bureau of health information

Technical Supplement: Adult Admitted Patient Survey, 2014

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Revision History

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Contents

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Please note that there is the potential for minor revisions of information in this report. Please check the online version at www.bhi.nsw.gov.au for any amendments.

The NSW Patient Survey Program

The NSW Patient Survey Program began surveying patients in NSW public facilities from 2007. From 2007 to mid-2012, the program was coordinated by the NSW Ministry of Health using questionnaires obtained under license from NRC Picker. Ipsos Social Research Institute Ltd (Ipsos) was contracted to manage the logistics of the survey program. Responsibility for the Patient Survey Program was transferred from the Ministry of Health to the Bureau of Health Information (BHI) in July 2012, with Ipsos continuing as the contracted partner to manage the logistics.

The aim of the survey program is to measure and report on patients' experiences of care in public health facilities in New South Wales (NSW), on behalf of the NSW Ministry of Health and the local health districts (LHDs). The results are used as a source of performance measurement for individual hospitals, LHDs and NSW as a whole.

This document outlines the sampling methodology, data management and analysis of the 2014 Adult Admitted Patient Survey (AAPS).

For information on changes to the questionnaire between 2013 and 2014, please refer to the Development Report at www.bhi.nsw.gov.au/nsw_patient_survey_program

For more information on how to interpret results and whether differences in the results between hospitals, LHDs or NSW are statistically different, please refer to the BHI "Guide to Interpreting Differences" at www.bhi.nsw.gov.au/nsw_patient_survey_program

Organisational roles in producing survey samples

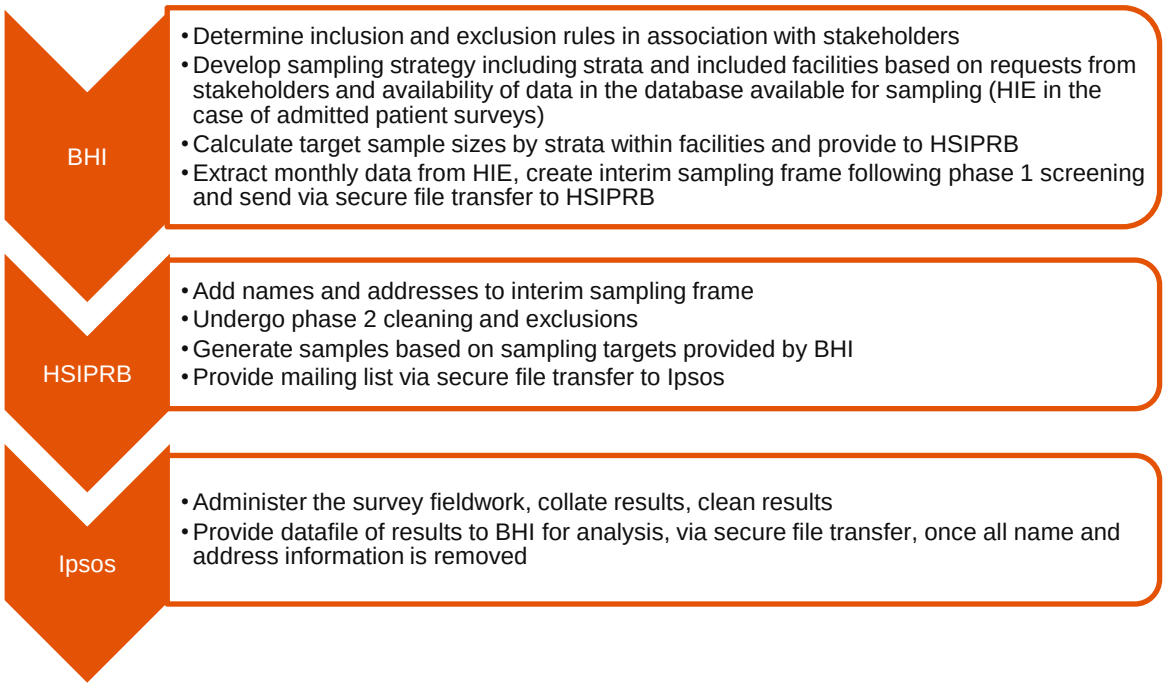
The survey program assures patients that their responses will be confidential and that staff at hospitals will not be able to determine who gave which response. BHI does this through a number of mechanisms, including:

- 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 (see below).

The sampling method for the survey program is a collaboration between BHI, Ipsos SRI and the Ministry of Health's Health Systems Performance Information and Reporting Branch (HSPIRB) (see Figure 1). All surveys of admitted patients use data obtained from the Health Information Exchange (HIE).

BHI has access to confidentialised unit record data from selected tables of the HIE database. Use of an encrypted patient number allows deduplication at the patient level within a hospital. For the AAPS, sampling frames are defined separately for each month, with the date at discharge used to define eligible records. Sample sizes for each included hospital are calculated in advance, as defined later in this report.

Figure 1: Organisational responsibilities in sampling and survey processing, Adult Admitted Patient Survey, 2014



Inclusion criteria

Phase 1 screening

Admitted patient data pass through two phases of cleaning. The first phase of screening is applied by BHI. Many of these criteria are developed in conjunction with advice of stakeholders.

Inclusions

- Admitted patients aged 18 years and older (Note that the AAPS 2013 sampled patients 17 years and older but this has changed from 2014 onwards to 18 years and over due to the advent of the Admitted Children and Young Patients Survey in the same year)
- Admitted to a facility with a peer group classification of A1, A3, B, C1 or C2.

Exclusions

- Patients who died during their hospital admission – mode of separation of 6 (Death with autopsy) or 7 (Death without autopsy)
- Admitted to a psychiatric unit
- Admitted for same-day haemodialysis – code 13100-00 in any procedure fields
- Same-day patients who stayed for less than three hours
- Transferred to another hospital
- Maltreatment syndrome (ICD10 codes T74.0, T74.1, T74.2, T74.8, T74.9)
- Maternity patients – ICD10 code of Z38 in any diagnosis field
- Contraceptive management (ICD10 code Z30.0, Z30.4, Z30.5, Z30.8, Z30.9)
- Pregnancy with abortive outcome (ICD code O00 to O08
- Pregnancy resulting in stillbirth (Z37.1,Z37.3,Z37.4,Z37.6,Z37.7)
- Patients admitted for D&C procedure (procedure codes 35643-03, 35640-03).

From October 2014, the following additional exclusions were applied:

- 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 hospital stay was kept. The questionnaire asks patients to respond to the survey based on their most recent admission in a particular month.

Phase 2 screening

BHI provides the interim sampling frame to HSIPRB, who add patient name and address information. Data then undergo a second phase of screening. This involves exclusions for administrative/logistical reasons, or where death had been recorded after discharge for the stay used for sample selection but before the final sampling frame is prepared.

Exclusions

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

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

Drawing of the sample

Survey design

A stratified sample design was applied, with each facility defined as a stratum. Within each facility, patients are further stratified by the following variables:

- Age – aged 18-49 years or 50 years and over (including patients with missing age data), based on the age variable
- Stay type – same-day or overnight admission, based on the start and end times of the last hospital stay in the month. It was decided that it was important to use hospital stay rather than episode to determine start and end dates and times. A stay can include several episodes of care, but patients may not be aware of new episodes within a stay
- Cancer strata – patient with cancer or patient not with cancer, based on ICD-10 code of C00 to D50 in the primary and/or first secondary diagnosis fields of the stay (January 2014 to July 2014 only)
- Aboriginal strata – Aboriginal and/or Torres Strait Islander patient defined where the field indigenous_status was coded 1, 2 or 3. Missings and those who refuse to respond were included in the non-Aboriginal stratum for sampling purposes. Indigenous status (including missings and refusals) was included as part of the administrative data items included with the survey data.

Patients are selected within strata using simple random sampling without replacement. Target sample sizes are defined at the facility level (or by patient type as described within the next section), with proportional sampling of strata within facilities/patient types.

Oversampling of patients with cancer and Aboriginal patients

For the 2014 AAPS survey, patients with cancer and Aboriginal patients were oversampled, i.e. sampled at a rate this is higher than their prevalence in the patient population. These patients were oversampled to ensure sufficient number of respondents for specific *Patient Perspective* reports on experiences of patients with cancer and patients who identified as Aboriginal and/or of Torres Strait Islander origin.

Patients with cancer were oversampled in selected facilities, from eligible patients who were discharged from January to July 2014 (inclusive). This was a continuation of the oversampling of patients with cancer, a process that began for patients discharged from July 2013 onwards. This oversampling was expected to provide sufficient respondents for facility-level reporting of patients with cancer, for the period July 2013 to July 2014. Eligible patients with cancer were identified by an ICD-10 code of C00 to D50 (inclusive) in the primary and/or first secondary diagnosis fields, in any episode of care during the sampling month.

Aboriginal patients were oversampled across all facilities for the entire year. When sampling was being planned, it was clear that some facilities would not have sufficient responses for reporting. Stakeholders requested that all facilities be included in the oversampling regardless of whether reporting was possible. Sampling to the point of selecting all eligible Aboriginal patients (census) was applied where sufficient sample size could not be guaranteed.

Calculation of sample sizes and reporting frequency

The monthly targets by strata for the 2014 calendar year were based on the admitted patient data from the 2013 calendar year (after Phase 1 of the screening process).

Targets depended on the following:

Criterion	
Reporting frequency	Facilities in peer groups A1, A3 and B sampled for quarterly reporting, Facilities in peer groups C1 and C2 sampled for annual reporting
Assumed response rate	25% for Aboriginal patients 25% for patients with cancer For non-Aboriginal, non-cancer patients: 30% patients aged 18-49 in peer groups A1,A3,B 25% patients aged 18-49 in peer groups C1,C2 60% patients aged 50 and over in peer groups A1,A3,B 50% patients aged 50 and over in peer groups C1,C2
Reporting strata	Non-aboriginal patients with cancer oversampled in selected facilities (See tables 5 and 6) Aboriginal patients (oversampled in all facilities) Non-Aboriginal and non-cancer

The stratum consisting of non-Aboriginal and non-cancer ensured that the sample size for this group would be sufficient for reporting independent of the two oversampled groups.

The sample size for Aboriginal people was prioritised over cancer when sampling. Therefore all Aboriginal people (irrespective of whether they were eligible for cancer oversampling) were included in the Aboriginal stratum for sampling purposes. All respondents who were flagged as having cancer were included in the cancer sample for reporting purposes.

The required sample size for each facility (*i*) within reporting stratum (*j*) was estimated using Equation 1.

Equation 1

$$s_{ij} = \frac{\chi^2 N_{ij} P(1-P)}{d^2(N_{ij}-1) + \chi^2 P(1-P)}$$

Where:

s_{ij} = estimated sample size for facility i and stratum j

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

N_{ij} = population in the reporting stratum *j* of facility *i*, estimated using data from the 2013 calendar year with phase 1 exclusion criteria applied, aggregated to correspond with the reporting period (i.e. by quarter or full year)

P = expected proportion giving the most 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).

The sample size calculation aimed for a confidence interval around an expected proportion of 0.8 of ±0.07 at the reporting strata level within each facility.

Sample sizes were then allocated proportionately across strata internal to these reporting strata as follows:

- Non-Aboriginal/non-cancer: age group and stay type
- Aboriginal: age group, stay type and cancer status
- Cancer: age group and stay type.

Finally, cell sample sizes are increased to account for fewer than 100% of patients responding to the survey. This is done by dividing the expected sample size by the expected response rate. In 2013, the response rate used for this adjustment was based on the response rate for that facility from the 2011 version of the overnight admitted patient survey. However, this was changed in 2014 because analysis of the first two quarters of data from the 2013 AAPS showed that:

- Response rates at the facility level fluctuated seasonally and monthly
- Response rates for Aboriginal patients and patients in the youngest age stratum were much lower
- Response rates did not differ greatly between peer groups.

In 2014, estimated response rates for patient age group were changed based on the differences seen in the data (see Table 1). In addition, as hospitals in peer groups C1 and C2 moved to annually sampling only, this increased the right of fluctuating response rates resulting in too few respondents to report on. To compensate, the estimated response rates for C1 and C2 facilities was set lower than facilities sampling quarterly. The next effect of this underestimation of response rates is to increase the sample size at C1 and C2 hospitals, as shown in Table 1.

Table 1 Response rates used when calculating the targets for mailing, AAPS 2014

Stratum	Quarterly reporting (A1+A3+B peer groups)	Annual reporting (C1 + C2 peer groups)
18-49, non-Aboriginal, non-cancer	30%	25%
50+, non-Aboriginal, non-cancer	60%	50%
Aboriginal	N/A	25%
Cancer	N/A	25%

The final change was to set even monthly mailing targets. Previously, these had fluctuated in response to the seasonal patterns discussed previously, however, this was not practical as the fluctuation proved unpredictable. A minimum monthly target of 15 was applied to any Aboriginal stratum in facilities that were unlikely to achieve sufficient sample size for reporting. This was to ensure all eligible Aboriginal patients were selected. A minimum monthly target of four patients was applied to all other strata (e.g. if calculations require one, two or three patients in any stratum, this will be increased to four patients).

Examples of sample size calculations are provided in *Appendix 1*.

The adjusted sample size was provided to HSIPRB as the survey targets. For each month of sampling, HSPIRB randomly selected patients within each stratum, according to mailing targets provided by BHI.

Notes:

- The sample size calculation based on Equation 1 (previous page) 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%.
- For the purposes of sampling and reporting, the population of Sydney and Sydney Eye Hospitals were combined as one facility.
- Because the patient population at RPAH Institute of Rheumatology & Orthopaedics is relatively small, sample sizes were pooled with the Royal Prince Alfred Hospital for calculation. After calculation, however, the sample for these two facilities combined was proportionately allocated, by strata, to the population of each facility.

Oversampling of patients with cancer applied only to patients with cancer discharged from January to July 2014. From August 2014 onwards, patients with cancer were included in the general sampling.

Data Management

Data collection

Upon completion of a survey questionnaire, the respondent returns or submits the completed survey (depending on whether they completed the paper-based questionnaire or the online questionnaire) to Ipsos. If a paper form is returned, Ipsos then scans in the answers electronically and manually enters free text fields.

Once all of the data is collated into a single dataset, all names and addresses are removed from the dataset. Also, all text entry fields are checked for potential identifiers (names of patients, names of doctors, telephone numbers, etc.) and any that are found are replaced with “XXXX”.

Following this, each record is checked for any errors in completion and reasonable adjustments (known as ‘cleaning’) are made to the dataset, for example, removing responses where the patient has not correctly followed questionnaire instructions or providing multiple answers to a single response question.

At the end of this process, Ipsos uses a secure NSW Ministry of Health system to transfer the data from their servers to BHI’s secure servers, all of which are password protected with limited staff access.

At no stage do BHI, who analyse the data, have access to the names and contact details of the respondents. This ensures respondent answers remain confidential and identifying data can never be publicly released.

Data Analysis

Completeness of survey questionnaires

The level of survey completeness was high overall, with respondents answering, on average, 63 questions out of 67 core questions that applied to all respondents. Over 93% of respondents answered at least 60 core questions. A very small number of respondents (N=33) answered only the two open-text questions at the end of the survey – these respondents were excluded from quantitative analyses, but their comments were retained and provided to local health districts.

Calculation of weighted response rate

As mentioned in the previous section, in 2014 cancer and patients of Aboriginal and/or Torres Strait Islander origin were oversampled for specific reports. In addition the younger patients were oversampled to ensure greater representation of these patients in the respondent profile.

As a result of the oversampling of particular patient groups, the distribution of patients in the sample does not necessarily match the distribution of patients in the population (Table 2). For example, although Aboriginal people make up 2% of the patient population, they contributed to 17% of total surveys mailed and 10% of total respondents. Therefore, response rates were weighted to ensure that the overall survey response rate reflects a response rate that would be observed if patients were sampled proportional to the patient mix.

Table 2 Patient population distribution and corresponding number of surveys mailed, AAPS 2014

	Age group	Patient population	% in patient pop	Mailings	% in mailings	% in responses	Partial Response rate
Non- Aboriginal, non-cancer	18-49	197,203	30%	25,918	35%	22%	23%
	50+	427,782	64%	27,426	37%	54%	53%
Non- Aboriginal, cancer	18-49	5,246	1%	2,808	4%	3%	33%
	50+	20,335	3%	4,638	6%	10%	59%
Aboriginal	All ages	15,551	2%	13,031	18%	10%	21%
Overall		**666,117**		**73,821**			**36%**

The response rate is adjusted by weighting each demographic group's response rate by their contribution to the overall patient population (Table 3). At the NSW level, the crude response rate is 36% compared with a weighted response rate of 43%. This weighted response rate is more meaningful than the crude response rate, because it is not distorted by unequal sampling rates for different patient groups.

Table 3 Weights based on patient population and response rates, AAPS 2014

	Age group	Proportion in population	Response rate	Contribution to adjusted response rate
Non- Aboriginal, non-cancer	18-49	30%	23%	6.7%
	50+	64%	53%	33.9%
Non- Aboriginal, cancer	18-49	1%	33%	0.3%
	50+	3%	59%	1.8%
Aboriginal	All ages	2%	21%	0.5%
Overall			**36%**	**43.2%**

Weighted response rates at the LHD and facility levels are shown in Table 4 and Table 5, later in the document.

Weighting of data

Responses from the survey were weighted to ensure that results from respondents are representative of the overall patient population. Weighting also reduces the influence of responses from oversampled groups (younger/Aboriginal/patients with cancer). At the LHD and NSW level, weights also ensure that the different sampling proportions used at the facility level are accounted for, so that LHD results are not unduly influenced by small facilities that had larger sampling proportions.

Weights were calculated in two stages. Weights are calculated for each quarter of data as they become available. Once 12 months of data were available, weights for facilities reported on an annual basis was adjusted, to better reflect patient populations (which was difficult to do due to smaller numbers of respondents for at the quarterly level). In addition, due to the oversampling of Aboriginal patients, and because respondent numbers were relative small for Aboriginal patients, weighting was done differently for Aboriginal and non-Aboriginal patient at each stage.

Weighting of quarterly data

For each quarter of data, responses were weighted to match the population by stay type (same-day or overnight), age (18–49 or 50+ years), cancer status and Aboriginal status. This was done in two stages:

- Stage 1a: The non-Aboriginal group was weighted to match the population by stay type (same-day or overnight), age (18–49 or 50+ years), and cancer status
- Stage 1b: The Aboriginal group was weighed to match the population by Aboriginal status only
- Stage 2: Data sets were combined and weights were adjusted using GREGWT to ensure agreement with populations by age, stay type, cancer and Aboriginal strata at a hospital, LHD and NSW level.

Weighting was performed at facility level for hospitals sampled for quarterly reporting (peer group hospitals A1, A3 and B) and at LHD level for hospitals sampled for annual reporting (peer group hospitals C1 and C2). Weighting by cancer status applied only to respondents discharged from January to July 2014, for a subset of included facilities. Methods for weighting are described in the following pages.

Interim quarterly response weights for the non-Aboriginal respondents

$$w_{ijk|m=0} = \frac{N_{ijkl}}{n_{ijkl}} \quad (1)$$

where:

N_{ijkl}.denotes the population (i.e. total number of patients eligible for the survey) of the i^{th} facility, j^{th} age group

k^{th} stay type, l^{th} cancer status. The eligible patient numbers are based on the number of patients following the second phase of screening undertaken by the Ministry of Health

n_{ijkl}. denotes the sample size (i.e. number of respondents) of the i^{th} facility, j^{th} age group, k^{th} stay type, l^{th} cancer status.

If the stratum cell size within a facility was five or fewer, then cells within that facility were aggregated for weighting purposes; firstly by grouping across age groups and then, if still less than five responses, by stay type. At no time was aggregation permitted across cancer stratum. Exceptions were allowed where the patient population in the cell was so small that the aggregation actually increased the weights allocated to the cell with the small sample size.

Interim quarterly weights for Aboriginal respondents

$$w_{i|m=1} = \frac{N_{i|m=1}}{n_{i|m=1}} \quad (2)$$

where:

$N_{i|m=1}$ denotes the total number of Aboriginal patients eligible for the survey following the second phase of screening in the i^{th} facility.

$n_{i|m=1}$ denotes the number of Aboriginal respondents in the i^{th} facility.

Creating overall quarterly weights

The Aboriginal and non-Aboriginal datasets were recombined and the interim weights passed through the GREGWT macro, a survey-specific SAS program developed by the ABS to assist with weighting of complex

survey data[1]. It uses iterative proportional fitting to ensure that the weights at the margins agreed with the population totals even though it is often impossible for the weights to equal the population at the individual cell level. Examples of the types of marginal totals used in this process are as follows:

- Benchmark 1: LHD x cancer strata x Aboriginal strata
- Benchmark 2: LHD x age strata
- Benchmark 3: LHD x stay type
- Benchmark 4: Facility (with annually-reported facilities within the same LHD combined) x LHD x cancer strata
- Benchmark 5: Peer group (A, B, C) x Aboriginal strata
- Benchmark 6: Facility (with annually-reported facilities within the same LHD combined) x age strata
- Benchmark 7: Facility (with annually-reported facilities within the same LHD combined) x stay type.

A lower bound of zero was specified in the macro. Note that the cancer strata totals were only required for Q1 and Q2 (including July).

Each quarter of data was weighted separately using this process. The July data were weighted together with data from Quarter 2 because oversampling of patients with cancer ended with July patients.

Once four quarters of data were available, these were aggregated and the weights for facilities sampled on the basis of annual reporting were adjusted to allow reporting at the facility level. Again the GREGWT macro was used to ensure agreement of weights with populations at the margins, with the margins being as follows:

- Benchmark 1: Quarter x LHD
- Benchmark 2: Peer group
- Benchmark 3: Facility
- Benchmark 4: Age stratum x stay type x cancer stratum
- Benchmark 5: Age stratum x stay type x Aboriginal stratum
- Benchmark 6: Cancer stratum x Aboriginal stratum x age stratum
- Benchmark 7: Cancer stratum x Aboriginal stratum x stay type
- Benchmark 8: Peer group x age stratum x stay type x cancer stratum
- Benchmark 9: Peer group x age stratum x stay type x Aboriginal stratum

[1] Bell, P. (2000) *Weighting and Standard Error Estimation for ABS Household Surveys*, Australian Bureau of Statistics Methodology Advisory Committee Paper. Canberra.

- Benchmark 10: Peer group (with C1 and C2 combined) x cancer stratum x Aboriginal stratum x age stratum
- Benchmark 11: Peer group (with C1 and C2 combined) x cancer stratum x Aboriginal stratum x stay type
- Benchmark 12: LHD x age stratum x stay type
- Benchmark 13: LHD x age stratum x cancer stratum
- Benchmark 14: LHD x age stratum x Aboriginal stratum
- Benchmark 15: LHD x stay type x cancer stratum
- Benchmark 16: LHD x Aboriginal stratum
- Benchmark 17: Facility x age stratum x stay type
- Benchmark 18: Facility x age stratum x cancer stratum
- Benchmark 19: Facility x stay type x cancer stratum
- Benchmark 20: Facility x Aboriginal stratum.

The quarterly weights were used for calculation and in reporting of quarterly results for NSW and by LHD and for facilities in peer groups A1, A3 and B. The adjusted (annual) weights were used for the reporting of annual results. If a facility was sampled for quarterly reporting but had a sample size of less than 30 in more than two quarters for a question, the quarterly results are suppressed for that question. Tables 4 and 5 show the reporting frequency of each facility included in the survey in 2014.

Analysis of weights

As part of the weighting process, an investigation of the weights is undertaken for each quarter separately to ensure that undue weight is not applied to individual responses. The two most important factors considered are the ratio of the maximum to median weight, particularly at the facility level, and the design effect.

The design effect (DEFF) was calculated for each LHD and overall, for each quarter and for the four quarters combined. The DEFF, estimated as (1+coefficient of variance (weights)^2), compares the variance of estimates obtained from the stratified sample used with the variance expected for a simple random sample. Sample sizes, weighted response rates and DEFFs based on the 12 months of data are shown in Table 4 (by LHD and NSW) and Table 5 (by facility).

Table 4: Sample size, response rates and design effects (DEFF) by LHD and overall, AAPS, January to December 2014

LHD	Surveys Mailed	Survey Responses	Weighted Response Rate	DEFF
Central Coast	3,119	1,201	46%	1.46
Far West	555	144	39%	1.17
Hunter New England	12,529	4,750	46%	1.82
Illawarra Shoalhaven	3,953	1,581	47%	2.08
Mid North Coast	4,285	1,721	51%	1.32
Murrumbidgee	3,231	1,137	44%	1.41
Nepean Blue Mountains	2,563	819	39%	1.56
Northern NSW	5,438	2,080	48%	1.44
Northern Sydney	5,291	2,024	42%	1.68
South Eastern Sydney	6,722	2,425	42%	1.73
South Western Sydney	6,759	2,179	36%	1.55
Southern NSW	2,747	1,134	49%	1.50
St Vincent's Health Network	1,314	414	37%	1.28
Sydney	4,702	1,614	40%	1.33
Western NSW	5,301	1,918	45%	1.33
Western Sydney	5,312	1,570	34%	1.77
NSW	**73,821**	**26,711**	**43%**	**1.81**

At the LHD level, the DEFFs range from just over 1.17 to 2.08. This suggests that the sample variance of estimates for some LHDs will be more than double the sample variance that would have been obtained if simple random sampling had been done across the LHD. The 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 the LHD 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 apportionment of respondents between large and small facilities. It was therefore decided not to censor larger weights.

Table 5: Sample size, response rates and design effects (DEFF) by facility, AAPS, January to December 2014

Facility name	Included for cancer oversampling	Original Peer Group	Surveys Mailed	Survey Responses	Weighted Response Rate	DEFF
Facilities where results reported on a quarterly basis						
Bankstown / Lidcombe Hospital	Y	A1	1,362	450	36%	1.30
St George Hospital	Y	A1	1,341	471	37%	1.33
St Vincent's Hospital, Darlinghurst	Y	A1	1,314	414	37%	1.28
Liverpool Hospital	Y	A1	1,654	507	36%	1.35
Prince of Wales Hospital	Y	A1	1,564	527	40%	1.30
Concord Hospital	Y	A1	1,372	491	40%	1.27
Nepean Hospital	Y	A1	1,802	516	37%	1.26
Royal North Shore Hospital	Y	A1	1,487	544	41%	1.29
Westmead Hospital	Y	A1	1,685	494	34%	1.38
Gosford Hospital	Y	A1	1,659	600	44%	1.43
Wollongong Hospital	Y	A1	1,579	547	41%	1.47
John Hunter Hospital	Y	A1	1,818	663	44%	1.43
Royal Prince Alfred Hospital	Y	A1	2,051	719	43%	1.23
Sydney/Sydney Eye Hospital		A3	1,157	429	45%	1.10
Royal Hospital for Women	Y	A3	1,482	506	37%	1.07
Calvary Mater Newcastle	Y	A3	1,432	526	44%	1.22
Canterbury Hospital	Y	B	1,279	404	35%	1.18
Mona Vale and District Hospital		B	1,025	408	44%	1.08
Fairfield Hospital	Y	B	1,369	379	29%	1.29
Auburn Hospital	Y	B	1,452	380	28%	1.28
Blacktown Hospital	Y	B	1,600	460	37%	1.23
Hornsby and Ku-Ring-Gai Hospital	Y	B	1,199	458	42%	1.14
Manly District Hospital	Y	B	1,221	477	43%	1.18
Sutherland Hospital	Y	B	1,178	492	46%	1.18
Maitland Hospital	Y	B	1,473	559	45%	1.15
Campbelltown Hospital	Y	B	1,591	508	36%	1.40
Wagga Wagga Base Hospital	Y	B	1,648	610	46%	1.26
The Tweed Hospital	Y	B	1,487	540	45%	1.26
Coffs Harbour Base Hospital	Y	B	1,596	615	48%	1.23
Port Macquarie Base Hospital	Y	B	1,441	607	52%	1.19
Wyong Hospital	Y	B	1,460	601	50%	1.27
Shoalhaven and District Memorial Hospital	Y	B	1,348	608	53%	1.32
Dubbo Base Hospital	Y	B	1,654	574	43%	1.17
Lismore Base Hospital	Y	B	1,677	594	47%	1.28
Manning Base Hospital	Y	B	1,452	647	54%	1.18
Orange Health Service	Y	B	1,530	558	45%	1.23
Tamworth Base Hospital	Y	B	1,662	636	48%	1.25

Table 5: Sample size, response rates and design effects (DEFF) by facility, AAPS, January to December 2014 (cont.)

Facility name	Included for cancer oversampling	Original Peer Group	Surveys Mailed	Survey Responses	Weighted Response Rate	DEFF
Facilities where results reported on an annual basis						
Ryde Hospital		C1	359	137	41%	1.23
Broken Hill Base Hospital		C1	555	144	39%	1.17
Armidale and New England Hospital		C1	532	172	47%	1.17
Shellharbour Hospital		C1	384	161	52%	1.22
Griffith Base Hospital		C1	543	140	39%	1.25
Murwillumbah District Hospital	Y	C1	495	215	50%	1.38
Bowral and District Hospital	Y	C1	514	228	53%	1.52
Bega District Hospital	Y	C1	530	228	52%	1.54
Goulburn Base Hospital	Y	C1	517	221	43%	1.63
Mount Druitt Hospital	Y	C1	575	236	44%	1.53
Bathurst Base Hospital	Y	C1	602	240	49%	1.68
Grafton Base Hospital	Y	C1	650	247	48%	1.58
Belmont Hospital	Y	C1	684	291	46%	1.90
Forbes District Hospital		C2	387	117	38%	1.13
Casino and District Memorial Hospital		C2	389	148	50%	1.08
Narrabri District Hospital		C2	400	115	34%	1.12
Young Health Service		C2	346	129	43%	1.09
Bulli District Hospital		C2	323	138	44%	1.55
Milton and Ulladulla Hospital		C2	319	127	47%	1.40
Camden Hospital		C2	269	107	43%	1.11
Muswellbrook District Hospital		C2	388	127	40%	1.10
Bellinger River District Hospital		C2	285	127	49%	1.25
Cooma Health Service		C2	351	146	48%	1.12
Deniliquin Health Service		C2	341	130	46%	1.17
Mudgee District Hospital		C2	347	146	52%	1.07
Queanbeyan Health Service		C2	396	143	43%	1.20
Tumut Health Service		C2	353	128	43%	1.19
Inverell District Hospital		C2	412	140	48%	1.17
Gunnedah District Hospital		C2	393	142	46%	1.11
Cowra District Hospital		C2	387	135	46%	1.07
Lithgow Health Service		C2	346	129	45%	1.14
Moree District Hospital		C2	515	138	38%	1.13
Parkes District Hospital		C2	394	148	47%	1.13
Ballina District Hospital		C2	384	160	55%	1.25
Macksville District Hospital		C2	398	170	57%	1.18
Maclean District Hospital		C2	356	176	60%	1.31
Singleton District Hospital	Y	C2	493	184	39%	1.51
Bateman's Bay District Hospital		C2	405	165	57%	1.07
Blue Mountains Dist. Anzac Memorial Hosp.		C2	415	174	46%	1.23
Kurri Kurri District Hospital		C2	366	205	65%	1.16
Kempsey Hospital		C2	565	202	54%	1.20
Cessnock District Hospital	Y	C2	509	205	45%	1.42
Moruya District Hospital	Y	C2	548	231	51%	1.69

Demographic characteristics of respondents to AAPS

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

Table 7 shows the percentages by actual patient volumes as well as for the unweighted and weighted survey results, by various demographic breakdowns.

Two patient population figures are shown. The first column refers to the patient population prior to the phase 2 screening process. The second column refers to the eligible patient population, from which the sample was selected.

The weighted percentages for LHD, stay type, peer group, cancer status and Aboriginal status are almost identical to the proportions in the eligible patient population. The weighted percentage in each of the age strata differs by less than 1% from the eligible population, but the weighted percentages are much closer to this population proportion than the unweighted percentages. This difference is caused by the need to aggregate across age strata for weighting due to small cell sizes. The weighted proportions of cancer and Aboriginal respondents are identical to the proportion in the eligible patient population value, whereas the unweighted proportions are highly inflated due to the oversampling of these groups.

Table 7 Demographic characteristics of patients and AAPS respondents, January to December 2014

Demographic variable	Sub-group	% in patient population	% in MoH* eligible population	% in respondents (unweighted)	% in respondents (weighted)
LHD	Central Coast	4.7	5.0	4.5	5.0
	Far West	0.4	0.4	0.5	0.4
	Hunter New England	12.4	12.7	17.8	12.7
	Illawarra Shoalhaven	5.2	5.0	5.9	5.0
	Mid North Coast	4.4	4.4	6.4	4.4
	Murrumbidgee	3.2	3.1	4.3	3.1
	Nepean Blue Mountains	4.3	4.2	3.1	4.2
	Northern NSW	6.3	5.8	7.8	5.8
	Northern Sydney	8.6	9.4	7.6	9.4
	South Eastern Sydney	9.3	10.1	9.1	10.1
	South Western Sydney	11.9	12.1	8.2	12.1
	Southern NSW	2.6	2.5	4.2	2.5
	St Vincent's Health Network	3.0	2.3	1.5	2.3
	Sydney	9.1	9.3	6.0	9.3
	Western NSW	3.7	3.7	7.2	3.7
	Western Sydney	10.8	9.9	5.9	9.9
Peer group	A1	47.4	48.7	26.0	48.7
	A3	3.0	3.1	5.5	3.1
	B	32.3	32.7	41.6	32.7
	C1	9.3	8.6	10.0	8.6
	C2	8.0	7.0	17.0	7.0
Age stratum	18-49	31.9	31.8	28.4	31.2
	50+	68.1	68.2	71.6	68.8
Stay type	Overnight	65.8	66.3	60.8	66.3
	Same-day	34.2	33.7	39.2	33.7
Aboriginal stratum	Not Aboriginal	96.5	97.7	89.8	97.7
	Aboriginal and/or Torres Strait Islander	3.1	2.3	10.2	2.3
Cancer stratum	Non-cancer	96.5	96.1	85.8	96.1
	Cancer	3.5	3.9	14.2	3.9
Gender	Male	48.6	N/A	45.1	46.3
	Female	51.4	N/A	54.9	53.7

*MOH = NSW Ministry of Health; sex variable was not supplied for the eligible population

Reporting

Confidentiality

BHI does not does not receive any confidential patient information. The process of mailing of surveys and collation of responses are carried out by Ipsos Social Research Institute (Ipsos) on behalf of BHI. All personal identifiers, such as name, address etc., are removed from the data before it is provided to BHI.

To further ensure that respondents are not identifiable, BHI only publishes results that include a minimum of 30 respondents. For facilities or LHDs where there are too few respondents, results are suppressed. Only aggregated data are published – unit record data are never published in BHI reports.

Statistical Analysis

Data were analysed for entire period from January to December 2014, as well as by quarter. Analysis was undertaken in SAS V9.4 using the SURVEYFREQ procedure. Results were weighted for all questions except for questions related to socio-demographic characteristics and self-reported health.

For analysis of results at the quarterly level:

- Strata statement variables included: facility (with annually-reported facilities combined within LHD), LHD, age strata, stay type and cancer (for Quarters 1 and 2 only). Aboriginal strata were not used because cells sizes were too small.
- Results were weighted using weights calculated for the analysis of quarterly data
- Results were generated at the NSW level, and by LHD, peer group and facility (facilities sampled on the basis of quarterly reporting only).

Quarterly results from the 2014 survey were appended to quarterly 2013 results where questions were comparable across years. For these quarterly results, only performance-type questions are reported in *Healthcare Observer* (www.bhi.nsw.gov.au/healthcare_observer).

In the 2014 Adult Admitted Patient Snapshot Report, statistically significant trends in the most positive category of the questions were identified using simple linear regression. A model was fitted across the eight quarters of results, weighted by the inverse of the width of the confidence interval for each point estimate. Statistically significant trends (where the p-value of the regression coefficient was less than 0.05) were only reported for questions where an LHD had a least 6 quarters of results and a coefficient of determination (R^2) of at least 0.6.

For analysis of results at the annual level:

- Strata statement variables included: facility, age strata, stay type and cancer strata. Aboriginal strata were not included because cells sizes were too small.
- Results were weighted using the adjusted annual weights for facilities that were sampled on the basis of annual reporting
- Results were generated for each question in the survey
  - Overall at the NSW level, and by LHD, peer group and facility
  - By stay type (overnight, same-day) at the NSW level, and by LHD, peer group and facility
  - Within each of these, by the following demographic characteristics:

Characteristic	Comment
Age group	18-34,35-54,55-74,75+, based on self-report. Where question on year of birth is missing or invalid, administrative age was used
Self-reported Gender	Where question on sex is missing or invalid, administrative data used
Education	
Main language spoken at home	
Rurality of hospital (NSW and LHD levels only)	Based on Remoteness category of postcode of location of facility
Long-standing health conditions	Dichotomised to long-standing health condition is reported and none reported for the demographic breakdown
Aboriginal status	Self-reported, dichotomised into Aboriginal and/or Torres Strait Islander or neither. Missing values were excluded rather than imputed from administrative source
Self-reported health	
Quintile of socio-economic disadvantage	Refer to the Data Dictionary: Quintile of socio-economic disadvantage

Unless otherwise specified, missing responses and those who responded ‘Don’t know/can’t remember’ to questions were excluded from analysis. For a detailed breakdown of the amount of missing or ‘Don’t know’ responses by question, refer to Appendix 2. Typically, performance-style questions exclude missing values and ‘Don’t know/can’t remember’-type responses. 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 doctor) or that are over 10%. Meanwhile, questions that are not related to hospital performance include results for people who responded ‘Don’t know/can’t remember’ and those who should have answered the question but did not. Results are presented only where the result was based on at least 30 respondents.

Confidence intervals can be displayed in Healthcare Observer only for quarterly results. The BHI document, “Guide to Interpreting Differences” provides information in understanding comparison of results. However, some differences in results between facilities may be due to differences in the demographic profile of patients attending those facilities. BHI is currently developing methods to standardise survey results in order to account for differences in patient mix and to optimise direct comparisons.

Appendix 1: Example of sample size calculation

Examples given are for two facilities that differ markedly in the number of patient visits.

1. Estimate the eligible population (N_i) using data for the previous year

   Stratum (j): non-cancer and non-Aboriginal patients

Facility (i)	Reporting frequency	Annual population, based on previous year	Population (N), for reporting period
1	Quarterly	9693	2423
2	Annual	838	838

   For example, for Facility 1, the estimated population for the quarterly reporting period is

$$\frac{\text{Annual population}}{4} = \frac{9693}{4} = 2423$$

2. Calculate sample size (using Equation 1; figures rounded down)

Facility (i)	Sample size
1	119
2	109

   For example, for Facility 1:

$$\frac{3.84 \times 2423 \times 0.8(1-0.8)}{0.07^2(2423-1) + 3.84 \times 0.8(1-0.8)} = 119$$

3. Allocate sample size across age and stay type strata, proportionately to the population

Facility (i)	Annual population, based on previous year					Sample size			
	Overnight		Same-day		Total	Overnight		Same-day	
	18-49	50+	18-49	50+		18-49	50+	18-49	50+
1	2281	4494	1291	1627	9693	28	55	16	20
2	75	471	139	153	838	10	61	18	20

   For example, for Facility 1, Overnight and 18-49 year old patients:

$$\frac{\text{Annual population (overnight; } 18-49 \text{ years)}}{\text{Annual population (total)}} \times \text{Facility sample size} = \frac{2281}{9693} \times 119 = 28$$

4. Adjust sample size to account for expected response rates (refer to Table 1)

Facility (*i*)	Expected response rate		Required mailings (per year)			
	18-49	50+	Overnight		Same-day	
			18-49	50+	18-49	50+
1	30%	60%	93	92	53	33
2	25%	50%	33	102	60	33

For example, for Facility 1, the required number of surveys that need to be mailed for overnight patients aged 18-49 is:

$$\frac{\text{Sample size}}{\text{Response rate}} \times \frac{28}{0.3} = 93$$

5. Required number of mailings/targets per month, rounded up to nearest integer (a minimum of four mailings is assigned per sampled cell except for facilities where all eligible Aboriginal patients are sampled, in which a minimum target of 15 is assigned).

Facility (*i*)	Required mailings (per month)			
	Overnight		Same-day	
	18-49	50+	18-49	50+
1	31	31	18	11
2	8	9	8	8

Appendix 2: Percentage of missing and 'Don't know' responses

These data are sourced from the Adult Admitted Patient Survey, January to December 2014. Data are unweighted.

	Question text	Missing %	Don't know %	Missing + Don't know %*
1	Was your stay in hospital planned in advance or an emergency?		3.3	3.3
2	From the time a doctor said you would need to go to hospital, how long did you have to wait to be admitted?	2.0	4.9	6.9
3	Do you think the amount of time you waited was...?	1.3	4.6	6.0
4	Before your arrival, how much information about your hospital stay was given to you?	2.8	4.7	7.5
5	When you arrived in hospital did you spend time in the Emergency Department?	2.0	1.8	3.7
6	Were the Emergency Department staff polite and courteous?	1.1	0.9	2.0
7	Do you think the amount of time you spent in the Emergency Department was...?	4.6	2.0	6.6
8	Were the staff you saw on your arrival to hospital polite and courteous?		2.2	2.2
9	Do you think the time you had to wait from arrival at hospital until you were taken to your room or ward was...?	2.3	3.6	5.8
10	How clean were the wards or rooms you stayed in while in hospital?		1.3	1.3
11	How clean were the toilets and bathrooms that you used while in hospital?		2.5	2.5
12	Did you see nurses wash their hands, use hand gel to clean their hands, or put on clean gloves before touching you?	9.5	1.7	11.1
13	Did you see doctors wash their hands, use hand gel to clean their hands, or put on clean gloves before touching you?	14.4	2.4	16.9
14	Were you given enough privacy when being examined or treated?		1.9	1.9
15	Were you given enough privacy when discussing your condition or treatment?		3.1	3.1
16	Did you have any hospital food during this stay?		2.0	2.0
17	How would you rate the hospital food?		2.0	2.0
18	Did you have any special dietary needs (e.g. vegetarian, diabetic, food allergies, religious, cultural, or related to your treatment)?		3.2	3.2
19	Was the hospital food suitable for your dietary needs?	1.0	4.1	5.1
20	Did you need help from staff to eat your meals?		3.4	3.4
21	Did you get enough help from staff to eat your meals?		3.7	3.7
22	If you needed to talk to a doctor, did you get the opportunity to do so?		2.3	2.3
23	When you had important questions to ask a doctor, did they answer in a way you could understand?		3.0	3.0

24	In your opinion, did the doctors who treated you know enough about your medical history?		2.3	2.3
25	Did you have confidence and trust in the doctors treating you?		1.9	1.9
26	Were the doctors polite and courteous?		2.1	2.1
27	Were the doctors kind and caring towards you?		2.0	2.0
28	Overall, how would you rate the doctors who treated you?		2.0	2.0
29	If you needed to talk to a nurse, did you get the opportunity to do so?		1.5	1.5
30	When you had important questions to ask a nurse, did they answer in a way you could understand?		1.9	1.9
31	In your opinion, did the nurses who treated you know enough about your care and treatment?		1.7	1.7
32	Did nurses ask your name or check your identification band before giving you any medications, treatments or tests?	3.6	1.5	5.1
33	Did you have confidence and trust in the nurses treating you?		1.3	1.3
34	Were the nurses polite and courteous?		1.4	1.4
35	Were the nurses kind and caring towards you?		1.4	1.4
36	Overall, how would you rate the nurses who treated you?		1.4	1.4
37	Which of the following other health professionals did you receive care or treatment from during this hospital stay?		8.5	8.5
38	Were these other health professionals polite and courteous?		5.3	5.3
39	Did you have confidence and trust in these other health professionals?		5.8	5.8
40	Did the health professionals explain things in a way you could understand?		3.0	3.0
41	During your stay in hospital, how much information about your condition or treatment was given to you?		2.6	2.6
42	Did you have worries or fears about your condition or treatment while in hospital?		2.9	2.9
43	Did a health professional discuss your worries or fears with you?		3.7	3.7
44	Were you involved, as much as you wanted to be, in decisions about your care and treatment?		2.6	2.6
45	Had family/someone close who wanted to talk to doctor (derived measure)	5.1	2.8	7.9
46	Had family/someone close who wanted information about condition or treatment (derived measure)	5.2	2.8	8.0
47	How would you rate how well the health professionals worked together?		2.0	2.0
48	If you needed assistance, were you able to get a member of staff to help you within a reasonable timeframe?		1.7	1.7
49	Was a call button placed within easy reach?	5.1	1.7	6.9
50	Did you feel you were treated with respect and dignity while you were in the hospital?		1.4	1.4
51	Were your cultural or religious beliefs respected by the hospital staff?		2.8	2.8
52	While in hospital, did you receive, or see, any information about your rights as a patient, including how to comment or complain?	30.7	2.6	33.3

53	Not including the reason you came to hospital, did you experience any of the following complications or problems?		6.6	6.6
54	Was the impact of this complication or problem...?		3.9	3.9
55	In your opinion, were members of the hospital staff open with you about this complication or problem?		6.9	6.9
56	Were you ever in any pain while in hospital?		1.9	1.9
57	When you had pain, was it usually severe, moderate or mild?		3.4	3.4
58	Do you think the hospital staff did everything they could to help manage your pain?		2.1	2.1
59	During your stay in hospital, did you have any tests, X-rays or scans?		2.0	2.0
60	Did a health professional discuss the purpose of these tests, X-rays or scans with you?		4.9	4.9
61	Did you receive test, X-ray or scan results while you were still in hospital?		5.6	5.6
62	Did a health professional explain the test, X-ray or scan results in a way that you could understand?		3.0	3.0
63	During your stay in hospital, did you have an operation or surgical procedure?		1.9	1.9
64	Was your operation or surgical procedure planned before you came to hospital?		3.5	3.5
65	Thinking back to when you first tried to book an appointment with a specialist, how long did you have to wait to see that specialist?	8.2	3.8	12.0
66	From the time a specialist said you needed the operation or surgical procedure, how long did you have to wait to be admitted to hospital?	1.9	3.4	5.3
67	Do you think the total time between when you first tried to book an appointment with a specialist and when you were admitted to hospital was...?	2.1	3.5	5.6
68	Wanted explanation of what would be done in operation or surgical procedure (derived measure)		4.2	4.2
69	After the operation or procedure, did a health professional explain how the operation or surgical procedure had gone in a way you could understand?	2.1	4.2	6.3
70	Did you feel involved in decisions about your discharge from hospital?		2.1	2.1
71	At the time you were discharged, did you feel that you were well enough to leave the hospital?		1.7	1.7
72	Thinking about when you left hospital, were you given enough information about how to manage your care at home?		1.8	1.8
73	Did hospital staff take your family and home situation into account when planning your discharge?	2.9	2.3	5.2
74	Thinking about when you left hospital, were adequate arrangements made by the hospital for any services you needed?		2.4	2.4
75	Did hospital staff tell you who to contact if you were worried about your condition or treatment after you left hospital?	9.0	2.4	11.4
76	Were you given or prescribed medication to take at home?		2.1	2.1
77	Did a health professional in the hospital explain the purpose of this medication in a way you could understand?		4.1	4.1
78	Did a health professional in the hospital tell you about medication side effects to watch for?		5.0	5.0
79	Did you feel involved in the decision to use this medication in your ongoing treatment?		4.8	4.8
80	Did you receive a copy of a letter from the hospital doctors to your family doctor (GP)?	12.3	2.7	15.0
81	On the day you left hospital, was your discharge delayed?		2.0	2.0
82	How long was the delay? [in discharge]	4.1	3.8	7.9

83	Did a member of staff explain the reason for the delay? [in discharge]		4.5	4.5
84	What were the main reasons for the delay? [in discharge]	5.2	4.7	9.8
85	Overall, how would you rate the care you received while in hospital?		1.1	1.1
86	How well organised was the care you received in hospital?		1.2	1.2
87	If asked about your hospital experience by friends and family how would you respond?		1.6	1.6
88	Did you want to make a complaint about something that happened in hospital?		3.9	3.9
89	Why didn't you make a complaint?		3.0	3.0
90	Did the care and treatment received in hospital help you?		2.5	2.5
91	Is the problem you went to hospital for...?		3.6	3.6
92	In the week before your hospital stay, how difficult was it for you to carry out your normal daily activities (e.g. physical activity, going to work, caring for children)?		4.4	4.4
93	About one month after your discharge from hospital, how difficult was it for you to carry out your normal daily activities?		3.5	3.5
94	What year were you born? [#]	2.07		2.07
95	What is your gender? [#]	1.03		1.03
96	What is the highest level of education you have completed?		5.3	5.3
97	Which of the following long-standing conditions do you have (including age related conditions)?		4.8	4.8
98	In general, how would you rate your health?		1.6	1.6
99	Which language do you mainly speak at home?		1.9	1.9
100	Did you need, or would you have liked, to use an interpreter at any stage while you were in hospital?		2.2	2.2
101	Was an interpreter provided when you needed one?		4.0	4.0
102	Are you of Aboriginal origin, Torres Strait Islander origin, or both?		3.9	3.9
103	Who completed this questionnaire?		1.9	1.9
104	Do you give permission for the Bureau of Health Information to link your survey answers to health records relating to you?		3.9	3.9

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

[#] For respondents who did not answer these questions, information about age and gender were substituted with age and sex fields from administrative data (from the Health Information Exchange).

Appendix 3: 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 the array of 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 see the appropriate Data Dictionary for this measure).

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 or specific response options 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.

Inclusions

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

Derived Measure	Original Question (in 2014 AAPS)	Derived Measure Categories	Original Question Responses
Needed to talk to a doctor	Q22. If you needed to talk to a doctor, did you get the opportunity to do so?	• Needed to talk to doctor	• Yes, always • Yes, sometimes • No, I did not get the opportunity
		• No need to talk to doctor	• I had no need to talk to a doctor

Derived Measure	Original Question (in 2014 AAPS)	Derived Measure Categories	Original Question Responses
Had important questions to ask a doctor	Q23 When you had important questions to ask a doctor, did they answer in a way you could understand?	• Asked doctor questions	• Yes, always • Yes, sometimes • No, I did not get answers I could understand d •
		• Didn't ask any questions	• I did not ask any questions
Needed to talk to a nurse	Q29 If you needed to talk to a nurse, did you get the opportunity to do so?	• Needed to talk to nurse	• Yes, always • Yes, sometimes • No, I did not get the opportunity
		• No need to talk to nurse	• I had no need to talk to a nurse
Had important questions to ask a nurse	Q30 When you had important questions to ask a nurse, did they answer in a way you could understand?	• Asked nurse questions	• Yes, always • Yes, sometimes • No, I did not get answers I could understand •
		• Didn't ask any questions	• I did not ask any questions
Wanted information about condition or treatment during stay	Q41 During your stay in hospital, how much information about your condition or treatment was given to you?	• Wanted information	• Not enough • The right amount • Too much
		• Not applicable	• Not applicable to my situation
Wanted to be involved in decisions about care and treatment	Q44 Were you involved, as much as you wanted to be, in decisions about your care and treatment?	• Wanted involvement	• Yes, definitely • Yes, to some extent • No, they did not have enough opportunity
		• Didn't want involvement	• This was not applicable to my situation
Had family/someone close who wanted to talk to doctor	Q45 If your family or someone else close to you wanted to talk to a doctor, did they have enough opportunity to do so?	• Wanted to talk to doctor	• Yes • No
		• Not applicable	• I did not need this kind of information

Derived Measure	Original Question (in 2014 AAPS)	Derived Measure Categories	Original Question Responses
Had family/someone close who wanted information about condition or treatment	Q46 How much information about your condition or treatment was given to your family, carer or someone 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 while in hospital	Q48 If you needed assistance, were you able to get a member of staff to help you within a reasonable timeframe?	• Needed assistance	• All of the time • Most of the time • Some of the time • Rarely • Never
		• Didn't need assistance	• I did not need assistance
Had religious or cultural beliefs to consider	Q51 Were your cultural or religious beliefs respected by the hospital 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 during my hospital stay
Not including the reason came to hospital, experienced (insert individual complication) during hospital stay or soon afterwards	Q53 Not including the reason you came to hospital, did you experience any of the following complications or problems?	• None reported	• None of these • Missing
		• Experienced (individual complication)	• Each individual complication: • An infection • Uncontrolled bleeding • A negative reaction to medication • Complication from surgery • Complication from tests/procedures • A blood clot • A pressure wound • A fall • Any other complication or problem

Derived Measure	Original Question (in 2014 AAPS)	Derived Measure Categories	Original Question Responses
Wanted explanation of what would be done in operation or surgical procedure	Q68 Before your operation or surgical procedure, did a health professional explain what would be done in a way you could understand?	• Wanted explanation	• Yes, completely • Yes, to some extent • No
		• Didn't want explanation	• I did not want an explanation
Wanted to be involved in decisions about their discharge	Q70 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 need or want to be involved
Needed information on how to manage care at home	Q72 Thinking about when you left hospital, were you given enough information about how to manage your care at home?	• Needed information	• Yes, completely • Yes, to some extent • No
		• Didn't need information	• I did not need this type of information
Needed family and home situation taken into account when planning discharge	Q73 Did hospital 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 family and home situation into account
		• Not necessary	• It was not necessary
Needed services after discharge	Q74 Thinking about when you left hospital, were adequate arrangements made by the hospital for any services you needed?	• Needed services	• Yes, completely • Yes, to some extent • No
		• Didn't need services	• I did not need any services
Wanted to be involved in decision to use medication in ongoing treatment	Q79 Did you feel involved in the decision to use this medication in your ongoing treatment?	• Wanted involvement	• Yes, completely • Yes, to some extent • No, I did not feel involved
		• Didn't want involvement	• I did not want to be involved

Exclusions

For derived measures, the following are excluded:

- Response: ‘don’t know/can’t remember’ or similar non-committal response (with the exception of questions where the rate of this response was over 10% and questions that refer to the experience of a third party such as a family/carer)
- 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.