

# **Northern Centre for Lung and Sleep Health A Proposal for a Dedicated Respiratory Service in The Northern Territory**

**Submitted by The Australian Lung Foundation  
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## **SUMMARY**

There is significant burden of both acute and chronic lung disease in the North of Australia. This is present in both the non-Indigenous and especially Aboriginal and Torres Strait Islander populations<sup>1</sup> who bear a disproportionate burden of lung disease. Currently, respiratory services in the Northern Territory (NT) are seriously inadequate at a number of levels and have failed to keep pace with other chronic disease areas (eg cardiovascular, metabolic/diabetes and renal medicine).

Without an improvement in respiratory services in the NT, a comprehensive response to chronic non-communicable disease will remain impossible. There are major needs in the NT. In particular, tertiary lung disease care, primary health care management of chronic lung disease and primary and secondary prevention programs aim to optimise lung health and minimise disability and morbidity for those with lung disease.

The development of a comprehensive clinical and academic respiratory unit would serve to provide specialist policy advice, health care leadership, service advocacy, clinical services and the support of primary and secondary prevention programs in primary health care throughout the NT.

This proposal recommends a unit based primarily in Darwin, but one which serves other NT hospitals and links with the existing services in the north of Western Australia and Northern Queensland, representing a 'North of Australia' response to lung health.

The establishment of a Northern Centre for Lung and Sleep Health embracing a Dedicated Respiratory Service in The Northern Territory has the potential to save in the region of \$8,000,000 net per annum (after the cost of the service) by reducing the number of avoidable Hospital Admissions.

This proposal, submitted by The Australian Lung Foundation, outlines a structure, staffing and charter for this unit which would bring best practice respiratory care to

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<sup>1</sup> In the Northern Territory the vast majority of Indigenous Australians who are living with or care for those with lung disease are Aboriginal Australians. The term 'Aboriginal Australians' is therefore used preferentially here when referring to Aboriginal and Torres Strait Islander peoples.

the population of the NT including those Aboriginal Australians living in remote communities.

The Australian Lung Foundation - the premier organisation for lung health in Australia, providing medical and support group representation nationwide – is committed to promoting lung health in the region and to assisting the NT Department of Health and Community Services in developing these services.

This proposal has been developed with input from and support of Professor Robert Pierce<sup>1</sup> and Associate Professor Graeme Maguire.<sup>2</sup> Professors Pierce and Maguire also represent the Thoracic Society of Australia and New Zealand and the Australasian Sleep Association.

## 1. INTRODUCTION

This proposal follows on from a meeting held between a delegation of The Australian Lung Foundation and the Minister of Health, Hon Dr Chris Burns, held on the 5th September 2007. Chronic Obstructive Pulmonary Disease (COPD) was the focus of this discussion.

COPD is a major contributor to respiratory chronic non-communicable disease morbidity, primary and hospital healthcare utilisation and premature mortality in the NT. This chronic condition carries significant cost in the Northern Territory and is putting pressure on hospital beds and emergency departments.

In 2001/02, the rate of avoidable hospital admissions for COPD in the Northern Territory was the highest in all of Australia – 751.4 per 100,000 (NT) as compared to the Australian average of 282 avoidable admissions per 100,000 (Page et al 2007). In the NT, this is equivalent to 1,500 *avoidable* admissions per year. With each COPD admission costing over \$6,000 (Crockett), this represents a potential direct savings of close to \$10 million annually.

Respiratory illness, including COPD, has a particular impact on Aboriginal and Torres Strait Islander peoples. In 2003/04 diseases of the respiratory system accounted for 63.5 Indigenous Australian separations per 1,000 people, as compared to 16.0 per 1,000 for non-indigenous Australians (AIHW, NHMD).

Similarly, other common respiratory diseases contribute significantly to the huge total burden of lung disease in the NT. These include asthma, chronic suppurative lung disease (including bronchiectasis), lung cancer, pneumonias, chronic upper respiratory infections (including suppurative otitis media), tuberculosis and sleep disordered breathing.

The current respiratory service in the NT -- consisting of two clinical nurse consultants (one in Darwin and one in Alice Springs), infrequent respiratory and sleep clinics and a small number of sleep studies provided by visiting respiratory

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physicians from Qld and SA – is seriously inadequate and unsustainable and falls far short of both national and international best practice standards in respiratory care.

The following is a proposal for a comprehensive and sustainable respiratory service, based in Darwin and providing current best practice clinical services and respiratory health programs throughout the NT. Academic affiliation and support for teaching, training and research would ensure a sustainable and quality-focused service. This could be achieved through Charles Darwin University or another academic institution such as Flinders University Clinical School .

A dedicated respiratory service, incorporating disease prevention and best practice, evidence-based disease management (including pulmonary rehabilitation) is likely to ease the pressure on hospital beds by supporting patients with COPD and other respiratory diseases to better manage their condition and avoid hospital admissions.

## **2. THE BURDEN OF RESPIRATORY ILLNESS IN NORTHERN TERRITORY**

Respiratory illness carries significant cost in the Northern Territory.

The Northern Territory has the highest rate of smoking of any state in Australia. Smoking rates of NT Aboriginal Australians are particularly high, with 50% stating they are current smokers. (ABS 2006)

In 2001-02, COPD was the second leading cause of avoidable hospital admissions in the Northern Territory at a rate of 751.4 admissions per 100,000 population (the population of the Northern Territory is 202,000 (ABS). This was significantly higher than any other COPD avoidable admission rate in the country. The average rate of avoidable COPD hospital admissions in Australia was 282 admissions per 100,000 population – a little more than a third of that in NT (Page et al).

The rate of avoidable hospital admissions in remote NT is extremely high. East Arnhem Health Service Area records the highest regional rate in the country at a rate of 2,392.1 per 100,000 population. Alice Springs and Barkley Health Service Areas are also high at 1,596.4 and 1596.1 per 100,000 respectively. The comparatively low Darwin rate of 392.1 per 100,000 is still significantly above the Australian average of 282.

The average length of stay for a COPD admission in a public hospital in the NT was 7.4 days (AIHW NHMD). At a median cost per day of \$898, the direct hospital costs of these avoidable admissions alone are approximately \$9.98 million per year. This amount does not recognise the significant impact this condition has on expensive medical evacuations, primary health care utilisation, medication usage and lost productivity.

The impact of COPD for Aboriginal Australians in remote Australia is even more marked. Aboriginal Australians in the Northern Territory die from COPD at a rate more than five times the national average (Thomas 2006). As a condition which has a predilection for middle aged and older Territorians, COPD also has an undefined, but significant, impact on the ability of especially Aboriginal Australians to support and lead their Communities and participate in initiatives which maintain links to

Culture and Country. Smoking rates amongst adults in many remote communities are as high as 60-80%.

Aboriginal Australians in the NT are also far more likely to be admitted to hospital with lung disease. In 2003/04 diseases of the respiratory system accounted for a hospital separation rate of 63.5 per 1,000 population for Aboriginal Australians, compared to 16.0 per 1,000 for non-Indigenous Australians(AIHW NHMD). Many of these admissions would be avoided if community-based chronic lung disease management programs were in place.

At present, tuberculosis surveillance and treatment in the NT is provided by the Communicable Diseases Centre with the support of the Infectious Diseases service based at Royal Darwin Hospital. There is a substantial supportive role to be played by the proposed respiratory service in relation to pulmonary tuberculosis for these existing services through provision of fiberoptic bronchoscopy, lung function testing and respiratory consultation.

### **3. CURRENT RESPIRATORY SERVICES IN NORTHERN TERRITORY**

Currently, the respiratory service consists of the following:

- **2 clinical nurse consultants** - 1- Darwin-based, 1 – Alice Springs-based
- **0 physiotherapists** - the one private pulmonary rehabilitation service closed in December 2006
- **0 respiratory physician** - the only NT-based respiratory physician left Darwin approximately 8 years ago
- **0 pulmonary rehabilitation programs** - There is no access to community exercise programs for respiratory patients – the cardiac rehabilitation program that exists will not accept respiratory patients
- **2 Australian Lung Foundation patient support groups (volunteer run)**

### **4. A DEDICATED RESPIRATORY SERVICE FOR THE NORTHERN TERRITORY**

Currently, respiratory services in the Northern Territory (NT) are inadequate at a number of levels and have failed to keep pace with other chronic disease areas (eg cardiovascular, metabolic/diabetes and renal medicine). Without an improvement in respiratory services in the NT, a comprehensive response to chronic non-communicable disease will remain impossible.

There are major needs in the NT particularly in tertiary lung disease care, primary health care management of chronic lung disease and the support and leadership of primary and secondary prevention programs which aim to optimise lung health and minimise disability and morbidity for those with lung disease.

At present, the general physicians at Royal Darwin Hospital and Alice Springs Hospital deal with the acute in-patient care of respiratory disease and the huge case-load of respiratory patients requiring ambulatory chronic disease management.

A lone respiratory physician, who previously provided support in Darwin, returned home to the US several years ago and efforts to replace him have repeatedly failed as the attractiveness of a single respiratory physician practice is low and NT physician salary rates remain uncompetitive with other northern Australia jurisdictions.

Limited lung function testing and sleep disorders services are provided in Darwin and Alice Springs. The latter consist of on-site polysomnography (sleep studies) which are remotely analysed / reported and supported by 1-2 day consulting visits by physicians from Adelaide and Brisbane at intervals of 1-3 months. There is no outreach respiratory service anywhere except for one community physician from Alice Springs who includes chronic respiratory care programs in her general internal medicine practice. Thus, virtually no patient across the *entire* NT has access to respiratory subspecialty physicians or services without interstate travel – usually to Adelaide or Queensland.

The development of a comprehensive clinical and academic respiratory unit, based primarily in Darwin but providing clinical services and respiratory health programs throughout the NT and linking with the Kimberly, FNO and NO regions is proposed as necessary to address these issues in a sustainable way. This proposal recommends a similar model to the new NT cardiac service being developed to provide comprehensive cardiac laboratory and intervention services in Darwin and outreach clinics across the territory. The academic links and clinical support inherent in this model will provide far greater incentive to attract respiratory physicians to this unit compared with the existing “lone respiratory physician” practice which has proved impossible to fill over the past eight years.

As in other subspecialties (emergency medicine, intensive care) significant physician salary loadings are needed to attract and retain high calibre applicants and may also apply to the proposed scientific and allied health positions.

The range and scope of activities of the proposed unit suggests that a senior medical EFT of 3.0 is required. The capacity to cover local, regional and outreach clinical, education, public health and research commitments, leave and sickness entitlements etc demands this level of staffing. This is comparable to that in other respiratory services in Australia serving similar caseloads e.g. the respiratory units in Cairns Queensland, Newcastle NSW, Geelong Victoria and others.

This size of unit will provide the critical mass necessary to attract staff at nursing, allied health and scientific/technical officer levels as well. Attracting physicians with training and accreditation in Sleep as well as Respiratory medicine (RACP) would be needed for at least one, preferably two, of the senior medical positions if a viable Sleep Medicine component of the unit is to be sustained.

To attract a sustainable group of respiratory physicians of high quality, the incentives need to be equivalent to competing with adjacent northern Australian jurisdictions and sufficient to encourage established specialist staff to move from southern Australian centers. Also needed is a private practice loading of at least 75%. Overtime and on call needs, or a supplement to cover this, also needs to be factored in. The package should include tangible amounts for professional development, regular travel to home, provision of suitable car (or allowance) and relief for leave,

as well as provision for superannuation and some generous salary sacrificing arrangements.

It should be anticipated that a competitive package to attract respiratory specialists to this service will be approximately \$300,000 per year. The direct cost to the NT Department of Health and Community Services may be less than this for at least some positions if private practice is undertaken or if a co-appointment (and funding) is agreed in association with a University co-appointment. An opportunity would also exist for one of these three positions to be tailored to an early-career respiratory specialist who would be supported and mentored by more senior colleagues at a slightly reduced position cost.

## **5. PROPOSED STRUCTURE**

The Northern Centre for Lung Health would be a Northern Territory Health unit, based in Darwin and would provide clinical services and respiratory health programs throughout the NT. It would be academically affiliated with an NT-based University.

### **5.1 Service Overview**

#### **Tertiary clinical services in Respiratory and Sleep medicine**

The following describes a service that provides a full range of tertiary clinical services in respiratory and sleep medicine. This includes in-patient, out-patient and outreach care, respiratory function testing and sleep disorders laboratory (PSG) services, a bronchoscopy service and education and clinical research components. It also provides proven disease management services in line with best practice. The research and overall health service development components of the service will aim to address deficits in knowledge and practice relating to lung disease prevention and management especially for Aboriginal Australians. This will occur in collaboration with Charles Darwin University, Menzies School of Health Research, Flinders University, the Centre for Remote Health and other stakeholders.

#### **Northern Centre for Lung Health**

- **x1 1.0 FTE Medical Director**

#### **Clinical service and health care support**

- **x2 1.0 FTE respiratory physicians** - one based in Darwin and one based in Alice Springs OR a dedicated regular Tele-health service linking all NT hospitals for specialist advice regarding acute inpatient management of respiratory disease
- **x1 1.0 FTE Registrar/Fellow** – trainee respiratory specialist
- **x2 1.0 FTE additional Clinical nurse consultants (CNC)** – (making a total nursing EFT of 4.0) based Darwin / Alice Springs
  - Asthma / COPD nurse educators
  - Chronic Disease Self Management
  - Sleep service support - CPAP education and mask fitting
  - Outreach and inter-hospital liaison service – coordination, clinical support, primary and hospital staff support and training.
  - Domiciliary Oxygen Therapy Assessment and Support

## **Respiratory Function/Sleep Disorders Laboratory**

- **x1 1.0 FTE Head Scientist**
- **x3 1.0 FTE supporting respiratory and sleep scientists**

## **Chronic Disease Management & Primary Health Care Support and Liaison**

A chronic disease management program to support chronic lung disease clients, carers and primary health care staff in managing their disease, staying well and avoiding hospital admission. In partnership with CNCs above:

- **x1 1.0 FTE Physiotherapist**
  - develop and implement pulmonary rehabilitation if possible in partnership with private physiotherapy providers
  - Training role to assist establishment of pulmonary rehabilitation in other centres based on The Australian Lung Foundation Pulmonary Rehabilitation Toolkit and ALF/RHSET Primary and Allied Health Train-the-Trainer program

## **Research into aetiology, prevention and management of lung disease**

Research into the determinants, prevention and management of respiratory health and disease for all Territorians and especially Aboriginal Australians in partnership with established NT health researchers.

- **x1 1.0 FTE Senior Research Officer**
- **x1 1.0 FTE Research Assistant**  
*It would be envisaged these position would eventually be supported by competitive external agency funding (eg National Health and Medical Research Council)*

## **5.2 Linkages: Clinical and Academic**

1. Primary Base at Royal Darwin Hospital
2. Clinical linkages with
  - other NT hospitals: Alice Springs, Katherine, Tennant Creek Nhulunbuy
  - Kimberly Region, WA
  - FNQ: Cairns Base Hospital
  - NQ: Townsville Hospital
3. Academic Linkages with:
  - Charles Darwin University
  - Flinders University
  - Menzies School of Health Research
  - Centre for Remote Health

## **5.3 Staffing and funding requirements and justification:**

Adequate clinical staffing is needed to provide and support the tertiary respiratory clinical service, chronic respiratory disease management, primary care support and research programs. Dedicated respiratory nursing and scientific staff are needed for the chronic disease management and laboratory (lung function testing, sleep studies) aspects of the service. Appropriate staffing levels are detailed in the attached budget.

Funding for the unit could be substantially supported by Medicare bulk billing for clinical and laboratory services including for respiratory nurse home visits for support and management of patients with chronic lung disease.

Funding for the unit would be more than completely offset by the major savings in in-patient bed costs achievable through reduction in avoidable admissions (for COPD and other lung diseases) by provision of ambulatory care plans and community support. The average length of hospital stay for COPD admissions in NT is 7.4 days with a cost of \$898 / day i.e. \$6,645 per admission. The total cost of avoidable COPD admissions alone is thus M\$ 9.98 per annum. Thus any major reduction in these costs would clearly justify those of setting up and maintaining the proposed unit.

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## Northern Centre for Lung Health

		Salary	On Costs	Total	Grand Totals
<b>Medical</b> <i>based on Queensland Health award Sept 2006 including private practice for specialists</i>	Medical director (Level 27 - MO2-3)	246,576	65,698	312,274	
	Senior staff specialist (Level 27 - MO2-3)	246,576	57,463	304,039	
	Staff specialist (Level 18 - MO1-1)	194,482	56,681	251,163	
	Registrar/fellow	108,632	16,807	125,439	
<b>Administration</b>	Administration officer (approx. only)	40,000	12,000	52,000	
<b>Nursing</b>	Clinical nurse consultant (approx. only)	70,000	21,000	91,000	
	Clinical nurse consultant (approx. only)	70,000	21,000	91,000	
<b>Physiotherapy</b>	Physiotherapy (approx. only)	60,000	18,000	78,000	
<b>Respiratory/sleep scientist</b>	Head Scientist (approx. only)	70,000	21,000	91,000	
	Scientist 1 (approx. only)	56,000	16,800	72,800	
	Scientist 2	56,000	16,800	72,800	
	Scientist 3	56,000	16,800	72,800	
<b>Research</b>	Project officer	81,000	24,300	105,300	
	Research assistant	64,000	19,200	83,200	
					<b>\$ 1,802,815</b>

## Equipment

### Respiratory laboratory

spirometry/TLCO (/year over five yrs)	10,000	38,000
plethysmograph (/year over five yrs)	10,000	
computing (/year over five yrs)	8,000	
consumables	10,000	

### Sleep laboratory

(4 beds) (/year over five yrs)	32,000	112,000
consumables	80,000	

**\$ 150,000**

## Outreach & Inter-hospital support

Travel (dependent on schedule & significant cost recovery possible via Medical Specialist Outreach Assistance Program - MSOAP)	75,000	75,000	<b>\$ 75,000</b>
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**Total/Year \$2,027,815**

## References

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