide the information consumers in New Zealand have told us they want (see Figure 2).

## The argument for public reporting in New Zealand—strategy, purpose, mechanism

Marshall and colleagues at the Nuffield Trust identify the many reasons cited for implementing a policy of public disclosure of performance or quality data. They conclude that a coherent rationale, a clear conceptual framework and “a clear and explicit purpose for introducing public disclosure is fundamental to its design, implementation and evaluation”.<sup>68</sup>

The primary construct underpinning the expectation in the US that public reporting will improve the quality of care is based upon a disputed market mechanism of choice and competition, whereby patients act as informed consumers selecting

Figure 2: What consumers want from transparency.<sup>10</sup>

- Consumer workshops held by the Ministry and the Commission in 2015 found that consumers wanted:
- Reassurance, trust and confidence in the system
  - Information from a consumer perspective centred on the patient journey, such as wait times and cancellations
  - Data on two to three key aspects of a procedure
  - Details of the process
  - Likelihood of different outcomes including quality of life
  - Risks and benefits for themselves as individuals
  - Opportunities for stories to come through a mix of data and personal accounts
  - Patient experience surveys and the ability to access ‘expert patients’ who had had first-hand experience.



high-performing providers of healthcare on the basis of their quality. Thus public reports in the US are viewed by some as both a consumer right and a complex quality intervention, predicated upon the proposal that consumers once properly informed will “migrate” to better performers. Theoretically, providers will respond by improving the quality of their care to compete for market share.

However, it is very much unclear whether this construct is sound, even in the US. It requires that consumers access this information, understand it, and begin to make economically rational decisions for their health care such that an economically “efficient” market model for healthcare results. Much evidence suggests that consumers simply don’t use data of this type to make healthcare choices in the way some providers thought they might.<sup>59,69–75</sup> This question of choice and selection is certainly academic in the context of the New Zealand public system: hospitals don’t compete for patients and few patients are in a position to choose their institution or practitioners.

The latest evidence suggests that the importance of transparency as a mechanism to incentivise a shift in practice is based on reputation. This effect will probably operate most powerfully at the level of the institution, with a concomitant effect on all who work within each institution.

### Change by reputation

Berwick identified the “change by reputation” mechanism in 2003<sup>76</sup> and the importance of reputation and the effects of public reporting of comparative institutional measures to incentivise better health care by reputation have been shown in the US, the UK, Italy and Zambia.<sup>77</sup>

Hibbard and colleagues have shown in controlled experiments in Wisconsin the different effects public reporting had on hospitals’ quality improvement behaviors.<sup>78,79</sup> Three groups of hospitals were provided with a) no quality information; b) private information for internal use; and c) the same performance information but publicly reported in a way that explicitly targeted consumers (newspaper advertising etc.). Only in the third case did hospitals make substantial changes to institute quality improvement projects, regardless of market share. These effects were particularly

marked in low-performing institutions. Chassin found that the positive results of the New York cardiac reporting, including reduced mortality, were attributable to reputational effects on low-performing providers, not effects on their market share caused by consumer choice and competition.<sup>80</sup>

Bevan and others have shown how, despite its shortcomings and ultimately its political unpopularity, the NHS star rating regime instituted by the Labour government between 2001–2005 caused dramatic improvements in England where easily graspable comparative results were published in a wide array of media.<sup>77,81</sup> Conversely, in Wales where no results were publicly published and failure to achieve targets was rewarded with extra resources, little improvement was seen. Hospital and ambulance waiting times in England improved dramatically, at some cost politically and in terms of clinical buy-in. Gaming was rife though much of it was “gilding the lily” of already substantial improvement.<sup>82,83</sup> Such ferocious public governance appeared to dramatically improve low-performing institutions, but not to foster or encourage the culture of excellence, teamwork and patient safety that New Zealand pursues.<sup>77</sup> How do we learn from these experiments, natural and controlled?

### The importance of teamwork

The critical importance of teamwork to outcomes has been evaluated in some depth.<sup>11</sup> It is probably counter-productive to focus on individuals rather than teams, in part because doing so provides perverse incentives in relation to the performance of colleagues, but primarily because the outcomes of most modern medical and surgical interventions depend not only on multiple individuals from different disciplines (including but not restricted to surgeons, anaesthetists, intensivists, nurses, laboratory staff and managers) but also on how they work together towards a shared objective of excellence and patient-centred care.

What of individual practitioners? In its position paper, the Commission outlined many effective ways in which the performance of individual healthcare professionals can be assured.<sup>11</sup> It called for boards of DHBs to attest to the presence of such processes within their organisations as part of their annual reports.

We suggest that the true mechanism to make public reports effective in improving quality and generating public trust and confidence in the New Zealand context lies along a thoughtful and considered route sketched in the guiding principles in Figure 1 above. The motivation and stimulus to action through public reporting is readily comprehensible: professional pride, organisational competitiveness, threat of reputational damage at the publication of low performance and the drive to perform at the top of the scope of professional practice.<sup>63</sup>

Measures ought to be developed in concert with consumers, be consumer-focused, comprehensible and accessible, though consumers don't necessarily have to use the information.<sup>78,79,84-87</sup> [Hibbard pers. comm. Aug 31, 2016] These measures ought to be relevant to clinical practice and able to be improved by clinicians. Importantly, they ought to focus on the teams, units and departments to whom they are truly attributable. In this way sufficient numbers for statistical power can be achieved and teamwork can be promoted rather than idiosyncratic practices and behaviours by individuals.

One exciting area that is emerging is the use of new ways of evaluating healthcare, notably through PROMs and patient-reported experience measures (PREMs),<sup>88</sup> and through measures (such as days alive and out of hospital, or DAOH<sup>89</sup>) that are sensitive to more than just mortality and may provide better statistical power for evaluating the performance of clinicians.

We are at the historic moment when we can draw from proven benefits of public reporting and avoid the pitfalls. The evidence has shown us a culture of high performance and continuous quality improvement in New Zealand is not dependent simply on trust and altruism, nor on measurement alone, or choice and competition, but instead a complex interplay between regulation, professionalism and performance reporting that is imaginatively and intelligently done.<sup>12,57,65,74,76,78,79,82,86</sup>

## The way ahead in New Zealand—the future and potential of public reporting relies upon us

“New Zealand is about open hearts ... open minds. We think differently. We try things. We experiment. We are not afraid to challenge ... I would also like us to be famous in the future for open data.”<sup>1</sup>

*Statistics NZ CEO Liz MacPherson*

The iron is hot in New Zealand: we are lucky enough to have been challenged on our approaches to the public reporting of outcomes data from our health services at a time when international evidence is growing.

There is huge potential to develop processes to report a greater number of tailored measures at the appropriate level of unit or institution in cooperation between clinicians and consumers to increase transparency and continue to drive improvement in our already high-performing health services.

New Zealand has robust national data collections and a number of registries at different stages of sophistication and maturity, and all are rich sources of potential measures that consumers may value in their quest to understand their care and that providers can use to report upon the quality and safety of their services to drive continuous improvement. There are opportunities for further measures to be developed—PROMs and PREMs in particular.

We call upon the specialties, the Colleges and other professional bodies and the boards of DHBs to continue to engage with the Ministry and the Commission in the pursuit of informed and effective reporting of unit-, organisation- and provider-level outcome data. We can, as a country, advance the transparency agenda in a way that simultaneously informs and reassures the people of New Zealand and assists the clinicians who care for them in ensuring that the quality of the services they provide are excellent for everyone—not just for the few who can exercise choice.

**Competing interests:**

Alan F Merry has financial interests in Safer Sleep LLC.

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**REFERENCES:**

1. Paredes D. Stats NZ CEO Liz MacPherson: Into tomorrow with information from today. CIO 18 May 2017. <http://www.cio.co.nz/article/619272/statistics-nz-ceo-liz-macpherson-into-tomorrow-information-from-today/> (accessed 22 May 2017).
2. Office of the Ombudsman. Request for Complications data by named cardiothoracic surgeon and neurosurgeon. Case numbers 402136/402138/402140/402142/402144. 2016. [http://www.ombudsman.parliament.nz/system/paperclip/document\\_files/document\\_files/1635/original/402136\\_etc\\_-\\_request\\_for\\_surgical\\_complications\\_data.pdf?1467187036](http://www.ombudsman.parliament.nz/system/paperclip/document_files/document_files/1635/original/402136_etc_-_request_for_surgical_complications_data.pdf?1467187036) (accessed 9 June 2017).
3. Office of the Ombudsman. Request for information concerning a general surgeon: final opinion. Reference number: 371760. 2014. [http://www.ombudsman.parliament.nz/system/paperclip/document\\_files/document\\_files/921/original/371760\\_-\\_request\\_for\\_information\\_about\\_a\\_general\\_surgeon.pdf?1418753742](http://www.ombudsman.parliament.nz/system/paperclip/document_files/document_files/921/original/371760_-_request_for_information_about_a_general_surgeon.pdf?1418753742) (accessed 9 June 2017).
4. NZ Medical Council. Better Data – the benefits to the profession and the public. 2015. <http://www.mcnz.org.nz/news-and-publications/media-releases/better-data-the-benefits-to-the-profession-and-the-public/> (accessed 9 June 2017).
5. NZ Medical Association. Response to the discussion paper 'Better Data—the benefits to the profession and the public', 2015.
6. Child S, Gunasekara S. Trust, transparency: and why we need them both. *NZ Med J.* 2015; 128(1422):7–10.
7. Association of Salaried Medical Specialists (ASMS). ASMS Response Medical Council of New Zealand's discussion paper Better data – the benefits to the profession and the public. [http://www.asms.org.nz/wp-content/uploads/2015/08/Response-to-Better-Data\\_163959.2.pdf](http://www.asms.org.nz/wp-content/uploads/2015/08/Response-to-Better-Data_163959.2.pdf) (accessed 9 June 2017).
8. New Zealand Society of Anaesthetists. Feedback to Discussion document: Better data – the benefits to the profession and the public. 6 July 2015. <http://www.anaesthesiasociety.org.nz/wp-content/uploads/2014/08/NZSA-submission-to-MCNZ-Better-Data-July-2015.pdf> (accessed 9 June 2017).
9. New Zealand National Committee of the Australian and New Zealand College of Anaesthetists (ANZCA). Publishing medical outcome data. 29 September 2015. <http://www.anzca.edu.au/documents/final-anzca-fpm-health-data-mcnz-20150828.pdf> (accessed 9 June 2017).



10. Health Quality and Safety Commission; Ministry of Health. Consumer workshop. 3 July 2015.
11. Health Quality and Safety Commission. Position paper on the transparency of information related to health care interventions. March 2016. <http://www.hqsc.govt.nz/publications-and-resources/publication/2463/> (accessed 9 June 2017).
12. Hamblin R, Shuker C, Stolarek I, et al. Public reporting of health care performance data: what we know and what we should do. *NZ Med J* 2016; 129(1431):7–17.
13. Brown R. Naming and shaming of surgeons rejected but ‘more disclosure needed’. *NZ Doctor*, 2016. <http://www.nzdoctor.co.nz/news/2016/june-2016/30/naming-and-shaming-of-surgeons-rejected-but-more-disclosure-needed%E2%80%99.aspx> (accessed 9 June 2017).
14. Kirk S. Veil of secrecy to be lifted on surgeons’ performance by 2021. *Stuff* 30 June 2016. <http://www.stuff.co.nz/national/politics/81617461/Veil-of-secrecy-to-be-lifted-on-surgeons-performance-by-2021> (accessed 9 June 2017).
15. Johnston M. Rate my doc: Opening up health data. *New Zealand Herald* 30 June 2016. [http://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&-objectid=11665816](http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&-objectid=11665816) (accessed 9 June 2017).
16. Brown K. Safety results go beyond surgeons’ work. *RNZ* 30 June 2016. <http://www.radionz.co.nz/national/programmes/checkpoint/audio/201806547/safety-results-go-beyond-surgeons-work,-says-expert> (accessed 9 June 2017).
17. Campbell J. Safety results go beyond surgeons’ work, says expert. *RNZ*, 2016. 3:90”. <http://www.radionz.co.nz/news/national/307676/you-need-to-look-at-teams-in-medicine> (accessed 9 June 2017).
18. Ministry of Health. New Zealand Health Strategy. Wellington, New Zealand. 2016. <http://www.health.govt.nz/publication/new-zealand-health-strategy-2016> (accessed 9 June 2017).
19. Wasywich CA, Gamble GD, Whalley GA, et al. Understanding changing patterns of survival and hospitalization for heart failure over two decades in New Zealand: utility of ‘days alive and out of hospital’ from epidemiological data. *Eur J Heart Fail* 2010; 12(5):462–8.
20. Wilson NJ, Clarkson PM, Barratt-Boyes BG, et al. Long-term outcome after the mustard repair for simple transposition of the great arteries. 28-year follow-up. *J Am Coll Cardiol* 1998; 32(3):758–65.
21. Neutze JM, Simpson MM, Seelye ER, et al. Post-operative management and complications following profound hypothermic surgery. *Singapore Med J* 1973; 14(3):256–9.
22. Barratt-Boyes BG, Neutze JM. Primary repair of tetralogy of Fallot in infancy using profound hypothermia with circulatory arrest and limited cardiopulmonary bypass: a comparison with conventional two stage management. *Ann Surg* 1973; 178(4):406–11.
23. Clarkson PM, Barratt-Boyes BG, Neutze JM, et al. Results over a ten-year period of palliation followed by corrective surgery for complete transposition of the great arteries. *Circulation* 1972; 45(6):1251–8.
24. Ministry of Health. System Level Measures Framework. 2016. <http://www.health.govt.nz/new-zealand-health-system/system-level-measures-framework> (accessed 9 June 2017).
25. Ministry of Health. System Level Measures Framework questions and answers. 2017. <http://www.health.govt.nz/new-zealand-health-system/system-level-measures-framework/system-level-measures-framework-questions-and-answers> (accessed 9 June 2017).
26. Waitemata District Health Board Upper Gastrointestinal (UGI) & HepatoPancreatoBiliary (HPB) Service. Outcome Data. <http://www.waitematadhb.govt.nz/hospitals-clinics/clinics-services/upper-gastrointestinal/outcome-data/> (accessed 9 June 2017).
27. Kerr A, Williams MJ, White H, et al. The All New Zealand Acute Coronary Syndrome Quality Improvement Programme: implementation, methodology and cohorts (ANZACS-QI 9). *NZ Med J* 2016; 129(1439):23–36.
28. Devlin G. Mind the Gap: ANZACSQI and inequality in New Zealand. *Heart Lung Circ* 2016; 25(8):768.
29. Larsen PD, Kerr AJ, Hood M, et al. Pacemaker use in New Zealand - data from the New Zealand Implanted Cardiac Device Registry (ANZACS-QI 15). *Heart Lung Circ* 2017; 26(3):235–39.
30. Grey C, Jackson R, Wells S, et al. Ethnic differences in case fatality following an acute ischaemic heart disease event in New Zealand: ANZACS-QI 13. *Eur J Prev Cardiol* 2016; 23(17):1823–30.

31. Grey C, Jackson R, Wells S, et al. Ethnic differences in coronary revascularisation following an acute coronary syndrome in New Zealand: a national data-linkage study (ANZACS-QI 12). *Heart Lung Circ* 2016; 25(8):820–8.
32. Kerr AJ, Turaga M, Grey C, et al. Initiation and maintenance of statins and aspirin after acute coronary syndromes (ANZACS-QI 11). *J Prim Health Care* 2016; 8(3):238–49.
33. Barr PR, Harrison W, Smyth D, et al. Myocardial infarction without obstructive coronary artery disease is not a benign condition (ANZACS-QI 10). *Heart Lung Circ*. 2017 Mar 30. pii: S1443-9506(17)30282-2.
34. Grey C, Jackson R, Schmidt M, et al. One in four major ischaemic heart disease events are fatal and 60% are pre-hospital deaths: a national data-linkage study (ANZACS-QI 8). *European Heart J* 2017; 38(3):172–80.
35. Voss WB, Lee M, Devlin GP, et al. Incidence and type of bleeding complications early and late after acute coronary syndrome admission in a New Zealand cohort (ANZACS-QI-7). *NZ Med J* 2016; 129(1437):27–38.
36. Williams MJ, Harding SA, Devlin G, et al. National variation in coronary angiography rates and timing after an acute coronary syndrome in New Zealand (ANZACS-QI 6). *NZ Med J* 2016; 129(1428):66–78.
37. Barr P, Smyth D, Harding SA, et al. Variation in arterial access for invasive coronary procedures in New Zealand: a national analysis (ANZACS-QI 5). *Heart Lung Circ* 2016; 25(5):451–8.
38. Kueh SH, Devlin G, Lee M, et al. Management and long-term outcome of acute coronary syndrome patients presenting with heart failure in a contemporary New Zealand cohort (ANZACS-QI 4). *Heart Lung Circ* 2016; 25(8):837–46.
39. Grey C, Jackson R, Wells S, et al. Maintenance of statin use over 3 years following acute coronary syndromes: a national data linkage study (ANZACS-QI-2). *Heart* 2014; 100(10):770–4.
40. Kerr AJ, Lin A, Lee M, et al. Risk stratification and timing of coronary angiography in acute coronary syndromes: are we targeting the right patients in a timely manner? (ANZACS-QI 1). *NZ Med J* 2013; 126(1387):69–80.
41. New Zealand National Cardiac Surgery Registry (NZCS). *New Zealand Cardiac Surgical Annual Report 2015*. 2016. <http://www.e-dendrite.com/files/13/file/NZCTS-2015.pdf> (accessed 9 June 2017).
42. New Zealand Orthopaedic Association (NZOA). *New Zealand Joint Registry Seventeen Year Report January 1999 to December 2015*. 2016. <http://nzoa.org.nz/system/files/NZJR%2017%20year%20Report.pdf> (accessed 9 June 2017).
43. Health Quality and Safety Commission. *Quality & Safety Markers October – December 2016: Surgical site infection improvement – orthopaedic surgery*. 2017. [http://www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/quality-and-safety-markers/qsms-october-december-2016/\[SSI\]](http://www.hqsc.govt.nz/our-programmes/health-quality-evaluation/projects/quality-and-safety-markers/qsms-october-december-2016/[SSI]) (accessed 9 June 2017).
44. Joshi P, Fink J, Barber PA, et al. Stroke thrombolysis in New Zealand: data from the first 6 months of the New Zealand Thrombolysis Register. *NZ Med J* 2016; 129(1438):44–9.
45. Liu Q, Ranta AA, Abernethy G, et al. Trends in New Zealand stroke thrombolysis treatment rates. *NZ Med J* 2017; 130(1453):50–56.
46. Liu Q, Ranta AA, Abernethy G, et al. Provision of stroke thrombolysis services in New Zealand: changes between 2011 and 2016. *NZ Med J* 2017; 130(1453):57–62.
47. Kennedy I. The report of the public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984-1995: learning from Bristol. ("The Kennedy report"). [http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/Publicationsand-statistics/Publications/PublicationsPolicyAnd-Guidance/DH\\_4005620](http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/Publicationsand-statistics/Publications/PublicationsPolicyAnd-Guidance/DH_4005620) (accessed 9 June 2017).
48. Society for Cardiothoracic Surgery in Great Britain & Ireland. *Blue Book Online*. 2015. <http://www.bluebook.scts.org/> (accessed 9 June 2017).
49. Bridgewater B, Grayson AD, Brooks N, et al. Has the publication of cardiac surgery outcome data been associated with changes in practice in northwest England: an analysis of 25 730 patients undergoing CABG surgery under 30 surgeons over eight years. *Heart* 2007; 93(6):744–48.
50. Brown KL, Crowe S, Franklin R, et al. Trends in 30-day mortality rate and case mix for paediatric cardiac surgery in the UK between 2000 and 2010. *Open Heart* 2015; 2(1):e000157–e57.
51. Boseley S. Surgeons ask NHS England to rethink policy of publishing

- patients' death rates. *Guardian* 30 January 2015. <http://www.theguardian.com/society/2015/jan/30/surgeons-nhs-england-patients-death-rates-bruce-keogh-jeremy-hunt-health> (accessed 9 June 2017).
52. National Joint Registry. Joint replacement statistics - Procedure details by type of provider. 2015. [http://www.njrreports.org.uk/hips-all-procedures-activity/H01v2NJR?reportid=C6F582E2-140D-4D22-8C4E-2C354EDB1B41&defaults=DC\\_Reporting\\_Period\\_Date\\_Range=%22MAX%22,JYS\\_Filter\\_Calendar\\_Year\\_From\\_To=%22max-max%22,H\\_Filter\\_Joint=%22Hip%22](http://www.njrreports.org.uk/hips-all-procedures-activity/H01v2NJR?reportid=C6F582E2-140D-4D22-8C4E-2C354EDB1B41&defaults=DC_Reporting_Period_Date_Range=%22MAX%22,JYS_Filter_Calendar_Year_From_To=%22max-max%22,H_Filter_Joint=%22Hip%22) (accessed 9 June 2017).
  53. Harrison EM, Drake TM, O'Neill S, et al. Individual surgeon mortality rates: can outliers be detected? A national utility analysis. *BMJ Open* 2016; 6(10):e012471.
  54. Walker K, Neuburger J, Groene O, et al. Public reporting of surgeon outcomes: low numbers of procedures lead to false complacency. *Lancet* 2013; 382(9905):1674–77.
  55. Burack JH, Impellizzeri P, Homel P, et al. Public reporting of surgical mortality: a survey of New York State cardiothoracic surgeons. *Ann Thorac Surg* 1999; 68(4):1195–200.
  56. Epstein AJ. Do cardiac surgery report cards reduce mortality? Assessing the evidence. *Med Care Res Rev* 2006; 63(4):403–26.
  57. Hamblin R. Measurements, incentives, and improvement: what are the advantages, what are the pitfalls and what might work? A review of incentivized measurement schemes in the US and UK since 1990. Unpublished manuscript. 2007.
  58. Hannan EL, Cozzens K, King SB, 3rd, et al. The New York State cardiac registries: history, contributions, limitations, and lessons for future efforts to assess and publicly report healthcare outcomes. *J Am Coll Cardiol* 2012; 59(25):2309–16.
  59. Hannan EL, Kilburn H Jr, Racz M, et al. Improving the outcomes of coronary artery bypass surgery in New York State. *JAMA* 1994; 271(10):761–6.
  60. Hannan EL, Kumar D, Racz M, et al. New York state's cardiac surgery reporting system: Four years later. *Ann Thorac Surg* 1994; 58(6):1852–57.
  61. Narins CR, Dozier AM, Ling FS, et al. The influence of public reporting of outcome data on medical decision making by physicians. *Arch Intern Med* 2005; 165(1):83.
  62. Omoigui NA, Miller DP, Brown KJ, et al. Outmigration for coronary bypass surgery in an era of public dissemination of clinical outcomes. *Circulation* 1996; 93(1):27–33.
  63. Austin JM, McGlynn EA, Pronovost PJ. Fostering transparency in outcomes, quality, safety, and costs. *JAMA* 2016; 316(16):1661–1662.
  64. CMS.gov. Public Reporting. [http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/physician-compare-initiative/Public\\_Reporting.html](http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/physician-compare-initiative/Public_Reporting.html) (accessed 9 June 2017).
  65. Austin JM, Jha AK, Romano PS, et al. National hospital ratings systems share few common scores and may generate confusion instead of clarity. *Health Aff (Millwood)*. 2015; 34(3):423–30.
  66. Friedberg MW, Pronovost PJ, Shahian DM, et al. A Methodological critique of the ProPublica Surgeon Scorecard. Rand Corporation 2015. <http://www.rand.org/pubs/perspectives/PE170.html> (accessed 9 June 2017).
  67. Friedberg MW, Bilimoria KY, Pronovost PJ, et al. Response to ProPublica's rebuttal of our critique of the Surgeon Scorecard. Rand Corporation 2015. <http://www.rand.org/pubs/perspectives/PE170z1.html> (accessed 9 June 2017).
  68. Marshall M, Shekelle PG, Brook RH, et al. Dying to know: public release of information about quality of health care. Nuffield Trust Series No. 12. RAND, The Nuffield Trust, 2000. [http://www.rand.org/pubs/monograph\\_reports/MR1255.html](http://www.rand.org/pubs/monograph_reports/MR1255.html) (accessed 9 June 2017).
  69. Alexander JA, Hearld LR, Hasnain-Wynia R, et al. Consumer trust in sources of physician quality information. *Med Care Res Rev* 2011; 68(4):421–40.
  70. Mannion R, Goddard M. Public disclosure of comparative clinical performance data: lessons from the Scottish experience. *J Eval Clin Pract* 2003; 9(2):277–86.
  71. Morsi E, Lindenauer PK, Rothberg MB. Primary care physicians' use of publicly reported quality data in hospital referral decisions. *J Hosp Med* 2012; 7(5):370–75.
  72. Schlesinger M, Kanouse DE, Martino SC, et al. Complexity, public reporting, and choice of doctors: a look inside the blackest box of consumer behavior. *Med Care Res Rev* 2013; 71(5 Suppl):38S–64S.
  73. Shahian DM, Edwards FH, Jacobs JP, et al. Public reporting of cardiac surgery performance: Part 1—History, rationale, consequences. *Ann Thorac Surg* 2011; 92(3):S2–S11.

74. Fung CH. Systematic review: the evidence that publishing patient care performance data improves quality of care. *Ann Intern Med* 2008; 148(2):111–23.
75. Marshall MN, Shekelle PG, Leatherman S, et al. The public release of performance data: what do we expect to gain? A review of the evidence. *JAMA* 2000; 283(14):1866–74.
76. Berwick DM, James B, Coye MJ. Connections between quality measurement and improvement. *Med Care* 2003; 41(1 Suppl):I30–8.
77. Bevan G, Evans A, Nuti S. Reputations count: Why benchmarking performance is improving health care across the world. London School of Economics and Political Science 2017. [Paper presented at the LSEHSC International Health Policy Conference 2017].
78. Hibbard JH, Stockard J, Tusler M. Does publicizing hospital performance stimulate quality improvement efforts? *Health Aff (Millwood)* 2003; 22(2):84–94.
79. Hibbard JH, Stockard J, Tusler M. Hospital performance reports: impact on quality, market share, and reputation. *Health Aff* 2005; 24(4):1150–60.
80. Chassin MR. Achieving and sustaining improved quality: lessons from New York State and cardiac surgery. *Health Aff (Millwood)* 2002; 21(4):40–51.
81. Bevan G, Hood C. Have targets improved performance in the English NHS? *BMJ* 2006; 332(7538):419–22.
82. Bevan G, Hamblin R. Hitting and missing targets by ambulance services for emergency calls: effects of different systems of performance measurement within the UK. *Journal of the Royal Statistical Society. Series A, (Statistics in Society)* 2009; 172(1):161–90.
83. Bevan G, Hood C. What's measured is what matters: targets and gaming in the English public health care system. *Public Administration* 2006; 84(3):517–38.
84. Jha A. Misunderstanding Propublica: transparency, confidence intervals, and the value of data. *An Ounce of Evidence: Health Policy*. 2015. <http://blogs.sph.harvard.edu/ashish-jha/2015/10/08/misunderstanding-propublica-transparency-confidence-intervals-and-the-value-of-data/> (accessed 9 June 2017).
85. Huckman RS, Kelley MA. Public reporting, consumerism, and patient empowerment. *N Engl J Med* 2013; 369(20):1875–77.
86. Berwick DM. Measuring surgical outcomes for improvement: was Codman wrong? *JAMA* 2015; 313(5):469–70.
87. Sandmeyer B, Fraser I. New evidence on what works in effective public reporting. *Health Serv Res* 2016; 51 Suppl 2:1159–66.
88. Black N. Patient reported outcome measures could help transform healthcare. *BMJ* 2013; 346:f167.
89. Ariti CA, Cleland JG, Pocock SJ, et al. Days alive and out of hospital and the patient journey in patients with heart failure: Insights from the candesartan in heart failure: assessment of reduction in mortality and morbidity (CHARM) program. *Am Heart J* 2011; 162(5):900–6.



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