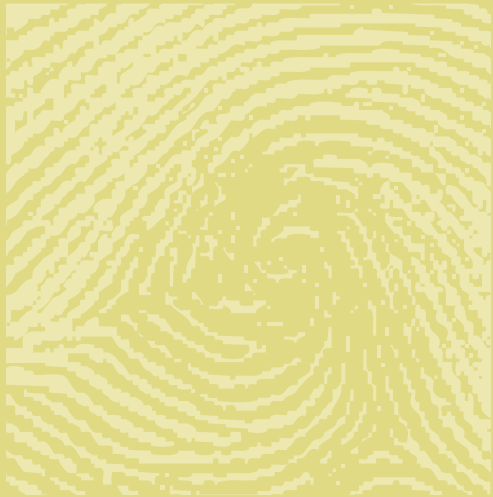


Hospital admission risk program (HARP)
Chronic obstructive pulmonary disease
working party report



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Preface

The Hospital Admission Risk Program (HARP) was established in 2001 as the prevention component of the Hospital Demand Management (HDM) Strategy.

The HARP Reference Group, chaired by Professor John Funder, oversees the implementation of HARP, including the allocation of funds to service providers, and advises on how hospital admissions and emergency department presentations can be prevented. HARP focuses on tertiary prevention - that is, avoiding unnecessary emergency presentations and hospital admissions and readmissions. HARP targets people who have manifest health need, often where their disease or condition is chronic or complex.

In July 2002, the HARP Reference Group formed seven working parties to undertake analysis in priority areas that provide opportunities to have a significant impact on preventing the avoidable use of hospitals.

These working parties were:

- Chronic Heart Failure
- Chronic Obstructive Pulmonary Disease
- Community-Hospital Interface
- GP-Hospital Interface
- Integrated Care for Clients with Complex Needs
- Mental Health, and
- Technology.

This report presents the findings of the Chronic Obstructive Pulmonary Disease Working Party.

The working party reports build on the information presented in the HARP Background Paper and have been produced to assist in designing projects for the 2003-04 HARP funding round.

The Department of Human Services would appreciate any comments, suggestions for further work or other feedback you may have on the contents of the working party reports. These can be forwarded to the HARP Project Officers, Ian Coverdale at ian.coverdale@dhs.vic.gov.au or Paul Williamson at paul.williamson@dhs.vic.gov.au and will be considered as we further develop the evidence around preventive initiatives.

Acknowledgements

This report has been produced by the HARP Chronic Obstructive Pulmonary Disease Working Party, with the support of the Centre for Clinical Effectiveness. This Working Party involved:

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The Working Party gratefully acknowledges the contribution of key individuals who participated in the workshop undertaken to inform this project. A list of these workshop participants is included in Appendix A.

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1. Foreword

Our patients with COPD are frequently heavy users of hospital services, where many who treat them take a nihilistic view of their fate. Their carers may be at their wits end. Is there a better way? What would the system of care for these people look like if it worked perfectly from the patient's perspective? This is the challenge that confronts those who seek to redesign programs for the care of patients with COPD who use Victoria's healthcare system.

The HARP program will only be a success if it can meet patients' and carers' needs. If it reduces demand for hospital care for this group of patients it will be because there is a better way to care for them rather than in response to rationed acute resources. The authors of this report have reviewed the literature and worked closely with members of the COPD Working Party to identify current initiatives and perceived needs. The outcome of this work should inform applicants for funding under the HARP program in 2003-2004. The purpose is to ensure that applications which are received are designed to meet the needs of our patients and their carers.

This report draws on *Crossing the Quality Chasm*, a report from the Institute of Medicine which has the basic tenet that complex systems require simple rules. *Crossing the Quality Chasm* identifies the three essential elements for a system which delivers high quality care as being: patient-centred, collaborative and knowledge-based, where knowledge includes both evidence and expertise. This report unashamedly promotes this view.

I commend this report to those who seek to provide better care for patients with COPD who need our care. I hope it will inform the applications for funding under the HARP program. We should always remember FW Peabody's exhortation that "the secret to care of the patient is to care for the patient". The COPD Working Party report will be a success if it helps us to focus on the needs of our patients and their carers, rather than promoting a medical industrial view of disease and its management.



Associate Professor Don Campbell

Chair, COPD Working Party

2. Executive summary

The COPD Working Party was convened to develop recommendations for the development of future HARP COPD projects. This report details the Working Party's targets for care standards and recommendations together with relevant research evidence and contributions from experienced health professionals. To direct future applicants who may wish to inform themselves further, journal articles, web addresses and other texts are referred to throughout this document.

The framework underlying this report is four key principles or components in the management of patients with COPD. These principles are patient-centeredness, collaboration, expertise and evidence-based practice. A review of the literature expands on each of these topics and where available, presents relevant evidence. Briefly, patient-centeredness incorporates patient values as a central element in the delivery of health care. This may be facilitated through shared decision-making, self-management strategies or patient support groups. There is evidence that collaboration between health professionals and agencies increases efficiency and produces better health outcomes. In caring for patients with chronic conditions expertise is maximised in multidisciplinary teams. These teams have become pivotal in coordinating the increasing complexity of multiple patient needs. Best practice evidence is composed of valid clinical research findings and there are a number of current evidence-based clinical practice guidelines for the management of COPD ranging from acute exacerbations to pulmonary rehabilitation.

The *COPDX Plan*, a guideline developed by the Thoracic Society of Australia and New Zealand in conjunction with the Australian Lung Foundation, is designed for primary care teams and has local relevance. This report based its standards of care on this guideline. Summaries of key points of the evidence-base in the management of COPD are presented and include the definition and classification of COPD, diagnosis and assessment of severity, optimisation of function and prevention of deterioration and how to manage exacerbations.

To provide local relevance the Working Party, in conjunction with the project consultants, conducted a workshop with representatives of all relevant funded programs in Victoria. The resulting qualitative data about perceived barriers and gaps in care helped to formulate targets for care standards in Victoria. These predominantly related to issues of access and equity, continuity of care, communication and dissemination of information.

Health care programs, including COPD management programs, must have specific objectives to function effectively. It is essential to define the process, structure and health outcome measures that are important to both patients and providers. The Working Party recommendations are to develop clinical outcome measures that are common across all networks rather than project-specific indicators. These include a number of functional, self-efficacy and quality of life measures, exercise tolerance and anxiety and depression scales.

In expanding on the targets for care standards recognised in the workshop, the Working Party identified further issues in current models of care. Each of these will require particular attention when considering a future COPD management program. The issues are detailed and information is provided on how they may be addressed. Briefly, these targets include access, transitional care, appropriateness of care, medication management and maintenance programs. Finally, the COPD Working Party report emphasises that future applicants are required to explain clearly how their project will be undertaken and evaluated in logistic terms. In addition, they should demonstrate their understanding of important issues and how they will be addressed.

3. Rationale

Borne from the increasing demand for Victoria's public hospital services, the Hospital Demand Strategy (HDM) is currently being implemented to address the growing imbalance between supply and demand within our healthcare system.

The Hospital Admission Risk Program (HARP) is a six-year initiative within HDM. Its primary objective is to avoid unnecessary use of emergency departments and inpatient services by implementing models of care for target conditions that have the potential to be proactively managed in the community. In order to achieve this, HARP is designed to be a collaborative initiative between hospitals, clinicians, general practitioners, community providers, professional and research bodies, consumers and the Department of Human Services.

One targeted care model associated with frequent use of public hospital services identified in HARP is the management of Chronic Obstructive Pulmonary Disease (COPD).

Since its inception in 2001, HARP has already funded 14 disease management projects which are either exclusively directed at COPD or include COPD in a more generic model. Key success factors in the design of these projects included emphasis on multidisciplinary assessment, collaboration and partnerships with other providers, the integration with existing services and the skill base of the coordinators.

Four of the currently funded COPD management projects are based in regional Victoria and the remaining ten originate from each of the major metropolitan public health services. All incorporate a strong collaboration with the primary care sector.

This report was commissioned to provide project support for currently funded and future projects. The Working Party comprises representatives from the Australian Lung Foundation, respiratory physicians, primary care, nurses, physiotherapists, the Department of Human Services, consumers and carer support groups.

In conjunction with the Working Party and the currently funded projects in Victoria, this report aims to identify the main elements of an evidence-based pathway and to define the key principles underpinning effective management of COPD. Furthermore, it will aid in the identification of appropriate models for COPD disease management programs, and outline recommendations for future HARP funding rounds.

4. Recommendations

The HARP COPD Working Party was convened to make recommendations for the future development of HARP COPD projects. After consideration of relevant research evidence and contributions from experienced health professionals the Working Party has identified several specific issues for future applicants, which are elaborated in further detail in this report. Note that the report does not favour any particular management model but instead highlights process issues common to all management approaches. In summary, the Working Party recommends that applicants consider the following points.

4.1 Clinical practice guidelines

As described in this report, extensive evidence-based guidelines are now available for many aspects of COPD management. Future applicants should ensure that their COPD management protocols are consistent with relevant guidelines where possible.

4.2 Patient stratification

Intervention programs are more likely to succeed if they are targeted to specific patient groups stratified according to illness severity. For example, pulmonary rehabilitation programs are unlikely to benefit patients with terminal phase respiratory disease. The Working Party recommends that future applicants consider patient stratification issues carefully in their submissions.

4.3 Access

For COPD patients access to services, health professionals and even family or other carers can be critical. Relatively minor access barriers can have major impacts for chronically disabled patients. Future applicants should ensure that they consider access issues carefully in their submissions.

4.4 Communication

The HARP process encourages collaborative management approaches between agencies, professional disciplines and consumers and carers. In these circumstances creating and maintaining clear lines of communication between all stakeholders is crucial to the success of a project. The Working Party recommends that future applicants elaborate their communications strategy in their submissions.

4.5 Issues to be considered by future projects

The Working Party identified a number of topics they consider will have particular significance for COPD management programs in future. These include:

4.5.1 Continuity of care

For patients who have had a hospital admission, facilitating transition from one form of care to another (eg hospital to home) is imperative. Future programs should emphasise strategies to achieve continuity of care for these patients.

4.5.2 Maintenance

There is some evidence that the effects of pulmonary rehabilitation are sustained in the long term and community maintenance is suggested to be of benefit. Maintenance programs may be a valuable addition to the management of COPD.

4.5.3 Self-management

Although there is evidence supporting self-management strategies for patients suffering from chronic conditions, the role of self-management and education in patients with COPD remains unresolved. The Working Party believes that particular attention should be paid to explore COPD-specific self-management strategies to reduce anxiety and increase coping skills.

4.5.4 Medication management

The medication regime of COPD patients can be complex and has to be carefully coordinated. The Working Party recommends programs pay particular attention to medication management. This may be facilitated as part of the care planning process or with a Home Medicines Review.

4.5.5 Palliative care

Palliative care for COPD patients is a relatively unexplored but important clinical area. Nevertheless, advanced care planning should be a component of a patient's care plan as it ensures appropriate care for patients with severe illness.

In addition, better knowledge about the features of quality palliative care for these patients may improve health system design and also assist understanding of patient stratification for treatment interventions.

4.5.6 End of life decisions

The Working Party believes improved communication between health professionals and consumers and carers leads to improved standards of care. Clarification of end of life decisions is a particular and important example of this process.

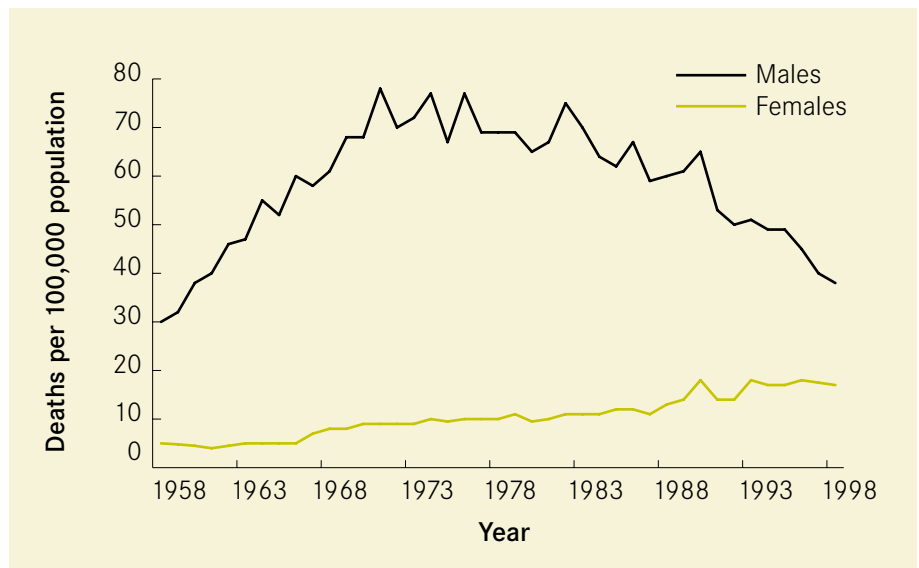
4.5.7 Carers' needs, training

Anecdotal and some research evidence reinforces the importance of patient and carer support in COPD management. The Working Party believes that the needs of carers, and the availability of training to assist carers in their caring role, are important but poorly understood elements in COPD management.

5. Background

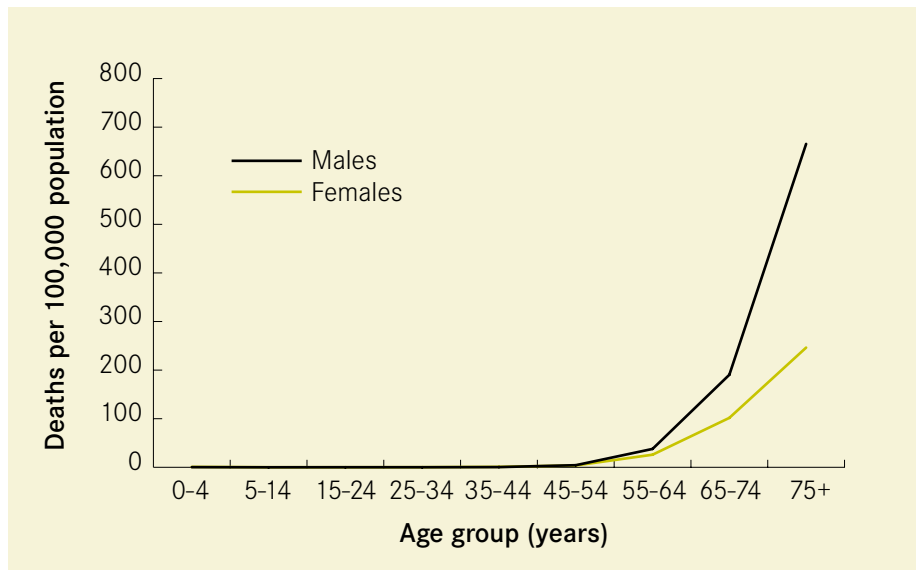
In 1999, the Australian Burden of Disease and Injury Study identified COPD as the third leading cause of disease burden in this country, after stroke and ischaemic heart disease. COPD was found to be the largest contributor to the burden of disease associated with all lung conditions, almost 1.5 times that of asthma. It is estimated that almost 300,000 people were affected by COPD in 1996 and approximately 20,000 new cases were diagnosed each year. (Mathers et al. 1999) Even though COPD is less prevalent in the community than asthma, it has a much higher rate of mortality, accounting for 5,575 deaths in 1998. (Australian Institute of Health and Welfare (AIHW) 2002) It was the fourth leading cause of death among males (40/100,000) and sixth among females (17/100,000). In Australia, the death rate from COPD peaked in the early 1970s (Figure 1). Since then the male death rate has decreased but the female death rate is still increasing steadily (Figure 1). COPD affects mostly older people, reflecting a lifelong exposure to its associated risk factors, such as tobacco smoking, pollution and more rarely, chest and viral infections. Death rates are highest in those aged over 70, in particular for males (Figure 2).

Figure 1. Death rates for COPD, 1958 to 1998



Source: AIHW National Mortality Database

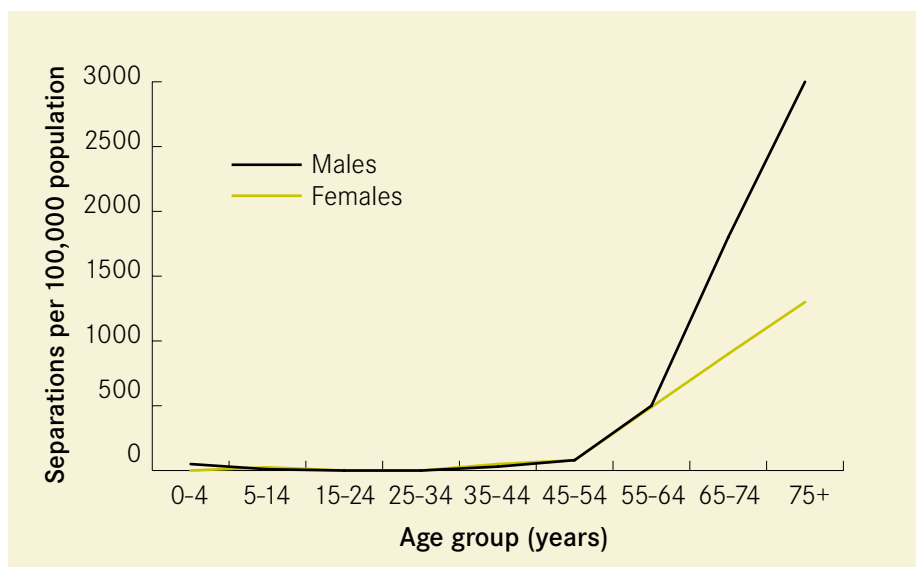
Figure 2. Age-specific death rates for COPD, 1998



Source: AIHW National Mortality Database

Consequently use of hospital services for COPD also increases with age, particularly after the age of 45 years and males are hospitalised more frequently than females (Figure 3) (Australian Institute of Health and Welfare (AIHW) 2002).

Figure 3. Age-specific hospital separation rates for COPD, 1999-2000



Source: AIHW National Mortality Database

1,724 patients had at least one multi-day emergency separation with a primary diagnosis of COPD in Victoria in 2000-2001.(Table 1). From this table, 856 patients had 2 separations, at least one of which was for COPD. 66% of these (567 patients) were assigned COPD as their primary diagnosis for only one of two admission and 34% (289 patients) were assigned COPD for both their admissions. (HARP Background Paper 2002)

Table 1. COPD re-presentations 2000-2001

Multi-Day Seps	Number of COPD Primary Diagnoses per Patient								
	At least 1	1	2	3	4	5	6	7	8
2	856	567	289						
3	398	196	128	74					
4	216	101	47	39	29				
5	109	37	23	20	15	14			
6	63	15	17	6	9	9	7		
7	38	9	7	7	5	4	3	3	
8	16	5	3	1	1	0	1	2	3
>8	28	7	6	3	2	1	1	2	6
Total	1724	937	520	150	1	28	12	7	9

Further analysis of the Victorian Admitted Episodes Dataset (VAED) has been undertaken to demonstrate the incidence of COPD by postcode within Victoria. This analysis involved a linked dataset that combined patient episode data over 3 years.

Overview of dataset

In order to transform the VAED from episodes of care level data into case level records for the financial years 1999-00, 2000-01 and 2001-02, a linkage algorithm based on all available variables for matching (date of birth, medicare number, country of birth, postal code, gender, hospital record number) was used. After this process was completed, a new identification number was assigned to the case-groups. The new identification number was not based on any original variable found within the VAED. All the variables noted above, other than date of birth and gender, were removed in order to de-identify the case level records.

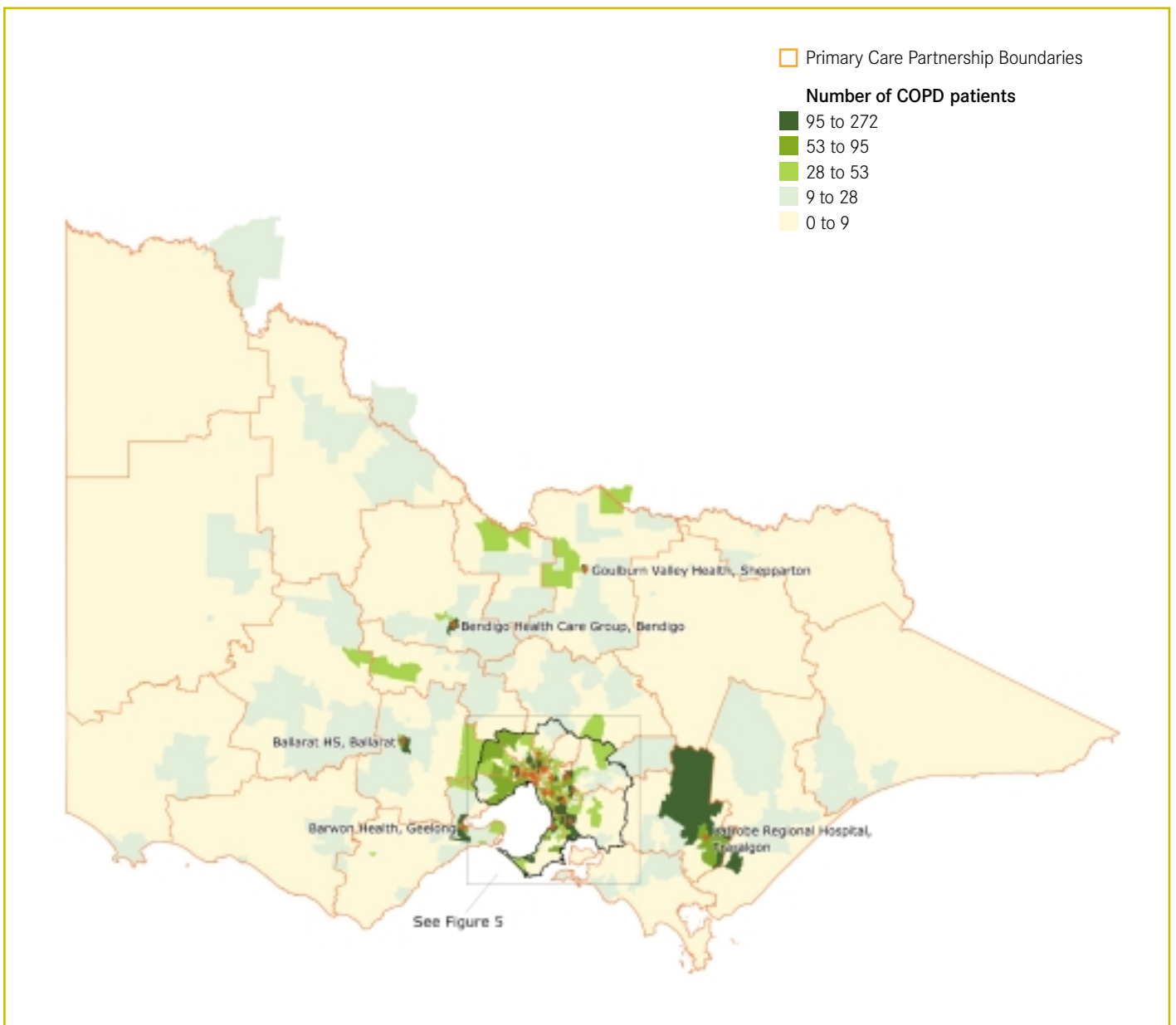
This dataset provides the opportunity to analyse hospital utilisation data by individual patient over a 3 year period. In particular, this approach identifies overall hospital utilisation where patients were admitted to more than 1 hospital. In considering utilisation patterns for patients with COPD, along with their potential to be admitted to more than one hospital, this analysis provides a more comprehensive representation of patterns of hospital admission for individual patients than is possible through routine analysis of the VAED.

Definition of Patients with COPD

For the purpose of this analysis, patients with COPD are defined as those patients who have had at least one emergency hospital admission for which they were assigned a diagnostic related group (DRG) of chronic obstructive airway disease. The two DRGs used were E65A and E65B.

The following figures show the volume of patients with COPD within each postcode in Victoria along with the Primary Care Partnership boundaries.

Figure 4: Map of Victorian postcode areas showing where patients with COPD predominate



Footnote: The range breaks are determined according to a calculation that puts similar clusters of data into each range. This ensures that the ranges are well represented by the averages and that the data values in each range are fairly close together.

6. Review of the literature

As indicated on these figures the postcode areas with the highest number of patients with COPD are Frankston (272), Reservoir (251), Dandenong (179), Sunshine (173), St Albans (169) and Preston (165). A full listing of postcodes with more than 53 patients with COPD is at Appendix B.

In 2001, the United States' Institute of Medicine released a report on important dimensions of quality of health care, *Crossing the Quality Chasm*. (Committee on Quality of Health Care in America, Institute of Medicine 2001) The HARP COPD Working Party identified the framework of this report as the key principles underlying the standards of care to be achieved in the management of COPD.

Crossing the Quality Chasm, which received international attention, suggested that health care delivery can be categorised into a number of themes. The Chair of the COPD Working Party condensed these into four main components:

1. Patient-centeredness
2. Collaboration
3. Expertise
4. Evidence-based practice

This review of the literature is not exhaustive but rather aims to inform in more detail on each of these principles. For some aspects of COPD management there is little rigorous evidence available and we indicate these areas in the report. However, these aspects may still be important to consider as they may reflect significant management issues for this patient group.

6.1 Patient centred process

The bottom line in the management of chronic medical conditions, in particular COPD, is to achieve improved quality of life for the patient through education, self-management and improved access to optimal treatment methods. (The Australian Lung Foundation 2001) To this end, patient values should be a central element in the delivery of health care to patients with a chronic illness.

In his definition of evidence-based medicine, Sackett determined that in addition to best research evidence and clinical expertise, patient values are equally important considerations. Patient values are the unique preferences, concerns and expectations each patient brings to a clinical encounter and which must be integrated into clinical decisions if they are to serve the patient. (Sackett et al. 1997)

Patient centeredness is an established concept but it has many definitions and little consensus around the actual meaning of the construct. For example, in a Cochrane Systematic Review five different definitions were reported, which ranged from a single statement of scope to more multidimensional constructs. (Lewin et al. 2002) This review referred back to Byrne's classical definition that patient-centred program elements are elements that incorporate patients' values and preferences in the design, governance and delivery of a health care program. (Byrne & Long 1976)

Others have since developed more complex definitions that describe six related components and five dimensions respectively. (Stewart 1995, Mead & Bower 2000) Stewart (1995) suggested there was evidence of “tangible benefit” of patient centred communication being positively associated with increased patient satisfaction, adherence to treatment regimes and achievement of better health outcomes. Providers and patients might be assumed to have differing perspectives, and similarly there is little reason to expect universality within provider or consumer groups about what elements are essential or valuable.

Lewin et al (2002) proposed in their Cochrane review a broad definition that incorporates two main features:

- (a) “shared control of the consultation, decisions about interventions or management of the health problems with the patient, and/or
- (b) a focus in the consultation on the patient as a whole person who has individual preferences situated within social contexts (in contrast to a focus in the consultation on a body part or disease).”

The Cochrane Review was principally focused on interventions for providers to promote a patient-centred approach in clinical consultations which had clearly identified outcomes measures.

The authors of the review concluded that some interventions clearly improved patient-centeredness within the consultation process. However, none of these studies utilised explicit measures to quantify this improvement. Training of health care providers was found to increase patient satisfaction, but results were more equivocal on variables such as changes in patient health behaviour or health status in part due to the methodological quality of studies and to some inconsistent findings.

While there is currently no gold standard for measuring patient centeredness, or commonly accepted operationalised definition, patient centred care is a requisite factor of many chronic disease management programs. However the intensity and components of patient centeredness might be ‘differently constructed and valued’ by different stakeholders. (Lewin et al. 2002)

6.1.1 Self-management

Patients suffering from a chronic illness have to cope with discomfort and disability, adhere to regular treatment and adjust their lifestyles to accommodate their symptoms and functional limitations. (Lorig et al. 2001) Self-management approaches are a way of ensuring patient focus. Barlow (2002) concluded in a literature review that self-management interventions for people with chronic conditions have a beneficial effect on the well-being of participants in the short term at least. Most interventions were found to achieve their aims by increasing participants’ knowledge, self-efficacy and use of self-management behaviours. Those interventions which addressed psychological well-being consistently showed an improvement in mood, particularly depression. (Barlow et al. 2002)

In COPD specifically, a Cochrane systematic review assessed the efficacy of COPD self-management/education programs on health outcomes and use of health services in 12 clinical trials. (Monninkhof et al. 2003) The reviewers concluded that data available to them in October 2001 were insufficient to make any recommendations and there was a need for well-designed randomised controlled trials with standardised outcomes for use with COPD patients and long follow-up times.

Consequently, while self-management strategies may be effective for patients with a chronic illness, in patients with COPD in particular the evidence is more equivocal. Self-management interventions are typically delivered by health professionals with the exception of the model developed by Lorig et al in the United States. (Barlow et al. 2002) This model is based on the fact that people with a chronic illness deal with common issues on a daily basis and teams of trained volunteers who themselves live with a long term condition conduct the courses. (Lorig et al. 2001) In 2001, the United Kingdom Department of Health (NHS) adopted this concept and developed a major initiative termed *Expert Patients*. This initiative currently operates in its pilot phase until 2004, where local user-led self-management is evaluated. Between 2004 and 2007 these programs will be mainstreamed within all NHS areas. (UK Department of Health (NHS) 2001)

Self-management approaches delivered by health professionals can be group-based or individual approaches. Group approaches usually involve 6-12 participants and are often supplemented with written materials. The format of group sessions can include lectures, role-play and goal setting. In individual approaches patients may be supplied with manuals whereby individuals work through the material at home or with a health professional delivered in one-to-one sessions in a clinical setting. Ideally, self-management approaches are multi-component and range from simply providing information about the condition and treatment options to drug and symptom management, life style and exercise advice, communication strategies, management of psychological consequences and social support. (Barlow et al. 2002)

6.1.2 Shared decision-making and patient empowerment

Shared decision-making occurs when health care providers consider patient preferences and goals to reach a decision based on mutual agreement. Also termed patient empowerment, this concept has emerged in the health care literature over the last ten years.

Lewin et al (2002), considered shared decision-making to be important enough to propose in a Cochrane review that shared decision-making about all aspects of care “is a sufficient indicator of patient-centeredness”. (Lewin et al. 2002)

In shared decision-making, the primary purpose of the health care professional is to prepare patients to make informed decisions about their own medical care. Rather than forcing patients to follow a lifestyle dictated by health professionals,

shared decision-making should result in increased self-awareness, quality of life and personal responsibility. (Feste 1992)

In a review of the literature on shared medical decision-making, Frosch et al (1999) state that although the most effective methods for engaging patients in decisions about their health care have not been established, there is considerable evidence suggesting that patients want to be consulted about the impact of their treatment. (Frosch & Kaplan 1999) A consistent finding of the review was that older patients were less interested in shared decision-making. Consequently, finding ways to engage older patients was thought to be important. Language and cultural barriers may present additional difficulties in this process.

For any health professional interested in developing this concept in their own setting we suggest a book entitled “Evidence-based patient choice: inevitable or impossible”. (Edwards & Elwyn 2001) It provides a comprehensive referenced account of current scientific and ethical thinking about making decisions in partnership with patients.

6.1.3 Patient support groups

“A major component in the care of patients with advanced COPD is the patient support group.” (Petty 1998)

Local specialist organisations state that participation in patient support groups increases health-related quality of life and health professionals should encourage their patients to participate in them. (The Thoracic Society of Australia and New Zealand & The Australian Lung Foundation 2002)

Support is delivered in a number of ways. Apart from regular meetings where expert guest speakers are sometimes invited to speak on specific topics, hospital and home visits or social outings are routinely organised. (The Australian Lung Foundation)

In Australia and Victoria specifically, a directory of patient support groups for COPD sufferers can be accessed through the Australian Lung Foundation:

The Australian Lung Foundation
 PO BOX 847
 Lutwyche QLD 4030
 Free call: 1800 654301
 Phone: (07) 3357 6388
 Fax: (07) 3357 6988
 Web: <http://www.lungnet.org.au/>

The Australian Lung Foundation also provides information and advice to people wishing to set up a patient support group.

6.2 Collaborative processes

Shortell et al, (2000) defined collaboration in health care as “the extent to which patient care services are coordinated across people, functions, activities, and sites over time so as to maximise the value of services delivered to patients.” (Shortell SM. et al. 2000)

Evidence shows that increased collaboration increases efficiency and produces better health outcomes. (Knaus et al. 1986, Katon et al. 1995, Aiken et al. 1997, Shortell S. M. et al. 1998, Gittel et al. 2000) Also termed health care integration, this concept has become an important part of health care policies and health care advisory committees over the last 5 years. Entire journals, such as the *International Journal of Integrated Care*, devote their publications to examining the practical applications and implications arising from this field.

The issue of collaboration is an ongoing theme throughout *Crossing the Quality Chasm*. This publication also identified that organisational problems in the health care system are particularly apparent regarding chronic conditions. In the United States almost half the patients with chronic conditions have co-morbidities that require mechanisms to coordinate their care. However, health care providers typically operate in separate groups without the benefit of complete information on the patient’s condition, medical history, services provided in other settings or medications provided by other health care professionals. (Institute of Medicine 2001)

Recognising the potential lack of health care integration, the Department of Human Services undertook a study that examined the sub-acute/acute care interface. Sub-acute care was defined as specialised health care delivered to patients with functional impairment and complex medical problems, such that if no alternative mechanism was in place this type of care would be administered in hospital. Sub-acute care overlaps both the hospital and the primary health care systems and thus requires coordination through discharge and referral practices. (Emergency Demand Coordination Group 2002) Regarding collaboration between sectors the study concluded:

- “There is a lack of focus and co-ordination in referral to and provision of sub-acute services, which affects throughput and efficiency, and
- There are communication blocks between and within acute and sub-acute service, which affect patient’s progress through the continuum of care.”

These findings arose despite an existing emphasis, in principle, on collaboration between agencies as a key component of most current national and state health care policies and initiatives. (Emergency Demand Coordination Group 2002)

To foster intersectoral collaboration and coordination, the State Government of Victoria launched the *Primary Care Partnership (PCP) Strategy* in 2000. This strategy aims to “improve the planning and delivery of primary care services and ensure they work together effectively to achieve improved health and well-being for the Victorian Community”. (Department of Human Services 2000) The two main

goals of this initiative are to improve the experience and outcomes for patients in the primary care system and to reduce preventable use of hospitals and other medical and residential services. Each PCP comprises of the following key elements:

- **Service planning.** Identify the community’s health needs and propose strategies to address these needs.
- **Service coordination.** Identify local systems and infrastructure, coordinate these services better through appropriate referral.
- **Service partnerships.** Create formal partnerships between community and providers to implement the plan. (Department of Human Services 2000)

HARP fosters initiatives that are based on the continuum of health care emphasising that a person’s health is better managed across their lifespan rather than in episodic intervals as acute exacerbations of illness occur. Collaboration between agencies in different sectors is an important step in developing and implementing new models of care. (Emergency Demand Coordination Group 2002)

PCPs provide an excellent foundation for collaboration across the health sector in planning, implementing and evaluating HARP models of care.

6.3 Expertise

“Organised work groups, or multidisciplinary teams, have become a common way to organise health care, and considerable attention has been focussed on their value and functioning.” (Committee on Quality of Health Care in America, Institute of Medicine 2001)

Over the last 20 years studies have identified the advantages of patient care teams for patients with chronic conditions, in particular better health outcomes. (Rich et al. 1995, Wagner 2000) Today, multidisciplinary teams are crucial to the coordination of the increasingly complex needs of patients with chronic conditions. In addition, involvement of all relevant health professionals in the development of a disease management plan may ultimately lead to better acceptance of the program by providers and patients alike. (Ellrodt et al. 1997, Wagner 2000) Team members from allied health disciplines may increase the efficiency of such teams by providing additional services such as specialised monitoring, clinical pharmacy or counselling. (Wagner 2000, Committee on Quality of Health Care in America, Institute of Medicine 2001)

The guidelines for the management of COPD released by the Australian Lung Foundation and the Thoracic Society of Australia and New Zealand (COPDX) recommend multidisciplinary care plans. (The Thoracic Society of Australia and New Zealand & The Australian Lung Foundation 2002). In addition to the respiratory specialist and the general practitioner the recommendations suggest a number of health professionals to form a multidisciplinary COPD care team.

Multidisciplinary COPD teams may include:

- Nurse/respiratory educator
- Physiotherapist
- Occupational therapist
- Social worker
- Clinical psychologist
- Speech pathologist/therapist
- Pharmacist
- Dietician
- Non-medical care agencies, such as Homecare and/or support groups

In Australia, multidisciplinary care teams are supported by rebates through the *Enhanced Primary Care* (EPC) initiative. Further information is available from: <http://www.health.gov.au/epc/>

Although multidisciplinary patient care teams for patients with chronic illnesses are an established concept, regulatory and organisational environments may not always encourage innovation of this kind. (Committee on Quality of Health Care in America, Institute of Medicine 2001) Regulations that define the scope of practice for specific types of health professionals need to reflect current trends in multidisciplinary patient care. The professional responsibilities of different health disciplines may overlap to the point where the appropriate scope of practice for any given health professional is contested. These are world-wide debates as demands on health care systems grow and health care costs escalate. In order to lower the cost of health care, less qualified health care providers may be employed. (Committee on Quality of Health Care in America, Institute of Medicine 2001, McMillan et al. 2001) These kinds of tensions impact on the processes of multidisciplinary teamwork (McCallin 2001) and on the education and training programs required for teamworkers. (McMillan et al. 2001)

In summary, while HARP fosters multidisciplinary models of care, there are unresolved issues around regulatory, organisational, teamwork and training aspects of this concept. Despite these issues, multidisciplinary teams are key to the design of effective COPD disease management programs.

6.4 Best practice evidence

Best practice evidence comprises those valid clinical research findings ready for incorporation into clinical practice. (Haynes 2002)

The rigorous evaluation of health care interventions has developed rapidly since the introduction of randomised controlled trials (RCTs) in the late 1940s as the “gold standard” research methodology in this area. For example, the rate of RCTs published per year has increased from just over 100 in 1966 to over 10,000 in 1995.

(Chassin 1998) Understandably, it has become difficult for health professionals to keep up with current knowledge in their field and best practice evidence is not applied systematically or rapidly to clinical practice. It takes an average of 17 years for new knowledge derived from methodologically rigorous research to be incorporated into practice and even then implementation is highly varied. (Institute of Medicine 2001)

On this basis, one specific recommendation of *Crossing the Quality Chasm* was to establish a comprehensive program to make best practice evidence more useful and accessible to health professionals and patients. For health professionals, this may begin during medical education and training. In the past, given facts were taught from textbooks and clinical knowledge was passed on by their peers. With the rapid increase of medical knowledge published every year this system may be insufficient to ensure appropriate clinical practice and may contribute to the lag in time when applying best practice evidence. Contemporary health professionals need to be trained in critical thinking and be provided with analytical skills. Emphasis needs to be placed on how to continually further their knowledge by utilising information technology to search medical databases and using decision support systems to aid in clinical decision-making. (Chassin 1998, Committee on Quality of Health Care in America, Institute of Medicine 2001)

One such clinical support system is evidence-based clinical practice guidelines, which follow a rigorous development process and are established with the highest quality scientific evidence available. A well-formulated clinical practice guideline should examine all aspects of care for a particular condition and explicitly formulated recommendations should list the underlying quality of the evidence. This evidence may range from clinical consensus statements to systematic reviews of randomised controlled trials.

There are currently several databases available on the web that compile evidence-based clinical practice guidelines published by specialist societies and/or in peer-reviewed journals.

Guideline websites include:

- National Guidelines Clearing House
www.guideline.gov/
- New Zealand Guidelines Group
<http://www.nzgg.org.nz/>
- Medical Journal of Australia Guidelines Site
<http://www.mja.com.au/public/guides/guides.html>
- NH&MRC clinical practice guidelines
<http://www.health.gov.au/nhmrc/publications/cphome.htm>
- Scottish Intercollegiate Guidelines Network
www.sign.ac.uk/

7. Management of COPD

There are a number of current evidence-based clinical practice guidelines for the management of COPD ranging from managing acute exacerbations to pulmonary rehabilitation. These guidelines are analysed in the next section of this report.

To assess current standards of care in COPD management we searched seven databases and guideline websites.

Owing to advances in COPD research findings and the fact that earlier guidelines were based on expert consensus rather than clinical practice evidence, the search was limited to 1999 -2002.

By using this strategy and consulting with the HARP COPD Working Party, we identified eight relevant reports.

Two of these COPD guideline reports were published in medical journals. (Snow et al. 2001, Russi et al. 2002) Both papers were evidence-based, included specific recommendations and, in one case, a decision-making algorithm. (Snow et al. 2001) However, since they did not present a comprehensive clinical practice guide we undertook no further evaluation of them.

A systematic review of worldwide guidelines for COPD (Iqbal et al. 2002) did not in itself provide a clinical practice guideline, but rather evaluated published guidelines to date. It systematically identified 41 guidelines published through MEDLINE and thoracic societies in 42 countries from 1990 to 2000. Most of the guidelines followed a consensus methodology, only one-third of which described a formal process. The guidelines lacked uniformity in their recommendations. The authors refer readers to the newly available *Global Initiative for Chronic Obstructive Lung Disease* (GOLD) as an alternative, evidence-based methodology for treatment recommendations. In the conclusion of their paper, the authors emphasise that the recommendations from this report should be translated into local guideline implementation efforts to assist physicians in patient-specific management.

The following table gives the identification details of the GOLD document, along with four other evidence-based guidelines. (North Western Health Evidence-based Guidelines, Royal Melbourne Hospital, Australia, 1999, Veterans Health Administration & Department of Defence 1999, National Heart Lung and Blood Institute/World Health Organisation 2001, Taylor et al. 2001, Emergency Demand Coordination Group 2002, The Thoracic Society of Australia and New Zealand & The Australian Lung Foundation 2002) Each of these five guidelines have been evaluated in more detail below.

Table 2: COPD guidelines

Guideline	Organisation	Country	Year
VHA/DOD Clinical Practice Guideline for the Management of Chronic Obstructive Pulmonary Disease	Veterans Health Administration Department of Defence	US	1999
Hospital Management of an Acute Exacerbation of Chronic Obstructive Pulmonary Disease	North Western Health Evidence-based Guidelines, Royal Melbourne Hospital	AUS	1999
The COPD Booklet, Guidelines to Best Practice for Management of Stable COPD	The COPD Board, Northern Region, Guideline Development Group	NZ	2000
Global Initiative for Chronic Obstructive Lung Disease Organisation	National Heart Lung and Blood Institute/World Health Organisation	International	2001
Chronic Obstructive Pulmonary Disease (COPD) Australian and New Zealand management Guidelines and the COPD Handbook, Version 1	The Thoracic Society of Australia and New Zealand and The Australian Lung Foundation	AUS	2002

The selected COPD management guidelines were assessed by two appraisers using the Appraisal of Guidelines Research & Evaluation (AGREE) Instrument. Disagreements were resolved by consensus.

The AGREE instrument (www.agreecollaboration.org) provides a validated, internationally agreed framework for assessing the quality of clinical practice guidelines.

Table 3: Results from the 'agree' assessments

Guideline	Scope/ Purpose	Stakeholder involvement	Rigour of development	Clarity of presentation	Applicability	Editorial independence
1	0.67	0.54	0.57	0.92	0.00	0.08
2	0.83	0.46	0.62	0.96	0.50	0.33
3	0.33	0.17	0.19	0.19	0.00	0.58
4	0.89	0.50	0.74	1.00	0.22	0.67
5	0.83	0.92	0.62	0.92	0.50	0.33

1. VHA/DOD Clinical Practice Guideline for the Management of Chronic Obstructive Pulmonary Disease
2. Hospital Management of an Acute Exacerbation of Chronic Obstructive Pulmonary Disease
3. The COPD Booklet, Guidelines to Best Practice for Management of Stable COPD
4. Global Initiative for Chronic Obstructive Lung Disease
5. Chronic Obstructive Pulmonary Disease (COPD) Australian and New Zealand management Guidelines and the COPD Handbook

The assessors recommended all of these guidelines but one. As shown in Table 3, guideline No.3 scored very low in all six domains. The review process was not clearly defined, the method used for formulating the recommendations was not clear and the recommendations were ambiguous.

The assessors highly recommend the recently developed *Chronic Obstructive Pulmonary Disease (COPD) Australian and New Zealand Management Guidelines and the COPD Handbook*, which was developed by the Thoracic Society of Australia and New Zealand in conjunction with the Australian Lung Foundation.

This guide was principally designed for primary care teams and was named the *COPDX Plan*. COPDX is presented in clearly defined sections, each of which is prefaced by an introduction and contains highlighted key elements including the supporting evidence-base. The body of the guideline deals with the management of stable COPD. In addition, it also discusses exacerbations, appropriate referral and in the appendix the guide provides details on physiotherapy techniques and fitness for surgery.

COPDX is based on the *Global Initiative for Chronic Obstructive Lung Disease (GOLD)* report as its underpinning guide and evidence-base.

GOLD was developed by the US National Heart, Lung and Blood Institute and the World Health Organisation and is by far the most comprehensive strategy for the diagnosis, management and prevention of COPD. This initiative is presented as a detailed workshop report, a pocket guide and CD and is accessible in full through www.goldcopd.com.

As the COPDX Plan is designed for primary care teams and has local relevance, the recommendations of this clinical practice guideline are presented as standards of care in this report.

7.1 Definition and classification of COPD

COPDX defines COPD as a group of disorders characterised by airway inflammation and airflow limitation that is not fully reversible.

For a more detailed definition please refer to the full-text document. (The Thoracic Society of Australia and New Zealand & The Australian Lung Foundation 2002)

Table 4: Classification of severity

	Mild COPD	Moderate COPD	Severe COPD
Spirometry FEV1% predicted	60-80% predicted	40-59% predicted	<40% predicted
Functional assessment (Activities of daily living)	Few symptoms No effect on daily activities Breathless on moderate exertion	Increasing dyspnoea Breathless on the flat Increasing limitation of daily activities	Dyspnoea on minimal exertion Daily activities severely curtailed
Complications	No	Exclude complications Consider sleep apnoea if pulmonary hypertension	Severe hypoxaemia (PaO ₂ <60mmHg or 8kPa) Hypercapnia (PaCO ₂ >45mmHg or 6kPa) Pulmonary hypertension Cor pulmonale Polycythaemia

(Aiflow limitation is indicated by FEV1 /FVC <70%)

7.2 Standards of care

The treatment measures and levels of evidence incorporated in this report have been taken from the *COPDX Plan* and are based on the recommendations of GOLD.

For a detailed explanation of the gradings and type of evidence please refer to the full-text documents. (National Heart Lung and Blood Institute/World Health Organisation 2001, The Thoracic Society of Australia and New Zealand & The Australian Lung Foundation 2002)

7.2.1 Confirm diagnosis and assess severity (key elements as defined in COPDX)

Consider COPD in all smokers and ex smokers over the age of 35. B

Consider COPD in patients with other smoking related diseases. A

Smoking is the most important risk factor in the development of COPD. A

Other risk factors include occupational exposures, indoor and outdoor air pollution, airway hyper-responsiveness and genetic factors (e.g. alpha-1-antitrypsin deficiency). B

The diagnosis rests on the demonstration of airflow limitation which is not fully reversible. B

If airflow limitation is substantially reversible treat as asthma. D

Table 5: Confirm diagnosis and assess severity (COPDX)

Aims	Actions	Findings
Confirm diagnosis	History Examination Functional Assessment Spirometry	Smoking >10 pack years*, strong family history. Cough, sputum, dyspnoea Overexpansion, quiet breath sounds Exercise limitation FEV1<80%Predicted, FEV1 /FVC <0.7 (post bronchodilator)
Support diagnosis and Exclude other conditions	CXR, high resolution CT, Complex lung Function Physician Review Echocardiogram Immunological screening Bronchial challenge	Hyperinflation, emphysema Airway narrowing, reduced transfer factor Cancer, pneumonia, left ventricular failure, bronchiectasis, interstitial lung disease, thromboembolic disease, asthma
Assess severity	Spirometry Consider: - Diffusing capacity - O2 sat, ABGs	Mild FEV1 60-80% (post bronchodilator) Moderate FEV1 40-59% Severe FEV1 <40% Hypoxaemia/ hypercapnia and weight loss indicate poor prognosis
Assess response: - bronchodilator - steroids	Acute response Longer term (6 wks) Oral (2 weeks) Inhaled (6-12 wks)	Significant increase in FEV1 or FVC: >15% increase from baseline AND >200ml absolute increase OR > 10% predicted FEV1, with increased exercise tolerance, decreased dyspnoea or reduced frequency of exacerbation
Identify: Complications - disease - treatment	Relevant Investigations	Pneumonia, pleurisy, empyema, pneumothorax, respiratory failure, pulmonary hypertension, cor pulmonale, polycythaemia, deconditioning, osteoporosis, cataract.
Comorbidities - lifestyle - ageing		Ischaemic heart disease, vascular disease, carcinoma, aspiration, gastro-oesophageal reflux, sleep disordered breathing, diabetes mellitus, dementia.

* 1 Pack year = 20/day for 1 year or equivalent number of cigarettes

The above recommendations are either self-evident or represent consensus based best practice, except where levels of evidence have been assigned.

7.2.2 Optimise function (key elements as defined in COPDX)

Pulmonary rehabilitation reduces dyspnoea, anxiety and depression, improves exercise capacity and quality of life and may reduce hospitalisation. A

Inhaled bronchodilators provide symptom relief and may increase exercise capacity. A

Inhaled glucocorticoids should be considered in patients with a documented response or who have severe COPD with frequent exacerbations. B

Oral glucocorticoids are contraindicated for maintenance use in most cases. A

In selected patients, a surgical approach may be considered for symptom relief. C

Table 6: Optimise function (COPDX)

Aims	Goals	Recommendations/Actions level	Evidence level
Symptom relief	Reduce breathlessness	Pulmonary Rehabilitation	A
	Improve exercise capacity/quality of life	Optimise inhaler technique	C
	Bronchodilatation	Use inhaled b2 agonist or anticholinergic	A/A
	- Avoid overdosing	Combined b2 agonist and anticholinergic may be more effective and better tolerated	A
	- Avoid drug interactions	Consider long acting inhaled bronchodilators	A
	- Stop drug if no benefit	Consider trial of inhaled glucocorticoids	B
	Other approaches	MDI with spacer or dry powder inhaler may be as effective as nebuliser	C
		Consider theophyllines (SR) (check serum levels)	B
	Consider bullectomy, (LVRS) or transplantation	C	
Identify & treat aggravating factors	Sleep apnoea	Overnight saturations, sleep study	C
	Reflux, aspiration	History +/- modified Ba swallow if indicated	C/D
	Avoid excess alcohol & sedative use	Ask, advise, assess, assist, arrange	C
Identify & treat complications	Pulmonary hypertension	Long term oxygen (>15 hrs/day)	A
	CO2 retention	Low flow oxygen (of 0.5-2 lpm), consider NIPPV	B
	Osteoporosis	Minimise or cease corticosteroids	A
	Peripheral and respiratory muscle dysfunction	Measure bone density and treat.	C/D
		Optimise nutrition	C/D
		Treat hypoxaemia and avoid systemic steroids	C/D
		Advise daily physical activity (including walking)	C/D
Improve function	Address psychosocial issues	Pulmonary rehabilitation achieves all goals	
		- Diagnose and treat anxiety/depression	A
	Increase daily exercise	- Encourage physical activity, consider portable O2	C
	Improve knowledge & self management skills	- Enrol in respiratory support group	B
	Optimise nutrition	- Educate patients and carers	C
		- Obtain diet history, - Advise weight gain or reduction as appropriate	A C
Assess oxygen status	Chronic hypoxaemia	Formal assessment	
	Exercise hypoxaemia		
	Sleep hypoxaemia		

7.2.3 Prevent deterioration (key elements as defined in COPDX)

Smoking cessation reduces the rate of decline of lung function. A

Medications have not yet been shown to prevent the long-term decline in lung function. C

General Practitioners and Pharmacists can help smokers quit. Relapse is common. A

Treatment of nicotine dependence is effective and should be offered to smokers. B

Influenza vaccination reduces the risk of exacerbations, hospitalisation and death. B

Long-term oxygen (>15 hrs/day) prolongs life in hypoxaemic patients (PaO₂ <55 mmHg or 7.3kPa). B

Optimal nutrition and regular physical activity are important. B

Table 7: Prevent deterioration (COPDX)

Aims	Goals	Recommendations/Actions	Evidence level
Smoking cessation	Implement 5 A Strategy	Every patient, at every visit, should have smoking status documented and be offered intervention	C
	- Ask & identify smokers	Even brief counselling is effective	A
	- Advise risks & benefits, review options	Formal quit programs are effective	A
	- Assess dependence and motivation	Consider nicotine replacement	A
	- Assist cessation	Consider Bupropion SR	A
	- Arrange follow up	Check for multi-substance abuse, psychological disturbance Monitor during quit attempt	B D
Prevent infection and exacerbation	Influenza vaccination	Annual vaccination (except ovalbumin allergy)	A
	Pneumococcal vaccination	Recommended every 5 years for COPD with frequent exacerbations	B
	Consider:		
	- Long acting bronchodilators	Patient with frequent exacerbations	B
	- Inhaled glucocorticoids	Patient with frequent exacerbations	A
	- Antibiotics	Not recommended for long term use	A
	- Antitussives, vasodilators, immunotherapy	Insufficient evidence to recommend for widespread use	D
- Mucolytics	Mucolytics may have a role for selected patients (e.g. frequent exacerbations, tenacious sputum)	B	
Regular review	Monitor:		
	- Lung function	Annual spirometry Assess exercise/physical capacity	D
	- Performance status	Consider further pulmonary rehabilitation Assess quality of life	D
	- Psychological status	Address carer status/strain (see D)	D
	- Smoking status	Seek confirmation of cessation	D
	Detect/treat complications	Check O2 sat, ABGs, cardiac echo, sleep oximetry	D
	Patient understands medications		D
	Stop unhelpful medications	Consider device training/medication card/self-management plan/dose administration aids	
	Maintain exercise program	Review medications and drug interactions Review compliance with exercise program	D

7.2.4 Develop support network and self management plan (key elements as defined in COPDX)

COPD imposes a handicap which affects both patient and carers. B

These carers are sometimes under great strain. C

Enhancing quality of life and reducing handicap requires a support team. C

The patient and their family/friends /whanau (NZ) should be actively involved in a therapeutic partnership with a range of professional disciplines. C

Patients should be encouraged to take appropriate responsibility for their own management. C

Multidisciplinary* care plans and individual self-management plans may help to prevent or manage crises. B

Table 8: Develop support network and self management plan (COPDX)

Aims	Recommendations/Actions	Evidence level
Assess individual's resources and support and provide improved support network	Provide access to community based resources	D
	Minimise barriers to accessing healthcare	C
	Consider multidisciplinary case conference	D
Increase patient/carer knowledge base and reduce patient/carer strain	Enrol in pulmonary rehabilitation program	A
	Educate patient and carers as appropriate	B
	Develop multidisciplinary care plan*	D
	Enrol in respiratory support group	C
Improve patient coping skills and self-management behaviour and develop positive patient attitudes to self-management and exercise	Assess cognitive and coping abilities	B
	Educate patients and carers as appropriate	B
	Treat anxiety, panic and depression	D
	Enrol in Pulmonary Rehabilitation Program	A
	Ensure optimal use of inhaler devices/oxygen delivery devices	B
	Develop self-management plan for maintenance therapy	D
Reduce frequency of exacerbations and hospitalisations	Develop self-management plan for acute exacerbations	B
	Include crisis medication pack and appropriate support	C

* May include: general practitioner, respiratory physician, district or outreach nurse, respiratory educator, physiotherapist, occupational therapist, social worker, clinical psychologist, speech therapist, pharmacist, dietician, oxygen service personnel, non-medical care.

7.2.5 Exacerbations – manage appropriately

The primary objective of HARP is to implement models of care that better manage people at risk of emergency presentations and admissions to public hospitals. In order to achieve this objective, HARP fosters initiatives that are based on the continuum of health care.

“A person’s health is better managed across their lifespan rather than in episodic intervals as acute exacerbations of illness occur”.

(Emergency Demand Coordination Group 2002)

To reflect this principle we present the COPDX recommendations for acute exacerbations for the primary health care provider in this section.

For a detailed hospital management plan for acute exacerbations, please refer to the appropriate guidelines, published by North Western Health. {North Western Health Evidence-based Guidelines; Royal Melbourne Hospital; Victoria; Australia, 1999 #11}

7.2.6 Exacerbations – manage appropriately (COPDX)

Early diagnosis and treatment may prevent admission. C

Multidisciplinary care may assist home management. B

Oxygen (28% or 0.5-2 L/min) is indicated for hypoxaemia. C

Inhaled bronchodilators and systemic glucocorticoids are effective treatments for acute exacerbations. A

Exacerbations with clinical signs of infection (increased volume and change in colour of sputum and/or fever, leucocytosis) benefit from antibiotic therapy. B

Non-invasive positive pressure ventilation is effective for acute hypercapnic ventilatory failure. A

Involvement of the general practitioner in a case conference and care plan development may facilitate early discharge. C

Table 9: Exacerbations (COPDX)

Aims	Goals	Actions	Evidence level
Early Diagnosis	Patient and carer recognise symptoms of declining function	Education of the patient and the support team Patient uses Action/Crisis Plan Patient contacts GP and/or outreach nurse	C
Early Action	Patient is able to access prompt assessment and treatment	Review Care Plan, Action/Crisis Plan Check medications Use Crisis Medication Pack – steroids, antibiotics etc. Symptoms/signs cor pulmonale	C
	Severity is assessed accurately and other diagnoses are excluded	Spirometry may help determine severity Chest X-Ray may exclude other diagnosis Pulse Oximetry, Arterial Blood Gases	C
Optimise Treatment	Appropriate bronchodilator is therapy commenced Anti-inflammatory therapy is considered Antimicrobial therapy is considered	Bronchodilators (Beta-agonist &/or Anticholinergic) – Metered Dose Inhalers (Spacers improve delivery) – Dry Powder Inhalers – Nebulisers Glucocorticoids (oral where possible, for 7-14 days) Antibiotics (oral where possible), if signs of bacterial infection	A A B
Refer Appropriately	Crisis is averted	Monitor regularly – cyanosis, arrhythmia, peripheral oedema Refer to consultant or for hospital admission	D C
Respiratory Support	O2 saturation is maintained at 88 - 95%	Controlled O2 therapy FiO2 28% or 0.5-2.0 lpm nasal prongs initially PaCO2>45, pH<7.3, RR>30	C
	Failing ventilation is detected and supported	Non invasive positive pressure ventilation – reverse acute respiratory acidosis – avoid intubation if possible Respiratory stimulants have a limited role Avoid narcotics, analgesics and sedatives	A D D
	Iatrogenic sedation is avoided	Chest physiotherapy is of limited value, however, it may be used where appropriate based on individual assessment.	C
	Sputum clearance is optimised	Mucolytics are of limited value	B
Monitor and review	Improvement is documented: – airway function – gas exchange – functional status – coping strategies – support	Review regularly (RR/HR/level of consciousness) – Post bronchodilator spirometry (PEF unreliable) – Oximetry +/- ABGs – Walking distance/ADLs – Review level of support – Assess carer strain	C
Convalescence	Independent living is achieved	Encourage early mobilisation/ADLs	D
	Relapse is avoided	Ensure appropriate ongoing support	
	Follow up is arranged	Review self-management plan and inhaler technique Step-down treatment (define steroid schedule) Review need for O2	
	Function & quality of life are improved	Plan graded exercise Consider referral for pulmonary rehabilitation	A

7.2.7 Access to pulmonary rehabilitation

Discussions with the COPD Working Party revealed that access to pulmonary rehabilitation is not uniform across Victoria. While there is considerable research support for these programs including a systematic review (Lacasse et al. 2002), there is currently no Victorian consensus on referral criteria.

COPDX also reports several randomised controlled trials that show pulmonary rehabilitation programs add to the quality of life in COPD patients. Comprehensive programs, which combine education, behaviour modulation and general support with exercise training, have been shown to be effective in improving quality of life and exercise capacity. The common indications for referral include:

- High levels of patient anxiety when attempting activity,
- Dyspnoea with activities, especially ADLs, and
- Loss of independence.

A detailed report on the evidence-base and standards for pulmonary rehabilitation in Australia has been published by the Australian Lung Foundation. (The Australian Lung Foundation 2002)

8. Key principles for management of COPD

Crossing the Quality Chasm states that agency collaboration, multidisciplinary teamwork and patient centeredness are crucial components of an evidence-based health care program. (Committee on Quality of Health Care in America, Institute of Medicine 2001)

The HARP COPD Working Party believes these key principles underlie the standards of care which can be achieved in the management of COPD.

The COPD Working Party, in conjunction with the project consultants, conducted a workshop in 2002 to further elaborate these key principles and their application in local settings. All relevant funded HARP-related programs in Victoria were invited.

The resulting qualitative data gained from the workshop participants, as well as the results of a brief survey of COPD programs funded under HARP in 2001 and 2002, have informed this section of the report.

8.1 Patient centred process

Patient-centred program elements incorporate patients' values and preferences in the design governance and delivery of a health care program. (Byrne & Long 1976)

Results from the survey indicated that 90% of currently funded programs contained above average patient-centred elements or that patient-centred elements were crucial to their program. This is not surprising as one of the key selection criteria for successful HARP funding applications was the involvement of consumers and carers. Most programs indicated that consumers and carers will be involved in the development process by including at least one of the following:

- Consumer representatives on the steering committee
- Patient focus groups
- Seeking advice from local support groups
- Seeking advice from a Consumer Advisory Committee, such as the Chronic Illness Alliance, and
- Qualitative feedback of program participants as part of program evaluation.

In addition, the workshop helped to identify many more facets of patient-centred concerns which are crucial to the achievement of a successful health care delivery program. These are outlined below.

8.1.1 Access

- **Patient transport**

One of the main topics of discussion relating to access was the problem of patient transport. For example, the Repatriation Hospital, which has run pulmonary rehabilitation programs for veterans for 15 years, currently uses volunteers and Cab-Charge. Additionally, they have submitted an application for a community bus. Even where patients are able to drive themselves, parking is often too far away from the actual site of a program. Furthermore, where duration of the drive is in excess of one hour, lack of oxygen can become an issue.

Consequently, often patients are only provided with written educational material and encouraged to exercise at home. This significantly compromises potential benefits to the individual patient that might be achieved by participation in a more comprehensive pulmonary rehabilitation program.

- **Knowledge**

Concerns were raised by some of the workshop participants that consumers may not be well informed about what hospitals have to offer, where programs are available and what is involved in the programs.

8.1.2 Equity

- **Access**

Equity and access were consistently raised together. “Preferably COPD programs should be locally accessible, but where transport issues can be resolved, access to programs will be equitable”.

In addition, participants placed emphasis on the need for early referral to an appropriate program.

- **Private health insurance**

Private health insurance was not identified as a major issue during the workshop. Although there are some privately run pulmonary rehabilitation programs such as at Cedar Court in Melbourne’s east, these are balanced with some public programs around Victoria.

8.1.3 Safety

- **Patients’ perceptions**

“Patients perceptions are important. Whatever the program is, it has to be enabling.”

“Patients need to be engaged in their program and believe they are going through a process of seamless integration and not just being hand-balled down the line.”

Many workshop participants felt that due to the lack of community support in the past, patients have not felt safe in primary care, resulting in patients’ dependence on hospitals. This is an important issue underlying the efforts of HARP and current programs are addressing this in several ways. Some programs have attempted to address these issues. For example, the Austin and Repatriation Hospital has a community outreach program in place.

- **After-hours care**

One of the issues of COPD management in the community raised by some workshop participants, is the lack of support on weekends and at night. A considerable number of patients live alone without or with only limited social support and have nobody to call on during these hours.

- **Skilled health care providers in primary care**

Contextually, the contributors felt that one of the most important aspects of care in the community is that well trained staff give patients confidence, they feel safe and achieve better outcomes.

8.1.4 Ethnicity

- Language and cultural differences

A considerable number of Victoria's residents are of non-English speaking background. Some workshop participants highlighted that access to COPD management programs needs to be available to everyone, regardless of language and cultural barriers.

8.1.5 Goals

- Goals of health care providers

“Certainly the psychological aspects of family carer comfort and the patients’ being at ease with what is being done are very important issues with COPD.”

“Patients often only have small gains, therefore programs need to be flexible and differentiate between independent and pre-terminal patients in order to achieve better outcomes”.

Workshop participants expressed the opinion that multidisciplinary teams have worked well in achieving good care for patients.

One of the concerns raised by health care providers was that after six weeks of pulmonary rehabilitation, patients had nowhere to turn and the effects of the program were not sustainable.

- Goals of patients

One of the points made by the consumer representative on the workshop was that patients should be asked about their own goals and how they would maintain their program. It is important to know exactly what patients are prepared to actually do to participate and maintain the program after the formal phase is completed.

8.2 Collaborative processes

Collaborative processes refer to those aspects of a health care program, which incorporate partnerships or alliances with external agencies. These may include direct contact with the patients’ GP’s or designated outreach programs, access to pulmonary rehabilitation or regular support groups.

As with patient-centred processes, 90% of programs surveyed indicated above average collaboration or that collaboration is crucial to their program.

Collaborating partners in currently funded HARP programs include at least one of the locally relevant agencies below:

- Divisions of General Practice
- Community Health Services
- Primary Care Partnerships
- City Councils
- Universities
- Post Acute Care Programs
- Major Health Care Networks
- Clinical Research Centres
- Australian Lung Foundation
- Royal District Nursing Service

During the workshop, many participants put additional emphasis on collaboration. This has been categorised as follows:

8.2.1 Communication as a marker of collaboration

It was felt that one of the possibly under-utilised elements of collaboration is the communication between existing programs. The Austin and Repatriation Hospital has run a pulmonary rehabilitation program for veterans for 15 years and is offering advice to other pulmonary rehabilitation programs.

The Northern Hospital is currently implementing a COPD management program, which is funded under HARP. The co-ordinators of this program have instigated an informal group of other HARP funded programs. This group meets on an informal basis to discuss the evaluation of the different methods of service delivery and problems, which may be occurring in the implementation process.

8.2.2 Dissemination of information

In addition to direct communication, some program representatives have suggested it would be valuable to access the various protocols and their outcomes over the web. This may help to reduce the time required to develop a program.

A similar issue had previously been raised by the Working Party. It was proposed that it may be useful to have educational material posted on the web for all programs to share.

8.2.3 Peer-support

The workshop participants raised a number of issues relating to the need for health care provider peer group support across the continuum of care. The achievement of seamlessly integrated care requires co-ordination of the primary/secondary interface. It is uncertain whether hospitals or primary

care agencies are the most appropriate providers of training and support for multidisciplinary teams and programs.

Workshop participants expressed that to achieve a seamless integration of care, this approach would need to be Hospital/Primary care co-ordinated. The complexity of care with many COPD patients being elderly and having multiple co-morbidities suggests that support for health professionals should be a prominent component of all future initiatives.

8.3 Expertise

Health care programs for chronic disease management should utilise the expertise of different disciplines such as physiotherapists, nurse practitioners and social workers.

“In multidisciplinary teams everybody has the same goals.”

All of the surveyed programs indicated an awareness of the need to have high-level multidisciplinary program components or emphasised that multidisciplinary expertise was crucial to their program.

However, during the workshop the question was raised of how much expertise is actually needed. For example, is a community physiotherapist able to achieve acceptable health outcomes for COPD patients?

Program representatives felt this generally depended on how well the community health professional is trained. It was generally thought that patients would feel “safe enough” in the community. The issue is, if staff are not experienced enough working with breathless patients, they may be too hesitant and therefore not achieve as much as they are able.

To ensure that associated health problems will not go unrecognised participants recommended that a medical clinician should always be part of any program.

8.4 Best practice evidence

Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values. (Sackett et al. 1997)

Evidence-based practice was considered to be crucial to 60% of programs currently funded under HARP. Although the remainder of the surveyed programs indicated their programs incorporated evidence-based practice, nearly half of completed surveys also indicated they would like more information on this topic.

HARP submissions are required to present current evidence or clinical guidelines in support of all components of their program. However, in assessing successful proposals, there is wide variation in understanding the concept of evidence-based practice. The evidence base for any approach should be supported by a referenced argument. It does not suffice to state that there is strong evidence for a certain approach without defining what constitutes strong evidence and citing the appropriate source.

9. Structure, process and outcome indicators

Health care programs, including COPD management programs, must have specific objectives to function effectively. The success or failure of a program in all settings can be evaluated by its impact on a range of process measures, structural measures and health outcome measures. (Donabedian 1966) Indicators for COPD are different from acute conditions and selection of the relevant measures for a COPD management program should be influenced by its objectives. Thus, in implementing COPD programs, it is essential to define the process, structure and health outcome measures that are important to both patients and providers. Otherwise, it is difficult to quantify what the program has achieved or determine whether the benefits of the program outweigh the costs associated with delivering the program.

Definition of indicators (Donabedian 1966)

- **Structural outcomes** are the “bricks & mortar” aspects of your program, such as number of staff and the scope of hospital services.
- **Process outcomes** are the elements of your program which refer to the services delivered by medical personnel, such as hospital admissions, admission days or GP consultations.
- **Clinical outcomes** are outcomes of care, such as quality of life, dyspnoea, depression and anxiety.

This simple classification may sometimes be inadequate because measures may have different meanings in different studies. For example, increased knowledge among patients is usually considered part of the process but depending on the design of a program, it may be the actual outcome.

9.1 Lessons from HARP funded programs to-date

Currently, there are fourteen COPD management programs funded under HARP in Victoria. In preparation for this report, a cross-sectional pilot survey of program providers was undertaken by the Centre for Clinical Effectiveness (CCE) to identify which indicators are currently in use to evaluate these programs.

A brief questionnaire was developed and mailed out to all relevant programs.

The primary aim of this questionnaire was to seek information about the process measures, structural measures and clinical outcomes currently used in the evaluation of COPD management programs.

From this survey, it was evident that the proposed measures to evaluate the various programs varied greatly. Furthermore, limited understanding of the concept of evaluation has led to some confusion when attempting to systematically outline the process measures, structural measures and clinical outcome indicators relevant to specific COPD programs. In addition, the indicators proposed for program evaluation focussed primarily on clinical outcomes (mainly quality of life), and not so much on structural and process measures.

This shortfall within the currently funded HARP programs makes evaluation and a comparison of achievements across programs difficult. Consequently, attention is

needed to clearly define the appropriate process measures, structural measures and clinical outcomes for the Department of Human Services funded HARP programs.

The findings from the survey have significant implications for HARP program funding bodies and program managers and will hopefully contribute to improved evaluation of future COPD management programs. It is vital that existing and future COPD management programs funded under HARP clearly state appropriate structural and process measures as well as outcome indicators.

While the workshop of all COPD management programs funded under HARP in 2001 and 2002 did not consider evaluation in detail, it became clear from many anecdotal reports that there was uncertainty on how to identify and define appropriate measures. Project representatives felt that while it is not possible to have set measures common to all programs, some indicators should at least be comparable.

9.2 Lessons from the literature

The COPD Working Party identified particular outcome areas for further discussion as follows:

- Client satisfaction
- Quality of life
- Cost effectiveness
- Reduction in anxiety
- Reduced ED presentations
- Client adoption of a care diary

Broad searches on the topic of COPD and the above terms were performed in three online databases (MEDLINE, CINAHL and Current Contents) on November 19, 2002.

The results are summarised in categories of structure, process and outcome indicators in Table 10, followed by a more detailed review of each of the specific outcome area.

Table 10: Structure, process and outcome indicators used in COPD management literature

Parameters	Indicators	Reference
Structure	Program content Organisation Duration Staffing ratios, staff training & qualification, Program delivery & cancellation, Program audit	**BTS 2001
	Reduced cost of running program	Gallefoss & Bakket 2002; Nicholson et al 2001;Griffiths et al 2001; Farrero et al 2001; Skwarska et al 2000
Process	ED presentation	*COPDX 2002; Farrero et al 2001
	Admission or readmissions	*COPDX 2002; Farrero et al 2001
	Client satisfaction	Ojoo et al 2002
	Patient understands medication	*COPDX 2002
	Smoking cessation	*COPDX 2002
	Optimise inhaler technique	*COPDX 2002
	Improve knowledge about illness	*COPDX 2002
	Improve self management skills	*COPDX 2002
	Weight management and nutrition	*COPDX 2002
	Length of stay	Farrero et al 2001;Cotton et 2000
Outcome	Quality of life	*COPDX 2002, Lacasse et al 2002
	Lung function	*COPDX 2002
	Exercise tolerance	*COPDX 2002
	Death	Cotton et 2000
	Dyspnoea	Lacasse et al 2002
	Anxiety/depression	*COPDX 2002
	Arterial blood gas measurement	*COPDX 2002
	Influenza vaccination	*COPDX 2002
	Pneumococcal vaccination	*COPDX 2002

*COPDX -COPD Australian and New Zealand management guidelines and the COPD Handbook

**BTS - British Thoracic Society Standards of Care Subcommittee on Pulmonary, Rehabilitation

9.2.1 Client satisfaction

Patient opinions about the value of COPD management program are essential and need to be studied and documented. Client satisfaction surveys help in collecting positive information regarding the experience of participants. Whether patients are satisfied or dissatisfied with the program provides an objective measure to improve the COPD management program. (Ojoo et al. 2002)

Instruments to measure client satisfaction are often generated for individual projects.

9.2.2 Quality of life

The most important goal of a COPD management program is to improve and maintain a good quality of life for COPD patients. To assess the impact of COPD, general health and disease specific questionnaires have been designed to measure the health status as well as health related quality of life of COPD patients.

Wurtemberger and Hutter (2001) reviewed thirty-one studies to assess the effects of pulmonary rehabilitation on the health-related quality of life (HRQOL) of COPD patients. The St. Georges Respiratory Questionnaire (SGRQ) and the Chronic Respiratory Questionnaire (CRQ) belonged to the group of the specific instruments, while among the generic measures the Sickness Impact Profile (SIP), the Nottingham Health Profile (NHP), the SF-36 and the Quality of Well-Being Scale (QWB) were most frequently used. The authors concluded that future studies should use only measures of HRQOL that have been tested psychometrically in COPD patients and to combine disease-specific and generic measures (Wurtemberger & Hutter 2001).

For health care professionals interested in disease specific quality of life questionnaires, the American Thoracic Society has a web page of QOL resources on <http://www.atsqol.org/>.

9.2.3 Cost effectiveness

A COPD management program must be structured properly to be cost effective and achieve life long impact for patient health and well-being. Seven studies have reported costs associated with COPD management programs (Skwarska et al. 2000, Griffiths et al. 2001, McGuire et al. 2001, Nicholson et al. 2001, Gallefoss & Bakke 2002, Miravittles et al. 2002, Zajac 2002) Some examples of the methods used in these studies are summarised below.

- Effectiveness was expressed in terms of proportions in need of general practitioner (GP) consultations, patient satisfaction and utilisation of rescue medication. Doctor visits, days off work, dispensed pharmaceuticals, hospital admissions, travel costs, educational and time costs were recorded.
- A comparison of direct cost to the health care system associated with the management of chronic bronchitis and its acute exacerbations in adult patients was made.
- Cost effectiveness was assessed by comparing pulmonary rehabilitation with standard care. The difference between the mean cost of 12 months of care for patients in the rehabilitation and control groups (incremental cost) and the difference between the two groups in quality-adjusted life years (QALYs) gained (incremental utility) were determined. The ratio between incremental cost and utility (incremental cost/utility ratio) was calculated.

9.2.4 Reduction in anxiety

Psychological factors such as depression and anxiety among COPD patients are well documented in the literature. (Emery et al. 1998, Felker et al. 2001, Baker & Scholz 2002, Egan et al. 2002, McCathie et al. 2002)

To describe the association between depressive symptoms and health related quality of life (HRQoL) in patients with chronic pulmonary disease, Felker et al (2001) conducted a cross-sectional study using both general and disease-specific HRQoL measures by using the Hopkins Symptom Checklist-20 (SCL-20). Depressive symptoms were associated with statistically significantly worse general and pulmonary health as reflected by lower scores on all sub-scales of both the Medical Outcomes Short Form-36 and the Seattle Obstructive Lung Disease Questionnaire.

Since there are highly effective treatments for depression, selective screening of patients with chronic pulmonary disease for depression may identify a group that could potentially benefit from treatment interventions. (Felker et al. 2001)

9.2.5 Reduced ED presentations

One of the primary goals of COPD management programs is to prevent or minimise hospitalisation and reduce length of hospital stay. (Tin et al. 1995, Dunn 2001, Farrero et al. 2001, Emergency Demand Coordination Group 2002, Sin et al. 2002) Measuring rates of ED presentations and hospital admissions will be appropriate for most COPD management programs funded under HARP, but the literature provides no clearly superior model to achieve this.

9.2.6 Patient adoption of care diary

Improving a self-management skill of COPD patients is an important goal of COPD management program, and requires a regular assessment and evaluation.

On the basis of beneficial health effects of self-management in the treatment of other chronic diseases, it might be expected that the active participation of COPD patients in the management of their disease may reduce the burden of the disease. This process may be assisted by having patients adopt the use of a care diary. Self-management of COPD should include sufficient coping behaviour, compliance with inhaled medication, attention to changes in the severity of the disease, adequate inhalation technique, and self-adjustment of the medication in case of exacerbations. (Worth 1997)

9.3 Recommended outcome measures for Victorian COPD management programs

There appears to be no consensus in the literature as to which set of outcome measures best detect clinically significant changes for COPD patients who are entered into a management program. However, an existing set of measures is currently being used by the majority of hospitals in Victoria. (Table 11).

Discussions within the Working Party revealed a preference for setting up outcome

measures that are common across all networks rather than project-specific indicators. On the other hand, it may suffice to establish measures which are comparable between programs rather than dictate specific measures which may be unsuitable to some sites. For example, to measure exercise tolerance the 6-Minute Walking Distance requires a 30m unencumbered corridor and sites without this facility can also use the Incremental Shuttle Walk Test.

Members of the Working Party also emphasised that not all outcome measures indicate a “well” patient at the same level. For example, a patient may score low in functional tests yet experience a reasonable quality of life because of better coping skills or family support.

Additionally, scores on outcome measures may have seasonal aspects and there is a possibility that even short-term clinical outcomes may be beyond the time span of a program.

Table 11: Clinical outcome measures for COPD used by Victorian hospitals

Hospital	Functional	Exercise Tolerance	Anxiety/ Depression	Self Efficacy	Quality of Life
Northern	MRCS	ISWT	HADS	General Self Efficacy	SGRQ/AQOL/SF 36
St Vincents		6MWT		General Self Efficacy	SGRQ/CRQ/AQOL
Austin & Repatriation	GST	6MWT			SGRQ/CRQ/AQOL
Royal Melbourne	MRCBS	ISWT		General Self Efficacy	SGRQ/AQOL

Alphabetical key:

6MWT	Six Minute Walking Test	(Guyatt et al. 1985)
AQOL	Assessment of quality of life	(Hawthorne et al. 1999)
CRQ	Guyatt’s chronic respiratory questionnaire	(Guyatt et al. 1987)
General Self Efficacy	General Self Efficacy Scale	(Sherer & et al. 1982)
GST	Grocery Shelving Task	(This is a functional upper limb test developed by the Austin & Repatriation Hospital)
HADS	Hospital Anxiety and Depression Scale	(Jones et al. 1992)
ISWT	Incremental Shuttle Walk Test	(Singh et al. 1994)
MRCS	Medical Research Council Dyspnoea Score	(Bestall et al. 1999)
SF 36	Short Form-36 Health Survey	(Jones et al. 1992)
SGRQ	St Georges Respiratory Questionnaire	(Jones et al. 1992)

10. Models of management

In the context of COPD management in Victoria, the term “models of management” refers to the specific targets for care standards and the organisation of services and resources required to achieve these standards.

The targets for care have been identified by the COPD Working Party as deficiencies in current models of care and will require particular attention when considering a COPD management program.

These targets for care standards include:

- Access
- Transitional care
- Appropriateness of care
- Medication management
- Maintenance
- Self-management and reduction in anxiety
- Carer support
- Palliative care

This section discusses these objectives in more detail and describes how currently funded programs are addressing each issue.

10.1 Access

Members of the Working Party expressed concerns that access to an appropriate program remains an ongoing issue.

The location of a program must be carefully considered to ensure optimal geographical coverage. In addition, patient transport issues and the cultural and linguistic diversity of Victorians are significant considerations.

HARP funded COPD programs currently aim to increase access to their initiative in a number of ways. A regional program run by Ballarat Health Services aims to include a designated service coordinator to provide access to 24-hour short-term in-home crisis intervention and facilitated access to the emergency department (ED) if appropriate. At Southern Health, the program aims to decrease waiting times and increase access through the sharing of resources across hospital and community sectors. In addition, to directly reduce the preventable use of EDs and inpatient services, this initiative provides multiple community-based client access points for access to diversionary services.

The Working Party also expressed concerns about the lack of information for patients and health professionals about the types and location of existing services in the management of COPD. To address this, one of the currently funded programs is in the process of developing clear guidelines for patients about access to the various components of the care pathway including rehabilitation programs.

10.2 Transitional care

Transitional care refers to a patient's transition from hospital to home. To ensure a seamless integration across the care continuum the Working Party identified a number of ways this could be achieved.

Elements to be addressed within transitional care:

- Discharge plans
 - Appropriate follow-up
 - Liaison with GP
 - Carer support
- Self-management
 - Diet
 - Exercise
 - Medication
 - Regular
 - Exacerbation

Transitional care may be facilitated through verbal instruction and/or information leaflets. The Working Party also recommended that carers should be included where possible.

Most currently funded HARP COPD management programs include a strategy to facilitate the transition from hospital to home, where appropriate. For example, Melbourne Health's COPD Disease Management Project includes discharge plans and a home visit soon after discharge to ensure satisfactory transition to home. The asthma and COPD initiative at Bendigo Health introduced a Respiratory Disease Management Coordinator (RDMC) to provide an interface between respiratory service providers and consumers. In addition, the RDMC guides respiratory care across the continuum.

10.3 Appropriateness of care

Together with facilitating a patient's transition from hospital to home, the Working Party indicated that the health service provider should also ensure that appropriate care will be given.

Depending on the level of severity of COPD, patients have different needs, wishes and capabilities. Patient stratification into a suitable model of care is an important step in achieving good health outcomes and appropriate utilisation of resources.

The Working Party suggested that to channel patients into the right model of care, a framework may be put into place to aid this process as early as at the point of entry into the hospital. Additionally, this framework should also ensure the integration across the care continuum.

While most currently funded COPD management program proposals have no description of the logistics of patient stratification, all programs are designed to deliver care commensurate with the level of severity of illness. This is achieved by targeting patients according to defined criteria, including the number of ED presentations, the use of individual care plans and/or ongoing care co-ordination/navigation. For example, a community-based pulmonary rehabilitation program at Southern Health has addressed patient stratification in three specific ways. Firstly, to ensure appropriate referral to their program, an assessment tool was developed. This instrument is based on medical history, co-morbidities, previous utilization of acute hospital services, admission risk factors, motivations to benefit, evidence of ability to absorb new knowledge and apply to daily living, social and domestic circumstances, and cognitive and behavioural factors. Secondly, the model has protocols in place for referral from community providers and respiratory physicians. Thirdly, each patient is provided with an individualised management plan.

10.4 Medication management

The Working Party identified medication management as a target for care standards in the management of COPD for three main reasons. Firstly, COPD patients are often elderly with co-morbidities. Therefore, medication regimes can be complex and need to be carefully co-ordinated to avoid medication errors. Secondly, affordability is a significant consideration and thirdly, COPD patients are on long-term medication and compliance is an important factor.

In 2001, the Commonwealth Department of Health and Ageing launched the *Domiciliary Medication Management Review* (DMMR). This initiative, also known as the *Home Medicines Review*, is a community-based service for patients who live at home. A DMMR utilises a collaborative approach between GP's, or other relevant health care professionals, an accredited pharmacist and the patient's preferred community pharmacy. The process of a DMMR consists of a comprehensive review of the patient's medication regimen in a home visit and is intended to be "central in the development and implementation of an agreed medication management plan".

Medicare provides a rebate for this initiative which is run under the umbrella of the *Enhanced Primary Care* (EPC) scheme. The Commonwealth Department of Health and Ageing provides comprehensive information on the process of a DMMR as well GP and patient information sheets on their website at <http://www.Health.gov.au/pc/dmmr.htm>.

To assist with a DMMR the pharmacist requires accreditation. This involves the completion of a special accreditation workshop, where the pharmacist is provided with effective patient education skills, interview techniques, monitoring and follow-up skills, and information on ethical considerations and using outcome indicators. Workshops are run by the Pharmaceutical Society of Australia and the Australian College of Pharmacy Practice.

Several of the COPD programs currently in place pay particular attention to medication management. This is usually facilitated as part of the care planning process.

Discussions within the Working Party revealed that some of the patients suffering from COPD use herbal remedies as well as their formal medication. This practice is often supported in self-help groups and patients have found it beneficial to counteract some of the side effects of their medication.

The role of complementary medicine in the management of COPD is beyond the scope of this review but it is important to consider complementary therapies when annotating a patient's medication. While the benefits of such therapies are often uncertain, health professionals should acknowledge the patient's freedom to choose their medication.

Another important step in the medication management is to ensure compliance. Adherence rates to medication can be as low as 50%. (Haynes et al. 2002b) Improving adherence to medications can be achieved by giving clear instructions and counselling the patient about the importance of compliance. Advice on how to organise the taking of medicines and the recognition of the patient's efforts to follow the regimen has been shown to be beneficial. Further, social support from family and friends can play an important role in increasing compliance rates. (Haynes et al. 2002a, Haynes et al. 2002b, McDonald et al. 2002)

10.5 Maintenance

The Working Party felt that a community-based maintenance program following pulmonary rehabilitation may be valuable in extending the effects of the rehabilitation program. COPD patients require ongoing support and rather than repeatedly attending formal hospital-based pulmonary rehabilitation, exercise-based home or community maintenance was suggested as a new model of care.

While there is a convincing evidence-base that comprehensive pulmonary rehabilitation for patients with moderate to severe COPD is beneficial in the short-term, few studies have addressed the long-term effects of pulmonary rehabilitation. (Lacasse et al. 2002)

Community maintenance is suggested to be of benefit in this context and interventions typically consist of monthly home-based physiotherapy sessions which may be combined with weekly telephone calls. (Wijkstra et al. 1995, Ries et al. 2002)

One of the currently funded HARP programs is dedicated to specifically address the maintenance component of pulmonary rehabilitation. This program operates at Northern Health, where after completion of a formal pulmonary rehabilitation program at the hospital, patients are referred to a weekly "maintenance" exercise program at a local Community Health Centre.

10.6 Self-management and reduction in anxiety

The Working Party identified patient self-management and reduction in anxiety as another target for care standards in the management of COPD. A reduction in anxiety in patients with COPD may achieve increased coping skills, which in turn will lead to better management of exacerbations of their disease. Patient self-management is important in this context. Typical self-management strategies for chronic diseases are detailed in the literature review, under *Patient-centered process*. While the role of self-management for patients suffering from COPD remains unclear (Monninkhof et al. 2003), many strategies have been shown to result in increased psychological well-being for patients with chronic conditions in general (Barlow et al. 2002).

Currently funded HARP COPD programs link patients to existing community-based chronic disease self-management programs, or provide advice on stress or lifestyle management. Melbourne Health and Western Health also include an implementation strategy to specifically address self-management for patients going through their programs.

Coping with COPD, a chronic disease self-management model is currently being implemented at Djerriwarrh Health Services in Melton. Similarly, *Restoring Health* a coordinated self-management program which is supported by the St Vincent's Hospital and delivered in a location suitable for the individual patient (hospital or community) is also being implemented.

10.7 Carer support

The Working Party felt strongly that models of COPD management should include support for family and carers such as respite care. If carers are overwhelmed and find no respite, this may result in "social hospital admissions" of the COPD patient or a decline in the health of the carer.

In Victoria, *Commonwealth Carer Respite Centres* coordinate access to respite services. These services include day care, in-home respite services and flexible residential respite in community-based facilities. Commonwealth Carer Respite Centres and Commonwealth Carer Resource Centres are funded by the federal government to provide information about the range of support available to carers. There are nine centres across Victoria, and locations are listed on: <http://www.health.gov.au/acc/carers/> or phone toll-free: 1800 242 636.

In addition, the *Home and Community Care* (HACC) Program is an important component of the Commonwealth Government's aged care policy. This program "aims to provide coordinated and integrated range of basic maintenance and support services for frail aged people, people with a disability and their carers". (<http://www.health.gov.au/acc/hacc/index.htm>)

Funding through HACC is available to state statutory authorities, state and local government services, church and community organisations and charitable bodies.

The types of services funded are nursing and allied health care, meals and other food services, domestic assistance, personal care, home modification and maintenance, transport, respite care, counselling and advocacy.

More information and contact details can be found at:

<http://www.health.gov.au/acc/hacc/index.htm>

Furthermore, Carers Australia, a national organisation for carers of people with a disability, mental illness, chronic condition or who are frail aged may be a useful point of contact for health professionals looking to improve support for family and carers of their patients. The Victorian branch can be found at:

<http://www.carersvic.org.au/> or phone toll-free: 1800 242 636.

Some of the currently funded HARP COPD programs have made provisions to arrange carer support services. However, details of the services are not given in the funding proposals.

10.8 Palliative care

Advanced care planning was also identified by the Working Party as an important target in the management of COPD. Patients should understand the purpose and benefits of palliative care and be prepared for end-of-life decisions with guidance from health professionals. This is also thought to help with decisions at point of entry to the hospital for patients with advanced illness.

For health providers with an interest in palliative care we refer to:

Palliative Care Victoria
Suite 3C, Level 2
182 Victoria Parade
East Melbourne VIC 3002
Phone: (03) 96629644
<http://www.pallcarevic.asn.au/>

While current COPD programs have particular strategies in place to ensure appropriate care, palliative care has not been addressed specifically in any of the funding proposals.

11. Evaluation criteria for future HARP funding

For each funding round the HARP Reference Group will ratify specific criteria that will be used to rank all applications. As in previous rounds these overall criteria will be explicitly stated in the application documentation. Applicants are strongly advised to consider these criteria carefully and to ensure that their application satisfies them fully. In a competitive grant environment failure to do so makes funding unlikely.

In addition to the criteria used to rank applications across all clinical areas, projects investigating COPD need to consider the recommendations of the HARP COPD Working Party as outlined in this report (see Recommendations). Applicants should be aware that these recommendations represent the Working Party's best understanding of the important issues in current COPD management in this context.

Finally, applicants should be aware that it is important to explain clearly how they intend to undertake their project in logistic terms, particularly with regard to patient recruitment and retention, maintenance of collaborative relationships and evaluation. The confidence of reviewers in the applicants' ability to successfully undertake the project is greatly enhanced when they have a clear understanding of how all aspects of the project will work in practice. This is particularly relevant to description of the evaluation and analysis strategies.

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Appendix A – Contributors

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- Mr Greg Young Southern Health
- Dr Harry Teichtahl Western Health
- Ms Sue Casnelia Western Health
- Mr Daniel Pilbrow Western Health
- Ms Megan Bumpstead Western Health
- Ms Marianne Apson Eastern Health
- Ms Kaylene Fiddes Alfred Hospital
- Ms Claire Dodd Austin & Repatriation Medical Centre
- Ms Catherine Hill Austin & Repatriation Medical Centre
- Mr David Berlowitz Northern Hospital
- Dr Marilyn Jones North Melbourne Division of General Practitioners
- Ms Liz Powell Mt Gravatt Community Health Service QLD
- Ms Ruth Taylor Djerriwarrh Health Services
- Ms Judy Ross Princess Alexandra Hospital QLD

Appendix B

COPD patients by postcode

Post Code	Suburb/Town	Patients	Post Code	Suburb/Town	Patients	Post Code	Suburb/Town	Patients
3199	Frankston	272	3030	Werribee	90	3048	Coolaroo	65
3073	Reservoir	251	3163	Carnegie	90	3429	Sunbury	65
3175	Dandenong	179	3011	Footscray	89	3155	Boronia	64
3020	Sunshine	173	3182	St Kilda	89	3028	Laverton	63
3021	St Albans	169	3012	West Footscray	89	3125	Burwood	63
3072	Preston	165	3219	East Geelong	86	3131	Nunawading	63
3550	Bendigo	144	3171	Springvale	82	3356	Sebastopol	63
3350	Ballarat	132	3840	Morwell	82	3018	Altona	62
3214	Mitcham	130	3084	Heidelberg	81	3128	Box Hill	62
3156	Ferntree Gully	129	3181	Prahran	80	3015	Spotswood	60
3630	Shepparton	128	3150	Glen Waverley	79	3060	Fawkner	60
3046	Glenroy	127	3204	Ormond	77	3162	Caulfield	60
3058	Coburg	127	3337	Melton	74	3177	Doveton	60
3047	Broadmeadows	126	3135	Heathmont	73	3029	Hoppers Crossing	59
3081	Heidelberg West	114	3195	Mordialloc	73	3074	Thomastown	59
3136	Croydon	111	3083	Bundoora	73	3031	Kensington	58
3216	Belmont	110	3165	Bentleigh East	72	3218	West Geelong	58
3825	Moe	110	3040	Essendon	71	3915	Hastings	58
3196	Chelsea	109	3166	Oakleigh	70	3068	Clifton Hill	57
3130	Blackburn	108	3931	Mornington	70	3056	Brunswick	87
3174	Noble Park	107	3044	Pascoe Vale	69	3152	Wantirna	57
3977	Cranbourne	104	3019	Braybrook	68	3153	Bayswater	57
3215	North Geelong	103	3121	Richmond	68	3042	Airport West	56
3134	Ringwood	102	3168	Clayton	68	3201	Carrum Downs	56
3198	Seaford	99	3071	Thornbury	67	3207	Port Melbourne	56
3555	Kangaroo Flat	97	3192	Cheltenham	67	3023	Deer Park	55
3844	Traralgon	97	3013	Yarraville	66	3169	Clarinda	55
3939	Rosebud	96	3025	Paisley	66	3149	Mt Waverley	54
3070	Northcote	95	3032	Ascot Vale	65	3194	Mentone	54

