

# Creating accessible pulmonary rehabilitation in a rural area health service

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## BACKGROUND

The Priority Health Care Program (PHCP) is a 3 year New South Wales Government initiative aimed at improving health outcomes for patients with chronic and complex disease, specifically cardiovascular, respiratory and cancer disease groups. Funds were allocated in 2001 to individual Area Health Services on a population basis, to implement locally developed, evidence-based models of care applicable to the needs of their communities.

The broad aims for each PHCP project was to:

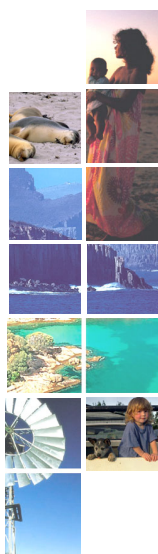
- improve the quality of life for people with chronic cardiovascular disease, respiratory disease and cancer
- improve the quality of life for their carers and families
- reduce crisis and unplanned admissions to hospital for these patients
- implement new sustainable models of care.

The Northern Rivers Area Health Service (NRAHS) is in the north eastern corner of NSW and services a population of 270,000 with 4 major hospitals, 10 smaller hospitals, 3 multi-purpose centres and 23 community health facilities. NRAHS is similar to many other rural health services with a higher proportion of aged population, Aboriginal and Torres Strait Islander residents, and lower socio-economic status than the state average.

The model developed and implemented in NRAHS to address respiratory needs is known as the PEAK program with the focus on patient empowerment, exercise, activities of daily living and knowledge. The PEAK program has three key deliverables:

- in-patient education, assessment and referral to the multi-disciplinary team at the major hospitals
- respiratory outreach services providing education, monitoring and support in the community at pilot sites
- provision of accessible pulmonary rehabilitation programs for **all** residents of NRAHS

This paper will focus on the model developed in NRAHS for the provision of pulmonary rehabilitation, the patient outcomes achieved and the workplace impacts.



## PULMONARY REHABILITATION

The Draft Evidence Base and Standards for Pulmonary Rehabilitation in Australia, defines pulmonary rehabilitation as

a multi-modality system that includes patient education, exercise training and psychosocial support delivered by an interdisciplinary team of therapy specialists. It is most usually provided to patients with moderate to severe chronic obstructive pulmonary disease (COPD), but it can be applied to people with any long-term respiratory disorder. (1)

The outcomes of pulmonary rehabilitation have been fully evaluated and are summarised in this statement

Meta-analyses and excellent randomised controlled trials show clearly that comprehensive pulmonary rehabilitation enhances health related quality of life and self efficacy.(1)

Despite this, recent data collected by the Australian Lung Foundation (ALF) reveals that fewer than 1% of patients with moderate to severe COPD in Australia are receiving pulmonary rehabilitation per annum (approximately 1 in 200). (2)

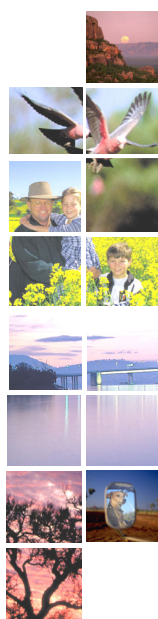
### The barriers

Whilst the outcomes of pulmonary rehabilitation are impressive, the potential barriers to providing this service at individual sites are significant, when faced with recruiting a group of chronic respiratory patients for a six to eight week supervised intensive exercise program, combined with multi-disciplinary education and psychosocial support.

At the commencement of the PEAK program only one site in NRAHS was providing a comprehensive pulmonary rehabilitation program and then only once or twice a year.

As our aim was to provide accessible pulmonary rehabilitation to **all** residents of NRAHS, the model implemented needed to minimise the identified barriers which were:

- limited knowledge of the role of pulmonary rehabilitation in the management of chronic respiratory disease
- negative attitude to working with chronic respiratory disease clients
- recruitment of suitable patients
- lack of specialised respiratory staff in NRAHS
- lack of necessary equipment for the provision of pulmonary rehabilitation
- no locally appropriate guidelines for provision of pulmonary rehabilitation
- lack of suitable and available venues for conducting pulmonary rehabilitation
- full clinical load for existing multi-disciplinary staff and difficulties recruiting specialised health professionals
- transport issues for patients willing to attend.



The PHCP funding and the creation of an area wide respiratory co-ordinator position, provided the opportunity to develop and implement an area wide model which has incorporated innovative strategies for addressing some of the identified barriers, many of which may also face other rural area health services.

## PEAK PULMONARY REHABILITATION MODEL

Pulmonary rehabilitation is provided in NRAHS is in three distinct formats:

- permanent site-based conducted by respiratory liaison worker and local multi-disciplinary team
- home-based conducted by respiratory liaison worker and the respiratory outreach staff
- intermittent site-based conducted by local physiotherapists and the local multi-disciplinary team.

A detailed description of the implementation process and key features of each format follows.

### Education and training

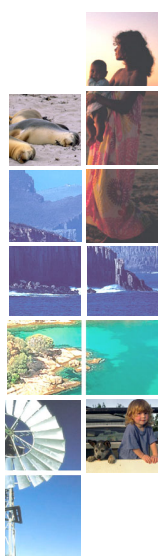
A one-day education package incorporating all aspects of best practice management of chronic respiratory disease was conducted in each of the three geographic valleys within the area health service with over 100 multi-disciplinary staff attending. A respiratory physiotherapist with extensive experience in pulmonary rehabilitation was flown in to provide practical, rural focused pulmonary rehabilitation education to the multi-disciplinary audiences.

Three respiratory liaison workers were recruited for the three major hospitals. These new roles included the provision of pulmonary rehabilitation programs in the job description.

As recruitment of specialised health professionals to rural areas is often difficult, these new respiratory liaison positions were recruited from any tertiary qualified health professional with respiratory experience and an interest in working with chronic respiratory disease patients. These positions were ultimately filled by a community-based registered nurse, hospital-based registered nurse and a physiotherapist. Each liaison worker was sent to Sydney for four days observational training at a variety of metropolitan sites that provided comprehensive pulmonary rehabilitation.

Local GPs were educated regarding patient selection, anticipated patient outcomes and referral processes for new pulmonary rehabilitation services via their Divisional newsletter and a "Reducing the Burden of COPD" one day forum.

The permanent site-based programs commenced first, which when established then provided two easily accessible observational training opportunities for other staff intending to provide an intermittent site-based program at their facility.



The respiratory co-ordinator was available for support, in-servicing of pulmonary rehabilitation equipment and guideline to local staff at intermittent smaller site programs

## Standardised practice guidelines and documentation

Following a literature review of available best practice pulmonary rehabilitation guidelines, draft NRAHS practice guidelines were developed for the provision of both site-based and home-based pulmonary rehabilitation, covering both the exercise and education components. The respiratory liaison workers then trailed these guidelines in the clinical setting with the commencement, in Sept 2001, of site-based programs at two major hospitals and the home-based program run in parallel with the one pre-existing site program. All programs were over eight weeks and had standardised quality of life tool, functional exercise tool and patient goal as outcome measures. Standardised supporting documentation was developed which included GP information letters and referral form, patient information letters and referral details, pulmonary rehabilitation assessment form, patient exercise diary, education session timetable and discharge letter.

## Equipment

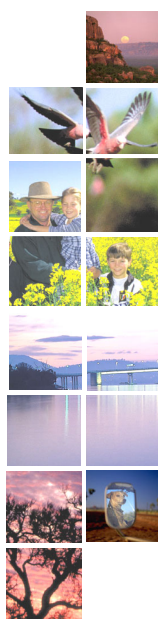
Essential equipment for the provision of pulmonary rehab was purchased for each of the three major sites which included pulse oximeters, portable spirometers, arm ergometers, cuff weights, hand weights, theratube, treadmill, exercise bicycle and laminated posters. Three additional sets containing only portable items of equipment and a collapsible storage trolley were purchased as “loan kits” for the provision of intermittent pulmonary rehabilitation at smaller sites in NRAHS.

## Venues

Each site was encouraged to identify a suitable location that met the following essential criteria:

- accommodate 6-12 patients
- portable oxygen available
- door drop off for ease of patient access
- air conditioning (if occurring in summer)
- level walking distance for Six Minute Walk Test
- a single fixed or portable step.

Physiotherapy departments, day therapy units and a general purpose meeting room have been utilised to date for the provision of site-based pulmonary rehabilitation.



## Permanent site-based programs

Two permanent site-based programs were established at the two largest regional hospitals. Respiratory liaison workers recruited patients during acute hospital admissions and from community referral by physicians and GPs. The respiratory liaison workers handled the administration requirements and co-facilitated the exercise sessions with the local physiotherapy departments. Weekly education sessions were provided by existing multi-disciplinary staff at each site. Programs at these sites have been conducted consecutively from September 2001

## Home-based programs

One respiratory liaison worker piloted a home-based program which only recruited in-patients during acute admission who lived within a set geographical radius of the hospital. Patients were only recruited if identified as unable to access the pre-existing intermittent site program due to their disease severity or insurmountable transport issues.

Weekly visits monitored and progressed the patients daily exercise program and education was provided by booklets and one on one discussion of the most relevant issues identified for each patient.

## Intermittent site-based programs

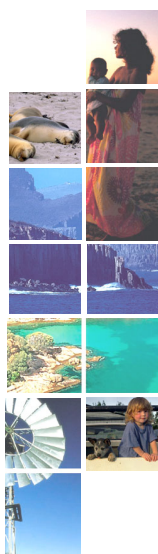
Funds were allocated to enable reimbursement of \$2000 to individual sites, other than the three major centres, who completed a PEAK site-based pulmonary rehabilitation program. The aim of the reimbursement funding was to provide the opportunity for back filling the hours of the key staff involved in each program, rather than attempting to recruit additional staff to each eight week program or having to cut other existing services. A common complaint from rural "generalist" health professionals was the repeated expectation to provide additional services with no increase in resources provided. Subsequently staff are loathe to take on new services or patient groups when it meant other services must be cut.

Loan kits of equipment, practice guidelines and all documentation were available with full in-servicing and unlimited support available from the respiratory co-ordinator. Commitment to provide a site-based pulmonary rehabilitation program was voluntary and the timing was at the choice of the individual site. Patients could be recruited well in advance from acute admissions and GP community referrals.

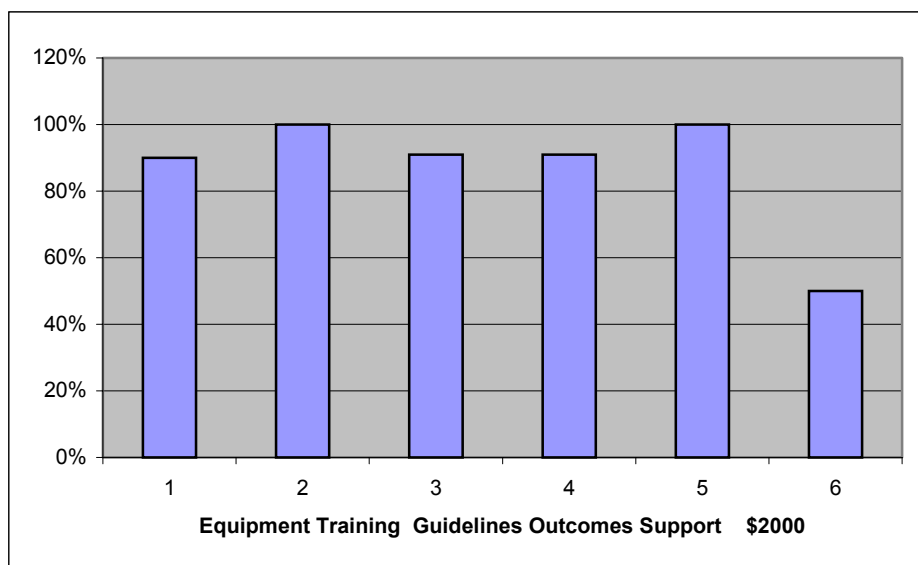
Provision of intermittent eight week site programs, at venues other than the two major hospitals, has aimed to reduce the transport limitations and therefore provide more patients in our smaller rural communities with the opportunity to attend a PEAK pulmonary rehabilitation program.

In all sites the local existing physiotherapy staff have worked in collaboration with other health disciplines to provide these intermittent programs.

Staff involved in providing any of the PEAK pulmonary rehabilitation programs were surveyed to assess which strategies utilised in the PEAK model had positively impacted on their ability to provide pulmonary rehabilitation at their site.



**Figure 1 Factors positively impacting on ability to provide pulmonary rehabilitations**



The survey reflected that all of the factors addressed by the respiratory co-ordinator in the development and implementation of the PEAK program had been perceived as having a highly positive impact. The reimbursement of \$2000 for intermittent site programs was perceived as positive by 50% of staff surveyed. This result is also highly positive as reimbursement is only available at the smaller rural sites conducting intermittent programs, whilst all staff were surveyed.

## OUTCOMES

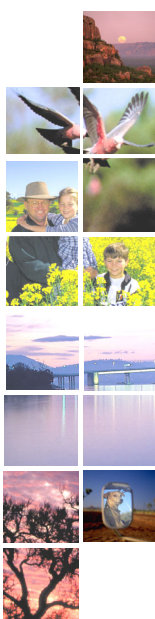
### Patient recruitment

The PEAK pulmonary rehabilitation model has been provided across NRAHS since September 2001. Data to date ( Sept 2002) is summarised below.

**Table 1 Patients completed pulmonary rehabilitation**

Permanent site based	Home based	Intermittent site based	Total
Conducted at 2 sites	Conducted at 2 sites	Conducted at 8 sites	10 sites
61	29	107	197

The 136 patients, who account for 69% of the total, that completed both the home-based and intermittent site programs are identifiable as a group who would have faced significant difficulties in accessing the two permanent programs. Anecdotal evidence supports the view that a large majority of these 107 patients, 54% of the total, would not have considered the two permanent site programs as “accessible” to them and therefore would not have received the service.



## Consumer response

Patient focused media coverage of PEAK pulmonary rehabilitation programs has been actively promoted. Articles appearing in the small community newspapers and local radio have prompted strong consumer response. Historically there has been a belief by health professionals and patients that there was "nothing more" that would or could be offered to chronic respiratory patients, apart from hospital management of acute exacerbations. Media coverage where patients self reported positive functional results and great enjoyment in attending the programs, generated many enquiries from patients and their families.

As a medical referral is required, interested patients were encouraged to raise the issue, or take the article, at their next GP visit and request assessment for referral. Several smaller rural sites were rapidly faced with waiting lists of up to 40 patients for future programs. This in turn led to rapid re-booking of the intermittent loan kits for repeat programs.

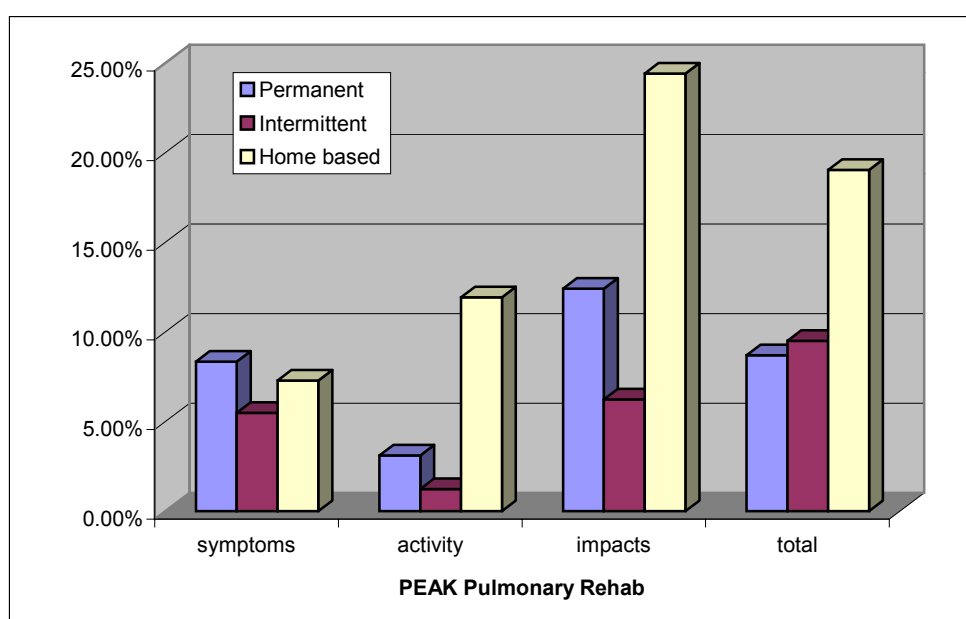
## Patient outcome measures

As all the PEAK programs utilise standardised quality of life and exercise capacity outcome measures, it has been possible to compare the effectiveness of each of the three formats provided by measurement of quality of life (QOL) and six minute walk test distance(6MWT).

## Quality of life

The St George Respiratory Questionnaire was administered to all patients at commencement and completion of all pulmonary rehabilitation programs.

**Figure 2** Quality of life % differential

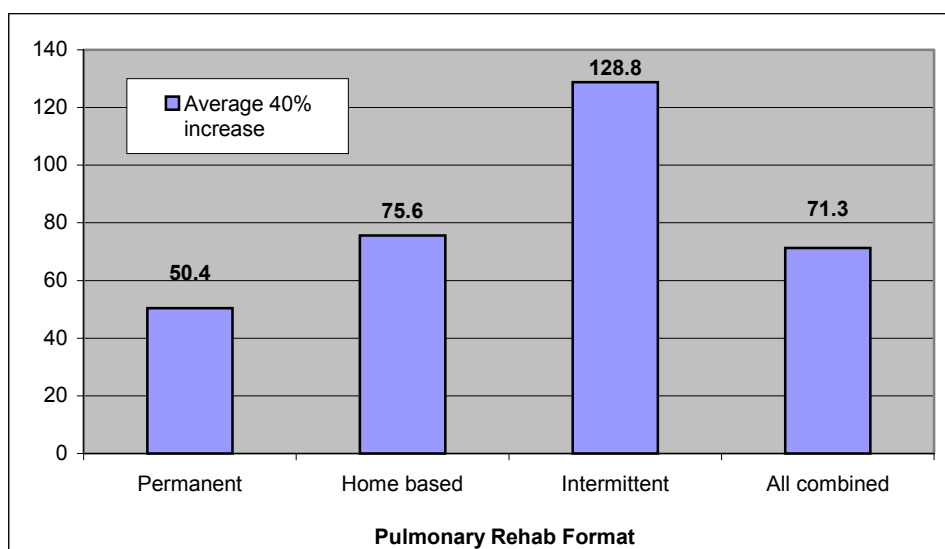


The comparison of percentage differential outcomes for each category score (symptoms, activity and impacts) and the total quality of life (QOL) score, reflects positive outcomes for each program format. The home-based program produced the greatest improvement in activity, impacts and total scores. As the home program is only provided to the more severely disabled and socially isolated patients, it is encouraging to identify this highly positive patient outcome. The intermittent site programs, conducted by generalist rural health professionals, produced significant and comparable total QOL results to the permanent site programs conducted by more specialised staff.

## Six-minute walk test (6MWT)

Exercise capacity for each patient was assessed at commencement, mid program and completion of all pulmonary rehabilitation.

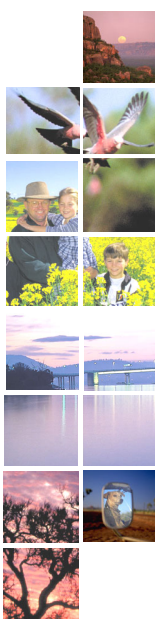
**Figure 3** Average 6MWT increase in metres



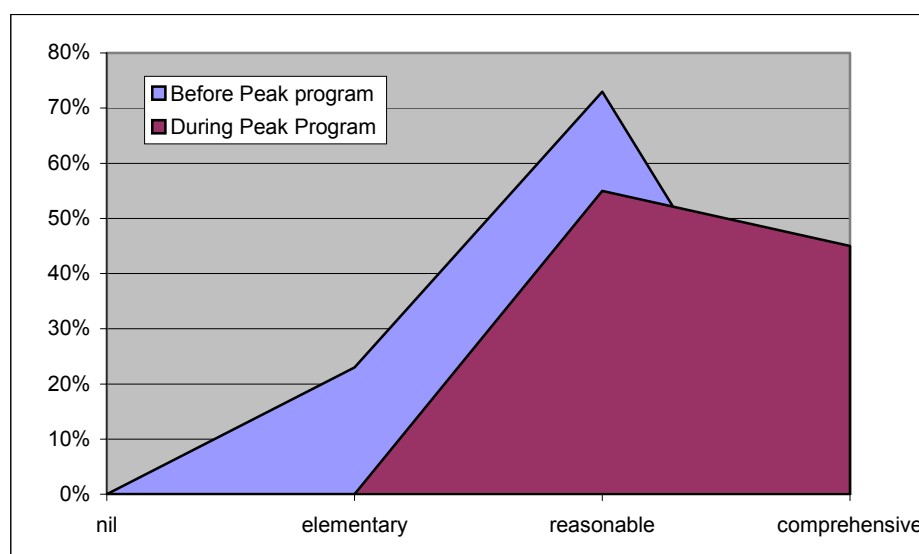
Each of the PEAK pulmonary rehabilitation formats produced significant improvements in the distance able to be walked in six minutes. Functionally these improvements even at the lower level of 50 meters, have given individual patients the ability to walk to the corner shop, walk their daughter up the aisle or leave the house for the first time in over one year.

## WORKPLACE IMPACTS

A written survey was conducted of all staff involved in the provision of pulmonary rehabilitation in NRAHS to date. The aim was to assess if there had been changes in health professionals attitudes, behaviours and overall level of service provision to chronic respiratory disease patients as a consequence of their involvement in local pulmonary rehabilitation programs.

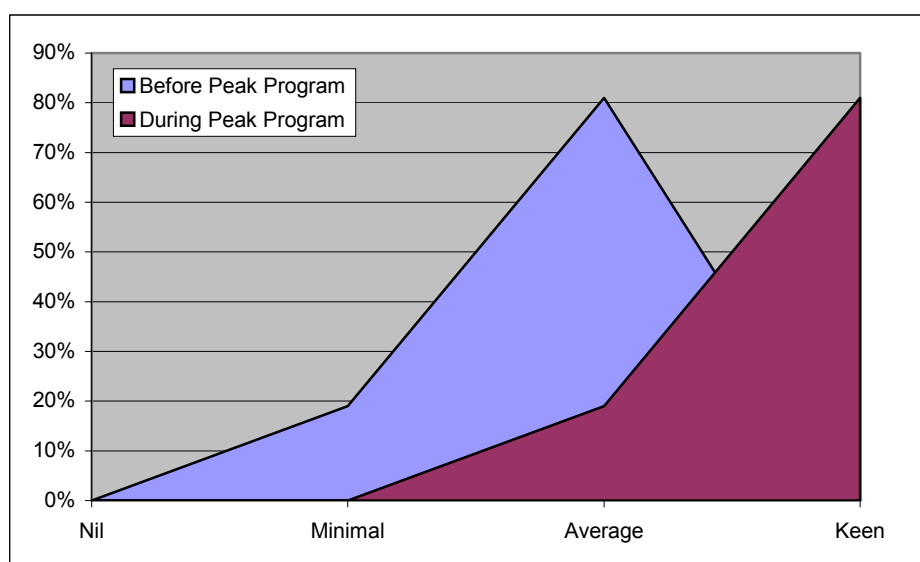


**Figure 4 Understanding of the needs of chronic respiratory disease patients**

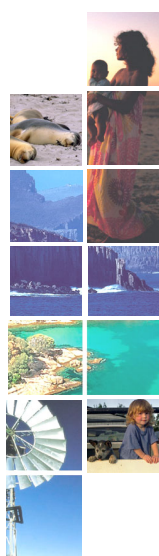


The survey reflected that before the PEAK pulmonary rehabilitation programs, 27% of staff involved had an elementary understanding, 73% reasonable understanding and no staff considered they had a comprehensive understanding of the needs of chronic respiratory patients. Currently 55% of the same staff considered they had a reasonable understanding and 45% comprehensive understanding of the needs of chronic respiratory patients.

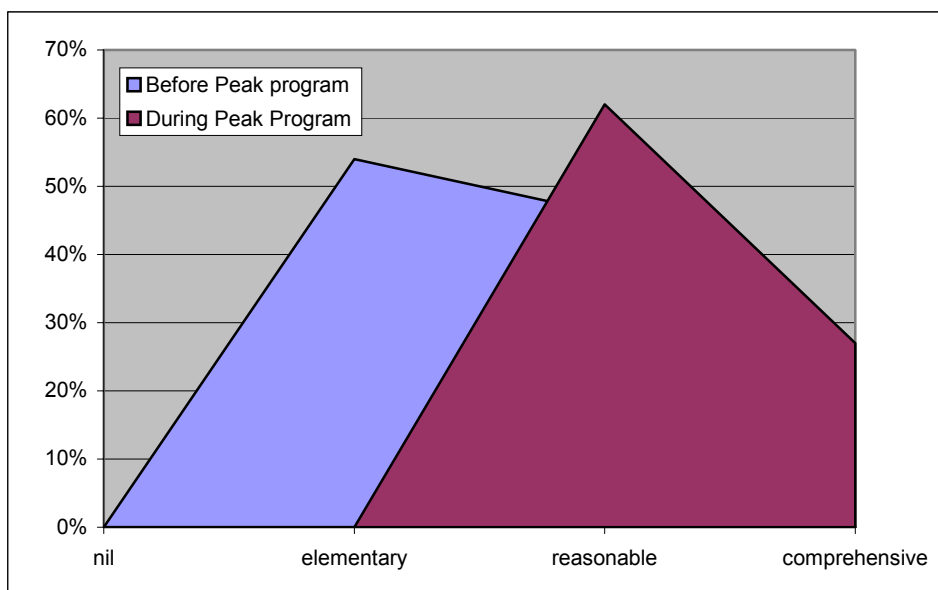
**Figure 5 Level of interest in working with chronic respiratory disease patients**



The survey reflected that before the PEAK program 19% of staff had a minimal interest, 81% a reasonable interest and no staff expressed a keen interest in working with chronic respiratory disease patients. Currently 19% expressed a reasonable level of interest and 81% expressed a keen level of interest in working with chronic respiratory disease patients.



**Figure 6 Overall level of service provision to chronic respiratory patients**



The survey reflected that before the PEAK program 54% of staff perceived the overall level of service provision at their site as elementary, 46% reasonable and no staff perceived the level as comprehensive. Currently 62% of staff perceived a reasonable overall level of service provision and 27% rated it as comprehensive. As pulmonary rehabilitation was the only change implemented at the intermittent smaller sites, these results would indicate that the level of overall service provision to chronic respiratory patients has risen as a result of the multi-disciplinary team coming into contact with this patient group during their rehabilitation program.

### Staff expectations

The survey asked staff to rate the likelihood of pulmonary rehabilitation and overall multi-disciplinary service provision continuing for chronic respiratory patients at their site after June 2003, when the NSW Government PHCP funding is due to cease.

The survey reflected that 45% of responders expected that the current expansion of multi-disciplinary service provision to chronic respiratory disease patients at their site would continue to a limited degree. Sixty three percent of responders expected that pulmonary rehabilitation services would definitely continue to be provided at their site. As sustainability of the PEAK program funding remains unknown at this time, these results indicate a lasting re-orientation of health service provision toward chronic respiratory disease management.

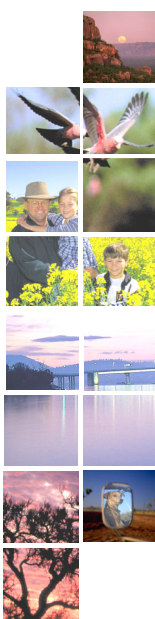
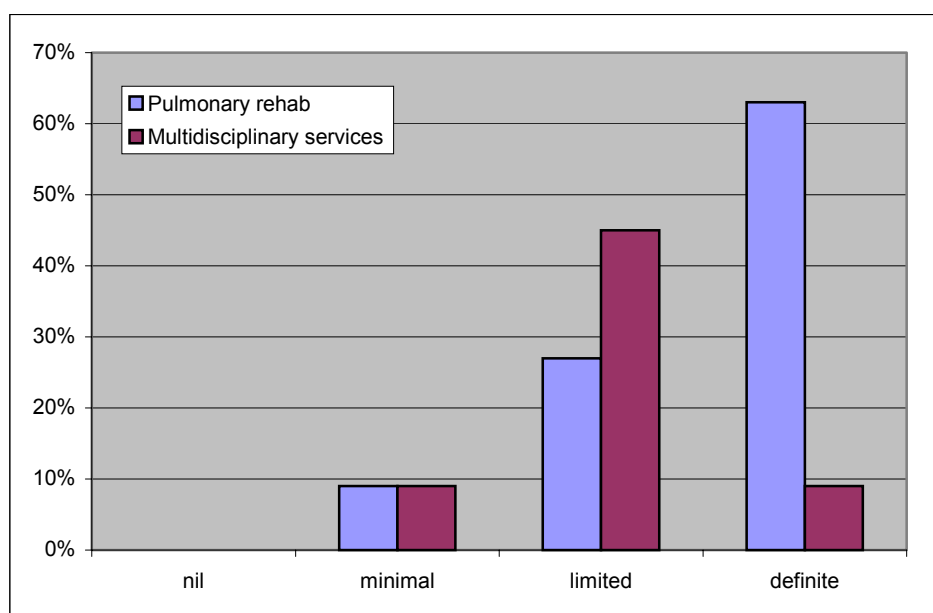


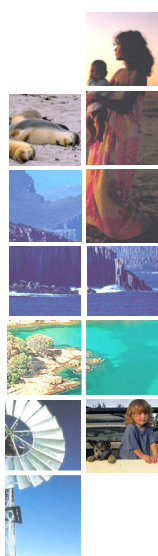
Figure 7 Likelihood of services continuing to be provided after June 2003



## CONCLUSION

The development, implementation and evaluation of the PEAK pulmonary rehabilitation program across NRAHS, has supported the following recommendations:

- extensive comprehensive pulmonary rehabilitation programs can be provided in the majority of sites within a rural area health service
- consideration of the local barriers to provision of pulmonary rehabilitation services is necessary for development and implementation of a flexible area wide model
- improved patient access to pulmonary rehabilitation, through the addition of intermittent programs offered in smaller rural communities, can significantly increase patient recruitment
- “generalist” rural health professionals, with local training and support, can provide effective comprehensive pulmonary rehabilitation programs
- the provision of pulmonary rehabilitation programs can positively impact on individual staff attitudes and their understanding of chronic respiratory disease
- bringing the multi-disciplinary team in contact with patients attending pulmonary rehabilitation groups, can positively impact on sustainable re-orientation of service provision across all disciplines.



## REFERENCES

1. Dr Peter Frith, "Draft Evidence Base and Standards for Pulmonary Rehabilitation in Australia" March 2002 : pg5.
2. Dr Peter Frith, "Draft Evidence Base and Standards for Pulmonary Rehabilitation in Australia" March 2002: pg 6.
3. The Australian Lung Foundation National Survey of Pulmonary Rehabilitation, March 2000.

## PRESENTER

**Cecily Barrack** is a Clinical Practice Improvement Graduate. Currently she is Respiratory Co-ordinator for the Priority Health Care Program for Northern Rivers Area Health Service, as well as an Asthma Educator. Prior to this Cecily was a Clinical Physiotherapist until 2001, with 20 years' experience in a rural base hospital.

