Virtual Care Survey 2021

Measuring outpatient experiences

Technical Supplement

December 2022

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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The conclusions in this report are those of BHI and no official endorsement by the NSW
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organisation is intended or should be inferred.

Contents

Introduction

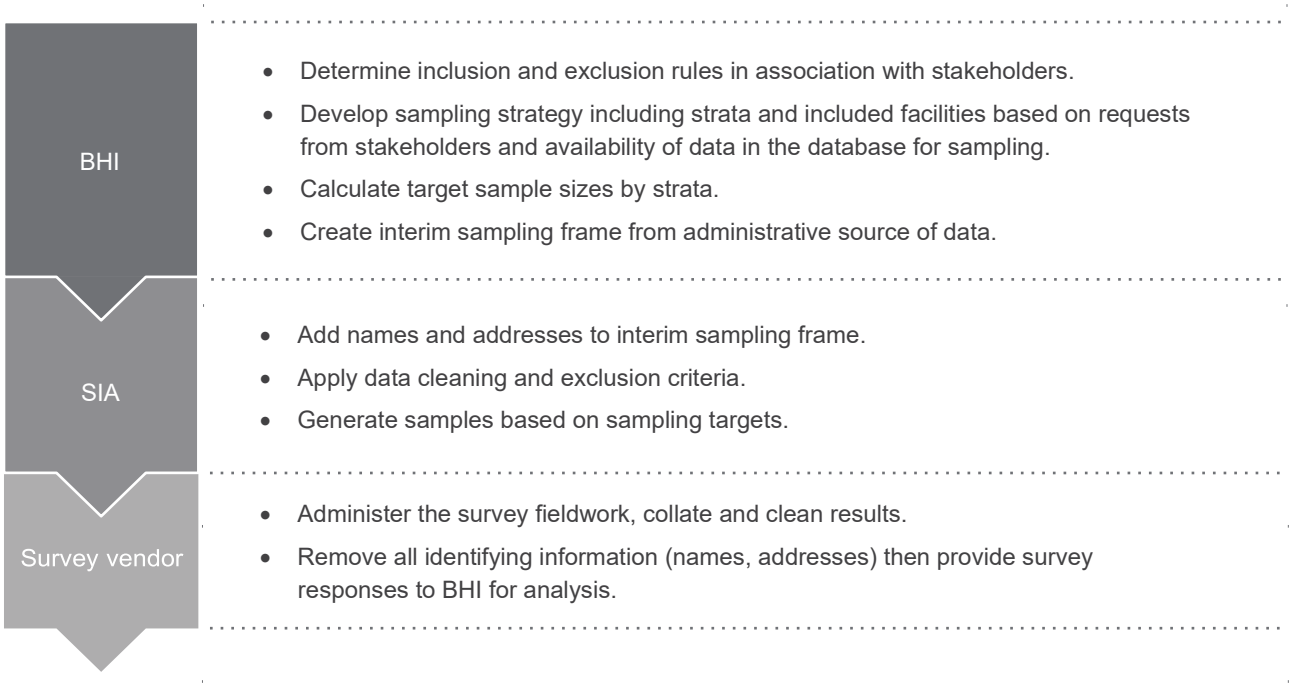
This technical supplement outlines the sampling methodology, data management and analysis of the results of the Virtual Care Survey 2021. Supporting information can be found in *Patients' experiences of virtual care from NSW public hospitals: Results from the 2020 outpatient survey*, available at bhi.nsw.gov.au

The New South Wales (NSW) Patient Survey Program began sampling patients in NSW public health facilities from 2007. The program was coordinated by the NSW Ministry of Health (Ministry) until mid-2012 when responsibility was transferred to the Bureau of Health Information (BHI). BHI has a contract with a survey vendor to support data collection, while BHI conducts all survey analysis.

The aim of the NSW Patient 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 Program Strategy 2019–22* which ensures all patient surveys maximise benefits to patients and deliver unique value for the NSW health system.

Data collection for the NSW Patient Survey Program is a collaboration between BHI, the survey vendor and the Ministry's Systems Information and Analytics (SIA) branch. Figure 1 shows the organisational responsibilities for the sampling design and data collection phases for patient survey projects.

Figure 1 Organisational responsibilities in sampling and data collection



Virtual Care Survey

The Virtual Care Survey 2021 was undertaken as part of the NSW Patient Survey Program. It was the second dedicated virtual care survey conducted by BHI. Changes between the 2020 and 2021 questionnaires are available in a development report on BHI's website at www.bhi.nsw.gov.au/nsw_patient_survey_program/virtual-care-survey

Inclusion and exclusion criteria for outpatients

The survey questionnaire was sent to eligible patients who had contact with non-admitted patient services via telephone or video call in November 2021 or December 2021 at eligible outpatient clinics in public hospital facilities. The eligible population included patients aged 18+ years who had a virtual care appointment.

The date of appointment was used to define patients eligible to participate in the survey. Where patients had multiple visits in that month including both virtual and in-person appointments, they were sampled based on their last virtual care appointment in the month. Multidisciplinary case conferences where the patient was not present were excluded.

Patients were eligible for sampling if they:

- received virtual healthcare in service contact modes 2 (Audio), T (Audio), N (Audiovisual), P (Audiovisual) or C (Audiovisual) and
- the service took place in November and, for some cohorts also in December 2021.

Patients were excluded from sampling if they:

- had an invalid address (including those with addresses listed as hotels, motels, nursing homes, community services, Mathew Talbot Hostel, 100 William Street, army quarters, jails and unknown)
- had an invalid name (including 'twin', 'baby of')
- had an invalid date of birth
- were on the 'do not contact' list
- were sampled in the previous six months for any BHI patient survey
- had mode of separation of death for a subsequent admission to hospital
- were recorded as deceased according to the NSW Registry of Birth Deaths & Marriages and/or activity and performance reporting data collections, prior to the sample being provided to the survey vendor.

The remaining patients were considered to be the final sampling frame and eligible to participate in the Virtual Care Survey 2021.

Inclusion and exclusion criteria for services and outpatient clinics

Virtual care appointments were excluded if they were:

- services deemed to be out of scope based on Tier 2 service type, including sexual health, palliative care, dental, specialist mental health and oncology services. Clinics that included 'multidisciplinary team' or 'MDT' in either the Tier 2 description or the clinic name were also excluded
- services at outpatient cancer clinics, defined as clinics with the following terms in their clinic name: 'cancer', 'oncol*', 'radiation', 'radioth*', 'chemo*', 'breast', 'melanoma' and 'haema*'
- services at clinics with the following key words in their service type description: adolescent, youth, child, ethnic, screening, intake, maintenance care, paediatric, pathology, sexual, assault, wellness maintenance
- services at Sydney Children's Hospital Randwick, Children's Hospital at Westmead or Specialty Health Networks such as Parklea Corrections Health Centre and NSW Tresillian Family Care Centres, health facilities within the Justice Health and Forensic Mental Health Network and Northern Sydney LHD Private Health Sector
- service settings with the following key words in the description: 'expired', 'residential', 'admitted', 'mental health', 'child', 'transport' and 'education'.

Sample design

Sample design is part of the mechanism that ensures the results of the survey are representative of the population. It does this by carefully selecting patients across facilities and demographic characteristics.

Sampling for the Virtual Care Survey 2021 was designed to be representative at NSW level in November 2021 and for some strata December 2021, and stratified by contact mode (telephone or video), rurality of patient postcode (rural or urban) and age (18–49, 50–64 and 65+). The sampling was designed to be similar to the previous survey in 2020, however rurality of LHD was replaced by rurality of patient residence. For more information about how patient groups and geographical boundaries are defined, see page 8.

The sampling frame for the Virtual Care Survey 2021 was based on data in the Ministry's Enterprise Data Warehouse for Analysis Reporting and Decisions (EDWARD) Non-admitted Patient (NAP) activity data mart. Targets of sampling for each stratum were calculated based on aggregated strata-level data.

Based on preliminary data, an initial target of 1,700 patients was set for each of the 12 strata. All eligible patients residing in rural areas who had video appointments were invited to undertake the survey (census sampling) due to estimated small population size, while random sampling occurred in other strata. Additional records (over the 1,700 target) were selected from strata that were sampled in December to ensure that the total number of mailings was closer to 20,400. See Appendix 1 for details.

Data collection and analysis

Data collection

Selected patients were invited to complete the questionnaire by either returning the hard-copy questionnaire or by submitting an online response. With residential addresses the primary contact details available to contact survey participants, providing the option of a paper questionnaire remains most successful in driving higher response rates. Hard-copy questionnaires were scanned for fixed response options and responses in free-text fields were entered manually. A first and then second reminder letter was sent in the subsequent two months if no response was received. This aimed to meet or exceed international best practice response rates, resulting in optimal precision in estimates.

The resultant survey data were anonymised and underwent quality assurance checks before secure transfer to BHI servers for processes which were password protected with access by authorised staff only.

Response rate and completion of questionnaires

The response rate is the percentage of people sampled who actually completed and returned or submitted their responses. The overall response rate, number of mailings and number of respondents, overall and by stratum, are provided in Appendix 1.

Survey completeness is a measure of how many questions each respondent answered as a proportion of all questions. The completeness of responses was high overall, with respondents answering, on average, 44 of the 50 non-text questions (this includes questions that were correctly skipped).

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 NSW level, weights also ensured that that the different sampling proportions used at the stratum level were accounted for, so that NSW results were not unduly influenced by the size of sampling for each stratum.

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

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

Where:

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

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

Weights for each stratum are presented in Appendix 1.

Strata may differ in the type of clinical services and demographic characteristics of patients, but due to lack of available information it was not possible to adjust weights to account for these differences. This issue should be taken into account when comparing results from different strata.

The eligible population for some strata was skewed compared to target population, especially among patients residing in rural who had telephone appointments, with up to 90% of the target population for November not being sampled. Sensitivity analyses were done to compare the impact on weightings using different methods of determining the patient population. BHI chose to use the population provided in Appendix 1 in place of the eligible population. This population had a similar distribution compared to the previous year, for which approximately 30% of the population was not eligible for sampling.

Weighted percentages

All the results in the report were weighted. The weighted percentage of patients selecting each response option in the questionnaire was determined using the SURVEYFREQ procedure with a finite population correction factor and the Clopper-Pearson method adjusting for the sampling weights. Weighted percentages were calculated as follows:

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

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.

When reporting on questions used to identify sub-cohorts, the 'Don't know'/'Can't remember' option and missing responses were also reported. Appendix 2 presents the rates of missing or 'Don't know'/'Can't remember' responses for all questions.

It is assumed that no bias is introduced by the way patients who did not respond to the whole survey, or did not respond to specific questions, were handled. This is because it is also assumed these patients did so randomly and therefore any missing responses do not relate to the experience of care.

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

Table 1 shows demographic characteristics of respondents against the target population. The four columns denote:

1. Percentage of population: the sampling frame from which the sample was drawn.
2. Percentage of sample mailed: the percentage of patients in each category provided by SIA to the survey vendor for mailing.
3. Percentage of respondents (unweighted): respondents to the survey, not adjusted for unequal sampling.
4. Percentage of respondents (weighted): respondents to the survey, adjusted by weighting to be representative of the population.

Table 1 Demographic characteristics of patient population and respondents, Virtual Care Survey 2021

Demographic variable	Sub-group	% of population*	% of sample mailed	% of respondents (unweighted)	% of respondents (weighted)
Rurality of patient residence	Urban	70	45	58	70
	Rural	30	55	42	30
Age group	18–34 years	21	17	5	15
	35–54 years	25	26	16	29
	55–74 years	33	40	53	36
	75+ years	21	16	25	19
Sex†	Male	43	44	46	42
	Female	56	55	54	58

* See section on weighting for source of population

† Information on sex is drawn from administrative data. Other and Unknown sex (0.83%) were excluded.

Association analysis of virtual care experience

To determine if there is an association between positive experiences for virtual care services and patient characteristics and utilisation of virtual care over the past 12 months, questions were selected for modelling.

For each question, the pre-defined most positive response option was used to create a dichotomised variable such that the most positive response was coded as 1, and all other responses, excluding not applicable and missing responses, were coded as 0. The independent factors were age (18–49, 50–64, 65+), gender (man or male, women or female, non-binary, prefer to use a different term, prefer not to say), rurality of patient residence (rural, urban), number of virtual care appointments with a hospital outpatient clinic in the past 12 months (1–2, 3–5, more than 5), whether they had previously seen their health professional (yes, no) and longstanding health condition (yes, no).

The relationship between the independent factor and each outcome was modelled using logistic regression in SURVEYLOGISTIC procedure. Variables with a significant level of less than 0.05 in the multivariable model was determined as significant. The adjusted odds ratio and confidence interval were used to assess the magnitude of the association.

Statistical software

SAS software version 9.4 was used for all statistical analyses and rurality of patient residence, virtual care service type based on administrative data (telephone or video) and age group were included as strata variables.

Reporting

Confidentiality and suppression rules

BHI does not receive any confidential patient information and only publishes aggregated data and statistics. Any question must have a minimum of 30 respondents at the reporting level (i.e. NSW) for results to be reported. This ensures there are enough respondents for reliable estimates to be calculated, and that patient confidentiality and privacy are protected.

Interpret with caution

All data collected using surveys are subject to sampling error (i.e. the difference between results based on a sample of a target population, and the results if all people who received care were surveyed). The 95% confidence interval of the average is expected to contain the true result 19 times out of 20.

Where the confidence interval was wider than 20 percentage points, results for individual questions 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 was fewer than 200.

Reporting by population groups

In addition to reporting results for all respondents, BHI also reports the results by specific groups, as follows:

- age group: '18 –34', '35 –54', '55 –74', '75+'
- virtual care type: 'online, with video', 'telephone/online, audio only'
- number of virtual care appointments with a hospital outpatient clinic in the past 12 months: '1 to 2', '3 to 5', 'more than 5'
- rurality of patient residence: 'urban', 'rural'
- rurality of LHD: 'urban', 'rural'
- longstanding health condition: 'yes', 'no'

Facilities are classified as 'urban' and 'rural' using the Accessibility and Remoteness Index of Australia (ARIA+), the Australian Bureau of Statistics (ABS) measure of remoteness. Urban facilities include those classified as 'Major Cities of Australia' according to ARIA+. Rural facilities include those classified as 'Inner Regional Australia', 'Outer Regional Australia', 'Remote Australia' and 'Very Remote Australia'.

ARIA+ is the standard ABS measure of remoteness. For more information, see www.abs.gov.au/statistics/statistical-geography/remoteness-structure

Appendix 1

Survey response summary

Table 2 Population, mailings, responses and response rates, by stratum of sampling, Virtual Care Survey 2021

Virtual care mode	Rurality of patient residence	Age	Population*	Mailings	Responses	Unweighted response rate (%)	Weight
Telephone	Rural	18–49	19,284	2,287†	70	3.1	275.5
		50–64	12,836	2,075†	238	11.5	53.9
		65+	25,621	2,479†	481	19.4	53.3
	Urban	18–49	54,348	1,698	90	5.3	603.9
		50–64	29,047	2,626†	315	12.0	92.2
		65+	50,524	1,699	338	19.9	149.5
Video	Rural	18–49	1,427	1,028†	72	7.0	19.8
		50–64	1,135	568†	106	18.7	10.7
		65+	2,049	812†	218	26.9	9.4
	Urban	18–49	6,806	1,695	149	8.8	45.7
		50–64	2,864	1,697	329	19.4	8.7
		65+	3,205	1,699	410	24.1	7.8
Total			209,146	20,363	2,816	13.8	N/A

* See section on weighting for source of population.

† Denotes patients in both November and December were invited.

Appendix 2

Rates of missing or 'Don't know'/'Can't remember' responses

Table 3 Unweighted percentage of missing and 'Don't know'/'Can't remember' responses, by question, Virtual Care Survey 2021

Number	Question	Missing %	'Don't know'/'Can't remember' %	Missing + 'Don't know'/'Can't remember' %*
1	What was the purpose of your most recent virtual care appointment with a hospital outpatient clinic?	3.16		3.16
2	Did the appointment time suit you?	3.41		3.41
3	Who did you see during this appointment?	3.41		3.41
4	Had you seen the health professional(s) before, either in person or via telephone or video?	2.81	3.59	6.39
5	How did you access your most recent virtual care appointment?	5.08		5.08
6	Did you experience any problems with the connection or technology during this appointment?	4.19		4.19
7	Did you receive technical support from staff to help you participate in your appointment?	3.98	4.87	8.84
8	Was the health professional(s) adequately prepared for your appointment?	3.76		3.76
9	Were you adequately prepared for this appointment?	3.55		3.55
10	Thinking about the care and treatment at your most recent virtual care appointment, did the health professional(s) explain things in a way you could understand?	5.68		5.68
11	Were you involved, as much as you wanted to be, in decisions about your care and treatment?	3.62		3.62
12	Did the health professional(s) listen carefully to any views or concerns you had?	3.48		3.48
13	Did you have confidence and trust in the health professional(s) treating you?	3.55		3.55
14	Was the health professional(s) kind and caring towards you?	3.44		3.44
15	Were you treated with respect and dignity during your appointment?	3.59		3.59
16	Did you have enough privacy during your appointment?	3.55		3.55

Number	Question	Missing %	'Don't know'/'Can't remember' %	Missing + 'Don't know'/'Can't remember' %*
17	During your appointment, were you given enough information about how to manage your care at home?	3.41		3.41
18	Were you told who to contact if you were worried about your condition or treatment after your appointment?	3.73		3.73
19	How many virtual care appointments have you had with a hospital outpatient clinic in the past 12 months?	4.33	5.72	10.05
20	Overall, how would you rate the virtual care you received?	4.19		4.19
21	If asked about your virtual care experiences by friends and family, how would you respond?	4.23		4.23
22	Did the care and treatment received through virtual care help you?	4.15		4.15
23	Compared with in-person appointments, were your virtual care experiences...?	4.44		4.44
24	If given the choice, would you use virtual care again?	3.98	3.13	7.10
25	Thinking about your experiences of virtual care, what have been the benefits for you?	5.18		5.18
26	Thinking about your experiences of virtual care, what have been the challenges for you?	9.09		9.09
27	In the past 12 months, how many in-person appointments have you had with a general practitioner (GP) for your own health?	2.06	3.27	5.33
28	In the past 12 months, how many virtual care appointments have you had with a GP for your own health?	2.56	3.37	5.93
29	What was the purpose of your most recent virtual care appointment with a GP?	0.47		0.47
30	Was this appointment with your regular GP?	0.79	0.89	1.68
31	How did you access your most recent virtual care appointment?	2.05		2.05
32	Was the GP adequately prepared for this appointment?	1.15		1.15
33	Thinking about the care and treatment at your most recent virtual care appointment, did the GP explain things in a way you could understand?	1.31		1.31

Number	Question	Missing %	'Don't know'/'Can't remember' %	Missing + 'Don't know'/'Can't remember' %*
34	During this appointment, were you given enough information about how to manage your care at home?	1.31		1.31
35	Overall, how would you rate the virtual care you received from GPs in the past 12 months?	1.10		1.10
36	Did the care and treatment received through virtual care help you?	1.10		1.10
37	Compared with in-person appointments, were your virtual care experiences...?	1.63		1.63
38	If given the choice, would you use virtual care again?	1.36	2.26	3.62
39	Did the opportunity to use virtual care help ensure that your care was well coordinated between the GP and the hospital outpatient clinic?	1.26	5.35	6.61
40	Thinking about your experiences of virtual care, what have been the benefits for you?	2.15		2.15
41	Thinking about your experiences of virtual care, what have been the challenges for you?	6.19		6.19
42	What year were you born?	0.85		0.85
43	How do you describe your gender?	0.85		0.85
44	What is the highest level of education you have completed?	1.28		1.28
45	Are you of Aboriginal origin, Torres Strait Islander origin, or both?	1.35		1.35
46	Which language do you mainly speak at home?	1.21		1.21
47	Which, if any, of the following longstanding health conditions do you have (including age-related conditions)?	2.24		2.24
48	Does this condition(s) cause you difficulties with your day-to-day activities?	2.45		2.45
49	Do you give permission for the Bureau of Health Information to link your answers from this survey to health records related to you (the patient)?	1.81		1.81

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

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 patients' needs.

Table 4 Derived measures for EDPS 2020–21

Derived measure	Question	Derived measure categories	Original question responses
Virtual care had a benefit	Q25 and Q40. Thinking about your experiences of virtual care, what have been the benefits for you?	Had a benefit	I thought it was convenient
			I saved time
			I saved money
			I felt that I received the right care at the right time
			I felt that I received safe, high quality care
			I felt at ease being in my own home/ surroundings
			I didn't have to take as much time off work as I would have with an in-person appointment
			I didn't need to arrange care for children or dependants
			I was able to have others join the appointment (my family, other members of my healthcare team)
			I thought it benefitted me in other ways
		Had no benefit	I had no benefits

Derived measure	Question	Derived measure categories	Original question responses
Virtual care presented challenges	Q26 and Q41. Thinking about your experiences of virtual care, what have been the challenges for you?	Had challenges	I would have been more comfortable talking in person
			I had to wait too long for the appointment to start
			I found the process confusing/not well organised
			I had concerns about the quality of the care and treatment I received
			I had concerns about privacy/the security of my health information
			I had issues with the technology
			The health professional(s) had issues with the technology
			I had issues with the quality of the connection
			I had other challenges
		Had no challenges	I had no challenges

References

1. SAS Documentation, Example 49.18 Weighted Multilevel Model for Survey Data, 13 December 2019, accessed July 2022. documentation.sas.com/doc/en/pgmsascdc/9.4_3.4/statug/statug_glimmix_