HEALTH QUALITY & SAFETY
COMMISSION NEW ZEALAND
Kupu Taurangi Hauora o Aotearoa

Quality improvement: no quality without equity?

By Maria Poynter, Richard Hamblin, Carl Shuker and Jadria Cincotta

July 2017

Contents

(Paper available online at www.hqsc.govt.nz)

Introduction

A 2016 Institute for Healthcare Improvement (IHI) white paper has called equity 'the forgotten aim' of health care improvement.(1) The quality improvement (QI) movement has led to QI 'wins', the authors write, but these have seldom been universal wins – most initiatives have been more successful for some groups of people than others.

The IHI white paper centres on the American context. Is there also evidence of a 'forgotten aim' in Aotearoa New Zealand (NZ)? If so, can we claim to have a high-quality health care system?

In this paper we examine the evidence for the NZ context and conclude that the IHI's contention holds largely true. Further, this paper sets the scene for a shift in the Health Quality & Safety Commission's (the Commission's) strategic priorities, to include equity as one of four new areas of focus. Finally, it puts forward a blueprint for how equity could be achieved as part of continuous QI in health care.[1]

The NZ context: inequity persists

Over the past 30 years, the health quality movement has striven to reduce unwarranted variation; that is, variation in the provision of health care that cannot be explained on the basis of illness, demography, medical evidence or patient preference.(2)

Despite much good work, unwarranted variation remains ubiquitous. The Commission's report, *A Window on the Quality of New Zealand's Health Care 2017*(3) compiles health data from various Commission and other national sources. It measures variation between population groups along the continuum of care, including examples in this publication such as access to care, opioid prescribing, bowel cancer treatment regimes, mortality from conditions amenable to care, and patient experience of care. Variations include the following:

- Amenable mortality for Māori and Pacific peoples aged 0–74 years is twice that of 'other' ethnic groups.
- People living in deprived areas are 1.5 times more likely to report unmet need for primary health care than those living in non-deprived areas.
- Women were dispensed 26 percent more strong opioids than men.
- For people with rectal cancer, there was wide geographical variation in the use of short-course radiotherapy in public hospitals.
- Māori consumers are consistently and significantly less likely to always feel staff treated them with respect and dignity while they were in the hospital.

In addition, the four mortality review committees operated through the Commission also document persistent disparities. These include a higher perioperative mortality rate for people living in the most deprived areas (0.63 percent vs 0.39 percent in the least deprived areas),(4) and a maternal mortality rate for Māori that is nearly three times that of NZ Europeans.(5) There is an inequitable burden of sudden unexplained death in infancy

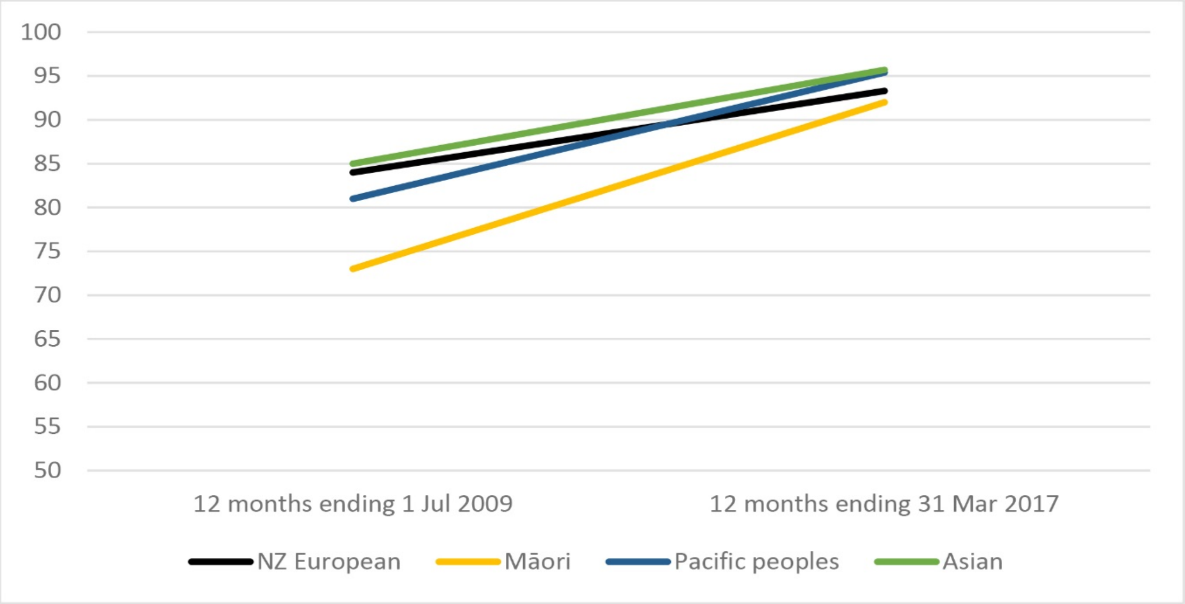
---

[1] The following terms are used interchangeably in this paper: fair/equitable; contextual differences/social determinants of health/social circumstances. When relevant, terms are defined where they first appear.

(SUDI) for Māori and Pacific infants, and infants of young mothers.(6) Family violence deaths show the intersection of multiple forms of inequity based on race, gender and class. The distributions of Māori female primary victims are skewed towards high deprivation levels, with much larger proportions residing in the most deprived areas compared with non-Māori.(7)

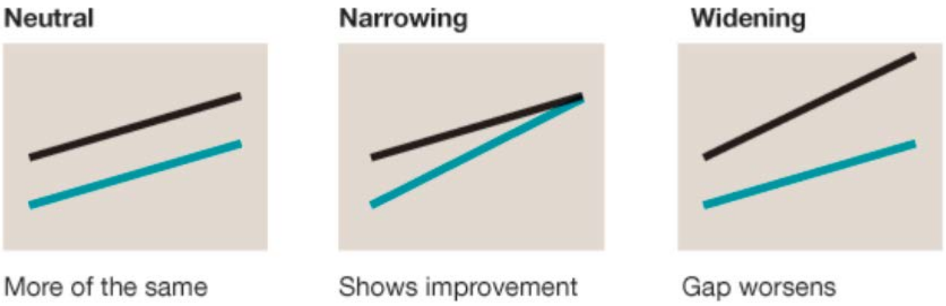
Although much unwarranted variation persists, there are also examples of success. Childhood vaccinations in New Zealand are one such example. Sustained attention through the creation of a national health target raised the overall proportion of age-appropriate fully immunised two-year-old children (from 67 percent in 2007 to 93.5 percent in 2016). Long-standing ethnic inequity has all but been eliminated: just 63 percent of two-year-old Māori children were immunised in 2007 – in 2016 that number was 92 percent (see Figure 1).(8, 9)

Figure 1: Percentage of two-year-olds with complete set of age-appropriate vaccinations undertaken, by ethnicity, 2009–16



There is no doubt QI approaches can improve equity – but improved equity is not guaranteed. If a QI initiative is successful, there are three possible outcomes (see Figure 2). An outcome for a sub-population (blue line) could improve at the same rate as the whole population (black line), or it could improve at a faster or slower rate than the whole population. Only one of these possibilities (the middle chart) reduces inequity.(10)

Figure 2: Possible equity outcomes of a successful QI initiative (Source: Finding Answers(11))



Few reported QI initiatives show they have improved equity. This is despite a positive effect on the whole population when inequity is reduced.

Is there, then, an as-yet unrealised opportunity for the health quality movement to improve the ‘blue lines’ of sub-populations alongside the black line of the overall population?

Health Quality & Safety Commission’s new strategic priorities

In its new *Statement of Intent,*(12) the Commission identifies equity among its four strategic priorities. Other priorities are: improving the consumer experience, patient safety and addressing unwarranted variation.

In the past six years, the Commission has developed and led QI programmes in areas such as infection prevention and control, surgical safety, falls prevention, medication safety and inpatient deterioration, with success in many areas. It has also used national data to monitor and report on the quality of care within the health sector. Such activities help to reduce harm, waste and unwarranted variation. We are now interested in what more can be done. How can we best have an impact on unwarranted, and in particular inequitable, variation? Further, what do we need to do differently to achieve better outcomes?

We begin by defining some of the tensions between QI and health equity movements, then examine possible levers for action using systems thinking and access frameworks.

Improving equity outcomes: first, define the issues

Why do QI initiatives often fail to close equity gaps? We suggest that, in part, failure reflects an incomplete transition from the industrial origins of QI science. Like production systems, the health quality movement has in many cases pursued standardisation as a way of reducing unwarranted variation. This can increase overall efficiency, because inefficient practice is designed out of the system. Such approaches can also drive effectiveness and safety, because standardised approaches usually have a strong evidence base.

Standardisation is appropriate in many areas. Increased consistency can and does reduce unwarranted variation. The Atlas of Healthcare Variation (www.hqsc.govt.nz/atlas) has demonstrated decreases in variation in opioid prescribing and grommet insertion rates, as outlying services have worked to become more consistent with practice in neighbouring areas. In the Wairarapa, the high opioid prescribing rate was noted and led to a successful campaign for change involving a multidisciplinary team, further detailed analysis of prescribing patterns, and changed practices for pharmacies, general practice and the hospital's emergency department. Wairarapa District Health Board (DHB) has reduced prescribing of the strong opioid oxycodone by 80 percent in four years, to below the national mean.(3)

However, standardisation can be problematic when pursued to the point of uniformity. At this point, standardisation's applicability to particular populations is not considered. We know populations are not homogenous in their composition and needs, therefore uniform approaches often fail to deliver to those in most need. For a QI initiative to be successful, it must be adaptable to local needs.

Equality versus equity

The distinction between equality and equity is relevant. Equality is 'sameness', while equity is an ethical construct that recognises different groups may require different approaches to get the same outcomes.(13) Uniform approaches are indeed equal, because they provide the same care to every person. However, uniform approaches become inequitable (unfair) as soon as there are differences between groups. Uniformity fails to account for the contextual differences between people, such as age, gender, ethnicity, socioeconomic status, disability, number and severity of health conditions, and access to primary health care, among others. These baseline characteristics are not irrelevant to health care, but deeply entwined factors that affect, and are affected by, short- and long-term health.(14, 15) In contrast, equitable approaches are seldom equal, because they consider and aim to minimise the impact of avoidable differences in baseline characteristics.(15) Edward Deming, a key figure in QI theory, incorporates factors like contextual differences as part of an overall 'system appreciation' and contends that it is one of the pillars of optimal systems function.(16)

Systems thinking and the bigger picture

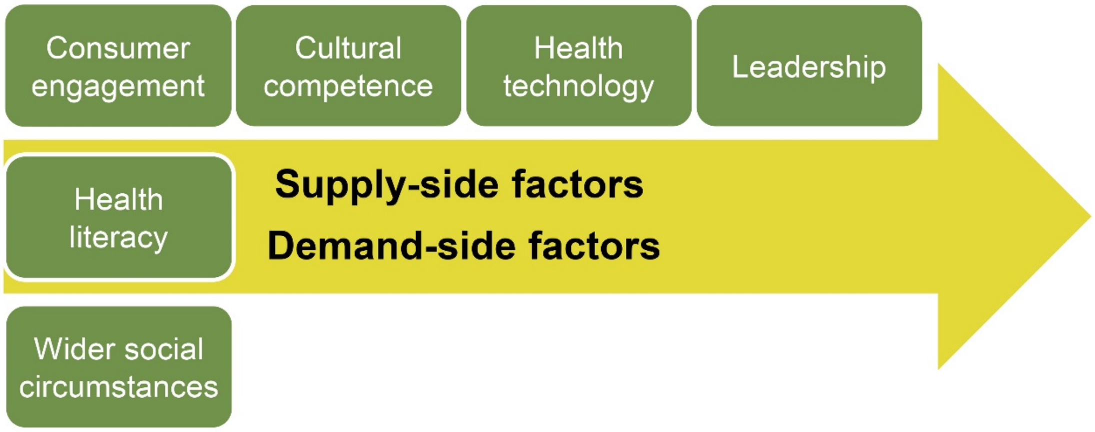
Globally, the health sector has made patchy progress in advocating for appreciation of and change in these wider contexts. This patchy progress is manifested in what is described as the 'inverse care law' – this law states the availability of health care varies inversely with the population's need for it;(17) in effect, those most in need of health care have the least access to it. Inequitable health care has the effect of compounding inequity.(18) QI practice has followed the lead of the wider health sector and rarely succeeded in full appreciation of the wide social context of health.

Our challenge is clear. Can we improve the quality of health care more fairly, by greater 'systems thinking' about the wider contexts of health? Related to that, can we act to reduce the impact of these contexts, when many of the key levers are outside the control of the health sector?

Moving forward: conceptualising inequity as incomplete access

Studying access to care gives us a lever to improve health care quality. Levesque et al define access as ‘the opportunity to have health care needs fulfilled’, and argue there are both supply-side and demand-side components.(19) This contrasts with a common view of access as being able to reach a health service’s ‘front door’. Implicitly, this broader definition takes us from equality of entry to a service, to equity of outcomes. Supply-side factors include whether providers, organisations, institutions and systems are accessible to their populations: this includes approachability, acceptability, availability and accommodation, affordability and appropriateness. Demand-side factors relate to the ability of individuals, groups and populations to perceive, seek, reach, pay for and engage with health care. In this framework, access includes both determinants of health (wider social circumstances) and the experience and quality of care.

We undertook a focused literature review in August to September 2016 to determine tensions and synergies between equity and QI approaches. The findings of this review can be clustered into four supply-side dimensions of access (consumer partnerships, cultural competency, health information technology and leadership) and one demand-side dimension (wider social circumstances) that are important drivers of equity in health QI. We characterise health literacy as a further (sixth) dimension that is both a supply-side and demand-side factor.



(Source: Levesque JF, Harris MF, Russell G. 2013. Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *International journal for equity in health* 12: 18.)

The six dimensions are possible levers for action. They challenge us to work differently and smarter, and their potential benefits include such positive outcomes as reduced harm and waste and increased quality for the whole population.

Partnerships with consumers and families/whānau

Improved equity is most likely to occur when health services work as partners with consumers and their families/whānau in all health care processes.(20) By being patient-centred, services learn how to best meet the needs of their population groups(21) – importantly, this includes the needs of those population groups who experience inequity. In

New Zealand, consumer partnership aligns directly with Treaty of Waitangi principles of participation, partnership and protection.(22)

Since not all population groups have the same needs, it follows that improving quality equitably should allow differences to result in adapted QI initiatives. This is ideal QI along Deming principles:(16) initiatives use standardisation as a base, but retain adaptive properties. Consumer participation might be expected to impact factors like conceptual frameworks, co-design of services, how access to services is promoted – language, physical location, staffing demographics – and evaluative methodologies. Whānau Ora programmes (www.tpk.govt.nz/en/whakamahia/whanau-ora/about-whanau-ora) are an example of this approach, where the ‘individual unit’ is a group (whānau) rather than a single person, and interventions are co-designed to impact on the group and meet their goals. Another example is a recent evaluation undertaken by NZCare Disability, an organisation that provides residential and personal support to people living with disabilities. Its evaluation was designed, conducted and distributed by staff members working together with the people they support.(23)

Cultural competence, unconscious bias and institutional racism

Health care needs cannot be fulfilled in an environment that feels unsafe; hence cultural competence is an important supply-side factor in considering equity in QI. Cultural competence is described as the capability to articulate and demonstrate culturally appropriate and acceptable services where people feel culturally safe.(24) Cultural competence can be possessed and learned by individuals, services and institutions.(25)

Dauvrin et al describe the relationship between consumer participation, flexible health care design and cultural competence well:

> The future of [culturally competent] interventions may involve going one step further and going back to the initial tenets of cultural competence reconsidering: the integration of difference, whatever its sources – gender, ethnicity, age, sexual orientation, or [socioeconomic status] – into the delivery of fair health care for patients. The content of the difference is ultimately not so important: what matters is how this difference is integrated[2] into the health-care services or into the relationship between health professionals and their patients.(26)

The challenge for improving the quality of health care is to consider how to deliver culturally responsive services to all population groups. This needs to be considered at multiple levels- for individual health sector workers, for service design and for health care organisations.

At an individual level, health professionals – including non-frontline staff – must develop cultural competence through specific training. A fundamental aspect is cultural self-awareness (an awareness of the role an individual’s own cultural background plays in the care they deliver).(27, 28) When an individual is culturally self-aware, an understanding of unconscious bias and how individuals unconsciously react to ‘difference’ can be fostered. Researchers of unconscious bias point to how we are all innately attracted to people most

---

[2] Integration here is not synonymous with assimilation. Rather, it describes how interventions must appropriately recognise and respond to difference, however that may arise.

like ourselves, and that this can and does result in differential treatment across society. It is normal to have such thought patterns, but the resulting inadvertent discrimination can be overcome through conscious awareness.(29)

Service-level cultural competence impacts severely on how services are designed and function. At times, services may need to become more culturally competent while remaining a mainstream service. Highly technical or specialist hospital health services frequently fall into this category because of a scarcity of equipment and expertise. Cultural competence in this context can be practised by service providers that take account of the cultural requirements of serviced populations. At other times, particularly in community settings, culturally competent services may operate best if they can sit apart from mainstream services. In New Zealand, this is most familiar to us as 'by Māori for Māori' approaches. It enables the entire service to be conceived and delivered in a way that optimally responds to Māori cultural needs. This is the concept behind services such as Whakawhetū, a national kaupapa Māori programme dedicated to reducing the rate of SUDI in Māori.(30)

At a higher level, organisations themselves can become more culturally competent. One benefit of a culturally competent organisation is that it is better equipped to identify and eliminate what is often termed 'institutional racism'. Institutional racism occurs when, despite the best efforts of people operating within a system, the nature of that system – its structure, processes and thus its outcomes – is to a large extent determined historically. The attitudes and policies of an earlier time are designed into that system in its formative stages. As attitudes have changed, the system has not evolved in parallel. 'Every system is perfectly designed to get the results it gets,' writes Batalden.(31) An historically determined system is currently producing the inequitable outcomes with which we are now familiar. Jones defines institutional racism as:

> … differential access to the goods, services, and opportunities of society by race. Institutionalized racism is normative, sometimes legalized, and often manifests as inherited disadvantage. It is structural, having been codified in our institutions of custom, practice, and law, so there need not be an identifiable perpetrator. Indeed, institutionalized racism is often evident as inaction in the face of need.(21)

Institutional racism has been described as 'a significant barrier to quality service delivery' in New Zealand.(32) Came et al(33) discuss monocultural practice as a manifestation of institutional racism in that it standardises care into one dominant cultural paradigm and therefore fits Jones' description of 'inaction in the face of need'.(34) As Dauvrin elucidates, institutional racism is not about 'identifiable perpetrators' or racist individuals. It is about implicit bias in the way services are set up.

Health information technology

The role of health information technology in equity is two-fold: it is used for monitoring and providing/storing information, and also as a platform for developing and improving support systems that can benefit those populations in most need.(35)

Health data is central to equity-focused QI.(36, 37) We can plan the best geographic location for services alongside opening hours, and determine how to stagger staffing according to our populations' known access patterns. We can monitor trends in condition prevalence over time, and adapt services to suit. Perhaps most importantly, data can tell us who we would expect to access our services, compared with those who actually receive care. The Atlas of Healthcare Variation contains over 20 domains dedicated to examining variation in care and raising questions in this regard. Under-access or non-access to care is a red flag that can be used to focus QI efforts and identify population groups that may need different care to achieve the same result. Self-evidently, analysis needs to measure meaningful data that can be broken down into population groups where we know there to be access inequity: particularly age, gender, ethnic and socioeconomic groupings.(10)

The increasing use of technology platforms, particularly mobile applications, has the potential to extend services to a wider population than those who receive conventional services. Further, such technology can be specifically designed to bring services to priority populations. A good example is the iMoko software from Navilluso Medical Ltd. iMoko enables common but important child health services to be delivered by trained people in educational communities with high health needs. It does this by combining digital devices with software that transfers information to be interpreted and treated by appropriate clinicians. iMoko can therefore increase health care access for children who might otherwise not be able to access health services.(38)

Leadership

The final supply-side factor for consideration is leadership, which plays an important role in driving the quality and safety agenda.(39) Driving fair QI outcomes will require strong leadership commitment to connect all supply-side factors with the equity end goal. The equity and quality of services are ultimately monitored by, and accountable to, organisational leadership.

Consumer partnerships and cultural competency are two dimensions that need a certain amount of status-quo disruption in order to achieve system change. Leadership in these areas is perhaps most important. For example, Māori are disproportionately affected by stomach cancer in New Zealand,(40) most probably due to greater exposures to *Helicobacter pylori* infections that predispose towards such cancers.(41, 42) These greater exposures are associated with overcrowding in childhood, which disproportionately affects Māori and Pacific peoples.(43) Such social contexts are complex and not directly within the traditional purview of health care improvement, but on top of this we find Māori with gastric cancer in New Zealand are disproportionately less likely to receive specialist upper gastrointestinal surgical care or care in a main centre.(44) Armed with that knowledge, activities to improve care quality could focus on pathways from presentation to surgery for Māori patients, in order to address the drivers that contribute to poorer care.

The leadership shown by Waitemata DHB in trialling a screening programme exemplifies the bold and innovative approach that is required. In response to clear inequity associated with abdominal aortic aneurysm (AAA) incidence, particularly for Māori and men, Waitemata DHB is piloting an AAA screening programme for Māori men (aged 55–74 years) and Māori women (aged 60–74 years).(45) The take-home messages from the reviewed literature are that leadership for health equity needs to involve partnership, a commitment to foster innovation, and a willingness to shift our thinking from quick, quantifiable wins towards longer-term outcomes. These are demonstrated in the AAA screening pilot programme.

Health literacy

The Commission defines health literacy as the degree to which individuals can obtain, process and understand health information and services they need to make appropriate health decisions.(46) Health literacy is not a measure of a deficit in the consumer that can be alleviated on an individual basis. It is instead a dynamic construct that occurs between system, provider and consumer. It describes the space between communication and comprehension. Thus, in terms of access, health literacy has both supply-side and demand-side dimensions. On the demand side, poor health literacy is a significant barrier to accessing health care,(47) partly because it means individuals and groups may not perceive they have a need for health care.(19) Health literacy is also differentially distributed, with poor, elderly, rural, older and younger Māori, and almost 90 percent of Pacific adults scoring poorly on the Adult Literacy and Life Skills Survey (ALL), a large-scale, comparative survey used in 13 countries.(47, 48) Despite these distributions, in absolute numbers most people with poor literacy will be non-Māori. Interventions to address low health literacy will therefore need to be applicable across all population groups.

The Commission, in line with current thinking from the US Institute of Medicine,(49) the World Health Organization,(50) and New Zealand's Ministry of Health,(51) advocates the 'universal precautions' approach – we must assume all individuals have some degree of difficulty in negotiating health environments. It is the responsibility of care providers to supply appropriate information to each consumer and their family or whānau.(52) QI initiatives that aim to reduce inequity can remove health literacy as a barrier to service access by examining the targeted system and provider as well as the population affected. The Ministry of Health has published a framework for health literacy that includes resources for organisations,(51) and the Commission has developed resources to help consumers prepare for health appointments(53) and support health providers in building consumers' health literacy.(48)

Wider social circumstances

Social circumstances are the final factor determining consumers' ability to have their health care needs fulfilled, and the only one anchored on the demand side of access. Factors like income and employment, social support and transport options can affect equity within QI initiatives by inadvertently excluding some groups from health care, and hence the opportunity to improve the quality of care. These 'conditions of daily life'(15) are the platform from which individuals and populations access care, and are already widely acknowledged by the health sector for their role in health status. We can acknowledge these conditions by actively assessing the degree to which they impede consumers' access (including involvement) to QI initiatives, and then by taking steps to minimise access inequity. Further, health professionals can be vocal advocates about inequitable access to health care, knowing they are speaking up about health quality issues.

Conclusion

If health care improvement has ‘forgotten’ about equity,(1) how can it be rewired to ‘remember’? The answer lies in an apparent paradox: achieving equitable outcomes requires us to do things differently for different groups.

QI initiatives can have the greatest positive impact on equity when they exhibit deep system understanding by specifically considering population groups with the greatest health care need, whether these groups are defined by ethnicity, age, disability, gender, geography or income. A major gain will be made if those population groups can receive priority interventions that give them fair outcomes. At an actionable level, service planning and delivery must be sensitive to the different needs of different populations. Relevant questions that organisations and individuals can ask themselves are:

- Who are the individuals and groups in most need of this QI initiative?
- Is this service able to appropriately approach and be accepted by the individuals and groups most in need?
- Will this QI initiative be seen, sought, reached, and engaged with by those individuals and groups?
- What institutional and structural barriers prevent the benefits of the initiative reaching all who need them?
- What bias is brought via the design of the initiative and how can this bias be recognised, avoided or mitigated?

For its part, the Commission is committed to improving equity outcomes. Equity has always been part of our Triple Aim, but it is also now a stated strategic priority. We are adjusting our prioritisation criteria and programme activities to reflect increasing emphasis on reducing inequity. We will work to monitor equity outcomes by breaking down data to compare relevant sub-groups. We will aim to design future QI programmes with flexibility to adapt to priority population groups, using methods such as co-design where possible. Finally, we are upskilling our staff in cultural competence, and recognising and responding to institutional bias. In short, we realise there is no quality without equity.

Acknowledgements

External: Leanne Te Karu, Warren Lindberg, Pat Neuwelt, Hayley Bennett, Bronwyn Rendle

Internal: Commission Board members, Gillian Bohm, Chris Walsh, Iwona Stolarek, Kiri Rikihana, Sue Wells, Jane Cullen, Hilary Sharpe, Charmaine Pene

Discussions that informed the paper: Te Roopū Māori members, Lynley Cook, Gay Keating, Terina Moke, Marilyn Stephens

References

1. Wyatt R, Laderman M, Botwinick L, et al. 2016. *Achieving Health Equity: A Guide for Health Care Organizations.* Cambridge, MA: Institute for Healthcare Improvement.
2. Wennberg J. 2010. *Tracking medicine: A researcher's quest to understand health care.* Oxford: Oxford University Press.
3. Health Quality & Safety Commission. 2017. *A Window on the Quality of New Zealand's Health Care 2017.* Wellington: Health Quality & Safety Commission.
4. Perioperative Mortality Review Committee. 2017. *Perioperative Mortality in New Zealand: Sixth report of the Perioperative Mortality Review Committee*. Wellington: Health Quality & Safety Commission.
5. Perinatal and Maternal Mortality Review Committee. 2017. *Eleventh Annual Report of the Perinatal and Maternal Mortality Review Committee: Reporting mortality 2015*. Wellington: Health Quality & Safety Commission.
6. Child and Youth Mortality Review Committee Te Roopu Arotake Auau Mate o te Hunga Tamariki Taiohi. 2017. *Sudden unexpected death in infancy (SUDI): Special report.* Wellington: Child and Youth Mortality Review Committee.
7. Family Violence Death Review Committee. 2017. *Fifth Report Data: January 2009 to December 2015*. Wellington: Family Violence Death Review Committee.
8. Ministry of Health. 2016. *Annual Report for the Year Ended 30 June 2016: Ministry of Health*. Wellington: Ministry of Health.
9. Health Quality & Safety Commission. 2016. Health quality and safety indicators. Wellington: Health Quality & Safety Commission.
10. Weinick RM, Hasnain-Wynia R. 2011. Quality improvement efforts under health reform: how to ensure that they help reduce disparities – not increase them. *Health Affairs* (Project Hope) 30(10): 1837–43. PubMed PMID: 21976324. Epub 2011/10/07. eng.
11. Finding Answers: Disparities Research for Change. A Roadmap to Reduce Racial and Ethnic Disparities in Health Care: Finding Answers; 20 [cited 2016 Oct 13]. Available from: www.solvingdisparities.org/tools/roadmap.
12. Health Quality & Safety Commission. 2017. *Statement of Intent 2017–21*. Wellington: Health Quality & Safety Commission.
13. Braveman P, Gruskin S. 2003. Defining equity in health. *J Epidemiol Community Health* 57: 254–8.
14. World Health Organization. 2014. Health equity. Geneva: WHO. [cited 2016 May 15]. Available from: www.who.int/healthsystems/topics/equity/en.
15. CSDH. 2008. *Closing the gap in a generation: health equity through action on the social determinants of health. Final report of the Commission on Social Determinants of Health.* Geneva: World Health Organization.

16. Deming WE. 2000. *The New Economics for Industry, Government, Education.* 2nd ed. Cambridge: MIT.

17. Tudor Hart J. 1971. The Inverse Care Law. *The Lancet* 297(7696): 405–12.

18. Ministry of Health. 2002. *Reducing Inequalities in Health*. Wellington: Ministry of Health.

19. Levesque JF, Harris MF, Russell G. 2013. Patient-centred access to health care: conceptualising access at the interface of health systems and populations. *International journal for equity in health* 12: 18. PubMed PMID: 23496984. Pubmed Central PMCID: PMC3610159. Epub 2013/03/19. eng.

20. Carman KL, Dardess P, Maurer M, et al. 2013. Patient and Family Engagement: A Framework for Understanding the Elements and Developing Interventions and Policies. *Health Affairs* 32(2): 223–31.

21. Barson S, Doolan-Noble F, Gray J, et al. 2017. Healthcare leaders' views on successful quality improvement initiatives and context. *Journal of Health Organization and Management* 31(1): 54–63. PubMed PMID: 28260409.

22. Royal Commission on Social Policy. 1988. *The April Report, II.* Wellington: Royal Commission on Social Policy.

23. Sinclair H. February 2017. Personal communication.

24. Wilson D. 2008. The significance of a culturally appropriate health service for indigenous Maori women. *Contemporary Nurse* 28(1–2): 173–88.

25. Office of Minority Health. 2001. *National Standards for Culturally and Linguistically Appropriate Services in Health Care: final report.* Washington, DC: US Department of Health and Human Services.

26. Dauvrin M, Lorant V. 2014. Culturally competent interventions in Type 2 diabetes mellitus management: an equity-oriented literature review. *Ethnicity & health* 19(6): 579–600. PubMed PMID: 24266662. Epub 2013/11/26. eng.

27. Waters E, Gibbs L, Riggs E, et al. 2008. Cultural Competence in Public Health A2 – Heggenhougen, Harald Kristian (Kris). *International Encyclopedia of Public Health*. Oxford: Academic Press, p 38–44.

28. Cross T, Bazron B, Dennis K, et al. 1989. *Towards a Culturally Competent System of Care.* Washington, DC: National Technical Assistance Center for Children's Mental Health, Georgetown University Child Development Center.

29. Radio New Zealand. 2016. Dr Carla Houkamau – Unconscious Bias. interview on 'Sunday Morning', 24 April 2016.

30. Whakawhetū. 2017. Whakawhetū- home 2017 [cited 2017 May 23]. Available from: www.whakawhetu.co.nz.

31. Patient Safety and Quality Healthcare. 2008. Proctor L Editor's Notebook: A Quotation with a Life of Its Own. Available from: www.psqh.com/analysis/editor-s-notebook-a-quotation-with-a-life-of-its-own.

32. Harris R, Tobias M, Jeffreys M, et al. 2006. Effects of self-reported racial discrimination and deprivation on Maori health and inequalities in New Zealand: cross-sectional study. *The Lancet* 367(9257): 2005–9.

33. Came H, McCreanor T, Doole C, et al. 2016. The New Zealand Health Strategy 2016: whither health equity? *New Zealand Medical Journal* 129(1447): 72–7. PubMed PMID: 27977654. Epub 2016/12/16. eng.

34. Jones CP. 2000. Levels of racism: a theoretic framework and a gardener's tale. *American Journal of Public Health* 90(8): 1212–5. PubMed PMID: 10936998. Pubmed Central PMCID: PMC1446334. Epub 2000/08/11. eng.

35. Lopez L, Green AR, Tan-McGrory A, et al. 2011. Bridging the digital divide in health care: the role of health information technology in addressing racial and ethnic disparities. *Joint Commission journal on quality and patient safety / Joint Commission Resources* 37(10): 437–45. PubMed PMID: 22013816. Epub 2011/10/22. eng.

36. Lion KC, Raphael JL. 2015. Partnering health disparities research with quality improvement science in pediatrics. *Pediatrics* 135(2): 354–61. PubMed PMID: 25560436. Pubmed Central PMCID: PMC4306804. Epub 2015/01/07. eng.

37. Jones RG, Trivedi AN, Ayanian JZ. 2010. Factors influencing the effectiveness of interventions to reduce racial and ethnic disparities in health care. *Social science & medicine* (1982). 70(3): 337–41. PubMed PMID: 19914755. Pubmed Central PMCID: PMC3611090. Epub 2009/11/17. eng.

38. O'Sullivan L. March 2017. Personal communication.

39. Health Quality & Safety Commission. 2016. *From knowledge to action: A framework for building quality and safety capability in the New Zealand health system.* Wellington: Health Quality & Safety Commission.

40. Teng AM, Atkinson J, Disney G, et al. 2016. Ethnic inequalities in cancer incidence and mortality: census-linked cohort studies with 87 million years of person-time follow-up. *BMC Cancer* 16(1): 755.

41. Teng AM, Blakely T, Baker MG, et al. 2016. The contribution of Helicobacter pylori to excess gastric cancer in Indigenous and Pacific men: a birth cohort estimate. *Gastric Cancer* 1–4.

42. McDonald AM, Sarfati D, Baker MG, et al. 2015. Trends in Helicobacter pylori Infection Among Māori, Pacific, and European Birth Cohorts in New Zealand. *Helicobacter* 20(2): 139–45.

43. Baker M, McDonald A, Zhang J, et al. 2013. *Infectious diseases attributable to household crowding in New Zealand: A systematic review and burden of disease estimate*. Wellington: He Kainga Oranga/Housing and Health Research Programme, University of Otago.

44. Signal V, Sarfati D, Cunningham R, et al. 2015. Indigenous inequities in the presentation and management of stomach cancer in New Zealand: a country with universal health care coverage. *Gastric Cancer* 18(3): 571–9.

45. Waitemata and Auckland DHBs. 2016. *Primary Care News 2016 June* [cited 2017 July 6]. Available from: www.waitematadhb.govt.nz/assets/Documents/news/primary-care/ADHBWDHBPrimaryCareNewsEDITION55.pdf.

46. Walsh C, Shuker C, Merry AF. 2015. Health literacy: from the patient to the professional to the system. *New Zealand Medical Journa*l 128(1423): 10–16.

47. Ministry of Health. 2010. *Kōrero Mārama: Health Literacy and Maori Results from the 2006 Adult Literacy and Life Skills Survey.* Wellington: Ministry of Health.

48. Ministry of Education. nd. Education Counts. ALL (Adult Literacy and Life Skills Survey). Available from: www.educationcounts.govt.nz/publications/series/ALL.

49. Institute of Medicine. 2004. *Health Literacy: A prescription to end confusion.* Washington, DC: The National Academies Press.

50. World Health Organization. 2015. *Health literacy toolkit for low- and middle-income countries.* Geneva: World Health Organization.

51. Ministry of Health. 2015. *A framework for health literacy.* Wellington: Ministry of Health.

52. Health Quality & Safety Commission. 2015. *Three steps to better health literacy – a guide for health care professionals.* Wellington: Health Quality & Safety Commission.

53. Health Quality & Safety Commission. 2014. Let's PLAN for better care. Wellington: Health Quality & Safety Commission. Available from: www.hqsc.govt.nz/our-programmes/partners-in-care/publications-and-resources/publication/2424.