Emergency Department Patient Survey 2018–19

Technical Supplement

July 2020

bureau of health information

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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.

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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 mid-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 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). The survey program is guided by the NSW Patient Survey Strategy 2019–22, which ensures that all patient surveys maximise benefits to patients and deliver unique value for the NSW health system.

This document outlines the sampling methodology, data management and analysis of the results of the Emergency Department Patient Survey (EDPS) 2018–19.

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**

Emergency Department Patient Survey

The EDPS was the second survey sent to patients as part of the revised NSW Patient Survey Program in 2013, after the Adult Admitted Patient Survey (AAPS). It covered patients attending emergency departments (EDs) between April 2013 and March 2014.

The subsequent cycles of the survey were conducted from April 2014 and March 2015 (EDPS 2014–15), April 2015 to June 2016 (EDPS 2015–16), and by financial year since July 2016.

For changes in the questionnaire content between EDPS 2017–18 and EDPS 2018–19, please refer to the Development Report on BHI's website.

Producing survey samples

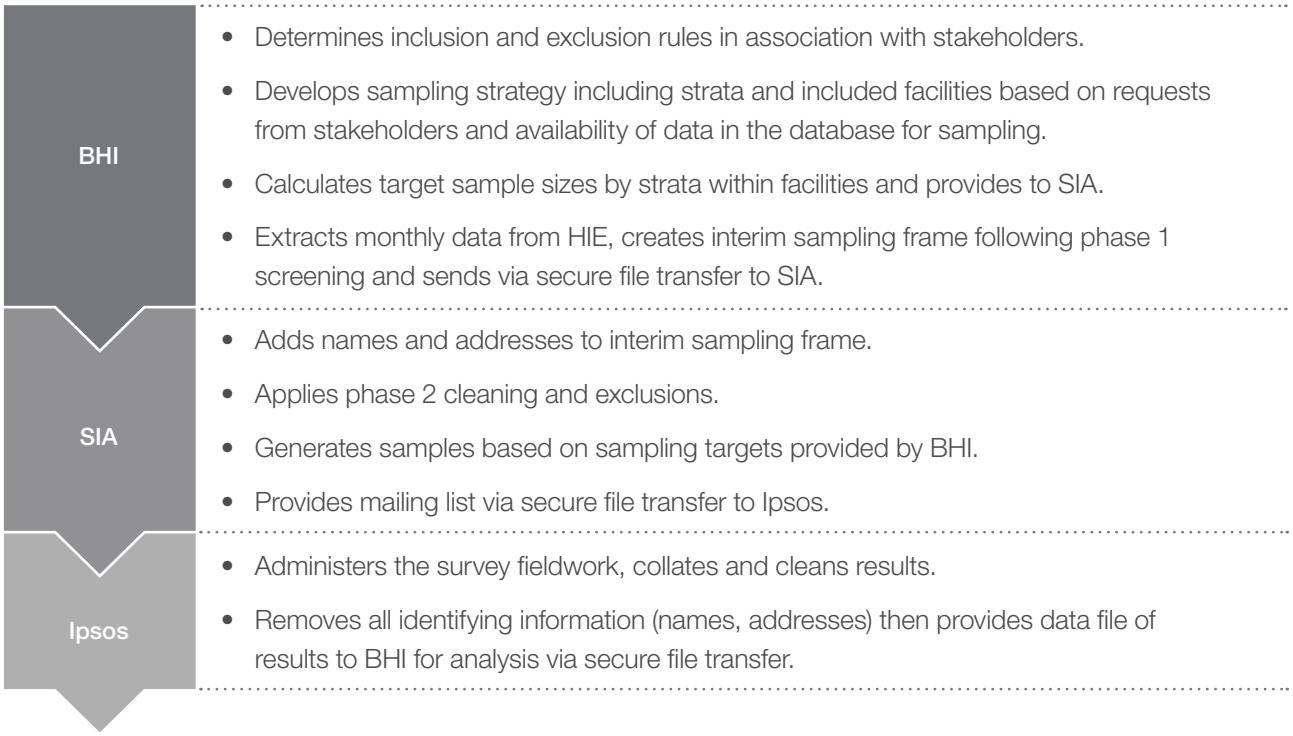
The survey program assures patients that their responses will be treated in the strictest confidence and no identifying information will be given to the Ministry, the hospital or health service they attended, or their doctor or other health provider. BHI does this through a number of mechanisms, including:

- 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 Ministry'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 EDPS, sampling frames are downloaded on a monthly basis, with the date of ED attendance used to define eligible records. Sample sizes for each included ED are calculated in advance, as explained later in this report.

Figure 1 Organisational responsibilities in sampling and survey processing, EDPS 2018–19



Inclusion criteria

Phase 1 screening

EDPS data passed through two phases of cleaning. BHI conducted phase 1 screening. Many of these criteria were developed in conjuction with stakeholder advice.

Inclusions

- Patients who visited an emergency department in a NSW public hospital with a peer group classification:
  - A1: Principal referral
  - A2: Paediatric specialist
  - A3: Ungrouped acute – tertiary referral
  - B1: Major hospitals group 1
  - B2: Major hospitals group 2
  - C1: District group 1
  - C2: District group 2.

Exclusions

- Patients who were dead on arrival or died in ED (mode of separation of eight and three respectively) were excluded from the sample.

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 EDPS compared with AAPS due to variables in the dataset. For example, the EDPS 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, ED 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. Within each facility, patients were further stratified by the following variables:

- age: aged 0–17, 18–49 or 50+ years
- stay type: admitted or non-admitted (discharged from ED).

Calculation of sample sizes and reporting frequency

Although sampling is undertaken monthly, sample size calculations are based on whether reporting is on a quarterly or annual basis. All facilities in C1, C2 and D peer groups (with the exception of Broken Hill Health Service*) were sampled for annual reporting, whereas facilities in A1, A2, A3 and B peer groups were sampled for quarterly reporting.

In addition:

- all patients at the two children's hospitals were included in the 0–17 stratum for sampling purposes.
- children 0–17 years admitted to A3 (Ungrouped Acute – tertiary referral) facilities were included in the '18–49' age stratum because of very small numbers in the 0–17 age group for these three hospitals.

Patients were selected within strata using simple random sampling without replacement. Sample sizes were defined at the facility level, with proportional sampling of strata within facilities.

The monthly targets by strata for the 2018–19 sampling period were based on 2017–18 EDPS data (after Phase 1 of the screening process).

The required sample size for each facility (i) was estimated using the following equation:

$$S_i = \frac{\chi^2 N_i P(1-P)}{d^2(N_i-1)+\chi^2 P(1-P)} \quad (1)$$

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 (±0.08).

The sample size calculation aimed for a confidence interval around an expected proportion of 0.8 of ±0.08 at the facility level. Sample sizes were then allocated proportionately across strata internal to the facility.

Finally, cell sample sizes were inflated to account for non-responses to the survey. This was done by dividing the expected sample size by the expected response rate. Response rates for each stratum were estimated based on response rates to the 2017–18 survey (Table 1).

*Note: To ensure sufficient respondents for reporting, the sample for Broken Hill Health Service is approximately twice the size of other C1, C2 or D peer group facilities in the survey. This was put in effect because Broken Hill is the only eligible hospital for Far West LHD in this survey and because it had a relatively low response rate of 20% in the 2017–18 survey (compared with 24% for NSW).

In addition, a minimum monthly target of six patients was applied to all strata (e.g. if calculations require fewer than six patients in any stratum, this was increased to six patients).

The adjusted cell sample sizes were provided to SIA as the monthly targets for the 2018–19 survey. For each month of sampling, SIA randomly selected patients within each stratum, according to these targets.

Note: The sample size calculation based on Equation 1 (page 5) assumes simple random sampling, whereas a stratified survey design was used. This, and differences in the response rate between strata, may result in some estimates having wider confidence intervals than expected, even when the prevalence is 80%.

Table 1 Response rates used when calculating the targets for mailing, EDPS 2018–19

Stratum	Response rate (%)
0–17 years	25
18–49 years	15
50+ years	50

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 transfers data securely to BHI's servers, all of which are password protected with limited staff access.

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.

For EDPS 2018–19, the data was collected for period from August 2018 to June 2019 inclusive. The term "EDPS 2018 – 19" in this report refers to this data collection period.

Data analysis

For the EDPS 2018–19, there were 109,967 questionnaires mailed and 18,086 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

The response rate is the percentage of people sampled who actually completed and returned or submitted their responses. As a result of the oversampling of younger patients, the distribution of patients in the sample (patients who were sent questionnaires) does not match the age distribution of patients in the population (Table 2). Therefore, response rates were adjusted to ensure the overall survey response rate reflected a response rate that would be observed if patients were sampled proportional to the patient mix, creating the 'weighted response rate'. The weighted response rates are shown in Tables 3 and 4.

Table 2 Patient population distribution and corresponding proportions of surveys mailed and respondents, EDPS 2018–19

Age group	% in patient population	% in surveys mailed	% in respondents
0–17 years	25	24	26
18–49 years	38	59	38
50+ years	37	17	36

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 that LHD results were not unduly influenced by small hospitals that had larger sampling proportions.

Weights were calculated in two stages:

- for each quarter of data as they become available
- once 12 months of data were available, weights for facilities reported on an annual basis were adjusted.

For each quarter of data, responses were weighted to match the population by age (0–17, 18–49 or 50+ years) and stay type (admitted or non-admitted) at facility level for hospitals that were sampled for quarterly reporting (peer group hospitals A1, A2, A3 and B and Broken Hill Health Service*) and at LHD level for hospitals that were sampled for annual reporting (peer group hospitals C1 and C2).

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

$$w_i = \frac{N_i}{n_i} \quad (2)$$

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.

If the stratum cell size within a facility was five or fewer, and the weight was greater than the median weight, then cells within that facility were aggregated for weighting purposes by grouping across age group unless this increased the weight of the small cell. Decisions on aggregation were agreed by two analysts.

The interim quarterly weights were then passed through the generalised regression weights (GREGWT) macro, a survey-specific SAS program developed by the Australian Bureau of Statistics (ABS) to assist with weighting of complex survey data. It uses iterative proportional fitting to ensure that the weights at the margins agree with the population totals even though it is often impossible for the weights to equal the population at the individual cell level. The marginal totals specified were facility (with annually-reported facilities within the same LHD combined), stay type and age strata (combined when necessary).

A lower bound of one was specified in the macro. Each quarter of data was weighted separately using this process. These weights were used for results created based on data combined over a period of fewer than 12 months.

Once four quarters of data were available, these were combined and facilities sampled on the basis of annual reporting were weighted. The GREGWT macro was used, in two stages, to ensure agreement of weights with populations at the margins.

The GREGWT macro was run with the following benchmarks.

- Benchmark 1: facility
- Benchmark 2: quarter x LHD
- Benchmark 3: facility x stay type x age stratum.

The interim quarterly weights were used as initial response weights. A lower bound of one was specified in the macro. Weights generated using the GREGWT macro were trimmed to 500 to avoid extreme weights.

Due to data collection delays, data were collected over the 11-month period August 2018 to June 2019. Survey weights were adjusted to reflect the collection period. Sensitivity analysis demonstrated no impact on results from collecting data over 11 months instead of 12 months.

*Note: To ensure sufficient respondents for reporting, the sample for Broken Hill Health Service is approximately twice the size of other C1, C2 or D peer group facilities in the survey. This was put in effect because Broken Hill is the only eligible hospital for Far West LHD in this survey and because it had a relatively low response rate of 20% in the 2017–18 survey (compared with 24% for NSW).

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 1.2 to 4.4.

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). The DEFF was calculated for each LHD and overall, for each quarter and for the four quarters combined. The maximum DEFF was 1.3 for facility and 1.4 for LHD. 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.

Sample sizes and weighted response rates based on the full year of data are shown in Table 3 (by LHD and NSW) and Table 4 (by facility).

Table 3 Number of surveys mailed, respondents and response rates by LHD, EDPS 2018–19

LHD	Surveys mailed	Survey responses	Weighted response rate (%)	DEFF
Central Coast	3,768	693	25	1.1
Far West	1,861	220	18	1.2
Hunter New England	19,297	2,912	22	1.4
Illawarra Shoalhaven	5,586	1,049	25	1.3
Mid North Coast	5,476	977	26	1.2
Murrumbidgee	4,817	748	21	1.3
Nepean Blue Mountains	4,624	793	23	1.2
Northern NSW	9,405	1,560	23	1.2
Northern Sydney	4,828	1,035	28	1.2
South Eastern Sydney	8,009	1,370	24	1.2
South Western Sydney	9,896	1,503	19	1.2
Southern NSW	5,570	1,006	25	1.2
St Vincent's Health Network	2,171	303	21	1.1
Sydney	6,062	1,024	22	1.1
Sydney Children's Hospitals Network	3,629	718	20	1.1
Western NSW	7,609	1,135	21	1.3
Western Sydney	7,359	1,040	19	1.2
NSW	109,967	18,086	23	1.3

Table 4 Number of surveys mailed, respondents and response rates by hospital, EDPS 2018–19

Facility	Surveys mailed	Survey responses	Weighted response rate (%)	DEFF
Armidale Hospital	985	175	23	1.2
Auburn Hospital	2,171	255	15	1.1
Ballina District Hospital	919	166	25	1.1
Bankstown-Lidcombe Hospital	1,975	267	18	1.0
Batemans Bay District Hospital	908	154	25	1.1
Bathurst Health Service	999	156	21	1.1
Belmont Hospital	925	157	25	1.0
Blacktown Hospital	2,048	319	21	1.1
Blue Mountains District Anzac Memorial Hospital	896	189	29	1.1
Bowral and District Hospital	895	180	26	1.1
Broken Hill Health Service	1,861	220	18	1.2
Byron Central Hospital	1,065	147	19	1.1
Calvary Mater Newcastle	1,969	359	26	1.1
Camden Hospital	1,045	163	20	1.0
Campbelltown Hospital	2,041	317	19	1.1
Canterbury Hospital	2,031	266	17	1.1
Casino & District Memorial Hospital	925	123	20	1.2
Cessnock Hospital	998	127	19	1.1
Coffs Harbour Health Campus	1,867	334	26	1.1
Concord Repatriation General Hospital	1,883	350	25	1.1
Cooma Hospital and Health Service	925	153	22	1.1
Cowra Health Service	859	141	23	1.3
Deniliquin Hospital and Health Services	931	138	19	1.1
Dubbo Base Hospital	1,954	259	18	1.1
Fairfield Hospital	1,942	261	16	1.1
Gosford Hospital	1,874	381	28	1.1
Goulburn Base Hospital and Health Service	954	174	27	1.1
Grafton Base Hospital	943	137	21	1.2
Griffith Base Hospital	1,009	126	17	1.1
Gunnedah Hospital	939	122	18	1.1
Hawkesbury District Health Services	807	128	21	1.0
Hornsby Ku-ring-gai Hospital	1,911	437	29	1.0
Inverell Hospital	918	114	17	1.2
John Hunter Hospital	1,942	348	24	1.1

Facility	Surveys mailed	Survey responses	Weighted response rate (%)	DEFF
Kempsey District Hospital	958	142	21	1.1
Kurri Kurri Hospital	940	118	19	1.2
Lachlan Health Service – Forbes	915	140	22	1.1
Lismore Base Hospital	1,843	332	25	1.1
Lithgow Hospital	916	139	22	1.1
Liverpool Hospital	1,998	315	19	1.1
Macksville District Hospital	896	148	26	1.2
Maclean District Hospital	865	178	28	1.2
Maitland Hospital	2,031	286	20	1.2
Manning Hospital	1,745	326	28	1.2
Milton Ulladulla Hospital	880	207	33	1.1
Moree Hospital	943	111	18	1.2
Moruya District Hospital	853	184	32	1.1
Mount Druitt Hospital	1,028	132	16	1.2
Mudgee Health Service	962	133	20	1.2
Murwillumbah District Hospital	939	148	22	1.2
Muswellbrook Hospital	1,017	119	16	1.1
Narrabri Hospital	901	103	16	1.2
Nepean Hospital	2,005	337	22	1.1
Orange Health Service	1,920	306	22	1.2
Port Macquarie Base Hospital	1,755	353	29	1.3
Prince of Wales Hospital	2,148	313	21	1.0
Queanbeyan Hospital and Health Service	1,051	157	20	1.1
Royal North Shore Hospital	1,954	414	28	1.0
Royal Prince Alfred Hospital	2,148	408	25	1.1
Ryde Hospital	963	184	26	1.1
Shellharbour Hospital	962	180	24	1.1
Shoalhaven District Memorial Hospital	1,840	318	25	1.1
Singleton Hospital	1,064	126	17	1.2
South East Regional Hospital	879	184	28	1.0
St George Hospital	1,933	327	22	1.1
St Vincent's Hospital Sydney	2,171	303	21	1.1
Sutherland Hospital	1,866	384	28	1.0
Sydney Children's Hospital, Randwick	1,804	372	20	1.0
Sydney Hospital and Sydney Eye Hospital	2,062	346	25	1.0
Tamworth Hospital	1,980	321	24	1.2

Facility	Surveys mailed	Survey responses	Weighted response rate (%)	DEFF
The Children's Hospital at Westmead	1,825	346	19	1.0
The Tweed Hospital	1,906	329	24	1.1
Wagga Wagga Rural Referral Hospital	1,960	355	24	1.1
Westmead Hospital	2,112	334	22	1.1
Wollongong Hospital	1,904	344	24	1.2
Wyong Hospital	1,894	312	23	1.1
Young Health Service	917	129	21	1.2
NSW	109,967	18,086	23	1.3

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 5 shows 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 was drawn. Limited demographic variables are available at this level
3. percentage in respondents – respondents to the survey, not adjusted for unequal sampling
4. percentage in respondents (weighted) – respondents to the survey, adjusted by weighting to be representative of the patient population.

Table 5 Demographic characteristics of patient population and respondents, EDPS 2018–19

Demographic variable	Sub-group	% in patient population	% in eligible population	% in respondents (unweighted)	% in respondents (weighted)
LHD	Central Coast	5	6	4	6
	Far West	1	1	1	1
	Hunter New England	14	14	16	14
	Illawarra Shoalhaven	6	6	6	6
	Mid North Coast	4	4	5	4
	Murrumbidgee	3	3	4	3
	Nepean Blue Mountains	5	5	4	5
	Northern NSW	7	7	9	7
	Northern Sydney	6	7	6	7
	South Eastern Sydney	9	9	8	9
	South Western Sydney	11	12	8	12
	Southern NSW	4	4	6	4
	St Vincent's Health Network	2	2	2	2
	Sydney	6	6	6	6
	Sydney Children's Hospitals Network	4	4	4	4
	Western NSW	4	4	6	4
	Western Sydney	8	8	6	8
Peer group	A1	35	36	25	36
	A2	4	4	4	4
	A3	3	3	4	3
	B	33	33	34	33
	C1	13	13	13	13
	C2	12	12	21	12
Age stratum	0–17 years	25	26	22	26
	18–49 years	38	38	37	38
	50+ years	37	36	41	36
Stay type	Admitted Emergency	28	24	29	24
	Non-admitted Emergency	72	76	71	76
Aboriginal status	Non-Aboriginal	94	-	98	98
	Aboriginal and/or Torres Strait Islander	6	-	2	2
Sex	Male	51	-	47	47
	Female	49	-	53	53

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 fewer than 30, results for that entity were suppressed. If the number of respondents was between 30 and 100, or over 100 with less than a 20% response rate, results were checked for representativeness of the NSW patient population for key patient characteristics (age, sex, Aboriginal status, departure status) before publishing. If found to not be representative of the NSW population, results were suppressed for that entity. Hospitals and LHDs with a response rate of less than 20% but more than 100 respondents whose results are publicly released are 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 August 2018 to June 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 ‘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 fewer than 200.

Results should be interpreted with caution if the response rate is lower than 25%. For the Emergency Department Patient Survey 2018–19, there were 52 hospitals with a response rate lower than 25%.

Reporting by population group

Results were reported for the groups, levels and at the indicated reporting frequency outlined in Table 6.

Table 6 Levels of reporting, EDPS 2018–19

Grouping	Reporting frequency	NSW	Peer group	LHD
All patients	August 2018 to June 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 **www.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.

For each performance question in the survey, the most positive response option was treated as the 'event' and the other response options were grouped to create a binary dependent variable.

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 7.

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 7 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
Stay type	Administrative data	Admitted to hospital, non-admitted to hospital upon ED departure
Online/ Paper	Administrative data	Paper, online
Proxy response	Survey question	The patient, the patient with help, other people on patient's behalf, missing
Had previous visit to ED for the same or related condition	Survey question	Yes, No, missing

Table 8 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.

Table 8 Covariates considered for adjustment for comparisons at each selection stage by survey.

	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 group	✓	✓	✓	✓
Sex	✓	✓	✓	✓
Education	✓	✓	✓	✓
Language mainly spoken at home	✓	✓	✓	✓
Online/Paper	✓	✓	✓	
Proxy response	✓	✓	✓	
Service Category	✓	✓	✓	
Had previous visit to ED for the same or related condition	✓	✓	✓	

Finally, covariates that marginally improved the model were excluded 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, sex, education and language spoken were chosen for adjustment for the comparison model.

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.
- For results 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.

Appendix 1

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

Table 9 Percentage of 'Don't know' and/or missing responses by question, EDPS 2018–19

Question number	Question text	Missing %	Don't know %	Missing + Don't know %*
1	What was your main form of transport to the ED?	1.7		1.7
2	Was there a problem in finding a parking place near the ED?	3.1		3.1
3	Was the signposting directing you to the ED of the hospital easy to follow?	3.5		3.5
4	Were the reception staff you met on your arrival polite and courteous?	1.4	2.1	3.5
5	Did the ED staff you met on arrival give you enough information about what to expect during your visit?	1.7	5.2	6.9
6	Did the ED staff you met on arrival tell you how long you would have to wait for treatment?	1.9	8.9	10.8
7	Was the waiting time given to you by the ED staff you met on arrival about right?	2.3	4.9	7.2
8	Did you experience any of the following issues when in the waiting area? [with seating, safety, noise, temperature or odour in the waiting area]	5.5		5.5
9	How clean was the waiting area in the ED?	1.1		1.1
10	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?	2.4	4.7	7.2
11	Did you stay until you received treatment?	2.3		2.3
12	Why did you leave the ED before receiving treatment?	2.0	2.3	4.4
13	After triage (initial assessment), how long did you wait before being treated by an ED doctor or nurse?	3.3	5.9	9.2
14	While you were waiting to be treated, did ED staff check on your condition?	0.7	4.8	5.5
15	While you were waiting to be treated, did your symptoms or condition get worse?	0.8	4.6	5.4
16	Did the ED health professionals introduce themselves to you?	2.8	4.5	7.3
17	Did the ED health professionals explain things in a way you could understand?	3.3		3.3
18	Did you have enough time to discuss your health or medical problem with the ED doctors?	2.9	2.0	4.9
19	How much information about your condition or treatment was given to you by ED health professionals?	3.2		3.2
20	Were you involved, as much as you wanted to be, in decisions about your care and treatment?	3.1		3.1
21	If your family members or someone else close to you wanted to talk to the ED staff, did they get the opportunity to do so?	3.2	2.7	5.9
22	How much information about your condition or treatment was given to your family, carer or someone else close to you?	3.3	4.3	7.6
23	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)?	3.2		3.2
24	How would you rate how the ED health professionals worked together?	3.0		3.0

Question number	Question text	Missing %	Don't know %	Missing + Don't know %*
25	Did you have confidence and trust in the ED health professionals treating you?	2.9		2.9
26	Were the ED health professionals polite and courteous?	2.8		2.8
27	Overall, how would you rate the ED health professionals who treated you?	2.9		2.9
28	Did you ever receive contradictory information about your condition or treatment from ED health professionals?	3.6		3.6
29	Were the ED health professionals kind and caring towards you?	3.0		3.0
30	Did you feel you were treated with respect and dignity while you were in the ED?	3.0		3.0
31	Were you given enough privacy during your visit to the ED?	3.2		3.2
32	Were your cultural or religious beliefs respected by the ED staff?	3.7		3.7
33	Did you have worries or fears about your condition or treatment while in the ED?	3.4		3.4
34	Did an ED health professional discuss your worries or fears with you?	3.8		3.8
35	In your opinion, did the ED nurses who treated you know enough about your care and treatment?	3.9	3.2	7.1
36	Were you ever in pain while in the ED?	4.0		4.0
37	Do you think the ED health professionals did everything they could to help manage your pain?	2.9		2.9
38	Did you see ED health professionals wash their hands, or use hand gel to clean their hands, before touching you?	3.5	19.8	23.3
39	How clean was the treatment area in the ED?	3.7		3.7
40	While you were in the ED, did you feel threatened by other patients or visitors?	3.4		3.4
41	While you were in the ED, did you see or hear any aggressive or threatening behaviour towards ED staff?	3.4	3.4	6.7
42	Were there things for your child to do (such as books, games and toys)?	2.8	7.5	10.3
43	Was the area in which your child was treated suitable for someone of their age group (0-15 years)?	2.4		2.4
44	Did the ED staff provide care and understanding appropriate to the needs of your child (0-15 years)?	2.3		2.3
45	During your visit to the ED, did you have any tests, X-rays or scans?	7.8	3.1	10.9
46	Did an ED health professional discuss the purpose of these tests, X-rays or scans with you?	1.4	2.1	3.6
47	Did an ED health professional explain the test, X-ray or scan results in a way that you could understand?	2.0		2.0
48	What happened at the end of your ED visit?	5.1		5.1
49	Did you feel involved in decisions about your discharge from hospital?	1.7		1.7
50	Thinking about when you left the ED, were you given enough information about how to manage your care at home?	1.5		1.5
51	Did ED staff take your family and home situation into account when planning your discharge?	1.8	3.6	5.3

Question number	Question text	Missing %	Don't know %	Missing + Don't know %*
52	Thinking about when you left the ED, were adequate arrangements made by the hospital for any services you needed?	1.9		1.9
53	Did ED staff tell you who to contact if you were worried about your condition or treatment after you left hospital?	1.8	10.6	12.4
54	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?	2.2		2.2
55	Were you given or prescribed any new medication to take at home?	1.7		1.7
56	Did an ED health professional explain the purpose of this medication in a way you could understand?	1.5		1.5
57	Did an ED health professional tell you about medication side effects to watch for?	1.8		1.8
58	Did you feel involved in the decision to use this medication in your ongoing treatment?	2.1		2.1
59	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?	2.3		2.3
60	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 or a discharge summary)?	2.3	13.2	15.6
61	Was your departure from the ED delayed - that is, before leaving the ED to go to a ward, another hospital, home, or elsewhere?	5.2		5.2
62	Did a member of staff explain the reason for the delay? [in discharge]	3.2		3.2
63	What were the main reasons for the delay? [in discharge]	3.5	3.6	7.1
64	Overall, how would you rate the care you received while in the ED?	1.5		1.5
65	If asked about your experience in the ED by friends and family how would you respond?	1.8		1.8
66	Did the care and treatment received in the ED help you?	1.7		1.7
67	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)	2.1	6.2	8.3
68	Did you want to make a complaint about something that happened in the ED?	2.1		2.1
69	Were you ever treated unfairly for any of the reasons below?	4.9		4.9
70	Not including the reason you came to the ED, during your visit or soon afterwards, did you experience any of the following complications or problems?	3.1		3.1
71	Was the impact of this complication or problem …?	2.6		2.6
72	In your opinion, were members of the hospital staff open with you about this complication or problem?	2.7		2.7
73	What were your reasons for going to the ED?	1.5		1.5
74	When you visited the ED, was it for a condition that you thought could have been treated by a General Practitioner (GP)?	2.0		2.0
75	In the month before visiting the ED, did you...?	2.4	7.2	9.5
76	Before your visit to the ED, had you previously been to an ED for the same condition or something related to it?	2.3		2.3

Question number	Question text	Missing %	Don't know %	Missing + Don't know %*
77	In the past 12 months, how many times have you visited an ED for your own care?	2.4		2.4
78	What year were you born?	2.0		2.0
79	What is your gender?	1.4		1.4
80	Highest level of education completed	3.4		3.4
81	Aboriginal and/or Torres Strait Islander	2.5		2.5
82	Did you receive support, or the offer of support, from an Aboriginal Health Worker while you were in the ED?	3.6	7.9	11.4
83	Which, if any, of the following longstanding conditions do you have (including age related conditions)?	2.7		2.7
84	Does this condition(s) cause you difficulties with your day-to-day activities?	2.5		2.5
85	Are you a participant of the National Disability Insurance Scheme (NDIS)?	3.0	6.2	9.2
86	Language mainly spoken at home	1.7		1.7
87	Did you need, or would have liked, to use an interpreter at any stage while you were in the ED?	2.0		2.0
88	Did the ED provide an interpreter when you needed one?	1.1		1.1
89	In general, how would you rate your health?	1.6		1.6
90	Who completed this survey?	1.5		1.5
91	Do you give permission for the BHI to link your answers from this survey to health records related to you (the patient)?	2.2		2.2

* 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 EDPS 2018–19 questionnaire

Derived measure	Original 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	Q6. 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	Q8. Did you experience any of the following issues when in the waiting area? [with seating, safety, noise, temperature or odour in the waiting area]	Spent time in waiting area	I couldn't find somewhere to sit
			The seats were uncomfortable
			I did not feel safe
			It was too noisy
			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	Q10. 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
Treated by a doctor	Q18. Did you have enough time to discuss your health or medical problem with the ED doctors?	Not treated by a doctor	I wasn't treated by a doctor
		Treated by a doctor	Yes, definitely
			Yes, to some extent
			No

Derived measure	Original question	Derived measure categories	Response options
Needed information about condition or treatment	Q19. 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	Q20. 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	Q21. If your family members 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	Q22. 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	Q23. 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	Q32. 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
Received treatment from an ED nurse	Q35. In your opinion, did the ED nurses who treated you know enough about your care and treatment?	Treated by an ED nurse	Yes, always
			Yes, sometimes
			No
		Wasn't treated by an ED nurse	I wasn't treated by a nurse

Derived measure	Original question	Derived measure categories	Response options
Needed things for child to do (such as books, games and toys)	Q42. 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	Q47. 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	Q49. 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	Q50. Thinking about when you left the ED, were you given enough information about how to manage your care at home?	Needed information	Yes, definitely
			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	Q51. Did ED staff take your family and home situation into account when planning your discharge?	Had situation to consider	Yes, definitely
			Yes, to some extent
			No, staff did not take my situation into account
		Not necessary	It was not necessary
Needed services after discharge	Q52. Thinking about when you left the ED, were adequate arrangements made by the hospital for any services you needed?	Needed services	Yes, definitely
			Yes, to some extent
			No, arrangements were not adequate
		Didn't need services	It was not necessary
Wanted or needed to be involved in decisions about medication	Q58. 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

Derived measure	Original question	Derived measure categories	Response options
Needed information on when could resume usual activities	Q59. 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
Treated unfairly	Q69. 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	Q70. Experienced complication or problem during or shortly after ED visit (derived measure)	Had complication	An infection
			Uncontrolled bleeding
			A negative reaction to medication
			Complications as a result of tests or procedures
			A blood clot
			A fall
			Any other complication or problem
		None reported	None of these
			Missing
Complication or problem occurred during ED visit	Q72. 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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