

Emerging evidence of the value of health assessments for Aboriginal and Torres Strait Islander people in the primary healthcare setting

Jodie Bailie^{A,C}, Alison Laycock^A, Veronica Matthews^A, David Peiris^B and Ross Bailie^A

^AUniversity Centre for Rural Health, The University of Sydney, 61 Uralba Street, Lismore, NSW 2480, Australia.

^BThe George Institute for Global Health, UNSW Sydney, Sydney, NSW 2000, Australia.

^CCorresponding author. Email: jodie.bailie@sydney.edu.au

Abstract. The launch of the third edition of the *National guide to preventive health assessment for Aboriginal and Torres Strait Islander people* in March 2018 heralds a renewed commitment to improving the delivery of preventive care, and should reinvigorate discussions on the effectiveness of Indigenous-specific health assessments and how best to implement them. A substantial body of evidence on adherence to guideline-recommended care has been generated through a research-based continuous quality improvement (CQI) initiative conducted between 2010 and 2014. The research, which involved clinical audits of more than 17 000 client records and 119 systems assessments relating to preventive care in 137 Indigenous primary healthcare centres across Australia, shows that a structured CQI program can improve the delivery of preventive health assessments and use of evidence-based guidelines. However, program implementation has also seen the emergence of new challenges. This paper reflects on four major lessons from this collaborative program of applied research that will lead to more effective delivery of preventive care.

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Introduction

In Australia, GPs in the primary health care (PHC) setting play a pivotal role in the provision of preventive health care. The greatest contributor to the disparity in health outcomes between Indigenous people and the general Australian population is potentially preventable chronic disease (Vos *et al.* 2009). The role of GPs in preventive health care is, therefore, vital to addressing the health disparities faced by Aboriginal and Torres Strait Islander people (hereafter referred to respectfully as Indigenous).

There are several preventive healthcare guidelines that recommend which preventive health care activities should be implemented in Indigenous PHC settings, including *Guidelines for preventive activities in general practice* (Royal Australian College of General Practitioners 2016) and the *National guide to preventive health assessment for Aboriginal and Torres Strait Islander people* (National Aboriginal Community Controlled Health Organisation (NACCHO) and Royal Australian College of General Practitioners (RACGP) 2018). However, although the importance of preventive health care is acknowledged, and preventive health guidelines are available, recommended best practice preventive care is not consistently provided (Bailie *et al.* 2016a; Bailie *et al.* 2017).

Structured preventive health assessments, a feature of health policies both in Australia^A and internationally, are one approach to addressing these gaps in preventive care. Best seen as an implementation vehicle to support the delivery of evidence-based preventive health care, there is, however, mixed evidence internationally as to their value (Krogsbøll *et al.* 2012; Si *et al.* 2014). Within Australia, evidence of their effectiveness is long overdue (Russell 2010), possibly because the optimal approaches for implementing preventive health activities in PHC are context specific. Consequently, systematic reviews that draw on intervention studies conducted in other population groups may not be applicable and transferable in Australian Indigenous PHC settings (McDonald *et al.* 2010). It should also be noted that the systematic review by Krogsbøll *et al.* (2012) did not differentiate between health assessments undertaken in the community, workplace or within general practice. A more recent systematic review found that general practice-based health assessments are associated with small improvements in surrogate outcome measures, especially among high-risk patients (Si *et al.* 2014).

Within Australia, the evidence base for some of the inclusions in health assessments has been questioned, with several of the included items considered to have low evidence for effectiveness

^AExamples in Australia include: Australian Government funding for health assessments under the Medicare Benefit Schedule along with follow-up care; promotion of the health assessments through the Indigenous Chronic Disease Package (2010–14) and Indigenous Australians' Health Program (2014 – ongoing); and the Northern Territory Emergency Response.

What is known about the topic?

- Indigenous-specific health assessments can be seen as a vehicle to support the delivery of evidence-based preventive health care. However, there is mixed evidence internationally as to their value and effective implementation.

What does this paper add?

- This paper provides four lessons from a large-scale collaborative program of CQI-related research on the value of Indigenous-specific health assessments and their effective implementation.

(Bookallil and Thomas 2006). Furthermore, the biomedical limitations of health assessments have been highlighted, with calls for a greater focus both on the social and cultural determinants of health and on considering what is important to the patient (Spurling et al. 2017). The critical issue, therefore, is not to debate whether health assessments work, but to develop context-specific knowledge of optimal implementation strategies that will lead to the increased uptake of guideline-recommended preventive care.

The recent third edition of the *National guide to preventive health assessment for Aboriginal and Torres Strait Islander people*, launched in March 2018, brings together evidence on the delivery of best practice preventive care for Indigenous people (National Aboriginal Community Controlled Health Organisation (NACCHO) and Royal Australian College of General Practitioners (RACGP) 2018). Its launch heralds a renewed commitment to improving the delivery of preventive care, and should reinvigorate discussions on how best to implement Indigenous-specific health assessments.

In Australia, preventive care for Indigenous people is incentivised by the Medicare Benefit Schedule (MBS) item 715 annual *Health Assessment for Aboriginal and Torres Strait Islander People*, and delivered in the PHC setting (The Department of Health 2013). Increasing access to these Indigenous-specific health assessments has been a key strategy in the Australian Government's policy commitment to Closing the Gap in life expectancy and mortality between Indigenous and non-Indigenous Australians (Bailie et al. 2013). Although there have been recent improvements in the uptake of these health assessments – from 11% in 2010–11 to 29% in 2016–17 (Australian Institute of Health and Welfare (AIHW) 2017) – they remain underutilised and have a high degree of regional variation in delivery.

A substantial body of evidence on adherence to guideline-recommended care has been generated through the Audit and Best Practice for Chronic Disease (ABCD) National Research Partnership. This collaboration, a research-based continuous quality improvement (CQI) initiative conducted between 2010 and 2014, employed a systems approach to enhancing care delivered through Indigenous PHC centres across Australia (Bailie et al. 2010). Participating PHC centres performed annual audits of client medical records to determine whether the delivery of recommended preventive service items had been

documented in the previous 24 months as part of their routine CQI activities. The audit tool and parameters of the outcomes measures were developed by an expert working group, and based on evidence and best practice guidelines (Menzies School of Health Research 2018). To be eligible for inclusion in the audit, a client had to be aged between 15 and 55 years; a resident in the community for at least 6 months; have no diagnosis of diabetes, hypertension, coronary heart disease, chronic heart failure, rheumatic heart disease or chronic kidney disease; not be pregnant or less than 6 weeks postpartum at the time of the audit; and have at least one attendance at the PHC centre in the previous 24 months. The audit protocol included sampling guidelines that would assist in generating a sample likely to reflect the general population of clients. A structured process to assess the organisational systems of the PHC centre was also conducted using the Systems Assessment Tool (Cunningham et al. 2016).

Across 137 Indigenous PHC centres, more than 17 000 client records were audited for preventive health practices and 119 systems assessments undertaken for the same purpose. This audit is the largest and most comprehensive CQI project involving PHC centres serving predominately Indigenous populations, with many participating in repeated CQI cycles over several years. The relevance to primary health care in general is improved by the inclusion of PHC centres across a range of settings. Here, we reflect on four major lessons from this collaborative program of applied research that will lead to the more effective delivery of preventive care. All relevant ethics approvals have been published previously (Bailie et al. 2010).

Lesson 1. Health assessments are associated with improved quality of care

Indigenous-specific health assessments are associated with the improved uptake of some preventive health practices. Key findings include:

- *Improved sexual health screening and counselling:* Indigenous clients had three-fold higher odds of being tested for sexually transmitted infections (chlamydia, gonorrhoea and syphilis) and to receive counselling, if they had had an Indigenous-specific health assessment (16 086 client records from 137 Indigenous PHC centres, 2005–14) (Nattabi et al. 2017).
- *Improved delivery of cardiovascular risk assessment (CVRA):* Indigenous clients had four-fold higher odds of having a CVRA if they had received an Indigenous-specific health assessment (1388 client records from 48 Indigenous PHC centres in the Northern Territory, 2012–14) (Matthews et al. 2017). Cardiovascular risk assessments are not directly specified in the MBS item 715 descriptor despite their recognised role in curbing the onset of cardiovascular disease. It is, therefore, promising to see the association between the use of health assessments and CVRA, as the former appears to be an important initiator of the latter.
- *Improved delivery of screening of children for social and emotional wellbeing, anaemia and child neurodevelopment:* Indigenous children had between 33% and 66% higher odds of being screened for social and emotional wellbeing,

anaemia and child neurodevelopment if they had received an Indigenous-specific health assessment than those children who received acute care (2466 client records of children aged 3–59 months, from 109 Indigenous PHC centres, 2012–14) (Strobel *et al.* 2018).

These findings are consistent with other Australian research that has found Indigenous-specific health assessments to be useful for identifying new health issues, including chronic disease risk factors for individuals and for service populations (Miller *et al.* 2002; Spurling *et al.* 2009; Coleman *et al.* 2011; Bailie *et al.* 2013; Dutton *et al.* 2016).

Lesson 2. Improved levels of delivery of Indigenous-specific health assessments with longer duration of participation in continuous quality improvement

Continuous quality improvement in Indigenous PHC centres has been effective in improving the delivery of Indigenous-specific health assessments (Fig. 1). Figure 1 shows the median, mean and range between health centres in terms of the percentage of clients recorded as receiving an Indigenous-specific health assessment who had no identified chronic disease over successive CQI preventive audit cycles. Those PHC centres completing three or more audit cycles had improved their delivery of Indigenous-specific health assessments. Of the 137 PHC centres participating in the preventive health audit, approximately one-third (32%) completed four or more cycles and over half (55%) completed three cycles. This does not, however, reflect attrition of PHC centres, as some services commenced participation at differing time periods. Wide variation in the delivery of health assessments for clients with no identified chronic illness was evident across all PHC centres over the audit cycles. However, for those centres completing at least three audit cycles ($n=76$), there was an

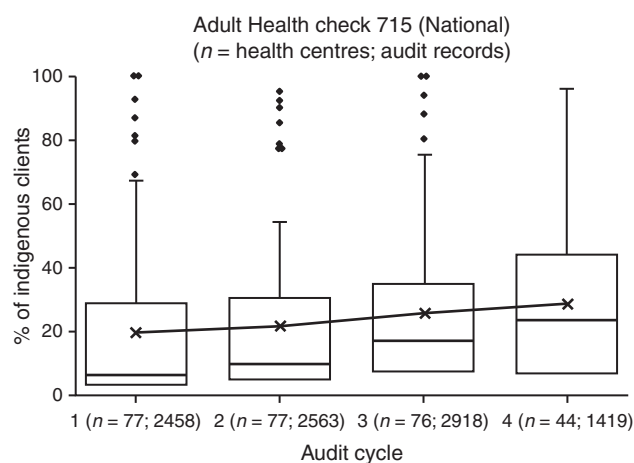


Fig. 1. Median, mean and range between health centres in the percentage of clients recorded as receiving an Indigenous-specific health assessment (MBS item 715), by audit cycle for health centres that have at least 3 years of audit data (n , number of health centres; number of clients; the median is the horizontal line within the boxes; the trend line shows the mean values; the boxes show the interquartile ranges; the whiskers show the range between minimum and maximum values, except for outliers, which are shown by dots). For more information on how to interpret box plots, refer to Bailie *et al.* (2016b, p. 20).

improvement in the median delivery from less than 5% to more than 20%. Implementing CQI facilitates the ability of PHC centres to identify and address barriers to the delivery of care.

Improved delivery of health assessments over several CQI cycles may also be explained by a general trend of increasing delivery of health assessments, and investments in the promotion of health assessments, such as through the Indigenous Chronic Disease Package (Bailie *et al.* 2013). Improved adherence to best practice care being associated with sustained CQI is consistent with other research (Matthews *et al.* 2014; Bailie *et al.* 2017; McAullay *et al.* 2018). There is, however, more scope for further improvement in the delivery of health assessments to people with no identified chronic disease.

Lesson 3. Indigenous leadership and strengthening of organisational capacity are essential

Improving the delivery of evidence-based preventive care requires broader investments in health service capacity and strong Indigenous participation in PHC centres, both of which are characterised by community-controlled services; an appropriate number of Aboriginal and Torres Strait Islander staff at all levels of the PHC service; the meaningful use of data to support quality of care and CQI; and investments in regional support structures and functions (Bailie *et al.* 2017; Harfield *et al.* 2018). Previous research has identified specific barriers to implementation of health assessments (Kehoe and Lovett 2008; Bailie *et al.* 2013; Jennings *et al.* 2014; Schütze *et al.* 2016), and this provides useful guidance for developing targeted interventions to improve uptake of health assessments.

Lesson 4. Initial success uncovers additional challenges

Si *et al.* (2014) speculated that differences in success between general practice and community-based health assessments might be due to the mandated clinical responsibility of GPs to follow up and manage abnormal findings. Although we have demonstrated that Indigenous-specific health assessments are associated with an improved uptake of preventive health practices, there remain challenges with acting on the follow up of abnormal results (Bailie *et al.* 2014; Dutton *et al.* 2016; Bailie *et al.* 2018). This is an important barrier to effective and safe care, and addressing this failure has been identified as a top priority by healthcare workers, managers, policymakers and researchers working in Indigenous PHC (Bailie *et al.* 2017; Bailie *et al.* 2018). An overarching challenge to improving follow up of abnormal results for Indigenous clients is that multifaceted strategies and action are required at the health centre and service level, in the community, and at patient and policy levels.

In conclusion, there is compelling evidence as to the benefit of many PHC preventive health activities, but challenges remain worldwide on how best to implement them. Structured, funded health assessments are one way to do this. The mixed international evidence on the effectiveness of health assessments in improving health outcomes is likely due to the complexity of implementing the assessments themselves, and this will vary greatly according to local context. Our research indicates that a structured CQI program can improve both the

delivery of preventive health assessments and the use of evidence-based guidelines.

However, program implementation has also seen the emergence of new challenges. A sustained, long-haul approach is essential to identifying these challenges systematically as they emerge, to proposing solutions and to implementing suitable interventions that will improve the delivery of preventive care. This is classic CQI methodology at work. True to this methodology, the key to success will be in combining a systems approach with context-specific tailoring across the diverse settings in which Indigenous PHC services are offered in Australia.

Conflicts of interest

The authors declare they have no conflicts of interest.

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References

- Australian Institute of Health and Welfare (AIHW) (2017) Indigenous-specific health measures data tool. (AIHW: Canberra, ACT, Australia) Available at <https://www.aihw.gov.au/reports/indigenous-health-welfare-services/indigenous-health-check-mbs-715-data-tool/contents/data-visualisations> [Verified 4 October 2018]
- Bailie R, Si D, Shannon C, Semmens J, Rowley K, Scrimgeour DJ, Nagel T, Anderson I, Connors C, Weeramanthri T, Thompson S, McDermott R, Burke H, Moore E, Leon D, Weston R, Grogan H, Stanley A, Gardner K (2010) Study protocol: national research partnership to improve primary health care performance and outcomes for Indigenous peoples. *BMC Health Services Research* **10**, 129. doi:10.1186/1472-6963-10-129
- Bailie R, Griffin J, Kelaher M, McNear T, Percival N, Laycock A, Schierhout G (2013) Sentinel sites evaluation: final report. (Commonwealth of Australia: Canberra, ACT, Australia) Available at [http://www.health.gov.au/internet/main/publishing.nsf/Content/F91E3427B3480DBCCA257E1A0079EDBB/\\$File/sentinel-sites-evaluation_final-report_feb2013.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/F91E3427B3480DBCCA257E1A0079EDBB/$File/sentinel-sites-evaluation_final-report_feb2013.pdf) [Verified 4 October 2018]
- Bailie J, Schierhout GH, Kelaher MA, Laycock AF, Percival NA, O'Donoghue LR, McNear TL, Chakraborty A, Beacham BD, Bailie RS (2014) Follow-up of Indigenous-specific health assessments - a socioecological analysis. *The Medical Journal of Australia* **200**, 653–657. doi:10.5694/mja13.00256
- Bailie C, Matthews V, Bailie J, Burgess P, Copley K, Kennedy C, Moore L, Larkins S, Thompson S, Bailie RS (2016a) Determinants and gaps in preventive care delivery for Indigenous Australians: a cross-sectional analysis. *Frontiers in Public Health* **4**, 34. doi:10.3389/fpubh.2016.00034
- Bailie J, Matthews V, Laycock A, Schultz R, Bailie R (2016b) Priority evidence-practice gaps in preventive health care for Aboriginal and Torres Strait Islander people: final report. (Menzies School of Health Research: Brisbane, Qld, Australia) Available at <http://apo.org.au/node/64599> [Verified 4 October 2018]
- Bailie J, Matthews V, Laycock A, Schultz R, Burgess CP, Peiris D, Larkins S, Bailie R (2017) Improving preventive health care in Aboriginal and Torres Strait Islander primary care settings. *Globalization and Health* **13**, 48. doi:10.1186/s12992-017-0267-z
- Bailie J, Matthews V, Laycock A, Connors C, Bailie R (2018) Rigorous follow-up systems for abnormal results are essential to improve health outcomes for Aboriginal and Torres Strait Islander people. *Australian Journal of Primary Health* **24**(1), 1–3. doi:10.1071/PY17103
- Bookallil M, Thomas D (2006) Little evidence of effectiveness for screening in new Aboriginal and Torres Strait Islanders Health Check. *Australian and New Zealand Journal of Public Health* **30**, 187. doi:10.1111/j.1467-842X.2006.tb00116.x
- Coleman JJ, Spurling GK, Askew DA, Hayman NE (2011) Indigenous child health checks: the view from the city. *The Medical Journal of Australia* **194**, 535–536.
- Cunningham FC, Ferguson-Hill S, Matthews V, Bailie R (2016) Leveraging quality improvement through use of the Systems Assessment Tool in Indigenous primary health care services: a mixed methods study. *BMC Health Services Research* **16**, 583. doi:10.1186/s12913-016-1810-y
- Dutton T, Stevens W, Newman J (2016) Health assessments for Indigenous Australians at Orange Aboriginal Medical Service: health problems identified and subsequent follow up. *Australian Journal of Primary Health* **22**, 233–238. doi:10.1071/PY14120
- Harfield SG, Davy C, McArthur A, Munn Z, Brown N, Brown N (2018) Characteristics of Indigenous primary health care service delivery models: a systematic scoping review. *Globalization and Health* **14**, 12. doi:10.1186/s12992-018-0332-2
- Jennings W, Spurling GK, Askew DA (2014) Yarning about health checks: barriers and enablers in an urban Aboriginal medical service. *Australian Journal of Primary Health* **20**, 151–157. doi:10.1071/PY12138
- Kehoe H, Lovett RW (2008) Aboriginal and Torres Strait Islander health assessments: barriers to improving uptake. *Australian Family Physician* **37**, 1033–1038.
- Krogsbøll LT, Jørgensen KJ, Larsen CG, Gøtzsche PC (2012) General health checks in adults for reducing morbidity and mortality from disease: Cochrane systematic review and meta-analysis. *British Medical Journal* **345**, e7191. doi:10.1136/bmj.e7191
- Matthews V, Schierhout G, McBroom J, Connors C, Kennedy C, Kwedza R, Larkins S, Moore E, Thompson S, Scrimgeour D, Bailie R (2014) Duration of participation in continuous quality improvement: a key factor explaining improved delivery of Type 2 diabetes services. *BMC Health Services Research* **14**, 578. doi:10.1186/s12913-014-0578-1
- Matthews V, Burgess CP, Connors C, Moore E, Peiris D, Scrimgeour D, Thompson SC, Larkins S, Bailie R (2017) Integrated clinical decision support systems promote absolute cardiovascular risk assessment: an important primary prevention measure in Aboriginal and Torres Strait Islander primary health care. *Frontiers in Public Health* **5**, 233. doi:10.3389/fpubh.2017.00233
- McAullay D, McAuley K, Bailie R, Mathews V, Jacoby P, Gardner K, Sibthorpe B, Strobel N, Edmond K (2018) Sustained participation in annual continuous quality improvement activities improves quality of care for Aboriginal and Torres Strait Islander children. *Journal of Paediatrics and Child Health* **54**, 132–140. doi:10.1111/jpc.13673
- McDonald E, Priest N, Doyle J, Bailie R, Anderson I, Waters E (2010) Issues and challenges for systematic reviews in Indigenous health. *Journal of Epidemiology and Community Health* **64**, 643–644. doi:10.1136/jech.2008.077503
- Menzies School of Health Research (2018) Preventive services clinical audit tool. (Menzies School of Health Research: Brisbane, Qld, Australia) Available at https://www.menzies.edu.au/page/Resources/Preventive_Services_clinical_audit/ [Verified 4 October 2018]

- Miller G, McDermott R, McCulloch B, Leonard D, Arabena K, Muller R (2002) The Well Person's Health Check: a population screening program in indigenous communities in north Queensland. *Australian Health Review* **25**, 136–147. doi:10.1071/AH020136b
- National Aboriginal Community Controlled Health Organisation (NACCHO) and Royal Australian College of General Practitioners (RACGP) (2018) National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people, 3rd edn. (RACGP: East Melbourne, Vic., Australia) Available at <https://www.racgp.org.au/download/Documents/Guidelines/National-guide-3rd-ed.pdf> [Verified 4 October 2018]
- Nattabi B, Matthews V, Bailie J, Rumbold A, Scrimgeour D, Schierhout G, Ward J, Guy R, Kaldor J, Thompson SC, Bailie R (2017) Wide variation in sexually transmitted infection testing and counselling at Aboriginal primary health care centres in Australia: analysis of longitudinal continuous quality improvement data. *BMC Infectious Diseases* **17**, 148. doi:10.1186/s12879-017-2241-z
- Royal Australian College of General Practitioners (RACGP) (2016) Guidelines for preventive activities in general practice. 9th edn. (RACGP: East Melbourne, Vic., Australia) Available at <https://www.racgp.org.au/your-practice/guidelines/redbook/> [Verified 4 October 2018]
- Russell L (2010) Indigenous health checks; a failed policy in need of scrutiny. Available at <https://ses.library.usyd.edu.au/bitstream/2123/11447/1/atsihealthchecks2.pdf> [Verified 4 October 2018]
- Schütze H, Pulver LJ, Harris M (2016) The uptake of Aboriginal and Torres Strait Islander health assessments fails to improve in some areas. *Australian Family Physician* **45**, 415–420.
- Si S, Moss JR, Sullivan TR, Newton SS, Stocks NP (2014) Effectiveness of general practice-based health checks: a systematic review and meta-analysis. *The British Journal of General Practice* **64**, e47–e53. doi:10.3399/bjgp14X676456
- Spurling GK, Hayman NE, Cooney AL (2009) Adult health checks for Indigenous Australians: the first year's experience from the Inala Indigenous Health Service. *The Medical Journal of Australia* **190**, 562–564.
- Spurling GK, Bond CJ, Schluter PJ, Kirk CI, Askew DA (2017) 'I'm not sure it paints an honest picture of where my health's at' – identifying community health and research priorities based on health assessments within an Aboriginal and Torres Strait Islander community: a qualitative study. *Australian Journal of Primary Health* **23**, 549–553. doi:10.1071/PY16131
- Strobel NA, McAuley K, Matthews V, Richardson A, Agostino J, Bailie R, Edmond KM, McAullay D (2018) Understanding the structure and processes of primary health care for young indigenous children. *Journal of Primary Health Care* **10**(3), 267–278. doi:10.1071/HC18006
- The Department of Health (2013) Fact sheet: Medicare health assessment for Aboriginal and Torres Strait Islander People (MBS ITEM 715). Commonwealth of Australia, Canberra, ACT, Australia.
- Vos T, Barker B, Begg S, Stanley L, Lopez AD (2009) Burden of disease and injury in Aboriginal and Torres Strait Islander Peoples: the Indigenous health gap. *International Journal of Epidemiology* **38**, 470–477. doi:10.1093/ije/dyn240