Rural Hospital Emergency Care Patient Survey 2019

Technical Supplement

July 2020

bureau of health information

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State Health Publication Number: (BHI) 200149-1

Suggested citation:
Bureau of Health Information. Technical Supplement – Rural Hosptial Emergency Care Patient Survey 2019. Sydney (NSW): BHI; 2020.

Please note there is the potential for minor revisions of data in this report.
Please check the online version at **bhi.nsw.gov.au** for any amendments or errata.

Published July 2020

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NSW Patient Survey Program

The New South Wales (NSW) Patient Survey Program began sampling patients in NSW public health facilities from 2007. Up to 2012, the program was coordinated by the NSW Ministry of Health (Ministry) using questionnaires obtained under license from NRC Picker. Responsibility for the NSW Patient Survey Program was transferred from the Ministry to the Bureau of Health Information (BHI) in mid-2012.

BHI has a contract with Ipsos Public Affairs (Ipsos) to support data collection, while BHI conducts all survey analysis.

The aim of the survey program is to measure and report on patients' experiences in public healthcare facilities in NSW, on behalf of the Ministry and local health districts (LHDs).

This document outlines the sampling methodology, data management and analysis of the results of the Rural Hospital Emergency Care Patient Survey 2019.

For more information on how to interpret results and statistical analysis of differences between facilities and NSW, please refer to the *Guide to Interpreting Differences* on BHI's website at **bhi.nsw.gov.au/nsw_patient_survey_program**

Rural Hospital Emergency Care Patient Survey

In 2019, BHI revised the Small and Rural Emergency Department Patient Survey 2015–16 to ensure that it captures relevant information for the rural LHDs. The name of the survey was subsequently changed to the Rural Hospital Emergency Care Patient Survey 2019 to reflect the change in focus.

For changes in the questionnaire content between the Small and Rural Hospital Emergency Department Patient Survey 2015–16 and the Rural Hospital Emergency Care Patient Survey 2019, please refer to the Development Report on BHI's website.

The inaugural Small and Rural Emergency Department Patient Survey 2015–16 included people who attended hospitals from November 2015 to February 2016. In 2019, this was changed to sample patients who attended hospitals from mid-January to mid-April 2019. This excluded the Christmas and New Year period from survey results as this was deemed to be an non-typical period of emergency care service provision.

Producing survey samples

The survey program assures patients that their responses will be treated in the strictest confidence and no identifying information will be given to the Ministry, the hospital or health service they attended, or their doctor or other health provider. BHI does this through a number of mechanisms, including:

- data suppression (results for fewer than 30 responses are suppressed)
- reporting aggregated results
- anonymisation of patient comments
- segregation of roles when constructing the survey samples.

The sampling method for the survey program is a collaboration between BHI, Ipsos and the NSW Ministry of Health's Systems Information and Analytics (SIA) branch (see Figure 1). The Health Information Exchange (HIE) is the main source of data for the sampling frame.

BHI has access to de-identified unit record hospital data from selected tables of the HIE database. Use of an encrypted patient number allows deduplication of patients within a hospital. For the Rural Hospital Emergency Care Patient Survey 2019, sampling frames are downloaded on a monthly basis, with the date at discharge used to define eligible records. Sample sizes for each included hospital are calculated in advance, as explained later in this report.

Figure 1 Organisational responsibilities in sampling and survey processing, Rural Hospital Emergency Care Patient Survey 2019

BHI	• Determines inclusion and exclusion rules in association with stakeholders. • Develops sampling strategy including strata and included facilities based on requests from stakeholders and availability of data in the database for sampling (HIE in the case of admitted patient surveys). • Calculates target sample sizes by strata within facilities and provides to SIA. • Extracts monthly data from HIE, creates interim sampling frame following phase 1 screening and sends via secure file transfer to SIA.
SIA	• Adds names and addresses to interim sampling frame. • Applies phase 2 cleaning and exclusions. • Generates samples based on sampling targets provided by BHI. • Provides mailing list via secure file transfer to Ipsos.
Ipsos	• Administers the survey fieldwork, collates and cleans results. • Removes all identifying information (names, addresses) then provides data file of results to BHI for analysis via secure file transfer.

Inclusion criteria

Phase 1 screening

Rural Hospital Emergency Care Patient Survey data passed through two phases of cleaning. BHI conducted phase 1 screening. Many of these criteria were developed in conjuction with advice of stakeholders.

Inclusions

- Patients who visited an emergency department in a NSW public hospital with a peer group classification:
  - D1a: Community with surgery
  - D1b: Community without surgery
  - D2: Community non-acute
  - F3: Multi-purpose service.

Exclusions

- Patients who were dead on arrival or died in ED (mode of separation of eight and three respectively) were excluded from the sample.
- All unqualified babies (babies born without complication and in hospital for birth).

A series of further exclusion criteria were applied to take into account a range of factors including: the potentially high vulnerability of particular patient groups and/or patients with particularly sensitive reasons for admission; certain patients' ability to answer questions about their experiences; and the relevance of the survey questions to particular patient groups.

The effectiveness of this screening is reduced for the Rural Hospital Emergency Care Patient Survey compared to the Adult Admitted Patient Survey (AAPS) due to variables in the dataset. For example, the Rural Hospital Emergency Care Patient Survey dataset does not contain robust diagnosis (ICD-10-AM) information that allows these exclusions. Because of this, further screening to exclude sensitive groups can only be done for patients subsequently admitted to hospital. Therefore, patients subsequently admitted to hospital (mode of separation of 1,10,11,12 or 13) with the following procedures or diagnoses recorded for their inpatient stay were omitted:

- admitted for a termination of pregnancy procedure [35643-03]
- treated for maltreatment syndromes [T74] in any diagnosis field, including neglect or abandonment, physical abuse, sexual abuse, psychological abuse, other maltreatment syndromes or 'unspecified'
- treated for contraceptive management [Z30] in any diagnosis field, including general counselling and advice on contraception, surveillance of contraceptive drugs, surveillance of contraceptive device, other contraceptive management, or 'unspecified'
- diagnosis of stillborn baby [Z37] in any diagnosis field (including single stillbirth, twins (one liveborn and one stillborn), twins (both stillborn) and other multiple births (some liveborn)) were excluded
- mode of separation of death for a subsequent admission to hospital
- intentional self-harm: ICD10 code between X60 and X84
- sequelae of intentional self-harm: ICD10 code = Y87.0
- unspecified event, undetermined intent: ICD10 code commences with Y34
- suicidal ideation: ICD10 code = R45.81
- family history of other mental and behavioural disorders: ICD10 code commences with Z81.8
- personal history of self-harm: ICD10 code commences with Z91.5.

Where patients had multiple visits within the sampling month, their most recent ED visit was retained for sampling. The questionnaire instructed the patient to respond to the survey based on their most recent ED visit in a particular month.

Phase 2 screening

BHI provided the interim sampling frame to SIA, which added patient name and address information. Data then underwent a second phase of screening. This resulted in exclusions for administrative/logistical reasons, or where death had been recorded after discharge, but before the final sampling frame was prepared.

Exclusions

Patients meeting the following exclusion criteria were removed in this phase:

- Invalid address (including those with addresses listed as hotels, motels, nursing homes, community services, Mathew Talbot Hostel, 100 William Street, army quarters, jails, unknown)
- Invalid name (including twin, baby of)
- Invalid date of birth
- On the 'do not contact' list
- Sampled in the previous six months for any BHI patient survey currently underway
- Recorded as deceased according to the NSW Registry of Birth Deaths and Marriages and/or Agency Performance and Data Collection, prior to the sample being provided to Ipsos.

The data following these exclusions were defined by BHI as the final sampling frame.

Drawing the sample

Survey design

A stratified sample design was applied, with each facility defined as a stratum.

Sample sizes were calculated at the facility level. Simple random sampling without replacement was applied within each facility.

Calculation of sample sizes and reporting frequency

For the Rural Hospital Emergency Care Patient Survey 2019, the sample was collected for patients who attended a service for emergency care from January to April 2019. Monthly sample sizes were determined prior to the commencement of the survey year. These calculations were based on data extracted from the HIE for the previous 12-month period, using the inclusion and exclusion criteria described in Phase 1 screening.

The facilities were sampled to allow for quarterly reporting.

The following equation was used to estimate the sample size at the facility level:

$$s_i = \frac{\chi^2 N_i P(1-P)}{d^2(N_i-1)+\chi^2 P(1-P)} \times \mathrm{R}_i$$

Where:

s_i = desired sample size for reporting based on sampling for 12 months, for facility i

χ^2 = tabulated value of chi-squared with one degree of freedom at 5% level of significance (3.841)

N_i = patient population of facility i during the previous year

P = expected proportion giving positive response to the question on satisfaction with overall care (0.8), based on previous levels of response to patient surveys

d = degree of accuracy of the 95% confidence interval expressed as a proportion (±0.07)

R_i = number of reporting periods per year for facility i.

Sample sizes were adjusted to account for expected response rates to ensure a sufficient number of patients participated from each hospital. For this survey, the expected response rate was 28% for all age groups.

Monthly survey targets were provided to SIA after dividing the adjusted sample size evenly by 12, and applying a minimum monthly sample size of at least four to each sampling stratum. For each month of sampling, SIA randomly seleced patients within each hospital and stratum, with the aim of achieving the targets provided by BHI.

Data collection and analysis

Data collection

Respondents were asked to return (for paper questionnaire) or submit (for electronic questionnaire) their completed questionnaire to Ipsos. Paper questionnaires were scanned for fixed response options and manually entered in the case of free text fields.. All text entry fields were checked for potential identifiers (e.g. names of patients and doctors, telephone numbers) and any that were found were replaced with 'XXXX'.

Following this, each record was checked for any completion errors. Reasonable adjustments were made, such as removing responses where the respondent did not correctly follow the instructions or where the respondent provided multiple answers to a single response question.

At the end of this process, Ipsos transferred data securely to BHI's password-protected servers..

The process of data collection ensures that neither the survey vendor or BHI have access to names and contact details, in tandem with survey responses, to ensure confidentiality of respondents. This process also ensures that, in the context of BHI's reporting function, identifying information can never be reported to LHDs or publicly released.

Data analysis

For the Rural Hospital Emergency Care Patient Survey 2019, there were 23,314 questionnaires mailed and 6,156 responses.

Completeness of questionnaires

Survey completeness is a measure of how many questions each respondent answered as a proportion of all questions in the questionnaire. The completeness of responses was high overall, with respondents answering, on average, 67 of the 90 non-text questions.

Response rate

For this survey, patients were sampled in proportion to the patient mix. No stratified sampling within the hospitals was performed. Response rate is calculated as the number of eligible responses divided by the number of eligible mailed surveys. The overall response rate was 26%, ranging from 15% to 33% at the LHD level (Table 1) and from 6% to 40% at the hospital level (Table 2).

Weighting of data

Survey responses were weighted to optimise the degree to which results were representative of the experiences and outcomes of the overall patient population. At the LHD and NSW level, weights also ensured that the different sampling proportions used at the facility level were accounted for, so LHD results were not unduly influenced by small hospitals that had larger sampling proportions.

For each reporting period, responses were weighted to match the population by stay type (same day or overnight) and age group within each hospital.

A weight was calculated for respondents in each stratum (facility) using the following equation:

$$w_i = \frac{N_i}{n_i}$$

where:

N_i = total number of patients eligible for the survey in the i^{th} stratum

n_i = number of respondents in the i^{th} stratum.

Assessment of weights

Weights were assessed to ensure that undue emphasis was not applied to individual responses. The ratio of the maximum to median weight at the facility level was reviewed. For this survey, this ranged from 2.3 to 3.8.

The design effect (DEFF) estimates the increase in variance of estimates due to the complex sample design over that of a simple random sample. It is estimated as (1+coefficient of variance [weights] by the power of 2). As there was no stratified sampling at the hospital level, the DEFF for all hospitals in this survey was equal to 1.

A DEFF of two indicates that the variance of estimates will be double the sample variance that would have been obtained if simple random sampling had been done. Generally speaking, LHDs with the largest DEFFs are those that have the greatest range in patient volumes across the facilities within the LHD. The standard errors at the LHD level are fairly small because of the sample sizes at that level. Therefore the increase in standard errors caused by the survey design (and leading to a larger DEFF at LHD level) is more than offset by the fact that each facility that is sampled has sufficient sample size to allow facility-level reporting. In addition, the estimates at the LHD level have appropriate distribution of respondents between large and small facilities.

Table 1 Number of surveys mailed, respondents and response rates by LHD, Rural Hospital Emergency Care Patient Survey, January to April 2019

Local Health District	Surveys mailed	Survey respondents	Response rate (%)	DEFF
Far West	304	47	15	1.3
Hunter New England	5,425	1,548	29	1.3
Murrumbidgee	6,461	1,790	28	1.1
Mid North Coast	832	272	33	1.0
Northern NSW	914	244	27	1.0
Southern NSW	2,129	703	33	1.1
Western NSW	7,249	1,552	21	1.2
NSW	23,314	6,156	26	1.2

Table 2 Number of surveys mailed, respondents and response rates by hospital, Rural Hospital Emergency Care Patient Survey, January to April 2019

Facility	Surveys mailed	Survey respondents	Response rate (%)
Balranald Multi-Purpose Service	169	37	22
Wilcannia Multi-Purpose Service	135	10	7
Barraba Multi-Purpose Service	268	85	32
Glen Innes Hospital	547	148	27
Guyra Multi-Purpose Service	346	79	23
Manilla Hospital	399	119	30
Tenterfield Hospital	447	141	32
Quirindi Hospital	529	128	24
Walcha Multi-Purpose Service	220	65	30
Warialda Multi-Purpose Service	166	48	29
Wee Waa Hospital	269	44	16
Gloucester Soldiers Memorial Hospital	470	158	34
Dungog Hospital	344	122	35
Scott Memorial Hospital – Scone	549	141	26
Wilson Memorial Hospital – Murrurundi	279	86	31
Tomaree Hospital	592	184	31
Lake Cargelligo Multipurpose Health Service	191	42	22
West Wyalong Health Service	385	110	29
Barham-Koondrook Soldiers Memorial Hospital	235	65	28
Corowa Health Service	564	187	33
Finley Hospital	318	110	35
Tocumwal Hospital	222	61	27
Tumbarumba Multi-Purpose Service	209	61	29
Boorowa Multi-Purpose Service	168	57	34
Murrumburrah-Harden District Hospital	213	80	38
Gundagai District Hospital	295	71	24
Hay Health Service	321	66	21
Hillston Multi-Purpose Service	185	54	29
Junee Multi-Purpose Service	229	44	19
Coolamon-Ganmain Hospital	294	93	32
Leeton Health Service	564	132	23
Narrandera District Hospital	469	114	24
Temora District Hospital	498	149	30
Tumut Health Service	553	136	25

Facility	Surveys mailed	Survey respondents	Response rate (%)
Cootamundra District Hospital	548	158	29
Bellinger River District Hospital	546	171	31
Dorrigo Health Campus	286	101	35
Kyogle Memorial Hospital	552	148	27
Nimbin Multi-Purpose Centre	362	96	27
Bombala Hospital	241	56	23
Braidwood Multi-Purpose Health Service	254	88	35
Crookwell District Hospital	542	205	38
Pambula District Hospital	532	191	36
Yass District Hospital	560	163	29
Bourke Multi-Purpose Service	381	44	12
Brewarrina Multi-Purpose Service	141	8	6
Cobar Health Service	521	84	16
Coonabarabran Health Service	538	147	27
Coonamble Multi-Purpose Service	420	62	15
Gilgandra Multi-Purpose Service	426	107	25
Gulgong Multi-Purpose Service	355	100	28
Narromine Health Service	354	85	24
Nyngan Health Service	283	44	16
Walgett Multi-Purpose Service	305	32	10
Warren Multi-Purpose Service	261	49	19
Wellington Health Service	548	99	18
Lightning Ridge Multi-Purpose Service	319	69	22
Blayney Multi-Purpose Service	185	45	24
Canowindra Soldiers Memorial Hospital	279	72	26
Condobolin Health Service	338	58	17
Grenfell Multi-Purpose Service	184	74	40
Molong Multi-Purpose Service	188	59	31
Oberon Multi-Purpose Service	379	92	24
Lachlan Health Service – Parkes	583	135	23
Rylstone Multi-Purpose Service	261	87	33
NSW	23,314	6,156	26

Comparing weighted and unweighted patient characteristics

One of the aims of sample weights is to ensure that, after weighting, the characteristics of the respondents closely reflect the characteristics of the patient population.

Table 3 shows the demographic characteristics of respondents against the patient population. The four columns denote:

1. percentage of patient population – the patient population prior to the phase 2 screening process
2. percentage of eligible population – the final sampling frame from which the sample is drawn. Limited demographic variables are available at this level
3. percentage of respondents – respondents to the survey, not adjusted for unequal sampling
4. percentage of respondents (weighted) – respondents to the survey, adjusted by weighting to be representative of the patient population.

Table 3 Demographic characteristics of patient population and respondents, Rural Hospital Emergency Care Patient Survey, January to April 2019

Demographic variable	Sub-group	% in patient population	% in eligible population	% in respondents (unweighted)	% in respondents (weighted)
LHD	Far West	1	1	1	1
	Hunter New England	25	26	25	26
	Mid North Coast	4	4	4	4
	Murrumbidgee	26	27	29	27
	Northern NSW	4	4	4	4
	Southern NSW	9	10	11	10
	Western NSW	31	29	25	29
Peer group	D	66	67	63	67
	F3	34	33	37	33
Age stratum	0–17 years	23	-	13	14
	18–49 years	34	-	13	13
	50+ years	42	-	74	74
Departure status	Admitted	10	-	14	14
	Non-admitted	90	-	86	86
Aboriginal status	Not Aboriginal	86	-	97	97
	Aboriginal and/or Torres Strait Islander	14	-	3	3
Sex	Male	51	-	49	49
	Female	49	-	51	51

Reporting

Confidentiality and suppression rules

BHI does not receive any confidential patient information and only publishes aggregated data and statistics. Any question must include a minimum of 30 respondents at reporting level (hospital or LHD or NSW) for it to be reported to ensure there are enough respondents for reliable estimates to be calculated. This also ensures that patient confidentiality and privacy are protected.

For suppression at the hospital or LHD level, if the number of respondents was less than 30, results for that entity were suppressed. If the number of respondents was over 100 but with less than a 25% response rate, results are publicly released accompanied by an 'interpret with caution' note.

For questions asking about complications (i.e. experienced an infection, uncontrolled bleeding, a negative reaction to medication, complications as a result of surgery), the results are reported at NSW level because of low prevalence at the hospital and LHD level. However, the combined complication prevalence (i.e. had any complication) is reported at all levels.

Statistical analysis

Data were analysed for the period January to April 2019 combined, as well as by quarter. Analysis was undertaken in SAS V9.4 using the SURVEYFREQ procedure, with facility as stratum. Results were obtained for each individual survey question, and also aggregated across surveys where questions were considered sufficiently similar. Results were weighted for all questions, with the exception of questions related to socio-demographic characteristics and self-reported health status.

The result (percentage) for each response option in the questionnaire was determined using the following method:

Numerator – the (weighted) number of survey respondents who selected a specific response option to a certain question, minus exclusions.

Denominator – the (weighted) number of survey respondents who selected any of the response options to a certain question, minus exclusions.

Calculation – the numerator/denominator x 100.

Unless otherwise specified, missing responses and those who responded 'don't know/can't remember' to questions were excluded from analysis. The exception is for 'don't know/can't remember' responses for questions that ask about a third party (e.g. if family had enough opportunity to talk to a doctor) or when the percentage responding with this option was greater than 10%.

When reporting on questions used to filter respondents through the questionnaire rather than asking about hospital performance, the 'don't know/can't remember' option and missing responses were also reported. Appendix 1 presents the rates of missing or 'don't know' responses.

In some cases, the results from several responses were combined to form a 'derived measure'. For information about how these measures were developed, please see Appendix 2.

Interpret with caution

All sample surveys are subject to sampling error (i.e. the difference between results based on surveying a selection of respondents, and the results if all people who received care were surveyed). The true result is expected to fall within the 95% confidence interval 19 times out of 20.

Where the confidence interval was wider than 20 percentage points, results are noted with a '*' to indicate 'interpret with caution'. In addition, percentages of 0 or 100, which do not have confidence intervals, are also noted as 'interpret with caution' where the number of respondents is less than 200.

Results should be interpreted with caution if the response rate is lower than 25%. The survey sample was not stratified within hospitals, so those hospitals with lower response rates are less likely to have reasonable representation of the hospitalised population. For the Rural Hospital Emergency Care Patient Survey 2019, there were 26 hospitals with a response rate lower than 25%.

Reporting by population group

Results were reported for the following groups, levels and at the indicated reporting frequency outlined in Table 4.

Table 4 Levels of reporting, Rural Hospital Emergency Care Patient Survey, January to April 2019

Grouping	Reporting frequency	NSW	Peer group	LHD
All patients	January to April 2019	✓	✓	✓
Age group: self-reported – administrative data used where question on year of birth was missing or invalid		✓	✓	✓
Sex: self-reported – administrative data used where question on sex was missing or invalid		✓	✓	✓
Main language spoken at home		✓	✓	✓
Education level		✓	✓	✓
Longstanding health condition		✓	✓	✓
Self-reported health status		✓	✓	✓
Aboriginality		✓	✓	✓
Stay type: admitted or non-admitted		✓	✓	✓
Triage category		✓	✓	✓
Quintile of disadvantage: : based on the Australian Bureau of Statistics' Index of Relative Socio-demographic Disadvantage		✓	✓	✓
Country of birth: from administrative data		✓	✓	✓
Rurality of patient residence: based on ARIA+* category of postcode of respondent residence – outer regional, remote and very remote combined		✓	✓	✓

* Accessibility/Remoteness Index of Australia is the standard Australian Bureau of Statistics measure of remoteness. For more information refer to **abs.gov.au/websitedbs/d3310114.nsf/home/remoteness+structure**

Standardised comparisons

Previously, BHI's approach to comparisons between hospitals and NSW-level results in BHI reports relied on a basic method (overlapping confidence intervals) to determine if the experiences reported for each hospital differed significantly from the NSW result. While this method is commonly used to highlight differences in survey results, it cannot take into account differences in the mix of patient characteristics across hospitals.

To enable fairer comparisons across hospitals and as part of the implementation of standardised comparisons, BHI reporting now takes the mix of patient characteristics at each hospital (including age, sex, education level, and language) into account. Therefore, when a hospital is flagged as having a significantly higher or lower result than NSW, this reflects differences in patient experiences rather than differences that can be explained by the mix of characteristics among a hospital's patients.

The difference between the former and new methods might not be entirely due to adjustment for patient characteristics. The difference could also be partly due to the different method used for identifying the outliers (i.e. overlapping confidence intervals vs. significant testing).

Methodology

For performance-related survey questions, the percentage of respondents who selected the most positive response category was compared between each hospital and NSW. For example, one question asked patients: Were you given enough privacy when being examined or treated? It had the following response options:

- Yes, always
- Yes, sometimes
- No.

In this case, the most positive response is 'Yes, always' (i.e. the event), and the other two responses are grouped together for the analyses (i.e. the reference group).

Logistic regression mixed models were used for all analyses, with hospitals as random intercept terms. Patient characteristics were fixed covariates in the model.

The general formula for the logistic mixed model is:

$$g\big(E(Y_i)\big) = \boldsymbol{\beta X_i} + b_i Z_i$$
$$b_i \sim N(0; D)$$

where:

- the link function $g(\cdot)$ is the logistic function $g(\pi_{ij}) = \log\left(\frac{\pi_{ij}}{1-\pi_{ij}}\right)$
- $\boldsymbol{X_i}$ is the design matrix for fixed effect covariates
- $\boldsymbol{\beta}$ is the vector containing estimates for fixed effect covariates
- Z_i is the design matrix for random effects, i=1 to number of hospitals
- b_i is the vector of random intercepts (hospitals), i=1 to number of hospitals.

Covariate selection

Differences in patient experiences between groups may reflect differences in experiences of care. However, they may also reflect differences in expectations or the way various groups tend to respond to surveys. To enable fairer comparisons across hospitals, the enhanced reporting method considers which patient characteristics may be consistently associated with more positive or less positive reported experiences.

Information regarding rurality of patients and socioeconomic status (SES) were also considered as they may relate to response tendency. However, BHI chose not to include factors such as rurality or SES as these factors may reflect differences in care. Instead, analyses of results by these patient groups are presented in BHI's interactive data portal, Healthcare Observer, to allow hospitals to see which patient groups reported more or less positive experiences of care. A list of all patient characteristics considered for inclusion in the model for standardised comparisons and how they were sourced is included in Table 5.

Information on patient health status such as self-reported overall health or mental health status could also influence both experiences of care and responding tendency, but were not considered for inclusion in the model. Currently BHI only standardises comparisons for experience of care questions by adjusting patient, not clinical or health, characteristics.

For age and sex, missing values were filled in using administrative data. Following this, there was no missing data for age and sex. Missing data for other patient characteristics were included in all analyses as an extra category in the model. Missing data in performance-related questions were excluded from all analyses.

Table 5 Patient characteristics considered for adjustment

Variable	Source	Categories
Age	Survey question, or using administrative data if missing	0–17, 18–34, 35–54, 55–74, 75+
Sex	Survey question, or using administrative data if missing	Female, Male
Education level	Survey question	Completed year 12, trade/technical certificate/diploma, university degree, postgraduate degree, missing
Language mainly spoken at home	Survey question	English, other than English, missing

Table 6 presents a list of covariates considered for adjustment by selection stage and survey. These patient characteristics were then passed through two selection stages, as follows:

1. Univariate models were fitted for each patient characteristic (covariate) for all performance-related questions in the survey. Covariates with $p<0.1$ in the univariate models for at least 50% of the questions were considered for inclusion in the multivariate model.

2. Multivariate logistic mixed models were fitted across all performance-related questions in the survey using the covariates selected from stage one, with age and sex included in all models. Forward stepwise modelling was used based on the equation above, including age, sex and all additional covariates added appropriately following a forward stepwise approach. Selected interaction terms were also tested.

Within each outcome (i.e. performance-related survey question) the models were ranked by the Akaike Information Criterion (AIC) – the model with the smallest AIC value was assigned the highest rank of 1. The AIC was recommended as an appropriate method for selecting models where different fixed effects are included as it applies a penalty for the number of covariates in order to protect against model overfitting.[1]

The following values were obtained:

- number of questions for which the model was ranked first
- mean rank across all questions
- mean AIC value across all questions.

These values were used to identify the optimal model to create adjusted comparisons for the survey results, with each survey from the NSW Patient Survey Program assessed independently. That is, the optimal model had a high count of 1st ranking, a low mean rank, and a low mean AIC relative to other models, across all performance-related questions in the survey.

Finally, we excluded covariates that marginally improved the model by comparing the models' AIC values, to define a parsimonious number of patient-related covariates to use in standardised comparisons. Covariates that were not part of patient characteristics (e.g. whether patients were staying overnight or had same-day admission) were not included in the testing. This is because standardised comparisons are intended to control for differences in patient characteristics only, and some of these factors were considered to be under the control of hospital management rather than patients.

Age and sex were chosen for adjustment for the comparison model.

Table 6 Covariates considered for adjustment for comparisons at each selection stage, Rural Hospital Emergency Care Survey 2019

	Available for adjustment	Passed univariate model selection threshold (stage 1)	Passed multivariate model selection threshold (stage 2)	After consultation with expert panel and confirmed by sensitivity analyses
Age	✓	✓	✓	✓
Sex	✓	✓	✓	✓
Education	✓	✓	✓	
Language spoken at home	✓	✓		

Model-based comparisons

The model calculates an estimate for each hospital's random intercept, and produces a p-value to indicate how likely these estimates are different from the average, or NSW value.

The exponential values of the estimated hospital random intercepts based on the random intercept logistic regression model can be used to estimate the odds of a positive experience (e.g. 'very good' for overall care question) for the hospital with reference to an 'average' hospital. The p-value for each hospital intercept estimate was used to determine if the hospital was significantly different from NSW, when adjusted for patient characteristics, using the following guidelines:

- If the p-value was less than the significance level (0.01) and the solution for the hospital random intercept was greater than 0, the hospital was flagged as having a more positive result than NSW.
- If the p-value was less than the significance level and the random effect solution was less than 0, the hospital was flagged as having a less positive result than NSW.
- If the p-value was greater than the significance level, the hospital was flagged grey as not significantly different to NSW.
- If a result has been flagged as 'interpret with caution', comparisons are not highlighted due to the lack of precision in the result.

When making multiple comparisons there is an increased likelihood of flagging a difference that is not 'real', but due to chance. To mitigate this issue, a p-value of 0.01 was used to reduce the likelihood of identifying differences due to chance to one comparison in 100 (from one in 20, with the more commonly used p-value of 0.05). Sampling weights were used in all models to ensure the comparisons were representative of the NSW patient population.

Statistical software

SAS software version 9.4 was used for all statistical analyses. PROC GLIMMIX procedure was used for performing logistic mixed models.

Sensitivity analyses

For this survey, education level was identified as a statistically significant predictor of selecting the 'event' for questions in the survey (Table 6, Stage 2). An expert panel convened by BHI assessed the explanatory power of an three covariate model to a two-covariate model.

Both the three-covariate model and a two-covariate model with age and sex were fit for all performance-related survey questions in the Small Hospital Emergency Care Survey 2015–16 data. Comparison of statistical significance of these survey questions for each hospital revealed minimal difference in average AIC between the two models (average AIC=3490 vs. 3492 for full vs. reduced model), and two models resulted in similar outlier status for hospitals. Therefore, the reduced two-covariate model with age and sex was be adopted and used for standardised comparisons for the Rural Hospital Emergency Care Patient Survey 2019.

Methods for identifying key themes in patient comments

At the end of the Rural Hospital Emergency Care Patient Survey 2019 questionnaire, patients were asked *'What was the best part of the care you received while in the ED?'* And *'What most needs improving about the care you received in the ED?'*

Of the 6,156 respondents to the survey:

- 4,421 (72%) provided some comments to at least one of these questions
- 4,212 (68%) gave a comment about 'what was the best part of care'
- 3,395 (55%) gave a comment about 'what most needs improving'.

Sampling of comments

To describe 'themes' provided in these comments, BHI took a representative sample of 15% of the 4,421 respondents who provided any comments. These 662 records were sampled by LHD, age and admission status to ensure good representation of the comments provided.

Table 7 Characteristics of all respondents who provided comments and the sample selected

	All respondents		15% sample	
	Number	Percentage	Number	Percentage
Far West	36	1	5	1
Hunter New England	1,089	25	163	25
Murrumbidgee	1,280	29	192	29
Mid North Coast	208	5	31	5
Northern NSW	185	4	29	4
Southern NSW	523	12	77	12
Western NSW	1,100	25	165	25
Age				
0–17 years	550	12	81	12
18–49 years	543	12	81	12
50+ years	3,328	75	500	76
Sex				
Male	2,125	48	309	47
Female	2,296	52	353	53
Admitted Emergency	620	14	92	14
Non-admitted Emergency	3,801	86	570	86
Triage category				
1	14	0	-	-
2	458	10	68	10
3	1,106	25	175	26
4	1,603	36	244	37
5	1,235	28	175	26

Data entry and coding

For surveys returned by mail, a third party vendor (Ipsos) manually enters the free text comments. Any identifying information (incluing patient, staff and ward names) were removed at this time.

A thematic analysis was conducted by three independent researchers, using the coding frame developed by Ipsos, with some minor revisions.

An initial set of comments were coded together to ensure consistency. Researchers then coded a set of comments individually, coming together as a group to discuss longer comments or comments with uncertainty in regards to the appropriate coding category.

Comments were coded into 10 categories. For the most common category for each free text question, a more detailed coding was done to identify sub-themes.

Table 8 Categories and sub-themes by free-text question

	Q91. Best part of care	Q92. What could improve
Categories	**Themes within each category**	**Themes within each category**
Timeliness	Prompt attention, diagnosis, efficient	Inefficiency, long waits
Staff aspects – interpersonal	Friendly, kind, compassionate, reassuring, staffed with local people, wonderful, outstanding staff	Uncaring, did not show respect, difficult to understand
Staff aspects – professional	Professionalism, skill shown, attentive, monitored frequently, team work	Lack of staff, staff appear overworked, lack knowledge or skill, not attentive
Treatment and care	Pain management, treatment needs addressed, involved in care, provided with diagnosis, quality of care	Improve pain management, inadequate treatment, poor health outcome
Facilities	Small local hospital, clean, quiet comfortable	Unclean, no privacy, uncomfortable, bring back services
Catering	Food, beverages	No food or drink provided, could have been better
Communication	Kept informed, listened to, clear explanations given, able to ask questions	Not enough, poor quality, did not listen to personal view, questions not answered, poor communication between staff
Administration	Going home, follow up care plan, access to care, free healthcare, transferred for future treatment	Issues with transport, not ready for discharge, need more follow up
Overall experience	Nothing needs improving/everything was good	Everything needs improving
Other	General comments about survey or topic not elsewhere listed, 'N/A'	General comments about survey or topic not elsewhere listed, 'N/A'
Positive/negative – recoded	No best part of care, nothing was good	Nothing needed improving, everything was great

A comment could contain more than one category or sub-theme. For example:

"The kind people and the very quick service. Also the medical advice was correct and helped benefit my infection/irritation."

This comment about the best part of care was classified as: Staff aspects – interpersonal; timeliness; and treatment and care.

The number of times a category and sub-theme was coded for the comments was then calculated to produce the most common cateogory and sub-theme for each question.

Recoded comments

Some comments require additional coding to ensure that the patient's experiences during their ED visit were captured as completely as possible. These comments can mostly be described using four different scenarios.

In Scenario 1, patients provided negative comments about their care in response to Q91: 'What was the best part of the care you received while in the ED". For example, some patients wrote 'There was no best part of care' or 'nothing was good, not happy with care'.

In Scenario 2, patients provided positive comments about their care in response to Q92: 'What most needs improving about the care you received while in this ED?' For example, some patients wrote 'nothing needs improving' or 'no improvements needed, care was excellent'.

In both these scenarios, comments were given the classification of 'negative sentiment – recoded' for Q91 or 'positive sentiment – recoded' for Q92. This means the comment was better placed as a response to the other free-text question. Once a comment was classified as 'negative sentiment – recoded' or 'positive sentiment – recoded', it was treated as equivalent to a response to the other free-text question and then coded using that question's coding frame, as illustrated in Figure 2.

Figure 2 Decision rules to recode positive or negative comments where they were in the wrong free-text field

	Provided positive sentiment	Provided negative sentiment
Q91: What was the best part of care	True, positive comment	Recoded to Q92
Q92: What most needs improving	Recoded to Q91	True, negative comment

For example, in Scenario 1, the comment 'there was no best part of care' was classified within the Q91 'What was the best part of care' coding frame as 'negative sentiment – recoded'. It was then coded using the Q92 'What most needs improving' frame and contributed to the results for this question. The comment 'there was no best part of care' best fit into the Q92 category of 'Overall experience'. This means that it is treated the same way as comments like 'everything needs improving'.

There were 27 respondent comments to Q91 'What was the best part of care' that were classified as 'negative sentiment – recoded' and re-assigned to Q92 (see third column in Figure 2).

In Scenario 2, the comment of 'nothing needs improving' was classified within the Q92 'What most needs improving' coding frame as 'positive sentiment – recoded'. It was then coded using the Q91 'What was the best part of care' frame and contributed to results for this question. The comment 'nothing needs improving' best fit into the Q91 category of 'Overall experience'. This means that it is treated the same as comments like 'everything was great'.

There were 242 respondent comments to Q92 'What most needs improving' that were classified as 'positive sentiment – recoded' that were re-assigned to Q91 (see second column in Figure 2).

Furthermore, a comment can be classified into multiple categories as it contains a number of different ideas.

In Scenario 3, patients provided a comment that contained both a positive statement and a negative statement.

For Q91 'What was the best part of care', for example, a patient wrote: 'The staff were professional and friendly but overworked and underpaid'. This comment was classified using the Q91 coding frame as 'staff aspects – interpersonal', 'staff aspects – professional' and 'negative sentiment - recoded'. The comment was then also coded using the Q92 coding frame as 'staff aspects - professional'.

In response to Q92 'What needs improving', for example, a patient wrote: 'The care is good though the facilities could use some refurbishment'. This comment was classified using the Q92 coding frame as 'facilities' and 'positive sentiment – recoded'. The comment was then also coded using the Q91 coding frame as 'Overall experience'.

In all of the above three scenarios, if the comment contributed to the most common category for either Q91 or Q92, it then underwent detailed sub-theme coding. For example, in Scenario 3, the comment 'The staff were professional and friendly but overworked and underpaid' contributed to the most common category for Q91: 'staff – interpersonal'. As such, it was then coded into the sub-theme of 'friendly, professional, polite'. The comment also contributed to the most common category for Q92: 'staff – professional'. As such, it was then coded into the sub-theme of 'Staff not to be overworked / over tasked / not so busy / overtired'.

Blank responses, that is, where a patient provided a response to one free-text question but not the other, were excluded from the totals.

Appendix 1

Unweighted percentage of missing and 'Don't know' responses

Table 9 Percentage of 'Don't know' and/or missing responses by question, Rural Hospital Emergency Care Patient Survey, January to April 2019

Question number	Question text	Missing %	Don't know %	Missing + Don't know %*
1	What was your main form of transport to the ED?	2.9		2.9
2	Was there a problem in finding a parking place near the ED?	0.9		0.9
3	Was the signposting directing you to the ED of the hospital easy to follow?	2.7		2.7
4	Overall, did the ambulance crew treat you with respect and dignity?	1.4	0.8	2.2
5	How would you rate how the ambulance crew and ED staff worked together?	1.6	1.2	2.8
6	Overall, how would you rate the care you received from the ambulance service?	1.5	0.6	2.1
7	Were the ED staff you met on your arrival polite and courteous?	2.1	1.1	3.2
8	Did the ED staff who met you on arrival give you enough information about what to expect during your visit?	2.7	3.8	6.5
9	Did the ED staff you met on arrival tell you how long you would have to wait for treatment?	3.1	6.1	9.2
10	Was the waiting time given to you by the ED staff you met on arrival about right?	2.9	2.6	5.5
11	Did you experience any of the following issues when in the waiting area?	7.4		7.4
12	From the time you first arrived at the ED, how long did you wait before being triaged by a nurse – that is, before an initial assessment of your condition was made?	3.7	3.7	7.4
13	Did you stay until you received treatment?	4.3		4.3
14	Why did you leave the ED before receiving treatment?	6.3	3.1	9.4
15	After triage (initial assessment), how long did you wait before being treated by an ED doctor or nurse?	4.6	4.5	9.0
16	While you were waiting to be treated, did ED staff check on your condition?	0.9	3.6	4.4
17	While you were waiting to be treated, did your symptoms or condition get worse?	2.3	4.5	6.8
18	Did you have enough time to discuss your health or medical problem with doctors?	1.9	2.2	4.1
19	Did you have confidence and trust in the doctors treating you?	1.6		1.6
20	Were the doctors polite and courteous?	1.6		1.6
21	Overall, how would you rate the doctors who treated you?	2.6		2.6
22	In your opinion, did the ED nurses who treated you know enough about your care and treatment?	0.8	1.1	1.9
23	Did you have confidence and trust in the ED nurses treating you?	0.8		0.8
24	Were the ED nurses polite and courteous?	0.9		0.9
25	Overall, how would you rate the ED nurses who treated you?	0.8		0.8
26	Did the ED health professionals introduce themselves to you?	1.8	4.5	6.2
27	Did the ED health professionals explain things in a way you could understand?	1.2		1.2

Question number	Question text	Missing %	Don't know %	Missing + Don't know %*
28	How much information about your condition or treatment was given to you by ED health professionals?	1.5		1.5
29	Were you involved, as much as you wanted to be, in decisions about your care and treatment?	1.2		1.2
30	If your family members, carer or someone else close to you wanted to talk to the ED staff, did they get the opportunity to do so?	1.6	2.2	3.7
31	How much information about your condition or treatment was given to your family, carer or someone else close to you?	2.0	3.6	5.6
32	Were you able to get assistance or advice from ED staff for your personal needs (e.g. for eating, drinking, going to the toilet, contacting family)?	1.6		1.6
33	How would you rate how the ED health professionals worked together?	1.3		1.3
34	Did you ever receive contradictory information about your condition or treatment from ED health professionals?	2.4		2.4
35	Were the ED health professionals kind and caring towards you?	1.2		1.2
36	Did you feel you were treated with respect and dignity while you were in the ED?	1.3		1.3
37	Were you given enough privacy during your visit to the ED?	1.9		1.9
38	Were your cultural or religious beliefs respected by the ED staff?	3.3		3.3
39	Did you have worries or fears about your condition or treatment while in the ED?	2.2		2.2
40	Did an ED health professional discuss your worries or fears with you?	5.3		5.3
41	Were you ever in pain while in the ED?	3.1		3.1
42	Do you think the ED health professionals did everything they could to help manage your pain?	2.7		2.7
43	Did you see ED health professionals wash their hands, or use hand gel to clean their hands, before touching you?	1.9	14.5	16.4
44	How clean was the treatment area in the ED	1.3		1.3
45	While you were in the ED, did you feel threatened by other patients or visitors?	2.2		2.2
46	Were there things for your child to do (such as books, games and toys)?	3.1	5.1	8.2
47	Was the area in which your child was treated suitable for someone of their age group?	3.1		3.1
48	Did the ED staff provide care and understanding appropriate to the needs of your child?	2.4		2.4
49	During your visit to the ED, did you have any tests, X-rays or scans?	12.3	3.0	15.3
50	Did an ED health professional discuss the purpose of these tests, X-rays or scans with you?	1.6	1.9	3.5
51	Did an ED health professional explain the test, X-ray or scan results in a way that you could understand?	2.2		2.2
52	What happened at the end of your ED visit?	2.7		2.7
53	Did you feel involved in decisions about your discharge from hospital?	1.9		1.9

Question number	Question text	Missing %	Don't know %	Missing + Don't know %*
54	Thinking about when you left the ED, were you given enough information about how to manage your care at home?	1.1		1.1
55	Did ED staff take your family and home situation into account when planning your discharge?	1.7	1.7	3.4
56	Thinking about when you left the ED, were adequate arrangements made by the hospital for any services you needed?	1.7		1.7
57	Did ED staff tell you who to contact if you were worried about your condition or treatment after you left hospital?	1.9	6.6	8.5
58	Thinking about your illness or treatment, did an ED health professional tell you about what signs or symptoms to watch out for after you went home?	2.8		2.8
59	Were you given or prescribed any new medication to take at home?	1.7		1.7
60	Did an ED health professional explain the purpose of this medication in a way you could understand?	2.7		2.7
61	Did an ED health professional tell you about medication side effects to watch for?	3.9		3.9
62	Did you feel involved in the decision to use this medication in your ongoing treatment?	2.6		2.6
63	Did an ED health professional tell you when you could resume your usual activities, such as when you could go back to work or drive a car?	2.4		2.4
64	Did the ED staff provide you with a document that summarised the care you received (e.g. a copy of the letter to your GP, a discharge summary)?	4.5	15.4	19.9
65	Was your departure from the ED delayed - that is, before leaving the ED to go to a ward, another hospital, home, or elsewhere?	3.7		3.7
66	Did a member of staff explain the reason for the delay? [in discharge]	6.3		6.3
67	What were the main reasons for the delay? [in discharge]	6.1	3.6	9.7
68	Overall, how would you rate the care you received while in the ED?	2.2		2.2
69	If asked about your experience in the ED by friends and family how would you respond?	2.4		2.4
70	Did the care and treatment you received in the ED help you?	2.8		2.8
71	In total, how long did you spend in the ED? (From the time you entered the ED until the time you left the ED to go to a ward, another hospital, home, or elsewhere)	3.4	6.7	10.0
72	Did you want to make a complaint about something that happened in the ED?	3.0		3.0
73	Were you ever treated unfairly for any of the reasons below?	6.5		6.5
74	Not including the reason you went to the ED, during your visit or soon afterwards, did you experience any of the following complications or problems?	5.2		5.2
75	Was the impact of this complication or problem…?	3.4		3.4
76	In your opinion, were members of the hospital staff open with you about this complication or problem?	4.3		4.3
77	What year were you born?	2.7		2.7
78	What is your gender?	2.3		2.3

Question number	Question text	Missing %	Don't know %	Missing + Don't know %*
79	Highest level of education completed	5.3		5.3
80	Which, if any, of the following longstanding conditions do you have (including age-related conditions)?	5.2		5.2
81	Does this condition(s) cause you difficulties with your day-to-day activities?	3.3		3.3
82	Are you a participant of the National Disability Insurance Scheme (NDIS)?	4.4	8.2	12.6
83	In general, how would you rate your health?	2.9		2.9
84	Language mainly spoken at home	2.6		2.6
85	Aboriginal and/or Torres Strait Islander	4.3		4.3
86	Did you receive support, or the offer of support, from an Aboriginal Health Worker while you were in the ED?	2.4	6.4	8.8
87	In the month before visiting the ED, did you...?	4.7	7.9	12.6
88	Before your visit to the ED, had you previously been to an ED about the same condition or something related to it?	4.2		4.2
89	Who completed this survey?	3.2		3.2
90	Do you give permission for the Bureau of Health Information to link your answers from this survey to health records related to you (the patient)?	4.6		4.6

* Percentages for this column may not equal the sum of the 'Missing %' and 'Don't know %' columns because they were calculated using unrounded figures. Percentages are unweighted.

Appendix 2

Derived measures

Definition

Derived measures are those for which results are calculated indirectly from respondents' answers to a survey question. These tend to be from questions that contain a 'not applicable' type response option and are used to gather information about patients' needs.

Derived measures involve the grouping together of more than one response option to a question. The derived measure 'Quintile of Disadvantage' is an exception to this rule. For more information on this, please refer to the *Data Dictionary: Quintile of disadvantage* on BHI's website at **bhi.nsw.gov.au/nsw_patient_survey_program**

Statistical methods

Results are expressed as the percentage of respondents who chose a specific response option or options for a question. The reported percentage is calculated as the numerator divided by the denominator (see definitions below).

Results are weighted as described in this report.

Numerator

The number of survey respondents who selected a specific response option/s to a certain question, minus exclusions.

Denominator

The number of survey respondents who selected any of the response options to a certain question, minus exclusions.

Exclusions

For derived measures, the following are usually excluded:

- Response: 'don't know/can't remember' or similar non-committal response
- Response: invalid (i.e. respondent was meant to skip a question but did not)
- Response: missing (with the exception of questions that allow multiple responses or a 'none of these' option, to which the missing responses are combined to create a 'none reported' variable).

Interpretation of indicator

The higher the percentage, the more respondents fall into that response category.

The following questions and responses were used in the construction of the derived measures.

Table 10 Derived measures for the Rural Hospital Emergency Care Patient Survey 2019 questionnaire

Derived measure	Question	Derived measure categories	Response options
Needed parking near the ED	Q2. Was there a problem in finding a parking place near the ED?	Needed parking	Yes, a big problem
			Yes, a small problem
			No problem
		Didn't need parking	I did not need to park
Needed to wait for treatment after meeting reception staff	Q9. Did the ED staff you met on arrival tell you how long you would have to wait for treatment?	Needed to wait	Yes
			No
		Didn't need to wait	I didn't need to wait for treatment
Experienced issues with seating, safety, noise, temperature or odour in the waiting area	Q11. Did you experience any of the following issues when in the waiting area?	Spent time in waiting area	I couldn't find somewhere to sit
			The seats were uncomfortable
			It was too noisy
			I did not feel safe
			It was too hot
			It was too cold
			There were bad or unpleasant smells
			No, I did not experience these issues
		Wasn't in waiting area	I did not spend time in the waiting area
Triaged by a nurse	Q12. From the time you first arrived at the ED, how long did you wait before being triaged by a nurse – that is, before an initial assessment of your condition was made?	Saw a triage nurse	I was triaged immediately
			1–15 minutes
			16–30 minutes
			31–59 minutes
			1 hour to less than 2 hours
			2 hours or more
		Didn't see a triage nurse	I did not see a triage nurse
Triaged by a doctor	Q18. Did you have enough time to discuss your health or medical problem with doctors?	Not treated by a doctor	I wasn't treated by a doctor
			Yes, definitely
			Yes, to some extent
		Treated by a doctor	No
Received treatment from an ED nurse	Q22. In your opinion, did the ED nurses who treated you know enough about your care and treatment?	Treated by an ED nurse	Yes, definitely
			Yes, to some extent
			No
		Wasn't treated by an ED nurse	I wasn't treated by a nurse

Derived measure	Question	Derived measure categories	Response options
Needed information about condition or treatment	Q28. How much information about your condition or treatment was given to you by ED health professionals?	Needed information	Not enough
			The right amount
			Too much
		Didn't need information	Not applicable to my situation
Wanted or were well enough to be involved in decisions about care and treatment	Q29. Were you involved, as much as you wanted to be, in decisions about your care and treatment?	Wanted involvement and was well enough	Yes, definitely
			Yes, to some extent
			No
		Not well enough or didn't want involvement	I was not well enough to be involved
			I did not want or need to be involved
Had family/someone close who wanted to talk to staff	Q30. If your family members, carer or someone else close to you wanted to talk to the ED staff, did they get the opportunity to do so?	Wanted to talk to staff	Yes, definitely
			Yes, to some extent
			No, they did not get the opportunity
		Not applicable	Not applicable to my situation
Had family/someone close who wanted information about condition or treatment	Q31. How much information about your condition or treatment was given to your family, carer or someone else close to you?	Wanted information	Not enough
			The right amount
			Too much
		Not applicable	It was not necessary to provide information to any family or friends
Needed assistance or advice from ED staff for personal needs	Q32. Were you able to get assistance or advice from ED staff for your personal needs (e.g. for eating, drinking, going to the toilet, contacting family)?	Needed assistance	Yes, always
			Yes, sometimes
			No
		Didn't need assistance	I did not need assistance or advice
Had religious or cultural beliefs to consider	Q38. Were your cultural or religious beliefs respected by the ED staff?	Had beliefs to consider	Yes, always
			Yes, sometimes
			No, my beliefs were not respected
		Beliefs not an issue	My beliefs were not an issue

Derived measure	Question	Derived measure categories	Response options
Needed things for child to do (such as books, games and toys)	Q46. Were there things for your child to do (such as books, games and toys)?	Child needed things to do	There were plenty of things for my child to do
			There were some things, but not enough
			There was nothing for my child's age group
			There was nothing for children to do
		Not applicable	Not applicable to my child's visit
Received results of test, X-ray or scan results while in ED	Q51. Did an ED health professional explain the test, X-ray or scan results in a way that you could understand?	Told results	Yes, completely
			Yes, to some extent
			No
		Not told results in ED	I was not told the results while in the ED
Wanted or needed to be involved in decisions about discharge	Q53. Did you feel involved in decisions about your discharge from hospital?	Wanted involvement	Yes, definitely
			Yes, to some extent
			No, I did not feel involved
		Didn't want involvement	I did not want or need to be involved
Needed information on how to manage care at home	Q54. Thinking about when you left the ED, were you given enough information about how to manage your care at home?	Needed information	Yes, completely
			Yes, to some extent
			No, I was not given enough information
		Didn't need information	I did not need this type of information
Needed family and home situation taken into account when planning discharge	Q55. Did ED staff take your family and home situation into account when planning your discharge?	Had situation to consider	Yes, completely
			Yes, to some extent
			No, staff did not take my situation into account
		Not necessary	It was not necessary
Wanted or needed to be involved in decisions about medication	Q62. Did you feel involved in the decision to use this medication in your ongoing treatment?	Wanted involvement	Yes, definitely
			Yes, to some extent
			No, I did not feel involved
		Didn't want involvement	I did not want or need to be involved
Needed information on when could resume usual activities	Q63. Did an ED health professional tell you when you could resume your usual activities, such as when you could go back to work or drive a car?	Needed information	Yes, definitely
			Yes, to some extent
			No
		Didn't need information	Not applicable

Derived measure	Question	Derived measure categories	Response options
Treated unfairly in the ED	Q73. Were you ever treated unfairly for any of the reasons below?	Treated unfairly	Age
			Sex
			Aboriginal background
			Ethnic background
			Religion
			Sexual orientation
			A disability that you have
			Marital status
			Something else
		Not treated unfairly	I was not treated unfairly
Experienced complication or problem during or shortly after ED visit	Q74. Not including the reason you went to the ED, during your visit or soon afterwards, did you experience any of the following complications or problems?	Had complication	An infection
			Uncontrolled bleeding
			A negative reaction to medication
			A complication as a result of tests or procedures
			Severe pain due to the treatment
			A blood clot
			A fall
			Any other complication or problem
		None reported	None of these
			Missing
Complication or problem occurred during ED visit	Q76. In your opinion, were members of the hospital staff open with you about this complication or problem?	Occurred in ED	Yes, completely
			Yes, to some extent
			No
		Occurred after left	Not applicable, as it happened after I left

References

1. Burnham, K. P., & Anderson, D. R. (2002). Model selection and multimodel inference: a practical information-theoretic approach (2nd ed.) New York: Springer.

bureau of health information

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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