

NSW Population Health Survey Methods - 2012 update

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The NSW Ministry of Health has conducted the Adult Population Health Survey (since 1997) and the Child Population Health Survey (since 2001) through the New South Wales Population Health Survey, an ongoing survey of the health of people in NSW using computer-assisted telephone interviewing (CATI). The main aims of the surveys are to provide detailed information on the health of adults and children in NSW and to support planning, implementation and evaluation of health services and programs in NSW.

Survey instrument

The survey instruments include question modules on health behaviours, health status, and other associated factors. The methods and all questions are approved for use by the NSW Population and Health Services Research Ethics Committee. The instrument is translated into 5 languages: Arabic, Chinese, Greek, Italian and Vietnamese.

Survey sample

The target population for the survey is all state residents living in private households. The target sample was approximately 1,000 persons in each of the health administrative areas (total sample 8,000-16,000 depending on the number of administrative areas).

From 1997 to 2010 the random digit dialling (RDD) landline sampling frame was developed as follows. Records from the Australia on Disk electronic white pages (phone book) were geo-coded using MapInfo mapping software [1,2]. The geo-coded telephone numbers were assigned to statistical local areas and area health services. The proportion of numbers for each telephone prefix was calculated by area health service. All prefixes were expanded with suffixes ranging from 0000 to 9999. The resulting list was then matched back to the electronic phone book. All numbers that matched numbers in the electronic phone book were flagged and the number was assigned to the relevant geo-coded area health service. Unlisted numbers were assigned to the area health service containing the greatest proportion of numbers with that prefix. Numbers were then filtered to eliminate continuous non-listed blocks of greater than 10 numbers. The remaining numbers were then checked against the business numbers in the electronic phone book to eliminate business numbers.

From 2011 onwards the RDD landline sampling frame was developed as follows: Australian Communications and Media Authority (ACMA) exchange district and charge zone prefixes were generated for each of the strata (that being the current health administrative areas) using "best fit" postcode [3]. All prefixes were expanded with suffixes ranging from 0000 to 9999. The sample was then randomly ordered within each strata. The estimated numbers required for each strata was then forwarded to Sampleworx to use proprietary software to test each number's current status (valid, invalid or unknown and business, non-business or unknown) [4]. The resulting valid non-business or unknown numbers were then used for the survey.

From 2012 onwards mobile only phone users were included into the surveys using an overlapping dual-frame design. The RDD mobile sampling frame was developed by Sampleworx using all known Australian mobile prefixes and then using proprietary software each number was tested to identify valid and invalid numbers [5]. A random sample of valid mobile numbers was then provided for use for the survey.

When the Australia on Disk electronic white pages was available (1997-2004) and reliable for use (to 2008) introductory letters were sent to the selected households. Households were contacted using random digit dialling. Depending on the frame either one person from the household was randomly selected or the mobile phone holder was selected for inclusion in the survey.

Interviews

Interviews are carried out continuously between February and December each year. An 1800 freecall contact number and website details are provided to potential respondents, so they can verify the authenticity of the survey and ask any questions regarding the survey. Trained interviewers at the Health Survey Program CATI facility carried out interviews. Up to 7 calls were made to establish initial contact with a household, and up to 5 calls were made in order to contact a selected respondent.

Data analysis

For analysis, the survey sample was weighted to adjust for differences in the probabilities of selection among respondents. Post-stratification weights were used to reduce the effect of differing non-response rates among males and females and different age groups on the survey estimates. These weights were adjusted for differences between the age and sex structure of the survey sample and the Australian Bureau of Statistics latest mid-year population estimates (excluding residents of institutions) for each health administrative area.

Call and interview data were manipulated and analysed using SAS version 9.2 [6]. The Taylor expansion method was used to estimate sampling errors of estimators based on the stratified random sample. The 95 per cent confidence interval provides a range of values that should contain the actual value 95 per cent of the time.

Further information on the methods and weighting process is provided elsewhere [7,8].

References

1. Australia on Disk [software]. Sydney: Australia on Disk, 2004.
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4. Sampleworx Pty Ltd. Household RDD (available online at http://www.sampleworx.com.au/household_rdd.html)
5. Sampleworx Pty Ltd. Mobile RDD (available online at http://www.sampleworx.com.au/mobile_rdd.html)
6. SAS Institute. The SAS System for Windows version 9.2. Cary, NC: SAS Institute Inc., 2009. Further information available from www.sas.com.
7. Centre for Epidemiology and Evidence, NSW Ministry of Health. NSW Adult Population Health Survey Methods (http://www.health.nsw.gov.au/PublicHealth/surveys/methods_adult.asp)
8. Centre for Epidemiology and Evidence, NSW Ministry of Health. NSW Child Population Health Survey Methods (http://www.health.nsw.gov.au/PublicHealth/surveys/methods_child.asp)