Measurement Matters

Development of Aboriginal patient experience key performance indicators

for local health districts in NSW

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bureau of health information

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Overview

This report outlines the development of a patient experience key performance indicator (KPI) for local health districts (LHDs) derived from patient survey data from Aboriginal respondents admitted to NSW public hospitals between 2019 and 2022.

The Bureau of Health Information (BHI) undertook this work in response to a request from the NSW Ministry of Health (the Ministry)'s Centre for Aboriginal Health for data-informed advice on potential KPIs to hold LHDs accountable for their performance in relation to Aboriginal adult admitted patient experience, and to support monitoring and improvement efforts.

BHI analyses developed and tested four potential indices of Aboriginal patient experience to ensure any resultant KPI demonstrated meaningfulness (i.e. validity), reliability, usefulness for quality improvement and sustainability (i.e. what is required to monitor performance over time).

In 2024–25, one of the four indices – the Communication and Engagement Experience Index: Aboriginal Adult Admitted Patients – was introduced as a KPI into service agreements between NSW Health and LHDs.

About BHI and the NSW Patient Survey Program

BHI is a board-governed statutory health corporation providing the community, healthcare professionals and policymakers with independent information about the performance of the NSW healthcare system.

BHI manages the NSW Patient Survey Program on behalf of NSW Health. Every year we ask thousands of people to tell us about their experiences in the NSW public healthcare system and subsequent outcomes using evidence-based, validated survey instruments.

These surveys are reflective by design and therefore deliberately sent to patients several weeks after their contact with a health service. This means surveys can include questions that ask patients to reflect on their experiences of care both while in hospital, and how things have gone for them afterwards, including how prepared they were for their discharge from hospital, how well their post-discharge care was coordinated with other healthcare providers and whether they experienced any complications afterwards.

After analysing the feedback, we publish the results to help ensure patients' voices drive improvements in experiences and outcomes of care. The statewide program provides robust and reliable measures of patient experience performance at NSW, LHD and hospital level.

Among BHI's functions is the development of tools to enable analysis of the performance of health services across the NSW public health system, including the Aboriginal Patient Experience Question Set and the Adult Admitted Patient Survey (AAPS) for Aboriginal patients – the results of which were used to develop the KPI described in this report. The AAPS is a core component of the NSW Patient Survey Program and samples patients from the largest 85+ public hospitals across NSW. It is the largest (by patient volume) and the longest running survey in the Program.

Background

Aboriginal patient experience program

Hearing from Aboriginal people about their experiences of healthcare services is fundamental to inform efforts to tailor care to help improve Aboriginal people's needs and health outcomes. For this reason, BHI and the Centre for Aboriginal Health are working together to deliver the Aboriginal patient experience program – a multi-year program of data collection and routine performance reporting that asks Aboriginal patients about their experiences and outcomes of care in NSW public hospitals.

Each year, thousands of Aboriginal adults are invited to provide feedback on their hospital experiences through the AAPS. From 2022, a modified survey was sent to an oversample of eligible Aboriginal patients, which included core survey questions, plus additional questions identified as of high relevance to Aboriginal patients, the Aboriginal community and other relevant stakeholders. These additional questions are a subset of the **Aboriginal Patient Experience Question Set** developed in collaboration with Aboriginal people, the Centre for Aboriginal Health, the Aboriginal patient experience program advisory committee and other key stakeholders from across NSW health system.

More information about the AAPS, the Aboriginal patient experience program and the Aboriginal Patient Experience Question Set are available on the BHI website.

The Centre for Aboriginal Health commissioned BHI to investigate the development of a KPI for Aboriginal patient experience to support monitoring and improvement of Aboriginal patient experience in NSW public hospitals. BHI was asked to explore the feasibility of developing a KPI, above and beyond those currently analysed and implemented for the general admitted patient population, using existing AAPS data and results for those questions identified as a priority for Aboriginal patients and other key stakeholders (the Aboriginal patient experience module).

NSW Health context

The **NSW Aboriginal Health Plan 2024–2034** aims to drive change to achieve the highest possible levels of health and wellbeing for Aboriginal people in NSW by:

- guiding how health systems are planned, delivered, and monitored;
- elevating the focus on Aboriginal expertise to drive shared decision-making and innovative collaborations;
- influencing the redesign of health services to achieve health equity; and
- providing direction for the elimination of racism in all aspects of healthcare.

Transforming government organisations, including through strengthening transparency and accountability, is a priority reform area for the Plan as a means of achieving improved health and wellbeing outcomes for Aboriginal people, and ensuring Aboriginal people experience cultural safety in all levels, areas and services of NSW Health.

The Aboriginal Health Plan aligns with the aims of **Future Health:** NSW Health's vision of a 'sustainable health system that delivers outcomes that matter most to patients and the community, is personalised, invests in wellness and is digitally enabled'. To improve healthcare services and offer human-centred experiences, healthcare systems must be able to collect and make effective use of feedback from patients. Collecting timely feedback and data on patients' experiences supports understanding of what is working well, what could be done differently and where there are opportunities to do things better.

Patient experience KPIs

Patients provide key information on the performance of health services through participating in surveys. As such, many jurisdictions use patient experience measures as KPIs for health system performance monitoring.

Within NSW Health, LHDs and networks are held accountable for their performance across a range of areas, including patient experience, through KPIs using data-informed analyses previously conducted by BHI. Since 2019–20, four patient experience KPIs – two for each of emergency department and admitted patients – have been included in annual Service Agreements between the NSW Ministry of Health and LHDs.

Development of general adult admitted patient experience KPIs

In early 2018, BHI undertook advanced analyses to develop and recommend KPIs and benchmarks based on all AAPS respondents resulting in the introduction of two KPIs into LHD Service Agreements in 2018–19. In 2019, BHI repeated this work for the development of emergency department (ED) KPIs, adding two more patient experience KPIs in 2019–20 (Table 1).

Each quarter, BHI provides the Ministry with a spreadsheet containing KPI results (scores) and the results of each question comprising the KPIs for all LHDs and networks.

Table 1 Adult admitted patient experience indices used in LHD Service Agreements in NSW, 2025

Overall patient experience index – adult admitted patients
• Overall, how would you rate the care you received while in hospital?
• If asked about your hospital experience by friends and family how would you respond?
• How would you rate how well the health professionals worked together as a team?
• How well organised was the care you received in hospital?
Patient engagement index – adult admitted patients
• Were you involved, as much as you wanted to be, in decisions about your care and treatment?
• During your stay in hospital, how much information about your condition or treatment was given to you?
• Did you feel involved in decisions about your discharge from hospital?
• At the time you were discharged, did you feel that you were well enough to leave the hospital?
• Thinking about when you left hospital, were you given enough information about how to manage your care at home?
• Were you told who to contact if you were worried about your condition or treatment after you left hospital?

Notes on terminology: A number of key terms are used throughout this report. These include **Domain**, which represents a collection of questions that relate to a concept, construct or theme. The term **Factor** is also used, which, in this case, refers to the underlying driver leading to the grouping of questions. **Index** refers to the composite measure that combines multiple questions into a single variable (score), used for key performance indicators.

Development of Aboriginal patient experience KPIs

Methodology

Adult Admitted Patient Survey

The Adult Admitted Patient Survey (AAPS) was used for the development of the Aboriginal patient experience KPI. The survey was sent to eligible patients aged 18+ years who were discharged from one of the largest 87 NSW public hospital between January and December 2022. Through an oversampling approach, BHI invited most eligible adult patients identifying as Aboriginal and/or Torres Strait Islander according to the hospital administrative data to participate in the 2022 survey. For these patients, additional questions identified as of high relevance to Aboriginal patients, the Aboriginal community and other relevant stakeholders were included to strengthen the validity of questions assessed for potential inclusion in any performance indices.

In 2022, the survey included 2,612 Aboriginal respondents (12% response rate).

More information about the 2022 AAPS, including a sample questionnaire, a development report and a technical supplement, is available on the BHI website at **www.bhi.nsw.gov.au/BHI_reports/patient_survey_results/adult-admitted-patient-survey-2022**

Exploratory factor and trend analyses

In 2023, BHI conducted exploratory factor analyses on the AAPS 2022 results for 2,612 Aboriginal people, including results of the additional question module, to create indices and assess their internal reliability. These analyses applied a methodology previously used to develop the current patient experience KPIs in NSW public hospitals. More information about the development of KPIs for LHD is available on the BHI website at **www.bhi.nsw.gov.au/__data/assets/pdf_file/0004/749677/MEASUREMENT_MATTERS_Patient_ExperienceKPIs.pdf**

Exploratory factor analysis is a method used to explain observed variability in a set of data in terms of underlying, unobserved factors. It is used to reduce many variables to a simple structure or pattern of results such that each variable (survey question) correlates (loads) highly onto few factors (which in this case represents a domain of experience such as patient engagement, overall experience, cleanliness, etc.).

In other words, it is a way to simplify complex data by grouping related survey questions into key themes that capture what matters most to patients.

This result of this analysis was a list of questions that represent themes about what matters most to Aboriginal patients in relation to their healthcare experiences.

To create indices for each domain, the resultant list of questions was trimmed to exclude questions with more than 15% missing responses, and multiple imputation was used to assign values to missing responses without bias (1). Responses to the selected questions were assigned a score from 0 to 10, according to the scale of the response options for each question.

Main findings

Results of exploratory factor analysis

Factor analyses resulted in four indices that differ from the current patient experience KPIs for the general patient population in NSW. Each demonstrates high internal reliability or consistency (Appendix 1).

- The first domain includes eight questions that relate to patients' experiences of communication and engagement. These cover: whether staff explained things in an understandable way; the extent to which the patient was involved in decision-making; and whether they were treated with kindness and care. The factor correlations (loads) were high, as was the measure of internal consistency (Cronbach's Alpha: 0.92), indicating that the index has very good internal reliability. These questions are related, and together form a reliable index.
- The second domain includes four questions that relate to overall experiences and the organisation of care. These cover patients' overall ratings of their care, and how well organised the care they received in hospital and the admission process was. The factor loads were also reasonably high, as was the measure of internal consistency (Cronbach's Alpha: 0.86). These questions are also related and together form a reliable index.
- The third domain includes three questions that relate to compassion, respect and kindness. These cover questions about being treated with kindness, care and with respect by the health professionals. There is an additional question seeking patients' overall rating of nurses. The factor loads were similar to the second index with good internal consistency (Cronbach's Alpha: 0.84).
- The fourth domain includes one question related to discharge planning and patients' preparedness for discharge.

This demonstrated that the adult admitted patient KPIs in current LHD Service Agreements do not concur with the domains that emerged from analysing data from Aboriginal respondents only. For example, the results of the analyses identified that, for Aboriginal respondents, three of the four survey questions currently included in the Overall patient experience index – adult admitted patients (overall rating of care, whether they would recommend the hospital to friends and family, and rating of the organisation of care) were relevant to overall experience and experience of organisation of care. Furthermore, two of the six survey questions currently included in the Patient engagement index – adult admitted patients (involvement in decision-making and preparedness for discharge) were relevant to two separate indices that emerged for Aboriginal patients.

All four domains contain survey questions currently included in the AAPS and none contain questions included in the Aboriginal patient experience module, which suggests that the module is not needed to support the creation of the above performance indices.

Six monthly trend analyses

BHI conducted analyses to assess the stability of the indices and frequency of reporting using six-monthly data from January to June and July to December in 2019 and 2022. These analyses were used to detect and monitor trends at the LHD level. Aboriginal patient experience survey data for 2019 and 2022 were selected for the trend analysis at the LHD level as Aboriginal patients were census sampled in these years, except for one LHD which was oversampled from 2022 onwards.

When calculating the potential KPI results for adult Aboriginal admitted patients for every six-month period between 2019 and 2022, results for all four proposed KPIs trended down at NSW level. However, there was some volatility in 2020 and 2021, which could be attributed to the small number of respondents in this period. The evidence of declines in Aboriginal patients' experiences provides additional context regarding the potential value of introducing proposed KPIs.

A review of the historical results suggests that robust reporting for Aboriginal experience KPIs is reliable at six-monthly intervals for the majority of LHDs. Aboriginal experience KPIs for smaller LHDs should be interpreted with caution, as the smaller sample sizes could result in high variability and potentially impact their reliability. Implementation of performance indicators is contingent on continued census for smaller LHDs or oversampling of adult admitted Aboriginal patients for larger LHDs to provide enough respondents, and agreement on suitable benchmarks for performance monitoring.

Selecting a potential KPI

BHI analyses developed and tested four indices of Aboriginal patient experience to ensure any resultant KPI demonstrated meaningfulness (i.e. validity), reliability, usefulness for quality improvement (i.e. sensitivity and specificity) and sustainability (i.e. what's required to monitor performance over time).

In making recommendations to the Centre for Aboriginal Health regarding potential KPIs, BHI assessed each of the four identified indices in relation to:

- reliability – in terms of internal consistency, sensitivity and specificity and frequency of reporting
- face validity or meaningfulness – both to patients and to system stakeholders
- usefulness in informing improvement action – such that there is both room for improvement and the KPI would be sensitive in detecting improvement; and
- sustainability – in terms of ongoing data collection and analysis.

BHI's analysis showed that the adult admitted patient KPIs in current Service Agreements do not adequately represent the domains that emerged for Aboriginal patients based on contemporary analyses of the experiences of 2,612 Aboriginal respondents in 2022. Exploratory factor analyses uncovered meaningful experiences among adult admitted Aboriginal patients with high reliability which suggested the four potential indices that represent what Aboriginal patients think about their admitted patient experiences.

From the perspective of NSW Health's **Future Health: 2022–2032** and its aim to improve patient experiences and outcomes, the results of the analyses suggest that the domains related to communication and engagement and overall experience and organisation of care emerged most strongly for consideration for further KPIs for Aboriginal admitted patients.

In terms of sustainability, Aboriginal patients would need to continue to be census sampled (for smaller LHDs) or oversampled (for larger LHDs) to obtain enough respondents for robust, semi-annual reporting for the majority of LHDs and annual reporting for the smallest LHDs. While data from the Aboriginal patient survey module is not necessary to calculate any of the four indices they continue to provide unique information to healthcare services in NSW about how they can improve care for Aboriginal people.

Appendix 1

Results of exploratory factor analysis using Adult Admitted Patient Survey 2022 results for Aboriginal people only

Domains	Questions	Loading factor	Correlation with index	Elevating the Human Experience domain
1: Communication and engagement	Did health professionals explain the results or outcome of your tests, operations or procedures in a way you could understand?	0.67	0.74	Effective communication
	Did the health professionals explain things in a way you could understand?	0.67	0.71	Effective communication
	Did health professionals explain what would happen during your tests, operations or procedures in a way you could understand?	0.66	0.74	Effective communication
	Were you involved, as much as you wanted to be, in decisions about your care and treatment?†	0.66	0.76	Involvement in decision-making
	Did the health professionals listen carefully to any views and concerns you had?	0.64	0.78	Compassion, respect and kindness
	Did you have enough time to discuss your health issue with the health professionals you saw?	0.61	0.72	Effective communication
	Did the health professionals give you the support you needed to help with any worries or fears related to your care and treatment?	0.61	0.78	Compassion, respect and kindness
	When the health professionals spoke about your care in front of you, were you included in the conversation?	0.61	0.70	Effective communication
Cronbach's alpha			0.92	
2: Overall experience and organisation of care	How well organised was the care you received in hospital?*	0.59	0.79	Timely and coordinated care
	How well organised was the admission process?	0.58	0.59	Overall satisfaction and outcomes
	Overall, how would you rate the care you received while in hospital?*	0.52	0.80	Overall satisfaction and outcomes
	If asked about your hospital experience by friends and family how would you respond?*	0.51	0.78	Overall satisfaction and outcomes
Cronbach's alpha			0.86	
3: Compassion, respect and kindness	Were you treated with respect and dignity while in the hospital?	0.56	0.74	Compassion, respect and kindness
	Were the health professionals kind and caring towards you?	0.53	0.72	Compassion, respect and kindness
	Overall, how would you rate the nurses who treated you?	0.52	0.69	Overall satisfaction and outcomes
Cronbach's alpha			0.84	
4: Discharge planning	At the time you were discharged, did you feel that you were well enough to leave hospital?†	0.52		Involvement in decision-making

* Question included in the general adult admitted overall patient experience index
† Question included in the general adult admitted patient engagement index.

References

1. D Shamaida, 'MI for MI, or how to handle missing information with multiple imputation' [conference presentation], Pharmaceutical Users Software Exchange, Virtual conference, 8–11 November 2020, accessed 25 March 2025. Available at **https://www.lexjansen.com/phuse/2020/as/PAP_AS08.pdf**

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About the Bureau of Health Information

The Bureau of Health Information (BHI) is a board-governed organisation that provides independent information about the performance of the NSW healthcare system.

BHI was established in 2009 and supports the accountability of the healthcare system by providing regular and detailed information to the community, government and healthcare professionals. This in turn supports quality improvement by highlighting how well the healthcare system is functioning and where there are opportunities to improve.

BHI manages the NSW Patient Survey Program, gathering information from patients about their experiences and outcomes of care in public hospitals and other healthcare facilities.

BHI publishes a range of reports and information products, including interactive tools, that provide objective, accurate and meaningful information about how the health system is performing.

BHI's work relies on the efforts of a wide range of healthcare, data and policy experts. All of our assessment efforts leverage the work of hospital coders, analysts, technicians and healthcare providers who gather, codify and supply data. Our public reporting of performance information is enabled and enhanced by the infrastructure, expertise and stewardship provided by colleagues from NSW Health and its pillar organisations.

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