

## Authors

**Cory James Williams**  
GradDipOHS, BN, CHIA  
Clinical Nurse Consultant Perioperative  
Access & Patient Flow, Royal Brisbane and  
Women's Hospital

**Yashni Kander**  
MHLthAdmin&Leadership, BN  
Nurse Navigator Indigenous and  
Multicultural Health, Patient Flow Services,  
Royal Brisbane and Women's Hospital

**King Law**  
MInfTech  
Perioperative Services Data Manager,  
Perioperative Services, Royal Brisbane  
and Women's Hospital

**Patricia Kennedy**  
BTeach (Adult&Vocational)  
Team Leader – Indigenous Hospital  
Liaison Service, Royal Brisbane and  
Women's Hospital

**Geoffrey Binge**  
Cultural Capability Officer, Royal Brisbane  
and Women's Hospital

**Elizabeth Strathdee**  
MN, GradCert (Periop Nursing)  
Assistant Nursing Director Perioperative  
Services, Royal Brisbane and Women's  
Hospital

## Corresponding author

**Cory Williams**  
Clinical Nurse Consultant, Royal Brisbane  
and Women's Hospital  
cory\_williams\_11@hotmail.com

# Culturally focused pre-surgery screening to reduce Aboriginal and Torres Strait Islander patient surgical cancellations

## Abstract

### Background

There are health disparities in many countries between First Nations and non-First Nations populations. In Australia, the Aboriginal and Torres Strait Islander population have several risk factors and are more likely to experience higher rates of post-operative morbidity complications and mortality.

### Purpose

To develop a culturally appropriate pre-surgery screening tool, administered by phone, to check health and wellness, identify relevant factors and support Aboriginal and Torres Strait Islander patients to ensure they are appropriately prepared to undertake surgery. The screening tool aims to reduce rates of patient-initiated cancellations of surgery and gain a greater understanding of factors contributing to patient-initiated cancellations of Aboriginal and Torres Strait Islander patients.

### Methods

This quality improvement project uses the Model for Improvement methodology and integrates 'Plan, Do, Study, Act' (PDSA) cycles to implement, assess and improve the intervention. The rate of Aboriginal and Torres Strait Islander patient-initiated surgical cancellations was measured for an Australian tertiary referral hospital.

### Results

The six-month phase after implementation demonstrated a decreased mean rate (0.078 to 0.060) of Aboriginal and Torres Strait Islander patient-initiated cancellations. Responses were thematically analysed to identify contributing factors for surgical cancellations.

### Conclusions

Implementing a culturally appropriate pre-surgery screening tool, developed by suitably qualified staff, positively advocated for Aboriginal and Torres Strait Islander patient's health and wellbeing.

### Implications

This study is highly generalisable as the setting has similar key performance indicators and operational governance to many other hospitals treating Aboriginal and Torres Strait Islander patients nationwide.

**Keywords:** Aboriginal and Torres Strait Islander, health and wellness, social wellbeing, cultural sensitivity, cultural awareness

## Introduction

### Problem

There is significant evidence of health disparities in many countries between First Nations and non-First Nations populations. This is clearly demonstrated by the decreased life expectancy for First Nations populations compared to their non-First Nations counterparts in developed countries including, Canada (6 years for both sexes), Australia (10.6 for males and 9.5 years for females) and New Zealand (7.1 years for both sexes)<sup>1</sup>. In Australia, the Aboriginal and Torres Strait Islander population have several risk factors for chronic diseases and are more likely to experience higher rates of post-operative morbidity complications and mortality<sup>2</sup>. The gap in health, education and employment between Aboriginal and Torres Strait Islander people and other Australian populations is not closing at the rate the government has committed to, despite an increased expenditure on health services for Aboriginal and Torres Strait Islander people<sup>3</sup>. This paper focuses on addressing the health disparity of Aboriginal and Torres Strait Islander people through improving timely access to surgical care. Social and emotional wellbeing is a key factor that contributes to decreased health status, chronic disease and poorer health outcomes in Aboriginal and Torres Strait Islander people, and these increase the risk of developing lowered social and emotional wellbeing, including psychological problems<sup>4</sup>.

### Background

Social and emotional wellbeing is a multifaceted concept which can comprise mental health and an individual's cultural connection to land, in particular, as well as their culture, ancestry, family, spirituality,

economic situation and community. If these elements of wellbeing are not addressed, patients are at risk of negative health outcomes, including anxiety and depression, and behavioural risks including drug use, excessive alcohol consumption and suicide<sup>4</sup>. The available literature demonstrates the benefits of assessing the social and emotional wellbeing of Aboriginal and Torres Strait Islander patients in health care; however, there is no literature available regarding any targeted pre-surgical screening of health, wellness or social wellbeing.

Research indicates that engagement rates with Aboriginal and Torres Strait Islander people are suboptimal because of a lack of culturally appropriate services, difficulty building trusting patient-clinician relationships, discriminative health care behaviour, expense and inability to access services<sup>5</sup>. Conventional, westernised assessment instruments may cover elements of the surgical process; however, they are unfamiliar, may consist of inappropriate language, and do not reflect Aboriginal and Torres Strait Islander cultural beliefs and understandings of health, wellness and sickness, and these things negatively impact assessment validity<sup>6</sup>. Health care focus must shift from purely reporting disparities in surgical outcomes for Aboriginal and Torres Strait Islander people to identifying and developing best practice preventative processes for addressing poor surgical outcomes<sup>2</sup>.

### Purpose

This quality improvement project endeavoured to develop a culturally appropriate, phone-administered pre-surgery screening tool to check health, wellness and social wellbeing, identify relevant factors and support Aboriginal and Torres Strait Islander patients to ensure

they are appropriately prepared to undertake surgery, taking into consideration both clinical and non-clinical surgical journey factors. The rate of patient-initiated cancellations was measured to evaluate the effectiveness of the screening tool and responses were analysed to gain a greater understanding of the issues contributing to the occurrence of patient-initiated surgical cancellations of Aboriginal and Torres Strait Islander patients. The expert knowledge and experience of Aboriginal and Torres Strait Islander health service members was used during development and implementation of the screening tool to address cultural appropriateness and differences in health literacy. This specialised input was used in an attempt to counteract the underlying health disadvantage confronting Aboriginal and Torres Strait Islander people, a disadvantage that leads to feelings of loss of control, disempowerment and disengagement<sup>3</sup>.

## Methods

### Design

The screening tool was developed using a Model for Improvement (MFI) framework – a two-tiered approach encompassing the 'thinking' stage, forming a cross-functional team, and the 'doing' stage, integrating Plan, Do, Study, Act (PDSA) cycles to repetitively implement, assess and improve interventions until aims are achieved<sup>7</sup>. A concurrent, nested mixed method design was used to review the six-month implementation phase and results, whereby quantitative data interpretation took priority for effectiveness assessment and qualitative data was accessed for understanding content addressed within the screening tool. Measuring the rate of Aboriginal and Torres Strait Islander patient-initiated

surgical cancellations was used for quantitative assessment of the effectiveness of the screening tool in improving the timely access to surgical services for Aboriginal and Torres Strait Islander patients. Responses to the screening tool were used as qualitative data to gain a greater understanding of the issues contributing to the occurrence of Aboriginal and Torres Strait Islander patient-initiated surgical cancellations.

## Ethical considerations

This project was deemed a quality improvement project by our institution and exempt from ethical review. The project considered the six core Aboriginal and Torres Strait Islander values – spirit and integrity, cultural continuity, equity, reciprocity, respect and responsibility<sup>8</sup>. These values ensure projects develop best practice ethical standards, respect the values and guarantee the relevant priorities, needs and aspirations of the population<sup>8</sup>. To mitigate ethical concerns, it was vital that this project was guided by Aboriginal and Torres Strait Islander staff members<sup>8</sup>.

## Setting and sample

The setting for this project was a large, Australian, tertiary, referral hospital that provides comprehensive elective and emergency surgical services to metropolitan and rural regions state-wide. This hospital has a primary catchment population of 338 155 people; however, most patients live outside the primary catchment area throughout Queensland, northern New South Wales and Northern Territory. Surgical and perioperative services provide secondary and comprehensive tertiary elective and emergency surgical services, delivering more than 26 000 operations annually at an average of over 500 procedures

each week. The hospital has twenty-two operating rooms and two minor procedure unit operating rooms. Aboriginal and Torres Strait Islander people make up 3.6 per cent of the total number of surgical cases treated at this hospital.

Within this hospital, the Aboriginal and Torres Strait Islander health services have clinical and non-clinical staff who assist the hospital service lines with the cultural needs of Aboriginal and Torres Strait Islander patients. The hospital established this in response to their local Hospital and Health Service (HHS) 'Better together' plan – a commitment to closing the gap in Aboriginal and Torres Strait Islander health outcomes. A review of operating performance data and surgical preparation processes for Aboriginal and Torres Strait Islander patients indicated both high levels of patient-initiated surgical cancellations and the absence of a dedicated pathway for supporting these patients.

The sample for this project included all patients scheduled to undergo elective surgery during the six-month implementation phase who were identified on the hospital patient administrative system as 'Aboriginal', 'Torres Strait Islander' or 'Aboriginal and Torres Strait Islander'.

## Procedure

The two major tiers of the project were:

1. the thinking stage that involved forming a cross-functional team with diverse representation of staff involved in the surgical journey
2. the doing stage using PDSA cycles to repetitively assess and improve the intervention.

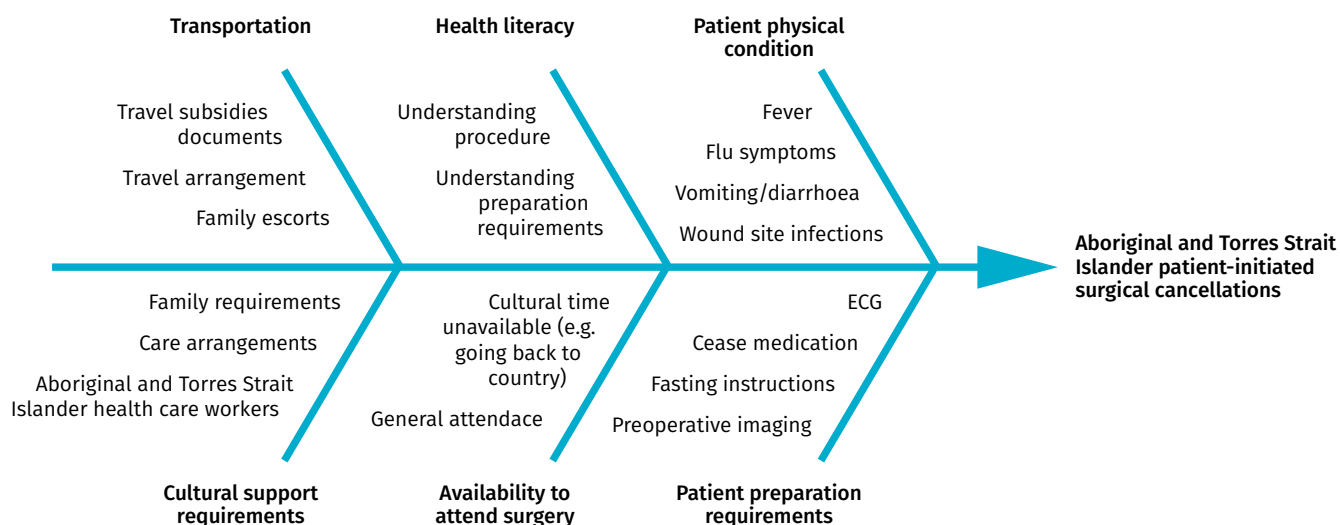
## Tier one: Thinking stage

An affinity diagram was used to deconstruct the preoperative surgical journey into segments and cluster the roles associated with each segment. A vital aspect of the project aim was leveraging the knowledge, skills and expertise of both the appropriate surgical staff and the Aboriginal and Torres Strait Islander staff. An additional member of the project team was a staff member trained in information and technology (IT), for the purpose of exploring the opportunity to improve clinical process and achieve higher levels of operational efficiency by including automated elements in processes.

Following the team's establishment, a fishbone cause and effect diagram was used to diagnose and deconstruct the complex interplay of causes contributing to patient-initiated surgical cancellations of Aboriginal and Torres Strait Islander patients (Figure 1). The root causes and causal relationships identified in the fishbone diagram were used for the foundation of the pre-surgery screening tool. Aboriginal and Torres Strait Islander staff provided cultural expertise when drafting the phone script for the screening tool.

## Tier two: Doing stage

Through consultation with the IT-trained staff member, it was identified that using basic level computer scripting/programming could automate many time-consuming tasks, specifically the non-clinical task of searching raw data reports to identify specific subsets of patients. This project used Visual Basic Scripting (VBScript), a computer scripting language developed by Microsoft, allowing Microsoft Windows users to create automation tools for creating, managing, editing, saving and sending documents.



**Figure 1: Factors contributing to Aboriginal and Torres Strait Islander patient-initiated surgical cancellations**

This software scripting was used to automate the data collection, analysis and display steps, allowing automatic extraction of relevant information (pre-set conditions) from reports to generate individualised, prefilled screening tool templates and email the templates to the staff member conducting the screening.

During the development of the screening tool and the clinical pathway, PDSA cycles were used regularly to review progress; this led to the addition of appropriate staff members and changes to the process for conducting the screening. After the first tool was designed by the project team and implemented in practice, PDSA cycles were again used

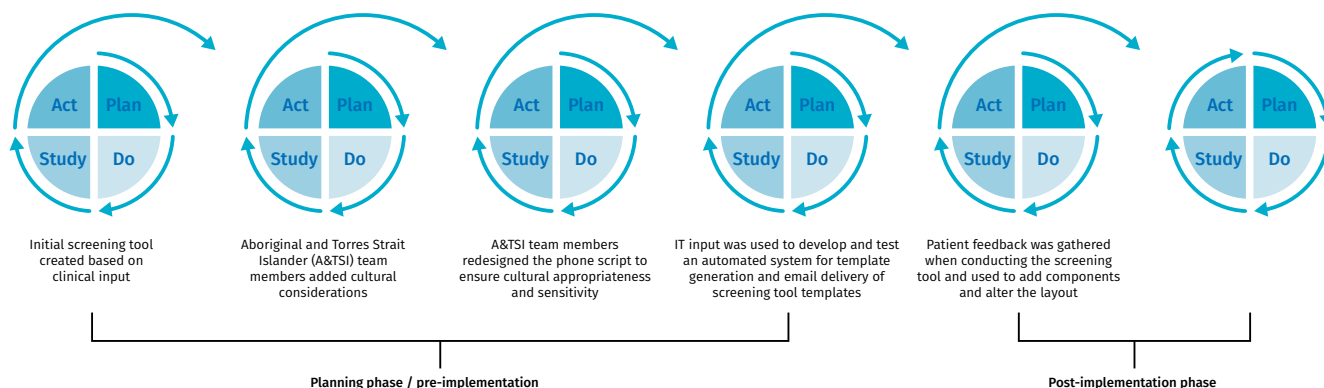
to adjust the content and phrasing of the tool, based on the feedback from patients and clinicians involved in the process (Figure 2).

When reviewing the patient surgical journey and the organisational layout, the team documented a clinical pathway for undertaking the pre-surgery screening. It was decided that the screening by phone would be conducted by an Aboriginal and Torres Strait Islander services clinical team member (Nurse Navigator) at seven days and again at three days prior to an Aboriginal and Torres Strait Islander patient's elective surgery. The issues identified from the screening were then communicated to appropriate

staff (e.g. surgical case managers and community services) and mitigated prior to surgery.

## Data collection and analysis

To ensure data quality and consistency, the baseline and intervention-related data was collected by the service line data manager, with intervention-related data collected monthly over the six-month implementation period. The development phase of the screening tool resulted in a template consisting of 18 dichotomous questions focusing on clinical elements of preparation and seven open-ended questions focusing on cultural elements that may impact preparation or ability to attend surgery.



**Figure 2: PDSA (Plan, Do, Study, Act) cycles used to refine the pre-surgery screening tool template content and processes**

**Table 1: Rates of patient-initiated cancellation during the project implementation phase and the same period in the previous year**

| Patient-initiated cancellations |                                   | Jun–Nov 2019 | Jun–Nov 2020 | % change |
|---------------------------------|-----------------------------------|--------------|--------------|----------|
| Total cancellations             |                                   | 55           | 30           | -45.5    |
| Cancellation subsets            | unfit for surgery (condition)     | 14           | 13           | -7.1     |
|                                 | patient cancelled booking         | 17           | 3            | -82.4    |
|                                 | failed to attend (day of surgery) | 12           | 8            | -33.3    |
|                                 | no longer requires treatment      | 4            | 1            | -75.0    |

### Quantitative measures

The rate of surgical cancellations that were initiated by Aboriginal and Torres Strait Islander patients on the day of surgery and within twenty-four hours were measured. Of these patient-initiated cancellations, subsets of 'unfit for surgery – condition', 'patient cancelled booking', 'failing to attend – day of surgery' and 'no longer requires treatment' were investigated. The project aimed to reduce the rate of patient-initiated surgical cancellations, of Aboriginal and Torres Strait Islander patients, within six months of introducing the pre-surgery screening. The rate of patient-initiated cancellation was assessed in two ways: results from the six-month implementation phase were compared to the same timeframe in the previous year and changes to the mean rate of cancellations before and after implementation of the screening tool were measured using a control chart with split control limits.

### Qualitative measures

The responses to the screening tool questions were collected and thematically analysed to identify the common elements contributing to patient-initiated surgical cancellations of Aboriginal and Torres Strait Islander patients.

## Results

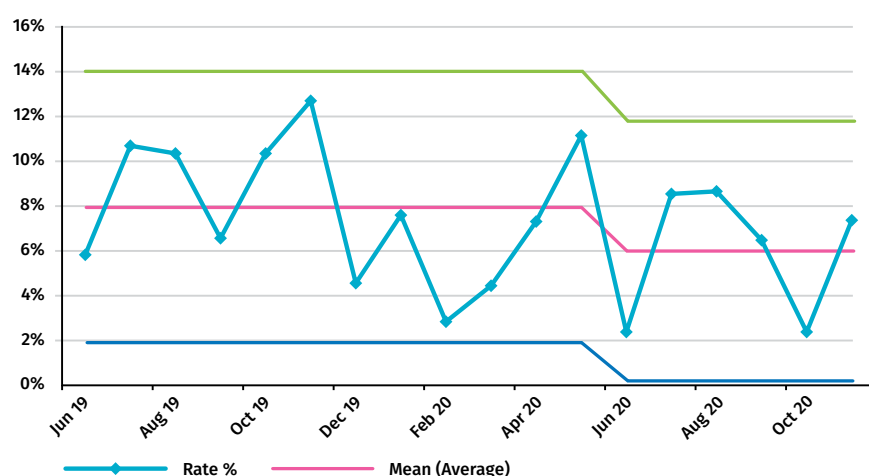
To assess the impact of the pre-surgery screening tool, the rate of Aboriginal and Torres Strait Islander patient-initiated surgical cancellations, defined as cancellations on the day of surgery and within twenty-four hours, was measured. During the project timeframe (June to November 2020), 505 pre-surgery screening tool templates were generated and 341 contact attempts were made with 196 pre-surgery screenings successfully completed.

### Quantitative results

Results from June to November 2020 (the six-month implementation phase) were compared to cancellation rates from June to November 2019 (Table 1). The results demonstrated

a 45.5 per cent decrease in patient-initiated cancellations by Aboriginal and Torres Strait Islander patients. When deconstructing the patient-initiated cancellations it was identified that there was a 33.3 per cent decrease in failing to attend and an 82.4 per cent decrease in patients calling to cancel surgery within 24 hours of surgery.

The mean rate of cancellations before and after implementation of the pre-surgery screening tool were compared. Figure 3 (control chart) shows an improvement to the mean rate of Aboriginal and Torres Strait Islander patient-initiated surgical cancellations during the six months after the screening tool was implemented compared to the period before the screening tool was implemented (decrease in mean rate from 0.078 to 0.060).



**Figure 3: Control chart (split) showing rates of patient-initiated cancellation before and after screening tool implementation**



## Qualitative results

The responses to the screening tool questions were collected and thematically analysed to gain an understanding of common issues faced by Aboriginal and Torres Strait Islander surgical patients and areas for future focus of care (Table 2). Of the 196 pre-surgery screenings completed, 52 per cent identified patient confusion regarding preparation requirements (ceasing medications, fasting instructions and sourcing help with funding subsidies, accommodation and travel), 21 per cent identified a lack of understanding of information provided regarding the scheduled procedure, 14 per cent identified issues with the patient's medical condition that could lead to cancellation, and 5 per cent identified patients that were not willing to attend their surgery.

## Limitations

The project team identified three limitations that have potentially affected the ability to achieve higher-level results. Of the 505 pre-surgery screening templates generated, 164 were not initiated due to a lack of staffing resources in the form of backfill for leave of the Nurse Navigator conducting the screening. Of the 341 contact attempts, 145 patients were unable to be contacted after multiple attempts. As a result of the COVID-19 pandemic, policies regarding the eligibility for and frequency of elective surgery changed frequently in the early months of 2020. As a result, significantly fewer elective surgeries were booked during this time and, due to day-to-day changes in operating policy, rural and remote patients were less likely to be scheduled and the majority of the Aboriginal and Torres Strait Islander patients live in rural or remote areas. This may account

**Table 2: Themes identified through screening**

| Theme                                                                           | n   | % (N=196) |
|---------------------------------------------------------------------------------|-----|-----------|
| Patient confusion regarding preparation requirements                            | 102 | 52        |
| Lack of understanding of information provided regarding the scheduled procedure | 41  | 21        |
| Issues with the patient's medical condition that could lead to cancellation     | 27  | 14        |
| Patient not willing to attend their surgery                                     | 10  | 5         |

n = number of screenings in which theme was identified

for uncharacteristically low rates of Aboriginal and Torres Strait Islander patient-initiated cancellations for this hospital in the months prior to screening implementation (January to April 2020).

## Discussion

The 45 percent decrease in patient-initiated surgical cancellations demonstrated that culturally appropriate pre-surgical screening that checks health, wellness and social wellbeing can positively address preoperative preparation issues encountered by Aboriginal and Torres Strait Islander patients. The early identification of issues gives clinicians time to mitigate the flow-on effect, that leads to surgical cancellations, by connecting patients to appropriate support services. This early mitigation is heavily evident through the large reduction in the reported cancellation types of 'failed to attend surgery' (33.3%) and 'patient cancelled booking' (82.4%), which both only occur on the day of surgery.

The use of software scripting, that enabled automated data collection, data analysis and data display, produced many benefits including eliminating the need for a clinician to spend large amounts of time searching through hundreds of rows

of raw data and avoiding human error in searching, as well as providing cost-free design and an adaptable system that could be easily changed in response to feedback.

The clinical pathway allowed Aboriginal and Torres Strait Islander health services staff to mitigate potential surgical cancellations ahead of time by engaging the culturally safe support of community services and escalating identified issues to surgical case managers who were responsible for coordinating the surgical journey.

Barriers between government services have led to the development of silos within services that are often working in the same patient process; this frequently means those writing process policy are not overly involved in the process itself<sup>3</sup>. An effective pre-surgery screening tool must embed culture into the provision of care, due to the great importance Aboriginal and Torres Strait Islander people place on their connection to their country and culture. This is rarely considered in policy or service development<sup>3</sup>. A strength of this project was the focus placed on developing a project team consisting of those most appropriate and regularly involved in the work area. Having Aboriginal and Torres Strait Islander staff conduct the screening

optimised patient engagement by allowing for enhanced patient trust, cultural identity and sense of control. The format of conducting the screening by phone overcame the common issues encountered with self-reporting instruments and allowed for culturally appropriate intervention regarding identification, and treatment of language comprehension and health literacy differences<sup>6</sup>. It remains imperative that a 'yarning' approach or a traditional story-telling approach, highlighting family and social components, is incorporated because these cultural conversational methods build rapport and facilitate meaningful disclosure of personal issues while maintaining cultural integrity and identity<sup>6</sup>. The importance of this meaningful disclosure is evident in the thematic analysis of the responses from patients. The analysis identified significant risk areas that lead to surgical cancellations in Aboriginal and Torres Strait Islander patients preparing for surgery. These risks largely involved untreated health literacy differences that result in confusion about clinical preparation aspects, e.g. medication plan, (52%) and understanding the scheduled operation (21%). This study demonstrates that without the intervention from Aboriginal and Torres Strait Islander staff these issues are unlikely to be identified until the day of surgery.

When considering health, the perspective of Aboriginal and Torres Strait Islander people is more than an individual's physiological wellbeing; rather, health is considered a holistic concept comprising the emotional, social and cultural wellbeing of the all-inclusive community<sup>9</sup>. As Aboriginal and Torres Strait Islander adults are prone to experience high levels of psychological distress

when engaging with the health care system, culturally appropriate social and emotional wellbeing screening is imperative<sup>6</sup>. A cross-sectional study examining social and wellbeing screening of Aboriginal and Torres Strait Islander patients, based on medical records from 100 Australian primary health networks, demonstrated that 73.4 per cent of records were not screened. Of those with identified concerns, 25.4 per cent had no further action taken<sup>4</sup>. These outcomes suggest that lack of clear models or guidelines for culturally appropriate and validated assessment of social wellbeing and determinants of health can contribute to poor provision of health screening and poor outcomes for Aboriginal and Torres Strait Islander patients<sup>4</sup>. As this project placed emphasis on including social and wellbeing components in the pre-surgery screening tool – in particular, family and community support, transportation requirements, financial elements and health literacy – risks to surgical attendance could be identified early and action taken to mitigate them.

## Conclusions

By developing and implementing a specialised, culturally appropriate pre-surgery screening tool to check the health, wellness and social wellbeing of Aboriginal and Torres Strait Islander patients and using key staff to support the development of trusting relationships, this project was able to advocate for the health and wellbeing of Aboriginal and Torres Strait Islander patients by increasing preoperative communication, reducing patient-initiated surgical cancellations and providing the foundation for future care.

After reviewing the clinical pathway developed, the themed data collected from patients' responses to the pre-

surgery screening and the limitations encountered, this paper has three recommendations to make:

1. It is imperative that strong networks are built with community support services to develop methods of contacting patients that are uncontactable via phone calls.
2. Robust governance is required to ensure arrangements are in place to cover leave for the staff member conducting the screening in order to avoid missed opportunities for patient contact.
3. Basic level IT programming should be used to automate data searching and display in order to eliminate non-clinical tasks for clinicians and allow clinicians to spend their time caring for patients.

## Implications

As the public hospital where this project was conducted has common industry key performance indicators and similar operational governance to many other hospitals throughout Australia where urban and rural Aboriginal and Torres Strait Islander patients are treated, this quality improvement initiative is highly generalisable.

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