



**NSW CLINICAL SERVICE
FRAMEWORK**

**Chronic
Respiratory
Disease**

VOLUME I

*‘Setting statewide
standards of care’*

NSW DEPARTMENT OF HEALTH

73 Miller Street

North Sydney NSW 2060

Tel. (02) 9391 9000

Fax. (02) 9391 9101

www.health.nsw.gov.au

This work is copyright. It may be reproduced in whole or in part for study training purposes subject to the inclusion of an acknowledgement of the source. It may not be reproduced for commercial usage or sale. Reproduction for purposes other than those indicated above, requires written permission from the NSW Department of Health.

© NSW Department of Health 2003

SHPN (QCP) 020127

ISBN 0 7347 3447 6

NSW Clinical Service Framework for Chronic Respiratory Disease – Volume 1
NSW Government Action Plan, Sydney.

For further copies of this document please contact:

Better Health Centre – Publications Warehouse

Locked Mail Bag 5003

Gladesville NSW 2111

Tel. (02) 9816 0452

Fax. (02) 9816 0492

TTY. (02) 9391 9900

Further copies of this report can be downloaded from
the NSW HealthWeb site: www.health.nsw.gov.au

April 2003

Foreword

Respiratory diseases are a major cause of morbidity and mortality in NSW and the third largest cause of death, accounting for 7.6% of all deaths.

Prevalence rates for asthma in Australia are among the highest in the world. In NSW, the disease affects an estimated 14–20% of children and 10% of adults, and has been designated a National health priority. Costs to the Australian community for asthma are estimated at approximately \$700 million per year.

Chronic obstructive pulmonary disease (COPD) has been estimated to affect almost 300,000 people in Australia in 1996, with more than 20,000 new cases each year. COPD and asthma are a major concern for health practitioners as well as health economists.

Patients suffering from chronic and complex medical conditions are entitled to high quality, scientifically proven best-practice standards of care. For this reason, we are pleased to endorse the *NSW Clinical Service Framework for Chronic Respiratory Disease* which is the first in a series of frameworks designed to realign health care services around the needs and convenience, of patients and their carers.

The framework exemplifies the underlying philosophy of the NSW Chronic and Complex Care Report *Improving health care for people with chronic illness – A blueprint for change 2001-2003* which outlines a number of recommendations to ensure a more integrated, coordinated and patient-focused approach to the health care needs of people with chronic illness.

Issues such as clinical governance and ongoing monitoring and evaluation strategies form an integral part of the framework to ensure the ongoing commitment of the health system towards improving service provision for people with chronic and complex health care needs.

We commend the work of the Clinical Expert Reference Group for Respiratory Disease and the Special Interest Group for COPD, co-chaired by Associate Professor David McKenzie and Dr Peter Clyne; clinicians and research support staff of the Newcastle Institute of Public Health; and numerous affiliated health care professional staff throughout the NSW Health system whose combined knowledge and expertise have made this framework possible.



Professor Ronald Penny AO
Co-Chair



Robyn Kruk
Director-General

Contents

Executive summary	1
1 Introduction	4
Purpose.....	4
What is a Clinical Service Framework?	5
What is to be accomplished?	5
What changes will improve the way services are currently delivered?.....	6
How will improvement be measured?	6
Framework structure	7
2 Coordinated Chronic and Complex Care – A New Approach ...8	
Current situation.....	8
The way forward.....	9
Multidisciplinary care planning.....	9
Self-managed care	9
Education and training for health care professionals	10
Education and training programs for COPD and asthma patients.....	10
Chronic disease information dissemination	11
Enabling of clinical leadership and consumer participation	11
Improving admission and discharge planning	11
Effective information transfer between all health care providers	12
24-hour telephone contact point.....	12
Collaboration with Divisions of General Practice.....	12
Effective use of technology.....	12
3 Chronic respiratory disease – Background	13
COPD	13
Definition of COPD	13
Causes of COPD	13
COPD epidemiology	14
Standards, milestones and targets.....	14
Asthma.....	18
Definition of asthma.....	18
Causes of asthma	19
Asthma epidemiology.....	19
Standards, targets and milestones for asthma	19
4 Framework implementation strategy	23
5 Assessing progress	26
Statewide performance indicators	26
Area Health Service performance indicators....	26
Progress reporting	26
6 Conclusion	27
7 Acknowledgments	29
8 References	30
Appendices A-B	31-34
A Co-chairs and Members of the Chronic and Complex Care Implementation and Coordination Group (CCCICG) and Co-chairs and Members of the Clinical Expert Reference Group for Respiratory Disease.....	31
B Co-chairs and Members of the Special Interest Group for Chronic Obstructive Pulmonary Disease.....	33

Executive summary

Greater longevity and improvements in health status have resulted in an increase in the prevalence of chronic diseases such as cancer, heart disease, stroke, arthritis, mental illness, diabetes mellitus, COPD and asthma, and an increasing burden on health care systems across the world.

There is global consensus that significant potential exists to improve service provision for people with chronic and complex health care needs, while at the same time decreasing the burden on the acute care system, by reconfiguring health services in favour of an integrated, coordinated and more patient focused approach across all health care sectors, with an emphasis on self-management and ambulatory care.

The *NSW Chronic and Complex Care Program*, established under the NSW Government's Action Plan for Health, seeks to address these issues with regard to the three priority health areas of cardiovascular disease (and its risk factors), cancer and respiratory disease.

The Chronic and Complex Care Program has three broad aims:

1. To improve the quality of life of people with chronic and complex conditions.
2. To improve the quality of life of their carers and their families.
3. To prevent crisis situations and reduce avoidable admissions to hospital.

Sixty priority health care programs are being implemented across all Area Health Services in NSW in order to evaluate the efficacy of new approaches to disease management and to identify best models of care. A total of eighteen respiratory programs were approved for funding under the NSW Chronic and Complex Care Program.

The new approach: coordinated chronic and complex care

The strategies underpinning the clinical service framework for respiratory disease reflect global trends in seeking to reconfigure the way health services are currently delivered in order to place patients at the centre of care. For patients with chronic illness, this means moving from treating acute exacerbations of disease to a more integrated, coordinated approach across the continuum of care. It also means placing greater emphasis on self-management education to assist patients in monitoring their disease and recognising when medical intervention and/or community support services may be required.

The following concepts are essential aspects of the new approach to integrated, coordinated and more patient focused care for those with chronic respiratory disease:

- Placing patients at the centre of care.
- Fostering an integrated, coordinated approach across the continuum of care.
- Development of agreed statewide standards of care.
- Clinical governance.
- Fostering more timely and effective treatment in a community setting.
- Streamlining admission and discharge planning processes and practices.
- Patient education.

The framework for chronic respiratory disease

The *NSW Clinical Service Framework for Chronic Respiratory Disease* is the first in this series of evidence-based frameworks seeking to standardise best practice care across NSW for people with chronic and complex health care needs. Strategies underpinning the standards incorporated in the framework are outlined in the *Chronic and Complex Care Report: Improving health care for people with chronic illness: a blueprint for change 2001-2003*. The framework has been developed following wide consultation with respiratory clinicians and physicians.

This clinical service framework provides a practical, evidence-based and flexible approach to the management of COPD and asthma, and:

- sets standards of care, both clinical and organisational, for treatment and prevention
- establishes initial milestones, goals and performance indicators against which progress within agreed timeframes can be measured
- identifies practical tools to support implementation and monitor progress.

This framework consists of two volumes:

Volume 1 – NSW Clinical Service Framework for Chronic Respiratory Disease

This volume identifies the essential components of the new approach to coordinated chronic and complex care, and the responsibilities of Area Health Services in the management of chronic respiratory disease.

Volume 1 provides a summary of the evidence-based best practice standards that Area Health Services are to reach, and targets and milestones for COPD and asthma by which Area Health Services will mark their rate of progress towards achieving these standards. A framework implementation strategy is included, as are the performance indicators by which progress will be assessed at both a statewide and Area Health Service level.

Volume 2 – A Practice Guide for the optimal treatment of Chronic Respiratory Disease

This volume is a more clinically focused document that provides the latest evidence-based best practice standards for the management and treatment of people with COPD and asthma. Unless otherwise stated, the treatment measures incorporated in the COPD standards and are generally based on the Global Initiative for Chronic Obstructive Lung Disease (GOLD), a collaborative project of the US National Heart, Lung and Blood Institute (NHLBI) and the World Health Organisation (WHO), while those for asthma are largely based on the recommendations of the National Asthma Council, as outlined in the *Asthma Management Handbook* (2002). Where there is limited evidence for a particular standard or strategy, consensus of expert opinion has been included.

The six standards for COPD relate to:

1. COPD prevention
2. Diagnosis and severity of COPD
3. Management of stable COPD
4. Acute exacerbations of COPD
5. Pulmonary rehabilitation
6. Home oxygen therapy

The nine standards for asthma relate to:

1. Asthma detection and diagnosis
2. Asthma self-management
3. Assessing asthma severity
4. Preventing acute exacerbations of asthma
5. Stabilising chronic asthma
6. Management of the acute episode in the Emergency Department
7. Management of the transition of care
8. Paediatric asthma management
9. Asthma education

Volume 2 also contains a number of 'Quick Guides', developed by experts, for quick access to the most appropriate management of stable COPD and asthma as well as acute exacerbations.

Implementation and evaluation

Successful implementation of the framework is dependent on the active involvement and commitment of all parties including NSW Health, Area Health Services, clinicians and other health care professionals, patients and carers in the development and implementation of new strategies and models. This involves hospital and community based staff, general and specialist staff and staffing working with specific population groups such as Aboriginal, Torre Strait Islanders and culturally and linguistically diverse (CALD) communities.

At a local level, key steps in effective implementation include:

- identifying key stakeholders
- establishing a local implementation team with explicit accountability arrangements
- maintaining clinical governance procedures
- developing agreed protocols and implementation strategies
- professional upskilling and education programs designed to support change
- developing multidisciplinary networks across the acute care, primary care and community health sectors
- ongoing collaboration with the Divisions of General Practice
- reporting strategies focusing on reviewing local performance data and identifying local priorities.

Evaluation of progress with implementation will occur:

1. At a statewide level using a small number of performance indicators.
2. At an Area Health Service level, using local measurements of consumer satisfaction, and by regular reports from Areas regarding their progress with the milestones and targets.
3. Through incorporation of key targets and performance indicators for COPD and asthma into Performance Agreements between the NSW Health Department and Area Health Services.

Conclusion

The new approach outlined in the *NSW Clinical Framework for Chronic Respiratory Disease* requires a fundamental shift away from an acute care focus towards a coordinated approach across the continuum of care, with increased emphasis on the community and primary health care sectors, and on self-managed care. This framework combines specific recommendations for evidence-based best practice care with tools and strategies that foster linkages and partnerships between health care sectors.

Implementation of this evidence-based best practice framework will ensure that coordinated multidisciplinary care of optimal quality is provided to people with chronic respiratory disease across the continuum of care, and its patient focus will ensure that patients are not merely passive recipients of care but are active partners in the ongoing management of their life with chronic disease.

I. Introduction

The global increase in prevalence of chronic and complex diseases such as cancer, heart disease, stroke, COPD, asthma, arthritis, mental illness and diabetes mellitus is attributable to greater longevity and improvements in health status and medical treatment. The increase in these diseases is also causing an increasing burden on the acute care sector of health systems across the world. A major challenge is presented in the need to reconfigure the way health services are currently delivered, in favour of a more integrated and coordinated approach across the continuum of care.

Currently, people who already suffer from chronic and complex disease, which is often compounded by a number of associated co-morbidities, are faced with coordinating their own care through the myriad of clinical, primary care and community based services. These include:

- specialist and general practice services
- pathology and radiology services
- community nursing and social work services
- allied health services (eg. physiotherapy, podiatry, psychology, dietetics)
- pharmaceutical services
- ambulatory and home care support services
- Aboriginal medical services.

To address these issues, following recommendations of the NSW Health Council¹ and Ministerial Advisory Committee on Health Services in Small Towns², the NSW Government provided \$45 million (over three years) to implement the NSW Chronic and Complex Care initiative under the Chronic and Complex Care Implementation and Coordination Group.

The aim was to assist Area Health Services in implementing evidence-based best practice in order to:

- address the recurrent health care needs of people with chronic disease in the areas of cardiovascular disease, cancer and respiratory disease in order to prevent the number of crisis situations in the community and to reduce the frequency of avoidable admissions to hospital
- improve integration of services across the acute care, primary care and community health care sectors
- improve the quality of life of people with cardiovascular disease, cancer and chronic respiratory disease.

The report of the first year's activities of the Chronic and Complex Care Implementation and Coordination Group, *Improving health care for people with chronic illness: A blueprint for change 2001-2003*, outlined a number of key measures to assist in changing the current acute care focus of health service delivery to a more integrated, patient-focused service, inclusive of the unique health care needs of people with chronic illness.

Purpose

The purpose of clinical service frameworks is to provide an optimal practice guide that outlines what NSW Health is seeking to accomplish in reforming health care for the chronically ill; the types of systemic changes that will result in improvements to the way services are currently provided; and how these changes can be evaluated.

What is a Clinical Service Framework?

A clinical service framework³ is a practical, evidence-based and flexible approach to tackling a disease. It:

- sets standards of care, both clinical and organisational, for treatment and prevention
- establishes initial milestones, goals and performance indicators against which progress within agreed timeframes can be measured
- identifies practical tools to support implementation and monitor progress.

The framework should be viewed as a 'living' document which will evolve over time to include new scientific research findings for improving the health care needs of the chronically ill.

Any improvement process should aim to answer three fundamental questions:

1. What is to be accomplished?
2. What changes will improve the way services are currently delivered?
3. How will improvement be measured?

What is to be accomplished?

The NSW Chronic and Complex Care Program has three broad aims:

1. To improve the quality of life of people with chronic and complex conditions.
2. To improve the quality of life of their carers and families.
3. To prevent the number of crisis situations and reduce the number of avoidable admissions to hospital and stressful presentations at Emergency Departments.

Implementation of the clinical service frameworks will be the first major step towards achieving these goals and developing a health system in NSW that will:

1. Provide safe, effective, appropriate, patient focused, accessible and efficient care for people who suffer from chronic respiratory disease.
2. Support patients at the centre of care and provide services designed around their unique health needs.
3. Develop the capacity of patients (and their carers) to participate fully in their own health care so that they can more effectively navigate their way through the health system.
4. Ensure easier and more timely access to appropriate community-based services.
5. Facilitate continuity of relationships between health providers at the various levels of the health system and between health providers and patients (and their carers).
6. Develop organisational and governance systems and structures to support long-term orientation of care within the health system.
7. Provide statewide consistency in the delivery of evidence-based best practice standards of care through the continuum of care, from diagnosis, acute care and primary care interventions, to palliative care.
8. Facilitate informed decision-making.
9. Provide patients with 24-hour access to professional information and advice.
10. Be culturally appropriate.
11. Encourage patient and community involvement.
12. Focus appropriately on the prevention of illness in addition to the treatment of disease.
13. Focus on the principles of clinical governance as the basis of effective health care.
14. Provide appropriate end-of-life care.

What changes will improve the way services are currently delivered?

Evidence-based best practice strategies and recommendations have been identified by the Chronic and Complex Care Implementation and Coordination Group, in conjunction with the Clinical Expert Reference Groups, as the interventions that will best contribute towards the prevention of chronic disease, and the way in which care is provided for people with chronic illness. These include:

- The development of evidence-based statewide clinical service frameworks incorporating scientifically proven best-practice standards of care focusing on consistent high-quality chronic and complex disease management, from prevention, early detection and diagnosis, supported self-care, management and treatment interventions in the community, to acute care and palliative care, according to disease severity and progression.
- The development and implementation of a personal health record known as *My Health Record* for every patient in NSW with the symptoms of chronic disease. *My Health Record* will assist patients in monitoring and managing their disease and will also provide immediate access by all appropriate health service providers to key measures such as diagnostic test results, current medication regimens, known allergies, emergency contact details and other important information.
- The provision of a 24-hour point of contact to enable immediate access to acute care services, as well as professional information, education and advice, when required.

Recommendations have also been made in relation to the following:

- The need to improve coordination of care and develop closer collaboration between the acute care, and primary and community health care sectors with particular emphasis on developing working partnerships with general practitioners.

- Promoting the use of Medicare Benefits Schedule Enhanced Primary Care (MBS EPC) items to hold case conferences, conduct health assessments, and develop care plans covering multidisciplinary care for people with chronic and complex health care needs.
- The ongoing involvement of clinicians (and patients and carers) in service planning processes to ensure resources target changing health care needs.
- Streamlining admission and discharge planning processes for all patients with chronic and complex conditions.
- Improving workplace practices in Emergency Departments, eg. reducing waiting times by the use of fast-track triage systems.
- Education programs promoting patient self-awareness and self-management techniques for patients and health care professionals. The participation of carers in self-management education programs should also be encouraged.

How will improvement be measured?

Measurement of the effect of change is essential in order to ascertain whether improvements in health care for people with chronic illness have been achieved. Three parameters of change are relevant in order to determine the outcome of improvement strategies:

1. Clinical outcomes.
2. Consumer satisfaction.
3. Efficiency of care and/or services.

Identifying measures that will provide the best indication of whether improvements have actually been achieved is often difficult within complex health care settings. Proxy indicators are sometimes used when precise data is unavailable.

For programs funded under the NSW Chronic and Complex Care initiative, each Area Health Service has identified appropriate indicators to measure the effect of programs they are currently implementing.

The focus of this framework is on addressing current anomalies in the management and treatment of people with chronic respiratory illness. Current scientific evidence concerning aspects of chronic respiratory disease suggest that:

- a large proportion of chronic respiratory illnesses can be prevented
- many people are not receiving or acting upon advice that could prevent development of the disease
- people diagnosed with the disease are not receiving the most effective treatment
- unjustifiable variations exist in the quality of care provided to patients with chronic respiratory illness
- there is a lack of appropriate guidance available to patients, their carers, and clinicians on the most appropriate way to manage end-of-life care for people in the terminal stages of the disease
- prevalence rates for chronic respiratory disease vary significantly according to socio-economic circumstances.

This framework also outlines the indicators and systems that will measure achievement of, and compliance with the standards developed for COPD and asthma.

Indicators to measure the effectiveness of the entire NSW clinical service framework for chronic respiratory disease will also be developed.

The following data will be collected at a state level in order to ascertain improvement levels:

- rates of admissions to hospital of patients who have a diagnosed respiratory disease
- rates of unplanned re-admissions to hospital of patients who have a diagnosed respiratory disease
- relative stay index for patients with chronic disease admitted to hospital
- percentage of patients who have been diagnosed with COPD who are enrolled in a pulmonary rehabilitation program
- percentage of patients enrolled in a pulmonary rehabilitation program who complete the program

- rates of patients who are diagnosed with asthma who present to an Emergency Department with an acute exacerbation of the disease and who leave the Emergency Department with evidence-based information.

Expert opinion suggests that these measures will provide the best possible evidence of program effectiveness. The indicators will be reviewed regularly as new evidence becomes available. Details of each of these indicators are available at the end of this document.

Area Health Services will be required to measure consumer satisfaction at the local level.

Framework structure

The guideline development process and the quality improvement method must draw together both the characteristics of the clinical encounter and the organisational context within which it occurs⁴. Accordingly, this clinical service framework will comprise two companion documents:

Volume 1 – The NSW Clinical Service Framework for Chronic Respiratory Disease

This volume identifies the essential components of the new approach to coordinated chronic and complex care, and the responsibilities of Area Health Services in the management of chronic respiratory disease.

Volume 2 – Practice Guide for the optimal treatment of Chronic Respiratory Disease

The second volume, clinically focused companion document, provides the clinical evidence and best known change strategies and care initiatives for managing and treating people with COPD and asthma.

This more clinically focused document also outlines levels of evidence and contains a number of 'Quick Guides' for the most appropriate management of acute exacerbations of the specific respiratory disease.

2. Coordinated chronic and complex care – a new approach

Current situation

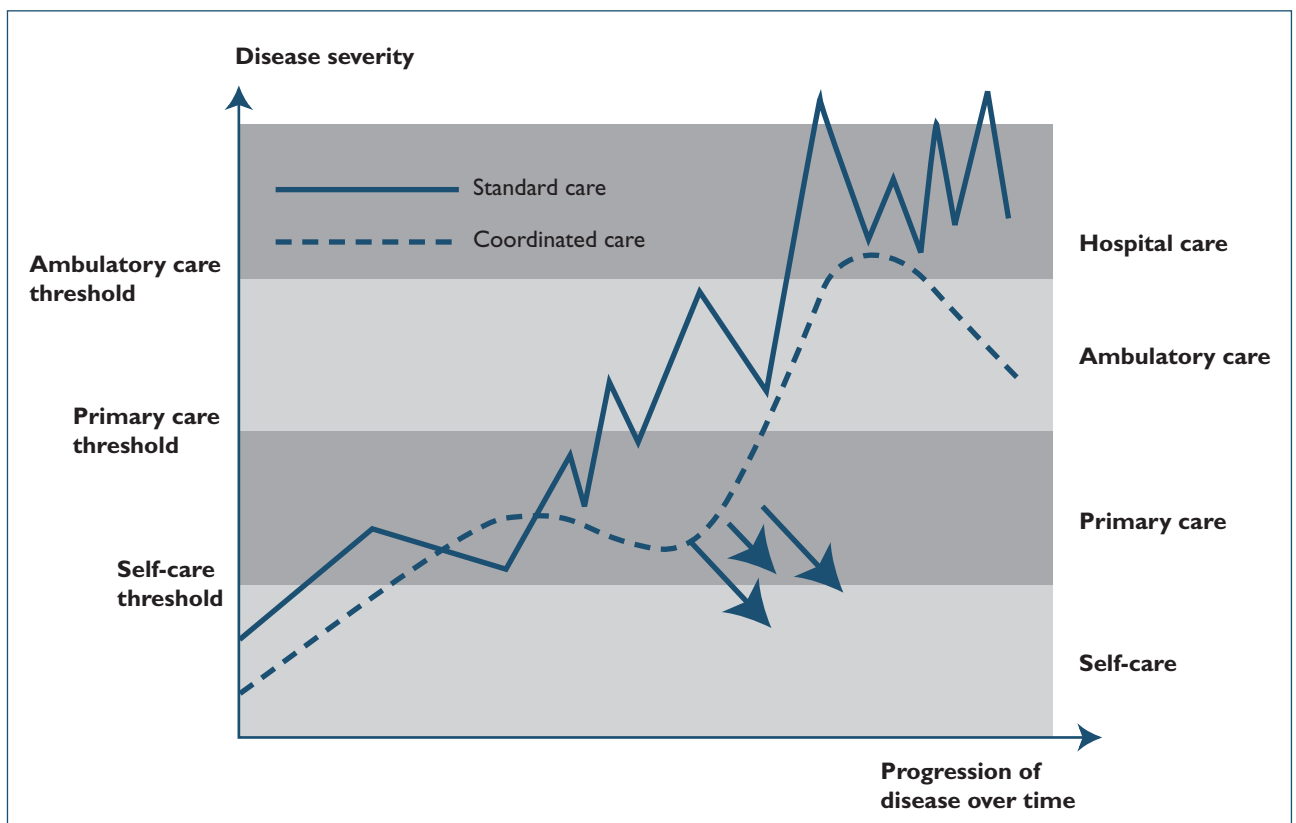
Currently, people who are already suffering from co-morbidities associated with their chronic and complex disease, are faced with the added burden of coordinating their own care through the myriad of clinical, primary care and community based services, which can include organising and attending appointments at many health care services.

The diagram below shows that below a certain degree of severity, a person's medical condition may be predominantly self-managed eg. through exercise and diet. Beyond this threshold, continuing and coordinated community-based care, including general practice, community nursing, allied health services and/or ambulatory care may be required. As severity and length of illness progress, hospitalisation may be required.

There is global consensus that significant potential exists to improve service provision for people with chronic and complex health care needs in the areas of cardiovascular disease, cancer and respiratory disease, while at the same time decreasing the burden on the acute care system, by reconfiguring health services in favour of an integrated, coordinated and more patient focused approach across all health care sectors, including:

- primary and acute care
- community health
- allied health
- mental health
- voluntary community-based health care and support organisations.

Figure 1: A person's interaction with health services as a function of disease progression and severity (adapted from Edwards & Hensher⁵)



The way forward

The following eleven sections briefly describe the essential components of safe, effective and appropriate care for patients suffering from chronic respiratory disease.

Multidisciplinary care planning

Less severe manifestations of COPD and asthma can be managed with timely and effective treatment in an outpatient setting, supported by an individualised care plan incorporating multidisciplinary support, thereby reducing the number of crisis situations, presentations at busy emergency departments and avoidable admissions to hospital.

Multidisciplinary care planning across the continuum of care will provide the systemic structure required for better management practices and improved service provision for people with chronic respiratory illness.

In addition to ensuring that the quality of care is monitored constantly and complications identified early, care plans, focusing on whole person care, will include essential information about weight, diet and nutrition, exercise, emergency procedures and other essential details to assist patients in monitoring their disease and developing self-management skills. Care plans will also enhance communication and integration between different health service providers.

Self-managed care

Acute exacerbations are responsible for a large proportion of hospitalisations from respiratory disease. Patient education and rehabilitation enhance patient self-confidence and motivation to monitor and self manage their disease in the convenience of their own home environment.

Some of the issues people with COPD and asthma have in common and which could be effectively managed in a home environment in the absence of severe exacerbations of illness requiring hospitalisation, and with appropriate education and multidisciplinary support, include:

- acute exacerbations of illness
- monitoring of disease
- exercise regimens
- weight and diet control
- medication regimens.

Involving all health care professionals and patients in patient education programs and the development of individualised self-care/action plans prior to discharge from hospital will assist patients, as well as their families and carers in accessing the types of information required to monitor and manage their disease more effectively.

Patients undertaking self-managed care should be assured that under the new arrangements community support services will be readily available, when required, and that access to the acute care sector will not be compromised.

Benefits achieved by patients who are able to monitor and undertake self-managed or supported self-care in close consultation with their doctor and other health care practitioners include:

- reduction in number of exacerbations
- reduction in number of presentations at the Emergency Department
- reduction in number of admissions to hospital
- convenience of care in the home
- better understanding of the disease and its implications.⁶

For asthma patients who undertake self-managed care in close consultation with their primary care giver (eg. general practitioner or asthma educator) benefits may include:

- reduction in asthma symptoms
- improvement in lung function
- reduction in frequency of attacks
- reduced dependency on reliever medications and oral steroid treatment
- reduction in use of antibiotics
- improvements in adherence⁷
- reduced time lost from school and work
- reduced number of out of hours presentations.

Education and training for health care professionals

Positive clinical attitudes are essential if COPD and asthma patients are to achieve the many benefits and improvements in health status that self-managed or supported self-care of their disease can provide.

A concerted supportive commitment to education and training of all health care professionals is required by Area Health Services in order to achieve the full integration of the concepts of coordinated care and self-managed care into current health care practices.

The concepts of coordinated care and self-managed care of chronic disease should also be an integral part of workforce planning, training and education courses for asthma educators, and Area Health Service performance reviews. The concepts should also be incorporated in future clinical service frameworks and policy documents.

In addition to developing skills to put evidence into practice, clinicians will also need to develop skills in planning and data analysis, evaluation and collaboration.

The new operating methods will also require the provision of workshops and seminars, and information concerning new trends in incentives to implement change, including information technology. The involvement of respected peers and opinion leaders as agents of change, is essential.⁸

Workforce development towards integrated care and the management of chronic illness, should include the involvement of:

- Royal Australian College of General Practitioners
- Divisions of General Practice
- primary care and community health sector health care professionals
- allied health professionals
- Thoracic Society of Australia and New Zealand.

Advances in information technology should be utilised as much as possible to facilitate education of health care professionals.⁹

Education and training programs for COPD and asthma patients

Health professionals can be instrumental in helping appropriate patients with COPD and asthma gain the self-confidence and motivation required for monitoring and self-managed care. Collaboration between patients and all health care professionals involved in the treatment process is essential for short-term goal setting and the mastering of new skills. Patients should also be given the opportunity to meet others like themselves through patient support groups, peer-leaders, and disease-specific e-mail lists and organisations. Patients should also be assisted to understand their symptoms.¹⁰

A coordinated multidisciplinary approach to education in the management of COPD and asthma should be initiated by the physician and continued by other health care professionals involved in the system of care.

Patient education can help improve and prevent symptoms, reduce the frequency and severity of exacerbations, improve health status and the quality of life of patients and their families and carers. Programs should be culturally appropriate, tailored to individual health needs and aimed at giving patients the confidence, knowledge and skills required to manage their illness daily.

***‘Patients who are confident in their ability to manage are the ones who have the best health outcomes’.**¹¹*

Self-management programs should cover three important tasks:

1. Medical management, such as taking medicines and exercising.
2. Maintaining and adapting important life roles, such as those of mother or worker.
3. Managing the anger, fear, frustration or depression that come singly or together, with having an uncertain future.

The programs should give equal emphasis to each of these three tasks.¹²

To offset the potential for acute exacerbations of the disease:

- All COPD patients should be encouraged to quit smoking and offered the opportunity to enrol in pulmonary rehabilitation programs to improve exercise tolerance and develop the skills required to self-monitor their disease.
- All people with asthma should be educated about risk factors and the use of written asthma management plans. Patients with high asthma-associated morbidity should be given highest priority in terms of access to self-management education.¹³

Chronic disease information dissemination

Quality of care for, and quality of life of patients with COPD and asthma can be enhanced by increasing patient awareness about their disease and relevant treatments available.

Area Health Services should ensure that educational material concerning risk factors and management and treatment of COPD and asthma is readily accessible in hospital clinics, emergency departments, general practitioner surgeries, pharmacies, community health centres, public libraries, sporting clubs and other relevant outlets.

The need for parents to provide a copy of their child's written asthma management plan and any other relevant information to school staff is essential and cannot be over emphasised.

The need for educational material on the management and treatment of children with asthma in schools should also be reinforced and displayed throughout the school environment.

Information technology should also be utilised to enable members of the general public to access advice and guidance on the prevention and/or management of specific respiratory diseases.

The National Asthma Council, (Freecall 1800 032 495 or NAC website address www.NationalAsthma.org.au) provides the latest information on asthma to health professionals and facilitates improvement in the standards of asthma care and management.

The Australian Lung Foundation (Freecall 1800 654 301 or website www.lungnet.com.au) provides education material for a range of respiratory diseases, including COPD.

Asthma NSW (Freecall 1800 645 130 or NAC website www.asthmansw.org.au) can provide educational posters and other materials, including criteria for establishing 'Asthma Friendly Schools' which aim to:

- improve self-management skills in students with asthma to enable them to participate fully in daily activities, including regular exercise and sport
- increase awareness of asthma among the whole student population, their parents/carers and teachers
- improve the ability of schools and teachers to fulfil their duty of care obligations to those students with asthma
- fit seamlessly into the health promotion curriculum of primary and secondary schools.

Enabling clinical leadership and consumer participation

Clinicians and consumers should be involved in service planning and management decision-making processes in order to ensure resource allocation and service delivery address health care priorities.

Patients and carers should be routinely included as members of service planning groups developing strategies to improve the management and treatment of people with chronic disease.

Improving admission and discharge planning

Admission and discharge planning processes will be streamlined by fast-tracking triage systems to reduce long waiting periods in Emergency Departments.

Improved post-acute service planning procedures, including care plans incorporating clinical pathways, multidisciplinary care coordination and access to chronic disease self-management programs will assist in easing the transfer of care between the acute care sector and the community.

Effective information transfer between all health care providers

The problems faced by people with chronic and complex conditions, especially where a number of co-morbidities exist, are compounded by the need to repeat their medical history, their current treatment and diagnostic test results each time they need to consult a new service provider. This can be especially problematic in crisis situations and on presentation to an Emergency Department.

NSW Health has now developed a personal health record, known as *My Health Record*. *My Health Record* is a folder which is designed to hold a patient's personal health information, including for example:

- an individualised self-management (action) and multidisciplinary care plan
- diagnostic test results
- medication regimens
- known allergic reactions
- emergency contact details.

The personal health record will assist in the effective exchange of information, streamlining of admission and discharge planning practices, as well as the capacity of patients to participate fully in their own health care.

In enhancing communication between all health care service providers, *My Health Record* will provide valuable assistance in initiating cross-sector health care support networks for people with chronic and complex medical conditions.

24-hour contact points

All patients in NSW who have a diagnosed chronic respiratory illness should know who to call for help and/or advice at any time of the day or night.

24-hour contact points will assist in reducing the number of crisis situations that often result in presentations to an Emergency Department and/or stressful and sometimes avoidable admissions to hospital.

Where hospitalisation is essential, 24-hour contact points should also be able to expedite admission procedures.

Collaboration with Divisions of General Practice

Area Health Services should develop protocols to enhance collaboration with the Divisions of General Practice to improve the interface between general practitioners and the acute care and community health sectors.

Effective use of technology

Rural Area Health Services should develop strategies to ensure that people with chronic and complex health care needs in rural, regional and remote areas are able to access the services and/or professional information, education and advice they require at the same level as their metropolitan counterparts.

The potential for metropolitan specialists and clinicians to network, share examples of best practice and provide advice and guidance to their rural counterparts concerning the implementation of this framework, should be actively considered and pursued.

Telemedicine offers new opportunities for improving access to diagnostic services, in sharing specialist knowledge and expertise among clinicians and in providing the opportunity for health care professionals to update knowledge, skills and expertise.

Audiovisual aids should also be considered when designing initiatives for improving access to services in rural and remote areas.

Outreach services, formal partnerships between rural and metropolitan Area Health Services, local social support service networks and visiting specialist programs are other areas that can be developed further to improve access to health services for people in outlying rural areas.

3. Chronic respiratory disease – Background

Chronic respiratory disease is a major cause of chronic morbidity and mortality. In developing a clinical service framework, it is necessary first to define the scope of COPD and asthma in clinical, epidemiological and organisational terms. This information forms the rationale for the standards and recommendations contained in this framework.

COPD

Definition of COPD

COPD is defined as:

*‘a disease state characterised by airflow limitation that is not fully reversible. The airflow limitation is usually both progressive and associated with an abnormal inflammatory response of the lungs to noxious particles or gases’.*¹⁴

Causes of COPD

Tobacco smoke

The most important risk factor for COPD is smoking tobacco. Passive exposure to cigarette smoke also contributes to respiratory symptoms and development of COPD.¹⁵

In susceptible individuals smoking leads to small airway narrowing and emphysema, the most common conditions resulting in COPD. In emphysema, alveolar enlargement and destruction lead to airway collapse during expiration. Chronic bronchitis is a separate effect of smoking and is defined as cough and sputum production for three months in two consecutive years.

In NSW in 1997/98, 27% of men, and 21% of women (aged 18 years and over), reported that they were current smokers.

Rates of current smoking were highest for young adults with the prevalence of current smoking peaking at 35.3% for males in the 25–34 years age group. The smoking rate was higher for women than men in the age group 25–29 years (28.6%). The 1997/98 NSW Health Surveys indicate that 41% of indigenous people reported being a current smoker, compared to 24% of non-indigenous people reporting being current smokers.¹⁶

Smokers have a higher prevalence of lung function abnormalities and higher death rates for COPD than non-smokers. Passive exposure to cigarette smoke may also contribute to respiratory symptoms and COPD by increasing the lungs’ total burden of inhaled particulates and gases. Other agents that may cause COPD include occupational dust, chemicals and air pollution.

Occupational dust and chemicals

Prolonged or intense exposure to some occupational dusts and chemicals, eg. vapours, irritants, fumes, may contribute to the development of COPD, or airflow limitation. Exposure to inorganic dusts, especially in the farming sector, is also a risk factor for the development of COPD.

Outdoor and indoor air pollution

The role of outdoor air pollution in causing COPD is unclear but appears to be small when compared with cigarette smoking. Indoor air pollution from biomass fuel, burned for cooking and heating in poorly vented dwellings has been implicated as a risk factor for COPD in developing nations. A number of host factors such as genetic factors, airway hyper-responsiveness and lung growth, also contribute to the development of COPD.

COPD epidemiology

Differences in definition make international comparison and meta-analysis of study data for COPD difficult. A number of organisations, including the American Thoracic Society and the British Thoracic Society, have differing definitions. As a result, epidemiological data on morbidity and mortality for COPD has been difficult to quantify.

Although COPD is responsible for a significant number of hospital admissions, the limited availability of mortality data underestimates the disease as a cause of death as it is more likely to be cited as contributory rather than an underlying cause of death, or the disease may not be cited at all.

Prevalence

The prevalence of COPD is highest in countries where cigarette smoking is common, and lowest in countries where smoking is less common. A Global Burden of Disease Study, conducted under the auspices of the World Health Organisation and the World Bank, estimated the prevalence of COPD to be 9.43/1,000 in men and 7.33/1,000 in women.¹⁷

COPD increases with age, with older adults demonstrating a higher prevalence of the disease. The Australian Institute of Health and Welfare (AIHW) estimates that there were almost 300,000 people with COPD in 1996, representing 1.6% of the population, and that more than 20,000 new cases are being diagnosed every year.¹⁸

Morbidity

Morbidity due to COPD increases with age and is greater among men than women.¹⁹ In Australia, and in NSW, COPD is the third leading cause of 'burden of disease', behind ischaemic heart disease and stroke.

COPD is the largest contributor to the burden of disease associated with all lung diseases and conditions (including emphysema, pneumonia, cystic fibrosis and asthma) and about three times the burden of acute respiratory infections in NSW. COPD is more than four times the burden of other chronic respiratory diseases, excluding asthma²⁰

COPD is often complicated by depression and a reduced ability to work and exercise. The effect of the disease on family and friends is often underestimated.

Mortality

COPD is the fourth leading cause of death in the world.²¹ In Australia, COPD was also the fourth leading cause of death in 2000, accounting for 5,296 deaths.²²

In NSW in 2000, there were 1945 deaths from COPD (25 per 100,000 people). COPD was also reported as the contributing cause of death in 11% of males and 8% of female deaths from ischaemic heart disease in Australia in 1998. The death rate for COPD has declined in Australia over the last three decades, reflecting changes in cigarette smoking.²²

COPD admission rates

In NSW hospitals there were more than 18,000 separations where the principal diagnosis was COPD in 1999/2000. These represent approximately 133,000 bed days with an average length of stay 8.7 days.²³

Economic costs

COPD consumes about 8% of total health system costs. Almost half of this is spent in the hospital sector and represents the highest hospital cost of any respiratory disease.²⁴ The disease costs the Australian health system almost three times as much as lung cancer (\$107 million).

COPD standards, milestones and targets

Current medical management of COPD consists primarily of a wide range of medical therapeutic modalities, including preventive measures, baseline and rescue pharmaceuticals, oxygen therapy, exercise, control of anxiety and depression, bronchial hygiene measures, and surgery. The lack of service integration in this acute-care focus on health care has many disadvantages for people with chronic and complex medical conditions who often present with a number of coexisting morbidities requiring access to, and treatment from a number of different service providers.

The aim of this clinical service framework is to coordinate patient care across the entire health care system with current best evidence,

clinical expertise and a patient focus. The following best practice standards have been developed using an evidence-based approach.

Unless otherwise stated, the treatment measures incorporated in these standards of care are based on the Global Initiative for Chronic Obstructive Disease (GOLD). GOLD is a collaborative project of the US National Heart, Lung and Blood Institute (NHLBI) and the World Health Organisation (WHO). Its goals are to increase global awareness of COPD and to decrease morbidity and mortality from the disease.

The six standards for COPD relate to:

1. COPD prevention.
2. Diagnosis and severity of COPD.
3. Management of stable COPD.
4. Acute exacerbations of COPD.
5. Pulmonary rehabilitation.
6. Home oxygen therapy.

Within each standard, specific evidence-based recommendations have been made, and initial milestones and targets have been established to foster continuous quality improvement in health service delivery to people with COPD.

The milestones and targets will help to mark the rate of progress of each Area Health Service towards achieving the evidence-based best practice standards included in the framework.

The COPD standards, specific recommendations, milestones and targets, which are described in detail in Volume 2, are summarised on the following pages.

A summary of standards, recommendations, milestones and targets for COPD

Standard	Evidence-based recommendations	Milestones and targets
<p>Standard 1 – COPD prevention</p>	<p>NSW Health and Area Health Services should:</p> <ul style="list-style-type: none"> a. Develop, implement and monitor programs that reduce the prevalence of COPD in the population. b. Contribute to a reduction in the prevalence of smoking. <p>All health care providers should: At every contact, where appropriate, educate smokers on the dangers of smoking and offer practical advice on how to stop.</p>	<p>By December 2003 – smoke free campus policies will be implemented in all hospital areas in line with the <i>NSW Department of Health Smoke Free Workplace Policy (1999)</i>.</p> <p>By June 2004 – 100% of Area Health Services will have Smoking Cessation programs in place at all major hospitals.</p> <p>By December 2003 – 50% of admitted patients will be screened for smoking, referred to smoking cessation services or the Quitline (Tel. 131 848) and advised on nicotine replacement therapy or other pharmacotherapy for nicotine addiction.</p> <p>By June 2004 – 100% of admitted patients will be screened for smoking, referred to smoking cessation services or the Quitline (Tel. 131 848) and advised on nicotine replacement therapy or other pharmacotherapy for nicotine addiction.</p> <p>By December 2004 – 100% of COPD patients admitted to hospital will be advised to stop smoking, offered referral to a smoking cessation program and advised on nicotine replacement therapy or other pharmacotherapy for nicotine addiction.</p>
<p>Standard 2 – Diagnosis and severity of COPD</p>	<p>General practitioners, primary care teams and specialists should:</p> <ul style="list-style-type: none"> a. Use spirometry to confirm a diagnosis of COPD. b. Identify people with established COPD. c. Identify people at significant risk of COPD (ie. smokers). 	<p>By December 2003 – 100% of COPD patients will have access to spirometry.</p> <p>By December 2003 – 50% of inpatients with a smoking history of 15 pack-years* will be assessed by spirometry.</p> <p>By June 2004 – 100% of inpatients with a smoking history of 15 pack-years* will be assessed by spirometry.</p> <p><small>*1 'pack year' = 1 year of smoking >= 1 pack (20 cigarettes per day).</small></p>
<p>Standard 3 – Management of stable COPD</p>	<p>General practitioners, specialists and other health care professionals should:</p> <ul style="list-style-type: none"> a. Provide optimal management based on evidence including prevention of complications (eg. influenza vaccination) and non-pharmacological treatment (eg. pulmonary rehabilitation – refer to Standard 5). 	<p>By June 2003 – 50% of appropriate patients (people aged 65 and over diagnosed with COPD) will be informed about the benefits of influenza vaccination.</p> <p>By June 2004 – 100% of appropriate patients (people aged 65 and over diagnosed with COPD) will be informed about the benefits of influenza vaccination.</p>

A summary of standards, recommendations, milestones and targets for COPD

Standard	Evidence-based recommendations	Milestones and targets
	<p>b. Educate stable COPD patients on strategies to optimise functional status and reduce risk factors in the ongoing management of the disease (possibly as part of pulmonary rehabilitation – refer to Standard No 5).</p> <p>c. Participate in developing an individualised care plan for the most effective management of people with COPD.</p> <p>Designated Area Health Services with appropriate facilities should have protocols for surgical management of selected COPD patients.</p> <p>Other Area Health Services should develop protocols to assess the suitability of selected COPD patients for specialist assessment for surgical treatment.</p>	<p>By December 2003 – 100% of patients admitted with COPD will be given information about their disease and the value of a regular exercise program.</p> <p>By December 2003 – 25% of appropriate COPD patients admitted with COPD who are graded as severe will be provided with a care and management plan that should include an action plan for exacerbations. Such an action plan should state when to start antibiotics, increase bronchodilators, oral corticosteroids, and when to see their general practitioner.</p> <p>By December 2003 – Area Health Services with appropriate facilities will have protocols for surgical management and treatment of selected COPD patients. Other Area Health Services will have developed protocols to assess the suitability of patients with COPD for referral for surgical management and treatment.</p>
<p>Standard 4 – Acute exacerbations of COPD</p>	<p>People with symptoms of a possible acute exacerbation of COPD should:</p> <p>a. Receive appropriate investigation and treatment to relieve their symptoms.</p> <p>b. Be assessed for admission to hospital.</p> <p>c. Have a management plan indicating steps to take and changes to medications, if appropriate.</p> <p>d. Be treated at home if possible.</p> <p>Area Health Services should:</p> <p>a. Put in place agreed protocols and systems of care so that people presenting to hospital with acute exacerbations of COPD are appropriately assessed and offered treatments of proven clinical and cost effectiveness to reduce their risk of disability and death.</p> <p>b. Consider the development and/or enhancement of outreach services of coordinated care to promote and assist management in the community.</p> <p>c. Develop, implement and monitor a program to provide multidisciplinary coordinated and comprehensive care, including supportive and, when appropriate, palliative services for patients with COPD.</p>	<p>By December 2003 – all Area Health Services will have developed protocols and systems of care to assess and manage COPD exacerbations.</p> <p>By December 2003 – all Area Health Services will have developed or enhanced outreach services to promote and assist management of people with COPD in the community.</p> <p>As above.</p> <p>As above.</p> <p>By December 2003 – all Area Health Services will have developed plans or protocols for multidisciplinary coordinated care for patients with COPD.</p> <p>By June 2004 – developed protocols and systems of care for the assessment and multidisciplinary coordinated management of COPD exacerbations will be reviewed and revised if required.</p>

A summary of standards, recommendations, milestones and targets for COPD

Standard	Evidence-based recommendations	Milestones and targets
<p>Standard 5 – Pulmonary rehabilitation</p>	<p>Area Health Services should:</p> <p>Put in place agreed protocols/systems of care so that patients with moderate and severe COPD have access to participate in a multidisciplinary rehabilitation program including education and exercise.</p> <p>The aim of this comprehensive program will be to enhance health-related quality of life and self-efficacy, promote and improve exercise performance, and reduce symptoms of dyspnoea and fatigue.</p>	<p>By December 2003 – all Area Health Services will have multidisciplinary pulmonary rehabilitation programs in place.</p> <p>By December 2003 – 100% of patients admitted for COPD will be offered the opportunity to participate in a pulmonary rehabilitation program.</p> <p>By December 2003 – a minimum of 10% of appropriate patients admitted for COPD will have completed a pulmonary rehabilitation program.</p> <p>By June 2004 – a minimum of 50% of appropriate patients admitted for COPD will have completed a pulmonary rehabilitation program.</p>
<p>Standard 6 – Home oxygen therapy</p>	<p>Health Care Providers should:</p> <p>Identify patients with COPD who are eligible for oxygen therapy and refer them for specialist assessment.</p> <p>Area Health Services should:</p> <p>Put in place agreed protocols and systems of care so that, prior to leaving hospital, all patients admitted for COPD have been assessed for suitability to receive oxygen therapy.</p> <p>People with COPD who are prescribed oxygen therapy should:</p> <ol style="list-style-type: none"> Receive education on how to operate and obtain optimal benefit from their oxygen equipment. Be assessed regularly after starting oxygen therapy to determine continuing need. 	<p>By December 2003 – all Area Health Services with specialist respiratory facilities will have protocols/ systems of care defined to ensure that all admitted COPD patients have been assessed for suitability to receive oxygen therapy and are reviewed to determine ongoing need.</p> <p>By June 2004 – 100% of COPD patients prescribed oxygen therapy will have received instructions on how to operate the equipment for optimal benefit.</p>

Asthma

Definition of asthma

The definition of asthma adopted by the National Asthma Council is based on the definition contained in the Guidelines for the Diagnosis and Management of Asthma, developed by the National Heart, Lung and Blood Institute, Bethesda, Maryland, USA, 1997.²⁵

Asthma is defined as:

'a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role, in particular, mast cells, eosinophils, T lymphocytes, macrophages, neutrophils, and epithelial cells. In susceptible individuals, this inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness, and coughing, particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment. The inflammation also causes an associated increase in the existing bronchial hyper-responsiveness to a variety of stimuli.'

Causes of asthma

Causes of asthma can be considered at four levels as factors that:

1. Predispose to asthma, eg. family history of asthma.
2. Induce asthma, eg. occupational exposure, environmental tobacco smoke, respiratory infections.
3. Trigger individual attacks of asthma in children or adults who already have the disease, eg. viral infections and exercise.
4. Sustain and maintain the asthmatic state.

Asthma epidemiology

Prevalence

Asthma is a significant public health problem in Australia with prevalence rates increasing and among the highest in the world. There is evidence of increasing asthma prevalence and severity in children.

Morbidity

According to the 1997/98 NSW Health Surveys, one in ten adults (persons aged over 16 years) in NSW reported having current asthma during that period. Almost 40% of these people reported having their sleep interrupted by asthma on one or more nights in the previous month.²⁶ For the same period, the prevalence of self-reported asthma

varied from 8.6% in the South Western and Northern Sydney Area to 13.8% in the Greater Murray Area.²⁷

Asthma ranks as the sixth most common reasons for consulting a general practitioner and is one of the most common medical cause for hospital admission in children. Asthma prevalence rates in children are higher than in adults. The disease has been estimated to affect about 20% of children.²⁸

It is thought that some of the observed regional variation in asthma prevalence may be related to different levels of allergic sensitisation. For example, sensitisation to house dust mites was higher in coastal areas when compared with inland areas. Sensitisation to the mould alternaria, however, is more common in agricultural areas.

Mortality

The total number of deaths in NSW (for all ages) due to asthma decreased from 322 in 1980, to 180 in 2000. This represents a decrease of almost 40% over the 20 year period. Deaths from asthma in people aged 5–34 years declined by almost 55% over the same period. The fall in asthma deaths is thought to be due to improvements in classification of the cause of death as well as improvements in asthma management and education.²⁹

In 2000, 454 Australians died from asthma, which was less than 1% of all deaths. Education, drug therapy and an effective treatment plan, can reduce morbidity and mortality.³⁰

Admission rates in NSW

In NSW hospitals there were almost 16,000 separations where the principal diagnosis was asthma in 1999/2000. This was associated with approximately 36,000 bed days and an average length of stay of 2.6 days.³¹

Economic costs of asthma

The cost of asthma to the Australian community has been estimated at approximately \$700 million per year.³²

Standards, targets and milestones for asthma

There are currently many strategies operating at a local, statewide and national level to improve outcomes for people with asthma. The 1999 Evidence-Based Review of the Australian Six Step Asthma Management Plan, subsequent Cochrane reviews and the Asthma Management Handbook form the basis for the best practice recommendations detailed in Volume 2.

The nine standards for asthma relate to:

1. Asthma detection and diagnosis
2. Asthma self-management
3. Assessing asthma severity
4. Preventing acute exacerbations of asthma
5. Stabilising chronic asthma
6. Management of the acute episode in the Emergency Department
7. Management of the transition of care
8. Paediatric asthma management
9. Asthma education

For each of these standards, specific evidence-based recommendations have been made, and initial milestones and targets have been established in order to foster continuous quality improvement in health service delivery to people with asthma. The milestones and targets will help to mark the rate of progress of each Area Health Service towards achieving the evidence-based best practice standards included in the framework. The asthma standards, recommendations, milestones and targets, which are described in detail in Volume 2, are summarised below.

A summary of standards, recommendations, milestones and targets for asthma

Standard	Evidence-based recommendations	Milestones and targets
Standard 1 – Asthma detection and diagnosis	General practitioners, specialists and other health care professionals involved in the management and treatment of asthma should have access to a spirometer to confirm the diagnosis of asthma.	By June 2003 – all patients admitted to hospital with asthma or assessed in Emergency Departments with suspected asthma will have spirometry to confirm the diagnosis of asthma.
Standard 2 – Asthma self-management	Area Health Services should: a. Develop education programs for health care professionals and patients which seek to promote patient self-management techniques, highlight the importance of regular review and episodes of care that should be treated by general practitioners. b. Encourage the participation of carers in patient self-management education programs.	By December 2003 – all admitted patients will receive asthma education regarding device use, preventive medication and the need for regular medical review. By December 2003 – all admitted patients will receive a written asthma action plan at discharge or on first review. By December 2003 – all Area Health Services will have developed plans which foster the participation of carers in patient self-management education programs.
Standard 3 – Assessing asthma severity	General practitioners, specialists and other health care professionals should: a. Base the assessment of asthma severity on overall asthma severity, and not the severity of an acute attack. b. Assess asthma severity when the patient is stable, not during an acute attack.	By December 2003 – 100% of patients attending Emergency Departments for asthma will have asthma severity assessed based on National Asthma Council guidelines.
Standard 4 – Preventing acute exacerbations of asthma	Area Health Services should ensure that all health care professionals involved in the management and/or treatment of asthma: a. Receive ongoing education and up-skilling in the optimal management and treatment of asthma, including information on how to identify the high-risk patient. b. Assist people with asthma to avoid acute exacerbations of the disease by regular review and working in partnership with general practitioners, specialists and hospital and community based pharmacists to monitor and control the disease.	By December 2003 – all Area Health Services will ensure that health care professionals involved in the management of asthma have access to ongoing education and up-skilling in the optimal management of asthma. By June 2003 – a general practitioner will be contacted for all admitted patients at discharge to arrange first review.

A summary of standards, recommendations, milestones and targets for asthma

Standard	Evidence-based recommendations	Milestones and targets
	<p>c. Develop collaborative partnerships with general practitioners, and hospital and community based pharmacists to promote the '3+ Visit Plan' and inform people with asthma of the improvements in health status and quality of life they and their families can expect from contracting with their general practitioner to undertake the plan.</p> <p>d. Provide educational material and information on self-management techniques, including an explanation of, and the need for adherence to written asthma action plans, to enable patients to monitor and manage their own self-care.</p>	<p>By December 2003 – all patients who attend hospital with moderate to severe asthma will be provided with a written asthma action plan.</p>
<p>Standard 5 – Stabilising chronic asthma</p>	<p>General practitioners, specialists and other health care professionals should:</p> <p>a. Explain the benefits of the National Asthma Council's Six-Step Asthma Management Plan and '3+Visit Plan' to all patients with asthma.</p> <p>b. Provide optimal management based on evidence as outlined in the Six-Step Asthma Management Plan.</p> <p>General practitioners should: Offer the '3 + Visit Plan' to all asthma patients in order to achieve best quality of life.</p>	<p>By June 2003 – all patients with moderate to severe asthma who attend an Emergency Department or are admitted for asthma will be provided with information about the Six-Step Asthma Management Plan and the '3+Visit Plan'.</p> <p>By June 2003 – all patients attending hospital with moderate to severe asthma will be prescribed inhaled corticosteroids.</p> <p>By June 2003 – all patients with moderate to severe asthma who attend an Emergency Department or are admitted for asthma will be advised on the benefits of the '3+Visit Plan' and will receive an appointment to visit their general practitioner for follow-up care (see Standard No 7).</p>
<p>Standard 6 – Management of the acute episode in the Emergency Department</p>	<p>Area Health Services should:</p> <p>a. Ensure that appropriate treatment protocols are in place at every hospital Emergency Department for management of acute episodes of asthma.</p> <p>b. Ensure that these treatment protocols include the need to effect rapid symptom relief by:</p> <ul style="list-style-type: none"> – administering a short-acting beta₂agonist – determining asthma severity by spirometry and/or peak flow measurements to gain an objective measure of airflow obstruction – considering the need for oral corticosteroids and oxygen. 	<p>By December 2003 – all patients managed in the Emergency Department with an acute episode will have an assessment of the acute attack documented.</p> <p>By December 2003 – all patients managed in the Emergency Department with an acute asthma episode will have oxygen saturation assessed.</p> <p>By December 2003 – all patients managed in the Emergency Department with an acute episode will have spirometry or peak expiratory flow (PEF) measured.</p>

A summary of standards, recommendations, milestones and targets for asthma

Standard	Evidence-based recommendations	Milestones and targets
<p>Standard 7 – Management of the transition of care</p>	<p>Area Health Services should:</p> <p>Ensure that the transition of care for patients discharged to community-based care from the acute health sector includes a written asthma action plan and effective follow-up care plan developed in collaboration with relevant health care professionals. Including hospital and community based staff, general and specialist staff such as Aboriginal health workers and multicultural health workers</p>	<p>By June 2003 – all patients discharged from Emergency Departments will receive an appointment to see a general practitioner or specialist within two weeks.</p> <p>By June 2003 – general practitioners of all patients will be contacted on discharge of all patients presenting to Emergency Departments with asthma.</p> <p>By December 2003 – all patients being discharged from hospital following an admission for asthma will be provided with a written asthma action plan and arrangements for follow-up care by their general practitioner or specialist.</p>
<p>Standard 8 – Paediatric asthma management</p>	<p>Area Health Services should:</p> <p>a. Ensure that information concerning the most effective management and treatment of acute exacerbations of asthma in children is readily available in all hospital Emergency Departments and other health care facilities, including community health centres and pharmacies.</p> <p>b. Ensure that hospital discharge planning processes include the provision of a written asthma action plan and personal health record containing relevant information concerning diagnostic test results, medication regimens, known allergic reactions, emergency contact details and other essential information.</p> <p>c. Ensure that effective protocols are in place for appropriate follow-up care of children discharged from hospital following an acute exacerbation of the disease.</p>	<p>By June 2003 – information concerning the most effective management and treatment of acute exacerbations of asthma in children will be readily available in all hospital Emergency Departments and other health care facilities, including community health centres and pharmacies.</p> <p>By December 2003 – hospital discharge planning processes will include the provision of a written asthma action plan and personal health record containing all relevant information.</p> <p>By December 2003 – all children discharged from hospital following an acute episode of asthma will be provided with an extra copy of their written asthma action plan to provide their school with information regarding regular medications, any requirements for medications before exercise, a plan for acute management and the child's doctor's contact details.</p> <p>By December 2003 – effective protocols will be in place in all Area Health Services for appropriate follow-up care of children discharged from hospital following an acute exacerbation of asthma.</p>
<p>Standard 9 – Asthma education</p>	<p>All health care professionals involved in the management/treatment of patients with asthma, particularly general practitioners, specialists, pharmacists (hospital and community based) and asthma educators, should collaborate in educating and reinforcing the key concepts of asthma management.</p> <p>Area Health Services should ensure that all patients with asthma are provided with a personal health record incorporating an individualised written asthma action plan and information concerning medication, diagnostic test results, allergies, emergency contact details and any other essential information.</p>	<p>By December 2003 – all patients with moderate to severe asthma will receive asthma self-management education, and a written asthma action plan.</p> <p>By December 2003 – all patients with moderate to severe asthma will be provided with a personal health record* which incorporates an individualised written asthma action plan.</p> <p><small>* My Health Record is available from the Better Health Centre</small></p>

4. Framework implementation strategy

Effective implementation of this framework will require the active engagement of all stakeholders. This includes Area Health Service executives, clinicians, managers and service planners working in close liaison with the primary care sector, as well as community health and allied health sectors in order to establish effective discharge planning processes which ensure seamless transitional care for people with chronic disease and ongoing health care needs.

Implementation of this framework will also require effective clinical governance.

The key elements of clinical governance in NSW are:

- A recognition and acceptance by Boards and health service management that they have a responsibility for the quality of care delivered by the service and that this accountability is shared equally with the clinicians providing this care.
- Action by Boards to ensure that an effective system is in place, that:
 - provides an environment that fosters quality
 - monitors the quality of care
 - provides a regular report to the Board on the quality of care
 - minimises the risk of and identifies deficiencies in the quality of care
 - effectively addresses these deficiencies.

In practical terms this means that managers and clinicians have an equal responsibility for implementing this clinical service framework. Clinicians must play a major role in informing the system of improvements that are required and in participating in the improvement process. Managers must commit to acting upon the reasonable suggestions of clinicians for change and for developing the environment in which high quality care as identified in the standards, can be provided.

Effective implementation of this framework will be based on a sound scientific approach to improvement. Such a model has two central components:

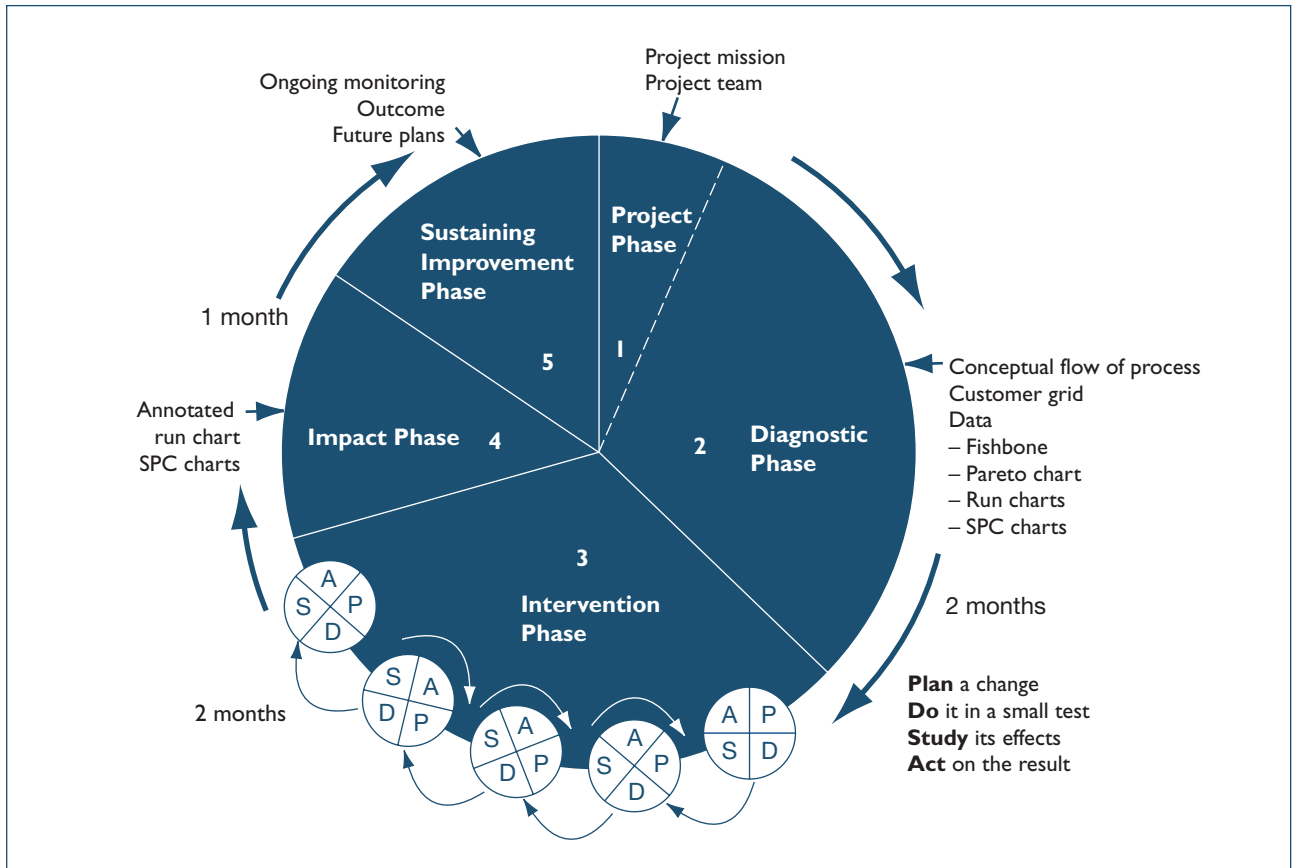
1. Three fundamental questions:
 1. What are we trying to accomplish?
 2. What changes can we make that will result in an improvement?
 3. How will we know that a change is an improvement?
2. The application of a number of tests to determine what changes are going to result in improvement (that is, a number of plan-do-study-act [PDSA] cycles).

Combined, the three questions and the PDSA cycle form the basis of the model for improvement.

The following diagram represents the five stages in the improvement process:

1. The project – identifying what you are trying to accomplish and who should be involved.
2. The diagnostic phase – establishing the full extent of the problem, what changes can be made that will result in an improvement and how to measure that.
3. The intervention – actually implementing the changes that were identified in the diagnostic phase.
4. The impact – measuring and recording the effect of the changes.
5. Sustaining the improvement – ongoing monitoring and planning the future improvement.

Figure 2: Five stages in the Quality Improvement Process



Source: For all information that is required to undertake this process please refer to:
*An Easy Guide to Clinical Practice Improvement :A Guide for Health Care Professionals.*³³

The implementation process therefore should involve but not be limited to the following steps.

Key steps	Action required by Area Health Services
The project	<ul style="list-style-type: none"> ● The mission and/or aims statements for the implementation of the framework will need to be developed around the achievement of the many standards documented in the framework. ● Appropriate teams should be formed in order that those people with the fundamental knowledge of the processes involved in achieving the standards are included. ● Appropriate governance structures will need to be identified and developed. The Area Quality Council should play a major role in this.
The diagnostic phase	<p>The teams described above should undertake a thorough process, using sound improvement tools to establish:</p> <ul style="list-style-type: none"> ● the full extent of the requirements of the standard ● current situation in regard to achieving the standards ● appropriate measurements of baseline performance against which improvement can be measured ● appropriate interventions to achieve the standards.
Intervention	The team will test the interventions identified above using numerous PDSA cycles and then progress to implement those interventions that have been successful in achieving the standards of care.
Impact	The team will measure and record the effect of the changes and publicise improvement as appropriate.
Sustaining improvement	<p>The team will develop effective mechanisms to ensure that the improvements that have been achieved will be sustained. These will include:</p> <ul style="list-style-type: none"> ● standardisation ● documentation ● continuous measurement ● training and education.
Area-wide rollout	If the improvement process identified above was undertaken in one site, effective strategies need to be identified for implementation across the whole Area Health Service.

Important points to remember in the implementation process:

1. Include consumers/patients on teams and in the improvement process. These patients are by definition frequent users of health care services and therefore can offer many useful suggestions for improvement.
2. General practitioners must play a major role in the effective treatment of patients with chronic respiratory disease, and therefore it is essential to involve general practitioners in the implementation process.
3. Allied health practitioners can become excellent care coordinators. Physiotherapists, for example, spend long periods of time with patients with chronic respiratory disease. Many patient care issues can be effectively managed during these periods by involving these staff in the implementation process.
4. Involve practitioners working with specific population groups such as Aboriginal and Torre Strait Islanders and CALD communities.
5. Continuous measurement is essential. To achieve 'buy-in', ascertain whether improvement is occurring, to maintain enthusiasm for and focus on the process being improved.
6. Practical, technical support for the implementation process is available from the NSW Department of Health's Quality and Clinical Policy Branch if required.
7. Communicate the aims of the framework broadly and effectively. Report on progress often.

Progress

5. Assessing progress

Statewide performance indicators

At a statewide level, the following indicators have been selected for analysis of progress:

- Rates of admissions to hospital of patients who have a diagnosed respiratory disease.
- Rates of unplanned re-admissions to hospital of patients who have a diagnosed respiratory disease.
- Relative Stay Index for chronic disease patients admitted to hospital.
- Percentage of patients who have been diagnosed with COPD who are enrolled in a pulmonary rehabilitation program.
- Percentage of patients enrolled in a pulmonary rehabilitation program who complete the program.
- Rates of patients who are diagnosed with asthma who present to an Emergency Department with an acute exacerbation of the disease and who leave the Emergency Department with evidence based information.

6. Conclusion

The new approach outlined in this framework requires a fundamental shift in the way that health services are currently delivered in NSW and will depend ultimately on the efforts of people planning and delivering services at a local level.

The major challenge for clinicians is the need to refocus a health system that is centred around an acute care system focusing on acute episodes of care, to a modern health care system looking towards an holistic coordinated approach across the continuum of care. The solutions that would result in better care and less usage of the acute care sector rely heavily on the community and primary health care sectors, and on self-managed care. Meeting this challenge will require closer collaboration between specialists, general practitioners, pharmacists, other allied health practitioners, community-based health care support organisations and health service planners.

The development of evidence-based, best practice clinical service frameworks that identify what consumers should expect from a high-quality health service, together with the introduction of a personal health record providing ready access to essential information for patients and their service providers, will assist in enhancing communication between health care practitioners, and in developing better management practices for people with chronic disease.

Information gained from the introduction of the personal health record will also contribute to the types of information the health system will require for the development of a more sophisticated electronic health record to effect the transfer of patient information between all health care practitioners and patients in the future.

Current activities to establish a 24-hour point of contact to enable fast-track triaging and/or provide professional education and advice will also assist people with chronic disease to gain access to the treatment they require, when they need it, and without having to wait too long to be seen by a general practitioner, to receive treatment in an Emergency Department, or to be discharged from hospital.

There are many other initiatives being undertaken by NSW Health and others at the time of developing this Clinical Service Framework. It will be necessary to incorporate the outcomes of these initiatives as they are completed. While many of these initiatives are hospital-based, they are also designed to improve service provision for people with chronic illness across the continuum of care. Some of these initiatives are listed below:

- streamlined admission and discharge planning
- development of an effective funding model for chronic and complex care
- chronic disease prevention strategies
- priority driven research
- transport issues
- enhanced interface between primary care, acute care and Emergency Departments
- Electronic Hospital Discharge Referral System (DRS)
- Clinical Information Access Program (CIAP)
- Electronic Prescribing Decision Support System (EPDS)
- Emergency Department Information System (EDIS)
- General Practice Information Management and Technology Strategy (GPIM&T) interface issues
- development of a unique patient identifier
- development of an electronic health record.

The immediate challenge for Area Health Services and clinicians is to reduce the increasing burden on the acute care sector by working collaboratively with other health care practitioners to minimise the risk of developing chronic disease, ensure appropriate chronic disease prevention strategies are in place, and to reduce the effect of chronic disease by providing professional information, education, training and advice, specialised treatment and ongoing coordinated multidisciplinary support across the continuum of care.

The involvement of clinicians in decision-making in strategies to improve service provision for people with chronic illness is paramount to achieving a more efficient and effective health care system. The global emphasis on clinical governance will require Area Health Services throughout Australia to develop a number of education and training and peer support programs, to assist clinicians and other health care professionals effect the cultural change required to meet these new challenges.

General practitioners, in particular, will need to be strongly supported and encouraged to be proactive in dealing with patients with chronic illness.

There is a high level of confidence that clinicians, general practitioners and other health care professionals throughout NSW will be able to match the efforts of their global counterparts in accepting the need for change and leading the way to a modern and progressive health care system capable of meeting changing health needs.

7. Acknowledgements

- Co-chairs and Members of the NSW Health Chronic and Complex Care Implementation and Coordination Group (Appendix A).
- Co-chairs and Members of the Clinical Expert Reference Group for Respiratory Disease (Appendix A) and Special Interest Group for COPD (Appendix B).
- Newcastle Institute of Public Health.
- Dr Christine Jenkins, Thoracic Physician, Central Sydney Area Health Service.
- Professor Richard Henry, Professor of Paediatrics, University of NSW.
- Dr Peter G Gibson MBBS FRACP, Respiratory Physician, Hunter Area Health Service.

8. References

1. NSW Health: *Report of the NSW Health Council*, March 2000.
2. NSW Health: *Ministerial Advisory Committee on Health Services in Smaller Towns*, March 2000.
3. UK NHS: *National Service Framework for Coronary Heart Disease*, 2000.
4. Clemmer TP, Spuhler VJ, Berwick DM, Nolan TW. Cooperation: the foundation of improvement. *Ann Intern Med* 1998; 128: 1004-9.
5. Edwards N and Henscher M, Managing demand for secondary care services: the changing context. *British Medical Journal*, 1998; 317: 135-8.
6. UK Department of Health, *The Expert Patient: A New Approach to Chronic Disease Management for the 21st Century*, 2001.
7. National Asthma Council, *Asthma Adherence: A Guide for Health Professionals*. Canberra: Department of Health & Ageing, 1999.
8. Campbell D, Scott I, Anderson J, Greenberg P, Clinical Support Systems Program: Improving clinical practice: what works and what doesn't, *Internal Medicine Journal* 2001;31:536-540.
9. NSW Health, Current Situational Analysis: Respiratory Diseases, *Background Working Paper No 4*, Sydney, May 2000.
10. Lorig, K: *Partnerships between expert patients and physicians*: Department of Medicine, Division of Immunology and Rheumatology, Stanford University School of Medicine, Stanford Patient Education Research Center, Palo Alto, CA 94304, USA.
11. Schwarzer R, ed. *Self-efficacy: thought control of action*. Washington DC: Hemisphere Publishing, 1992.
12. Corbin J, Strauss A, eds. *Unending work and care: managing chronic illness at home*. San Francisco: Jossey-Bass Publishers, 1988.
13. *Canadian asthma consensus report*, CMAJ, 1999; 161 (11 Suppl).
14. US Department of Health and Human Services, Public Health Service, National Institutes of Health, Heart, Lung and Blood (NHLBI), *Global Initiative for Chronic Obstructive Lung Disease*, (GOLD), NIH Publication No 2701B: April 2001.
15. *Ibid.*
16. *NSW Health Surveys 1997/98*, Sydney, NSW.
17. GOLD, op. cit. 14.
18. Australian Institute of Health & Welfare: *Australia's Health 2002*:71-79. Canberra: AIHW.
19. GOLD, op. cit. 14.
20. AIHW, op. cit. 18.
21. GOLD, op. cit. 14.
22. AIHW, op. cit. 18.
23. NSW Health, *Inpatients Statistics Collection*, 1999/2000.
24. Mathers C, Vos T, Stevenson C: *The Burden of Disease and Injury in Australia : Australian Institute of Health and Welfare*, 1999: Cat No PHE 17.
25. National Heart, Lung and Blood Institute: *Guidelines for the Diagnosis and Management of Asthma*, Bethesda, Maryland, USA, 1997.
26. Public Health Division. *The health of the people of New South Wales – Report of the Chief Health Officer*, 2002. Sydney: NSW Department of Health, 2002.
27. *Ibid.*
28. AIHW, op. cit. 18.
29. Public Health Division, op. cit. 26.
30. AIHW, op. cit. 18.
31. NSW Health, op. cit. 23.
32. National Asthma Council: *Report on the costs of asthma in Australia*, 1992.
33. NSW Health: *An Easy Guide to Clinical Practice Improvement: A guide for Health Care Professionals*, 2002.

Appendix A

Co-chairs and Members of the Chronic and Complex Care Implementation and Coordination Group (CCICG)

Co-Chairs		
Professor Ronald Penny AO, Director, Centre for Immunology, St Vincent's Hospital Associate Professor Steven Boyages, Chief Executive Officer, Western Sydney Area Health Service		
Members		
Acheson, Dr Thomas	GP Director	Hornsby-Kuringai-Ryde Division of General Practice
Baker, Adj. Prof Kathy	Director, Community and Extended Care Services/Nursing Services and Organisational Development	Royal North Shore Hospital
Becker, Ms Jenny	Area Director, Nursing Services	Central Coast AHS
Bragg, Ms Ros	Deputy Director, Policy	Council of Social Services of NSW (NCOSS)
Broe, Prof Tony	Director, Geriatric Medicine	Prince of Wales Hospital
Burton, Ms Louise	Chair, Chronic Illness Alliance and Manager, Program Development, Cancer Services	NSW Cancer Council
Caplan, Dr Gideon	Director, Post Acute Care Services	Prince of Wales Hospital
Cullen, Dr John	Clinical Director General, Geriatric and Rehabilitation Medicine	Concord Repatriation General Hospital
Crossing, Ms Sally	Consumer Representative	Breast Cancer Action Group
Harnett, A/Prof Paul	Director and Staff Specialist, Medical Oncology & Palliative Care	Westmead Hospital
Harlum, Ms Janeane	Clinical Nurse Consultant	Braeside Hospital
Harris, Ms Sue	Director, Allied Health	South Western Sydney AHS
Hodgkinson, Dr Suzanne	Director, Department of Neurology	Liverpool Health Service
Johnson AO, Ms Betty	Convenor	Consumer, Consumer, Community and Interagency Issues Working Party
Johnstone, Ms Kim	Director, Community Health Services	Western Sydney AHS
Kearsley, Prof John	Professor, Cancer Services	St George Hospital
Kibble, Mrs Gabrielle	Chair of External Review and Evaluation Committee	
Kollios, Ms Moira	Clinical Nurse Consultant	Parramatta Community Health Centre
Lillioja, A/Prof Stephen	Director of Endocrinology	Liverpool Hospital
May, Dr Stephen	Visiting Medical Officer and Nephrologist	New England AHS
McGrath, Prof Katherine	Chief Executive Officer	Hunter AHS

McKenzie, A/Prof David	Director of Respiratory Medicine	Prince of Wales Hospital
Onley, Ms Julienne	Manager Policy and Professional Services and Extended Care Association (NSW)	Australian Nursing Homes
Oates, Prof Kim	Chief Executive Officer	Children's Hospital, Westmead
Pratt, Ms Heather	Manager, Diabetes Centre	Blacktown-Mt Druitt Health
Raphael, Prof Beverley	Director, Centre for Mental Health	NSW Health Department
Smerdely, Dr Peter Services	Director Continuing & Community	St George Hospital
Spigelman, Prof Allan	Director Clinical Governance Unit	Hunter Area Health Service
Stewart, A/Prof Graeme	Director, Clinical Immunology and Allergy	Westmead Hospital
Tofler, Prof Geoffrey	Professor of Cardiology	Royal North Shore Hospital
Torzillo, Dr Paul Respiratory & Critical Care	Clinical Director,	Royal Prince Alfred Hospital
Vandercroft, Ms Dawn	Manager, Nutrition Department	Central Coast AHS
Ward, Ms Denise	Project Officer Strategic Policy	Dept Ageing, Disability and Home Care & Planning
Webster, Prof Ian	Chair, Health Care in the Community Working Group	
White, Prof Les	Executive Director	Sydney Children's Hospital

Co-chairs and Members of the Clinical Expert Refence Group for Respiratory Disease

Co-Chairs		
A/Prof David McKenzie, Director of Respiratory Medicine, Prince of Wales Hospital Dr Peter Clyne, Chief Executive Officer, Western Sydney Division of General Practice Inc		
Members		
Berend, Prof Norbert	Director	Institute of Respiratory Medicine Royal Prince Alfred Hospital
Cane, Ms Lindsay	Chief Executive Officer	Asthma NSW
Chan, A/Prof Daniel	Geriatrician Aged Care and Rehabilitation	Bankstown Hospital
Hodges, Ms Barbara	Physiotherapy Adviser	Wollongong Hospital
Lillystone, Mr David	Community Paediatrician	Hornsby Child Health Centre
Marks, Dr Guy	Respiratory Medicine	Liverpool Hospital
Peters, Dr Matthew	Respiratory Unit	Concord Repatriation General Hospital
Laurie, Ms Kate	Clinical Nurse Consultant, Chest Clinic	Tamworth Base Hospital
Strachan, Ms Patricia	A/Director Health Service Development	Bathurst Base Hospital

Appendix B

Co-chairs and Members of the Special Interest Group for Chronic Obstructive Pulmonary Disease

Co-Chairs		
A/Prof David McKenzie, Director of Respiratory Medicine, Prince of Wales Hospital Dr Peter Clyne, Chief Executive Officer, Western Sydney Division of General Practice Inc		
Members		
Adams, Ms Tod	CAL Coordinator	Shoalhaven Hospital
Appleby, Ms Gilli	Director of Integrated Care	Hunter Area Health Service
Bailey, Ms Carolyn	Acting Project Manager, Chronic Disease Project	Hunter Area Health Service
Barrack, Ms Cecily	Clinical Coordinator	Northern Rivers Area Health Service
Berend, Prof Norbert	Chairman of Research	Royal North Shore Hospital
Bonevski, Ms Billie	Researcher and Consultant	Newcastle Institute of Public Health
Boyages, A/Prof Steven	Co-Chair, Chronic and Complex Care Implementation Group	Director, Clinical Operations, Western Sydney Area Health Service
Chan, A/Prof Daniel	Geriatrician	Bankstown Hospital
Civitico, Ms Jane	COPD Program Coordinator	Royal Prince Alfred Hospital
Comino, Ms Elizabeth	Senior Researcher/Lecturer	GP Unit Fairfield
Delohery, Dr John	Mona Vale Assessment and Rehabilitation	Mona Vale Hospital
Dempsey, Ms Jenny	Clinical Nurse Consultant	Central Coast Area Health Service
Dymond, Ms Louise	Chronic Disease Management	John Hunter Hospital
Fisher, Ms Barbara	Director, Allied Health Services	Royal Rehabilitation Centre Sydney
Fuller, Ms Beth	Manager Priority Health Care Programs	Mid North Coast Area Health Service
Gibson, Dr Peter	Respiratory Physician	John Hunter Hospital
Hanna, Mr Chris	Physiotherapist	Kempsey District Hospital
Hensley, Prof. Michael	Professor of Medicine and Head of the School of Medical Practice	University of Newcastle
Heron, Mr Neil	CNC Coordinator, Respiratory Program	Westmead Hospital
Hodges, Ms Barbara	Physiotherapist	Illawarra Area Health Service
Jandera, Ms Eva	Asthma Educator	Asthma NSW
Jenkins, Dr Christine	Respiratory Physician	Concord Hospital
Jobson, Ms Helen	CALM Coordinator,	Nepean Hospital
Keith, Dr Peter	General Practitioner	Greater Murray

Appendix B

Laurie, Ms Kate	Respiratory Clinical Nurse Consultant	New England Area Health Service
Lillystone, Dr David	Community Paediatrician	Hornsby Child Health Centre
Lynch, Ms Serina	Respiratory Program Coordinator	Southern Area Health Service
Maher Ms Janice	Physiotherapist	Dubbo Base Hospital
Marks, Dr. Guy	Chairperson, Respiratory Disease Advisory Committee	South Western Sydney Area Health Service
Marley, Ms Annette	Physiotherapist Royal North Shore Hospital	Acute Post Acute Care,
Marlow, Mr Nicholas	Acute Post Acute Care Manager	Royal North Shore Hospital
Marsh, Ms Anne	CAL Community Coordinator	TACT Wollongong Hospital
McCulloch, Ms Connie	Respiratory Liaison Nurse	John Hunter Hospital
Mills, Mr Craig	Chronic Care Project Officer	Orange Health Centre
Mitchell, Mr Peter	Physiotherapist	Wentworth Area Health service
Morgan, Dr Lucy	Respiratory Physician	Nepean Hospital
Moroney, Ms Dorothea	Senior Nursing Unit Manager	Northern Sydney Home Nursing
Mortimer, Ms Gayle	Chronic and Complex Care Program Coordinator	Royal North Shore Hospital
Parker, Ms Barbara	Nursing Unit Manager	Wentworth Area Health Service
Pennock, Mr Rene	Chronic and Complex Care Program Manager	South Western Sydney Area Health Service
Penny AO, Prof. Ron	Co-Chair, Chronic and Complex Care Implementation Group	Director, Centre for Immunology, St Vincent's Hospital
Peters, Dr Matthew	Respiratory Unit	Concord Repatriation General Hospital
Ring, Ms Beverley	Physiotherapist	Illawarra Area Health Service
Robinson, Dr Tracey	Respiratory Program Director	Westmead Hospital
Sadler Ms Jennie	Respiratory Nurse Case Manager	Wyong Health Centre
Seniuk, Ms Sylvia	Chronic and Complex Care Program Manager	Illawarra Area Health Service
Shaw, Ms Kerrie	Clinical Nurse Consultant	Respiratory Chest Clinic, Wollongong Hospital
Siddall, Ms Wendy	Physiotherapist	Acute Post Acute Care Team Royal North Shore Hospital
Spencer, Ms Lissa	Pulmonary Rehabilitation Coordinator	Royal Prince Alfred Hospital
Wallace, Ms Carole	Program Coordinator	Southern Area Health Service
Wilson, Ms Amanda	Researcher and Consultant	Newcastle Institute of Public Health
Woolfe, Ms Pam	Director of Nursing .	Division of Community Health Gosford Hospital
Young, A/Prof. Iven	Head, Department of Respiratory Medicine	Royal Prince Alfred Hospital

