The Thoracic Society of Australia and New Zealand
New Zealand Branch Inc.

Asthma
The Asthma and Respiratory Foundation of New Zealand (Inc.)
Te Taumatua Huango, Mate Ha o Aotearoa

The Burden of

COPD

IN NEW ZEALAND

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Based on the report "Chronic Obstructive Pulmonary Disease and Lung Cancer in New Zealand" by Joanna Broad and Professor Rod Jackson commissioned by the Asthma & Respiratory Foundation of New Zealand (Inc.) and the Thoracic Society of Australia and New Zealand, New Zealand Branch Inc.

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FOREWORD

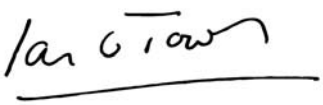
The Thoracic Society of Australia and New Zealand (TSANZ), together with the Asthma and Respiratory Foundation of New Zealand, commissioned this report to highlight the burden of chronic obstructive pulmonary disease (COPD) in New Zealand. The report was written by Professor Rod Jackson and Joanna Broad from the School of Population Health, University of Auckland. The report has been endorsed by the National Respiratory Council of New Zealand.

COPD is a serious condition and has a major impact on the health of people in this country. It contributes substantially to the enormous cost of tobacco smoking.

The figures quoted in this report are of great concern. Health planners in New Zealand have under-estimated the likely increase in numbers of patients diagnosed with COPD. District Health Boards will need to make adjustments to their Annual District Health Plans to ensure that proper services are provided for these patients and their families. The Ministry of Health should consider taking the lead from the World Health Organisation (WHO) and make COPD one of its health priorities and encourage innovative approaches to management. This should include full access to new therapeutic agents such as tiotropium, portable oxygen, and equitable access to pulmonary rehabilitation programmes.

In partnership with all stakeholders in the National Respiratory Council of New Zealand, there needs to be greater emphasis and investment in ensuring that young people do not take up tobacco smoking. Further, spirometry services should be adequately resourced in the primary health care setting to help diagnose COPD sufferers at an early stage when smoking cessation is likely to be of greatest help. Support services for those that wish to stop smoking and need to be fully implemented in all parts of New Zealand, by both mainstream and Maori and Pacific providers.

New Zealand must rise to the challenge of COPD and reflect the priority status recommended by the WHO.



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COPD IN NEW ZEALAND – ISSUES AT A GLANCE

- COPD (chronic obstructive pulmonary disease) is a serious respiratory condition that develops as a result of tobacco smoking. It includes conditions such as emphysema and chronic bronchitis.*
- COPD has a substantial impact on the health of New Zealanders. Although often undiagnosed, it affects an estimated 15% of the adult population over the age of 45 years (at least 200,000 New Zealanders)
- More than 85% of the burden of COPD arises from tobacco smoking, with contributions from cannabis use and dust exposure in the workplace.
- COPD is ranked 2nd in men and 5th in women with regards to its health impact;
  - Is the 4th leading cause of death after cancer, heart disease and stroke.
  - Is estimated to cost up to $192m in direct health care costs each year.
- COPD is an irreversible disease but is almost entirely preventable by avoiding exposure to tobacco smoke. Over 15% of all smokers are likely to become affected.
- All health care providers need to identify smokers in their practice and encourage them to quit.
- Smoking cessation services must be available to all smokers in New Zealand.

* Emphysema is a condition in which lung tissue is destroyed leading to enlarging spaces in the lungs. Gas exchange is affected.
Bronchitis is a condition in which there is extra mucus produced in the airways causing cough and phlegm.

DEFINITIONS

Chronic obstructive pulmonary disease (COPD) is a chronic respiratory condition presenting as slowly progressive breathlessness, often associated with cough and sputum production. It includes both chronic bronchitis and emphysema in variable proportions in any one patient.

Many patients present to their doctor late in the disease and it is not uncommon to have serious impairment of lung function at the time of diagnosis. By this stage it is irreversible. Early detection is therefore a significant challenge for primary care practitioners.

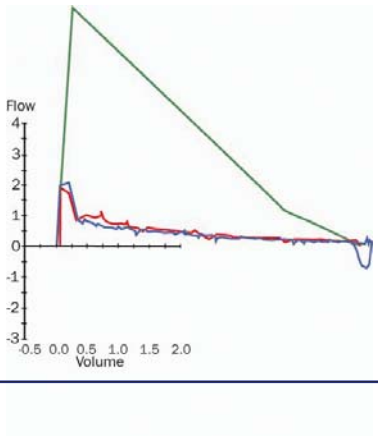
Diagnosis is confirmed by spirometry demonstrating air flow obstruction.

As the disease progresses, symptoms become more prominent, lifestyle and quality of life are affected adversely and, ultimately, subjects become short of oxygen leading to significant heart problems. In severe cases, oxygen therapy may be provided as part of management.

Figure 1. Severe obstructive pattern with no bronchodilator response. FEV1/FVC ratio 22 per cent. FEV1 36 per cent of reference value. Note expiratory time of 20 seconds

Age: 78 Height (cm): 175 Weight (kg): 77 BMI: 25.14 Gender: male

	Ref	Pre Meas	Pre %Ref	Post Meas	Post % Chg	CI	LLN
FEV_1 (L)	2.59	**0.93	**36	**0.94	1	1.00	
FVC (L)	4.02	4.20	104	4.06	-3	1.36	
FEV_1/FVC %	67	22		23			
PEF (L/sec)	7.75	**2.58	*33	**2.23	-13	3.87	
FEF25-75 (L/sec)	3.57	**0.28	**8	**0.29	4	2.67	
FET100% (sec)		20.64		20.56	-0		
FEV_6	3.67	2.51	68	2.62	4		2.79
FEV_1/FEV_6	77	37		36			68



PREVALENCE

Although the prevalence of asthma is quite well understood in New Zealand there are no reliable data for COPD from population surveys.

World Health Organisation (WHO) global estimates from our region suggest that around 15% of adults over the age of 45 years suffer from COPD. This means that there are likely to be at least 200,000 cases of COPD amongst adults in New Zealand of whom only 1 in 4 - 5 have had the diagnosis confirmed by a doctor.

The prevalence of COPD in any given population is related to the prevalence of smoking and the age of the population.

Based on hospital admission data, the prevalence for Maori is more than twice that for non-Maori.

In addition to tobacco smoking, the prevalence of COPD is affected by cannabis smoking and certain occupations, including bakers, food processors, spray painters, chemical processors and agricultural workers (jobs which involve exposure to dust and chemicals), but these causes account for only a small percentage of all cases.

INCREASING PREVALENCE OF COPD

Throughout western countries COPD is becoming increasingly prevalent as the impact of higher levels of tobacco smoking since the 1930's result in increasing numbers of cases of COPD.

In 1990 the WHO ranked COPD as number twelve in the list of diseases impacting on health world wide and has predicted that COPD will rank number five by 2020. In New Zealand it is already in the top five.

MORBIDITY

COPD results in a major deterioration in quality of life, particularly as the disease progresses to the severe stage. The most significant symptom is progressive shortness of breath limiting exercise capacity. Quality of life is also affected by poor mobility and social isolation.

COPD is often associated with other conditions (co-morbidities) such as heart disease and is associated with an increased risk of myocardial infarction, stroke, lung cancer and pneumonia. In many cases there is a significant additional impact of anxiety or depression.

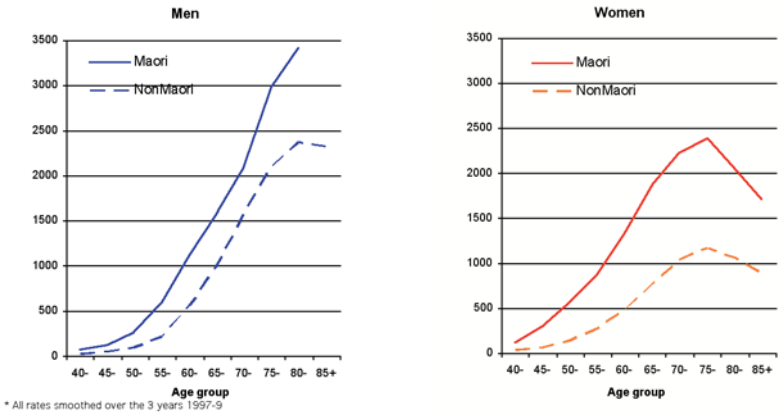
HOSPITAL ADMISSION RATES

Although most patients with COPD are cared for in the community, as the disease progresses exacerbations or complications often require hospital admission.

Hospital discharge data from New Zealand shows that in 1998/99 around 1.05% of all discharges from public hospitals were for COPD. In the year 1999, this was over 9000 discharges with an average length stay of around nine days. Hospitalisations are projected to rise to 12,000 by 2007 and 14,700 by 2012 assuming smoking levels continue as at present.

COPD is often listed as a co-morbidity in patients admitted to hospitals for other conditions and frequently increases the length of stay in patients admitted to hospital with other conditions. Hospitalisations in Maori occur at earlier ages and the rate of admission increases more steeply with age than for non-Maori. In women, hospitalisation rates for Maori are more than twice those for non-Maori in all age groups.

Figure 2. Rates (per 100,000) of COPD hospital discharges in New Zealand, by sex, age group and ethnicity, over period 1997 - 1999



* All rates smoothed over the 3 years 1997-9

YEARS LOST TO DISABILITY

1996 data indicated that for men COPD is the second most common cause of years lost to disability (YLD) and for women the seventh most common cause. Preliminary estimates for the year 2003 show that the burden of COPD has grown markedly among women. It may now be the overall leading cause of death and disability in New Zealand.

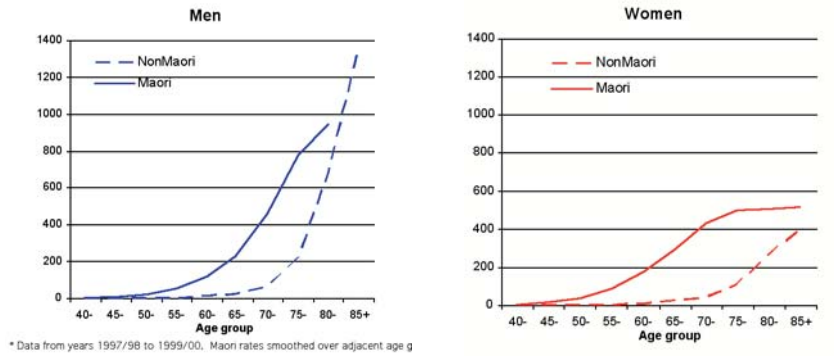
MORTALITY

In 1999, COPD accounted for 5.1% of all deaths in New Zealand.

Published mortality data in New Zealand are likely to understate the true health burden of COPD as the cause of death in patients with severe COPD is often reported as other conditions. As a consequence the true mortality may be up to two-and-a-half times the published rates.

COPD deaths occur largely in older people and rates for men have been around twice those for women but the differences between sexes is closing and reflects the proportion of men and women who are currently smoking.

Figure 3. COPD mortality rates (averaged over 3 years) in New Zealand, by sex, age group and ethnicity (per 100,000)



* Data from years 1997/98 to 1999/00. Maori rates smoothed over adjacent age g

ECONOMIC BURDEN

The main costs to the health system in New Zealand that are attributable to COPD include medications, hospital care and primary care visits. Additional costs accrue from laboratory services, Emergency Department visits, smoking cessation programmes, other laboratory testing, and the provision of rehabilitation services.

Depending on the number of prevalent cases, the direct costs have been estimated at between $102m to $192m per annum. Hospital costs are estimated at $80m. per annum.

The average cost per patient per year is estimated at $2,566 without considering loss of income, the costs to family or loss of quality of life.

RECOMMENDATIONS FOR DISTRICT HEALTH BOARDS IN NZ

All District Health Boards (DHBs) in New Zealand need to take stock of their plans for the management of COPD and tobacco related lung diseases.

As a preventable cause of ill health it is important that DHBs recognise that investment in smoking prevention and smoking cessation is an extremely cost-effective measure.

Regardless of future strategies for smoking cessation, those who have been smokers over the last 40 years will require personal health care and are likely to represent an increasing burden for health care providers.

The following strategies are recommended for all District Health Boards:

1. **Identifying smokers at risk.**

   All patients enrolled in primary health organisations (PHOs) and other provider networks who smoke should be identified on their medical records. All smokers over the age of 35 years should undergo spirometry on an annual basis to identify those who are already developing airflow obstruction.

2. **All smokers should be counselled to quit.**

   Even brief counselling of current smokers has been shown to be sufficient stimulus for many to quit smoking. Those who are unable to quit following brief intervention should undergo motivational interviewing and be referred to the Quit Line for further support. This should include the provision of nicotine replacement therapy and other supportive strategies.

3. **Programmes targeted at Maori and Pacific People**

   Maori and Pacific people need their own providers to identify smokers and to provide culturally appropriate services and support for them to become smoke-free.

4. **The diagnosis by spirometry**

   All health providers need to recognise that the diagnosis of COPD can only be achieved through good quality spirometry services. All DHBs should ensure that spirometry services are available in their region at base hospitals, at medical centres, and through individual practitioners. DHBs should be aware that those providing spirometry services require training and that providers need to participate in quality assurance activities.

5. **Public awareness**

   There should be a public awareness campaign in 2004 to ensure that the message about the burden of COPD is transmitted in a constructive way to the New Zealand public. Families of those who smoke should be encouraged to bring their friends and relatives to diagnostic services to ensure that the adverse health effects of tobacco smoking are promptly identified.

6. **Primary health organisation service specifications**

   All primary health care teams should have service specifications which include the identification of smokers, the provision of smoking cessation services including nicotine replacement therapy and good management approaches including education, rehabilitation services and appropriate follow-up. Innovative community care options should be considered instead of admission to hospital (e.g. rest home access).

7. **Hospital services**

   Hospital services should include specialist nurses and smoking cessation strategies that maximise opportunities to intervene when patients are admitted to hospital with smoking related disorders. All secondary care providers should provide smoking cessation services. All those who wish to give up smoking should be referred back to their primary care team for follow-up.

   For patients with frequent admissions to hospital, follow-up by a multidisciplinary team can contribute to improved self management and greater confidence in the future. Integration of primary and secondary health care teams is a vital success factor.

8. **Provision of rehabilitation**

   Pulmonary rehabilitation (six week exercise and education programme) is one of the few interventions which has been shown to lead to sustained improvements in quality of life. There should be a strong emphasis away from relying on medications alone to manage patients with COPD.

9. Access to Medications

There should be improved access to proven therapies (long acting anticholinergics and long acting beta agonists) and emphasis on the rational use of inhaled corticosteroids which are not indicated for all patients with COPD.

10. Terminal respiratory failure

Fresh initiatives to treat end-stage respiratory failure should be developed. The aim should be to reduce acute hospital admission rates for COPD and improve home-based palliative care.