The Health Omnibus Survey (HOS) Methodology

INTRODUCTION

The South Australian Health Omnibus Survey (HOS) has been in operation since 1990 and is administered by the Population Research and outcome Studies unit (PROS), Strategic Planning and Policy Division of the Department of Health, in conjunction with Harrison Health Research. HOS is a service used by a number of government and non-government organisations to obtain data on a range of health issues in South Australia (SA). Surveys are conducted annually in October/November.

PURPOSE OF THE SURVEY

The goal of HOS is to collect, analyse and interpret data, which can be used to plan, implement and monitor health programs and other initiatives. HOS is a "user-pays" service that allows several organisations to share the cost of undertaking a survey. Each organisation pays only for questions that have direct relevance to their information requirements.

STUDY DESIGN

HOS has been designed to meet the highest standards of population survey methodology with rigorous adherence to formal statistical techniques.

SAMPLING PROCEDURE

The survey sample is a clustered, multi-stage, systematic, self-weighting area sample. The key sampling concepts are as follows:

Sample Size

Each survey samples 4,400 households. The observed response rate during the decade 1991-2000 has been in the vicinity of 70% resulting in a minimum of 3000 interviews per survey being completed. The large sample size facilitates a high level of confidence that the results and trends noted from the survey are applicable to the South Australian population as a whole.

Clustered Sample

Seventy-seven percent of the sample is selected from the Adelaide metropolitan area with the remainder being drawn from those country areas with a population of 1,000 or more (based on Australian Bureau of Statistics (ABS) 1996 Census information). Country towns with smaller populations are not included because of the additional cost of interviewing people living in remote areas. Within the selected metropolitan and country areas, the ABS Collection Districts (CDs) are the basis of the sample frame. A CD is a geographical area comprising approximately 200 dwellings. Cluster sampling means that some, but not all, of these CDs are included in the sample.

Multistage Sample

To achieve a sample of 4,400 households, 10 households are selected from each of 440 CDs.

Stage 1 - Selection of CDs

Based on ABS population estimates, 340 CDs (out of a possible 2041) are selected in Metropolitan Adelaide, and, 100 (out of a possible 1010 for the whole of non-metropolitan SA) from the selected country areas. A randomly selected starting point and a fixed skip interval are used to determine which CDs are chosen from the sample frame. The skip interval is calculated as the number of households in metropolitan Adelaide (or country SA) divided by the number of CDs required for the metropolitan (or country) sector.

The process of selection is as follows. Firstly, all CDs in the sample frame are listed in numerical code order along with the number of dwellings in that individual CD and the "cumulative number of dwellings" for that CD. The "cumulative number of dwellings" is defined as the total number of dwellings for a particular CD and all previously listed CDs. A random number between one and the skip number is chosen as the starting point for selections and the skip interval is then used to determine which CDs are selected. If, for example, the starting point is 80 and the skip interval is 200, then the CDs which contain the 80th, 280th and 480th cumulative dwelling will be the first three CDs to be selected. Thus, once the skip interval has been determined, selection of an individual CD is dependent on the number of dwellings within that CD. In some cases, larger CDs may, in theory, be selected more than once.

Clustered Sample

Seventy-seven percent of the sample is selected from the Adelaide metropolitan area with the remainder being drawn from those country areas with a population of 1,000 or more (based on Australian Bureau of Statistics (ABS) 1996 Census information). Country towns with smaller populations are not included because of the additional cost of interviewing people living in remote areas. Within the selected metropolitan and country areas, the ABS Collection Districts (CDs) are the basis of the sample frame. A CD is a geographical area comprising approximately 200 dwellings. Cluster sampling means that some, but not all, of these CDs are included in the sample.

Sample Size

Each survey samples 4,400 households. The observed response rate during the decade 1991-2000 has been in the vicinity of 70% resulting in a minimum of 3000 interviews per survey being completed. The large sample size facilitates a high level of confidence that the results and trends noted from the survey are applicable to the South Australian population as a whole.
Stage 2 - Selection of households within CDs
The selection process of households is similar to the selection of CDs. Ten households per selected CD are chosen using a fixed skip interval from a random starting point.

Stage 3 - Selection of individuals within households.
Within households, the person who was last to have a birthday (aged 15 years or over) is selected to participate in the survey. Selected persons are non-replaceable, hence, if the selected person is not available, interviews are not conducted with alternative household members. A minimum of six visits is made to each household before the selected individual is classified as a non-contact. Selections found to be hotels, motels, hospitals, nursing homes and other institutions are excluded from the survey.

Systematic Sample
The randomly selected starting points and the skip intervals between selected CDs and selected households within CDs produce a systematic even spread of households across the population.

Self-weighting Sample
The self-weighting sampling procedure of HOS ensures that every household within each of the two strata (metropolitan Adelaide and the major country towns) have the same probability of being selected even though different probabilities of selection exist at each stage of the sampling process.

The probability of selecting a household equals the probability of selecting a CD (ie. the cumulative number of dwellings in the CD divided by the skip interval) multiplied by the probability of selecting a household, given that the CD was selected (ie. the number of households required in each CD divided by the cumulative number of households in the CD).

QUALITY CONTROL
A quality control committee chaired by PROS epidemiologists oversees all facets of HOS. Committee members consist of a representation of prior users of the survey.

Harrison Health Research is a member of Interviewer Quality Control Australia (ICQA), a national quality assurance initiative of the Market Research Society of Australia. Accredited organisations must strictly adhere to rigorous quality assurance requirements and are subject to regular audit in this regard. Interviewers are trained extensively and ten percent of the interviewers' surveys are selected for validation. The validation process involves re-contacting survey respondents to ensure that they meet the selection criteria within that household, that they were interviewed, and, that their responses to selected questions agree with their original responses. Data entry is fully verified to ensure accuracy of data capture. Recorded data is edited for accuracy and consistency.

ANALYSIS AND REPORTS
Users of HOS can specify one of two reporting options. Clients can choose to receive either a written report or data on diskette so as to perform their own analysis.

The survey data is weighted by sex, five-year age groups and geographic area so that the findings apply to the demographic profile of South Australia. More advanced analyses, such as multivariate analyses can be negotiated with Population Research and Outcome Studies. A copy of the client's weighted unit record data, (including demographic variables), is made available with the written report.

Users choosing to analyse the data themselves are supplied with information covering methodological issues, the response rate and a profile of respondents.

THE QUESTIONNAIRE AND INTERVIEW METHODOLOGY
Population Research and Outcome Studies assists clients to formulate questions and co-ordinates the preparation of the survey questionnaire. Approximately ten background demographic questions are included free of charge to users. HOS is a personal interview survey, which is considered to be the "Gold Standard" of interview techniques. Interviewers read out the questions and, if necessary, prompt cards are used. The questionnaire is designed to take approximately 30 minutes for respondents to complete. Prior to the main survey, a pilot study of 50 interviews is conducted to test questions, validate the survey instrument and assess survey procedures.

INFORMATION
Information about the Health Omnibus Survey is also available at the Population Research and Outcome Studies web site at http://www.dh.sa.gov.au/pehs/PROS/HOS.htm
Or contact Eleonora Dal Grande on 08 8226 0789 or email eleonora.dalgrande@health.sa.gov.au