1 Introduction

This publication includes abstracts for, and research tools used, in 104 general practice substudies conducted as part of the BEACH (Bettering the Evaluation and Care of Health) national study of general practice between April 1999 and December 2006.

These substudies are usually patient-based though a few investigate issues related to the general practitioner (GP). Most investigate the prevalence of a selected morbidity among the respondents and the current management of that morbidity. Some also investigate status of the disease under current management while others cover past management and reasons for change in management.

The subjects of these substudies are largely morbidity based. The GPs ask the questions of the patient but when completing the forms may also use their own knowledge of the patient and the patient's health record (where it is available) in addition to the patient responses. These studies may therefore provide a more reliable measure of prevalence and management than is usually available from patient self-report alone.

All these substudies have been approved by the Australian Institute of Health and Welfare (AIHW) Ethics Committee (on behalf of the Institute and the University of Sydney).

BEACH is a continuous national study of general practice activity that began in April 1998. It is a paper-based data collection program which requires a random sample of GPs to each complete a one-page structured data form for 100 patient encounters (for more details see Chapter 2—Methods). Each year there are about 1,000 GPs involved in the BEACH program, providing an annual database of about 100,000 encounter records.

At the bottom of every encounter recording form is a section called SAND (Supplementary Analysis of Nominated data). SAND substudies investigate aspects of patient health or health care delivery in general practice not covered by the encounter-based data. It is the research tools from, and results of, these SAND substudies that form the content of this report.

Each GP's pack of 100 forms includes 3 separate SAND substudies. A group of 40 forms in every recording pad measure consultation length and selected patient health risk behaviours (body mass index, smoking and alcohol consumption). Every participating GP completes these, when possible, so the sample size for each of these topics is 30,000–40,000 per year (depending on whether all age groups are included in the topic). The results for these standard subjects are presented in each BEACH annual report, but are also summarised in Chapter 4 of this report.

For other SAND substudies, the usual sample is approximately 3,000 forms from about 100 participating GPs. We can therefore conduct up to 20 additional substudies per year. However, sometimes the topic is repeated to increase the statistical power of the substudy, so sample sizes for these changing topics range from about 3,000 to 12,000 patients from 90 to 400 participating GPs.

Encounter data collected in BEACH provides a reliable overview of the content of GP–patient encounters, the morbidity managed and the treatments provided on that occasion. However, at the encounter the GP does not always manage all the patient's health problems at a single encounter. For example, a patient with multiple morbidity (e.g. diabetes, ischaemic heart disease, osteoarthritis and asthma), will not necessarily have all these managed at a recorded encounter. Therefore the absence of a problem being managed does

not suggest it is not present in the patient. In contrast, the SAND substudies ask about the presence or absence of one or more specific diseases, risk factors or health behaviours, regardless of whether the problem was managed at the encounter. Current management, past management and current disease control level can also be investigated for those who have the disease/risk factor.

The advantages of SAND substudies are:

- The data needed for a reliable response can be gained from the patient, plus the GP and where available, the patient's health record.
- The substudies can be conducted as an addition to an ongoing program, at far less cost than would be incurred if each study was undertaken independently.
- Data from the substudies can be readily cross-analysed with information available in the encounter form about the patient (e.g. age, sex, Commonwealth concession card status, Indigenous status etc.), and the GP characteristics (collected through the GP Profile questionnaire completed by each GP participant).

Since BEACH began in 1998 there have been 172 substudies—in addition to the standard topics of length of consultation and patient risk factor status. Those conducted in the first year of BEACH (1998–99) were reported in *Measures of health and health care delivery in general practice in Australia* available from <www.fmrc.org.au/publications/Books3.htm>.[1] These topics are cross referenced in the subject bibliography of this report, so the reader is aware of subjects covered in the other publication, but they are not reproduced here. Some topics have been repeated in two or more data periods and in most cases interim reports are not provided as abstracts. In total there are therefore 104 abstracts presented in Chapter 5.

With such a large number of substudies it is not possible to publish a full paper on each. To date we have published an abstract for each SAND study on our website <www.fmrc.org.au> and on the National Library's archive PANDORA <http://nla.gov.au/nla.arc-14007>, in parallel with the release of the BEACH annual report each year. The topics are wide ranging and the results would therefore be of interest to a broad range of researchers, some of whom may be unaware of the availability of the abstracts. Further, on the web we do not provide the research tools developed for each SAND topic.

We hope that this report will assist GPs, GP divisions/networks, and other researchers by providing them with a wide range of tools that have demonstrated acceptability and utility, that are useable in the confines of general practice patient encounters, and which have already been approved by recognised ethics committees. We also believe that the results will be of interest to anyone studying morbidity and its management in general practice, or researchers planning a study to be undertaken in the future. For those preparing research protocols for studies based in general practice, the prevalence estimates provided in these abstracts will be particularly useful, as they give the researcher an indication of the likely number of patients who have the disease of interest, who are passing through the GPs' surgery. This allows them to better estimate the required GP sample size and project time required for recruitment of patients with the morbidity of interest.

1.1 Using this publication

This report includes four major sections and a subject bibliography.

(1) Methods—including a summary of the BEACH methods and a description of the methods used in the SAND substudies—are provided in Chapter 2. Where additional methods have been used for an individual SAND substudy these are described in the specific abstract for that SAND topic.

(2) Lessons we have learnt during the development and conduct of over 170 substudies, and some interesting methodological issues are discussed in Chapter 3.

(3) Chapter 4 contains a summary of results from 2000 to 2006 for:

- length of consultation for Medicare claimable A1 items of service and
- patient self-reported risk behaviours, including:
  - body mass index (BMI) (calculated from self-reported height and weight)
  - current smoking status
  - usual alcohol intake.

These are the four topics surveyed consistently since April 2000, included on 40 of the 100 encounter forms in every participating GP's research pack. Though the results are reported in the BEACH annual report in December each year (rather than as abstracts on the web), we felt that a summary of these results should be included in this report for completeness.

(4) In Chapter 5—Abstracts and research tools, the 104 SAND abstracts and their research tools are presented in order of their data collection period.

- The abstracts are single page summaries of the topic, rather than abstracts of the type produced for conference presentations or journal papers. They do not include an introduction/background, nor a discussion or conclusion. They have a standard structure using the following headings:
  - Organisation supporting this study
  - Issues
  - Sample
  - Method
  - Additional methods for this study (where applicable)
  - Summary of results.

When reading this report it would be useful to keep the following points in mind:

- In any one SAND substudy the denominator changes frequently, reflecting the step down approach of most SANDs from broader to more specific subjects. We have aimed to include a statement of these changing denominators in each SAND abstract but admit this has been done better in later rather than in earlier years.
- Keep in mind that where missing data are greater than 5% the reliability of the result is in question (see Chapter 3—Lessons learnt).
- Each abstract is identified by a number, from 1—104, so the lower the abstract number, the older the study.
- Each abstract is followed by a copy of the questions asked in that SAND study and the instructions given to the GP for completing them (the research tools).

In practise, this instruction sheet and example form is on green paper, and designates the beginning of a new SAND topic within the recording pack. It alerts the GP to the change of topic for the bottom section of the form, so she/he can tear out the instruction sheet from the pad and keep it for reference during the next set of encounters. The SAND topic is then included as part of the normal encounters for the next 30 (or 40 in the case of patient risk factors) SAND forms.

- Where additional tools were used in the conduct of a SAND substudy, these are also presented in the pages following the SAND abstract. Such additional tools include:
  - patient cards, where a number of options and/or definitions are offered for patient selection (e.g. the asthma severity levels patient card for Abstract 3)
  - other patient cards such as the Standard Drinks Chart shown to the patient by the GP in assessing usual alcohol intake (Chapter 4, Section 4.4)
  - option cards given to the patient when a number of options are available (in a pick list), thus saving the GP reading out all the options to each patient. Two examples of these are the smoking cessations methods (Abstract 53), and the methods used for weight loss attempts (Abstract 55).
- Any text or footnotes that have been added to the original abstract published on our website are in italics—in the majority these provide more details about the methods used in that SAND.
- At the bottom of each abstract other related abstracts are listed, and where peer-reviewed articles have been published using the data or on that topic, the paper(s) are cited.
- The subject bibliography. Each abstract has been designated a series of logical keywords. These have been used to create a subject bibliography (see page 264). One abstract can be listed under multiple subject headings: for example you will find SAND substudies about *hypertension* are listed in the bibliography under *Hypertension, National Health Priority Areas, Cardiovascular, Circulatory, Management, Prevalence, and Risk factor.* Where a study was conducted in the first year of the BEACH program (1998–99) and therefore published elsewhere,[1] it is listed in the subject bibliography, but is not included as an abstract in this report.

1.2 Interpreting the prevalence estimates

Most SAND substudies provide an estimate of the prevalence of a condition(s) among patients attending general practice. This means that they measure the number of patients who have the condition, among those who happened to see their GP during the SAND recording period.

SAND substudies do not measure disease prevalence among the total Australian population, because not everyone attends a GP. Approximately 85% of the population visit a GP at least once in any given year, (personal communication, Australian Government Department of Health and Ageing, August 2002), but the remaining 15% who do not attend have no chance of being selected in a SAND subsample.

These studies also do not measure the prevalence of the condition among the population of general practice patients (i.e. the population of patients who attend a GP at least once).
In BEACH the unit of selection is the GP, who completes information for a cluster of patient encounters. Patients who attend more frequently have a higher chance of being 'selected'

than those who attend fewer times in a year. Each SAND sample therefore is not a random sample of all patients who attend at least once.

SAND data can be used to estimate the prevalence of a condition among all general practice patients, but you have to adjust the raw results for the GP attendance rates of each age group of patients, using Medicare Benefits Schedule (MBS) data (see Abstract 89).

1.3 Background

General practitioners are the first port of call in the Australian health care system. They act as gatekeepers to the secondary and tertiary sectors, and in 2006 they conducted more than 90 million consultations, most of which were claimed through Medicare Australia (the national health insurance system).[2] The BEACH program provides information about the content of these GP–patient encounters and the services and treatments provided by GPs to the Australian community.

The BEACH program is the only continuous randomised study of general practice activity in the world, and the only national program that provides direct linkage of management actions to the problem under management. It relies on the participation of an ever-changing random sample of about 20 GPs per week (about 1,000 per year), with each GP providing details about 100 consecutive patient encounters. The database therefore incorporates details of approximately 100,000 encounters per year. To date BEACH has involved approximately 9,000 participants (representing more than 7,500 individuals), providing details for approximately 900,000 GP–patient encounters.

The BEACH encounter form (see example at the end of this chapter) provides information about some characteristics of the patient, tells us the problems managed by the GP at the encounter, and how she/he manages each problem. It gives a cross sectional view of morbidity and its management rather than longitudinal patient-based view. By their nature the encounter data do not provide estimates of disease prevalence. They describe how often a morbidity is managed in general practice and how it is managed.

However, the program also facilitates collection of information about other aspects of the health of general practice patients through a continuous series of subsample studies, known as SAND (Supplementary Analysis of Nominated Data).

The SAND substudies allow us to measure prevalence and management of a selected disease among a sample of patients attending general practice, utilising the GPs clinical knowledge of the patient, patient recall and patient notes to provide more reliable information.

SAND substudies

Since BEACH began in April 1998 a section on the bottom of each encounter form has been allocated to investigate other aspects of patient health or health care delivery not covered by the consultation-based information. These substudies are referred to as SAND. Each organisation supporting the BEACH program has access to two subsamples of 3,000 encounter forms per year in which questions can be asked on a subject or subjects of their choice. This means that through the BEACH program we have the potential to study 20 different topics each year at marginal additional program cost. Detailed methods for SAND can be found in Section 2.2.

Population health and health improvements resulting from interventions and strategies need to be monitored. General practice is commonly identified as a significant intervention point for health care and health promotion because GPs have considerable exposure to the health of the population. As about 85% of the population visit a GP at least once in any single year (personal communication, Australian Government Department of Health and Ageing, August 2002), general practice would appear to provide a suitable basis from which to monitor many aspects of the health of the population.

Gaining reliable estimates of morbidity prevalence in the Australian population is important for health promotion and health services planning. The real prevalence of any morbidity in a population is difficult to establish due to unrecognised and untreated cases that by definition cannot be enumerated, except perhaps by population-wide screening programs. Estimates from tertiary health services data such as hospital separations mostly deal with more severe cases, and health services data are often counted as treatment events (or episodes) rather than individual cases.[3]

The National Health Survey (NHS) provides estimates of population prevalence based on self-reported morbidity from a representative sample of the Australian population using a structured interview to elicit health related information from participants. Surveys are currently conducted every 3 years.[4] Such community surveys have the advantage of estimating health states among the general population—including those who do not attend a general practitioner. However, self-report relies heavily on the patient's knowledge and recall, and has been demonstrated to be susceptible to misclassification, due to lack of clinical corroboration of diagnoses.[5] The assistance of a medical practitioner in recording a patient's health problems should go some way to reducing under-reporting and misclassification found in patient self-report alone.[5,6]

The concept of asking the GP to collect patient-based data about a sample of the patients they encountered while recording for the BEACH program was conceived by Geoffrey Sayer (a PhD student and staff member of the centre at the time) in 1997, with input from Janice Charles and Alice Bhasale. One aspect of Sayer's thesis was to investigate the extent to which the inclusion of the patient risk factor questions in SAND influenced the content of the encounter—whether completing the SAND section on patient risk factors, led the GP to give more attention in the encounter to the health risk behaviours asked of the patient—therefore jeopardising the validity of the encounter data recorded. He found no statistically significant effect.[7]

These substudies clearly demonstrate that it is possible to gain a large amount of reliable information in a relatively small space, with the addition of a single instruction sheet for each topic, and (where required) a patient card listing response options or defining specific morbidity. They also show that such brief surveys are acceptable and feasible for a GP to complete in the limited time of GP–patient encounters and that patients find it acceptable for GPs to ask such questions.

BEACH (Bettering the Evaluation And Care of Health) - Morbidity and Treatment Survey - National DOC ID

Encounter Number	Date of encounter ___/___/___	Date of Birth ___/___/_ _ _ _	Sex M ☐ F ☐	Patient Postcode

START Time : AM / PM (please circle)	Patient Reasons for Encounter 1. 2. 3.

	Yes / No
New Patient	☐ ☐
Health Care/Benefits Card	☐ ☐
Veterans Affairs Card	☐ ☐
NESB	☐ ☐
Aboriginal	☐ ☐
Torres Strait Islander	☐ ☐

PATIENT SEEN BY GP ☐
PATIENT NOT SEEN BY GP ☐

Medicare Item Nos: (if applicable)
1. _____
2. _____
3. _____

Workers comp paid ☐
State Govt/Other paid ☐
No charge ☐

Diagnosis/ Problem ① : **Problem Status** New ☐ Old ☐ Work related ☐

Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New	Drug status Cont.
1.								
2.								
3.								
4.								

Procedures, other treatments, counselling this consult for this problem
1. Prac Nurse? ☐ 2. Prac Nurse? ☐

Diagnosis/ Problem ② : **Problem Status** New ☐ Old ☐ Work related ☐

Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New	Drug status Cont.
1.								
2.								
3.								
4.								

Procedures, other treatments, counselling this consult for this problem
1. Prac Nurse? ☐ 2. Prac Nurse? ☐

Diagnosis/ Problem ③ : **Problem Status** New ☐ Old ☐ Work related ☐

Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New	Drug status Cont.
1.								
2.								
3.								
4.								

Procedures, other treatments, counselling this consult for this problem
1. Prac Nurse? ☐ 2. Prac Nurse? ☐

Diagnosis/ Problem ④ : **Problem Status** New ☐ Old ☐ Work related ☐

Drug Name AND Form for this problem	Strength of product	Dose	Frequency	No. of Rpts	OTC	GP Supply	Drug status New	Drug status Cont.
1.								
2.								
3.								
4.								

Procedures, other treatments, counselling this consult for this problem
1. Prac Nurse? ☐ 2. Prac Nurse? ☐

NEW REFERRALS, ADMISSIONS

	Problem(s)
1. _____	1 2 3 4
2. _____	1 2 3 4

IMAGING/Other tests

	Body site	Problem(s)
1. _____	_____	1 2 3 4
2. _____	_____	1 2 3 4

PATHOLOGY

	Problem(s)
1. _____	1 2 3 4
2. _____	1 2 3 4
3. _____	1 2 3 4

PATHOLOGY (cont)

	Problem(s)
4. _____	1 2 3 4
5. _____	1 2 3 4

SAND questions are inserted here