Older patients attending general practice in Australia 2000–02

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Older patients attending general practice in Australia 2000–02

Julie O'Halloran, Helena Britt, Lisa Valenti, Christopher Harrison, Ying Pan, Stephanie Knox

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Foreword

The ageing of Australia's population is the major challenge facing Australia's health system in the 21st Century. In 1901 fewer than 4% of Australians were aged 65 and over. In 2001 it was 12% and, by 2051, one in four Australians will be aged 65 or more. This BEACH (Bettering the Evaluation and Care of Health) report contains the sort of high quality data needed to plan for this massive demographic change.

While most older Australians enjoy a full life and continue to make important contributions to the community, old age clearly brings with it an increasing number of health problems. The incidence of many cancers and cardiovascular, musculoskeletal and neurodegenerative diseases all increase dramatically with age. *Older Patients Attending General Practice in Australia 2000-02* provides the most comprehensive picture yet of the role of Australian general practitioners (GPs) in managing the health problems of old age.

The report found that cardiovascular disease (38 problems per 100 GP-patient encounters) and musculoskeletal problems (22 problems per 100 encounters) were the most common health problems managed by GPs. The high ranking of musculoskeletal disease, particularly osteoarthritis and osteoporosis, supports the recent addition of these conditions to the list of National Health Priority Areas. However, the low ranking of dementia among the chronic health problems managed by GPs is of concern, given that dementia is the leading cause of disability in older Australians.

It is good to see that GPs are making home visits to provide health care to their older patients. The home visit rate was over seven per 100 encounters for those aged 75 years and over, compared to less than two per 100 for those aged 65 to 74 years. However, the very high burden of disease in nursing homes and hostels suggests that the frequency of GP visits to patients living in residential aged care (three per 100 encounters) is probably less than optimal.

The management of many of the health problems for older people requires a multidisciplinary approach. It is disappointing, then, to see the very low uptake by GPs of the case conference Enhanced Primary Care item, recorded: only seven case conferences in nearly 50,000 GP-patient encounters. Another area of concern is the low level of new referrals to geriatricians, not listed among the top 10. The failure of GPs to refer to geriatricians, and other relevant health professionals, might simply reflect the gross under-supply of aged care specialists in Australia.

Researchers into ageing continue to debate whether older people in the future will be any healthier than older people today. There is no doubt, however, that mortality rates are falling even amongst the oldest old. This means that the number of very old people in Australia will continue to rise, with GPs at the forefront of any health system response to the 'greying' of Australia.

This report makes essential reading now for clinicians, policy makers and researchers. It will also make fascinating reading in the future, as an accurate record of interactions between Australian GPs and their patients in the first years of a new, but demographically older, millennium.

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The University of Sydney

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Summary

Introduction

Despite the increasing proportion of the population accounted for by persons aged 65 years or more, and the high rates of general practice service use among older people, little is known about the content of general practice encounters with the older population.

Objectives

This study aims to:

- describe the characteristics of older patients attending general practice
- provide an overview of the reasons for encounter and conditions managed at encounters with older patients
- describe the management of those conditions at encounters
- examine some risk factors for ill health in older patients
- investigate the extent to which changes have occurred over the past decade in conditions managed at encounters with older patients, and in the management of such conditions
- describe chronic conditions managed in older patients, and evaluate the impact of recent government initiatives in general practice for the management of older patients.

Methods

This study is a secondary analysis of the Bettering the Evaluation and Care of Health (BEACH) program, a continuous national study of general practice activity in Australia. A national random sample of approximately 1,000 general practitioners (GPs) per year each records information regarding 100 consecutive patient-based encounters. This provides information on 100,000 general practice consultations per year. The focus of this report is on all encounters with patients aged 65 years or more that were recorded between April 2000 and March 2002. Data elements include GP information, encounter information, and information relating to aspects of patient care not directly related to the encounter, including selected patient health risk behaviours and prevalence of disease (for subsamples of the patients encountered). Data from the Australian Morbidity and Treatment Survey (AMTS) 1990–91 provided a comparative measure of morbidity and treatment at general practice encounters with older people in general practice a decade earlier.

Results

The dataset

A total of 49,647 encounters with patients aged 65 years or more were available for analysis. Of these, 24,003 were with patients aged between 65 and 74 years (48.3%), while 25,644 were with patients aged 75 years or more (51.7%).

The GPs

Almost all GPs who participated in BEACH over the two-year period saw patients aged 65 years or more (99.0%). Half the GPs had been practising for 20 years or more, and three-quarters had graduated in Australia.

The encounters

The vast majority of encounters with patients aged 65 years and over were direct consultations (96.3%), where the patient was physically seen by the doctor. The proportion of visits held in locations other than the doctor's surgery increased with age, with home visits occurring significantly more often in the 75 years and over age group.

Consultations with patients aged 65 years and over were significantly longer than those with patients aged less than 65 years (15.4 minutes compared with 14.9 minutes). The longest consultations were with patients aged 75 years or more (15.6 minutes).

The patients

Females accounted for a greater proportion of encounters in both the older age groups. Males accounted for a greater proportion of encounters when aged between 65 and 74 (43.8%) than when aged 75+ (38.5%). Almost five times as many people aged 75+ held Commonwealth Veterans' Affairs cards than those aged 65–74 years.

At encounters with older patients, 161.7 patient reasons for encounter were recorded per 100 encounters. Requests for prescription(s) were the most frequent individual patient reason for encounter (RFE) in patients aged 65 years or more (16.8 per 100 encounters). Requests of general check-up were significantly more frequent at encounters with patients aged 75 years and over, while those aged 65–74 years were significantly more likely to present to the GP asking for their test results than patients aged 75 years or more.

Problems managed

At encounters with those aged 65 years or more, there were 171.2 problems managed (as described by the GP) per 100 encounters. Problems relating to the circulatory system were the most frequently managed (38.4 problems per 100 encounters), hypertension being the most frequently managed individual problem, at one in five encounters.

Injuries were managed at a rate of 5.0 per 100 encounters. Injuries relating to the skin were managed significantly more often at encounters with patients aged 75+ than for those of 65–74 years.

Medications

Medications were prescribed, supplied or advised for purchase over the counter at a rate of 131.6 per 100 encounters. Medications acting on the cardiovascular system were the most frequently prescribed, supplied or advised for purchase over the counter at encounters with older people (31.6 per 100 encounters). Medications acting on the central nervous system and antibiotics were also frequently prescribed at encounters with this age group.

Non-pharmacological treatments

Clinical treatments were given at an average rate of 30.8 per 100 encounters, and were provided significantly more often to patients aged 65–74 years than to those of 75+. Counselling about nutrition or weight, the most common clinical treatment (5.1 per 100 encounters), was also more often given to patients in the younger age group.

Procedural treatments were less common (15.3 per 100 encounters), the most frequent being excisions / biopsies and debridements (3.6 per 100 encounters).

Referrals

New referrals to specialists were provided at an average rate of 8.1 per 100 encounters. Referrals to allied health professionals were less common (2.7 per 100 encounters).

Test ordering

Pathology tests were ordered at an average rate of 33.5 per 100 encounters, full blood counts being the most common (4.7 per 100 encounters) followed by lipid tests (2.4 per 100 encounters).

Imaging was not ordered frequently for patients aged 65 years or more (8.1 per 100 encounters), with the test most often ordered being chest x-ray (1.4 per 100).

Risk factors

Of the 18,469 patients who responded to questions about alcohol consumption, 16.3% reported consuming alcohol at at-risk levels. The majority stated they were non-drinkers or responsible drinkers. At-risk drinking was more prevalent in respondents aged between 65 and 74 years (19.4%), and in this age group at-risk drinking was more prevalent in men than in women (23.8% compared with 15.8%).

Of the 18,709 patients aged 65 years or more who responded to questions about their smoking status, 7.5% reported smoking daily. Daily smoking was more prevalent in those aged 65–74 years (9.5%) than in those of 75+ (5.4%). There were no significant differences in daily smoking rates between males and females in either age group.

Patient-reported height and weight was recorded for 19,430 respondents aged 65 years or more. Almost one in five was obese (19.1%), with over half being either overweight or obese. Significantly more respondents aged 65–74 years were either overweight or obese (63.9%) than those aged 75 years or more (48.9%). Over 10% of respondents aged 75 years or more were underweight (10.4%). Women in this age group were significantly more likely to be underweight than their male counterparts (13.7% compared with 5.5%).

Changes over time

Significantly more patient reasons for encounter were recorded in 2000–02 than in 1990–91; however, the rate of problems managed was identical for both studies (174.4 per 100 encounters). Non-pharmacological treatments (particularly clinical treatments), referrals and at least one pathology test order were given significantly more often in 2000–02 than in 1990–91.

Hypertension was the most frequently managed problem in both 1990–91 and 2000–02, and its management rate had not changed over this time. Osteoarthritis, diabetes, lipid disorders and oesophageal disease were managed significantly more often in 2000–02 than in 1990–91. In contrast, ischaemic heart disease, heart failure, chronic obstructive pulmonary disease and anxiety were managed significantly less often in 2000–02 than in 1990–91.

Chronic conditions

Chronic conditions were prevalent in 93.2% of older patients. In the study of prevalence of disease in a subsample of patients aged 65 years or more (n = 2,976), hypertension was the most prevalent problem (present in 45.6% of respondents), followed by osteoarthritis (20.9%) and lipid disorder (17.5%).

Chronic conditions were managed at an average rate of 140.0 per 100 encounters. Hypertension was the most commonly managed chronic problem, accounting for 23.4% of all chronic problems managed. This was followed by osteoarthritis (7.3%).

Enhanced Primary Care (EPC)

BEACH provided a representative sample of encounters where an Enhanced Primary Care (EPC) item was claimed. Of the 310 encounters with an EPC item recorded, health assessments (57.1%) were the most common, followed by care plans (40.6%). The majority of GPs who recorded an EPC item recorded only one; however, one GP recorded 35 EPC items in 100 encounters.

The age-specific rate of health assessments was higher for encounters with patients aged between 85 and 89 years, closely followed by those of 75–79 years. They were undertaken at equal rates for both males and females.

Half the care plans recorded were with patients aged less than 65 years; however, those aged 65–74 years were the most likely to have a care plan made. As a relative rate, males had slightly more care plans made than females.

The most frequent problem labels recorded for health assessments related to the administration involved in performing health assessments, and the most frequent individual diagnosis was hypertension. In care plans, diabetes was the problem recorded most often.

Only seven case conferences were recorded in BEACH over the two-year period 2000–02.

Conclusion

This is the first study of general practice encounters with older patients in Australia. It has provided an overview of the problems managed at these encounters and the care given to those patients by GPs. This study has demonstrated the importance of the GPs' role in the care of older people, particularly in the provision of primary and secondary prevention as well as for the ongoing management of their chronic conditions.

With many changes expected in the future in relation to population ageing and structures of health care funding, this study can be used as a baseline measure for the care of older patients in general practice against which future studies can be compared.

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1 Introduction

1.1 Background

Currently, more than one in ten people in Australia are aged 65 years or more (12.4%). This figure has risen by one per cent since 1991 (11.3%), and is projected to rise further over the course of this century. It is estimated that the proportion of the Australian population aged 65 years and over will reach 20.5% by 2026, and by 2051 one in four people (26.1%) will be in this age group.[1]

Australia is not alone in having an ageing population. Population projections worldwide demonstrate a demographic shift to older populations. In the year 2000 there were 600 million people over the age of 60. If projections prove accurate, this number will double to 1.2 billion people in 2025, reaching 2 billion people by 2050.[2]

It is well known that older people, with their many chronic or disabling conditions, are high-level users of health services. In Australia, they account for one-third of hospital separations and use twice as many general practice services (9,654 services per 1000 patients) than those aged less than 65 years (4,732 services per 1000 patients).[3] GPs are therefore responsible for much of the medical care and management of patients in this age group.

Demographic changes in the population

Increases in life expectancy and changes in fertility patterns over the twentieth century have both contributed to the increased proportion of older people in the Australian population. Over the twentieth century, life expectancy in Australia increased by approximately 60% for males and 40% for females. In 2001, life expectancy for males aged 65 years was 81.6 years, and females 85.2 years.[4] Thus, most Australians aged 65 years will expect to live almost one-quarter of their lives in the period referred to as 'old age'. Increases in life expectancy are due to many factors. A considerable decline in the mortality rates of infants and children,[5,6] decreasing overall death rates,[5] and fewer deaths from infectious diseases[6,7] have all contributed to increased life expectancy. In the last century, massive improvements in the knowledge of disease processes, and subsequent advances in the way diseases are detected and treated,[7] improved sanitation and public health initiatives in the late nineteenth century, and the invention of antibiotics and immunisation in the early twentieth century, have also contributed to longer years of life.[7,8]

At the turn of the twentieth century, Australia had a fertility rate of approximately 3.5 births per woman. This declined in the 1930s to 2.1 births per woman.[9] The years following the end of World War II were characterised by large numbers of births, peaking in 1961 with almost 240,000 births,[10] a 50% increase on the birth rate in 1945 of 161,000 births.[10] However, the post-war baby boom did not reflect a rising birth rate per woman. Rather, more women were having children, increasing the birth rate but not the overall size of families.[11]

While population ageing and its subsequent implications are now foremost in the minds of policy makers and researchers, this was not the case as recently as the 1970s, when a major demographic study was conducted in Australia. At this time demographers believed that the increasing net numbers of older dependents would be offset by a large numerical cohort of people of working age anticipated with a relatively high expected birth rate.[10]

However, birth rates have declined, partly due to increased numbers of women in the workforce[12] and the increased use of contraception.[4,10,11,13] In Australia, fertility dropped to replacement level (2.0 children per woman) in 1976, and has continued to decline steadily since, to the present rate of 1.7 children per woman.[1] It has been estimated that fertility could continue to fall to levels as low as 1.3 children per woman in Australia.[1] Falling fertility levels, together with rising life expectancy and declining mortality rates, have had a significant impact on population ageing, particularly from an economic and social perspective.

Economic and social impacts of population ageing

There are enormous economic and social implications involved with populations having a large proportion of people in older age groups. Economically, the relationship between greater numbers of older people and fewer numbers of people of working age is referred to as the 'old age dependency ratio'. This ratio could dramatically increase in Australia due to declines in fertility, and possible shortages of labour, increasing the economic burden of the older population. This may 'place severe strains on government budgets, necessitating higher tax burdens on a diminishing number of workers'.[14] In Australia, goals have been set to reduce the possible strain this may cause, including encouraging employers to both employ and retain mature aged employees.[15]

The ageing of the population will also have a significant impact on social trends. In many countries children take responsibility for the care of their parents as they age.[2] Changes in the demography of populations, particularly the declining fertility rates and the increased proportion of women in the workforce, as discussed in the previous section, may influence the availability of informal services, increasing the burden on formal sources of care for older people.[16] In Australia, 42.2% of older people not in residential care require either formal or informal care, with the majority of this care provided by either the person's partner or their children.[17] Approximately 146,000 Australians were residents of aged care homes in 2002, and almost two-thirds of these required high-level care.[18]

It is therefore important to plan for the expected rise in the proportion of older people in their populations, to ensure there are adequate resources available to the older population in terms of health care, housing and income support. It also needs to be ensured that the possible contribution of older people to society is not underestimated.[15]

Recent initiatives regarding ageing

The Second World Assembly on Ageing was held in April 2002 in Spain. One of the major initiatives at the Assembly was the adoption of the International Plan of Action on Ageing 2002. The aim of this plan is to 'respond to the opportunities and challenges of population ageing in the twenty-first century and promote the development of a society for all ages'. In terms of health, the plan recognises that older people should have a right to access medical care when required and that 'primary health care is essential health care'. It set an objective to ensure that older people have access to primary health care.[19]

Through the National Strategy for an Ageing Australia, Australia has been actively involved in ageing issues. Therefore, Australia's objectives at the Assembly focused on informing and sharing information on ageing with other countries, to assist the revision of the International Plan of Action on Ageing and to promote Australia's role as a leader in the Asia–Pacific region with regard to ageing.[19]

Active Ageing

The World Health Organization (WHO) has advocated the contribution that older people make to society through the Active Ageing policy released as part of the 2nd World Assembly on Ageing in 2002. This policy, while acknowledging the economic and social impacts of population ageing, encourages the participation and involvement of older people in all aspects of life. The WHO describes Active Ageing as 'the process of optimising opportunities for health, participation and security in order to enhance quality of life as people age'.[16]

From a health perspective, the WHO Active Ageing policy encourages older people to maintain physical, mental and social health by continuing to participate in social activities, remaining independent and focusing on the maintenance of a healthy lifestyle, minimising disability and maintaining quality of life.[16]

The National Strategy for an Ageing Australia policy document[15] reflects this approach. This document provides a holistic view of the issues associated with the older population in Australia, and population ageing in general. The policy emphasises that ageing is a lifelong process. Rather than focusing on only the older population, it outlines plans to ensure that Australia is prepared for future population ageing. It contains sections on retirement incomes, changes to the structure of the Australian workforce and attitudes towards ageing, as well as issues related to healthy ageing and care for older Australians.[15]

Healthy ageing

Healthy ageing is one of the national priorities set out in the National Strategy for an Ageing Australia, which states that 'it will be important for older individuals and for our society and economy to have older people spend as much of their old age with good health'. Healthy ageing in older people includes the prevention of functional disability, improving the quality of life for older people and ensuring that they have the opportunity to remain independent for as long as possible. The move towards healthy ageing focuses on both the maintenance of good health in later life, and on prevention of many of the chronic conditions that are highly prevalent in the older population.[15]

General practitioners (GPs) can play a large role in healthy ageing because they are actively involved in managing the health of older people. The National Strategy for an Ageing Australia states that 'GPs … see many patients who present with one or more of the key behavioural risk factors for chronic disease of smoking, poor diet, alcohol misuse, and inadequate physical activity'.[15] Guidelines have been introduced into general practice to encourage GPs to help their patients deal with these risk factors.[20] Due to the high numbers of older people who attend general practice each year, and the level of respect older people hold for their GP, it is thought that GPs are in an ideal position to promote healthy ageing.[21] A randomised controlled trial conducted on GPS' promotion of healthy ageing practices, found that there were marginal increases in patient levels of healthy behaviours when GPs were educated about this issue, and passed information on to their patients.[22]

However, some have questioned the relevance of GPs providing information to patients on preventive health care. Harris and Mercer (2001) believe that if GPs are to be responsible for health promotion, they have to learn to balance their curative and preventive roles.[23] In addition, some believe that there are barriers to GPs fulfilling this role, including limitations of time, skills and funding.[21,23]

Older people and their GPs

GPs play a significant role in the lives of older people. The National Strategy for an Ageing Australia acknowledges the contribution of GPs in the care of older people, stating that 'General Practitioners, in particular, are likely to continue to be seen by older people as an important contact and coordination point for their interactions with the health system'.[15] A small qualitative study found that older people have a great regard for their GP, with high levels of trust and respect.[24] Those who visit GPs report a high level of satisfaction with their care from the GP[25] and are more likely than younger people to do so.[26-28]

Conversely, GP satisfaction with encounters with older people has not been well documented. A small study conducted in Australia found that GPs feel confident in the management and diagnosis of medical and psychological problems, but lack confidence in the diagnosis and management of social problems in older people.[29] In contrast, a study from the United States found that physicians' satisfaction with encounters, from their perspective, did not change with the increasing age of the patient.[30] Another small qualitative study from the United States found that while doctors enjoyed treating older patients, they also found the management of these patients more difficult for a number of reasons, including the chronic and complex problems requiring management, limitations to time and communication, and greater administrative requirements. The interaction between these factors was also identified as complicating the management of older patients.[31]

Attendance rates among older patients

While the high rates of general practice attendance among older people is well recognised,[32,33] there is little research on why older patients attend GPs in Australia. Two small Australian studies found that physical and psychological health problems are associated with an increased frequency of GP visits among older people.[34,35]

Korten et al. (1998) found that the predictors for attending GPs were considerably different for males and females. For males, increasing age and the number of symptoms experienced predicted high levels of attendance, while disability (as measured through the Activities of Daily Living (ADL) scale), lower educational level and loss of vision were more likely to result in GP visits in females.[34] Older men who do not attend general practice have been found to have poor health and lower levels of social support[35] while those with good social support are more likely to attend general practice.[34]

Length of consultation

There is little consensus among researchers concerning the length of GP consultations with older people. One school of thought states that consultations are shorter with older patients.[36] Other research has shown that older patients have longer consultations.[37,38] Discrepancies between the results of different studies may be due to differences in the structures of health systems in individual countries.[38] These issues will be discussed in greater detail in Section 4.5 Length of consultation.

Injuries

In Australia in 1998, approximately 50% of deaths in older people attributed to injury were the result of falls.[39] In addition, falls are responsible for the greatest proportion of disability adjusted life years (DALYs), particularly for those aged 75 years or more.[40] Exercise programs,[41,42] hazard reduction and improvements in vision[41] have been shown to be effective in reducing falls in older people. The effects of falls in older people will be discussed in greater detail in Section 6.3 Injuries.

Risk factors

The risk factors available for analysis in the current study include alcohol consumption, smoking status and body mass index (BMI). While it has been shown that alcohol consumption deceases with age,[43,44] between 6.0%[44] and 8.0%[45] of older people consume alcohol at high-risk or at-risk levels, depending on the source of data. Moderate alcohol consumption, in particular of red wine, has been shown to have beneficial effects on health in older people.[46]

Smoking is responsible for the greatest burden of disease in older Australians, and it is estimated that it is responsible for 16% of the burden of disease in older men and 9% in older women.[47] The National Drug Strategy Household Survey found that, in 2001, 8.9% of Australians aged 60 years or more smoked, while almost 40% of people in this age group were past smokers.[44] However, the actual number of older smokers is increasing as the older population increases.[48] The benefits of smoking cessation are well documented at all ages, with potential gains in both health and life expectancy.[46,49-51]

The burden of disease attributed to obesity in Australia is 4.3%. There are multiple health risks associated with a BMI (overweight and obesity), particularly in relation to cardiovascular disease.[40] In older people, research has shown that the impact of being underweight may also be a risk factor for ill health and mortality.[52-54] These issues are discussed in greater detail in Chapter 10 Risk factors.

Chronic conditions

In the United States, a study found that 88% of older people had at least one chronic condition.[55] Around the world, chronic conditions are estimated to be responsible for 55% of deaths, and this is projected to rise to 70% of deaths in 2020.[56] It is well known that the proportion of people experiencing chronic conditions increases with age.[45,55,57-59]

People with chronic conditions use health services at higher rates than those who do not, with 66% of visits to doctors being for the management of chronic conditions.[55] A study from the United States has stated that the majority of patients with chronic conditions are treated by a primary care physician.[60]

About two-thirds of those with chronic conditions experience co-morbidity,[55,58] the coexistence of two or more health conditions. The prevalence of co-morbidity increases with age[55,58,61] and the greater the number of chronic conditions experienced by the patient, the higher the consultation rate.[62,63] A more detailed background to chronic conditions is provided in Chapter 12 Chronic conditions.

Theories regarding the compression of morbidity

The theory regarding the compression of morbidity was postulated by James Fries in 1980. Fries based his theory on the assumptions that life expectancy had a defined limit beyond which it cannot extend, and that the onset of chronic disease could be delayed by minimising the impact of risk factors. Based on these assumptions, Fries hypothesised that morbidity can be compressed into the later years of life.[64]

Since this time, various studies have been published that both support and reject this theory. Nusselder et al. (1996) found that morbidity is either compressed or expanded depending on the type of condition experienced. They found that the elimination of fatal conditions causes an expansion of morbidity, by increasing the possibility of life expectancy and disability from non-fatal conditions. In contrast, it was found that the elimination of chronic disabling conditions compresses morbidity.[65] Similar results were found in an Australian study based on the Health Adjusted Life Expectancy (HALE) scale. However, this study found that the expansion of morbidity following the elimination of fatal conditions occurred only in men. In women, there were no conditions found that resulted in an expansion of morbidity.[66]

Recently, two studies from the United States have found that disability is declining, and have projected that it will continue to decline, possibly at an average rate of 1.5% per year. However, this decline is dependent on an assumption of certain factors, such as improvements in research and technology.[67,68]

Enhanced Primary Care

New Medicare item numbers for the management of older people and those with chronic and complex care needs were introduced by the Federal government in 1999. Through this package, called Enhanced Primary Care (EPC), GPs are remunerated specifically for managing the care of these patients. The package consisted of three areas for which Medicare items were introduced: annual health assessments for those aged 75 years or more; care planning for those with chronic and complex care needs; and case conferencing, also for those with chronic conditions requiring complex care.[69]

The introduction of EPC items has been praised for rewarding GPs for the management of these patients.[70] Research has reported both that these items are useful for GPs[71] but that there are barriers to their implementation.[71-73] Much of the published research on EPC items concerns the attitudes of GPs toward EPC items. The current study provides the first data on the way EPC items are being used in general practice.

A more detailed description of EPC items can be found in Chapter 13 Enhanced Primary Care.

Other large projects concerning the health of the older population in Australia

A number of studies investigating the health of older people have been conducted in Australia. The Australian Longitudinal Study of Ageing is an ongoing, longitudinal, multidisciplinary study examining the health of older Australians, focusing on the biomedical, economic and social aspects of ageing.[74] The Health Status of Older People Project was a five-year project conducted in the 1990s, which examined both the social and medical aspects of ageing.[33] While not age-limited, the National Health Survey also collects information about the self-reported health and use of health services by older Australians.[45]

However, to date, none has reported comprehensively on the care of older people in general practice. In addition, very few surveys are based on a nationwide sample, and some are limited through the use of self-reported data on health. Due to the fact that patients aged 65 years or more use general practitioner services at approximately twice the rate of those younger than 65 years,[3] the management of older patients in general practice is an area of research that could significantly contribute to our knowledge regarding the health of the older population in Australia. The BEACH survey, a national survey of general practice activity in Australia, is ideally placed to examine the care of the older patient population in general practice.

1.2 Objectives

The objectives of this study are to:

- describe the characteristics of GPs who managed patients aged 65 years and over between 2000–02
- describe the characteristics of patients aged 65 years or more who attended general practice in the period 2000–02, their reasons for encounter and problems managed
- describe the management techniques used at encounters with patients aged 65 years and over
- determine the existence of age-related differences in patients aged 65 years or more, by dividing this group into those aged between 65 and 74 years, and 75 years and over
- determine the length of consultation for patients aged 65 years and over, and to compare length of consultation with those aged less than 65 years
- examine the impact of risk factors (smoking, alcohol and BMI) on general practice patients aged 65 years or more, and divided into 65–74 and 75+ age groups
- describe changes in the management of patients aged 65 years and over (65–74 and 75+) over the period between 1990–91 and 2000–02
- describe chronic conditions managed in patients aged 65 years and over, and to estimate the prevalence of chronic conditions in this age group
- describe encounters at which EPC items were claimed.

2 Methods

This study is a secondary analysis of data collected through the Bettering the Evaluation and Care of Health (BEACH) study, and examines general practice encounters with patients aged 65 years or more.

2.1 The BEACH study

The methods adopted for use in the BEACH program have been detailed extensively elsewhere.[75-78] BEACH is a continuous national study of general practice activity that began in April 1998. It relies on encounter data provided by 1,000 GPs who each record on structured forms detailed information about 100 consecutive patient-based encounters. All types of encounters can be recorded. Approximately 20 GPs are recruited each week, for 50 weeks a year, providing comprehensive data on 100,000 general practice consultations per year.

The GP population eligible to participate in BEACH includes all those GPs who claim at least 375 A1 Medicare items of service in the most recent three-month period, as collected by the Health Insurance Commission (HIC). This method ensures that most part-time GPs are included, but excludes GPs not in private practice who claim few GP A1 Medicare items. GPs who completed the survey during 2000–02 earned 25 Clinical Audit points for quality assurance from the Royal Australian College of General Practitioners (RACGP).

GPs randomly selected for inclusion in the sample are each sent a recruitment letter, which is then followed-up by telephone. GPs who agree to participate are set a date to begin recording approximately three to four weeks in advance. A research pack is sent to the participating GP 10 days before the agreed start date. Participants are given a telephone reminder in the first few days after they are due to start recording, and non-returns are followed up with regular phone calls.

BEACH contains three interrelated data collections: GP characteristics, encounter data and patient health status. A copy of the questionnaire collecting GP characteristics for the 2000–01 BEACH recording year is included at Appendix 1, and at Appendix 2 for the 2002–02 BEACH recording year. Within the encounter, data collected relate to patient demographic information, reasons for encounter (RFEs), problems managed and management techniques used (including both pharmacological and non-pharmacological treatments). Relationships between the data elements are represented diagrammatically in Figure 2.1. It is important to note that all variables are directly related to GP characteristics, patient characteristics and the encounter. Patient RFEs have only an indirect relationship to the problems being managed, while all management techniques are directly related to the problem(s) managed. Examples of the encounter forms used in BEACH can be found at Appendix 3 for 2000–01, and Appendix 4 for 2001–02.

A section on the BEACH encounter form collects data related to patient health or health care delivery that are not examined as part of the encounter. The Supplementary Analysis of Nominated Data (SAND) are collected on subsamples of patients at BEACH encounters. Over the year, data collection is divided into ten blocks, each of five weeks duration. Each block should therefore include data from approximately 100 GPs. Each GPs' recording pack of 100 encounter forms includes 40 forms containing questions relating to the patient's height

and weight (to determine BMI), alcohol intake and smoking status. The remaining 60 forms are divided into two blocks, each of 30 forms. Questions asked on these forms vary throughout the year.

In this report, results presented on length of consultation, prevalence of chronic conditions and co-morbidities of chronic conditions, alcohol intake, smoking status and BMI have been collected using the SAND method. The methods employed for individual SAND substudies are described in their respective chapters.

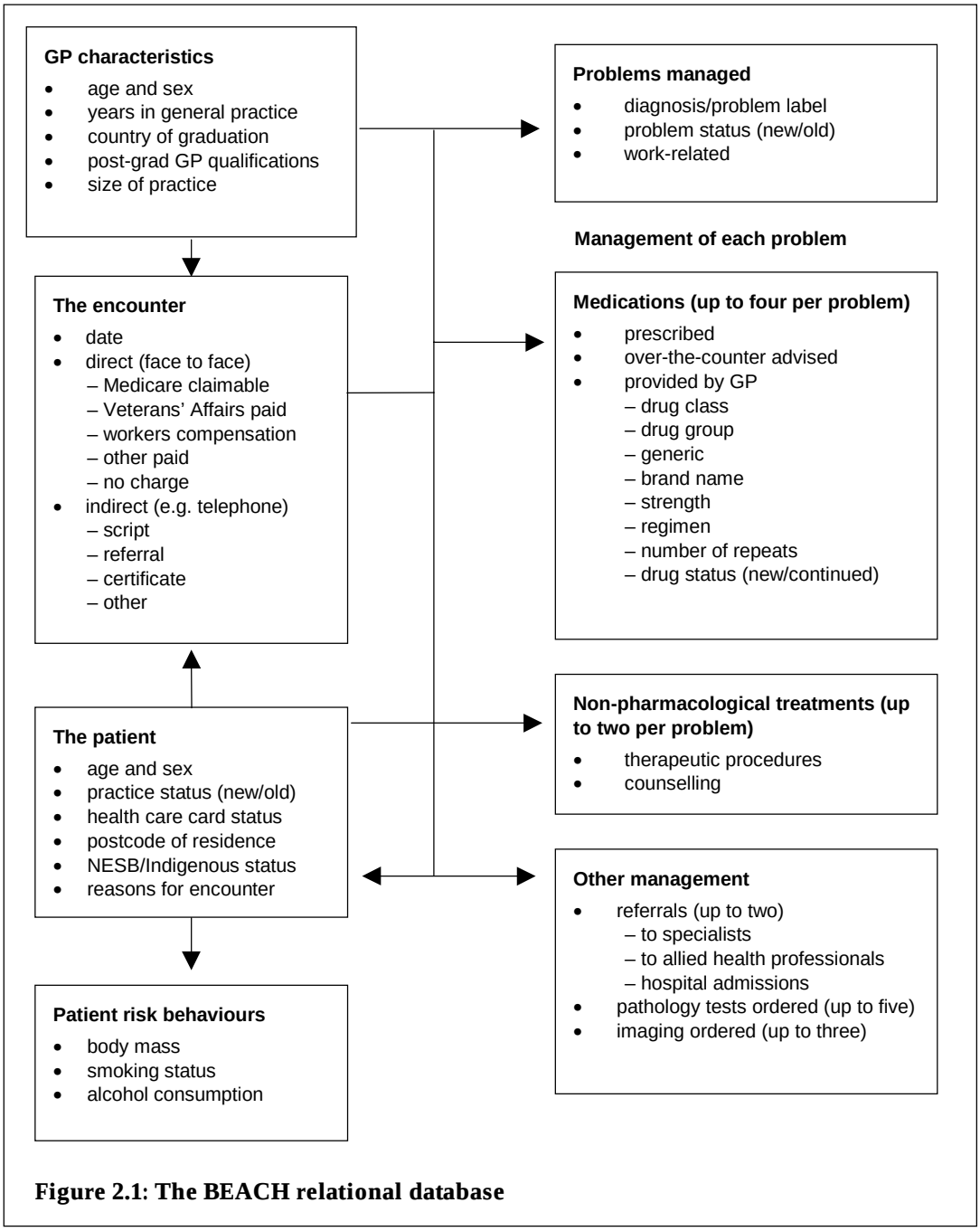


Figure 2.1: The BEACH relational database

Classification of data

Patient RFEs, problems managed, non-pharmacological treatments including clinical treatments and therapeutic procedures, referrals, imaging orders and orders for pathology are all coded according to ICPC–2 PLUS and classified according to the International Classification of Primary Care (ICPC–2). ICPC–2 was designed for primary care and developed by the World Organization of Family Doctors (Wonca).[79] Figure 2.2 is a graphical representation of the structure of ICPC–2. ICPC–2 PLUS is an extended terminology classified according to ICPC–2, designed specifically for use in Australian general practice. It includes more specific terms for symptoms, diagnoses and treatment methods.[80]

	Chapters																
Components	**A**	**B**	**D**	**F**	**H**	**K**	**L**	**N**	**P**	**R**	**S**	**T**	**U**	**W**	**X**	**Y**	**Z**
1. Symptoms, complaints																	
2. Diagnostic, screening, prevention																	
3. Treatment, procedures, medication																	
4. Test results																	
5. Administrative																	
6. Other																	
7. Diagnoses, disease																	

A	General	L	Musculoskeletal	U	Urinary
B	Blood, blood-forming	N	Neurological	W	Pregnancy, family planning
D	Digestive	P	Psychological	X	Female genital
F	Eye	R	Respiratory	Y	Male genital
H	Ear	S	Skin	Z	Social
K	Circulatory	T	Metabolic, endocrine, nutritional		

Figure 2.2: The structure of the International Classification of Primary Care—Version 2 (ICPC–2)

The Coding Atlas for Pharmaceutical Substances (CAPS) is used to code and classify all medications in BEACH, whether prescribed, advised for over-the-counter (OTC) purchase or supplied by the GP. This coding system has been developed by the Family Medicine Research Centre, and has the ability to capture data at many levels, including medication class, group, generic composition and brand name. CAPS is mapped to the Anatomical Therapeutic Chemical classification (ATC), the Australian standard for classifying medications at the generic level.[81] CAPS can classify pharmaceuticals at a variety of levels, providing meaningful analyses of pharmaceutical information related to Australian general practice.[82]

2.2 Statistical method

SAS Versions 6.12 [83] and 8[84] are used to analyse the BEACH data. The unit of primary analysis is the encounter. In this report, proportions (expressed as percentages) are used to describe an event that can occur only once in an encounter (for example, patient age or sex). Proportions are also used to describe the distribution of events within a class of events (for example, an individual problem as a percentage of total problems).

When an event can occur multiple times in an encounter, rates per 100 encounters are used (for example, RFEs or problems managed). In general, results in this report present the number of observations *(n)*, rate per 100 encounters and the 95% confidence intervals (CIs).

Where analyses have been conducted to examine the presence and extent of age-related differences in the morbidity and management of older patients, statistically significant differences are identified by shading.

Sampling and analysis

The BEACH study is based on a random sample of GPs each recording information about a cluster of encounters. Cluster sampling violates the assumptions of a simple random sample, i.e. that each individual within a population has an equal chance of inclusion within the sample,[85] and the unit of analysis is the unit of randomisation.[86] In a cluster sample, 'the probability of a person being chosen is principally a function of the probability of their GP being chosen'.[85] Patients may choose to attend a particular GP due to his/her characteristics, for example the doctor's age, sex, primary language or years in practice. This may result in a lack of variation in responses from within a cluster.[86]

Statistically, the loss of variation within cluster samples also causes a loss of efficiency, which renders invalid the statistical methods used for simple random samples. Therefore, analyses must take into consideration the cluster design of the study, otherwise the impact of clustering may distort significance levels, suggesting statistical differences where none exist.[86] This report uses standard error calculations in the 95% CIs which accommodate the single-stage cluster study design according to Kish's description of the formulae.[87] As SAS Version 6.12 is limited in its capacity to calculate the standard error of the cluster design, additional programming was performed to incorporate the formulae.

Despite the statistical difficulties of cluster sampling, this form of sampling has been shown to be justified in terms of cost-effectiveness and logistics. Studies using simple random samples are often not feasible within a large population, in particular when the population is not easily defined,[88] as is the case for general practice encounters.

Validity and reliability

Various studies have been conducted to ensure the validity and reliability of the methods used in BEACH. Such studies have examined the:

- representativeness of the sample[89] and the number and size of clusters needed for a representative national sample[90]
- reliability[91] and limitations[92] of patient data reported by GPs
- reliability of secondary coding of RFEs[93] and problems managed[94]
- validity of ICPC as a tool to classify morbidity data in general practice.[95]

Representativeness

In order for a study to be regarded as representative, the sample must represent the population from which it is drawn. The random sample of GPs who participated in BEACH over the two-year period between 2000–02 has been shown to be largely representative of the Australian GP population as a whole, but GPs aged less than 35 years were underrepresented in the sample.[75,96]

The only data readily available with which to compare the BEACH data for testing reliability is that produced by the HIC for claims made for GP encounters against the Medicare Benefits Schedule (MBS). Comparison of the age–sex distribution of patients at encounters in BEACH and HIC (MBS) data has shown that BEACH contains a greater proportion of encounters with males aged 75 years and over. However, BEACH includes encounters not paid through the MBS, for example, encounters paid for by the Department of Veterans' Affairs (DVA). When DVA-paid encounters are removed, calculations of precision ratios show that the age–sex distribution of patients at BEACH encounters paid by the MBS is very similar to the age–sex distribution shown by HIC data. To determine the reliability of estimates, power calculations use a precision of 0.2 or 20% of the true proportion (or value). Removing encounters paid by the DVA improved precision estimates to within this 20% range, indicating that the BEACH study provides an accurate representation of general practice encounters in Australia.[75,96]

To ensure the representativeness of BEACH encounters with older patients, the BEACH sample of encounters with patients aged 65 years and over was compared with GP encounters with the general practice population aged 65 years or more claimed through Medicare.[97] A1 items of service for professional general practice attendances were examined for the period between April 2000 and March 2002 (see Section 4.1).

For this report, analyses have been conducted on the total sample of encounters with patients aged 65 years or more. This group has been further broken down into encounters with those aged 65–74 years, and those aged 75 years or more, to determine the existence of differences in the morbidities and management of older patients in general practice. While it would have been interesting to look at encounters with patients aged 80 or 85 years or more, sample sizes would have precluded meaningful conclusions.

3 The GPs

3.1 Recruitment and participation

Detailed information regarding the recruitment and participation rates in BEACH between 2000 and 2002 has been published previously.[75,96] In summary, of those GPs with whom contact was established, 27.6% in 2000–01, and 30.0% in 2001–02, participated in the study.

Comparisons made between participants and non-participants showed that GPs aged less than 35 years were underrepresented in the BEACH sample, while GPs aged 55 years or more were overrepresented. Participation rates were significantly higher among GPs from New South Wales, while GPs from Queensland were underrepresented.[75,96]

3.2 The participating GPs

There were 1,982 GPs who participated in the BEACH survey during the two-year period between April 2000 and March 2002, providing data on a total of 198,200 general practice encounters. Of these, 1,963 GPs (99.0%) recorded at least one consultation with a patient aged 65 years and over. Two-thirds of the GPs who participated in BEACH and saw at least one patient aged 65 years or more were male (66.6%) and just over half had spent more than 20 years in general practice (50.2%). The majority worked between 6 and 10 sessions per week (68.2%) and very few worked in solo practice (17.2%). Most of the GPs graduated in Australia (74.5%), while graduates from the United Kingdom or Ireland made up the next largest group at 7.8%. There were 13.7% of GPs who conducted more than 50% of their consultations in a language other than English. One-third (33.0%) of the participating GPs were Fellows of the RACGP (Table 3.1).

Table 3.1: Characteristics of participating GPs who recorded encounters with patients aged 65 years and over

GP characteristic	Number[(a)]	Per cent of GPs[(a)] (*n* = 1,963)
Sex (missing = 10)	1,953	—
Male	1301	66.6
Female	652	33.4
Age (missing = 10)	1953	—
< 35 years	132	6.8
35–44 years	538	27.6
45–54 years	699	35.8
55+ years	584	29.9
Years in general practice (missing = 10)	1,953	—
< 2 years	8	0.4
2–5 years	133	6.8
6–10 years	260	13.3
11–19 years	572	29.3
20+ years	980	50.2
Sessions per week (missing = 31)	1,932	—
< 6 per week	312	16.1
6–10 per week	1317	68.2
11+ per week	303	15.7
Size of practice (missing = 32)	1,931	—
Solo	332	17.2
2–4 GPs	759	39.3
5+ GPs	840	43.5
Place of graduation (missing = 7)	1,956	—
Australia	1458	74.5
United Kingdom/Ireland	153	7.8
Asia	131	6.7
Other	214	10.9
Fellow of RACGP	646	33.0

(a) Missing data removed.

4 The encounters

4.1 Representativeness of the subsample

Between April 2000 and March 2002, the HIC processed claims for a total of 179,799,465 general practice A1 items of service. Of these, 41,521,576 encounters were with patients aged 65 years and over (23.1%).[97] Of the 198,200 encounters recorded by the 1,982 GPs who participated in BEACH over this period, 49,647 (25.0%) were with patients aged 65 years and over.

For encounters with patients aged 65 years and over, HIC processed 21,421,736 claims for A1 items of service for patients aged 65–74 (51.6%), and 20,099,840 claims for encounters with patients aged 75 years or more (48.4%).[97] These proportions are almost identical to those recorded in BEACH, where 48.3% of encounters with older patients were with those aged 65–74, and the remainder with patients aged 75 years or more (Table 5.1).

Considering that BEACH includes encounters that are not covered by Medicare, and includes some items not classified as A1 items of service, the BEACH sample of encounters with patients aged 65 years or more, proportional to the whole sample, is representative of all general practice encounters with older patients.

4.2 Health Insurance Commission data

The proportion of Australians aged 65 years and over who attended a GP at least once in the period 2000–01, where at least one Medicare A1 item of service was processed through the HIC, can be found in Figure 4.1, divided by age and sex (Medicare data supplied by the GP Branch of the Department of Health and Ageing). The Australian population is based on 1999 estimates.[98] Over 90% of both males and females aged between 65 and 74 years claimed at least one Medicare A1 item of service in 2000–01. There was a considerable decline in the proportion of males claiming GP A1 items of service when aged 75 years or more, to 74.6%. This may be explained by the exclusion of encounters paid by the DVA in the HIC data (discussed in Chapter 2). In contrast, 93.8% of females in this group claimed at least one A1 Medicare item of service.

Figure 4.2 shows the age–sex specific rates of general practice A1 Medicare attendance for patients aged 65 years and over during 2000–01. In both age groups, females had higher rates of general practice claims, at an average of 8.1 for females aged 65 to 74, and 10.0 for those of 75+. The average rate of male claims decreased from 7.5 for males aged 65–74 years to 7.0 claims in those of 75 years or more, probably reflecting the lower proportion of males in this age group who claimed on at least one occasion.

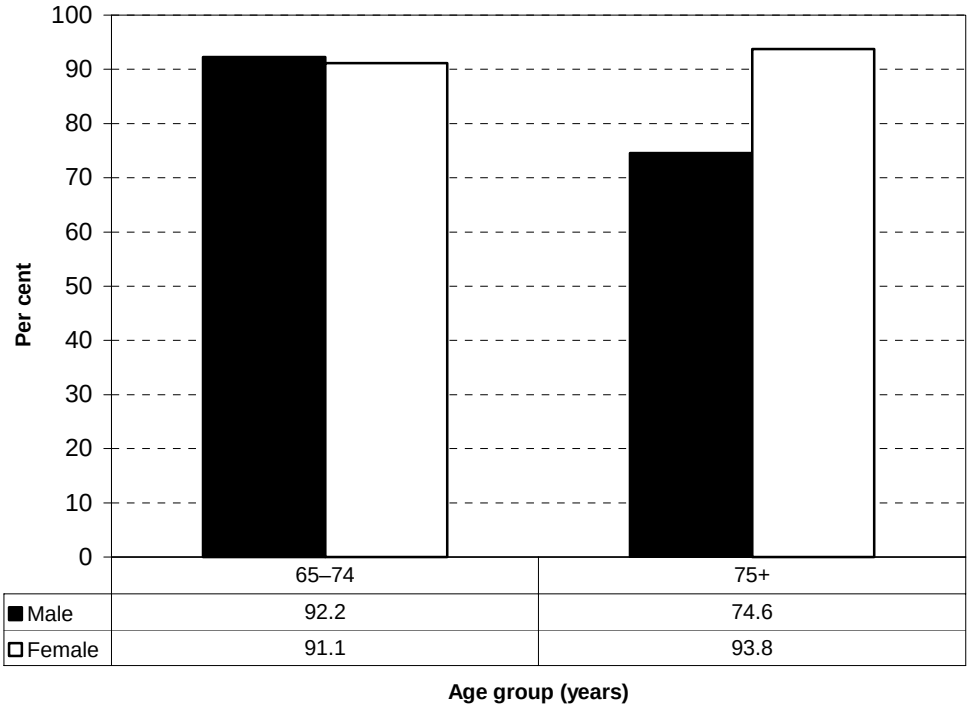


Figure 4.1: Proportion of older Australians (1999) who claimed at least one Medicare GP A1 item of service in 2000–01 by age and sex

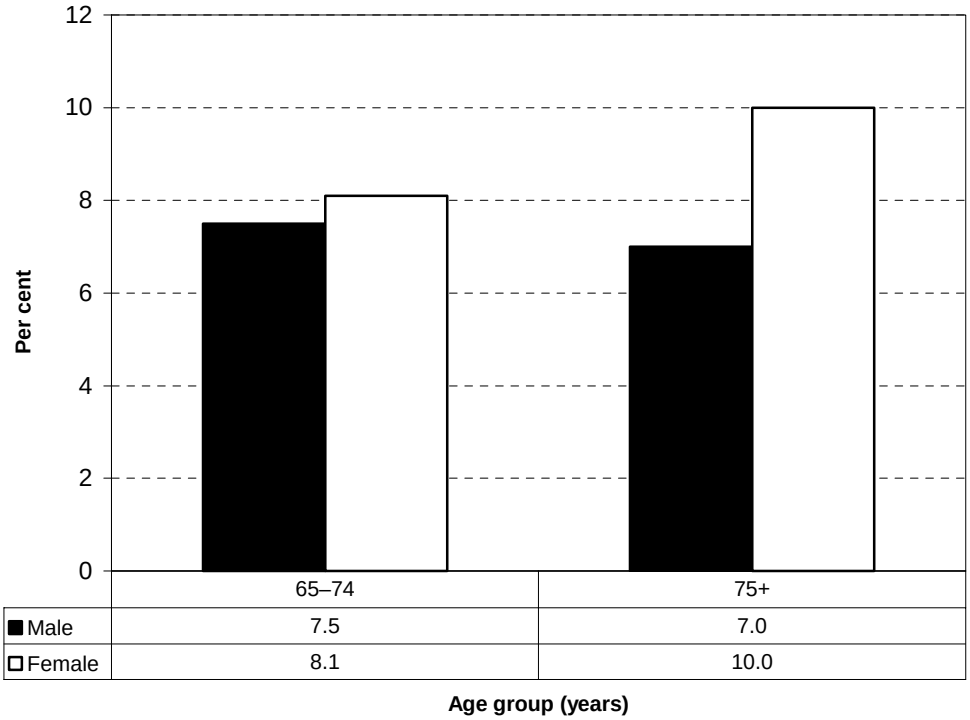


Figure 4.2: Age–sex specific mean number of claims for Medicare GP A1 items of service in 2000–01 for patients aged 65 years or more (1999)

4.3 BEACH—distribution of services

Patients aged 65 years and over had direct consultations with their GP (i.e. they were seen by the GP) at 96.3% of encounters, and 94.7% of all encounters were claimable through Medicare or the DVA (Table 4.1). While standard surgery consultations were the most frequently recorded (70.2 per 100 encounters), long and prolonged surgery consultations made up over 11% of total contacts. Home visits and visits to residential aged care facilities were also relatively frequent, accounting for 4.6% and 3.3% of encounters respectively.

When compared with patients aged 75 years and over, encounters with patients aged between 65 and 74 years were significantly more likely to be:

- direct consultations (97.1 per 100 encounters compared with 95.6 per 100 encounters)
- claimable through Medicare or the DVA (95.4 per 100 encounters compared with 94.0 per 100 encounters)
- claimable as standard surgery consultations (76.6 per 100 encounters compared with 64.3 per 100 encounters).

In contrast, patients aged 75 years and over were significantly more likely to have their GP consultation in their home (7.1 per 100 encounters compared with 1.9 per 100 encounters).

While not statistically significant, probably due to small sample size, some other trends emerged from the data that were worthy of note. Patients aged 75 years and over:

- were twice as likely as patients of 65–74 to be visited in hospital by their GP (0.9 per 100 encounters compared with 0.4 per 100 encounters)
- were over five times as likely to be seen in a residential aged care facility by their GP (5.7 per 100 encounters compared with 0.8 per 100 encounters for those aged 65 to 74).

4.4 Summary of morbidity and management

At encounters with patients aged 65 years and over, 161.7 RFEs were recorded for every 100 encounters. Problems were managed at a rate of 171.2 per 100 encounters. Of these, 38.9 problems were being managed for the first time (Table 4.2).

Medications were prescribed, recommended or supplied at a rate of 131.6 per 100 encounters. This corresponds to a rate of 76.9 medications per 100 problems managed. Most of these medications were prescribed (119.2 per 100 encounters), while 8.5 medications per 100 encounters were supplied to the patient by the GP.

Non-pharmacological treatments were given at a rate of 46.7 per 100 encounters. Two-thirds of these treatments were clinical (30.8 per 100 encounters), while the remainder were procedural (15.9 per 100 encounters).

On average, 12.1 referrals per 100 encounters were made for older patients. Most of these referrals were to specialists (8.1 per 100 encounters), followed by referrals to allied health practitioners (2.7 per 100 encounters). Referrals to hospital and hospital emergency departments were very low, both made at rates of less than 1 per 100 encounters.

Pathology tests were ordered at a rate of 33.5 per 100 encounters and orders for imaging were given at a rate of 8.1 per 100 encounters.

When compared with encounters for the older age group, those with patients aged between 65 and 74 years were:

- significantly more likely to involve management of a ‘new’ problem, that is, one that had not previously been managed (40.5 per 100 encounters compared with 37.3 per 100 encounters with patients of 75+ years)
- included significantly more non-pharmacological treatments (49.0 per 100 encounters compared with 44.7 per 100 encounters)
- included significantly more clinical treatments (33.4 per 100 encounters compared with 28.5 per 100 encounters for patients aged 75 years and over)
- generated significantly more referrals to specialists (8.6 per 100 encounters compared with 7.6 per 100 encounters)
- resulted in significantly more pathology tests ordered (37.0 per 100 encounters compared with 30.3 per 100 encounters for patients aged 75 years and over) and
- significantly more orders for imaging (9.2 per 100 encounters compared with 7.0 per 100 encounters) (Table 4.2).

4.5 Length of consultation

Background

In recent years, very few studies have examined the length of consultations with older patients, and these few have shown remarkable differences. In the United States, Radecki et al. (1988) demonstrated that, in general practice, consultation length is shorter for older patients, in particular for those aged 75 years and over. When the greater number of encounters in this age group was taken into consideration, older patients still received less time, on average, with the GP.[36] In contrast, another study also based in the United States found that consultations were longer with increasing patient age.[37] A European study found that, while there was a linear trend for longer consultations with increasing age, consultations with older patients were not significantly longer than those with younger patients.[38] In Australia, Martin et al. (1997) found that, based on billing date, consultations were longest for patients regarded as ‘middle-aged’.[99]

The differences in results of these studies may be due to differences in the structure and payment forms of health care systems in different countries. In a study based in six European countries, it was found that consultation length varied significantly between the different countries examined.[38]

Method

Length of consultation in the BEACH survey was recorded as part of a SAND substudy and included with the ongoing substudy involving BMI, alcohol intake and smoking status (see Chapter 2 Methods) in which GPs were asked to record the start and finish times of the consultation. These data were provided for 19,341 encounters with patients aged 65 years and over.

Table 4.1: Distribution of services for patients aged 65 years and over

Variable	65–74 (*n* = 24,003)			75+ (*n* = 25,644)			All 65+ (*n* = 49,647)		
	Rate per 100 encounters[(a)]	95% LCL	95% UCL	Rate per 100 encounters[(a)]	95% LCL	95% UCL	Rate per 100 encounters[(a)]	95% LCL	95% UCL
Direct consultations	97.1	96.8	97.5	95.6	95.1	96.1	96.3	96.0	96.7
No charge	0.8	0.0	4.5	0.7	0.0	2.7	0.8	0.0	2.3
Medicare or DVA claimable	95.4	94.9	95.8	94.0	93.4	94.7	94.7	94.2	95.1
Short surgery consultations	1.2	0.0	3.0	0.9	0.0	2.5	1.1	0.1	2.0
Standard surgery consultations	76.6	75.6	77.6	64.3	62.8	65.8	70.2	69.1	71.4
Long surgery consultations	11.4	10.3	12.5	10.2	9.2	11.1	10.7	9.9	11.5
Prolonged surgery consultations	0.8	0.0	3.6	0.7	0.0	2.6	0.7	0.0	2.1
Home visits	1.9	0.3	3.5	7.1	5.6	8.6	4.6	3.5	5.6
Hospital	0.4	0.0	8.6	0.9	0.0	5.7	0.7	0.0	4.2
Residential aged care facilities	0.8	0.0	5.3	5.7	1.9	9.6	3.3	0.5	6.2
Other items	2.3	0.0	4.8	4.3	2.1	6.5	3.3	1.9	4.8
Workers compensation	0.2	0.0	2.6	0.1	0.0	3.7	0.2	0.0	1.4
Other paid (hospital, State, etc.)	0.8	0.0	4.9	0.7	0.0	6.9	0.8	0.0	3.9
Indirect consultations	2.9	1.6	4.1	4.4	3.1	5.7	3.7	2.8	4.5
Missing	2,563	—	—	2,630	—	—	5,193	—	—

(a) Missing data removed.

Note: Shading indicates statistically significant differences between age groups. LCL—lower confidence limit; UCL—upper confidence limit; DVA—Department of Veterans' Affairs.

Table 4.2: Summary of morbidity and management

	65–74 (*n* = 24,003)				75+ (*n* = 25,644)				Total 65+ (*n* = 49,647)			
Variable	**Number**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**	**Number**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**	**Number**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**
General practitioners	1,949	—	—	—	1,902	—	—	—	1,963	—	—	—
Encounters (*N*)	24,003	—	—	—	25,644	—	—	—	49,647	—	—	—
Reasons for encounter	39,244	163.5	161.8	165.2	41,052	160.1	158.2	162.0	80,296	161.7	160.1	163.4
Problems managed	41,179	171.6	169.5	173.6	43,829	170.9	168.6	173.2	85,008	171.2	169.3	173.2
New problems	9,715	40.5	39.3	41.7	9,574	37.3	36.1	38.6	19,289	38.9	37.8	39.9
Medications	32,171	134.0	131.0	137.0	33,158	129.3	125.7	132.9	65,329	131.6	128.6	134.6
Prescribed	28,987	120.8	117.7	123.8	30,188	117.7	114.1	121.3	59,175	119.2	116.2	122.2
Advised OTC	1,000	4.2	3.4	5.0	914	3.6	2.9	4.2	1,914	3.9	3.4	4.3
GP-supplied	2,184	9.1	6.3	11.9	2,056	8.0	4.4	11.7	4,240	8.5	6.3	10.8
Other treatments	11,753	49.0	47.0	51.0	11,453	44.7	42.8	46.5	23,206	46.7	45.1	48.4
Clinical	8,009	33.4	32.0	34.8	7,304	28.5	27.2	29.7	15,313	30.8	29.7	32.0
Procedural	3,744	15.6	14.9	16.3	4,149	16.2	15.4	16.9	7,893	15.9	15.3	16.5
Referrals	2,800	12.4	11.8	13.0	2,905	11.9	11.3	12.5	5,705	12.1	11.7	12.6
Specialist	2,068	8.6	8.1	9.2	1,935	7.6	7.0	8.1	4,003	8.1	7.7	8.4
Allied health services	600	2.5	1.8	3.2	726	2.8	2.2	3.4	1,326	2.7	2.3	3.0
Hospital	106	0.4	0.0	1.9	212	0.8	0.0	1.7	318	0.7	0.2	1.1
Emergency department	26	0.1	0.0	2.9	32	0.1	0.0	3.9	58	0.1	0.0	1.6
Pathology	8,868	37.0	35.1	38.8	7,766	30.3	28.5	32.1	16,634	33.5	32.1	35
Imaging	2,202	9.2	8.5	9.9	1,804	7.0	6.4	7.7	4,006	8.1	7.6	8.5

Note: Shading indicates statistically significant differences between age groups. LCL—lower confidence limit; UCL—upper confidence limit; OTC—over-the-counter medication.

To determine the length of consultation for older patients, and to ascertain the extent to which there were differences for patients in this group compared to younger patients, and within the group itself, mean and median consultation lengths were compared. In this analysis, only those encounters where the patient was physically seen by the GP are included (direct encounters). Indirect encounters, where the patient was not seen, do not follow the same course as direct consultations and their inclusion in this analysis may have skewed the results.

Results

Encounters with patients aged 65 years and over averaged 15.4 minutes, with a median of 14 minutes and a range of one to 90 minutes (Table 4.3). Consultations with patients aged less than 65 years were significantly shorter, averaging 14.9 minutes, with a median of 13 minutes and a range of one to 180 minutes.

No significant differences were found in mean consultation length for patients of 65–74 years, and 75 years and over. However, the significant difference in consultation length (noted above) between older (aged 65+) and younger patients (aged less than 65 years) was largely due to consultations with patients aged 75 years or more, averaging 15.6 minutes with a range of one to 90 minutes (Table 4.3).

Table 4.3: Consultation length of direct encounters

Age group	Number of encounters	Number of GPs	Mean consultation length (minutes)	95% LCL	95% UCL	Median consultation length (minutes)	Range (minutes)
65+	19,341	1,902	15.4	15.2	15.7	14	(1–90)
65–74	9,500	1,825	15.3	15.0	15.5	14	(1–89)
75+	9,841	1,727	15.6	15.3	15.9	14	(1–90)
0–64 years	58,340	1,968	14.9	14.7	15.1	13	(1–180)

Note: Shading indicates statistically significant differences between age groups. LCL—lower confidence limit; UCL—upper confidence limit.

5 The patients

5.1 Characteristics of the patients at encounter

Older patients encountered were more likely to be female (59.0%) (Table 5.1). Almost 97% of encounters were with patients who had been seen previously in that practice. Two-thirds of encounters were with patients who held a health care card (66.1%), while 12.3% were with those holding a DVA card. Only 6.6% of encounters were with patients from a non-English-speaking background. Encounters with Aboriginal people and Torres Strait Islanders contributed less than 1% of encounters for all patients aged 65 and over.

Females accounted for a greater proportion of encounters in both the older age groups. However, males accounted for a greater proportion of the encounters with 65–74 year olds (43.8%) than of those with patients of 75+ years (38.5%). Patients aged 75 years and over were almost five times more likely than those of 65–74 years to hold a DVA card (19.7% compared with 4.4%). Health care cards were held by significantly more patients encountered in the 65–74 age group (68.9%) than in the older age group (63.6%).

The proportion of those who had been seen previously by the GP was very similar for both age groups (96.5% for the 65–74 age group, compared with 96.9% for those aged 75 years and over).

A notable trend (though not significantly different, probably due to the smaller sample size) was that the proportion of encounters with patients of non-English-speaking background was somewhat higher in the 65 to 74 years age group (8.1%) than in the older age group (5.2%) (Table 5.1).

5.2 Patient reasons for encounter

RFEs reflect the basis for the general practice encounter from the patient's perspective. They describe the patient's motive for seeking an encounter with the GP, and can be stated in terms of symptoms, diagnoses, or requests for particular services, for example, a request for a repeat prescription.[75]

In any BEACH encounter, up to three RFEs can be recorded by the GP. A total of 80,296 RFEs were recorded at an average rate of 161.7 RFEs per 100 encounters (Table 5.2). Results in Table 5.2 are presented in terms of ICPC–2 chapter (see Chapter 2).

General and unspecified RFEs were the most frequent, recorded at an average rate of 37.6 per 100 encounters. Other RFEs that were presented to the GP relatively frequently included those related to:

- the circulatory system (25.1 per 100 encounters)
- the musculoskeletal system (19.4 per 100 encounters)
- the respiratory system (18.7 per 100 encounters)
- the skin (15.1 per 100 encounters).

Table 5.1: Characteristics of the patients at encounters

Patient variable	65–74 (*n* = 24,003)			75+ (*n* = 25,644)			All 65+ (*n* = 49,647)		
	Per cent of encounters[(a)]	95% LCL	95% UCL	Per cent of encounters[(a)]	95% LCL	95% UCL	Per cent of encounters[(a)]	95% LCL	95% UCL
Sex (missing = 481)	—	—	—	—	—	—	—	—	—
Males	43.8	42.9	44.6	38.5	37.6	39.3	41.0	40.3	41.7
Females	56.2	55.4	57.1	61.5	60.7	62.4	59.0	58.3	59.7
Age group	—	—	—	—	—	—	—	—	—
65–74 years	100.0	100.0	100.0	—	—	—	48.3	47.5	49.1
75+ years	—	—	—	100.0	100.0	100.0	51.7	50.9	52.5
Other characteristics	—	—	—	—	—	—	—	—	—
New patient to practice	3.5	2.2	4.7	3.1	1.1	5.1	3.3	2.3	4.2
Seen previously	96.5	96.2	96.9	96.9	96.5	97.3	96.7	96.4	97.1
Health care card	68.9	67.7	70.0	63.6	62.4	64.7	66.1	65.1	67.2
Veterans' Affairs card	4.4	3.7	5.0	19.7	18.9	20.6	12.3	11.8	12.8
Non-English-speaking background	8.1	3.9	12.3	5.2	2.7	7.7	6.6	4.1	9.1
Aboriginal person[(b)]	0.4	0.0	5.0	0.2	0.0	4.9	0.3	0.0	2.8
Torres Strait Islander[(b)]	0.0	0.0	7.3	0.0	0.0	4.1	0.0	0.0	2.4

(a) Missing data removed.
(b) Six patients identified themselves as both an Aboriginal person and a Torres Strait Islander.
Note: Shading indicates statistically significant differences between age groups. LCL—lower confidence limit; UCL—upper confidence limit.

Table 5.2: Patient reasons for encounter by ICPC–2 chapter

ICPC–2 chapter	65–74 (*n* = 24,003)			75+ (*n* = 25,644)			Total 65+ (*n* = 49,647)		
	Rate per 100 encs[(a)]	95% LCL	95% UCL	Rate per 100 encs[(a)]	95% LCL	95% UCL	Rate per 100 encs[(a)]	95% LCL	95% UCL
General & unspecified	34.7	33.6	35.8	40.3	39.0	41.6	37.6	36.5	38.6
Circulatory	25.3	24.4	26.1	25.0	24.0	26.1	25.1	24.3	26.0
Musculoskeletal	20.6	19.8	21.4	18.3	17.7	19.0	19.4	18.9	20.0
Respiratory	20.3	19.5	21.2	17.2	16.3	18.0	18.7	18.0	19.4
Skin	14.1	13.4	14.8	16.0	15.3	16.8	15.1	14.6	15.6
Endocrine & metabolic	11.2	10.5	11.9	7.1	6.5	7.7	9.1	8.6	9.5
Digestive	9.1	8.5	9.6	8.3	7.8	8.8	8.7	8.3	9.0
Psychological	6.2	5.6	6.9	7.3	6.7	7.9	6.8	6.4	7.2
Neurological	5.1	4.6	5.6	4.9	4.4	5.3	5.0	4.7	5.2
Urology	3.3	2.7	3.9	3.6	3.2	4.1	3.5	3.2	3.7
Ear	3.1	2.6	3.7	3.1	2.7	3.6	3.1	2.9	3.4
Eye	2.9	2.3	3.4	3.0	2.6	3.5	3.0	2.7	3.2
Blood	2.6	1.8	3.4	2.6	1.9	3.3	2.6	2.2	3.0
Female genital system	2.8	2.0	3.6	1.3	0.6	2.1	2.1	1.7	2.4
Male genital system	1.4	0.5	2.2	1.0	0.3	1.8	1.2	0.8	1.6
Social problems	0.8	0.0	1.9	0.9	0.0	1.7	0.8	0.4	1.3
Total RFEs	**163.5**	**161.8**	**165.2**	**160.1**	**158.2**	**162.0**	**161.7**	**160.1**	**163.4**

(a) Figures do not total 100.0 as more than one reason for encounter can be recorded at each encounter.

Note: Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; RFE—reason for encounter.

RFEs of a general and unspecified nature and those associated with the skin were presented significantly more often at encounters with patients in the older age group (40.3 per 100 encounters compared with 34.7 per 100, and 16.0 per 100 compared with 14.1 per 100 respectively).

Compared with encounters with patients of 75+, encounters with those aged between 65 and 74 years were significantly more likely to include RFEs related to:

- the musculoskeletal system (20.6 per 100 encounters compared with 18.3 per 100 encounters)
- the respiratory system (20.3 per 100 encounters compared with 17.2 per 100 encounters)
- and the endocrine and metabolic systems (11.2 per 100 encounters compared with 7.1 per 100 encounters).

RFEs associated with the circulatory system ranked the second most frequent in both age groups and presented, on average, almost equally in both age groups (25.3 per 100 encounters for those aged 65 to 74, compared with 25.0 per 100 encounters for those aged 75 years and over) (Table 5.2).

5.3 Most frequent individual reasons for encounter

The most frequently recorded RFE was a request for a prescription (16.8 per 100 encounters), followed by a request for a cardiac check-up (11.9 per 100 encounters) and for vaccination (6.0 per 100 encounters) (Table 5.3).

There were very few significant differences between the two age groups when comparing individual RFEs. Requests for test results were significantly more likely in the 65–74 year age group (6.7 per 100 encounters compared with 4.4 per 100 encounters). The older cohort were significantly more likely to attend their GP for a general check-up than those aged 65–74 years (7.1 per 100 encounters compared with 3.8 per 100 encounters).

The relative rankings between the two age groups were identical for the highest ranked individual patient reasons for encounter, with requests for prescriptions heading the list in both (17.1 and 16.5 per 100 encounters respectively). While not a significant difference, it is notable that patients aged between 65 and 74 years presented to their GP with requests for immunisation, on average, slightly more often than those 75 years and over (6.7 per 100 encounters, compared with 5.3 per 100 encounters (Table 5.3).

Table 5.3: Most frequent individual reasons for encounter

	65–74 (*n* =24,003)			75+ (*n* = 25,644)			Total 65+ (*n* = 49,647)		
Patient reasons for encounter	**Rate per 100 encs[(a)]**	**95% LCL**	**95% UCL**	**Rate per 100 encs[(a)]**	**95% LCL**	**95% UCL**	**Rate per 100 encs[(a)]**	**95% LCL**	**95% UCL**
Prescription all*	17.1	16.2	18.1	16.5	15.6	17.4	16.8	16.0	17.6
Cardiac check-up*	12.3	11.5	13.1	11.5	10.5	12.5	11.9	11.2	12.6
Immunisation/vaccination (all)*	6.7	4.7	8.7	5.3	3.0	7.5	6.0	4.4	7.5
Test results*	6.7	6.0	7.3	4.4	3.8	5.1	5.5	5.1	5.9
General check-up*	3.8	2.9	4.6	7.1	6.3	7.9	5.5	4.9	6.0
Hypertension	4.8	3.6	6.0	4.2	3.1	5.2	4.5	3.7	5.2
Cough	4.5	3.9	5.1	3.7	3.2	4.2	4.1	3.8	4.4
Back complaint*	3.6	2.9	4.2	3.3	2.8	3.8	3.5	3.1	3.8
Rash*	2.0	1.3	2.6	2.0	1.5	2.5	2.0	1.7	2.3
Skin symptom/complaint	1.9	0.8	3.0	2.0	1.3	2.7	1.9	1.5	2.4
Shortness of breath/ dyspnoea	1.5	0.6	2.4	2.3	1.8	2.9	1.9	1.6	2.3
Diabetes*	2.3	1.4	3.2	1.6	0.9	2.3	1.9	1.5	2.4
Vertigo/dizziness	1.8	1.1	2.6	2.0	1.5	2.5	1.9	1.6	2.2
Leg/thigh symptom/complaint	1.8	1.1	2.6	1.6	1.0	2.1	1.7	1.4	2.0
Knee symptom/complaint	1.9	1.1	2.6	1.5	0.9	2.1	1.7	1.4	2.0
Sleep disturbance	1.4	0.5	2.2	1.7	0.9	2.4	1.5	1.1	1.9
Subtotal (n, %)	*17,746*	*45.2%*	—	*18,105*	*44.1%*	—	*35,851*	*44.6%*	—
Total RFEs	**39,244**	**—**	**—**	**41,052**	**—**	**—**	**80,296**	**—**	**—**

(a) Figures do not total to 100.0 as more than one reason for encounter can be recorded at each encounter.
* Includes multiple ICPC–2 and ICPC–2 PLUS codes.

Note: Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; RFE—reasons for encounter.

6 Problems managed

The problems, as described by the GP, that are managed during a patient encounter may be expressed as symptoms, diagnoses or ill-defined conditions, but GPs are asked to state the problem as specifically as possible. The BEACH encounter form allows the recording of up to four problems.

There were over 85,000 problems managed at encounters with patients aged 65 years or more in 2000–02, at a rate of 171.2 per 100 encounters (Table 4.2). This was considerably higher than the average rate for the total BEACH sample in 2002, of 143.4 per 100 encounters.[96]

6.1 Problems managed by ICPC–2 chapter

Problems associated with the circulatory system were the most frequently managed, at a rate of 38.4 per 100 encounters, followed by musculoskeletal problems (22.2 per 100 encounters) (Table 6.1). Other problems managed at relatively high rates included:

- respiratory problems (18.8 per 100 encounters)
- skin problems (17.6 per 100 encounters)
- endocrine and metabolic problems (15.7 per 100 encounters)
- problems of a general or unspecified nature (14.3 per encounters)
- psychological problems (11.1 per 100 encounters)
- digestive problems (10.4 per 100 encounters).

While circulatory and musculoskeletal problems were the most frequently managed problems for patients in both age groups, circulatory problems were managed significantly more often at encounters with patients of 75+ years (40.5 per 100 encounters) than at encounters with those aged 65–74 years (36.1 per 100).

The relative rankings of ICPC–2 chapters changed considerably between the two age groups once the circulatory and musculoskeletal chapters were accounted for. Problems of a respiratory nature were more often managed at encounters with the younger age group (20.5 per 100 encounters) than at those with patients of 75 years and over (17.1 per 100 encounters), as were endocrine and metabolic problems (19.2 per 100 encounters compared with 12.5 per 100 encounters), and problems pertaining to the female genital system (3.9 per 100 encounters compared with 1.7 per 100 encounters).

In contrast, at encounters with patients of 75 years or more, problems related to the skin (18.9 per 100 encounters) and psychological problems (12.5 per 100 encounters) were managed significantly more often than at those with patients of 65–74 years (16.1 and 9.6 per 100 encounters respectively). Problems of a general and unspecified nature were also more frequent at encounters with the older patients (15.1 per 100 encounters compared with 13.4 per 100) (Table 6.1).

Table 6.1: Problems managed by ICPC–2 chapter

ICPC–2 chapter	65–74 (*n* = 24,003)			75+ (*n* = 25,644)			Total 65+ (*n* = 49,647)		
	Rate per 100 encs[(a)]	95% LCL	95% UCL	Rate per 100 encs[(a)]	95% LCL	95% UCL	Rate per 100 encs[(a)]	95% LCL	95% UCL
Circulatory	36.1	35.1	37.0	40.5	39.4	41.7	38.4	37.5	39.3
Musculoskeletal	22.9	22.2	23.6	21.5	20.8	22.2	22.2	21.7	22.7
Respiratory	20.5	19.7	21.4	17.1	16.3	17.9	18.8	18.1	19.4
Skin	16.1	15.4	16.8	18.9	18.2	19.7	17.6	17.0	18.1
Endocrine & metabolic	19.2	18.4	20.0	12.5	11.8	13.1	15.7	15.2	16.3
General & unspecified	13.4	12.6	14.1	15.1	14.2	15.9	14.3	13.6	14.9
Psychological	9.6	9.0	10.2	12.5	11.8	13.2	11.1	10.6	11.6
Digestive	10.6	10.1	11.2	10.2	9.7	10.7	10.4	10.1	10.7
Urology	3.6	3.1	4.2	4.6	4.1	5.0	4.1	3.9	4.4
Ear	3.5	3.0	4.0	3.6	3.2	4.1	3.6	3.3	3.8
Eye	3.2	2.7	3.7	3.9	3.4	4.3	3.6	3.3	3.8
Neurological	3.6	3.0	4.1	3.4	3.0	3.9	3.5	3.2	3.7
Female genital system	3.9	3.2	4.6	1.7	1.1	2.3	2.8	2.5	3.1
Blood	2.2	1.5	2.9	2.8	2.3	3.3	2.5	2.2	2.8
Male genital system	2.3	1.6	3.0	1.9	1.3	2.5	2.1	1.8	2.4
Social problems	0.7	0.0	1.8	0.7	0.0	1.5	0.7	0.2	1.1
Total problems (*n*)	**41,179**	**—**	**—**	**43,829**	**—**	**—**	**85,008**	**—**	**—**

(a) Figures do not total 100.0 as more than one problem can be managed at each encounter.

Note: Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

6.2 Most frequent individual problems managed

Hypertension was the most frequently managed problem at encounters with patients aged 65 years and over, managed at almost one in five encounters (19.9 per 100 encounters) (Table 6.2). This was followed by osteoarthritis and immunisation, both managed at a rate of 6.2 per 100 encounters.

There were few significant differences between the two age groups when examining rates of individual problems managed. Diabetes (7.0 per 100 encounters) was managed significantly more often at encounters with 65–74 year olds than at those with older patients (4.9 per 100 encounters), as were lipid disorders (6.7 per 100 encounters compared with 3.1). Heart failure, while the sixth most frequently managed problem at encounters with patients of 75 years or more (3.8 per 100 encounters), was managed at only 1.5 per 100 encounters with patients aged 65 to 74 years.

Table 6.2: Most frequent individual problems managed at encounter

Problem managed	65–74 (*n* = 24,003) Rate per 100 encs[(a)]	95% LCL	95% UCL	75+ (*n* = 25,644) Rate per 100 encs[(a)]	95% LCL	95% UCL	Total 65+ (*n* = 49,647) Rate per 100 encs[(a)]	95% LCL	95% UCL
Hypertension*	20.7	19.9	21.4	19.2	18.3	20.0	19.9	19.2	20.6
Osteoarthritis*	6.1	5.5	6.6	6.4	5.8	6.9	6.2	5.9	6.6
Immunisation/vaccination (all)*	6.9	5.0	8.9	5.5	3.3	7.6	6.2	4.7	7.7
Diabetes*	7.0	6.4	7.6	4.9	4.5	5.4	5.9	5.6	6.3
Lipid disorder	6.7	6.1	7.3	3.1	2.5	3.7	4.8	4.5	5.2
Ischaemic heart disease*	3.3	2.7	3.9	4.3	3.8	4.8	3.8	3.5	4.1
Prescription all*	3.2	2.1	4.2	3.3	2.3	4.4	3.2	2.6	3.9
Sleep disturbance	2.4	1.7	3.2	3.5	2.9	4.2	3.0	2.6	3.4
Depression*	2.9	2.3	3.6	2.7	2.2	3.2	2.8	2.5	3.1
Oesophageal disease	2.9	2.3	3.5	2.5	2.0	3.0	2.7	2.4	3.0
Heart failure	1.5	0.6	2.4	3.8	3.2	4.2	2.7	2.4	3.0
Acute bronchitis/ bronchiolitis	2.5	1.7	3.3	2.6	2.0	3.1	2.5	2.2	2.9
Cardiac check-up*	2.4	1.2	3.6	2.3	1.3	3.2	2.3	1.7	3.0
General check-up*	1.6	0.7	2.4	2.9	2.3	3.6	2.3	1.9	2.6
Chronic obstructive pulmonary disease	2.2	1.4	2.9	2.3	1.8	2.8	2.2	1.9	2.5
Back complaint*	2.4	1.7	3.1	2.0	1.4	2.6	2.2	1.9	2.5
Atrial fibrillation/flutter	1.6	0.8	2.5	2.6	2.1	3.2	2.2	1.8	2.5
Asthma	2.6	2.0	3.2	1.7	1.1	2.4	2.2	1.9	2.4
Solar keratosis/sunburn	2.1	1.1	3.1	2.2	1.5	2.8	2.1	1.7	2.5
UTI*	1.8	1.1	2.4	2.5	2.0	2.9	2.1	1.9	2.3
Upper respiratory infection, acute	2.5	1.7	3.2	1.7	1.1	2.3	2.1	1.7	2.4
Osteoporosis	1.8	1.1	2.5	2.2	1.6	2.7	2.0	1.7	2.3
Malignant neoplasm, skin	1.8	0.9	2.8	2.0	1.4	2.6	1.9	1.5	2.3
Anxiety*	1.8	1.1	2.5	1.7	1.1	2.4	1.8	1.4	2.1
Contact/allergic dermatitis	1.6	0.9	2.3	1.9	1.4	2.4	1.7	1.5	2.0
Chronic ulcer, skin	0.9	0.0	1.9	2.5	1.8	3.2	1.7	1.4	2.1
Arthritis*	1.5	0.5	2.5	1.6	0.7	2.5	1.5	1.0	2.0
Subtotal (n, %)	*22,481*	*51.3%*	—	*25,162*	*57.4%*	—	*47,591*	*66.0%*	—
Total problems (*n*)	**43,829**	**—**	**—**	**43,829**	**—**	**—**	**85,008**	**—**	**—**

(a) Figures do not total 100.0 as more than one problem can be managed at each encounter. Only those problems managed at a rate of 1.5 per 100 encounters in at least one age group are included.

* Includes multiple ICPC–2 and ICPC–2 PLUS codes.

Note: Shading indicates statistically significantly differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; UTI—urinary tract infection.

6.3 Injuries

Background

Injuries were deemed to be responsible for 8.4% of overall DALYs in Australia in 1996. In older people, falls account for the greatest proportion of DALYs, in particular for those aged 75 years and over.[40] Age-specific death rates from falls are considerably higher among those aged 75 years and over compared with those aged 65 to 74,[3] and males in both groups have higher age–sex-specific death rates from falls than females.[3,39]

From a health perspective, falls can be associated with minor injuries such as cuts and bruises, to more serious injuries including fractures, and in some cases death.[4] Almost half of deaths from injuries were attributed to falls in people aged 65 years and over in 1998 (49.5%), with over one thousand people dying after a fall.[39]

Conditions found to be associated with falling in older people include Parkinson's disease, hip fractures, stroke, glaucoma and arthritis. While males have higher age–sex-specific death rates from falls than females, it would appear from self-reported data that females may have a higher risk of falling than males.[100,101] It also appears that either a previous fall or a fear of falling may predict falls in the future.[101]

Various strategies have been put in place to prevent falls in older people. Due to the fact that activity restriction has been associated with falling,[101] research has been conducted on exercise programs which aim to reduce falls in older people. It has been shown that the number of falls experienced by patients does decrease after structured exercise programs,[41,42] while a program of exercise, reduction of hazards in the home and improvement in vision further reduce the number of falls.[41] Guidelines have recently been distributed by Queensland Health to help health care practitioners improve their knowledge and skills regarding falls prevention.[102]

Results

Injuries were managed at one in every 20 general practice encounters with patients aged 65 years and over (5.0 per 100 encounters). Musculoskeletal injuries accounted for the majority of these, managed at an average rate of 2.4 per 100 encounters. Skin injuries were managed at a rate of 1.8 per 100 encounters. Problems labelled as falls only contributed 0.2 problem contacts per 100 encounters (Table 6.3).

When the older population was divided into the 65–74 years and 75+ age groups, the rate of general practice encounters due to injuries was found to be marginally higher in the 75+ years age group (5.2 per 100 encounters) than in the 65–74 year age group (4.7 per 100 encounters). Skin injuries, such as cuts, bruises and burns, were recorded significantly more often in patients aged 75 years and over (2.2 per 100 encounters compared with 1.4 per 100 encounters with 65–74 year olds). However, musculoskeletal injuries, such as fractures, were not managed at significantly different rates in these age groups.

Table 6.3: Management rates of injuries at encounters with patients aged 65 years and over

	65–74 (*n* = 24,644)			75+ (*n* = 25,003)			Total 65+ (*n* = 49,647)		
Injury count	**Rate per 100 encs**	**95% LCL**	**95% UCL**	**Rate per 100 encs**	**95% LCL**	**95% UCL**	**Rate per 100 encs**	**95% LCL**	**95% UCL**
All injuries	4.7	4.2	5.3	5.2	4.8	5.7	5.0	4.7	5.3
Musculoskeletal injuries	2.6	1.9	3.2	2.3	1.8	2.8	2.4	2.2	2.7
Skin injuries	1.4	1.3	1.6	2.2	2.0	2.4	1.8	1.7	1.9
Trauma/injury, NOS	0.2	0.0	2.5	0.3	0.0	1.5	0.2	0.0	0.9

Note: Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

7 Medications

As previously shown in Chapter 4 (Table 4.2), medications were prescribed, advised or supplied at an average rate of 131.6 medications per 100 encounters with patients aged 65 years and over. This is far higher than the average for all general practice encounters, of 108.2 per 100 encounters.[75]

This section investigates only medications prescribed by the GP for the management of problems during the encounter. Medications supplied by the GP or advised for purchase (OTC) have been excluded from this analysis. In Table 7.1, medications have been divided into groups and subgroups, rather than generic names. This increases the sample size of each group, and provides more meaningful information, particularly considering the vast numbers and types of medications prescribed to older people.

Medications acting on the cardiovascular system were the most commonly prescribed for patients aged 65 years and over, at an average rate of 31.6 prescriptions per 100 encounters. Antihypertensives were the most common of these (17.0 per 100 encounters), reflecting the high management rate of hypertension at encounters with these older patients.

Within the cardiovascular group, other cardiovascular system medications (which include lipid-lowering medications) were prescribed significantly more often for patients aged between 65 and 74 years (6.7 per 100 encounters) than for patients aged 75 years and over (3.9 per 100).

Medications acting on the central nervous system were the second most often prescribed to patients of 65 years and over. They were given significantly more often at encounters with patients of 75+ years (14.5 per 100 encounters) than to those aged 65–74 years (12.5 per 100). This was largely due to the higher prescription rate for simple analgesics (7.5 per 100 encounters compared with 5.9 per 100 encounters).

Antibiotics were the third group of medications most frequently prescribed, at a rate of 10.1 per 100 encounters, and there was no difference in the prescription rate for patients in the two age groups.

Hormones were prescribed at a significantly higher rate at encounters with patients aged 65–74 years (10.4 per 100 encounters) than at those with patients aged 75 years or more (6.9 per 100 encounters), and this difference was reflected in the prescribing rate of hypoglycaemic agents (5.1 per 100 encounters with 65–74 year olds and 3.1 per 100 for those aged 75+). This reflects the higher rate of diabetes managed in the younger age group (see Table 6.2).

Musculoskeletal medications were prescribed significantly more often at encounters with patients of 65–74 years (9.4 per 100 encounters) than at encounters with older patients (7.5 per 100 encounters). This result was reflected specifically in prescription rates of non-steroidal anti-inflammatory drugs (NSAIDs), which were prescribed to patients aged 65 to 74 years at a rate of 7.7 per 100 encounters, compared with 5.9 per 100 encounters with patients aged 75 years and over.

Medications acting on the urogenital system were prescribed significantly more often to patients aged 75 years and over (5.8 per 100 encounters compared with 3.9 per 100 encounters), particularly diuretics (5.0 per 100 encounters compared with 3.1 per 100 encounters for those aged of 65–74 years) (Table 7.1).

Table 7.1: Relative prescribing rates of common medication groups and subgroups

		65–74 (*n* = 24,003)			75+ (*n* = 25,644)			Total 65+ (*n* = 49,647)		
Medication group	**Medication subgroup**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**
Cardiovascular		32.8	31.5	34.2	30.4	28.9	32.0	31.6	30.4	32.8
	Antihypertensive	17.6	16.8	18.5	16.5	15.5	17.5	17.0	16.3	17.8
	Other cardiovascular medications	6.7	6.2	7.3	3.9	3.3	4.4	5.3	4.9	5.6
	Beta-blockers	4.1	3.5	4.7	3.7	3.2	4.3	3.9	3.6	4.3
	Anti-angina	2.7	2.0	3.4	3.8	3.2	4.4	3.2	2.9	3.6
Central nervous system		12.5	11.8	13.2	14.5	13.8	15.3	13.5	13.0	14.1
	Simple analgesic	5.9	5.2	6.5	7.5	6.9	8.1	6.7	6.3	7.1
	Compound analgesic	2.6	2.0	3.3	2.3	1.9	2.8	2.5	2.2	2.8
	Narcotic analgesic	1.6	0.5	2.6	1.9	1.2	2.6	1.7	1.3	2.1
	Anti-emetic/antinauseant	1.4	0.5	2.3	1.6	1.0	2.2	1.5	1.2	1.8
Antibiotics		10.4	9.8	10.9	9.7	9.2	10.3	10.1	9.7	10.4
	Penicillins/cephalosporins	3.1	2.4	3.7	3.3	2.8	3.8	3.2	2.9	3.5
	Other antibiotics	3.0	2.3	3.6	2.8	2.3	3.3	2.9	2.6	3.2
	Broad-spectrum penicillins	2.5	1.8	3.1	2.2	1.6	2.8	2.3	2.0	2.6
Psychological		8.8	8.2	9.4	9.9	9.3	10.6	9.4	9.0	9.8
	Sedatives/hypnotics	2.9	2.2	3.5	4.0	3.4	4.5	3.4	3.1	3.7
	Antidepressant	3.0	2.4	3.6	2.5	2.0	3.1	2.7	2.4	3.0
	Anti-anxiety	2.5	1.8	3.1	2.7	2.2	3.2	2.6	2.3	2.9
Hormones		10.4	9.6	11.2	6.9	6.2	7.6	8.6	8.1	9.1
	Hypoglycaemics	5.1	4.0	6.1	3.1	2.3	3.9	4.1	3.6	4.6
	Corticosteroids	2.1	1.3	2.8	2.0	1.4	2.6	2.0	1.7	2.3
	Sex hormones	2.3	1.4	3.1	0.8	0.0	1.7	1.5	1.1	1.9

(continued)

Table 7.1 (continued): Relative prescribing rates of common medication groups and subgroups

		65–74 (*n* = 24,003)			75+ (*n* = 25,647)			Total 65+ (*n* = 49,647)		
Medication group	**Medication subgroup**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**
Musculoskeletal		9.4	8.8	9.9	7.5	7.0	8.1	8.4	8.0	8.8
	NSAID	7.7	7.2	8.2	5.9	5.4	6.4	6.7	6.4	7.1
Respiratory		7.0	6.0	8.1	5.6	4.7	6.5	6.3	5.8	6.9
	Bronchodilator	3.6	2.7	4.4	2.8	2.1	3.6	3.2	2.8	3.6
	Asthma preventives	2.8	2.0	3.7	2.2	1.4	2.9	2.5	2.1	2.9
Digestive		5.9	5.4	6.5	6.0	5.5	6.5	6.0	5.6	6.3
	Anti-ulcerants	4.1	3.5	4.6	3.5	3.0	4.0	3.8	3.5	4.0
Urogenital		3.9	3.3	4.6	5.8	5.2	6.3	4.9	4.5	5.3
	Diuretic	3.1	2.4	3.8	5.0	4.4	5.6	4.1	3.7	4.4
Blood		3.9	3.2	4.6	5.1	4.5	5.6	4.5	4.1	4.9
	Other blood drug	2.5	1.6	3.4	3.0	2.3	3.6	2.7	2.3	3.1
	Haemopoietic	1.4	0.6	2.3	2.1	1.4	2.8	1.8	1.4	2.1
Allergy, immune system		4.7	3.2	6.2	3.8	2.2	5.4	4.3	3.2	5.3
	Immunisation	4.3	2.5	6.1	3.4	1.4	5.3	3.8	2.5	5.1
Skin		3.8	3.1	4.4	4.2	3.7	4.7	4.0	3.7	4.3
	Topical steroid	2.7	2.0	3.3	2.8	2.4	3.3	2.7	2.5	3.0
Nutrition/metabolic		2.4	1.6	3.1	3.1	2.5	3.8	2.8	2.4	3.1
Ear/nose topical		1.6	0.9	2.3	1.4	0.9	2.0	1.5	1.3	1.8

Note: Shading indicates statistically significant differences between age groups. LCL—lower confidence limit; UCL—upper confidence limit; NSAID—non-steroidal anti-inflammatory drug.

8 Non-pharmacological treatments

Non-pharmacological treatments (or other treatments) are defined either as clinical treatments, encompassing education, counselling and advice provided to the patient by the GP at the encounter, or as procedural treatments, including minor procedures that are conducted in the surgery by the GP, such as excisions and dressings.[96]

Non-pharmacological treatments were provided to patients aged 65+ at a rate of 46.7 per 100 encounters (Table 4.2). This rate is significantly lower than the non-pharmacological treatment rate in the overall BEACH sample, of 51.9 per 100 encounters.[96]

8.1 Clinical treatments by age group

Clinical treatments were provided by the GP at a rate of 30.8 per 100 encounters with patients aged 65 years and over (Table 8.1). The clinical treatment most often recorded was counselling / advice regarding nutrition and weight, at an average rate of 5.1 per 100 encounters. Advice and education concerning medication was also relatively frequently given (4.8 per 100 encounters). General advice and education was provided at a rate of 4.7 per 100 encounters, and this was followed by counselling of unspecified type (4.0 per 100).

Clinical treatments were provided significantly more often at encounters with patients of 65–74 years (33.4 per 100 encounters), than at those with older patients (28.5 per 100 encounters) (Table 8.1).

Specifically, counselling or advice regarding nutrition and weight was given at almost double the rate at encounters with 65–74-year-old patients (6.5 per 100 encounters) than at those with older people (3.7 per 100).

8.2 Procedural treatments

The procedures most frequently performed at encounters with patients aged 65 years and over were the group of procedures including excision, removal of tissue, biopsy, debridement and cauterisation, recorded at an average rate of 3.6 per 100 encounters. This rate remained steady once the 65 years and over sample was further stratified into the 65–74 and 75 years and over age groups. This was followed by dressing, compression and tamponade (3.0 per 100 encounters), which was more commonly recorded at encounters with patients of 75 years or more (3.9 per 100 encounters) than at those with patients of 65–74 years (2.0 per 100) (Table 8.2).

Table 8.1: Most frequent clinical treatments

Clinical treatment	65–74 (*n* = 24,644) Rate per 100 encs	95% LCL	95% UCL	75+ (*n* = 25,003) Rate per 100 encs	95% LCL	95% UCL	Total 65+ (*n* = 49,647) Rate per 100 encs	95% LCL	95% UCL
Counsel/advice—nutrition/weight*	6.5	5.3	7.7	3.7	2.8	4.6	5.1	4.4	5.8
Advice/education—medication*	4.4	3.4	5.4	5.1	4.2	6.1	4.8	4.1	5.4
Advice/education*	5.0	3.9	6.0	4.4	3.4	5.4	4.7	4.0	5.3
Counselling—problem*	4.4	2.9	5.9	3.7	2.1	5.3	4.0	3.0	5.1
Advice/education—treatment*	3.2	2.2	4.3	3.2	2.2	4.1	3.2	2.6	3.8
Counselling—psychological*	2.3	1.3	3.3	2.0	1.2	2.9	2.2	1.7	2.6
Counsel/advice—exercise*	2.7	1.3	4.0	1.5	0.3	2.6	2.0	1.3	2.7
Reassurance & support	1.4	0.1	2.7	1.6	0.0	3.5	1.5	0.5	2.4
Other administrative/ documentation	0.9	0.0	1.9	1.4	0.6	2.1	1.1	0.7	1.5
Counsel/advice—smoking*	0.5	0.0	2.0	0.3	0.0	2.0	0.4	0.0	1.0
Total clinical treatments	**33.4**	**31.7**	**35.1**	**28.5**	**26.7**	**30.3**	**30.8**	**29.3**	**32.3**

- Includes multiple ICPC–2 and ICPC–2 PLUS codes.

Note: Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

Table 8.2: Most common procedural treatments

Procedural treatment	65–74 (*n* = 24,647) Rate per 100 encs	95% LCL	95% UCL	75+ (*n* = 25,003) Rate per 100 encs	95% LCL	95% UCL	Total 65+ (*n* = 49,647) Rate per 100 encs	95% LCL	95% UCL
Excision/removal tissue/biopsy/ destruction/debridement/cauterisation*	3.6	2.6	4.6	3.6	2.9	4.4	3.6	3.1	4.1
Dressing/pressure/compression/ tamponade*	2.0	1.1	2.8	3.9	3.2	4.6	3.0	2.6	3.3
Physical medicine/rehabilitation*	2.0	0.8	3.1	1.7	0.7	2.7	1.8	1.3	2.4
Incision/drainage/flushing/aspiration/ removal body fluid*	1.6	0.7	2.4	1.8	1.2	2.3	1.7	1.3	2.0
Other therapeutic procedures/surgery NEC*	1.4	0.0	3.4	1.0	0.0	2.8	1.2	0.1	2.3
Local injection/infiltration*	1.0	0.0	2.8	1.0	0.0	2.3	1.0	0.2	1.7
Repair/fixation/suture/cast/ prosthetic device (apply/remove)*	0.9	0.0	1.9	0.8	0.0	1.6	0.8	0.4	1.2
Electrical tracings*	0.6	0.0	1.8	0.5	0.0	1.7	0.5	0.0	1.1
Physical function test*	0.6	0.0	3.4	0.5	0.0	2.9	0.5	0.0	2.0
Glucose test	0.5	0.0	2.1	0.4	0.0	1.9	0.5	0.0	1.3
Total procedures	**15.0**	**14.0**	**15.9**	**15.7**	**14.8**	**16.5**	**15.3**	**14.6**	**16.0**

- Includes multiple ICPC–2 and ICPC–2 PLUS codes.

Note: Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

9 Referrals, tests and investigations

9.1 Referrals

In BEACH, only new referrals are recorded. Renewals of referrals are not included. As shown in Chapter 4 (Table 4.2), 5,705 referrals to specialists, allied health professionals, hospitals or emergency departments were given to patients aged 65 years and over at a rate of 12.1 referrals per 100 encounters. Patients of 65–74 years were more often referred to specialists (8.6 per 100 encounters) than those of 75 years and over (7.6 per 100 encounters).

Ophthalmologists were the specialists to whom older people were most often referred, at a rate of 1.3 per 100 encounters. This was constant across both the younger and older age groups. Twice as many referrals to hospital were given for patients aged 75 years and over (0.8 per 100 encounters) than for those of 65–74 years (0.4 per 100 encounters) but this difference failed to reach statistical significance, possibly due to the small sample size (Table 9.1).

Physiotherapists were the only allied health professionals represented in the top 10 referrals for encounters with patients aged 65 years or more, at a rate of 0.9 referrals per 100 encounters. They ranked second in the professionals to whom referrals were given.

Table 9.1: Most common referrals

	65–74 (*n* = 24,003)			75+ (*n* = 25,644)			Total 65+ (*n* = 49,647)		
Professional to whom referred	**Rate per 100 encs**	**95% LCL**	**95% UCL**	**Rate per 100 encs**	**95% LCL**	**95% UCL**	**Rate per 100 encs**	**95% LCL**	**95% UCL**
Specialists	8.6	8.1	9.2	7.6	7.0	8.1	8.1	7.7	8.4
Ophthalmologist	1.3	0.4	2.1	1.3	0.7	1.8	1.3	1.0	1.6
Surgeon	0.9	0.0	1.8	0.8	0.0	1.6	0.8	0.5	1.2
Cardiologist	0.9	0.0	1.7	0.8	0.1	1.5	0.8	0.5	1.2
Orthopaedic surgeon	0.8	0.0	1.7	0.6	0.0	1.4	0.7	0.3	1.0
Dermatologist	0.6	0.0	1.8	0.6	0.0	1.5	0.6	0.2	1.0
Urologist	0.6	0.0	1.6	0.4	0.0	1.5	0.5	0.1	0.9
ENT	0.5	0.0	1.8	0.4	0.0	1.3	0.4	0.0	0.8
Gastroenterologist	0.5	0.0	1.8	0.4	0.0	1.6	0.4	0.0	0.9
Allied health	2.5	1.8	3.2	2.8	2.2	3.4	2.7	2.3	3.0
Physiotherapist	0.8	0.0	2.0	0.9	0.1	1.7	0.9	0.4	1.3
Hospital	0.4	0.0	1.9	0.8	0.0	1.7	0.6	0.2	1.1
Total referrals	**2,966**	**—**	**—**	**3,054**	**—**	**—**	**6,020**	**—**	**—**

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; ENT—ear, nose and throat.

9.2 Pathology test orders

In GP encounters with patients aged 65 years and over, an average of 33.5 pathology tests were ordered per 100 encounters (Table 4.2), full blood counts being the most common (4.7 orders per 100 encounters) (Table 9.2).

No statistically significant differences emerged when specific pathology order rates were compared for encounters with patients of 65–74 years and 75 years and over. This may be due to the small size of the sample. However, it is interesting to note that pathology tests for lipids, liver function tests and glucose tests were recorded at somewhat higher rates at encounters with patients aged between 65 and 74 years (Table 9.2). This may reflect the higher management rates of diabetes and lipid disorders in the younger age group.

Table 9.2: Most common pathology test orders

	65–74 (*n* = 24,003)			75+ (*n* = 25,644)			Total 65+ (*n* = 49,647)		
Pathology test type	**Rate per 100 encs**	**95% LCL**	**95% UCL**	**Rate per 100 encs**	**95% LCL**	**95% UCL**	**Rate per 100 encs**	**95% LCL**	**95% UCL**
Full blood count	4.7	4.1	5.4	4.7	4.1	5.3	4.7	4.4	5.1
Lipids	3.2	2.4	4.0	1.7	0.8	2.5	2.4	1.9	2.8
Liver function	2.6	1.8	3.4	1.9	1.1	2.7	2.3	1.8	2.7
EUC	1.9	0.7	3.2	2.0	0.9	3.0	2.0	1.3	2.7
Urine MC&S	1.6	0.8	2.4	2.0	1.4	2.6	1.8	1.5	2.1
INR	1.7	0.7	2.7	1.7	1.0	2.5	1.7	1.3	2.2
Glucose	2.1	1.2	3.1	1.2	0.3	2.0	1.6	1.1	2.1
HbA1c	1.4	0.5	2.3	1.0	0.3	1.7	1.2	0.9	1.6
ESR	1.3	0.2	2.3	1.2	0.3	2.1	1.2	0.8	1.7
U&E	1.1	0.0	2.6	1.1	0.0	2.6	1.1	0.2	1.9
Subtotal (n, %)	*9,925*	*59.7*	—	*5,196*	*58.6*	—	*4,729*	*60.9*	—
Total pathology tests (*n*, %)	**8,868**	**100.0**	**—**	**7,766**	**100.0**	**—**	**16,634**	**100.0**	**—**

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; EUC—electrolytes, urea and creatinine; MC&S—microscopy culture & sensitivity; INR—international normalised ratio; HbA1c glycosated haemoglobin; ESR—erythrocyte sedimentation rate; U&E—urea and electrolytes.

9.3 Imaging orders

Chest x-rays were by far the most common imaging test ordered, at a rate of 1.4 orders per 100 encounters with patients aged 65 years and over. These were followed by knee x-rays and hip x-rays, both ordered at a rate of 0.4 per 100 encounters.

No significant differences in imaging order rates were found between the two age groups. Mammography tended to be ordered at somewhat higher rates for patients of 65–74 years (0.4 per 100 encounters) than for those of 75+ years (0.2 per 100 encounters) (Table 9.3).

Table 9.3: Most common imaging orders

Imaging test ordered	65–74 (*n* = 24,003)			75+ (*n* = 25,644)			Total 65+ (*n* = 49,647)		
	Rate per 100 encs	95% LCL	95% UCL	Rate per 100 encs	95% LCL	95% UCL	Rate per 100 encs	95% LCL	95% UCL
X-ray; chest	1.4	0.4	2.3	1.3	0.6	2.0	1.4	1.0	1.7
X-ray; knee	0.5	0.0	1.8	0.4	0.0	1.4	0.4	0.0	0.9
X-ray; hip	0.4	0.0	1.6	0.4	0.0	1.4	0.4	0.0	0.8
Electrocardiogram	0.3	0.0	2.4	0.3	0.0	2.2	0.3	0.0	1.1
Mammography; female	0.4	0.0	2.1	0.2	0.0	1.9	0.3	0.0	1.0
Ultrasound; abdomen	0.3	0.0	2.0	0.2	0.0	1.5	0.2	0.0	0.8
Densiometry test	0.3	0.0	2.0	0.1	0.0	2.1	0.2	0.0	1.0
X-ray; shoulder	0.2	0.0	2.1	0.2	0.0	1.7	0.2	0.0	0.8
X-ray; spine; lumbosacral	0.2	0.0	1.8	0.2	0.0	1.6	0.2	0.0	0.8
Ultrasound; shoulder	0.3	0.0	2.0	0.2	0.0	1.4	0.2	0.0	0.8
Subtotal (n, %)	*1,013*	*46.0*	—	*896*	*49.7*	—	*1,894*	*47.3*	—
Total imaging tests (*n*, %)	**2,202**	**100.0**	**—**	**1,804**	**100.0**	**—**	**4,006**	**100.0**	**—**

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

10 Risk factors

There are many risk factors that contribute to the onset of certain conditions. With a longitudinal view of patient health becoming increasingly popular,[103] the importance of monitoring risk factors in the older population cannot be underestimated. BEACH measures three risk factors shown to be important in the prevention of chronic conditions—alcohol intake, smoking status and BMI.

Objectives

The objectives of this chapter are to:

- describe the impact of these risk behaviours in the general practice population aged 65 years and over
- determine whether there are differences between younger (65–74) and older (75+) patients in the prevalence of these risk behaviours
- describe sex differences in the relative rates of these risk factors for this population.

Methods

Data on alcohol intake, smoking habits and BMI were collected on the SAND section of the BEACH encounter form. These questions were asked during 40 of every 100 encounters recorded (see Chapter 2 Methods).

10.1 Alcohol

Background

The 2001 National Drug Strategy Household Survey found that almost half of adult Australians consumed alcohol at least once per week. One in four people aged 60 years and over did not drink alcohol (27.1%), while only 6.0% consumed alcohol at levels regarded as 'risky' or 'high risk'.[44] Similarly, the National Health Survey 2001 reported that the vast majority of older Australians either do not consume alcohol, or do so at moderate levels, with only 8.0% of 65–74 year olds, and 4.6% of those aged 75 years or more, drinking at at-risk levels.[45] Overall, it has been shown that alcohol consumption decreases with age.[43,44]

Both the positive and negative effects of alcohol consumption have been well documented. Consumption of excessive amounts of alcohol are related to multiple chronic conditions, including various cancers (liver, breast and colorectal), liver cirrhosis, stroke and coronary heart disease.[5] Older people reporting a drinking problem have also been shown to report poorer health status.[51]

In terms of disease burden, the responsible consumption of alcohol outweighs the negative effects, with overall alcohol consumption preventing 3% of the disease burden in Australia.[47] Responsible levels of alcohol consumption are related to improved cardiovascular health, particularly in older people. In particular, moderate consumption of wine has been associated with maintaining health during the older ages.[46] In contrast, the outcomes of at-risk use of alcohol are seen across all age groups.[40]

While conditions related to high-risk levels of alcohol consumption decline with age,[12] it has also been shown that the body's resistance to alcohol decreases with age, due to changes in body structure related to the loss of muscle. Therefore, 'excessive drinking' may involve the consumption of less alcohol in the older age groups and may not be easily identified by doctors, or may be overlooked due to other problems under management for the patient.[104] Identification of excessive consumption of alcohol may be complicated by the form of presentation of such problems to doctors. Common presentations of alcohol-related conditions in older people include falls, hypertension, cognitive problems and depression.[104,105] Doctors should therefore be aware of the possibility of alcohol related conditions occurring in older patients.[104]

Method

Three items from the WHO Alcohol Use Disorders Identification Test (AUDIT)[106] were modified for use in the BEACH survey to measure alcohol intake. These three questions measure at-risk alcohol use, by means of a score for each question. A total score of 5+ for males or 4+ for females suggests that the person's alcohol consumption is placing them at risk.

The questions patients are asked to determine their alcohol intake are:

- How often do you have a drink containing alcohol?

  Never
  Monthly or less
  Once a week
  2–4 times a week
  5+ times a week

- How many standard drinks do you have on a typical day when you are drinking?
- How often do you have 6 or more standard drinks on one occasion?

  Never
  Monthly or less
  Once a week
  2–4 times a week
  5+ times a week

A standard drinks chart was provided to each GP to help the patient identify the number of standard drinks consumed.

Results

During the period between 2000 and 2002, 18,469 patients aged 65 years and over answered questions relating to their alcohol intake, 7,702 of these being male (41.7%), and 10,767 females (58.3%). Patients reported relatively low levels of at-risk drinking—only 16.3% reported consuming alcohol at levels that were regarded as at-risk (Figure 10.1). Over 40% of patients aged 65+ stated they did not drink alcohol, while 42.5% reported responsible levels of alcohol intake.

Of the 18,469 older respondents, 9,032 were aged between 65 and 74 years (48.9%), while the remaining 9,437 (51.1%) were aged 75+. There were marked differences in consumption patterns based on patient age. Patients aged 65–74 years were significantly more likely to

report consuming alcohol at at-risk levels (19.4%, 95% CI: 17.7–21.0) than those aged 75+ (13.4%, 95% CI: 10.6–16.3), and significantly less likely to be non-drinkers (36.6%, 95% CI: 34.5–38.7 compared with 45.5%, 95% CI: 42.2–48.8). There was no difference found between the age groups in the proportion of patients purporting to consume responsible levels of alcohol (44.1%, 95% CI: 42.1–46.0 in the younger group and 41.1%, 95% CI: 37.8–44.3 of patients aged 75 years and over) (Figure 10.1).

There were no significant differences between the sexes in terms of at-risk alcohol consumption. Men were more likely to report responsible alcohol consumption than women in both the 65–74 years age group (52.3%, 95% CI: 48.2–56.3 compared with 37.6%, 95% CI: 35.5–39.6) and in the 75 years and over group (54.1%, 95% CI: 48.6–59.7 compared with 32.6%, 95% CI: 29.0–36.3). Figure 10.2 also shows that females aged 75 years and over were the group most likely to be non-drinkers (54.6%, 95% CI: 50.6–58.6), and men aged 65–74 years were the least likely to be non-drinkers (23.9%, 95% CI: 20.4–27.4).

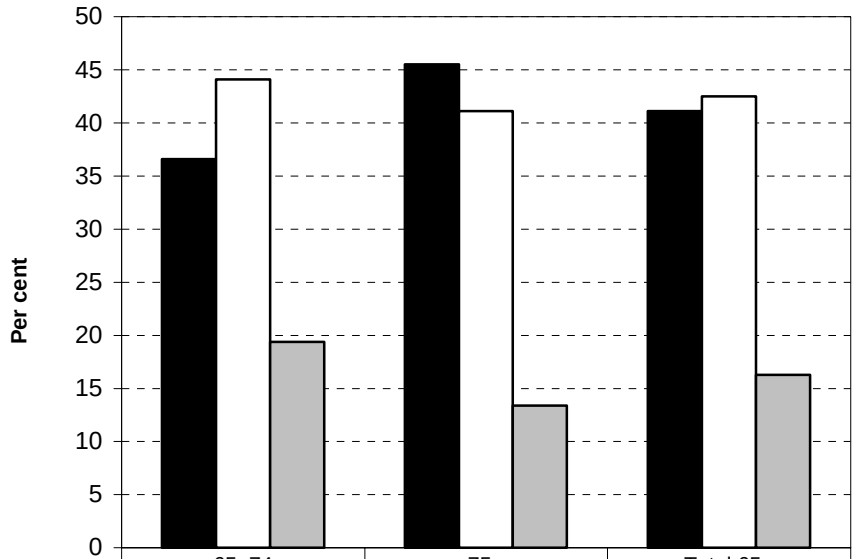
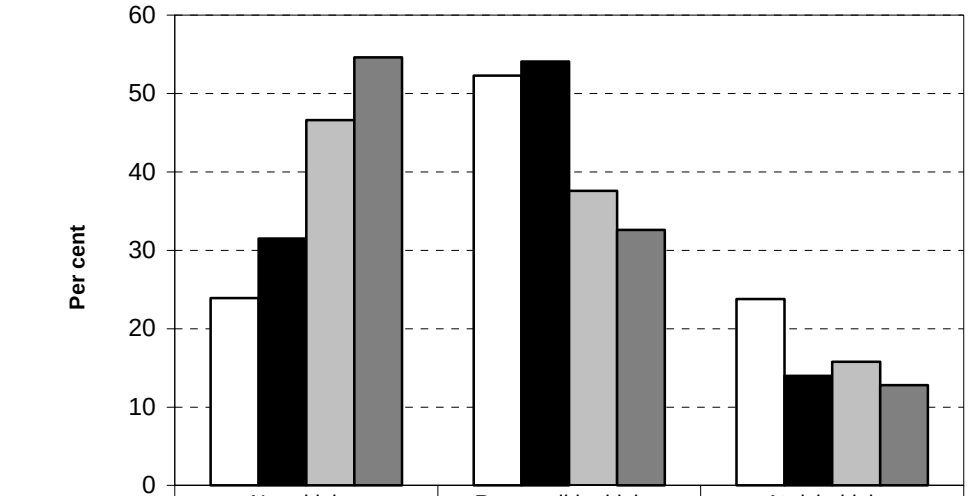


Figure 10.1: Age-specific rates of alcohol consumption in patients aged 65–74 years and 75 years and over



	Non-drinker	Responsible drinker	At-risk drinker
Male 65–74	23.9	52.3	23.8
Male 75+	31.5	54.1	14.0
Female 65–74	46.6	37.6	15.8
Female 75+	54.6	32.6	12.8

Alcohol intake

Figure 10.2: Age-and sex-specific rates of alcohol consumption

10.2 Smoking

Background

Smoking accounts for almost 10% of the disease burden related to risk factors,[40] and smoking alone is responsible for the greatest burden of disease in older Australians, 16% in older men and 9% in older women.[47] The National Drug Strategy Household Survey found that in 2001, 8.9% of Australians aged 60 years or more smoked, while almost 40% of people in this age group were past smokers.[44]

Smoking is associated with numerous chronic conditions, including various cancers (especially lung cancer), chronic obstructive pulmonary disease, coronary heart disease and stroke.[103] An Australian study has shown that older smokers were less likely than younger smokers to heed the health risks associated with their smoking status. They were less likely to believe that smoking was harmful, and that smoking had a negative impact on their health.[107] However, benefits can still be achieved through smoking cessation among older people. A number of studies have shown that increased duration of life could be expected by cessation of smoking,[49] and that people who cease smoking are more likely to report good health than those who continue smoking,[50] including those in older age groups.[46,51]

While less than one in ten Australians aged 60 years or more smoke, the actual number of older smokers is increasing as the older population increases.[48] General practitioners have been identified as having a role to play in educating older people about the health benefits of smoking cessation,[107] as have nurses.[48]

Method

To determine the smoking status of patients, GPs asked the following single question:

- What best describes your smoking status?

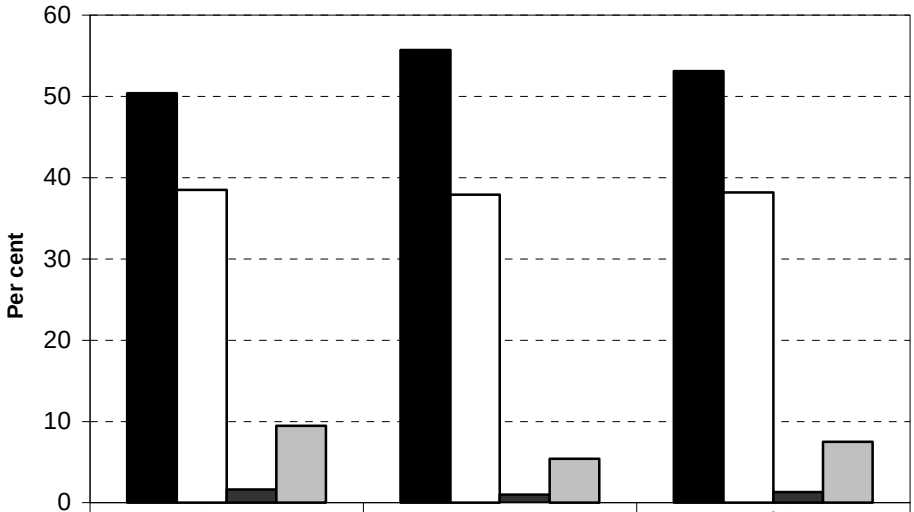
  Smoke daily
  Occasional smoker
  Previous smoker
  Never smoked

Results

Of the 18,709 patients aged 65 years and over who reported their smoking status, only 7.5% of patients reported smoking cigarettes daily. Over half the patients surveyed stated they had never smoked (53.1%), while over one-third reported they had smoked in the past (38.2%) (Figure 10.3).

A comparison of patients aged between 65 and 74, and those aged 75 years and over showed that the proportion of those smoking daily declined with age. A significantly greater proportion of the 9,179 patients aged between 65 and 74 years (9.5%, 95% CI: 8.2–10.8) stated they were daily smokers, compared with 5.4% (95% CI: 3.9–7.0) of the 9,530 aged 75 years and over. Patients aged 75+ were more likely to have never smoked (55.7%, 95% CI: 54.4–56.9) than patients aged 65–74 (50.4%, 95% CI: 49.2–51.6). Almost 40% of patients in both groups reported they were previous smokers (38.5% of patients in the 65 to 74 group, and 37.9% in the 75 years and over group) (Figure 10.3).

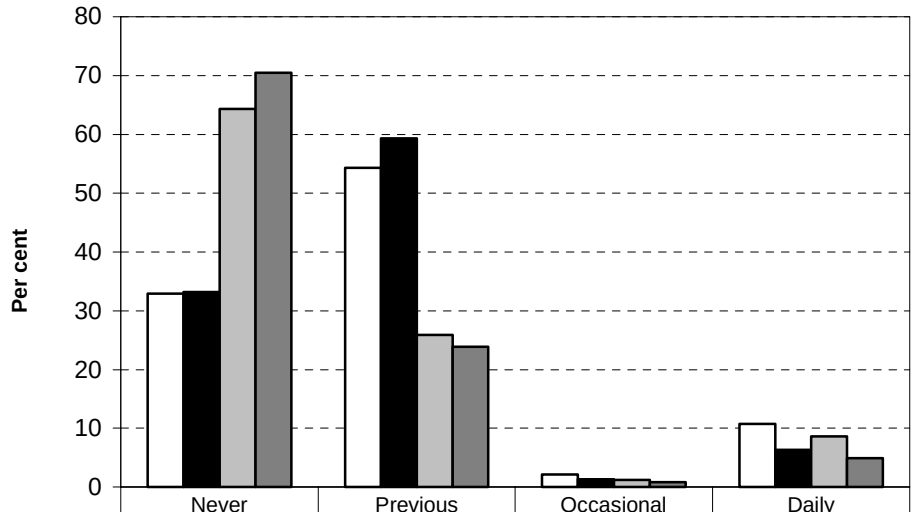
Figure 10.4 shows the age–sex-specific rates for the patients' self-reported smoking status. In both age groups, significantly more males than females indicated they had smoked in the past. In the 65–74 year age group, 54.3% (95% CI: 52.6–56.0) of the 4,028 males stated they had previously smoked, compared with only 25.9% (95% CI: 24.2–27.6) of the 5,055 females. Almost 60% of the 3,762 males (59.3%, 95% CI: 57.4–61.1) aged 75 years and over reported they were previous smokers, compared with 23.9% (95% CI: 22.1–25.6) of the 5,679 females. There were no sex-related differences in the proportion who stated they were daily smokers.



	65–74	75+	Total 65+
Never	50.4	55.7	53.1
Previous	38.5	37.9	38.2
Occasional	1.6	1.0	1.3
Daily	9.5	5.4	7.5

Age group (years)

Figure 10.3: Age-specific rates of smoking in patients aged 65–74 years and 75 years and over



	Never	Previous	Occasional	Daily
Male 65–74	32.9	54.3	2.1	10.7
Male 75+	33.2	59.3	1.3	6.3
Female 65–74	64.3	25.9	1.2	8.6
Female 75+	70.5	23.9	0.8	4.9

Smoking status

Figure 10.4: Age-and sex-specific rates of smoking status

10.3 Body mass index

Background

The health risks associated with a high BMI (overweight and obesity) are widely recognised.[103] Overall, the burden of disease attributed to obesity in Australia is 4.3%, with the burden increasing with age. Obesity is related to various chronic conditions, in particular cardiovascular disease. It is commonly believed that excess weight is an indicator for increased mortality, with overweight and obesity responsible for 4.5% of deaths in Australia.[40] In addition, a study conducted in the United States found that white men and women have greater years of life lost with increasing BMI.[108]

However, recent research has shown that in older people levels of overweight and obesity may not be as significant an indicator of mortality as underweight. Newman et al. (2001) found that weight loss was associated with increasing age and high mortality, while weight gain did not significantly impact on mortality but did increase the amount of disability experienced.[52] Likewise, Grabowski and Ellis (2001) found that underweight older people had the highest mortality rate, followed by obese older people.[53] Harris et al. (1997) found that older people who either lost or gained 10% of total body weight over a ten-year period had an increased risk of coronary heart disease.[54] These studies suggest that the promotion of weight loss in older adults may be inappropriate. Grabowski and Ellis (2001) stated that weight loss in older people should be 'sustained and gradual' to ensure health is maintained.[53]

Method

GPs asked patients the following questions to determine their BMI:

- What is your height in centimetres?
- What is your weight in kilograms?

Metric conversion tables (feet and inches; stones and pounds) were provided to the GP.

BMI was then calculated by dividing weight (kilograms) by height squared (metres^2). A person with a BMI of less than 20 is considered to be underweight, while a BMI of 20–24 is normal. A person is considered overweight if their BMI falls within the range of 25–29, and a person with a BMI of 30 or more is considered obese.

Results

There were 19,430 patients aged 65 years and over who responded to questions about their height and weight. Of these patients, almost one in five were obese (19.1%, 95% CI: 18.4–19.9), and a further 37.2% were overweight. As a result more than half these patients (56%) were either overweight or obese. Only one-third of patients fell within the normal weight range (35.8%, 95% CI: 34.9–36.6), while 7.9% (95% CI: 7.2–8.6) of patients were underweight (Figure 10.5).

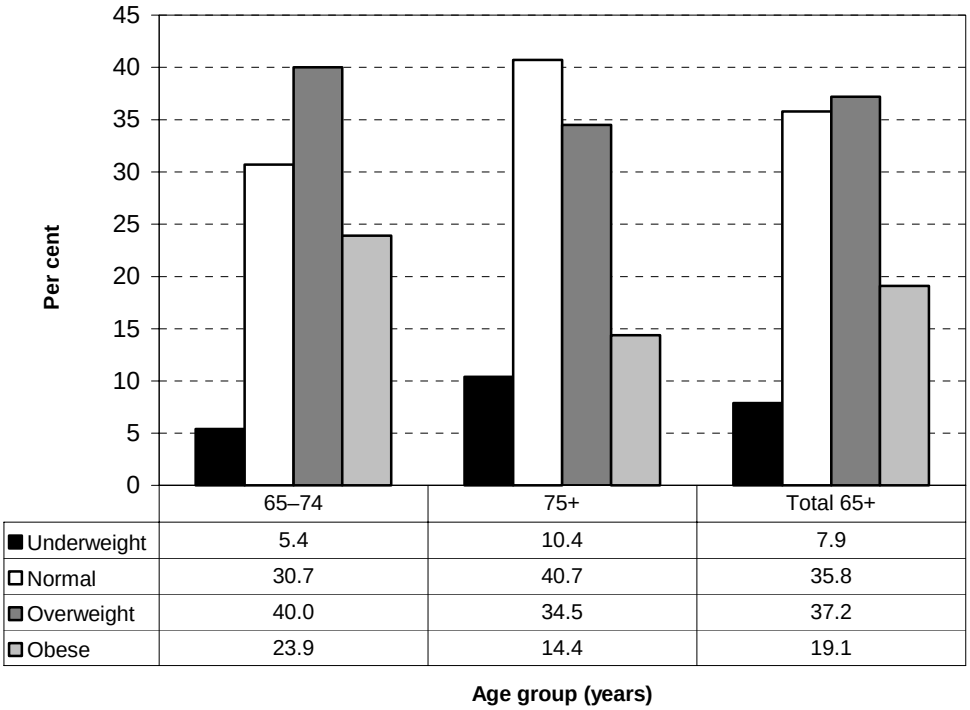


Figure 10.5: Age-specific rates of BMI in patients aged 65–74 years and 75 years and over

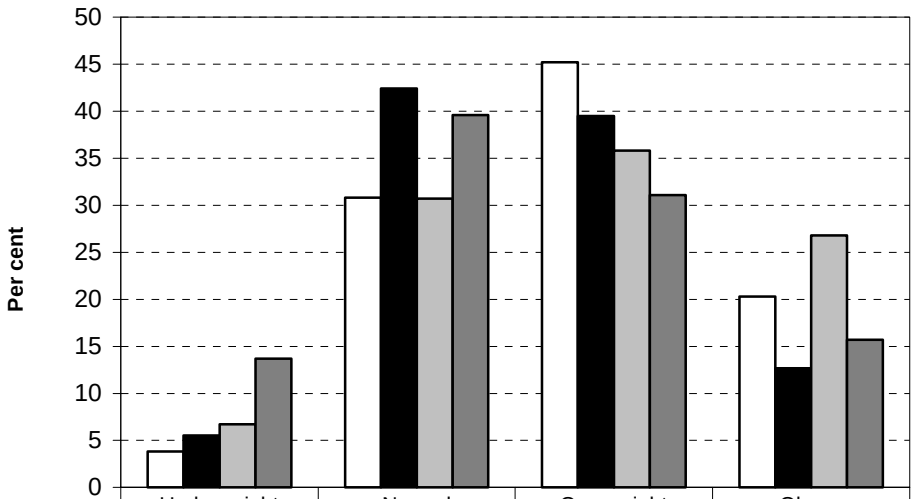
Of the 19,430 respondents, 9,463 were aged 65–74 years (48.7%) and 9,967 were aged 75 years or older (51.3%). The rate of obesity in the older age group (75+) was almost half that of the younger (65–74 years) (14.4%, 95% CI: 13.3–15.5 compared with 23.9%, 95% CI: 22.8–25.0). Similarly, the prevalence of overweight was significantly higher in patients aged 65–74, than in those 75 years and over (40.0%, 95% CI: 39.0–41.0 compared with 34.5%, 95% CI: 33.5–35.5) (Figure 10.5).

It is interesting to note the overall decreasing trend in the prevalence of overweight and obesity in patients aged 75 years and over, while the rate of underweight almost doubled in this age group compared to those aged between 65 and 74 (10.4%, 95% CI: 9.1–11.6 compared with 5.4%, 95% CI: 3.8–7.0) (Figure 10.5).

Figure 10.6 shows age-and sex-specific rates of BMI. The high numbers of patients in both age groups who were either overweight or obese must be noted. In both age groups, males were significantly more likely than females to be classed as overweight. Almost half of the 4,171 males aged between 65 and 74 were overweight (45.2%, 95% CI: 43.6–46.8) compared with 35.8% (95% CI: 34.4–37.3) of the 5,292 females. Conversely, significantly more females than males in this age group were obese (26.8%, 95% CI: 25.2–28.5 compared with 20.3%, 95% CI: 18.0–22.5). In the group aged 75 years and over, 39.5% (95% CI: 37.8–41.2) of the 3,936 males were overweight, compared with 31.1% (95% CI: 29.7–32.5) of the 6,031 females. However, there were no significant differences between the sexes for the prevalence of obesity.

It was noted previously that rates of underweight increased considerably when the patient was in the older age group. Figure 10.6 shows that this difference was primarily in female patients. Females aged 75 years and over were significantly more likely to be underweight than males in the same age group (13.7%, 95% CI: 11.8–15.5 compared with 5.5%, 95% CI: 1.4–9.6).

There were no significant differences between the sexes in the rates of people in the normal weight range in either age group (Figure 10.6).



	Underweight	Normal	Overweight	Obese
Male 65–74	3.8	30.8	45.2	20.3
Male 75+	5.5	42.4	39.5	12.7
Female 65–74	6.7	30.7	35.8	26.8
Female 75+	13.7	39.6	31.1	15.7

Body mass index

Figure 10.6: Age-and sex-specific rates of body mass index

Summary

A relatively low proportion of respondents aged 65 years and over consume alcohol at at-risk levels. While less than 10% of respondents aged 65 years or more smoke cigarettes daily, almost 40% had smoked in the past. In terms of BMI, two areas of concern emerged. Firstly, over 50% of those aged between 65 and 74 years were either overweight or obese. In contrast, in the 75 years and over age group, the high proportion of patients who are underweight is the dominating feature. These issues will be discussed in further detail in Chapter 14—Discussion.

11 Changes in morbidity and management over time

Background

In the last decade, various changes have occurred in both the profile of the population aged 65 years or more and in the pattern of conditions requiring management by GPs. In 1991, the proportion of the Australian population aged 65 years or more was 11.3%, rising to 12.4% in 2001.[1] This increase has been reflected in the proportion of older people attending doctors (GPs and specialists). In 1989–90, 32.2% of 65–74 year olds, and 37.1% of those aged 75 years or more, consulted a doctor in the fortnight prior to interview. These figures rose to 40.1% (65–74) and 45.7% (75+) in 2001.[45]

A large-scale national study of general practice activity with methods similar to the BEACH study was conducted in 1990–91, the Australian Morbidity and Treatment Survey (AMTS).[94] The methods used in the AMTS provided the foundation for the BEACH methods, and some data collected in the studies are directly comparable. Comparing data between the two surveys highlights changes that have occurred during this period in the management of older patients in general practice. These changes take the form of numbers and types of problems managed, and the types of treatments provided to patients.

Objectives

The objectives of this chapter are:

- to describe changes in the most frequently managed problems between 1990–91 and 2000–02 in patients aged 65 years and over, in those aged 65–74 years, and in those aged 75 years and over
- to describe changes that have occurred between 1990–91 and 2000–02 in the management of patients aged 65 years or more.

Method

Like BEACH, the AMTS was a national paper-based survey where a sample of GPs collected encounter information from clusters of patients. There were 495 GPs who participated in the AMTS. The sample was random, and stratified by state. As in BEACH, the sample population was determined by the number of Medicare claims made for general practice items of service. The minimum number of claims allowing inclusion in the survey was 1,500 over the most recent 12-month period (encompassing the year 1989).[94] The recruitment method used in the AMTS was identical to that used in BEACH. To ensure that state-based comparisons were valid, it was necessary to have a minimum of 4,000 encounters from each state. Thus the smaller states, Tasmania, the Australian Capital Territory and the Northern Territory, were oversampled to provide a minimum of 20 GP participants.

In the AMTS, the participating GPs recorded all consultations that occurred either in the surgery or in the patient's home for two periods of one week, six months apart. Post-stratification weighting corrected for the overrepresentation of the smaller states to provide national estimates. This led to a complete national dataset of 98,796 patient encounters.[94]

The form used to collect encounter information is shown at Appendix 5. The AMTS and BEACH encounter forms are very similar. However, in BEACH more detailed information about management, particularly pharmaceuticals, is captured.

In the comparative analysis conducted for this report, some steps have been taken to ensure comparability between the surveys. The BEACH dataset has been reduced to exclude all indirect consultations and encounters at residential aged care facilities, as these types of encounters were not recorded in the AMTS. Also, BEACH allows greater specificity in the recording of treatments, especially in pathology and imaging. Tests, investigations and referrals can only be compared by reporting the number of these management techniques managed 'at least once' during the encounter.

In the AMTS, only those medications prescribed or supplied by the GP were recorded on the encounter form. Thus, in the reduced BEACH dataset, advised over-the-counter medications have been excluded from the analysis.

Statistical methods to incorporate the single-stage cluster design of both surveys have been incorporated into the analysis. Where specific comparisons are made, statistical significance has been determined by non-overlapping confidence intervals (CI).

11.1 Changes over time in the morbidity and management of patients aged 65 years and over

In the AMTS, there were 492 GPs who recorded 24,156 encounters with patients aged 65 years and over in 1990–91 and, in BEACH, 1,880 GPs recorded 41,040 encounters with this age group during 2000–02. A comparison of these encounters (Table 11.1) shows that RFEs were recorded at a significantly higher rate in BEACH than in the AMTS (164.9 per 100 encounters compared with 159.5 per 100 encounters). This difference did not generate a higher rate of problems managed in BEACH than in the earlier survey, with 174.4 problems managed per 100 encounters in both studies. Despite this similarity, the rate of new problems was significantly higher in data collected through the AMTS (48.2 per 100 encounters) than in BEACH (41.1 per 100 encounters).

At least one treatment was given at 85.5% of encounters in BEACH, a significantly higher proportion than the 82.6% recorded in the AMTS. Non-pharmacological treatments were recorded at a greater proportion of encounters in BEACH than in the AMTS (49.5 per 100 encounters compared with 34.5 per 100). This result was reflected in the proportion of encounters where clinical treatments were recorded (32.8 per 100 encounters compared with 19.5 per 100).

Referrals were given to patients aged 65+ significantly more often at encounters recorded in BEACH (11.9 per 100 encounters) compared with those recorded in the AMTS (10.4 per 100). At least one referral to a specialist was given at a significantly higher rate in BEACH (8.1% of encounters generating at least one) compared with the AMTS (6.6%). Also, at least one pathology test was ordered at a significantly greater proportion of encounters in BEACH than in the AMTS (16.0% of 100 encounters compared with 12.3%). The likelihood of encounters resulting in medications prescribed or supplied by the GP, at least one referral to allied health services or hospital / emergency departments, or at least one order for an imaging test, did not change over the decade (Table 11.1).

Table 11.1: Summary of morbidity and management in patients aged 65 years and over (AMTS compared with BEACH)

	AMTS 1990–91 (*n* = 24,156)				BEACH 2000–02 (*n* = 41,040)			
Rates	**Number**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**	**Number**	**Rate per 100 encounters**	**95% LCL**	**95% UCL**
General practitioners	492	—	—	—	1,880	—	—	—
Encounters (*N*)	24,156	—	—	—	41,040	—	—	—
Reasons for encounter	38,527	159.5	156.8	162.2	67,668	164.9	163.2	166.6
Problems managed	42,129	174.4	170.7	178.1	71,565	174.4	172.4	176.4
New problems	11,643	48.2	46.7	49.7	16,846	41.1	39.9	42.2
Medications	31,018	128.4	123.7	133.1	53,307	129.9	127.0	132.8
Non-pharmacological treatments	8,339	34.5	32.4	36.6	20,296	49.5	47.6	51.3
Clinical treatments	4,715	19.5	17.7	21.3	13,439	32.8	31.1	34.4
Therapeutic procedures	3,624	15.0	14.0	16.0	6,857	16.7	15.9	17.5
Referrals	2,506	10.4	9.8	11.0	4,895	11.9	11.5	12.4
Occurrences—at least one	**Number**	**Per cent**	**95% LCL**	**95% UCL**	**Number**	**Per cent**	**95% LCL**	**95% UCL**
At least one treatment type	19,952	82.6	81.5	83.7	35,106	85.5	85.0	86.1
At least one referral to specialist	1,584	6.6	6.1	7.0	3,317	8.1	7.7	8.5
At least one referral to allied health	522	2.2	1.9	2.4	986	2.4	2.0	2.8
At least one referral to hospital or an emergency department	343	1.4	1.1	1.7	291	0.7	0.1	1.4
At least one pathology order	2,971	12.3	11.6	13.0	6,578	16.0	15.5	16.6
At least one imaging order or other investigation	1,676	6.9	6.4	7.4	3,070	7.5	7.1	7.9

Note: Shading indicates statistically significant differences between age groups. UCL—upper confidence limit; LCL—lower confidence limit.

11.2 Problems managed in patients aged 65+

Hypertension was the most frequently managed problem in general practice encounters with patients aged 65 years and over in both the AMTS and BEACH studies. There was no significant change in its rate of management, being managed at a rate of 20.7 per 100 encounters in the AMTS, and 21.1 per 100 encounters in BEACH (Table 11.2).

The second most frequently managed problem in both studies was osteoarthritis. However, the rate of management for this problem increased significantly from 6.6 contacts per 100 encounters in the AMTS to 7.5 per 100 encounters in BEACH.

There was a significant decline in the management rate of ischaemic heart disease in this age group over the decade. Ischaemic heart disease was the third most common problem managed in the AMTS, managed at an average rate of 6.1 per 100 encounters. In comparison, it was the sixth most frequently managed problem in BEACH, at an average rate of 3.9 per 100 encounters.

Heart failure was significantly more often managed in the AMTS (6.0 per 100 encounters) than in BEACH (2.6 per 100 encounters). While diabetes was among the top five most common problems managed in both datasets, it was managed significantly more often in 2000–02 than in 1990–91 (6.2 per 100 encounters compared with 4.4 per 100 encounters).

There were a number of other significant differences when comparing general practice encounters from 1990–91 to encounters recorded between 2000 and 2002. Those problems managed at a higher rate in the earlier study include:

- chronic obstructive pulmonary disease, managed at an average rate of 3.6 per 100 encounters, compared with 2.2 per 100 encounters in BEACH
- anxiety, managed at a rate of 3.3 per 100 encounters in the AMTS, a significantly higher rate than in BEACH, where its management rate was 1.9 per 100 encounters
- anaemia, managed at an average rate of 2.2 per 100 encounters in the AMTS, compared with 1.3 per 100 encounters in BEACH (Table 11.2).

Other conditions were managed at a significantly higher rate in the BEACH study than in the AMTS.

- Immunisation was recorded twice as frequently in BEACH (6.6 per 100 encounters) than in the AMTS (3.2 per 100 encounters)
- Lipid disorders were managed significantly more often in BEACH than in the AMTS (5.2 per 100 encounters compared with 2.2 per 100 encounters). This is highlighted in the relative ranks of each. Lipid disorders ranked the fifth most common problem managed in BEACH, whereas it ranked seventeenth in the AMTS
- 'Prescriptions' were recorded as the problem being managed at an average rate of 3.4 per 100 encounters in BEACH, compared with 1.0 per 100 encounters in the AMTS
- The management rate of oesophageal disease was significantly higher in BEACH, at a rate of 2.9 per 100 encounters, compared with 1.1 per 100 encounters in the AMTS
- Atrial fibrillation / flutter was managed at 2.2 per 100 encounters in BEACH, a significantly higher rate than in the AMTS, where the rate of management was 1.1 per 100 encounters (Table 11.2).

Table 11.2: Most frequent individual problems managed at encounters with the 65+ patient age group—AMTS (1990–91) compared with BEACH (2000–02)

	AMTS 1990–91 (*n* = 24,156)				BEACH 2000–02 (*n* = 41,040)			
Problem managed	**Rank**	**Rate per 100 encs[(a)]**	**95% LCL**	**95% UCL**	**Rank**	**Rate per 100 encs[(a)]**	**95% LCL**	**95% UCL**
Hypertension*	1	20.7	19.7	21.7	1	21.1	20.4	21.9
Osteoarthritis*	2	6.6	6.1	7.1	2	7.5	7.2	7.9
Ischaemic heart disease*	3	6.1	5.6	6.6	6	3.9	3.6	4.3
Heart failure	4	6.0	5.4	6.5	11	2.6	2.2	2.9
Diabetes*	5	4.4	4.0	4.8	4	6.2	5.8	6.6
Sleep disturbance	6	3.8	3.3	4.3	8	3.2	2.7	3.6
Chronic obstructive pulmonary disease	7	3.6	3.2	4.0	19	2.2	1.9	2.6
Acute bronchitis/bronchiolitis	8	3.3	2.9	3.6	12	2.6	2.2	2.9
Anxiety*	9	3.3	2.9	3.7	24	1.9	1.5	2.3
Immunisation all*	10	3.2	2.1	4.2	3	6.6	4.9	8.3
Skin texture symptom/complaint	11	2.8	2.5	3.2	13	2.5	2.0	2.9
Upper respiratory infection, acute	12	2.7	2.4	3.0	20	2.2	1.8	2.6
Asthma	13	2.7	2.4	3.0	17	2.3	1.9	2.6
Depression*	14	2.7	2.4	3.0	10	2.8	2.5	3.2
Chronic ulcer skin	15	2.4	2.0	2.8	26	1.8	1.4	2.2
UTI*	16	2.3	2.1	2.5	22	2.0	1.7	2.3
Lipid disorder	17	2.2	1.8	2.6	5	5.2	4.8	5.6
Malignant neoplasm, skin	18	2.2	1.8	2.7	23	1.9	1.4	2.4
Anaemia*	19	2.2	1.8	2.5	27	1.3	1.0	1.7
Dermatitis, contact/allergic	20	2.0	1.8	2.3	25	1.8	1.5	2.1
Back syndrome without radiating pain	21	1.9	1.6	2.3	29	1.3	0.8	1.7
Back complaint*	22	1.8	1.4	2.0	16	2.3	2.0	2.7
Joint symptom/complaint NOS	23	1.6	0.9	2.2	136	0.3	0.0	1.0
Musculoskeletal disease, other	24	1.5	1.2	1.8	31	1.1	0.6	1.4
General check-up*	25	1.5	1.0	2.0	15	2.4	1.9	2.8
Prescription all*	40	1.0	0.0	2.1	7	3.4	2.6	4.1
Oesophageal disease	36	1.1	0.8	1.4	9	2.9	2.6	3.2
Cardiac check-up*	29	1.4	0.8	1.9	14	2.4	1.6	3.1
Atrial fibrillation/flutter	34	1.1	0.8	1.4	18	2.2	1.8	2.6
Osteoporosis	28	1.4	1.0	1.8	21	2.1	1.7	2.4
Subtotal (n, %)	—	*100*	*57.1%*	—	—	*102*	*57.6%*	—
Total problems	**—**	**174.4**	**170.7**	**178.1**	**—**	**177.0**	**174.9**	**179.1**

(a) Figures do not total 100.0 as more than one problem can be managed at each encounter.

* Includes multiple ICPC–2 and ICPC–2 PLUS codes.

Note: Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; UTI—urinary tract infection.

11.3 Comparison of problems managed in the 65–74 year age group—AMTS and BEACH

As in the total 65 years and over population, hypertension was the most frequently managed problem in both the AMTS and BEACH studies, at rates of 22.2 per 100 encounters (95% CI: 21.1–23.4) and 21.4 per 100 encounters (95% CI: 20.6–22.3) respectively (result not shown). There was no significant change in the rates of management for this problem over the time period examined. This was followed by osteoarthritis, managed at a significantly higher rate in general practice patients in 2000–02 (7.3 per 100 encounters) than in 1990–91 (5.8 per 100 encounters) (Table 11.3).

Table 11.3 provides the comparative results from the two studies for morbidities which showed significant change over the period. In this age group, ischaemic heart disease was managed more often in the AMTS than in BEACH (5.5 per 100 encounters compared with 3.4), as was heart failure (3.2 per 100 encounters in the AMTS and 1.5 in BEACH).

In contrast, diabetes and lipid disorders were managed less often in 1990–91 than in 2000–02. The management rate of diabetes increased from 4.5 to 7.2 per 100 encounters, while that of lipid disorder rose from 3.5 to 7.0 per 100 encounters. Oesophageal disease was also managed, on average, more often in BEACH, at a rate of 3.1 per 100 encounters, significantly higher than the 1.2 per 100 recorded in the AMTS. In contrast, anxiety was managed twice as frequently in 1990–91 (3.6 per 100 encounters) than in 2000–02 (1.8 per 100).

Table 11.3: Significant differences in problems managed between the AMTS and BEACH in the 65–74 year patient group

	AMTS 1990–91 (*n* = 13,249)				BEACH 2000–02 (*n* = 20,577)			
Problem managed	**Rank**	**Rate per 100 encs**	**95% LCL**	**95% UCL**	**Rank**	**Rate per 100 encs**	**95% LCL**	**95% UCL**
Osteoarthritis*	2	5.8	5.3	6.4	2	7.3	6.8	7.8
Ischaemic heart disease*	3	5.5	4.9	6.1	6	3.4	2.7	4.0
Diabetes*	4	4.5	4.0	5.1	4	7.2	6.5	7.8
Anxiety*	6	3.6	3.1	4.1	19	1.8	1.0	2.6
Lipid disorder	7	3.5	2.8	4.1	5	7.0	6.4	7.7
Heart failure	10	3.2	2.7	3.7	25	1.5	0.5	2.5
Immunisation all*	11	3.2	2.0	4.5	3	7.2	5.0	9.3
Oesophageal disease	32	1.2	0.8	1.7	8	3.1	2.5	3.8
Subtotal (n, %)	—	*31*	*17.6%*	—	—	*39*	*21.9%*	—
Total problems	**—**	**173.0**	**169.3**	**176.8**	**—**	**175.9**	**173.7**	**178.0**

* Includes multiple ICPC–2 and ICPC–2 PLUS codes.

Note: Rank indicates relative position of rate of management of all problems in the study. Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

11.4 Comparison of problems managed in the 75+ age group—AMTS and BEACH

There were fewer significant differences exhibited when data from the AMTS and BEACH studies were examined for patients aged 75 years and over (Table 11.4). Hypertension was

again the most frequently managed problem, at a rate of 18.9 per 100 encounters in the AMTS (95% CI: 17.6–20.1) and 20.8 per 100 encounters in BEACH (95% CI: 19.9–21.7). There was no significant difference between these rates.

Heart failure was managed at encounters with this age group in the AMTS at almost three times the rate recorded in the BEACH study (9.3 per 100 encounters compared with 3.7 per 100). Ischaemic heart disease was also managed at a significantly higher rate in the earlier study, at a rate of 6.8 per 100 encounters compared with 4.5 per 100 in BEACH.

Lipid disorders were managed at almost five times the rate in BEACH than in the AMTS (3.4 per 100 encounters compared with 0.7 per 100 encounters). The management rate of atrial fibrillation also increased from 1.3 per 100 encounters in the AMTS to 2.8 per 100 in BEACH, while the rate for oesophageal disease rose from 1.0 per 100 encounters for 2.7 per 100.

Table 11.4: Most frequent individual problems managed at encounters with the 75+ patient age group—AMTS (1990–91) compared with BEACH (2000–02)

	AMTS 1990–91 (*n* = 10,907)				BEACH 2000–02 (*n* = 20,463)			
Problem managed	**Rank**	**Rate per 100 encs**	**95% LCL**	**95% UCL**	**Rank**	**Rate per 100 encs**	**95% LCL**	**95% UCL**
Heart failure	2	9.3	8.4	10.2	7	3.7	3.1	4.2
Ischaemic heart disease*	4	6.8	6.1	7.6	5	4.5	3.9	5.1
Lipid disorder	48	0.7	0.0	1.7	9	3.4	2.7	4.1
Atrial fibrillation/flutter	31	1.3	0.6	2.0	11	2.8	2.2	3.5
Oesophageal disease	42	1.0	0.2	1.7	12	2.7	2.1	3.3
Subtotal (n, %)	—	*19*	*10.8%*	—	—	*17*	*9.6%*	—
Total problems	**—**	**176.1**	**172.0**	**180.2**	**—**	**178.2**	**175.7**	**180.6**

* Includes multiple ICPC–2 and ICPC–2 PLUS codes.

Note: Rank indicates relative position of rate of management of all problems in the study. Shading indicates statistically significant differences between age groups. Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

Summary

This chapter demonstrates that there have been a number of changes over the last decade both in the conditions managed in older patients, and in the methods of management in general practice. Specifically, it is interesting to note the patterns of change that have occurred. For example, there have been significant changes in the management of cardiovascular conditions over the last decade. During this period, the rates of management for ischaemic heart disease and heart failure have declined, while the rates for atrial fibrillation and lipid disorders have increased. However, the management rate of hypertension has not changed over the study period. Further, no individual form of treatment was managed at significantly higher rates in the AMTS in 1990–91 than in BEACH 2000–02. These issues will be discussed in greater detail in Chapter 14 Discussion.

12 Chronic conditions

Background

Worldwide, chronic conditions are deemed responsible for 55% of deaths, with this figure projected to rise to 70% by 2020.[56] In Australia, the leading causes of illness and disability among older Australians are chronic conditions, including ischaemic heart disease, dementia, lung cancer, osteoarthritis and emphysaema.[40]

People with chronic conditions utilise health services at a considerably higher rate than the rest of the population.[55] There is wide debate as to whether GPs or specialists are the most appropriately placed physicians / doctors to treat patients with chronic conditions. GPs, who are trained in general areas of medical practice rather than a specialty, may be well placed to treat patients with multiple chronic conditions (co-morbidity), while patients requiring detailed knowledge in a specific area may be better serviced by a specialist.[60]

Various statistics are available regarding the prevalence and management of chronic conditions. In the United States, 88% of older people have a chronic condition, and 66% of physician visits are for the management of chronic conditions.[55] The vast majority (85%) of people with chronic conditions attend a GP in a one-year period,[57] and 82% of older people in the United States covered by Medicare have at least one chronic condition.[58]

Rothman and Wagner (2003) reported that the majority of patients with chronic conditions are treated by their GP (or primary care physician),[60] yet few studies have examined the content of encounters where chronic conditions are managed. Research from the United States showed that at encounters where chronic conditions were managed, there were more problems managed, more health promotion, preventive activities and nutritional counselling, and fewer procedures and health education activities performed.[59] It has also been stated that 83% of all prescriptions in the United States were for the management of chronic conditions.[55]

Westert et al. (2001) examined the combinations of health services used by patients with specific types of chronic conditions, and found that those with musculoskeletal conditions were more likely to report using only primary care to manage their condition, while cardiovascular conditions were more often managed by a combination of providers. In general, it was found that the greater the number of chronic conditions experienced by the patient, the greater the number of different health services used.[57]

It is well known that the proportion of people having chronic conditions increases with age.[45,55,57-59] Difficulties in the management of older patients have been documented, with the presence of multiple chronic conditions and their complexity being factors complicating the management of these patients. Some GPs feel that uncertainty regarding diagnosis and the most appropriate treatment course increases the difficulty of managing older patients.[31] In addition, managing chronic conditions in health systems that focus on the provision of acute care, rather than chronic care, increases the complicated nature of managing these patients.[31,60]

Approximately two-thirds of people with chronic conditions experience co-morbidity, defined as the coexistence of two or more health conditions.[55,58] The prevalence of co-morbidity increases with age[55,58,61] and older patients with at least two conditions have been shown to have a greater risk of developing further chronic conditions.[61]

Consultation rates with GPs for the management of chronic conditions increase with the number of conditions experienced by the patient.[62,63] People with co-morbidities use a greater variety of health services, including GPs, specialists, home care, hospital admissions and physiotherapists.[57] A study from the United States found that older people experiencing co-morbid conditions account for a disproportionate amount of the costs of chronic conditions. Although 65% of older patients had co-morbid conditions, these conditions accounted for 95% of Medicare costs.[58] These older people also have an increased risk of death, along with lower quality of life and functional status.[62]

Objectives

The objectives of this chapter are to determine the:

- proportion of encounters with older patients where chronic conditions were managed
- proportion of problems managed that were chronic problems
- most frequently managed chronic problems
- prevalence of chronic problems
- co-morbidities of the most common chronic conditions.

Method

Literature searches were conducted to determine the most common characteristics used when defining chronic conditions. These were then applied to a primary care classification (ICPC–2), creating a dataset to be used in the analysis of chronic conditions in primary care datasets. The relevant characteristics of chronic conditions for application in these datasets were:

- a duration lasting, or expected to last, at least six months
- a pattern of deterioration, or periods of relapse and remission
- a poor prognosis or possible lack of curability
- sequelae or consequences, including co-morbidity and activity limitation.

A full list of the conditions described as chronic in this study can be found in Appendix 7.

Data about disease prevalence in patients encountered in general practice were collected as part of the SAND on the BEACH survey form (see Chapter 2 Methods).

To determine prevalence and levels of co-morbidity, GPs and / or patients were asked to report up to twelve chronic illnesses or other health problems that had not been managed at the encounter and required ongoing management or surveillance. Thus, a maximum of 16 problems could be recorded, providing total morbidity for each patient. Data were recorded for 11,342 patients from 378 GPs.[109] Data collected on the prevalence of chronic conditions using the BEACH survey is representative only of the general practice population, as BEACH cannot account for the prevalence of health conditions in patients who do not attend general practice.

In this chapter, only the 65+ group as a whole has been analysed, due to the smaller sample size in the subset.

12.1 Chronic conditions managed at encounter

At least one chronic condition was managed at almost two-thirds (60.8%) of encounters with patients aged 65 years and over, while only non-chronic conditions, which may be acute or subacute, were managed at the remaining 39.3% (Table 12.1).

In BEACH, up to four problems managed at the encounter can be recorded. One chronic condition was managed at the majority of encounters (41.5%) where chronic conditions were managed. Two chronic conditions were managed at 14.8%, while three chronic conditions were managed at only 3.8% of encounters. Four chronic conditions were rarely managed at a single encounter (0.6%) (Table 12.1).

Table 12.1: Proportion of encounters where chronic conditions were managed

	Per cent (*n*=49,647)	95% LCL	95% UCL
Chronic conditions managed at encounter	60.8	59.9	61.6
1 chronic condition managed	41.5	41.0	42.1
2 chronic conditions managed	14.8	14.2	15.3
3 chronic conditions managed	3.8	3.4	4.3
4 chronic conditions managed	0.6	0.0	1.2
No chronic conditions managed at encounter	39.3	38.4	40.1

Note: LCL—lower confidence limit; UCL—upper confidence limit.

Relationship between the number of problems managed and the likelihood of management of chronic problems

As the number of problems managed at encounter increased, so did the likelihood that at least one of those problems was a chronic condition (Table 12.2).

Where only one problem was managed, 43.3% of those problems were chronic. When two problems were managed, at least one chronic condition was managed at 73.7% of encounters. One chronic condition alone was managed at the majority of these encounters (46.1%), while both problems were chronic at over one-quarter of encounters (27.6%). The number of non-chronic conditions managed decreased to 26.3%.

Where three problems were managed, at least one of those problems was chronic at 86.3% of encounters, and the proportion of conditions that were not chronic continued to decrease to 13.7% of problems managed. In these encounters, one or two chronic problems were managed at most encounters (32.3% and 35.9% respectively). At almost one in five encounters all three problems managed were chronic (18.1%) (Table 12.2).

At the vast majority of encounters where four problems were managed, at least one of those problems was chronic (93.6%). During these encounters, two or three chronic problems were managed at the highest proportions (31.0% and 31.3% respectively). One chronic problem was managed at less than 20% of these encounters (17.3%), while encounters where all four problems were chronic accounted for 14.0% of encounters. The proportion of encounters where four problems were managed, and none of those problems was chronic, accounted for only 6.4% of encounters in this group (Table 12.2).

Table 12.2: Likelihood of chronic problems managed by number of problems managed at encounter

Number of problems managed at encounter	Number of chronic problems managed at encounter	Per cent	95% LCL	95% UCL
One (*n* = 25,365)	Zero	56.7	55.8	57.5
	One	43.3	42.5	44.2
Two (*n* = 15,413)	Zero	26.3	25.2	27.4
	One	46.1	45.3	47.0
	Two	27.6	26.6	28.6
Three (*n* = 6,659)	Zero	13.7	11.9	15.5
	One	32.3	31.0	33.6
	Two	35.9	34.6	37.3
	Three	18.1	16.6	19.6
Four (*n* = 2,210)	Zero	6.4	1.4	11.4
	One	17.3	13.9	20.7
	Two	31.0	28.5	33.5
	Three	31.3	28.7	34.0
	Four	14.0	10.6	17.5

Note: LCL—lower confidence limit; UCL—upper confidence limit.

Most frequent chronic problems managed

Overall, chronic conditions were managed at a rate of 140.0 per 100 encounters with patients aged 65+. Hypertension was by far the most frequent chronic problem managed in this age group, accounting for almost one-quarter of all chronic problems (23.4%), managed at a rate of 32.7 per 100 encounters (Table 12.3). Osteoarthritis was the second most common chronic problem managed, accounting for 7.3% of all chronic problems (managed at a rate of 10.3 per 100 encounters), followed by diabetes at 9.8 per 100 encounters. Lipid disorders were also managed often (5.7% of all chronic problems managed, at a rate of 7.9 per 100 encounters).

A number of chronic cardiovascular conditions (other than hypertension) were managed at high relative rates at encounters with patients aged 65 years and over. These included ischaemic heart disease (6.3 per 100 encounters), heart failure (4.4 per 100 encounters) and atrial fibrillation / flutter (3.6 per 100 encounters). Other chronic conditions managed at relatively high rates at general practice encounters with patients aged 65 years and over included:

- depression, managed at 4.6 per 100 encounters
- oesophageal disease, at a rate of 4.5 per 100 encounters
- chronic obstructive pulmonary disease, at a rate of 3.6 per 100 encounters
- asthma, managed at a rate of 3.5 per 100 encounters
- osteoporosis, at a rate of 3.3 per 100 encounters
- malignant neoplasms of the skin (3.2 per 100 encounters)
- dementia (2.7 per 100 encounters)
- unspecified arthritis (2.5 per 100 encounters)
- chronic anaemia (1.8 per 100 encounters).

Table 12.3: Most frequent chronic problems managed at encounters with patients aged 65 years and over

Chronic problem managed	Per cent of total chronic problems	Rate per 100 encs[(a)]	95% LCL	95% UCL
Hypertension*	23.4	32.7	31.8	33.6
Osteoarthritis*	7.3	10.3	9.7	10.8
Diabetes*	7.0	9.8	9.3	10.3
Lipid disorder	5.7	7.9	7.4	8.4
Ischaemic heart disease*	4.5	6.3	5.8	6.7
Depression*	3.3	4.6	4.2	5.0
Oesophageal disease	3.2	4.5	4.0	4.9
Heart failure	3.1	4.4	3.9	4.8
Chronic obstructive pulmonary disease	2.6	3.6	3.2	4.1
Atrial fibrillation/flutter	2.5	3.6	3.0	4.1
Asthma	2.5	3.5	3.1	4.0
Osteoporosis	2.3	3.3	2.8	3.7
Malignant neoplasm, skin	2.3	3.2	2.5	3.8
Dementia	1.9	2.7	1.6	3.7
Arthritis*	1.8	2.5	1.7	3.3
Chronic anaemia*	1.3	1.8	1.4	2.3
Back syndrome without radiating pain	1.1	1.6	1.1	2.1
Gout	1.1	1.6	1.0	2.1
Subtotal (n, %)	*32,482*	*76.9*	—	—
Total chronic problems (*n*)	**42,216**	**140.0**	**138.5**	**141.4**

(a) Figures do not total 100.0 as more than one problem can be managed at each encounter. Only those problems managed at a rate of greater than 1.5 per 100 encounters are included.

* Includes multiple ICPC–2 or ICPC–2 PLUS codes.

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit.

12.2 Prevalence and co-morbidities of the most common chronic conditions

Data were available for 2,976 patients aged 65+ in the SAND subsample (26.0%). More than nine out of ten of these patients reported experiencing at least one chronic condition (93.2%, 95% CI: 91.9–94.4). Hypertension was the single most prevalent condition, managed or reported by 45.6% of these patients. One in five reported they had osteoarthritis or had it managed at encounter (20.9%), while lipid disorder was experienced by 17.5% of patients. Ischaemic heart disease was the fourth most prevalent condition, occurring in 16.9% of these older respondents. Other relatively prevalent conditions in older patients included:

- diabetes (14.4%)
- oesophageal disease (11.6%)
- osteoporosis (10.1%)
- depression (10.0%) (Table 12.4).

The high prevalence of hypertension was reflected in the analysis of the most common co-morbidities, with hypertension the condition most often co-existing with other conditions. The most common co-morbid relationship was between hypertension and lipid disorder (both conditions present in 10.8% of patients). Other conditions which had a high relative rate of co-morbidity with hypertension included:

- osteoarthritis (10.6%)
- ischaemic heart disease (8.0%)
- diabetes (7.6%)
- oesophageal disease (4.9%)
- osteoporosis (4.7%)
- depression (4.1%).

A combination of osteoarthritis and lipid disorder was present in 3.9% of patients. Also present in 3.9% of patients was a combination of osteoarthritis and ischaemic heart disease, or lipid disorder and ischaemic heart disease. Diabetes and ischaemic heart disease were present together in 3.4% of patients. Over 3% of patients experienced a combination of osteoarthritis and oesophageal disease, or lipid disorder and diabetes simultaneously (3.2% each) (Table 12.4).

12.3 Comparison between the prevalence and management rates of chronic conditions

A comparison of the management rates and the prevalence of chronic problems in patients encountered in general practice is provided in Table 12.5. This table groups the results described in Tables 6.2 and 12.3, with the aim of comparing the rates of management of chronic problems relative to their prevalence. Some conditions not meeting the criteria of chronic were removed from Table 6.2 to ensure comparability of the results.

The table shows that hypertension was both the most prevalent, and the most frequently managed chronic problem in patients aged 65 years and over, followed by osteoarthritis in both groups. Hypertension and osteoarthritis were also the most frequently managed of all problems in patients aged 65 years or more (Table 6.2). This indicates the importance of these problems in patients in this age group. Hypertension was also the problem with the greatest likelihood of being managed at the encounter where it was present in the patient, being managed for 71.7% of the patients who reported having this condition.

It is interesting to note the management rate and prevalence of diabetes. In older patients, diabetes was the third most frequently managed chronic problem, managed at almost one in ten encounters. However, it was the fifth most prevalent problem (14.4%), behind lipid disorder and ischaemic heart disease. Patients with diagnosed diabetes had a 68.1% chance of having their diabetes managed at the encounter, suggesting that this condition requires ongoing or frequent management, and that GPs are largely responsible for the management of this condition.

Table 12.4: Most prevalent chronic conditions and their co-morbidities (*n* = 2,976)

Condition	Estimated prevalence (per cent)	Hypertension (per cent)	Osteoarthritis (per cent)	Lipid disorder (per cent)	Ischaemic heart disease (per cent)	Diabetes (per cent)	Oesophageal disease (per cent)	Osteoporosis (per cent)	Depression (per cent)
Hypertension	45.6	100.0	10.6	10.8	8.0	7.6	4.9	4.7	4.1
Osteoarthritis	20.9	10.6	100.0	3.9	3.9	2.9	3.2	2.4	2.7
Lipid disorder	17.5	10.8	3.9	100.0	3.9	3.2	2.9	1.8	1.9
Ischaemic heart disease	16.9	8.0	3.9	3.9	100.0	3.4	2.7	1.7	1.6
Diabetes	14.4	7.6	2.9	3.2	3.4	100.0	1.7	2.0	1.3
Oesophageal disease	11.6	4.9	3.2	2.9	2.7	1.7	100.0	1.5	2.0
Osteoporosis	10.1	4.7	2.4	1.8	1.7	2.0	1.5	100.0	1.3
Depression	10.0	4.1	2.7	1.9	1.6	1.3	2.0	1.3	100.0

Osteoporosis was reported as present in 10.1% of the surveyed patients, and ranked as the seventh most prevalent problem in this age group. However, it had a low relative rate of management (3.3 per 100 encounters) and was managed in only 33.0% of encounters where patients reported the condition. It is possible that osteoporosis may be more commonly managed by a health practitioner other than the GP, for example a specialist. Alternatively, patients with osteoporosis may feel that their condition is well managed, and therefore do not present to their GP for the management of this problem, or that little or nothing can be done for the management of this condition.

Other conditions with a high likelihood of being managed at encounter if present in the patient included:

- malignant neoplasms of the skin, managed at 68.1% of encounters with patients having the condition
- heart failure (57.9%)
- unspecified arthritis (51.0%) and osteoarthritis (49.3%)
- atrial fibrillation (50.7%).

Table 12.5: Comparison of the prevalence and management of chronic conditions in general practice

	Chronic condition management				Chronic condition prevalence[(a)]				Likelihood of condition being managed at encounter (per cent)
Condition	Rank	Rate per 100 encs (*n*=49,647)	95% LCL	95% UCL	Rank	Per cent of patients (*n*=2,976)	95% LCL	95% UCL	
Hypertension*	1	32.7	31.8	33.6	1	45.6	43.1	48.0	71.7
Osteoarthritis*	2	10.3	9.7	10.8	2	20.9	18.6	23.1	49.3
Lipid disorder	4	7.9	7.4	8.4	3	17.5	15.7	19.3	45.1
Ischaemic heart disease*	5	6.3	5.8	6.7	4	16.9	15.2	18.6	37.3
Diabetes*	3	9.8	9.3	10.3	5	14.4	13.0	15.8	68.1
Oesophageal disease*	7	4.5	4.0	4.9	6	11.6	10.1	13.0	38.8
Osteoporosis	12	3.3	2.8	3.7	7	10.1	8.6	11.8	32.7
Depression*	6	4.6	4.2	5.0	8	10.0	8.7	11.3	46.0
Heart failure	8	4.4	3.9	4.8	9	7.6	6.4	8.8	57.9
COPD	9	3.6	3.2	4.1	10	7.4	6.2	8.6	48.6
Asthma	11	3.5	3.1	4.0	11	7.2	6.1	8.2	48.6
Atrial fibrillation/ flutter	10	3.6	3.0	4.1	12	7.1	6.1	8.1	50.7
Dementia	14	2.7	1.6	3.7	13	6.1	4.2	8.0	44.3
Arthritis*	15	2.5	1.7	3.3	14	4.9	3.5	6.2	51.0
Malignant neoplasm, skin	13	3.2	2.5	3.8	15	4.7	3.8	5.7	68.1

(a) Non-chronic problems have been removed from prevalence results in this table. Appendix 7 contains a list of all conditions regarded as chronic for this analysis.

* Includes multiple ICPC–2 or ICPC–2 PLUS codes.

Note: Encs—encounters; LCL—lower confidence limit; UCL—upper confidence limit; COPD—chronic obstructive pulmonary disease.

In summary, this chapter has shown that at least one chronic condition is managed at six out of every ten encounters with patients aged 65 years or more, and that an increase in the number of problems managed at encounter was associated with an increased likelihood of at least one of those problems being chronic. Hypertension, followed by osteoarthritis, was both the most prevalent and the most frequently managed chronic problems in patients aged 65 years and over. Linking chronic conditions management and prevalence, it was shown that hypertension was the chronic condition most likely to be managed at encounters where the patient reported experiencing the condition.

The co-morbidity section of this chapter has shown that there is a definite pattern in the co-morbidities experienced in general practice patients aged 65 years or more. Hypertension, the most prevalent condition in patients in this age group, was also part of the top seven co-morbidities. These issues will be examined in Chapter 14 Discussion.

13 Enhanced Primary Care

Background

Acknowledging the importance of managing chronic conditions in primary care, the Federal government introduced the Enhanced Primary Care (EPC) package in November 1999. The program aims to improve the health and wellbeing of older Australians, and those with chronic and complex care needs by remunerating GPs specifically for the care of these patients.[69] One of the major features of the EPC program includes the provision of new MBS items for GPs to provide services to the older and chronically ill populations in Australia. The items cover three broad areas:

- voluntary, annual health assessments for those aged 75 years and over
- preparation of, involvement in or review of care plans by GPs for those patients with chronic and complex care needs
- organisation of or involvement in case conferences for patients with chronic and complex care needs.[69]

While health assessments are limited to those aged 75 years and over, the MBS items for care plans and case conferences are not restricted by age, although they are recommended for patients aged 65 years and over.[110]

The items were welcomed by the GP community in Australia who had, until then, not received incentives or remuneration specifically to care for the elderly and chronically ill populations.[70] Very few studies have been published concerning the effectiveness of the EPC program, and, of these, most have been confined to small population groups, bringing into question the generalisability of the results.

Health assessments, specifically targeted towards the older population in Australia, are defined as 'the assessment of a patient's health and physical, psychological and social function'. The tools used for assessment are at the discretion of the GP. 75+ Health assessments aim to assist older and elderly people remain independent in the community for as long as they are able. They may be conducted in the doctor's surgery or at the patient's home.[111]

Various studies have been conducted, both in Australia and internationally, evaluating the effectiveness of such health assessments for older people. The results show considerable variation in the outcomes of health assessment. Results from a meta-analysis of trials studying health assessments found that those based in the home contributed to decreased mortality. It was also found that these assessments reduced the number of people admitted to hospital and other aged care facilities, while assessments conducted in places other than the home did not significantly contribute to improved health outcomes.[112] In contrast, a systematic review of research into health assessments based in the home found that only half the studies examined reported positive outcomes as a result of the health assessment.[113]

In a similar Australian review it was reported that the positive outcomes as a result of health assessments for older people could be attributed to the fact that the populations eligible for the assessments were well defined in terms of age, usually being restricted to those aged at least 75 years. However, a lack of consistency in the methods used to conduct health assessments was also identified.[114]

A review of the effectiveness of the EPC items for health assessments found that patients who had health assessments performed were more likely to be immunised, and to have problems the authors described as 'non-medical' (for example psychological and social problems.[115]

Anecdotal evidence and published research have shown that the EPC items have proven difficult to implement in everyday general practice. Barriers to their implementation into everyday general practice, particularly in relation to care plans and case conferences (which must be multidisciplinary) include difficulties in the organisation and coordination of members of the multidisciplinary team, time limitations, and the perception that government requirements are often too arduous to make the incentives worthwhile.[71-73]

However, studies have shown that GPs who have claimed for care planning and case conferencing EPC items found these to be useful for the management of their patients with chronic and complex care needs.[71] Other GPs reported having conducted care plans and case conferences in the normal course of their work without claiming the Medicare fee available, due to the laborious government requirements.[73]

The reported reluctance of GPs to use the items due to government requirements may be in part due to the many changes in the definition and funding over the course of the scheme. For example, in February 2001 the EPC items for care planning were added to the Practice Incentives Program (PIP), which enabled GPs who completed care plans for at least 10% of their practice aged 65 years and over (the reference population) to gain an additional payment (through PIP) on top of payments given for the EPC items.[116,117] This incentive led to a rise of almost 420% in care plan claims for the nine months after the incentive was introduced, and in April 2002 the Federal government announced that, as a result of the success of the incentive, the PIP payment would be withdrawn in November 2002, one year earlier than planned.[118]

A recently published set of papers evaluating EPC items using the HIC dataset of EPC claims found that the majority of EPC items claimed by GPs in the first two years of the program were health assessments, with most of these taking place in the GPs' rooms. The rising trend over time towards care plans was noted, rising particularly after the introduction of the PIP payments.[119]

GPs claiming EPC items were found to be younger. A particular concern for the authors surrounded the fact that almost half the EPC item claims were from a small number of GPs. They concluded that these figures may indicate either that GPs were discerning when choosing patients eligible for EPC items, or that large numbers of GPs question the usefulness of EPC items.[120] Patients for whom EPC items were claimed were found to be 'older', defined in these studies as aged 55 years or more.[121]

Objectives

The objectives of this chapter are to:

- determine the representativeness of the BEACH sample in relation to EPC items
- determine the distribution of GPs who recorded EPC items in BEACH
- determine the age and sex distributions of patients for whom EPC items were recorded, by each type of EPC item
- report the morbidity managed at encounters where EPC items were recorded, for each type of EPC item.

Method

This chapter examines only those encounters in BEACH for which an EPC item was recorded. The items examined included:

- 75+ health assessments—items 700, 702
- care plans—items 720, 722, 724, 726, 728, 730
- case conferences—items 734, 736, 738, 740, 742, 744, 746, 749, 757, 762, 765, 768, 771, 773, 775, 778, 779.

To test the representativeness of the BEACH sample of EPC items, all EPC items claimed through the HIC were examined,[97] and the two sources of data compared.

13.1 Comparison of BEACH dataset with national data

EPC items claimed through the HIC

Table 13.1 shows the frequency of EPC items claimed through the Health Insurance Commission (HIC) during the two-year period between April 2000 and March 2002.

A total of 515,958 claims were processed by the HIC for EPC items over these two years. Of these, the majority were for health assessments (48.8%), followed by claims made for care plans (48.4%). Very few claims were made for contributions to case conferences (2.7%).

Claims for EPC items through the HIC increased threefold between the first and second year examined, from 126,485 claims between April 2000 and March 2001, to 389,473 between April 2001 and March 2002.

In the first year (April 2000 to March 2001), the vast majority of EPC items processed were health assessments for patients aged 75 years and over (76.5%). Care plans made up 20.2%, and case conferences only 3.3%. Between April 2001 and March 2002 the distribution of EPC items changed extensively. As a proportion of the total, care plans were the most frequently claimed (57.6%), while health assessments made up 39.9% of EPC items and case conferences remained uncommon, representing only 2.5% of EPC items processed.

It is interesting to note the trends in EPC items processed over the study period. While total EPC items increased numerically from the first year to the second, the rate of increase differed between groups. In 2001–02, the number of care plans processed was nine times the number processed in the first year. While the number of health assessments processed increased by only about 50%, this group still constituted a large proportion of EPC items claimed for the year. The number of case conferences processed doubled, but remained only a small proportion of total items processed (Table 13.1).

Table 13.1: EPC items processed through HIC—April 2000 to March 2002

	2000–01		2001–02		Total 2000–02	
EPC item type	**Number**	**Per cent[(a)]**	**Number**	**Per cent[(a)]**	**Number**	**Per cent[(a)]**
75+ health assessments	96,702	76.5	155,261	39.9	251,963	48.8
Care planning	25,600	20.2	224,376	57.6	249,976	48.4
Case conferencing	4,183	3.3	9,836	2.5	14,019	2.7
Total (*n*, %)	**126,485**	**100.0**	**389,473**	**100.0**	**515,958**	**100.0**

(a) Percentages may not equal 100.0 due to rounding.

EPC items recorded in BEACH

Table 13.2 shows the frequency and relative rates of EPC items recorded in the BEACH survey over the same period (April 2000 to March 2002). While the overall rate of EPC items recorded in BEACH increased significantly from the first (0.1%, 95% CI: 0.05–0.12) to the second year (0.2%, 95% CI: 0.15–0.31), the rates in both years were extremely low, representing a very small proportion of total GP claims.

Overall, health assessments were the most frequently recorded, with 177 health assessments claimed during the two-year period. Items for care plans were also recorded at a relatively high frequency, with 126 plans recorded, while very few case conferences were recorded during this period.

As already discussed, the EPC package was introduced in November 1999. Thus, at the beginning of the period examined (April 2000), the package had been implemented for only five months. The frequency of EPC items was quite low in the first year, health assessments for those patients aged 75 years and over being the most frequently recorded EPC item, accounting for 84.1% of total EPC items claimed (Table 13.2).

Both care plans and health assessments were recorded more frequently in the second year, with the frequency of care plans increasing more than tenfold from the previous recording year. Health assessments also increased from 74 in the first year to 103 in the second year. However, as a proportion of the total EPC items recorded, health assessments declined from 84.1% in the first year to 46.4% in the second year examined. The number of case conferences recorded was very low over the two years, and did not reflect the increasing usage for the other EPC items (Table 13.2).

EPC items comprised 0.1% and 0.2% as a proportion of total encounters in BEACH. Extrapolated to all encounters in Australia, this equals only 300,000 encounters, whereas 515,958 encounters were actually claimed through the HIC over the same period. Therefore, BEACH underrepresents EPC encounters overall and this is due to the relative infrequency of these events in general practice and their skewed distribution across only a proportion of active GPs. However, looking at each type of EPC item claimed, numbers recorded in BEACH are proportionally similar to those claimed overall.

Table 13.2: Frequencies of EPC items recorded in BEACH

EPC item type	2000–01		2001–02		Total 2000–02		Relative rate
	Number	Per cent[(a)]	Number	Per cent[(a)]	Number	Per cent[(a)]	
75+ health assessments	74	84.1	103	46.4	177	57.1	0.69
Care planning	10	11.4	116	52.3	126	40.6	0.06
Case conferencing	4	4.5	3	1.4	7	2.3	0.00
Total (*n*, %)	**88**	**100.0**	**222**	**100.0**	**310**	**100.0**	**—**
Per cent of total encounters	**—**	**0.1**	**—**	**0.2**	**—**	**0.2**	**—**

(a) Figures may not equal 100.0 due to rounding.

13.2 Distribution of EPC items in BEACH across GPs

The 310 EPC items recorded in the BEACH study between 2000 and 2002 (Table 13.2) were recorded by only 8.0% of the total GP sample (*n* = 156). Of those GPs who recorded EPC items, over half (97 GPs) recorded only one EPC in their 100 encounters sampled for BEACH (Figure 13.1). Twenty-four GPs recorded two EPC items, while 19 GPs recorded three items. Only eight GPs recorded five or more EPC items. One GP recorded 35 EPC items in the 100 encounters recorded for BEACH.

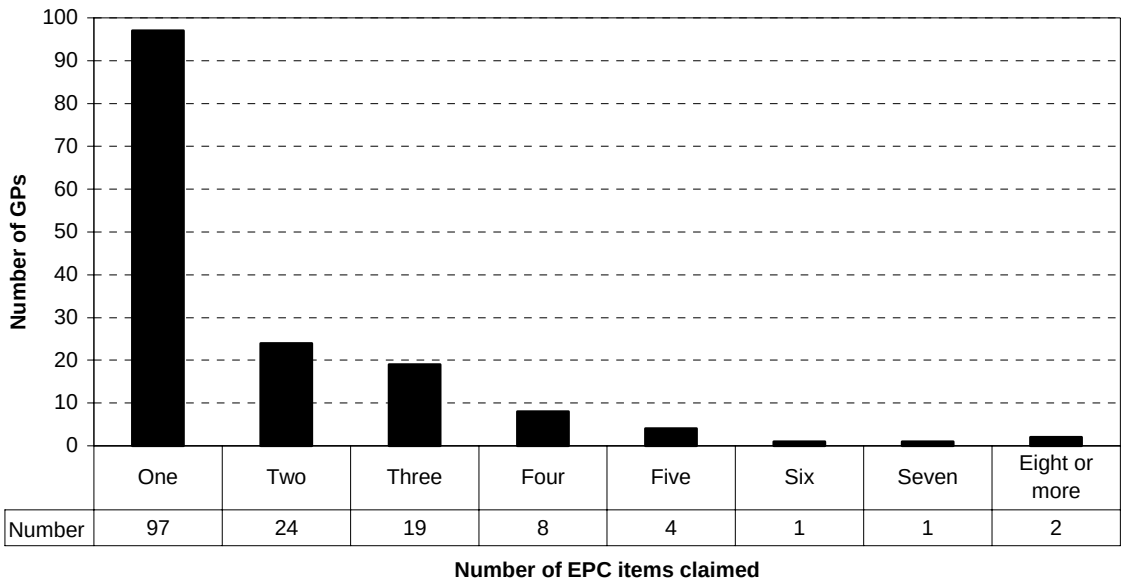


Figure 13.1: Frequency distribution of EPC items recorded in BEACH per GP

13.3 75+ health assessments

Age and sex distribution

The Federal Government stipulates that health assessments for the elderly must only be performed for patients aged 75 years and over.[111] Table 13.3 gives the age and sex distribution of patients at encounters where health assessments were performed. Of the 177 health assessments recorded in BEACH, there were three assessments claimed for patients who were aged less than 75 years. The majority (49.2%) were for patients aged between 75 and 79 years. One-quarter (26.6%) were performed for patients aged 80 to 84 years, while forty (22.6%) were made for patients aged 85 years or more. Patients aged between 75 and 79 years, and 85 and 89 years, were the most likely groups to have health assessments performed, with age-specific rates of 0.75 and 0.80 respectively. The least likely group eligible to have health assessments performed was those aged between 90 and 94 years (age specific rate: 0.45). The sex-specific rates for health assessments were identical for both males and females at 0.11) (Table 13.3). It is interesting to note that 65.0% of 75+ health assessments recorded in BEACH were performed in the surgery, with the remainder done in the patient's home (results not presented).

Table 13.3: Age and sex distribution of patients for whom health assessments were performed

	Males		Females			Total		
Age group	Number	Per cent[(a)]	Number	Per cent[(a)]	Missing	Number	Per cent[(a)]	Age-specific rates[(b)]
Less than 75	1	1.4	2	1.9	—	3	1.7	0.00
75–79	43	60.1	44	42.7	—	87	49.2	0.75
80–84	18	25.4	28	27.2	1	47	26.6	0.60
85–89	8	11.3	23	22.3	2	33	18.6	0.80
90–94	1	1.4	6	5.8	—	7	4.0	0.45
Total (*n*, %)	**71**	**100.0**	**103**	**100.0**	**3**	**177**	**100.0**	**—**
Sex-specific rates[(b)]	**0.11**	**—**	**0.11**	**—**	**—**	**—**	**—**	**—**

(a) Figures may not add to 100.0 due to rounding.

(b) The age-specific or sex-specific rate is the number of health assessments divided by the total number of encounters, for each sex or age group.

Diagnostic frequencies

There was a very broad range of problems recorded during general practice encounters where health assessments were recorded, with low relative rates of any specific individual diagnoses. Therefore, diagnostic frequencies have been reported according to their chapter in ICPC–2 (see Chapter 2 Methods), together with the most frequent individual diagnoses and the proportion of the total diagnoses they comprised.

During the 177 health assessments recorded in BEACH 2000–02, 286 problems were managed. Almost half of the problem labels related to the general and unspecified chapter of ICPC–2 (47.9% of the total), of which the majority of individual diagnoses related to the

term ‘health assessment’, such as partial (23.8% of the total) and complete (15.7% of the total) health evaluations (Table 13.4).

Table 13.4: Diagnostic frequency of problems managed in health assessments for patients aged 75 years and over by ICPC–2 chapter

Chapter	Number	Per cent of total problems managed
General and unspecified	**137**	**47.9**
Health evaluation (partial)	68	23.8
Health evaluation (complete)	42	15.7
Blood, blood forming	**1**	**0.3**
Digestive	**9**	**3.1**
Oesophageal disease*	3	1.1
Eye	**3**	**1.0**
Ear	**2**	**0.7**
Cardiovascular	**46**	**16.1**
Hypertension*	29	10.1
Ischaemic heart disease*	4	1.4
Musculoskeletal	**15**	**5.2**
Osteoarthritis*	4	1.4
Neurological	**4**	**1.4**
Psychological	**10**	**3.5**
Dementia	3	1.0
Respiratory	**12**	**4.2**
Immunisation; influenza*	7	2.6
Skin	**21**	**7.3**
Carcinoma, skin	4	1.4
Endocrine, metabolic and nutritional	**9**	**3.1**
Diabetes*	3	1.0
Lipid disorder*	3	1.0
Urinary	**13**	**4.5**
Urinary tract infection	7	2.4
Female genital	**2**	**0.7**
Male genital	**1**	**0.3**
Social problems	**1**	**0.3**
Total	**286**	**100.0**

* Includes multiple ICPC–2 or ICPC–2 PLUS codes.

Note: Figures may not equal 100.0 due to rounding.

Almost one in six diagnoses related to the cardiovascular system (16.1%), and of these, hypertension was by far the most frequently recorded, representing 10.1% of the total problems managed during health assessments.

'New' problems that had not previously been managed by the GP were managed at a relative rate of 20.1 per 100 encounters (results not tabled).

Problems relating to the skin chapter accounted for 7.3% of problems managed, and 4.5% related to the urinary system (Table 13.4).

Management techniques

This section provides an overview of the outcomes of encounters at which health assessments were recorded. As shown in Table 13.5, medications were prescribed to patients at a rate of 87.6 per 100 health assessment encounters. Of these, over one in five were for the prescription of a new medication (20.3 per 100 health assessment encounters). Non-pharmacological treatments (such as advice / counselling or minor procedures) were also provided at one in five health assessments (20.9 per 100 health assessment encounters). Referrals were given at a rate of 13.0 per 100 health assessment encounters, while investigations were ordered at a rate of 32.2 per 100.

Table 13.5: Management techniques provided at encounters where health assessments were recorded

	Health assessments (*n* = 177)		
Treatment type	**Rate per 100 encounters**	**95% LCL**	**95% UCL**
Total medications	87.6	62.7	112.5
New medications	20.3	8.7	32.0
Non-pharmacological treatments	20.9	11.2	30.6
Referrals	13.0	6.3	19.7
Investigations	32.2	17.8	46.6

Note: LCL—lower confidence limit; UCL—upper confidence limit.

Discussion

The rate of medications given during health assessments was significantly lower than the rate of medications given at encounters with all patients aged 75 years and over. Of those, over one-fifth were new medications. In the requirements of health assessments, it is specified that a medication review is to occur.[111] It may be that, on review, GPs are identifying inappropriate medication interactions, or problems that require treatment by additional medication.

Investigations were ordered at a rate of 32.2 per 100 encounters. The requirements for health assessments state that health assessments should not be a form of health screening.[111] The high rate of investigations may indicate, therefore, that problems are being identified that require further investigation during health assessments.

Non-pharmacological treatments were given during health assessments at significantly lower rates than overall at encounters with patients aged 75 years or more. This result was not expected, and may indicate that GPs, while looking holistically at patient health during health assessments, feel that advice / education or procedural treatments would be better addressed during subsequent encounters.

13.4 Care plans

Age and sex distribution

While recommended for older patients, care plans have not been restricted to any age group. Therefore, GPs are able to contribute to multidisciplinary care plans for patients of any age meeting the 'chronic and complex' criteria stipulated.[111]

Of the 126 care plans recorded in BEACH, half were prepared for patients aged 65 years and over, and half for those aged less than 65 years (Table 13.6). Despite this, the age-specific rates of care plan preparation were quite different. Patients aged between 65 and 74 years were the most likely to receive a care plan, with an age-specific rate of 0.14. The age-specific rate of care plan preparation was a little lower (0.10) for patients aged 75 years and over, while patients aged less than 65 years were the least likely to have a care plan prepared (0.04).

Overall, the sex-specific rates show that males were more likely than females to have care plans prepared (0.09 for males compared with 0.06 for females), despite the fact that more care plans were prepared for females than males (63 compared with 60 care plans) (Table 13.6).

Table 13.6: Age and sex distribution of patients for whom care plans were prepared

	Males		Females			Total		
Age group	Number	Per cent[(a)]	Number	Per cent[(a)]	Missing	Number	Per cent[(a)]	Age-specific rates[(b)]
Less than 65	29	48.3	33	52.4	1	63	50.0	0.04
65–74	20	33.3	15	23.8	1	36	28.6	0.14
75+	11	18.3	15	23.8	1	27	21.4	0.10
Total (*n*, %)	**60**	**100.0**	**63**	**100.0**	**3**	**126**	**100.0**	**—**
Sex-specific rates[(b)]	**0.09**	**—**	**0.06**	**—**	**—**	**—**	**—**	**—**

(a) Figures may not equal 100.0 due to rounding.

(b) The age-specific or sex-specific rate is the number of health assessments divided by the total number of encounters, for each sex or age group.

Diagnostic frequencies

There was a very broad range of problems recorded during general practice care plan encounters, with low relative rates of any specific individual diagnoses. Therefore, diagnostic frequencies have been reported according to their chapter in ICPC–2 (see Chapter 2 Methods), together with the most frequent individual diagnoses and the proportion of the total diagnoses they comprised. Only diagnostic frequencies for patients aged 65 years and over have been reported in this section, in keeping with the focus of this report.

There were only 63 care plans recorded for patients in this age group, for which 101 problems were recorded. The majority were related to the endocrine, metabolic and nutritional chapter of ICPC–2, comprising 41.6% of the total problems managed (Table

13.7). Within this chapter, diabetes was the most frequent individual problem managed, at 36.6% of encounters where care plans were recorded.

Problems related to the general and unspecified chapter of ICPC–2 were the next most frequently recorded in care plans (17.8% of the total). Within this group the term 'administrative documentation' was the highest recorded individual problem label, accounting for 5.9% of the total problems recorded during encounters where care plans were claimed (Table 13.7).

Problems related to the cardiovascular system comprised 11.9% of the problems recorded in encounters related to care plans. Within this chapter, the vast majority of diagnoses were hypertension (8.9% of the total problems managed).

Musculoskeletal problems made up 7.9% of the problems. Osteoarthritis was the most frequent individual problem in this group, accounting for 2.0% of total problems recorded (Table 13.7).

Table 13.7: Diagnostic frequencies of problems managed in care plans for patients aged 65 years and over by ICPC–2 chapter

Chapter	Number	Per cent of total problems managed
General and unspecified	**18**	**17.8**
Admin; document	6	5.9
Digestive	**4**	**4.0**
Eye	**1**	**1.0**
Cardiovascular	**12**	**11.9**
Hypertension*	9	8.9
Musculoskeletal	**8**	**7.9**
Osteoarthritis*	2	2.0
Neurological	**4**	**4.0**
Psychological	**6**	**5.9**
Respiratory	**1**	**1.0**
Skin	**1**	**1.0**
Endocrine, metabolic and nutritional	**42**	**41.6**
Diabetes*	37	36.6
Urological	**2**	**2.0**
Male genital	**1**	**1.0**
Social problems	**1**	**1.0**
Total	**101**	**100.0**

* Includes multiple ICPC–2 or ICPC–2 PLUS codes.

Note: Figures may not equal 100.0 due to rounding.

Management techniques

Medications were prescribed at a rate of 92.1 per 100 care plan encounters. New medications accounted for 17.3% of these, being prescribed at a rate of 15.9 per 100 care plan encounters. Non-pharmacological treatments were provided at one-third of the

encounters where care plans were recorded (33.3 per 100 encounters), while referrals were made at a rate of 31.7 per 100 and investigations ordered at a rate of 44.4 per 100 (Table 13.8).

Table 13.8: Management techniques provided at encounters where care plans were recorded

	Care plans (*n* = 63)		
Treatment type	Rate per 100 encounters	95% LCL	95% UCL
Total medications	92.1	44.4	139.7
New medications	15.9	3.1	28.7
Non-pharmacological treatments	33.3	10.0	56.7
Referrals	31.7	0.1	63.4
Investigations	44.4	20.3	68.6

Note: LCL—lower confidence limit; UCL—upper confidence limit.

Discussion

Medications were given at a rate of 92.1 per 100 encounters, with almost one-fifth of these being new medications. This may indicate that the GP, after consultation with other care providers, is adjusting the patient's medication, or providing new medications that the care plan team feels are appropriate for the patient.

Non-pharmacological treatments were provided to older patients at one-third of care plan encounters. Considering that the patient was present at the majority of care plan encounters, this may indicate that the GP is providing counselling or giving advice to the patient about the plan or, as a result of the care plan, educating the patient about areas identified during the care plan as being appropriate for the patient, e.g. dietary advice.

While not statistically significant due to the small sample of care plans, referrals were given at a very high rate during care plans. This may suggest that the multidisciplinary team, looking at the patient's health from multiple perspectives, identifies the need for other providers to be included in the care process, in accordance with the specifications of care plans, which state that the care plan team should investigate the types of services or treatment the patient may require.[111]

13.5 Case conferences

No age and sex distributions have been stated for case conferences, due to the small numbers recorded in BEACH.

Diagnostic frequencies

Of the seven case conferences performed for patients aged 65 years and over, only seven problems were recorded (Table 13.9). Of these seven, one related to the general and unspecified chapter of ICPC–2, and was recorded as an administrative procedure rather than a diagnosis. Of the other problems managed, two were psychological. Other problems recorded in case conferences related to the cardiovascular, neurological and male genital systems, while the remaining diagnosis was a social problem.

Table 13.9: Diagnostic frequency of problems managed in case conferences for patients aged 65 years and over by ICPC–2 chapter

Chapter	Number	Per cent
General and unspecified	1	14.3
Cardiovascular	1	14.3
Neurological	1	14.3
Psychological	2	28.6
Male genital	1	14.3
Social problems	1	14.3
Total	**7**	**100.0**

Note: Figures may not equal 100.0 due to rounding.

Summary

This chapter has demonstrated that BEACH provides a representative sample of encounters where EPC items were claimed. The majority of GPs recorded only one EPC item in the 100 encounters recorded for BEACH. The age and sex distributions for health assessments have shown that the group most likely to have had a health assessment performed are those aged between 85 and 89 years, while both males and females had an equal likelihood of having a health assessment. The age group most likely to have a care plan performed were those aged between 65 and 74 years, but half the care plans recorded in BEACH were for patients aged less than 65 years.

Diagnostic frequencies recorded for EPC items showed that the majority of problem labels recorded in health assessments were administratively based, while for care plans, conditions from the endocrine and metabolic system (e.g. diabetes) were the most frequently recorded. Very few case conferences were recorded in BEACH, reflecting the slow uptake of this type of EPC item by GPs.

These issues will be examined in further detail in Chapter 14 Discussion.

14 Discussion

The care of older patients comprises a large proportion of the total workload for GPs in Australia. Encounters with patients aged 65 years or more account for one-quarter (25.0%) of general practice encounters reported in BEACH. This proportion reflects both their use of GP services and the number of problems requiring management by this population. BEACH is based on the assumption that 100 consecutive patient encounters are representative of a GP's workload.[90] Within these 100 encounters, the vast majority of GPs saw patients aged 65 years or more (Chapter 3), indicating that the care of older patients is an integral part of everyday practice for almost all GPs.

Encounters with the older patient population in general practice have a number of features which distinguish them considerably from the overall BEACH sample. Compared with all encounters recorded in 2001–02,[96] patients aged 65 years or more reported more RFEs, and had more problems managed. They also had more medications prescribed (particularly cardiovascular medications) and were given more referrals than the overall BEACH sample.

There were also a number of differences in the characteristics of encounters with older patients. Compared with the total BEACH sample,[96] patients aged 65 years and over were less likely to have direct consultations with the GP (where the patient is physically seen by the GP), and were less likely to be new to the practice. In contrast, they were more likely to have long consultations and home visits.

This comparison between the current study and the BEACH survey clearly demonstrates that the characteristics of general practice encounters with older patients differ from encounters with younger patients. These differences can be found in almost all aspects of general practice: the characteristics of the encounters, the conditions presented for management and the methods of managing these health conditions. Prior research has indicated that GPs have also acknowledged differences in the management of older patients compared with younger patients, and these differences relate to administrative burdens, communication, the need for time commitments and the complexity of the patient's medical problems.[31]

The overall BEACH sample that has been compared with the current study does include older patient encounters. A direct comparison of general practice encounters between younger and older patients may therefore reveal differences more accurately in the general practice management of these population groups.

Dividing the total 65+ population into groups

In the past, studies have been criticised for treating older people as a homogenous group.[122] In the current study, comparisons have been made between encounters with patients aged between 65 and 74 years, and those aged 75 years and over. Differences have been identified between these age groups, providing evidence for the hypothesis that there are age-related differences in the conditions experienced by the younger and older groups. Significant differences between the two age groups regarding their management in general practice were found in almost all aspects examined. In particular, it is notable that patients aged 75 years and over received no specific form of treatment significantly more often than patients aged between 65 and 74 years (Chapter 4). There were no significant differences related to age in the overall rate of medications prescribed, advised or supplied to the

patient. However, those aged 75 years or more received referrals to specialists, orders for pathology, and imaging and other treatments (in particular clinical treatments) at lower rates than those aged between 65 and 74 (Chapter 4). These lower treatment rates at encounters with older patients may reflect a number of factors. Older patients have many chronic problems (Chapter 12), and those aged 75 years or more are less likely than those aged 65–74 to present to the GP with new problems (Chapter 4). Therefore, while continuing GP management of chronic problems may be required, the focus may surround maintenance and management of the patient's health, rather than investigation and initiation of new forms of treatment (as may be the case in the 65–74 age group, who present significantly more new problems for management).

It was stated in the method that small sample sizes precluded analysing data on smaller age groups, particularly those aged 80 or 85 years or more. It has been projected that the proportion of people aged 80 years or more will increase rapidly, in line with overall population ageing.[1] As the BEACH dataset gets larger, it will be interesting to analyse data from these older age groups, using baseline data from the current study. Analysing data based on the age groups 65–74 and 75+ in this study has also to examine age-related differences in morbidity and management related to the EPC health assessments, which are restricted to those aged 75 years or more.

Risk factors

Alcohol intake

This study has shown that a considerable majority of older patients encountered by GPs either do not drink alcohol, or consume it in a responsible manner. However, it is still alarming that almost one in five (19.4%) of those aged 65–74, and one in seven (13.4%) of those aged 75 years or more, reported consuming alcohol at at-risk levels (Chapter 10). These figures are considerably higher than those reported in other national studies. The 2001 National Health Survey reported that 8.0% of those aged 65–74 and 4.6% of those aged 75 years or more reported high-risk drinking[45] while the National Drug Strategy Household Survey reported that only 6.0% of older people were high risk drinkers.[44] The higher rates found in BEACH might be explained by differing measures used to calculate levels of alcohol risk between the surveys. Alternatively, it has been shown previously that older people have high levels of trust and respect for their GP.[26-28] Older people may therefore be likely to report their alcohol consumption more accurately to their GP, with whom many have had a lengthy relationship characterised by honesty and trust, than to an unknown interviewer.

It has been suggested that due to changes in body structure attributed to ageing, such as increases in the proportion of fat stored in the body, tolerance to alcohol may be reduced in the elderly.[104] Discrepancies between BEACH data and data from the National Health Survey and National Drug and Alcohol Household Survey suggest that the proportion of older people at risk may be higher that previously thought because their current alcohol consumption has previously been underestimated. These factors should be considered by GPs when caring for older people, to ensure that alcohol-related disorders and injuries are appropriately identified and treated.

Smoking status

This study has shown that the majority of older people reported they had never smoked or had previously smoked (Chapter 10). However, 7.5% of those aged 65 years or more

reported smoking daily, and the rate was higher in those patients in the 65–74 year age group (9.5%). These figures parallel the findings from the 2001 National Health Survey, which found that 10.9% of those aged 65–74, and 5.9% of those aged 75 years or more reported current smoking.[45] Therefore, it may be surmised that BEACH data collected on smoking provides a representative sample of smoking in the overall population for this age group.

Significantly more people in the 65–74 age group are daily smokers compared with those aged 75+ (see Figure 10.3). This may indicate that the younger group (65–74 years) are at a greater risk of developing health conditions relating to smoking. Currently there are very few differences in rates of management of conditions relating to smoking (such as chronic obstructive pulmonary disease, asthma and acute bronchitis) between the two age groups (Chapter 6). It is possible that those in the younger group may already be experiencing the effects of their smoking habits, and it can be hypothesised that the relative rates of conditions associated with smoking will increase over time as those currently in the 65–74 age group get older.

Smoking cessation, even at older ages, has been shown to extend life expectancy[49] and improve health.[46,50,51] Previous Australian research has demonstrated that older people were significantly less likely than younger people to believe that smoking was harmful to health, while some believed that there was a 'safe' number of cigarettes that could be smoked without causing harm.[107] While the proportion of smokers in this survey is relatively small, the results show that counselling for smoking does continue to occur at encounters with older patients (0.4 per 100 encounters, Chapter 8), but at half the rate that occurs in the overall BEACH sample (0.8 per 100 encounters).[96] GPs have been identified as an appropriate source of information regarding smoking cessation among older people, due to the high numbers in this age group who attend GPs.[107]

Body mass index

In the substudy of BMI two aspects of concern emerged. Over half the respondents aged 65 years or more had a BMI in either the overweight or obese range. In particular, the proportion of patients aged between 65 and 74 years who were overweight or obese was 63.9%. This proportion was significantly lower for patients aged 75 years or more (48.9%) (Chapter 10). The National Health Survey reported that 58.8% of people aged 65–74 years, and 45.6% of people aged 75 years and over were either overweight or obese.[45] Obesity is associated with a variety of chronic conditions that are prevalent in the older age groups, such as cardiovascular disease, diabetes and osteoarthritis.[40]

Another concerning result from this substudy was the high proportion (10.4%) of patients, particularly women, aged 75 years or more who were underweight (Chapter 10). This is more than double the rate reported in the National Health Survey, which found that 4.1% of those aged 75 years or more were underweight.[45] Both studies use self-reported height and weight to calculate BMI. Higher rates of underweight in BEACH may be explained by the cut-off points for weight ranges, which differ between the two studies. Underweight in general practice (and therefore in BEACH) is defined as a BMI of less than 20. In contrast, the National Health Survey defines underweight as BMI of less than 18.5. Recently published studies have identified this area as a cause of concern, with mortality rates reported as higher in older people who were underweight compared with those who were overweight.[52,53] It can be concluded that while obesity is a significant problem in older people, particularly in those aged between 65 and 74 years, underweight in the elderly may also be a risk factor requiring consideration by GPs.

GPs are being encouraged to take an active role in promoting healthy ageing strategies in their older patients.[15] They are thought to be in an ideal position to promote these strategies, particularly because of the high rates of attendance of older people and the fact that GPs are well respected by older people.[15,21] Clinical treatments, particularly advice and education about weight, nutrition and exercise were provided at high rates, with advice regarding nutrition and weight given at a rate of 5.1 per 100 encounters in patients aged 65 years or more (Chapter 8). These data suggest that GPs do focus on preventive activities in the older patient population.

The harm associated with overweight and obesity has been well documented.[40,108] However, evidence suggests that underweight is also a significant risk factor for mortality in older people.[52,53] Therefore, it has been suggested that weight loss in older people should be 'sustained and gradual'.[53]

While the overall rates of preventive treatments are quite high in patients aged 65 years or more, Table 8.1 shows that clinical treatments overall, and in particular advice and education about weight and nutrition, are offered significantly more often to patients aged between 65 and 74 years, than to those aged 75 years or more. These differences in management rates are important to note. The recording in BEACH of these clinical treatments does show that GPs actively work with patients in the primary or secondary prevention of chronic conditions. The lower rates of clinical treatments in the older age group may reflect the significantly lower numbers of those aged 75 years or more who drink at at-risk levels, are current smokers and are either overweight or obese (Chapter 10).

Changes over time

The comparison of BEACH with an earlier dataset (Australian Morbidity and Treatment Survey–AMTS) allowed the investigation of trends over time. When the AMTS was conducted in 1990–91, the proportion of the Australian population aged 65 years or more was 11.3%. This figure increased steadily over the following decade, to 12.4% in 2001.[4] There have also been changes to government spending on older people. While the average annual growth of funding for medical services for older people was 7.5% between 1988–89 and 1998–89, and the growth of pharmaceutical services 8.6%, as a proportion of the gross domestic product, government spending on those aged 65 years or more did not change over the period 1989–90 to 1998–99.[3]

This study shows there have been many significant changes in the problems managed at encounters with older patients in general practice between 1990–91 and 2000–02. In particular, the management rates of ischaemic heart disease and heart failure have significantly declined. In contrast, the rates of management for cardiac check-up, atrial fibrillation and lipid disorders have increased significantly. However, the management rate of hypertension, the most frequently managed problem in both studies at more than one in five encounters, has not changed over the last decade (Chapter 11).

These figures suggest that preventive activities and forms of treatment have improved (as shown in the significant rise in non-pharmacological treatments over this period), and these have been most effective in reducing the effects of ischaemic heart disease and heart failure. It is notable that mortality rates due to cardiovascular conditions have also declined, most rapidly since 1970.[8] While a previous study found there had been a decline in the relative rate of management of cardiovascular problems between 1990–91 and 2000–02, that study also found that those aged 65 years or more had the highest rates of management for these conditions in both periods.[123]

Hypertension is seen as a risk factor for more serious cardiovascular diseases.[103] Therefore, the fact that there has not been a decline in its management rate may indicate that serious cardiovascular conditions will continue to be an issue. Also, this suggests that the role of the GP in the prevention of serious chronic conditions will persist into the future.

It is interesting to note the significant rise in immunisation from 1990–91 to 2000–02. These would be accounted for largely by the influenza vaccine. In the year 2000, Australia had the sixth highest rate of influenza immunisation out of 50 countries tested, at 183 vaccinations per 1000 people.[124] The rate of influenza vaccination has more than doubled since 1990–91, which can be attributed largely to the introduction of various public health programs. Influenza immunisation in Australia was relatively rare until 1989, rising in 1990 as a result of influenza outbreaks in other countries. This led to the introduction of various programs promoting influenza vaccination, beginning in 1992.[125] The Immunise Australia program, launched in 1999, allows Australians aged 65 years or more to receive free influenza vaccinations.[126]

Chronic conditions

It has previously been shown that chronic conditions are positively correlated with older ages.[45,55,57-59] The prevalence substudy (Chapter 12) has shown that at least one chronic condition was present in 93.2% of general practice patients aged 65 years or more. This figure is higher than that reported by Hoffman et al. in 1996 (where 88% of older people reported a chronic condition),[55] and that of Wolff et al. in 2002 (82% of older people covered by Medicare in the United States had chronic conditions).[58] It is recognised that those with chronic conditions utilise health services at high rates,[55] and that a considerable proportion of older people report attending GPs each year.[57] These factors may explain the higher prevalence of chronic conditions in this study.

Prevalence data collected in BEACH is valid only within general practice, and cannot be extrapolated to the general population. As previously discussed, estimates of disease prevalence in the general population are collected through the National Health Survey. The most recent survey, conducted in 2001, found that the most prevalent conditions were related to vision disorders.[45] However, some minor vision disorders such as short-sightedness and long-sightedness have not been included in the chronic conditions analysed in BEACH because they would not normally require ongoing management by GPs.

Conditions being regularly managed in general practice may lead to higher estimates of prevalence than those reported in the community. Due to the high numbers of general practice consultations in Australia with older patients, and a focus on the prevention of risk factors,[103] it is likely that most older Australians would not have health conditions that are undiagnosed. In addition, the National Health Survey relies on self-reported data, and therefore may underestimate the prevalence of certain conditions. These factors may explain the higher prevalence estimates in BEACH.

Prior research has suggested that more problems overall are managed at encounters where chronic conditions are managed compared with those in which acute conditions are managed.[59] Similarly, the current study has shown that management of multiple problems increases the likelihood of the management of chronic conditions (Chapter 12). At least one chronic condition was managed at 60.8% of encounters with older patients, while two or more chronic conditions were managed at almost one-third of encounters where chronic conditions were managed. Likewise, Hoffman et al. (1996) stated that 66% of consultations with physicians in the United States were for the management of chronic conditions.[55]

These figures imply that the management of chronic conditions comprises a large proportion of the time spent in GP consultations with older patients.

While the majority of patients had only one chronic problem managed at encounter, co-morbidity, or the occurrence of two or more conditions at the same time, has been shown in previous studies to increase with age.[55,58,61] Wun et al. (1998) found that highly prevalent conditions were more likely to have co-morbidities.[127] This finding was supported by the current study. Hypertension, the most prevalent condition among older patients in this study, was also present in the seven highest co-morbid relationships (Chapter 12). The conditions most likely to coexist were hypertension and lipid disorder (10.8%), followed by hypertension and osteoarthritis (10.6%).

In this study it is interesting to compare the most frequently managed chronic conditions and the most prevalent chronic conditions (Chapter 12) with the most frequently managed conditions overall in BEACH (Chapter 6). Hypertension was the most frequently managed problem (and therefore the most frequently managed chronic problem) in BEACH. It was managed at almost one in five encounters with patients aged 65 years or more, with no significant difference in its management rate at encounters with the 65-74 and 75+ age groups (Table 6.2). Hypertension is also the most prevalent condition in patients aged 65 years or more, having been diagnosed for 45.6% of these patients (Chapter 12). In the 2001 National Health Survey, hypertension was found to be present in 38.3% of patients aged 65 years or more, and this estimate would include (in the denominator) patients who rarely visit a GP (calculations based on population estimates from data provided by the GP Branch of the Department of Health and Ageing).[45]

Osteoarthritis was the second most frequently managed problem in older patients in general practice, at 6.2 per 100 encounters (Section 6.2). The impact of osteoarthritis is seen mainly as a disabling condition, and is thought to be the leading cause of disability in older women.[66] Osteoarthritis is also the second most prevalent condition in general practice patients aged 65 years and over, with 20.9% of patients experiencing this condition. The risk factor of obesity is related to osteoarthritis, and therefore this has been identified as a factor that should be minimised in the prevention and management of osteoarthritis.[128] As stated earlier, the prevalence of overweight and obesity were found to be high in this population. This suggests that greater attention to this risk factor may assist in the prevention and ongoing management of osteoarthritis.

Chapter 12 also compared the prevalence and management of the most frequent chronic conditions. It was shown that conditions requiring ongoing treatment, such as hypertension, heart failure, arthritis and lipid disorder, were some of the most likely to be managed at encounters where they were present in the patient.

Compression or expansion of morbidity

The compression of morbidity theory cannot be directly assessed using BEACH data. As discussed in the introduction, this theory states that life expectancy has a defined limit beyond which it cannot extend, and the onset of chronic disease can be delayed by minimising the impact of risk factors.[64] Other studies have suggested that compression of morbidity occurs only when chronic conditions are eliminated.[65,66] The current study has demonstrated that chronic conditions constitute a large proportion of the problems managed in older patients. It has also shown that there is an increase in the number of problems managed at encounters with older patients than at those with the overall population.

With an increased focus on health promotion, as demonstrated by the relatively high levels of advice and education surrounding issues such as weight and nutrition, it is possible that future cohorts of older patients may not experience chronic conditions to as large an extent as has been described in this study. It will be interesting to monitor the health of older patients in general practice over time to test this theory.

Disability in the older population

While the BEACH study does not measure disability as such, it is possible to use the data to hypothesise about the impact of disability on the older population in general practice. The 1998 Disability, Ageing and Carers survey found that 54% of the population aged 65 years or more had a disability. While a greater proportion of those with a disability required assistance with one or more activities, the need for assistance increased with age, irrespective of disability.[17]

The Australian Burden of Disease and Injury study found that dementia, hearing loss, stroke, vision disorders, osteoarthritis and ischaemic heart disease were the leading causes of years lost due to disability.[47] While a number of these disabling conditions, such as hearing loss and vision disorders, are not frequently managed in general practice, osteoarthritis was the second most commonly managed problem in patients aged 65 years or more, and ischaemic heart disease was also commonly managed

Chapter 12 shows that osteoarthritis, ischaemic heart disease and dementia combined accounted for over 10% of the total chronic problems managed. There are a number of other results in this study that may indicate the presence of disability in the older patient population in general practice. Patients aged 75 years or more were significantly less likely to have direct consultations with the GP, and were more than three times as likely to have home visits, than those aged between 65 and 74 years. This may point to increasing disability with age, and indicate that, while the majority of encounters do occur in the doctor's surgery, GPs show flexibility in caring for their older patients, in particular those aged 75 years and over, who are less likely to attend surgery consultations.

Therefore, while there is no measure of disability specifically collected in BEACH, this study has provided a number of indications that disability is relatively prevalent in older people. The presence of disability may affect the ways in which a GP conducts their practice, by providing services such as home visits and consultations at residential aged care facilities.

Enhanced Primary Care (EPC)

Chapter 13 has demonstrated that BEACH provides a roughly representative sample of encounters claimed as EPC items. The EPC items were introduced in November 1999.[110] Therefore, the data reported in this study starts from five months after the introduction of the EPC items and reflected the increase in EPC items (demonstrated in HIC data) from the first to the second year of recording.

There were some differences between claims for EPC items made through HIC and data recorded in BEACH. In particular, health assessments formed a greater proportion of the EPC items recorded in BEACH compared with HIC claims (57.1% compared with 48.8%), while a greater proportion of HIC claims were made for care plans than were recorded in BEACH (48.4% compared with 40.6%). This may indicate a tendency for GPs to record health assessments in BEACH rather than care plans, perhaps due to the nature of the BEACH survey. In BEACH, GPs are asked to record 100 consecutive patient-based

encounters. Some GPs may feel that care plans and case conferences are more administrative than clinically based, particularly since the patient does not have to be present while a care plan is written.[111] Conversely, health assessments must be performed with the patient present, either in the surgery or in the patient's home. Thus, GPs may be more likely to record this type of EPC item in BEACH.

Only 8.0% of GPs who participated in BEACH recorded at least one EPC item (Chapter 13). When they did, over half recorded only one EPC item, but one GP recorded 35 items. Previous studies have also reported GPs with a large number of such items claimed,[129] with a national study finding less than 10% of GPs claiming for almost half of the EPC items claimed through the HIC.[120] There are a number of reasons this could have occurred in BEACH. The BEACH recording period could coincide with a GP sending reminders to his patients aged 75 years or more about their annual health assessment. The use of an age-sex register has been shown to be helpful in coordinating health assessments for GPs and has been associated with increased use of EPC items.[129] Alternatively, the BEACH recording period may have occurred at a time when a GP has scheduled several care plans or case conferences together for logistical reasons. Recently the Federal Government has tightened the requirements surrounding EPC items, placing more emphasis on the complexity issue in the 'chronic and complex' criteria.[111] This has been accompanied by reports in the Australian general practice media that EPC items have been misused by GPs.[130] It must be emphasised that high numbers of recording of EPC items by an individual GP in BEACH is not an indication of misuse.

The age and sex distribution of patients at encounters claimed under an EPC item show that women accounted for a larger proportion of the health assessment items recorded, reflecting the higher actual numbers of women aged 65 years and over. However, there were no differences in the sex-specific rates. This indicates that GPs are recognising that older people of both sexes require comprehensive health assessments. The highest rate of health assessment (in terms of age-specific rates) was found in patients aged between 85 and 89 years. It is also notable that there were three assessments conducted for patients who were aged less than 75 years (Chapter 13). However, all of these patients were aged at least 74 years. Thus, it can be assumed that GPs felt that comprehensive health assessments were required for these patients, and conducted them despite the patient falling just short of the age barrier.

As noted earlier in this report, care plans and case conferences are not restricted by patient age, but are recommended for patients aged 65 years or more.[110] Therefore, it is interesting that only half of the care plans recorded in BEACH were for patients aged 65 years or more. While it has been shown in this report that chronic conditions are managed at approximately 60% of general practice encounters in this age group, the number of care plans performed for patients aged less than 65 years indicates that serious chronic conditions also frequently occur in younger patients. This supports the government decision not to restrict the use of care plans and case conferences to particular age groups. Clearly there are many younger patients seen by the GP who are likely to benefit from this initiative.

It was hoped that the morbidities recorded in EPC encounters in BEACH would provide some insight into the types of issues being dealt with by the GP at these encounters. However, GPs tended not to record the actual problems managed at these encounters, particularly for health assessments. Almost half of the problems recorded at these encounters related to an administrative service, such as 'health evaluation', rather than a diagnosis (Chapter 13). This may be for a variety of reasons. Health assessments are

designed to provide a holistic assessment of the health of the patient, by measuring the patient's 'health and physical, psychological and social function'.[111] Therefore, some GPs may feel that it is inappropriate to record specific diagnoses, particularly when they may not be making diagnostic decisions, or specifically managing the patient's long-term conditions. However, where diagnoses were recorded under an EPC item, hypertension was the most common individual diagnosis recorded. This may merely reflect the high prevalence of hypertension in the older population, or may be due to the fact that the MBS requires that the patient's blood pressure be taken during health assessments.[111] It is notable also that influenza vaccinations and urinary tract infections were recorded as specific problems (each recorded seven times), also reflecting the specifications of health assessments through the MBS.

It can be surmised that GPs, when recording health assessments in BEACH, use one of three approaches. They may choose to record the administrative action of performing a health assessment only, they may record both the administrative action and individual problems managed at those encounters, or may record only the problems they managed during the health assessment. While there is clearly no right or wrong way to record these encounters in BEACH, this poses questions for researchers aiming to describe the morbidity dealt with in patients for whom a health assessment is undertaken.

When recording care plans the GPs were considerably more specific about the actual problems managed (Chapter 13). In the MBS there is no indication given as to whether care plans should encompass the overall health of the patient, or focus on a single condition. Diagnostic frequencies shown in Table 13.7 indicate that for care plans GPs are more likely to focus on specific health conditions in the patient, as can be evidenced by the lower proportion of administrative codes.

In particular, it would appear that diabetes is a problem commonly leading to the formation of a multidisciplinary care plan (Table 13.7). The introduction of the annual cycle of care for patients with diabetes mellitus in 2001 may influence the number of care plans performed for diabetes in the future. The annual cycle, payable through the PIP, specifies aspects of care for patients with diabetes that must be completed over the course of one year. However, the EPC care planning item specifies multidisciplinary involvement, while the annual cycle is conducted solely by the GP. In addition, for GPs to claim the annual cycle they must be enrolled in the PIP.[111] While approximately three-quarters of GPs are enrolled in the PIP,[131] general practices not participating in this program cannot claim for these items. With the advent of new PIP incentives and possible changes to the structure of the EPC program,[130] it will be interesting in the future to monitor trends in the recording of EPC items versus the uptake of new items such as that being introduced for the management of diabetes.

Relatively few case conferences were recorded by GPs (Chapter 13). In August 2002 it was reported that there was to be an evaluation of case conferencing items to determine reasons for the low uptake.[132] GPs have reported that case conferences have shortcomings, including the requirement that all members of the multidisciplinary team must meet, either in person or by teleconference, at the same time.[111] Studies have demonstrated that the coordination of multiple health providers is very difficult.[71,73] Further, while the definitions for care plans and case conferences are very similar, care plans have two distinct advantages to the GP: the multidisciplinary team does not have to meet together at the same time[111]; and care plans are included as part of the PIP, providing further incentives for general practices enrolled in the program to conduct care plans rather than case conferences.[116]

The size of the sample available for analysing EPC management data was small, and we are unable to draw definite conclusions from the data on management techniques used during health assessments and care plans. It is noteworthy that most types of management were recorded at higher rates during care plan encounters than at health assessment encounters. This may reflect the way GPs complete the BEACH encounter form. As demonstrated in Chapter 13, almost half of all problem labels recorded for health assessments were administrative. It may follow that GPs who did not record specific problems also did not record specific management techniques. In contrast, other GPs may have recorded all the management actions made during care plans.

Medications were given at lower rates per 100 encounters at both health assessments and care plans than for the total BEACH encounters with patients aged 75 years or more. It is notable that at both types of encounters, new medications were given at relatively high rates. This may reflect the purpose of these types of encounters. Rather than managing problems, as in normal encounters, health assessments and care plans review and evaluate the patient's health and care by medical practitioners. A medication review is specifically listed as an area of assessment in 75+health assessments,[111] so the prescription or provision of new medications may reflect the review process, indicating the presence of problems that require new medication, or changing the medications the patient is currently taking, possibly due to potential contraindications.

A multidisciplinary approach to chronic disease care has been advocated by many.[60,133] Data from the BEACH study show that multidisciplinary care plans, through the EPC package, have outcomes that result in further actions for patient care, in the forms of new referrals, and investigations. While the BEACH dataset of EPC items is small, these data provide some insight into the outcomes of EPC items, and provide a baseline measure with which to compare the impact of the EPC package on care for those with chronic and complex conditions in the future.

Injuries

Earlier research has suggested that injuries in older people are a serious health concern, with over 1,000 people aged 65 years and over dying as the result of a fall each year.[39] A previous study stated that 29% of people aged 65 years or more reported falling in the 12 months before the study, with a greater proportion of those aged 75 years or more having fallen than those aged between 65 and 74 years.[33] In the current study injuries were managed at a rate of 5.0 per 100 encounters (Chapter 6). While musculoskeletal injuries, such as fractures, made up the majority of these problems, injuries to the skin or soft tissue (for example bruises, cuts and burns) also accounted for a large proportion of those injuries. It is possible that the number of injuries occurring in this age group is underestimated using BEACH data. Serious injuries, such as fractures, may be treated in emergency departments more regularly than by GPs, particularly in the elderly who may not be able to remain at home or in a nursing home, while injured. This hypothesis is supported by the low imaging order rates recorded by GPs for older patients, with orders for knee and hip x-rays both occurring at a rate of only 0.4 per 100 encounters. In addition, imaging rates were almost identical for patients in both the younger (65–74) and older (75+) age groups. Further evidence supporting this can be found in Section 8.2, which shows that dressings were provided significantly more often to patients aged 75 years and over than those aged 65–74, suggesting that GPs are more likely to manage less serious falls, though some would be dressings for other problems, such as leg ulcers.

It has been suggested in the literature that those aged 75 years and over are particularly at risk of falls.[100] The current study has largely supported this hypothesis, in particular relating to skin injuries, with these injuries being managed significantly more often for patients aged 75 years and over than for those aged between 65 and 74 (Section 6.3). As the literature has shown that previous falls may be an indicator of future falls,[101] GPs may be able to identify minor falls as a risk factor for potential future serious injuries. It has also been shown that certain conditions commonly managed in general practice, such as arthritis, are associated with increased risk of falling in older people.[40] Therefore, GPs may be able to identify patients at risk of falling, and promote falls prevention strategies to them, for example physical activity and the reduction of hazards in the home, both of which have been shown to help prevent future falls.[41,42]

Consultation length for older patients in general practice

In this study, consultations for patients aged 65 years and over were significantly longer than for those aged less than 65 years (Chapter 4), at an average of 15.4 minutes compared with 14.9 minutes. The BEACH study is the first to measure consultation length in minutes in Australian general practice (based on recorded start and finish times). Overseas research has provided mixed results about this subject: some studies suggest that consultations are longer for older patients[37] and others conclude that there are no differences in consultation length based on age[38] or that consultations with older people are shorter.[36] The structure of the health care system may have a significant impact on consultation length: the presence or absence of patient registers, the use of set appointments and the payment system for care may all affect the length of time GPs spend with their patients.[38]

The only study in Australia to report consultation length in general practice for older patients was based on Medicare claims data, which do not accurately report the length of the consultation. The categories in Medicare are based on broad time bands and on the complexity of the consultation. This study reported that older patients had longer consultations, but this was on the basis that GPs were more likely to claim ‘long’ or ‘prolonged’ consultations for their older patients, rather than an accurate study of the actual duration of the consultation.[99]

There are some limitations with the BEACH method of recording consultation length. GPs were asked to record the start and finish times of the consultation in minutes. For some GPs, consultation length was calculated to be either 10, 15 or 20 minutes, which may indicate appointment details rather than the exact length of the consultation. Also, it is not known the extent to which the consultation length included the amount of time taken to complete the BEACH encounter form, which averages approximately two minutes.[134] However, these differences do not confound the comparison of consultation length by age group, as these limitations would be standard for patients in all age groups.

It has also been shown in Chapter 12 that chronic conditions are managed at a rate of 140.0 per 100 encounters in patients aged 65 years and over. It is possible that the high management rate of chronic conditions in this age group contributes to longer consultation length for these patients. However, further analysis would need to be undertaken into the relationship between chronic disease management and consultation length to test this hypothesis.

Advantages of BEACH data

The BEACH survey provides an overall snapshot of general practice activity. In doing so, it includes various aspects of general practice that other sources of data may not discuss. In particular, Chapter 4 of this report describes the proportion of the older population who attended general practice at least once in 2000–01. Data included in this section was obtained through Medicare data held by the HIC. This section suggested that the male attendance rate to GPs declined considerably once males were aged 75 years or more. As mentioned in Chapter 4, Medicare data do not include encounters paid by the DVA; however, these encounters are included in the BEACH survey.

Due to the fact that one in five encounters with patients aged 75 years or more was paid by the DVA, this indicates that Medicare data obtained through the HIC underestimates, by approximately 20%, the true proportion of males aged 75 years and over who attended general practice at least once during this period. Therefore, BEACH provides a more accurate representation of the distribution of general practice encounters with the older population than when considering HIC data alone.

Another advantage of BEACH is that Medicare data are only able to report the proportion of people who attended GPs, and the average numbers of types of visits for specific groups of patients. It is not able to describe the morbidity managed at general practice encounters. In addition, pharmaceutical data reported through the Pharmaceutical Benefits Scheme reports only on the prescriptions paid by the government through this scheme. As well as including all prescribed medications (irrespective of payment source), BEACH provides data on medications advised for over-the-counter purchase as well as those supplied directly to the patient by the GP. BEACH can also relate the medications and other treatments given to patients with the conditions for which these treatments were given.

Finally, BEACH is the only data source providing information on clinical treatments given to patients at encounters with GPs.

Limitations of the BEACH study

While BEACH provides a comprehensive view of encounters in Australian general practice, there are a number of methodological issues that need to be considered. As discussed in Chapter 2, a national random sample of encounters with all GPs is impractical in the Australian general practice setting, both in terms of logistics and cost-effectiveness. Therefore, the most efficient means of describing general practice activity is through a random sample of GPs recording a cluster of encounters. While cluster sampling causes a loss of statistical efficiency, techniques have been employed that take into account the impact of clustering. It has been shown that a random sample of 1,000 GPs recording encounter data on 100 patients provides the most efficient balance between statistical power, cost-effectiveness and validity[90].

Data used in this study were collected between April 2000 and March 2002. Over these two years, GP participation rates in the study were 27.6% and 30.0% respectively.[75,96] Since the first year of BEACH (1998) the response rate has declined. There are a number of possible reasons for this decline. GPs who participate in BEACH receive Clinical Audit points for quality assurance from the RACGP. It has been hypothesised that phases of the quality assurance cycle may influence the response rate for BEACH. In addition, GPs aged less than 35 years are underrepresented in BEACH, probably due to the fact that general practice registrars are not required to undertake quality assurance activities until the triennium after training has been completed.[75,96] Therefore, quality assurance incentives

provided to GPs for participation may not be of interest to this group. While in the annual BEACH reports,[75-77,96] this is dealt with statistically through post-stratification weighting, when two years of BEACH data are combined (as in the current study), such post-stratification weighting is not possible.

Other limitations to the BEACH data may occur due to the structure of the encounter form. GPs are limited to recording four problems managed in BEACH. This study has demonstrated that older patients had more problems managed than the total BEACH population, and it may be possible that more problems were managed at the encounter than were stated in this study.

It must also be recognised that only medications prescribed, supplied or advised for purchase over the counter at the encounter were recorded. Therefore, BEACH data do not provide an overall description of the number of medications older patients are taking. In addition, only new referrals are recorded at encounter, not all the referrals to other health professionals a patient may have. That is, continuations of referrals are not included.

While it has been stated in the current study that BEACH provides a more accurate representation of encounters due to the inclusion of non-Medicare-paid encounters, the BEACH survey only allows the recording of one Medicare item number. This would lead to underrepresentation of Medicare items, when GPs claimed more than one item for a single encounter.

BEACH only records data based on 100 encounters per GP, and therefore does not provide a longitudinal comprehensive view of patient care. It is entirely possible that BEACH does not cover all aspects of the health of general practice patients as, in most encounters, only those problems managed at the encounter are recorded. However, it must be remembered that the objective of BEACH is to provide an overview of general practice activity rather than a measure of population health.

Older people (those aged 65 years and over) are frequent attenders of general practice (Chapter 4) and almost all (96.7%) had been seen previously by the GP they were attending (Chapter 5). Therefore, the issue of continuity of care is very important in this age group. It would therefore be useful to have a longitudinal study based on older people's care in general practice, to examine the many aspects of care and the longitudinal relationship between patient and doctor.

15 Conclusion

This is the first study to comprehensively examine older patients attending general practice in Australia. Issues such as risk factors for ill health, changes that have occurred in the general practice management of older patients over the last decade and the impact of chronic conditions in this population have also been investigated.

GPs clearly play a significant role in the care and management of the health of older patients, with approximately 90% of older people attending a GP at least once per year and these accounting for approximately one-quarter of total general practice consultations.

Older people have many health conditions requiring management by the GP. They present to the GP with more RFEs than the overall population, and have more problems managed during the consultation. Chronic conditions are managed at the majority of encounters, reflecting the high prevalence of the most common chronic conditions in this patient population. Relatively high rates of co-morbidity are also apparent. This study has also provided a comprehensive national overview of encounters of EPC items recorded by GPs, a program designed to assist GPs in the management of patients with chronic and complex care issues.

Treatments provided to older patients differ considerably from those given in the overall BEACH sample. Both medication rates and rates of provision of non-pharmacological treatments (such as advice and counselling) are higher than those of the total patient sample. GPs have been encouraged to promote healthy ageing strategies to their older patients, in terms of minimising the impact of risk factors for chronic conditions, including weight management, smoking cessation and responsible alcohol consumption. The current study has provided evidence that GPs have accepted this role by providing many older patients with advice regarding weight and nutrition. The proportions of older patients who either smoke or consume at-risk levels of alcohol are relatively low. In terms of body mass, GPs should be vigilant for both obesity and underweight in their older patients, as both may be regarded as risk factors for poor health and increased risk of mortality.

Many changes have occurred in the last decade, both in the conditions experienced by older patients and in the methods used to manage those conditions. All types of treatment have increased in management rates, reflecting both the increase in medications available for health conditions prevalent in this age group and the increased use by GPs of advice and counselling.

While previously published studies of the older population have focused on injuries resulting in hospital admissions or death, this study has examined for the first time injuries managed at general practice encounters with older patients. This has shown that GPs are more likely to treat falls resulting in minor injuries such as cuts and bruises. However, evidence that minor falls increase the risk of falling again suggests that GPs are in an ideal position to recognise this risk, and recommend methods to reduce the risk of falling.

Previous research has often been criticised for treating older people as a single homogenous group. This study examined the overall population aged 65 years or more, and then compared aspects of care for those aged from 65 to 74 years, and those aged 75 years or more. This has demonstrated that there are many differences between these two groups, both in terms of the health conditions experienced, and in the management techniques used to treat them.

While many aspects of encounters with older patients in general practice have been discussed in this study, there are a number of areas that provide potential for future research. Nutritional intake, self-rated health and severity of illness are three areas of particular interest in the older population that could be examined using BEACH. Detailed investigation of patient encounters covered by the DVA may determine differences in aspects of health of this patient group compared with the overall older population. It may also be useful to examine the characteristics of home visits and visits in aged care facilities to determine whether different types of problems are managed at these encounters.

Research surrounding issues related to the ageing of the population has been encouraged in the National Strategy for an Ageing Australia.[15] This report has addressed this issue and has provided a baseline measure of the management of older patients in general practice. With an increased focus on population ageing, and its associated economic and social impacts, it will be interesting to compare the current findings with future studies. In particular, changes to the funding structures of general practice, and advances in investigation and treatment options may impact on the future management of older patients in general practice.

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Glossary

A1 Medicare items: Medicare item numbers 1, 2, 3, 4, 13, 19, 20, 23, 24, 25, 33, 35, 36, 37, 38, 40, 43, 44, 47, 48, 50, 51, 601, 602, 720, 722, 724, 726, 728, 730, 734, 738, 740, 742, 744, 746, 749, 757, 759, 762, 765, 768, 771, 773, 775, 778, 779, 801, 803, 805, 807, 809, 811, 813, 815.

Aboriginal: The patient identifies himself or herself as an Aboriginal person.

Activity level: The number of general practice A1 Medicare items claimed during the previous 3 months by a participating general practitioner.

Allied and other health professionals: Those who provide clinical and other specialised services in the management of patients, including physiotherapists, occupational therapists, dietitians, dentists and pharmacists.

Chapters (ICPC–2): The main divisions within ICPC–2. There are 17 chapters primarily representing the body systems.

Chronic condition: Chronic conditions may be characterised by the following criteria: a duration that has lasted, or is expected to last, 6 months; an insidious onset; an uncertain or poor prognosis; and the possibility of sequelae. Conditions regarded as chronic for the analyses conducted in this report can be found in Appendix 7.

Complaint: A symptom or disorder expressed by the patient when seeking care.

Component (ICPC–2): In ICPC–2 there are seven components which act as a second axis across all chapters.

Consultation: See Encounter.

Diagnosis/problem: A statement of the provider's understanding of a health problem presented by a patient, family or community. GPs are instructed to record at the most specific level possible from the information available at the time. It may be limited to the level of symptoms.

- *New problem:* The first presentation of a problem, including the first presentation of a recurrence of a previously resolved problem but excluding the presentation of a problem first assessed by another provider.
- *Old problem:* A previously assessed problem that requires ongoing care. Includes follow-up for a problem or an initial presentation of a problem previously assessed by another provider.

Encounter (enc): Any professional interchange between a patient and a GP.

- *Indirect:* Encounter where there is no face-to-face meeting between the patient and the GP but a service is provided (e.g. prescription, referral).
- *Direct:* Encounter where there is a face-to-face meeting of the patient and the GP.

Direct encounters can be further divided into:

- *Medicare-claimable*
  - A1 items of service: See *A1 Medicare items*
    - *surgery consultations:* Encounters identified by any one of MBS item numbers 3; 23; 36; 44
    - *home visits:* Encounters identified by any one of MBS item numbers 4; 24; 37; 47
    - *hospital encounters:* Encounters identified by any one of MBS item numbers 19; 33; 40; 50
    - *visits to residential aged care facilities:* Encounters identified by any one of MBS item numbers 20; 35; 43; 51
    - *other institutional visits:* Encounters identified by any one of MBS item numbers 13; 25; 38; 40
    - *other MBS encounters:* Encounters identified by an MBS item number that does not identify place of encounter (see *A1 Medicare items*)
  - *Workers compensation:* Encounters paid by workers compensation insurance
  - *Other paid:* Encounters paid from another source (e.g. State).

General practitioner (GP): A medical practitioner who provides primary comprehensive and continuing care to patients and their families within the community (Royal Australian College of General Practitioners).

Grouper: Multiple ICPC–2 or ICPC–2 PLUS codes which are grouped together for purposes of analysis.

Medication: Medication that is prescribed, advised for over-the-counter purchase or provided by the GP at the encounter.

Medication status:

- *new:* The medication prescribed / advised / provided at the encounter is being used for the management of the problem for the first time.
- c*ontinuation:* The medication prescribed / advised / provided at the encounter is a continuation or repeat of previous therapy for this problem.
- old: see continuation.

Morbidity: Any departure, subjective or objective, from a state of physiological wellbeing. In this sense, sickness, illness and morbid conditions are synonymous.

Patient status: The status of the patient to the practice.

- *New patient*: The patient has not been seen before in the practice.
- *Old patient:* The patient has attended the practice before.

Problem managed: See *Diagnosis/problem*.

Provider: A person to whom a patient has access when contacting the health care system.

Reasons for encounter (RFEs): The subjective reasons given by the patient for seeing or contacting the general practitioner. These can be expressed in terms of symptoms, diagnoses or the need for a service.

Recognised GP: A medical practitioner who is:

- vocationally recognised under Section 3F of the Health Insurance Act, ***or***
- a holder of the Fellowship of the Royal Australian College of General Practitioners who participates in, and meets the requirements for, quality assurance and continuing medical education as defined in the RACGP Quality Assurance and Continuing Medical Education Program, ***or***
- undertaking an approved placement in general practice as part of a training program for general practice leading to the award of the Fellowship of the Royal Australian College of General Practitioners or undertaking an approved placement in general practice as part of some other training program recognised by the RACGP as being of equivalent standard. (Medicare Benefits Schedule book, 1 November 1998).

Referral: The process by which the responsibility for part or all of the care of a patient is temporarily transferred to another health care provider. Only new referrals to specialist, allied health professionals, and for hospital and for admissions to residential aged care facilities arising at a recorded encounter are included. Continuation referrals are not included. Multiple referrals can be recorded at any one encounter.

Rubric: The title of an individual code in ICPC–2 PLUS.

Torres Strait Islander: The patient identifies himself or herself as a Torres Strait Islander person.

Abbreviations

ABS	Australian Bureau of Statistics
ADL	Activities of Daily Living
AIHW	Australian Institute of Health and Welfare
AMTS	Australian Morbidity and Treatment Survey 1990–91
ATC	Anatomical Therapeutic Chemical (classification)
AUDIT	Alcohol Use Disorders Identification Test
BEACH	Bettering the Evaluation and Care of Health
BMI	Body mass index
C&S	Culture and sensitivity
CAPS	Coding Atlas for Pharmaceutical Substances
CI	Confidence interval (in this report 95% CI is used)
CT	Computed tomography
DALY	Disability-adjusted life years
DoHA	Commonwealth Department of Health and Ageing
DHAC	Commonwealth Department of Health and Aged Care
DVA	Commonwealth Department of Veterans' Affairs
Enc	Encounter
EPC	Enhanced Primary Care
ESR	Erythrocyte sedimentation rate
EUC	Electrolytes, urea and creatinine
FMRC	Family Medicine Research Centre, University of Sydney
GP	General practitioner
GPSCU	General Practice Statistics and Classification Unit, University of Sydney, a collaborating unit of the Australian Institute of Health and Welfare
HALE	Health Adjusted Life Expectancy (scale)
HbA1c	Haemoglobin, type A1c
HIC	Health Insurance Commission
ICPC	International Classification of Primary Care
ICPC–2	International Classification of Primary Care (Version 2)
ICPC–2 PLUS	An extended vocabulary of terms classified according to ICPC–2
INR	International Normalised Ratio
LCL	Lower confidence limit
MBS	Medicare Benefits Schedule
MC&S	Microscopy, culture and sensitivity
NEC	Not elsewhere classified

NESB	The patient reports coming from a non-English-speaking background, i.e. a language other than English is spoken at home.
NSAID	Non-steroidal anti-inflammatory drug
OTCs	Medications advised for over-the-counter purchase
PIP	Practice Incentive Program of the Commonwealth Department of Health and Aged Care
RACGP	Royal Australian College of General Practitioners
RFE(s)	Reason for encounter(s) (see Glossary)
SAND	Supplementary Analysis of Nominated Data
SAS	Statistical Analysis System
U&E	Urea and electrolytes
UCL	Upper confidence limit
UTI	Urinary tract infection
WHO	World Health Organization
WONCA	World Organization of Family Doctors

Appendix 1: Example of a recording form from BEACH 2000–01 recording year

BEACH (Bettering the Evaluation And Care of Health) - Morbidity and Treatment Survey - National © BEACH General Practice & Statistics Classification Unit, University of Sydney 1996 DOCID

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

New patient ☐ | Health Care Card/Benefits holder ☐ | Veterans Affairs Card holder ☐ | NESB ☐ | Aboriginal ☐ | Torres Strait Islander ☐

PATIENT NOT SEEN ☐

Item No: (if applicable) ____

VA paid ☐ | State/Other paid ☐ | Workers comp paid ☐ | No charge ☐

START Time ___ : ___ AM / PM (please circle)

Patient Reasons for Encounter
1.
2.
3.

Diagnosis/ Problem ①: New Problem ☐ Work related ☐

Drug Name for this problem	Strength	Dose	Frequency	No. of Rpts	OTC Advised	GP Supply	New Drug
1.							
2.							
3.							
4.							

Procedures, other treatments, counselling this consult for this problem
1. 2.

Diagnosis/ Problem ②: New Problem ☐ Work related ☐

Drug Name for this problem	Strength	Dose	Frequency	No. of Rpts	OTC Advised	GP Supply	New Drug
1.							
2.							
3.							
4.							

Procedures, other treatments, counselling this consult for this problem
1. 2.

Diagnosis/ Problem ③: New Problem ☐ Work related ☐

Drug Name for this problem	Strength	Dose	Frequency	No. of Rpts	OTC Advised	GP Supply	New Drug
1.							
2.							
3.							
4.							

Procedures, other treatments, counselling this consult for this problem
1. 2.

Diagnosis/ Problem ④: New Problem ☐ Work related ☐

Drug Name for this problem	Strength	Dose	Frequency	No. of Rpts	OTC Advised	GP Supply	New Drug
1.							
2.							
3.							
4.							

Procedures, other treatments, counselling this consult for this problem
1. 2.

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

Patient's
Height: ____ cm
Weight: ____ kg

To the patient if 18+:
How often do you have a drink containing alcohol?
Never ☐
Monthly or less ☐
Once a week ☐
2-4 times a week ☐
5+ times a week ☐

How many standard drinks do you have on a typical day when you are drinking? ____

How often do you have 6 or more standard drinks on one occasion?
Never ☐
Monthly or less ☐
Once a week ☐
2-4 times a week ☐
5+ times a week ☐

To the patient if 18+:
Which best describes your smoking status?
Smoke daily ☐
Smoke occasionally ☐
Previous smoker ☐
Never smoked ☐

FINISH Time ___ : ___ AM / PM (please circle)

BA

Appendix 2: Example of a recording form from BEACH 2001–02 recording year

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

© BEACH General Practice & Statistics Classification Unit University of Sydney 1996

GP ID

Encounter Number

Date of encounter ____/____/____

Date of Birth ____/____/_ _ _ _

Sex M ☐ F ☐

Patient Postcode

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

PATIENT SEEN ☐

PATIENT NOT SEEN ☐

Item No: (if applicable)

VA paid ☐

Workers comp paid ☐

State/Other paid ☐

No charge ☐

START Time ___ : ___ AM / PM (please circle)

Patient Reasons for Encounter

1.

2.

3.

Diagnosis/ Problem ① :

Problem Status New ☐ Old ☐ Work related ☐

Drug Name for this problem	Strength of product	Dose and form	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. 2.

Diagnosis/ Problem ② :

Problem Status New ☐ Old ☐ Work related ☐

Drug Name for this problem	Strength of product	Dose and form	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. 2.

Diagnosis/ Problem ③ :

Problem Status New ☐ Old ☐ Work related ☐

Drug Name for this problem	Strengthof product	Dose and form	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. 2.

Diagnosis/ Problem ④ :

Problem Status New ☐ Old ☐ Work related ☐

Drug Name for this problem	Strength of product	Dose and form	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. 2.

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

Patient's Height: ___ cm

Weight: ___ kg

To the patient if 18+: How often do you have a drink containing alcohol?

- Never ☐
- Monthly or less ☐
- Once a week/fortnight ☐
- 2-3 times a week ☐
- 4+ times a week ☐

How many 'standard' drinks do you have on a typical day when you are drinking? ___

How often do you have 6 or more standard drinks on one occasion?

- Never ☐
- Less than monthly ☐
- Monthly ☐
- Weekly ☐
- Daily or almost daily ☐

To the patient if 18+: Which best describes your smoking status?

- Smoke daily ☐
- Smoke occasionally ☐
- Previous smoker ☐
- Never smoked ☐

FINISH Time ___ : ___ AM / PM (please circle)

BA4

Appendix 3: GP characteristics questionnaire from BEACH 2000–01 recording year

The University of Sydney
at Westmead Hospital

General Practice Statistics and Classification Unit
Family Medicine Research Centre
Department of General Practice

a collaborating unit of the
Australian Institute of Health and Welfare

AIHW

Please fill in boxes or circle answers where appropriate

Doctor Identification Number ☐☐☐☐

1. Sex: ..... **Male / Female**
2. Age ..... ☐
3. How many years have you spent in general practice? ..... ☐
4. Number of general practice sessions you usually work per week? ..... ☐
5. How many **full-time** (>5 sessions per week) general practitioners work with you at this practice? (Practice= shared medical records) ..... ☐
6. How many **part-time** (<6 sessions per week) general practitioners work with you at this practice? (Practice = shared medical records) ..... ☐
7. Do you conduct more than **50%** of consultations in a language other than English? ..... **Yes / No**
8. What is the postcode of your major practice address? ..... ☐☐☐☐
9. Country of graduation: ..... **Aust** **NZ** **Asia** **UK** **Other:(specify)** .....
10. General Practice training status ..... (CSCT or RACGP training programme)? **Presently training** **Completed training** **Not Applicable**
11. Do you hold FRACGP? ..... **Yes / No**
12. Are you a member of any of the following organisations? **AMA** **RACGP** **RDAA**
13. How do you routinely instruct pharmacists on the substitution of generic drugs? **No substitute allowed** **Substitute allowed**
14. To what extent are computers used at your major practice address? *(Circle as many as apply)*
    Not at all **Billing** **Prescribing** **Medical Records** **Internet / Email** **Other Admin**
15. Is this practice accredited ? ..... **Yes / No**
16. What are the normal after-hours arrangements for your practice?
    Practice does its own **Co-operative with oth. practices** **Deputising service** **Referral to other service (eg A&E)** **Other** **None**
17. Do you have your own ***on-site*** NATA accredited pathology lab? ..... **Yes / No**
18. Which external pathology provider does your practice normally use? **Name of provider**.....
    Provider's Postcode ☐☐☐☐

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GPS&CU, Acacia House, Westmead Hospital, WESTMEAD, 2145.
Ph: 02 98458151 fax: 02 98458155 email: janc@genprac.wsahs.nsw.gov.au Web http://www.fmru.org.au

Appendix 4: GP characteristics questionnaire from BEACH 2001–02 recording year

The University of Sydney
at Westmead Hospital

General Practice Statistics and Classification Unit
Family Medicine Research Centre

a collaborating unit of the
Australian Institute of Health and Welfare
AIHW

Doctor Identification Number

Please fill in boxes or circle answers where appropriate

1. Sex ..... **Male / Female**

2. Age .....

3. How many years have you spent in general practice? .....

4. How many general practitioners work with you at this practice? .....
(Practice = shared medical records)

5. What is the postcode of your major practice address? .....

6. Year of graduation .....

7. Place of graduation (primary medical degree):
- Aust 1
- NZ 2
- Asia 3
- UK / Ireland 4
- Other:(specify) 5

8. General Practice training status (CSCT or RACGP training programme)?
- Presently training 1
- Completed training 2
- Not Applicable 3

9. Do you hold FRACGP? ..... **Yes / No**

10. Number of general practice sessions you usually work per week? ....

11. Direct patient care hours worked per week?
(Please estimate the hours usually spent on service provision to patients including direct patient care, instructions, counselling etc and other related services such as writing referrals, prescriptions, phone calls etc.) .....

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12. Hours on call but not worked per week? .....

13. Over the past four weeks have you provided any patient care ....*(Please circle as many as apply)*
- As a locum 1
- In a deputising service 2
- In a residential aged care facility 3
- As a salaried/sessional hospital medical officer 4

14. How do you routinely instruct pharmacists on the substitution of generic drugs?
- Substitute allowed 1
- No substitute allowed 2

15. To what extent are computers used at your major practice address? *(Circle as many as apply)*
- Not at all 1
- Billing 2
- Prescribing 3
- Medical Records 4
- Other Admin 5
- Internet / Email 6

16. Is this practice accredited ? ..... **Yes / No**

17. What are the normal after-hours arrangements for your practice? *(Circle as many as apply)*
- Practice does its own 1
- Co-operative with oth. practices 2
- Deputising service 3
- Referral to other service (eg A&E) 4
- Other 5
- None 6

18. Is your major practice site a teaching practice?
- for undergraduates 1
- for GP registrars 2
- No 3

*Thank you for participating in the **BEACH PROGRAM**.*

GPS&CU, Acacia House, Westmead Hospital, WESTMEAD, 2145.
Ph: 02 98458151 fax: 02 98458155 email: janc@genprac.wsahs.nsw.gov.au Web http://www.fmrc.org.au

Appendix 5: Recording form used in the Australian Morbidity and Treatment Survey (AMTS) (1990–91)

PROVIDER NUMBER: 697 (9-11)

ENCOUNTER NUMBER: № 080 (12-14)

TYPE OF ENCOUNTER
MEDICARE ITEM NUMBER (15-18)

DATE OF ENCOUNTER (19-24)
Day Month Year

OFFICE USE ONLY
Block cols 1-8 front sheet
12-14, 15-18, 19-24

THE PATIENT

SEX: (circle) M F

AGE: (years) <1yr = 00 >99yr = 99

Patient NEW to practice..... 1
Seen before in practice..... 2

REASONS FOR ENCOUNTER (up to 3)
1
2
3

25 | 26 - 27 | 28 | 29 - 37

THE PROBLEMS AND THEIR MANAGEMENT

1. DIAGNOSIS/problem:
*
STATUS this problem (circle) NEW OLD
TREATMENT/SCRIPTS for this problem: (up to 4)

2. DIAGNOSIS/problem
*
STATUS this problem (circle) NEW OLD
TREATMENT/SCRIPTS for this problem: (up to 4)

38 - 57 | 58 - 77

3. DIAGNOSIS/problem:
*
STATUS this problem (circle) NEW OLD
TREATMENT/SCRIPTS for this problem: (up to 4)

4. DIAGNOSIS/problem
*
STATUS this problem (circle) NEW OLD
TREATMENT/SCRIPTS for this problem: (up to 4)

78 - 97 | 98 - 117

REFERRAL, TESTS, INVESTIGATIONS ordered/undertaken:

PATHOLOGY:
Blood..... 1
Urine..... 2
Culture..... 3
Papsmear..... 4
Other tissue..... 5
Other..... 6

X - RAY
Plain..... 1
Contrast/special..... 2
Ultrasound..... 3
Other 4

OTHER
E.C.G..... 1
Spirometry..... 2
Multiphasis screening..... 3
Other..... 4

118 119 120 121 122 123
124 125 126 127
128 129 130 131

ADMISSIONS
Hospital Emergency - public..... 1
- private..... 2
Elective - public..... 3
- private..... 4
Nursing home..... 5
Other..... 6

NEW REFERRALS TO SPECIALISTS & HEALTH PROFESSIONALS
1.
2.

132 | 133-134 | 135-136

FOLLOW - UP: Has this patient been asked to return within the next three months for any of these problems? YES..... 1 NO..... 2

137

Appendix 6: Code groups from ICPC–2 and ICPC–2 PLUS

Group	ICPC rubric	ICPC–2 PLUS code	ICPC/ICPC–2 PLUS label
REASONS FOR ENCOUNTER AND PROBLEMS MANAGED			
Abdominal pain	D01		Pain/cramps; abdominal general
	D06		Pain; abdominal localised; other
Abnormal test results	A91		Abnormal results investigations NOS
	B84		Abnormal white cells
	U98		Abnormal urine test NOS
	X86		Abnormal Pap smear
Anaemia	B80		Iron deficiency anaemia
	B81		Anaemia; vitamin B12/folate deficiency
	B82		Anaemia other/unspecified
Anxiety	P01		Feeling anxious/nervous/tense
	P74		Anxiety disorder/anxiety state
Arthritis		L70009	Arthritis; pyogenic
		L70010	Arthritis; viral
		L81003	Arthritis; traumatic
		L83010	Arthritis; spine cervical
		L84003	Arthritis; spine
		L84023	Arthritis; spine thoracic
		L84024	Arthritis; spine lumbar
		L84025	Arthritis; lumbosacral
		L84026	Arthritis; sacroiliac
		L89004	Arthritis; hip
		L90004	Arthritis; knee
		L91009	Arthritis
		L91010	Arthritis; acute
		L91011	Arthritis; allergic
		L91012	Polyarthritis
		L92006	Arthritis; shoulder
		S91002	Arthritis; psoriatic
		T99063	Arthritis; crystal (excl. gout)

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Group	ICPC rubric	ICPC–2 PLUS code	ICPC/ICPC–2 PLUS label
Reasons for encounter and problems managed (continued)			
Back complaint	L02		Back symptom/complaint
	L03		Low back symptom/complaint
	L86		Back syndrome with radiating pain
Check-up—all	–30		Medical examination/health evaluation, complete
	–31		Medical examination/health evaluation, partial
	X37		Pap smear
Check-up—ICPC chapter	A30; A31		General
	B30; B31		Blood
	D30; D31		Digestive
	F30; F31		Eye
	H30; H31		Ear
	K30; K31		Cardiovascular
	L30; L31		Musculoskeletal
	N30; N31		Neurological
	P30; P31		Psychological
	R30; R31		Respiratory
	S30; S31		Skin
	T30; T31		Endocrine
	U30; U31		Urology
	W30; W31		Prenatal/postnatal
	X30; X31; X37		Female genital
	Y30; Y31		Male genital
	Z30; Z31		Social
Depression	P03		Feeling depressed
	P76		Depressive disorder
Diabetes—non-gestational)	T89		Diabetes; insulin-dependent
	T90		Diabetes; non-insulin-dependent
Diabetes—all*	T89		Diabetes; insulin-dependent
	T90		Diabetes; non-insulin-dependent
	W85		Gestational diabetes

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Group	ICPC rubric	ICPC–2 PLUS code	ICPC/ICPC–2 PLUS label
Reasons for encounter and problems managed (continued)			
Fracture	L72		Fracture; radius/ulna
	L73		Fracture; tibia/fibia
	L74		Fracture; hand/foot bone
	L75		Fracture; femur
	L76		Fracture; other
		L99017	Fracture; non-union
		L99018	Fracture; pathological
		L99019	Fracture; malunion
		N80012	Fracture; skull (base)
		N80013	Fracture; skull
		N80014	Injury; head; fracture
Hypertension/high BP (RFEs)	K85		Elevated blood pressure without hypertension
	K86		Uncomplicated hypertension
	K87		Hypertension with involvement of target organs
		W81003	Hypertension in pregnancy
Hypertension (problems)	K86		Uncomplicated hypertension
	K87		Hypertension with involvement of target organs
		W81003	Hypertension in pregnancy
Immunisation	A44		Preventive immunisation/medication–general/unspecified
	D44		Preventive immunisation/medication; hepatitis
	N44		Preventive immunisation/medication; tetanus
	R44		Preventive immunisation/medication; influenza
Ischaemic heart disease	K74		Ischaemic heart disease without angina
	K76		Ischaemic heart disease with angina
Menstrual problems	X02		Pain; menstrual
	X03		Pain; intermenstrual
	X05		Menstruation; absent/scanty
	X06		Menstruation; excessive
	X07		Menstruation; irregular/frequent
	X08		Intermenstrual bleeding
	X09		Premenstrual symptoms/complaint
	X10		Postponement of menstruation

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Group	ICPC rubric	ICPC–2 PLUS code	ICPC/ICPC–2 PLUS label
Reasons for encounter and problems managed (continued)			
Oral contraception	W10		Contraception; postcoital
	W11		Oral contraceptive
	W50		Medication; reproductive system
Osteoarthritis		L83011	Osteoarthritis; spine; cervical
		L84004	Osteoarthritis; spine
		L84009	Osteoarthritis; spine; thoracic
		L84010	Osteoarthritis; spine; lumbar
		L84011	Osteoarthritis; lumbosacral
		L84012	Osteoarthritis; sacroiliac
		L89001	Osteoarthritis; hip
		L90001	Osteoarthritis; knee
		L91001	Osteoarthritis; degenerative
		L91003	Osteoarthritis
		L92007	Osteoarthritis; shoulder
Pregnancy	W01		Question of pregnancy
	W78		Pregnancy
	W79		Unwanted pregnancy
Prescription	–50		Medication prescription/request/renewal/injection
Rash	S06		Localised redness/erythema/rash of skin
	S07		Generalised/multiple redness/erythema/rash skin
Rheumatoid arthritis	L88		Rheumatoid arthritis
Sprain/strain		L19014	Strain; muscle(s)
	L77		Sprain/strain; ankle
	L78		Sprain/strain; knee
	L79		Sprain/strain; joint NOS
		L83023	Sprain; neck
		L83024	Strain; neck
		L84020	Sprain; back
		L84021	Strain; back
Swelling (skin)	S04		Localised swelling/papules/lump/mass/skin/ tissue
	S05		Generalised swelling/papules/lumps/mass/skin/tissue
Test results	–60		Results test/procedures
	–61		Results examinations/test/record/letter other provider
Tonsillitis	R76		Tonsillitis; acute
	R90		Hypertrophy; tonsils/adenoids

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
CLINICAL TREATMENTS		
Advice—care of other person	A45022	Advice; care of sick 3rd person
	A45023	Advice; care of well 3rd person
	A58001	Counselling; terminal care
Advice/education	A45002	Advice/education
	B45002	Advice/education; blood
	D45002	Advice/education; digestive
	F45002	Advice/education; eye
	H45002	Advice/education; ear
	K45002	Advice/education; cardiovascular
	L45002	Advice/education; musculoskeletal
	N45002	Advice/education; neurological
	P45001	Advice/education; psychological
	R45002	Advice/education; respiratory
	S45002	Advice/education; skin
	T45002	Advice/education; endocrine/metabolic
	U45002	Advice/education; urology
	W45004	Advice/education; reproductive
	X45002	Advice/education; genital; female
	Y45002	Advice/education; genital; male
	Z45002	Advice/education; social
Advice/education—legal/other	A45017	Advice/education; compensation
	Z45009	Advice/education; legal
Advice/education—medication	A45015	Advice/education; medication
	A48003	Review; medication
	A48005	Increased; drug dosage
	A48006	Decreased; drug dosage
	A48007	Change (in); drug dosage
	A48008	Stop medication
	A48009	Recommend medication
	A48010	Change (in); medication
Advice/education—mothercare	A45024	Advice; mothercare
Advice/education—treatment	A45016	Advice/education; treatment
	A45019	Advice; time off work
	A45020	Advice; rest/fluids
	A45021	Advice; naturopathic treatment
	A48004	Review; treatment
	S45004	Advice/education; RICE
	T45004	Advice/education; diabetes

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Clinical treatments (continued)		
Consultation with primary care provider	–46	
Consultation with specialist	–47	
Counsel/advice—STDs	A45012	Advice/education; STD
	A58008	Counselling; STDs
	X58004	Counselling; STDs; female
	Y58004	Counselling; STDs; male
Counsel/advice—alcohol	P45005	Advice/education; alcohol
	P58009	Counselling; alcohol
	P58020	Rehabilitation; alcohol
Counsel/advice—drug abuse	P45006	Advice/education; illicit drugs
	P58010	Counselling; drug abuse
	P58020	Rehabilitation; drug
Counsel/advice—exercise	A45004	Advice/education; exercise
	A58005	Counselling; exercise
Counsel/advice—health/body	A45005	Advice/education; health
	A45009	Health promotion
	A45010	Information; health
	A45011	Health promotion; injury
	A45018	Advice/education; body
	A58006	Counselling; health
Counsel/advice—lifestyle	P45008	Advice/education; lifestyle
	P58012	Counselling; lifestyle
Counsel/advice—nutrition/weight	A45006	Advice/education; diet
	T45005	Advice/education; nutritional
	T45007	Advice/education; weight management
	T58002	Counselling; weight management
Counsel/advice—occupational	Z45004	Advice/education; occupation
	Z45010	Advice/education; work practice
	Z58004	Counselling; occupational
Counsel/advice—other	A45014	Advice/education; travel
	P45009	Advice/education; sexuality
	P45010	Advice/education; life stage
	P58016	Counselling; life stage
	Z58005	Counselling; environment
Counsel/advice—pregnancy	W45009	Advice/education; pregnancy
	W58004	Counselling; prenatal
	W58006	Counselling; problem; pregnancy

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Clinical treatments (continued)		
Counsel/advice—prevention	A45025	Advice/education; immunisation
	A58007	Counselling; prevention
	X45004	Advice/education; breast self-exam
	Z45005	Advice/education; environment
Counsel/advice—relationship	Z45006	Advice/education; parenting
	Z45007	Advice/education; mothering
	Z45008	Advice/education; fathering
	Z58001	Counselling; conjugal; partner
	Z58003	Counselling; marriage/relationship
	Z58006	Counselling; parenting
	Z58007	Counselling; mothering
	Z58008	Counselling; fathering
	Z58009	Counselling; family
Counsel/advice—relaxation	P45007	Advice/education; relaxation
	P58011	Counselling; relaxation
	P58017	Counselling; stress management
Counsel/advice—smoking	P45004	Advice/education; smoking
	P58008	Counselling; smoking
Counselling—problem	A58002	Counselling; problem
	A58003	Counselling; individual
	B58001	Counselling; problem; blood/blood-forming
	D58001	Counselling; problem; digestive
	F58001	Counselling; problem; eye
	H58001	Counselling; problem; ear
	K58001	Counselling; problem; cardiovascular
	L58001	Counselling; problem; musculoskeletal
	N58001	Counselling; problem; neurological
	R58001	Counselling; problem; respiratory
	S58001	Counselling; problem; skin
	T58001	Counselling; problem; endocrine/metabolic
	U58001	Counselling; problem; urology
	W58003	Counselling; problem; reproductive
	X58001	Counselling; problem; genital; female
	X58003	Counselling; sexual; physical; female
	Y58001	Counselling; problem; genital; male
	Y58003	Counselling; sexual; physical; male
	Z58002	Counselling; problem; social
Counselling—psychological	P58001	Counselling; psychiatric
	P58002	Psychotherapy
	P58004	Counselling; psychological

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Clinical treatments (continued)		
Counselling—psychological (continued)	P58005	Counselling; sexual; psychological
	P58006	Counselling; individual; psychological
	P58007	Counselling; bereavement
	P58013	Counselling; anger
	P58014	Counselling; self-esteem
	P58015	Counselling; assertiveness
	P58018	Therapy; group
	P58019	Cognitive behavioural therapy
Family planning	W14015	Counselling; genetic; female
	W45006	Advice/education; preconceptual
	W45007	Advice/education; contraception
	W45008	Advice/education; family plan; female
	W58001	Counselling; abortion
	W58005	Counselling; terminate pregnancy
	W58007	Counselling; preconceptual
	W58012	Counselling; sterilisation; female
	W58013	Counselling; family planning; female
	Y14006	Counselling; genetic; male
	Y45006	Advice/education; family plan; male
	Y58005	Counselling; sterilisation; male
	Y58006	Counselling; family planning; male
Observe/wait	A45001	Observe/wait
	B45001	Observe/wait; blood/blood-forming organs
	D45001	Observe/wait; digestive
	F45001	Observe/wait; eye
	H45001	Observe/wait; ear
	K45001	Observe/wait; cardiovascular
	L45001	Observe/wait; musculoskeletal
	N45001	Observe/wait; neurological
	P45002	Observe/wait; psychological
	R45001	Observe/wait; respiratory
	S45001	Observe/wait; skin
	T45001	Observe/wait; endocrine/metabolic
	U45001	Observe/wait; urology
	W45003	Observe/wait; reproductive
	X45001	Observe/wait; genital; female
	Y45001	Observe/wait; genital; male
	Z45001	Observe/wait; social

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Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Clinical treatments (continued)		
Other admin/document	–62 (excluding sickness certificate A62008)	
Reassurance support	A58010	Reassurance/support
Sickness certificate	A62008	Admin; certificate; sickness
CLINICAL MEASUREMENTS		
Diagnostic radiology/imaging	–41	
Electrical tracings	–42	
Physical medicine/rehabilitation	–57	
PROCEDURES		
Assist at operation	A69006	Assist at operation
	B69002	Assist at operation; blood
	D69002	Assist at operation; digestive
	F69002	Assist at operation; eye
	H69002	Assist at operation; ear
	L69002	Assist at operation; musculoskeletal
	N69002	Assist at operation; neurological
	P69002	Assist at operation; psycho
	R69002	Assist at operation; respiratory
	S69002	Assist at operation; skin
	T69002	Assist at operation; endo/metab
	U69002	Assist at operation; urological
	W69002	Assist at operation; reproductive
	X69002	Assist at operation; genital; female
	Y69002	Assist at operation; genital; male
	Z69003	Assist at operation; social
Contraceptive device fit/supply/remove	W12003	Contraception; IUD
	W12004	Insertion; IUCD
	W12005	Removal; IUCD
	W14010	Contraception; diaphragm
	W14012	Fitting (of); diaphragm
	W14013	Supply; diaphragm
	W14014	Removal; diaphragm
Electrical tracings	–42	
Other diagnostic procedures	–43	
Other preventive procedures/high-risk medication/condition	–49	
Incise/drainage/flushing/aspiration/ removal body fluid	–51	

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Procedures (continued)		
Excision/removal tissue/biopsy/ destruction/debridement/cauterisation	–52	
Instrumentation/catheterisation/ intubation/dilution	–53	
Repair/fixation–suture/cast/prosthetic device (apply/remove)	–54	
Local injection/infiltration	–55	
Dressing/pressure/compression/ tamponade	–56	
Physical therapy/rehabilitation	–57	
Other procedures/minor surgery NEC	–59	
Test; glucose	T34005	Test; glucose
REFERRALS		
Allied health services	–66	Referral to other provider/nurse/therapist/ social worker
	–68 excluding A68009 and A68011	Other referrals NEC
	Z67002	Referral; respite care
Specialist	–67 excluding A67010; A67011; P67005 and Z67002	Referral to physician/specialist/clinic/hospital
	A68009	Referral; oncologist
Emergency department	A67011	Referral; A & E
Hospital	A67010	Referral; hospital
	P67005	Referral; hospital; psychiatrist
Other referrals	A68011	Referral
	Z68004	Referral; police
PATHOLOGY TEST ORDERS		
Chemistry		
Amylase	D34004	Test; amylase
B12	B34015	Test; B12
	D34009	Test; Schillings
C reactive protein	A34005	Test; C reactive protein
Calcium/phosphate	A34006	Test; calcium
Cardiac enzymes	D34005	Test; aspartate aminotransferase
	K34003	Test; cardiac enzymes
	K34004	Test; creatine kinase

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Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Chemistry; other	A33023	Test; alpha fetoprotein
	A33026	Test; cancer antigen 125
	A33027	Test; cancer antigen 15.3
	A33028	Test; cancer antigen 19.9
	A33029	Test; carcinoembryonic antigen
	A33041	Test; cancer antigen
	A34015	Test; protein
	A34018	Vitamin assay
	A34019	Test; lead
	A34020	Test; blood gas analysis
	A34022	Test; mineral
	A34023	Test; zinc
	A34025	Test; DHEAS
	A34030	Test; biochemistry
	A34031	Test; blood alcohol
	A34032	Test; prolactin
	A34033	Test; testosterone
	A34037	Test; Glutathione S-transferase
	A34038	Test; magnesium
	A35004	Test; urine sodium
	A35007	Test; urine; albumin
	A35008	Test; albumin creatine ratio
	B34023	Test; transferrin
	D34002	Test; alanine aminotransferase
	K34001	Test; blood; digitalis
	K34006	Test; amino acids
	K34007	Test; troponin
	N34001	Test; blood; phenylhydantoin
	P34003	Test; methadone
	T34018	Test; androgens
	T34019	Test; insulin
	T34021	Test; C peptide
	T34029	Test; aldosterone
	T34030	Test; parathyroid hormone
	T35002	Test; catecholamines
	W38002	Amniocentesis

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Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Drug screen	A34002	Drug assay
	A34026	Blood drug screen
	A34027	Blood screen
	A35003	Drug screen
	A35005	Urine drug screen
	K34005	Test; digoxin
	N34003	Test; phenytoin
	N34004	Test; valproate
	N34005	Test; carbamazepine
	P34002	Test; lithium
EUC	A34007	Test; chloride
	A34008	Test; electrolytes
	A34010	Test; EUC
	A34014	Test; potassium
	A34017	Test; sodium
	A34029	Test; U&E
	A34034	Test; E&C
	U34002	Test; creatinine
	U34003	Test; urea
HbA1c	T34010	Test; HbA1c
	T34017	Test; fructosamine
	T34022	Test; HBA1
Ferritin	B34016	Test; ferritin
	B34019	Test; iron studies
Folic acid	B34017	Test; folic acid
	B34024	Test; folate
Glucose/tolerance	T34005	Test; glucose
	T34009	Test; glucose tolerance
	T34023	Test; glucose (fasting/random)
	T34025	Test; glucose; fasting
	T34026	Test; glucose; random
Hormone assay	A34003	Hormone assay
	D33015	Test; Anti gliadin antibody
	T33018	T33018
	T33019	T33019

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Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Hormone assay (continued)	T34007	Test; cortisol
	W34005	Test; HCG
	W34006	Test; B HCG level (titre/quant)
	X34002	Test; LH
	X34003	Test; progesterone
	X34004	Test; oestradiol
	X34005	Test; FSH
Lipids	T34001	Check-up; cholesterol
	T34004	Test; lipids profile
	T34006	Test; cholesterol
	T34011	Test; cholesterol HDL
	T34013	Test; cholesterol LDL
	T34016	Test; triglycerides
	T34020	Test; free fatty acids
	T34024	Test; chol/trig
Liver function	A34004	Test; albumin
	D34003	Test; alkaline phosphatase
	D34006	Test; bilirubin
	D34007	Test; gGT
	D34008	Test; liver function
	T34012	Test; LDH
Multibiochemical analysis	A34012	Test; multibiochemical analysis
	A34021	Test; E & LFT
Prostate specific antigen	Y34002	Test; acid phosphatase
	Y34003	Test; prostate specific antigen
Thyroid function	T34015	Test; thyroid function
	T34027	Test; thyroxine
	T34028	Test; tsh
Urate/uric acid	U34004	Test; urate/uric acid
	A34013	Test; phosphate
	A34024	Test; calcium phosphate

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Cytopathology		
Cytology	A37002	Test; cytology
	B37003	Test; cytology; blood
	D37002	Test; cytology; digestive
	F37002	Test; cytology; eye
	H37002	Test; cytology; ear
	K37002	Test; cytology; cardiovascular
	L37002	Test; cytology; musculoskeletal
	N37002	Test; cytology; neurological
	R37002	Test; cytology; respiratory
	R37003	Test; sputum cytology
	S37002	Test; cytology; skin
	T37002	Test; cytology; endocr/metabol
	U37002	Test; cytology; urology
	W37002	Test; cytology; reproduction
	Y37002	Test; cytology; genital; M
Pap smear	X37001	Pap smear
	X37003	Test; cytology; genital; F
Haematology		
Blood grouping & typing	B33001	Test; Coombs
	B33002	Test; blood grouping & typing
	B33009	Test; blood group
	B33013	Test; blood; cross match
Blood; other	A33042	Test; lymphocyte type & count
	A34035	Test; blood film
	A34036	Test; blood thick film
	B33003	RH; antibody titer
	B34005	Test; blood; platelets
	B34007	Test; blood; sickle cell
	B34021	Test; reticulocyte count
	B34031	Test; haemoglobin epg
	B37001	Exam; bone marrow
Coagulation	B34002	Test; coagulation time
	B34003	Test; coagulation time
	B34006	Test; part thromboplastin time
	B34008	Test; coagulation time

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Coagulation (continued)	B34009	Test; prothrombin time
	B34014	Test; APTT
	B34022	Test; thrombin time
	B34025	Test; INR
	B34026	Test; fibrinogen
	B34028	Test; bleeding time
	B34029	Test; coagulation screen
	K34008	Test; D-Dimer
ESR	A34009	Test; ESR
Full blood count	A34011	Test; full blood count
Haemoglobin	B34018	Test; haemoglobin
Histopathology		
Histology; skin	A37001	Test; histopathology
	D37001	Test; histopathology; digestive
	F37001	Test; histopathology; eye
	H37001	Test; histopathology; ear
	L37001	Test; histopathology; musculosk
	S37001	Test; histopathology; skin
	T37001	Test; histopathology; endo/meta
	U37001	Test; histopathology; urology
	X37002	Test; histopathology; genital; F
	Y37001	Test; histopathology; genital; M
Histology; other	B37002	Test; histopathology; blood
	K37001	Test; histopathology; cardiovas
	N37001	Test; histopathology; neuro
	R37001	Test; histopathology; respirat
	W37001	Test; histopathology; reproduct
Immunology		
Anti-nuclear antibodies	L33004	Test; anti-nuclear antibodies
Immunology; other	A32001	Test; sensitivity
	A33005	Test; immunology
	A33011	Test; HLA
	A33024	Test; bone marrow surface mark
	A33025	Test; serum electrophoresis
	A38004	Test; DNA
	B33005	Test; immunology; blood
	B33007	Test; immunoglobulins

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Immunology; other (continued)	B33011	Test; IgE
	B34027	Test; FBC for surface markers
	B34030	Test; intrinsic factor
	D32001	Test; sensitivity; digestive
	D33004	Test; immunology; digestive
	D33014	Test; endomysial antibody
	D33028	Test; mitochondrial antibodies
	F33002	Test; immunology; eye
	H33002	Test; immunology; ear
	K33002	Test; immunology; cardiovascular
	K33003	Test; ANCA
	L33003	Test; immunology; musculoskel
	L34001	Test; lupus erythemat; cell prep
	N33002	Test; immunology; neurological
	R32004	Test; sensitivity; respiratory
	R33004	Test; immunology; respiratory
	S32001	Test; sensitivity; skin
	S33002	Test; immunology; skin
	S33004	Test; skin patch
	T33002	Test; immunology; endoc/metabol
	U33003	Test; immunology; urology
	W33007	Test; immunology; reproductive
	X33002	Test; immunology; genital; F
	Y33002	Test; immunology; genital; M
RAST	A34016	Test; RAST
Rheumatoid factor	L33001	Test; rheumatoid factor
Infertility/pregnancy	W33001	Test; urine; pregnancy
	W33002	Test; pregnancy
	W34002	Test; blood; pregnancy
	W34003	Test; antenatal
	W34007	Test; pregnancy screen
	W35003	Test; urine; HCG
	Y38002	Test; sperm count
	Y38003	Test; semen examination
Microbiology		
Antibody	A33003	Test; antibody

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Cervical swab	X33004	Test; cervical swab M&C
	X33006	Test; viral culture; genital; F
Chlamydia	A33006	Test; chlamydia
	A33034	Test; chlamydia direct immunofl
Ear swab and C&S	H33003	Test; ear swab M&C
Faeces MC&S	D33002	Stool(s); culture
	D33008	Test; faeces M&C
	D36001	Test; faeces; cyst/ova/parasite
Fungal ID/sensitivity	A33008	Test; fungal ID/sensitivity
	A33030	Test; skin scraping fungal M&C
Hepatitis serology	D33005	Test; hepatitis A serology
	D33006	Test; hepatitis B serology
	D33007	Test; hepatitis C serology
	D33013	Test; hepatitis serology
	D33018	Test; hepatitis A antibody
	D33019	Test; hepatitis B antibody
	D33020	Test; hepatitis D antibody
	D33021	Test; hepatitis E antibody
	D33022	Test; hepatitis A antigen
	D33023	Test; hepatitis C antigen
	D33024	Test; hepatitis D antigen
	D33025	Test; hepatitis E antigen
	D33026	Test; hepatitis antibody
	D33027	Test; hepatitis antigen
HIV	A33021	Test; cytomegalovirus serology
	B33006	Test; HIV
	B33008	Test; AIDS screen
	B33012	Test; HIV viral load
H pylori	D33009	Test; H Pylori
Microbiology; other	A33004	Test; microbiology
	A33007	Test; culture and sensitivity
	A33012	Test; mycoplasma serology
	A33013	Test; parvovirus serology
	A33015	Test; Barmah forest virus
	A33016	Test; Antistreptolysin O Titre
	A33017	Test; herpes simplex culture
	A33019	Test; herpes simplex serology
	A33035	Test; serology

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Microbiology; other (continued)	A33020	Test; toxoplasmosis serology
	A33033	Test; swab M&C
	A33036	Antibodies screen
	A33038	Test; rapid plasma regain
	A33039	Test; viral swab M&C
	A33040	Test; viral serology
	A33043	Test; HPV
	A33044	Test; Brucella
	A33045	Test; fungal M&C
	A33046	Test; measles virus antibodies
	A33047	Test; Rickettsial serology
	A34028	Test; blood culture
	B33004	Test; microbiology; blood
	B33010	Test; serum immunoglobulins
	D33003	Test; microbiology; digestive
	D33010	Test; hepatitis D serology
	D33011	Test; hepatitis E serology
	D33012	Test; rotavirus
	D33016	Test; hepatitis C antibody
	D33017	Test; hepatitis B antigen
	F33001	Test; microbiology; eye
	F33003	Test; eye swab M&C
	H33001	Test; microbiology; ear
	K33001	Test; microbiology; cardiovascul
	L33002	Test; microbiology; musculoskel
	N33001	Test; microbiology; neurological
	R33001	Culture; tuberculosis
	R33002	Culture; throat
	R33003	Test; microbiology; respiratory
	R33009	Test; influenza serology
	R33010	Test; Legionnaires antibodies
	R33011	Test; RSV
	S33001	Test; microbiology; skin
	S33005	Test; varicella zoster serology
	S33006	Test; varicella zoster culture
	S33007	Test; nail M&C
	T33001	Test; microbiology; endoc/metabo
	U33002	Test; microbiology; urology

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Microbiology; other (continued)	W34004	Test; antenatal serology
	W33006	Test; microbiology; reproductive
	X33001	Test; microbiology; genital; F
	X33003	Culture; gonococcal; F
	Y33001	Test; microbiology; genital; M
	Y33003	Culture; gonococcal; M
	Y33004	Test; viral culture; genital; M
	Y33005	Test; urethral/penile swab
Monospot	A33002	Test; monospot
	A33014	Test; Paul Bunnell
	A33031	Test; Epstein Barr virus serol
	A33032	Test; Epstein Barr virus
	A33022	Test; syphilis serology
Nose swab C&S	R33008	Test; nose swab M&C
Pertussis	R33007	Test; pertussis
Ross River fever	A33009	Test; Ross River Fever
Rubella	A33001	Test; rubella
swab C&S	S33003	Test; skin swab M&C
Sputum C&S	R33005	Test; sputum M&C
Throat swab C&S	R33006	Test; throat swab M&C
Urine MC&S	U33001	Test; culture; urine
	U33004	Test; urine M&C
Vaginal swab and C&S	X33005	Test; vaginal swab M&C
Venereal disease	A33010	Test; venereal disease
Simple test; other	R32002	Test; tuberculin
	B35001	Test; urine; blood
	D36003	Test; occult blood
	R32001	Test; Mantoux
Other NEC		
Blood test	A34001	Test; blood
Urine test	A35001	Test; urine
Urinalysis	A35002	Urinalysis
Faeces test	A36001	Test; faeces
Other pathology test NEC	A35006	Test; urine; FWT
	A38001	Test; other lab
	A38002	Pathology
	A38003	Test; genetic
	D34001	Test; blood; digestive

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
Pathology test orders (continued)		
Other pathology test NEC (continued)	A38005	Test; disease screen
	B38001	Test; other lab; blood
	D35001	Test; urine; digestive
	D36002	Test; faeces; digestive
	D38001	Test; other lab; digestive
	F34001	Test; blood; eye
	F38001	Test; other lab; eye
	H34001	Test; blood; ear
	H38001	Test; other lab; ear
	K34002	Test; blood; cardiovascular
	K38001	Test; other lab; cardiovascular
	L34003	Test; blood; musculoskeletal
	L38001	Test; other lab; musculoskeletal
	N34002	Test; blood; neurological
	N38001	Test; other lab; neurological
	P34001	Test; blood; psychological
	P35001	Test; urine; psychological
	P38001	Test; other lab; psychological
	R34001	Test; blood; respiratory
	R38001	Test; other lab; respiratory
	S34001	Test; blood; skin
	S38001	Test; other lab; skin
	T34002	Test; blood; endocr/metabolic
	T35001	Test; urine; endocrine/metabolic
	T38001	Test; other lab; endocr/metabol
	U34001	Test; blood; urology
	U35002	Test; urine; urology
	U38001	Test; other lab; urology
	W34001	Test; blood; reproductive
	W35001	Test; urine; reproductive
	W38001	Test; other lab; reproductive
	X34001	Test; blood; genital; F
	X35001	Test; urine; genital; F
	X38001	Test; other lab; genital; F
	Y34001	Test; blood; genital; M
	Y35001	Test; urine; genital; M
	Y38001	Test; other lab; genital; M
	Z38001	Test; other lab; social

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Treatment group	ICPC–2 PLUS code	ICPC–2 PLUS label
IMAGING TEST ORDERS(MBS)		
Diagnostic radiology	A41001	Radiology; diagnostic
	A41002	X-ray; chest
	A41006	X-ray; abdomen
	A41007	Imaging other
	A41010	Radiology
	A41014	Test; imaging; contrast/special
	B41001	Radiology; diagnostic; blood
	D41001	GI series
	D41003	Radiology; diagnostic; digestive
	D41006	X-ray; oesophagus
	D41007	X-ray; biliary ducts
	D41008	X-ray; digestive tract
	D41009	X-ray; mouth
	D41012	X-ray; dental
	D41015	Barium enema
	D41016	Barium meal
	D41017	Barium swallow
	F41001	Radiology; diagnostic; eye
	F41002	X-ray; eye
	H41001	Radiology; diagnostic; ear
	H41002	X-ray; ear
	K41002	Radiology; diagnostic; cardiovas
	K41003	Cardiogram
	K41005	Angiography; coronary
	K41006	Angiography; femoral
	K41007	Angiography; cerebral
	K41011	Angiogram
	K41012	Angiogram; coronary
	K41013	Angiogram; cerebral
	K41014	Angiogram; femoral
	L41001	Arthrogram
	L41002	Scan; bone(s)
	L41003	X-ray; bone(s)
	L41004	Plain x-ray; bone(s)
	L41005	Radiology; diagnostic; musculo

(continued)

Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Group	ICPC–2 PLUS code	ICPC–2 PLUS label
Imaging test orders (continued)		
Diagnostic radiology (continued)	L41013	X-ray; elbow
	L41014	X-ray; hand
	L41015	X-ray; wrist
	L41016	X-ray; knee
	L41017	X-ray; hip
	L41018	X-ray; neck
	L41019	X-ray; pelvis
	L41020	X-ray; shoulder
	L41021	X-ray; lumbosacral
	L41022	X-ray; cervical
	L41023	X-ray; thoracic
	L41024	X-ray; spinal
	L41025	X-ray; joint(s)
	L41026	X-ray; foot/feet
	L41027	X-ray; ankle
	L41028	X-ray; leg
	L41029	X-ray; ribs
	L41030	X-ray; face
	L41032	X-ray; arm
	L41033	X-ray; spine; lumbar
	L41034	X-ray; spine; sacrum
	L41035	X-ray; spine; coccyx
	L41036	X-ray; finger(s)/thumb
	L41037	X-ray; toe(s)
	L41038	X-ray; heel
	L41039	X-ray; tibia/fibula
	L41040	X-ray; femur
	L41041	X-ray; radius/ulna
	L41042	X-ray; clavicle
	L41043	X-ray; humerus
	L41044	X-ray; jaw
	L41045	X-ray; temporomandibular joint
	L41060	X-ray; spine; cervicothoracic
	L41061	X-ray; spine; sacrococcygeal
	L41062	X-ray; spine; thoracolumbar
	L41063	X-ray; back
	L41064	X-ray; back lower

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Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Group	ICPC–2 PLUS code	ICPC–2 PLUS label
Imaging test orders (continued)		
Diagnostic radiology (continued)	L41065	X-ray; forearm
	L41066	X-ray; leg lower
	L41067	X-ray; metacarpal
	L41068	X-ray; metatarsal
	L43003	Test; bone marrow density
	N41001	Radiology; diagnostic neurolog
	N41004	X-ray; skull
	P41001	Radiology; diagnostic; psychol
	R41001	Radiology; diagnostic; respirat
	R41002	X-ray; sinus
	R41003	X-ray; nose
	S41001	Radiology; diagnostic; skin
	T41001	Radiology; diagnostic; endo/meta
	T41003	X-ray; endo/metabolic
	U41001	Pyelogram; intravenous
	U41002	Pyelogram; retrograde
	U41005	Radiology; diagnostic; urology
	U41007	X-ray; urinary tract
	U41008	X-ray; kidney/ureter/bladder
	W41002	Radiology; diagnostic; reprod
	W41003	X-ray; uterus
	X41001	Mammography; female
	X41002	Mammography; request; female
	X41003	Thermography; breast
	X41005	Radiology; diagnostic; genital; female
	X41007	X-ray; breast; female
	Y41001	Radiology; diagnostic; genital; male
Ultrasound	A41012	Ultrasound
	A41015	Ultrasound; abdomen
	A41017	Ultrasound; chest
	A41021	Ultrasound; inguinal
	A41022	Ultrasound; abdomen; upper
	A41023	Ultrasound; abdomen; lower
	B41002	Ultrasound; spleen
	D41013	Ultrasound; gallbladder
	D41014	Ultrasound; liver
	K41001	Echocardiography

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Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Group	ICPC–2 PLUS code	ICPC–2 PLUS label
Imaging test orders (continued)		
Ultrasound (continued)	K41016	Ultrasound; cardiac
	K43003	Test; Doppler
	K43004	Test; Doppler carotid
	K43005	Scan; duplex
	L41046	Ultrasound; neck
	L41047	Ultrasound; pelvis
	L41048	Ultrasound; shoulder
	L41049	Ultrasound; spine
	L41050	Ultrasound; knee
	L41051	Ultrasound; elbow
	L41070	Ultrasound; wrist
	L41071	Ultrasound; ankle
	L41072	Ultrasound; groin
	L41073	Ultrasound; back
	L41074	Ultrasound; back lower
	L41075	Ultrasound; hand/finger(s)
	L41076	Ultrasound; foot/toe(s)
	L41078	Ultrasound; arm
	L41079	Ultrasound; leg
	N41005	Ultrasound; brain
	N41007	Ultrasound; head
	T41004	Ultrasound; thyroid
	U41009	Ultrasound; renal tract
	U41010	Ultrasound; kidney
	W41004	Ultrasound; obstetric
	X41009	Ultrasound; breast; female
	X41011	Ultrasound; uterus (not preg)
	Y41005	Ultrasound; prostate
	Y41006	Ultrasound; scrotum
Computed tomography	A41013	CT scan
	A41016	CT scan; abdomen
	A41018	CT scan; chest
	A41019	CT scan; abdomen; upper
	A41020	CT scan; abdomen; lower
	D41018	CT scan; liver

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Appendix 6 (continued): Code groups from ICPC–2 and ICPC–2 PLUS

Group	ICPC–2 PLUS code	ICPC–2 PLUS label
Imaging test orders (continued)		
Computed tomography (continued)	K41017	CT scan; cardiac
	L41052	CT scan; neck
	L41053	CT scan; pelvis
	L41054	CT scan; spine
	L41055	CT scan; spine; cervical
	L41056	CT scan; spine; thoracic
	L41057	CT scan; spine; lumbar
	L41058	CT scan; spine; lumbosacral
	L41059	CT scan; spine; sacrum
	L41069	CT scan; spine; thoracolumbar
	L41077	CT scan; spine; cervicothoracic
	N41006	CT scan; brain
	N41008	CT scan; head
	R41004	CT scan; sinus
	X41010	CT scan; breast; female
	Y41007	CT scan; breast; male
Nuclear medicine	A41009	Nuclear medicine
	A41011	Isotope scan
	K41015	Scan; thallium heart
	R41005	Scan; VQ (lung)
Magnetic resonance imaging	A41008	MRI

Note: NOS—not otherwise specified, NEC—not elsewhere classified, A & E— accident and emergency, – (code) signifies that the concept includes all of the specified codes across all chapters of ICPC–2.

Appendix 7: Chronic code groups from ICPC–2 and ICPC–2 PLUS

Appendix 7: Chronic code groups from ICPC–2 and ICPC–2 PLUS

CHAP	ICPC–2 RUBRIC	DESCRIPTION	ICPC–2 PLUS CODE	DESCRIPTION
A	*A04*	*Weakness/Tiredness general*	*029*	*Chronic fatigue syndrome*
			031	*Myalgic encephalomyelitis*
			030	*Post viral fatigue syndrome*
			028	*Post viral syndrome*
	A70	Tuberculosis		
	A79	Malignancy, NOS		
	A90	Congenital anomaly NOS/multiple		
B	B72	Hodgkin's disease/lymphoma		
	B73	Leukaemia		
	B74	Malignant neoplasm blood other		
	B75	*Benign/unspecified neoplasm blood*	*008*	*Myelodysplastic syndrome*
			004	*Polycythaemia rubra vera*
	B78	Hereditary haemolytic anaemia		
	B81	Anaemia, Vit B12/folate deficiency		
	B82	Anaemia, other/unspecified		
	B83	Purpura/coagulation defects		
	B90	HIV infection/AIDS		
D	*D72*	*Viral hepatitis*	*003*	*Hepatitis B*
			008	*Hepatitis C*
			009	*Hepatitis D*
	D74	Malignant neoplasm stomach		
	D75	Malignant neoplasm colon/rectum		
	D76	Malignant neoplasm pancreas		
	D77	Malignant neoplasm digestive other/NOS		
	D81	*Congenital anomaly digestive system*	*011*	*Atresia; biliary*
			005	*Cleft; palate/lip*
			007	*Disease; Hirschsprungs*
			002	*Harelip*
			001	*Megacolon; congenital*
	D84	Congenital anomaly digestive system		
	D85	Duodenal ulcer		
	D86	Peptic ulcer other		
	D92	Diverticular disease		
	D93	Irritable bowel syndrome		
	D94	Chronic enteritis/ulcerative colitis		
	D97	Liver disease NOS		
	D98	Cholecystitis/cholelithiasis		

(continued)

Appendix 7 (continued): Chronic code groups from ICPC–2 and ICPC–2 PLUS

	D99	*Disease digestive system, other*	*029*	*Blind loop syndrome*
			032	*Insufficiency; pancreatic*
			017	*Insufficiency; vascul;mesentery*
			013	*Gluten sensitivity*
			015	*Intolerance; fat*
			012	*Intolerance; gluten*
			054	*Intolerance; lactose*
			028	*Malabsorption syndrome*
			043	*Pancreatitis*
			036	*Pyloric stenosis; acquired*
			024	*Sprue*
			055	*Stenosis; anal*
			025	*Stenosis; sigmoid colon*
			016	*Thrombosis; mesenteric*
F	*F74*	*Neoplasm of eye/adnexa*	*003*	*Carcinoma; eye*
			002	*Neoplasm malig; eye*
	F83	Retinopathy		
	F84	Macular degeneration		
	F91	Refractive error		
	F92	Cataract		
	F93	Glaucoma		
	F94	Blindness		
H	*H75*	*Neoplasm of ear*	*003*	*Carcinoma; ear*
			002	*Neoplasm malig; ear*
	H82	Vertiginous syndrome		
	H84	Presbyacusis		
	H86	Deafness		
K	*K71*	*Rheumatic fever/heart disease*	*010*	*Carditis; rheumatic; chronic*
			002	*Disease; rheumatic heart*
			012	*Myocarditis; rheumatic; chronic*
			013	*Pericarditis; rheumatic; chronic*
			008	*Stenosis; aortic; rheumatic*
			015	*Stenosis; arterial; rheumatic*
			005	*Stenosis; mitral; rheumatic*
	K72	*Neoplasm, cardiovascular*	*003*	*Carcinoma; cardiovascular*
			002	*Neoplasm malig; cardiovascular*
	K73	Congenital anomaly, cardiovascular		
	K74	Ischaemic heart disease with angina		
	K75	Acute myocardial infarction		
	K76	Ischaemic heart disease without angina		

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Appendix 7 (continued): Chronic code groups from ICPC–2 and ICPC–2 PLUS

	K77	Heart failure		
	K78	Atrial fibrillation/flutter		
	K79	Paroxysmal tachycardia		
	K80	Cardiac arrhythmia NOS		
	K81	Heart/arterial murmur NOS		
	K82	Pulmonary heart disease		
	K83	Heart valve disease NOS		
	K84	Heart disease, other		
	K86	Hypertension, uncomplicated		
	K87	Hypertension, complicated		
	K88	Postural hypotension		
	K89	Transient cerebral ischaemia		
	K90	Stroke/cerebrovascular accident		
	K91	Cerebrovascular disease		
	K92	Atherosclerosis/peripheral vascular disease		
	K93	Pulmonary embolism		
	K94	Phlebitis/thrombophlebitis		
	K95	Varicose veins of leg		
L	L71	Malignant neoplasm, musculoskeletal		
	L82	*Congenital anomaly, musculoskeletal*	*001*	*Achondroplastic dwarf*
			003	*Clubfoot*
			015	*Curvature of spine; congenital*
			025	*Deformity; foot; congenital*
			024	*Dislocation; hip; congenital*
			013	*Ehlers Danlos syndrome*
			021	*Kyphoscoliosis; congenital*
			019	*Kyphosis; congenital*
			007	*Lordosis; congenital*
			018	*Osteogenesis imperfecta*
			027	*Plagiocephaly*
			012	*Scoliosis; congenital*
			014	*Talipes*
	L83	Neck syndrome		
	L84	Back syndrome without radiating pain		
	L85	Acquired deformity of spine		
	L86	Back syndrome with radiating pain		
	L88	Rheumatoid/seropositive arthritis		
	L89	Osteoarthritis of hip		
	L90	Osteoarthritis of knee		
	L91	Osteoarthritis, other		

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Appendix 7 (continued): Chronic code groups from ICPC–2 and ICPC–2 PLUS

	L92	Shoulder syndrome		
	L93	Tennis elbow		
	L95	Osteoporosis		
	L99	*Musculoskeletal disease, other*	*047*	*Arthropathy; Behcets syndrome*
			087	*Arthropathy; Reiters disease*
			088	*Chondromalacia; patella*
			013	*Disease; Pagets (bone)*
			093	*Dystrophy; muscular*
			056	*Lupus erythematosus*
			025	*Osteitis*
			026	*Osteitis deformans*
			060	*Polymyositis*
			071	*Progressive system sclerosis*
			075	*Reiters syndrome*
			078	*Repetitive Strain Injury*
			069	*Scleroderma; diffuse*
			070	*Scleroderma; localised*
			028	*Scleroderma; progressive*
			033	*Sjorgens syndrome*
			065	*Systemic lupus erythematosus*
N	N73	Neurological infection, other		
	N74	Malignant neoplasm nervous system		
	N75	Benign neoplasm nervous system		
	N76	Neoplasm nervous system, unspecified		
	N85	Congenital anomaly neurological		
	N86	Multiple sclerosis		
	N87	Parkinsonism		
	N88	Epilepsy		
	N89	Migraine		
	N90	Cluster headache		
	N92	Trigeminal neuralgia		
	N93	Carpal tunnel syndrome		
	N94	Peripheral neuritis/neuropathy		
	N99	*Neurological disease, other*	*025*	*Arachnoiditis*
			005	*Atrophy; cerebral*
			004	*Chorea; Huntingtons*
			027	*Degeneration; cerebral*
			010	*Disease; motor neuron*
			042	*Encephalopathy*
			043	*Encephalopathy; Wernickes*

(continued)

Appendix 7 (continued): Chronic code groups from ICPC–2 and ICPC–2 PLUS

			011	*Myasthenia Gravis*
			003	*Palsy; cerebral*
			022	*Palsy; infantile spastic*
			040	*Palsy; spastic*
			017	*Paralysis; Infantile spastic*
			018	*Paraplegia*
			020	*Quadriplegia*
			030	*Syringomyelia*
P	P15	Chronic alcohol abuse		
	P70	Dementia		
	P71	Organic psychosis, other		
	P72	Schizophrenia		
	P73	Affective psychosis		
	P74	Anxiety disorder/anxiety state		
	P75	Somatisation disorder		
	P76	Depressive disorder		
	P78	Neuraesthenia, surmenage		
	P79	Phobia/compulsive disorder		
	P80	Personality disorder		
	P81	Hyperkinetic disorder		
	P82	Post-traumatic stress disorder		
	P85	Mental retardation		
	P86	Anorexia nervosa/bulimia		
	P98	Psychosis NOS/other		
	P99	*Psychological disorders, other*	*005*	*Autism*
			006	*Autism; child*
R	R84	Malignant neoplasm bronchus, lung		
	R85	Malignant neoplasm respiratory, other		
	R90	Hypertrophy tonsils/adenoids		
	R95	Chronic obstructive pulmonary disease		
	R96	Asthma		
	R99	*Respiratory disease, other*	*015*	*Asbestosis*
			018	*Bronchiectasis*
			004	*Failure; respiratory*
			009	*Farmers lung*
			019	*Fibrosing alveolitis*
			010	*Fibrosis; pulmonary*
			012	*Pneumoconiosis*
			020	*Pneumonia; interstitial*
S	S77	Malignant neoplasm of skin		

(continued)

Appendix 7 (continued): Chronic code groups from ICPC–2 and ICPC–2 PLUS

	S86	Dermatitis, seborrhoeic		
	S87	Dermatitis/atopic eczema		
	S91	Psoriasis		
	S96	*Acne*	*007*	*Acne*
			003	*Acne; conglobulate (cystic)*
			002	*Acne; vulgaris*
	S99	*Skin disease, other*	*001*	*Acne; rosacea*
			003	*Dermatitis; herpetiformis*
			034	*Discoid lupus erythematosus*
			042	*Lichen sclerosus*
			031	*Necrobiosis lipoidica diabetic*
			018	*Pemphigus*
			021	*Rhinophyma*
T	T71	Malignant neoplasm thyroid		
	T73	*Neoplasm endocrine other/uncertain*	*001*	*Carcinoma; endocrine*
			002	*Neoplasm malig; endocrine*
	T80	*Congenital anomaly endocrine/metabolic*	*007*	*Cretinism*
			001	*Disease; Hurlers*
			002	*Dwarfism*
			005	*Pseudohypoparathyroidism*
	T81	Goitre		
	T82	Obesity		
	T83	Overweight		
	T85	Hyperthyroidism/thyrotoxicosis		
	T86	Hypothyroidism/myxoedema		
	T89	Diabetes, insulin dependent		
	T90	Diabetes, non-insulin dependent		
	T92	Gout		
	T93	Lipid disorder		
	T99	*Endocrine/metabolic/nutritional disease, other*	*001*	*Acromegaly*
			006	*Amyloidosis*
			028	*Cushings syndrome*
			053	*Cystic fibrosis*
			011	*Diabetes insipidus*
			002	*Disease; Addisons*
			064	*Disease; fibrocystic*
			013	*Disease; Gilberts*
			018	*Disease; Hashimotos*
			046	*Disease; Wilsons*
			035	*Haemochromatosis*

(continued)

Appendix 7 (continued): chronic code groups from ICPC–2 and ICPC–2 PLUS

			073	*Homocystinuria*
			036	*Hyperaldosteronism*
			037	*Hyperparathyroidism*
			069	*Hyperprolactinaemia*
			030	*Hypoparathyroidism*
			023	*Phenylketonuria*
			043	*Polycystic ovary syndrome*
			026	*Porphyria*
			040	*Stein Leventhal syndrome*
			041	*Thyroiditis*
U	U75	Malignant neoplasm kidney		
	U76	Malignant neoplasm bladder		
	U77	Malignant neoplasm, urinary, other		
	U88	Glomerulonephritis/nephrosis		
	U99	*Urinary disease, other*	*019*	*Diverticulitis; bladder*
			023	*Failure; renal; chronic*
			022	*Insufficiency; renal*
			006	*Necrosis; renal*
			024	*Necrosis; renal; papillary*
			013	*Reflux; ureteric*
			028	*Stenosis; artery; renal*
			017	*Stenosis; urethral*
W	W13	Sterilisation female		
	W15	Infertility/subfertility		
	W72	Malignant neoplasm related to fertility		
X	X74	Pelvic inflammatory disease		
	X75	Malignant neoplasm cervix		
	X76	Malignant neoplasm breast female		
	X77	Malignant neoplasm genital female other		
	X99	*Genital disease, other*	*016*	*Endometriosis*
			009	*Fistula; vaginal*
Y	Y77	Malignant neoplasm prostate		
	Y78	Malignant neoplasm male genital, other		
	Y85	Benign prostatic hypertrophy		

Note: Italics indicate that the ICPC–2 rubric is chronic only at the ICPC–2 PLUS level. Conditions listed in the 'ICPC–2 PLUS Code' column are those within the rubric which have been labelled as chronic using the extended terminology of ICPC–2 PLUS.