METHODS

In 1999, the NSW Health Department, in conjunction with the 17 Area Health Services, conducted a survey of the health of older people in NSW, using Computer Assisted Telephone Interviewing (CATI). The main aim of the survey was to provide local and statewide information to inform policy development and service planning.

Survey instrument

Development of the survey instrument was coordinated by Professor Hal Kendig, from the School of Health Sciences, and Associate Professor Susan Quine, from the Department of Public Health and Community Medicine, at the University of Sydney. A Technical Reference Group provided expert input into question development. Where possible, questions were drawn from existing surveys, including: the NSW Health Surveys; the Australian Bureau of Statistics Survey of Disability, Ageing and Carers; the telephone version of the Australian Longitudinal Survey on Ageing; the National Dental Telephone Interview Surveys; the Health Status of Older People Survey (Lincoln Gerontology Centre, La Trobe University); and the Health Behaviours and Outcomes in Ageing study. The draft survey questionnaire was refined following a pilot survey, conducted in July 1999 and comprising 200 interviews.

The final survey questionnaire focused on lifestyle, home and social environment, self-reported health status, older people as carers, physical activity and physical functioning, and the health priority areas of diabetes, falls, and mental health. It also included question modules on use of health and community services, and oral health. A brief version of the questionnaire was developed for administration to main carers of selected respondents who were unable to answer the interview on their own behalf. These respondents are referred to in this report as 'proxy respondents'.

The survey instrument was translated into four languages: Arabic, Chinese, Greek, and Italian.

Survey sample

The target sample comprised at least 500 NSW residents aged 65 years and over from each of the 17 NSW health areas. Households were sampled using electronic telephone listings[1], which were geocoded and assigned to health areas. One eligible respondent was selected from each household, using random numbers generated by the CATI system.

Interviews

Interviews were carried out over the period August–December 1999. Selected households were sent a letter describing the aims and methods of the survey two weeks before initial attempts at telephone contact. A 1800 freecall contact number was provided.

Interviews were carried out by trained interviewers at the NSW Health CATI facility. Interviews were carried out in five languages (English, Arabic, Chinese, Greek, and

TABLE 1

OUTCOMES OF TELEPHONE CALLS

Outcome	Telephone numbers (No.)
No answer (10 call backs) or not connected	14493
Business or fax	2144
No one aged 65+ years in household	42304
Household not in NSW	72
Selected respondent away during survey	583
Selected respondent confused or deaf	242
Selected respondent spoke other[1] language	306
Refusal (non-proxy)	3689
Refusal (proxy)	217
Completed interview (non-proxy)	8881
Completed interview (proxy)	537
Total numbers called	73468

Note: [1] Interviews were carried out in English, Arabic, Chinese, Greek and Italian.

TABLE 2

COMPLETED INTERVIEWS BY LANGUAGE

Language	Respondents (No.)
English	9106
Arabic	37
Chinese	87
Greek	74
Italian	114
All	9418

Italian). Up to 10 call backs were made to make initial contact with a household, and five call backs were made in order to contact a selected respondent.

Call outcomes and response rates

During the survey, 73,468 telephone numbers were called. The outcome for each of these telephone numbers is shown in Table 1. Only 14,455 (20.0 per cent) of the numbers called yielded an eligible household. The remaining numbers belonged to households that reported having no residents aged 65 years or older; or where the phone was not answered (despite 10 call backs) or disconnected; or were business, fax or interstate numbers.

A total of 9,418 interviews were completed (including proxy interviews), while 3,906 households or selected respondents refused to participate. This yielded a response rate of 70.7 per cent.

Most respondents (96.7 per cent) were interviewed in English. The number of respondents by language of interview is shown in Table 2.

Response rate varied by health area, from 63.7 per cent in Central Sydney Health Area, to 77.2 per cent in Macquarie Health Area. Response rates were generally higher in rural health areas. The number of people interviewed from each health area and the response rates by health area are shown in Table 3.

COMPLETED INTERVIEWS AND RESPONSE RATE BY HEALTH AREA

Health Area	Non-proxy respondents No.	Proxy respondents No.	Total respondents No.	Response rate Per cent
Central Coast	553	39	592	67.8
Central Sydney	577	39	616	63.7
Far West	510	38	548	70.9
Greater Murray	512	32	544	73.4
Hunter	553	30	583	71.6
Illawarra	525	26	551	72.1
Macquarie	508	34	542	77.2
Mid North Coast	507	31	538	70.8
Mid Western	511	28	539	75.7
New England	508	28	536	75.3
Northern Rivers	529	34	563	75.0
North Sydney	507	22	529	69.3
South East Sydney	520	22	542	66.8
South West Sydney	503	44	547	65.9
Southern NSW	509	29	538	71.5
Wentworth	526	32	558	71.6
Western Sydney	523	29	552	67.4
All	8,881	537	9,418	70.7

Note: Response rate=Completed interviews / (Completed interviews + Household refusals + Personal refusals).

TABLE 4

SURVEY SAMPLE SIZE AND NSW POPULATION BY AGE GROUP AND SEX

Age group (years)	Survey sample size						NSW population, June 1999					
	Males		Females		Persons		Males		Females		Persons	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
65–69	1,465	15.6	1,435	15.2	2,900	30.8	116,060	14.2	121,612	14.9	237,672	29.0
70–74	1,225	13.0	1,403	14.9	2,628	27.9	101,857	12.4	116,905	14.3	218,762	26.7
75–79	797	8.5	1,180	12.5	1,977	21.0	75,477	9.2	100,481	12.3	175,958	21.5
80–84	456	4.8	745	7.9	1,201	12.8	39,290	4.8	63,852	7.8	103,142	12.6
85+	216	2.3	496	5.3	712	7.6	24,986	3.1	58,380	7.1	83,366	10.2
All	4,159	44.2	5,259	55.8	9,418	100.0	357,670	43.7	461,230	56.3	818,900	100.0

Source: NSW Older People's Health Survey 1999 and ABS Estimated Residential Population, excluding people resident in institutions (HOIST). Epidemiology and Surveillance Branch, NSW Health Department.

Data analysis

For analysis, the survey sample was weighted to adjust for differences in the probabilities of selection among respondents, according to the number of eligible respondents in the household, and the number of residential telephone connections for the household.

As shown in Table 4, people aged 85 years and over, especially males, were under-represented in the survey sample. 'Post-stratification' weights were used to reduce the effect on survey estimates of differing rates of non-response among males and females, and among persons of different ages. These weights adjusted for differences between the age and sex structure of the survey sample and the Australian Bureau of Statistics 1999 mid-year population estimates (excluding people resident in institutions) for each health area.

The Surveymeans procedure in SAS version 8.1 was used to analyse the data and calculate point estimates and 95 per cent confidence intervals. The procedure calculates standard errors adjusted for the design effect factor or DEFF (the variance for a non-random sample divided by the variance for a simple random sample). It uses the Taylor expansion method to estimate sampling errors of estimators based on the stratified random sample.[2]

SF-36 scale: Physical Functioning

The Short Form 36 question Health Survey (SF-36) measures overall health and well-being by scoring each of eight dimensions of health: physical functioning, role limitations due to physical problems, bodily pain, general health perceptions, vitality, social functioning, role limitations due to emotional problems, and mental health.[3] Norms for Australian data have been published.[4]

Only the physical functioning dimension of the SF-36 was included the Older People's Health Survey. The physical functioning scale comprises questions concerning a person's ability to do various moderate and vigorous activities. These are shown as questions 50 to 69 on pages 46–47 of this report.

Answers to the questions were scored, summed and the total is presented as a score out of 100. Higher scores indicate better physical functioning and lower scores indicate poorer physical functioning. The mean scale score is generally used for assessment of population health.

The K6 measure of psychological distress

The K6 (Kessler and Mroczec, 1992) was included in the NSW Older People's Health Survey as a relatively short measure of psychological distress that allowed comparison and validation against concurrent diagnostic data in the National Survey of Mental Health and Wellbeing.

The K6 measure is a six-item questionnaire intended to yield a global measure of 'psychological distress' based on questions about the level of anxiety and depressive symptoms in the most recent four-week period. For each item, there is a five-level response scale based on the amount of time (from none through to all) during a four-week period when the person experienced the particular problem. The six questions used are numbered 91 to 96 in the survey questionnaire and are shown on page 49 of this report.

Scoring of the raw questionnaire assigns between one to five points to each symptom in the direction of increasing problem frequency. The raw score was then derived by summing across the six questions when respondents answered at least five questions. Missing values for those who answered at least five questions were replaced by the mean score of the non-missing responses. For presentation, these scores were converted to a 'T-score', calculated by subtracting the overall mean of the K6 scores from the 1997 Health Survey[5], then dividing by the standard deviation of the K6 scores (1997 Health Survey), multiplying by 10 and finally adding 50. The T-score has a mean of 50 and a standard deviation of 10.

Following standard conventions for instruments of this type, we chose a score of one standard deviation above the mean (that is, 60) as a useful level for further comparisons. This should not be regarded as a cutoff score for 'illness', since it is an arbitrary choice. The one chosen has the advantage that it classifies about the same proportion of males (11.2 per cent) and females (15.2 per cent) as having high levels of psychological distress as the percentages found to meet diagnostic criteria for anxiety and depression in other population studies.

The Short Concord Informant Dementia Scale (SCIDS)

SCIDS is a 12-item questionnaire administered by informant ('proxy') interview and used as a screening and assessment instrument for dementia. The 12 questions concern recent changes in memory and are numbered 210 to 234 in the survey questionnaire, shown on pages 59–61of this report.

Each question is scored in the range 0–3 with a score of 0 representing no change and a score of 3 representing 'much worse'. Scores for each question were summed to give a total score in the range 0–36.

Informant interview has been shown to be a valid method in situations where the person could not be examined by a health professional.[6,7] In a study of a random sample of older people living in an area of Sydney, a score of four or more detected dementia with a sensitivity of 83 per cent and a specificity of 87 per cent.[6]

The NSW Older People's Health Survey is the first time that the SCIDS scale has been used in a population health survey and the first time SCIDS has been administered by telephone interview. It is not currently known to what extent, if any, these factors affect the reliability of the scale.

References:

1. Australia on Disk [software]. Sydney: Australia on Disk, 1999.
2. SAS [Software], version 8.1. Cary NC: SAS Institute Inc., 2000.
3. Ware JE, Snow KK, Kosinski MA, GandeK B. *SF-36 Health Survey: manual and interpretation guide*. Boston: Nimrod Press, 1993.
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5. Public Health Division. *NSW Health Survey 1997*. Electronic report at www.health.nsw.gov.au/public-health/hs97/index/html.
6. Waite LM, Broe GA, Bennett HP, Jorm AF, Creasey H, Cullen J, Garyson DA. Screening for Dementia Using an Informant Interview. *Aging, Neuropsychology and Cognition* 1999; 5: 194–202.
7. Grayson LW, Jorm AF, Creasey H, Cullen J, Bennett H, Casey B, Broe GA. Informant-Based Staging of Dementia Using the Clinical Dementia Rating. *Alzheimer Disease and Associated Disorders* 1999; 13: 34–37.

NSW HEALTH AREAS

Far West

New England

Northern Rivers

Macquarie

Mid North Coast

Mid Western

Greater Murray

Southern

Hunter

Central Coast

Wentworth

South Western Sydney

Illawarra

Western Sydney

Northern Sydney

Central Sydney

South Eastern Sydney