

New Zealand paediatric respiratory stock-take survey

David G McNamara, Catherine A Byrnes, Angela J Campbell, Samuel Dalton, Oka Sanerivi, Tamba Trist

ABSTRACT

AIM: Tamariki (children) in Aotearoa New Zealand suffer high rates of respiratory morbidity. There are also geographic, socio-economic and ethnicity inequities, with tamariki Māori and Pacific children experiencing the highest rates. Our aim was to survey New Zealand respiratory health services and identify gaps in delivery.

METHODS: We invited health practitioners from all districts to respond to an online survey and separately contacted individuals known to deliver paediatric respiratory care. We included medical, nursing and allied health staff and collated responses.

FINDINGS: There were 23 responses from 17 hospitals. Respiratory- and sleep-specialist senior medical officers (SMOs) were employed in only three major centres. Full time equivalent (FTE) for paediatricians with an interest (PWI) in respiratory care was evenly distributed with low numbers reported in the Northern region, Wellington and Canterbury. Senior nurse FTE was fairly constant across the country, except in the Northern region. Allied health staffing was inconsistent across the country with many districts in the Te Manawa Taki region reporting little or no respiratory physiotherapy staffing. More than half of districts reported limited or no access to videofluoroscopic swallow studies. There is poor access to chest computed tomography (CT) scanning under general anaesthetic in more than half of centres.

CONCLUSION: Despite high levels of respiratory disease and morbidity, with serious disparities, there is inadequate staffing and provision of services. There is an urgent need for better co-ordination of care but a lack of both national and regional frameworks despite respiratory health being a current health target.

Tamariki (children) in Aotearoa New Zealand as a whole suffer high rates of respiratory morbidity with high rates of bronchiectasis, bronchiolitis and hospital admissions for pre-school wheeze and pneumonia.¹ There are also geographic, socio-economic and ethnicity inequities, with tamariki Māori and Pacific children experiencing the highest rates.^{1,2,3,4} Our aim was to survey New Zealand respiratory health services and identify gaps in delivery where co-ordination may improve patient outcomes.

Methods

We invited health practitioners from all districts to respond to an online survey and separately contacted individuals known to deliver paediatric respiratory care. We included medical, nursing and allied health staff and collated responses where more than one response was received from a district. Further details for key questions were sought by email from centres that had not responded. The questionnaire asked questions regarding staffing and patient numbers as well as four-point forced-choice Likert questions on a range from “almost always” to “almost never”. Free-

text fields were supplied for additional comments and responses with additional responses from professional groups.

Findings

There were 23 responses from 17 hospitals: 15 senior medical officers (SMOs), four nursing staff, two physiology respondents and two physiotherapist respondents. Medical staffing is displayed in Figure 1 by region. Respiratory- and sleep-specialist SMOs were employed in Auckland, Wellington (sleep only) and Christchurch. Full time equivalent (FTE) for paediatricians with an interest (PWI) in respiratory care was evenly distributed, with low numbers reported in the Northern region, Wellington and Canterbury. We were unable to ascertain FTE utilised by general paediatricians in non-respiratory-dedicated clinics.

Senior nurse and nurse specialist FTE was fairly constant across the country, except in the Northern region where there was a relative lack of staffing compared to population. Allied health staffing (Figure 2) was inconsistent across the country, with relatively good staffing in the Northern region, however many districts in the Te Manawa

Taki region reported little or no respiratory physiotherapy staffing. Physiotherapy staffing was also poor in several centres in the South Island, including Christchurch, despite the presence of a respiratory specialist (Figure 2).

Speech language therapy staffing FTE appeared adequate across the country although this was shared between community and inpatient care,

between dysphagia and education services, and between adult and paediatric services.

Regarding investigations (Table 1), all respondents reported good access to both inpatient and outpatient spirometry. However, there was decreased access to diffusion and lung volume testing. Exercise tests were limited throughout the country. More than half of districts reported

Figure 1: Senior and medical staffing by region per 100,000 regional child population.⁵ NS = Nurse specialist. SMO = Senior medical officer.

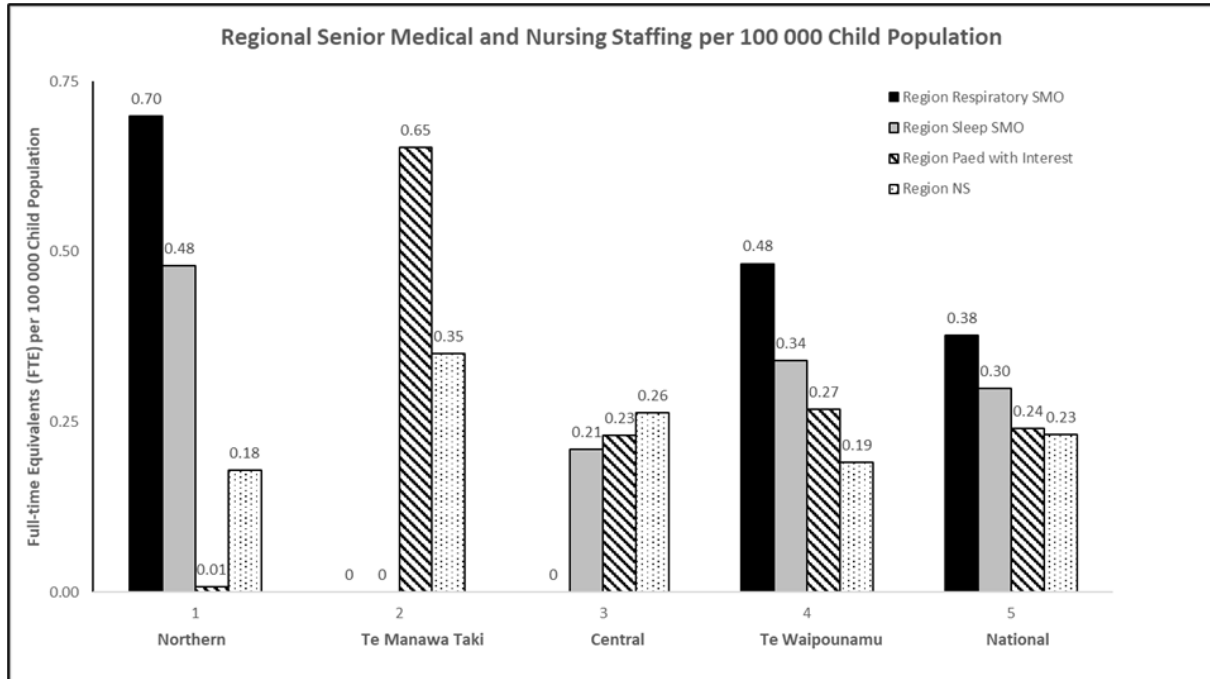
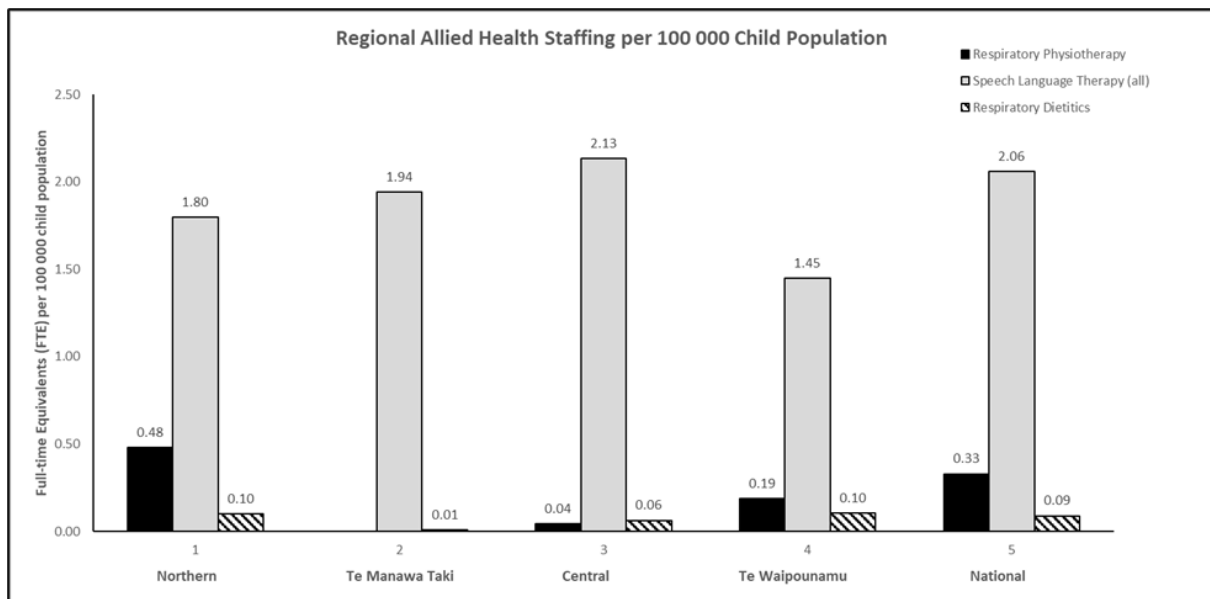


Figure 2: Allied health staffing by region per 100,000 child population.



limited or no access to videofluoroscopic swallow studies (VFSS), with whānau (family) having to drive up to 5 hours for routine testing. There is poor access to chest computed tomography (CT) scanning under general anaesthetic in more than half of centres.

Respondents reported good access to outpatient chest physiotherapy to initiate care within 6 weeks of bronchiectasis diagnosis. Likewise, there was good access to admission for bronchiectasis and cystic fibrosis exacerbations. There was good access to acute inpatient chest physiotherapy during working hours; however, the majority of centres were unable to provide after-hours physiotherapy.

Discussion

The provision of specialist respiratory focussed services across the country appears inadequate, especially given the high rates of respiratory

morbidity in New Zealand among tamariki, with disparities in outcomes seen. Only 8.7 specialist SMO FTE was reported in this survey. Previous recommendations of one adult respiratory specialist per 100,000 population would suggest a need for 13 specialists for the paediatric population.⁶ It has been usual in New Zealand to supplement respiratory specialists in secondary care with PWIs. However, staffing for this also appears poor at 3.0 PWI FTE. Only one dedicated asthma clinic was reported; this appears inadequate given 13% of children in New Zealand have asthma and 50% experience pre-school wheeze, with 40% of these going on to have recurrent wheeze.⁴ A national survey of paediatric specialist services in 1998 identified a need for additional resource,⁷ with only 0.15 FTE respiratory specialists per 100,000 population and a lack of associated staff. Our survey has identified a partial improvement in national respiratory FTE to 0.38 respiratory- and 0.30 sleep-specialist FTE per 100,000 child population. The

Table 1: Reported access to investigations.

	Always or almost always	Often	Sometimes	Never or almost never	Proportion of centres reporting reasonable access
Outpatient spirometry	11	3	0	0	100%
Inpatient spirometry	10	3	1	0	93%
Bronchodilator responsiveness spirometry	9	3	2	0	86%
DLCO or lung volume testing	1	2	3	7	23%
Exercise test for bronchoconstriction	2	1	4	7	21%
Six-minute walk test or equivalent	3	6	3	3	60%
Cough swab or suction sample (airway microbiology)	7	4	3	1	73%
VFSS	5	4	4	1	64%
Computed tomography scan chest no GA	10	1	1	1	85%
Computed tomography scan chest with GA	4	2	5	3	43%

DLCO = diffusing capacity of the lungs for carbon monoxide. GA = general anaesthesia. VFSS = videofluoroscopy swallow study.

Table 2: Reported access to treatments.

	Always or almost always	Often	Sometimes	Never or almost never	Proportion of centres reporting reasonable access
Outpatient chest physiotherapy (within 6 weeks of diagnosis)	7	6	2	0	87%
Semi-elective or planned acute admission for exacerbation	13	0	1	0	93%
Insertion of PICC line or other central line	4	7	2	1	79%
Acute inpatient chest physiotherapy in working hours	10	5	0	0	100%
Overnight or after-hours acute inpatient chest physiotherapy (paediatric specialist physiotherapist)	3	1	5	6	27%
Overnight or after-hours acute inpatient chest physiotherapy (adult or non-paediatric physiotherapist)	2	2	4	5	31%
Access to overnight or after-hours physiotherapy (paediatric specialist or adult physiotherapist)	4	2	6	3	40%
Inpatient dietitian assessment or treatment	7	7	0	0	100%

PICC = peripherally inserted central catheter.

1998 report recommended for New Zealand one quaternary centre and two tertiary centres; however, only a single centre currently has adequately developed specialist services.

All regions reported seeking further SMO and nursing FTE at both the specialist and secondary care level. Nurse specialist staffing relative to population appears poor in the Northern region, despite there being a tertiary referral centre in the region. Some respiratory nursing in this region is conducted by the community nursing teams, which we did not survey.

There are deficits in access to VFSS across the

country which are essential for assessment of possible aspiration contributing to respiratory disease, especially when supporting children with neurological conditions, with syndromes and/or with airway/oesophagus anatomic abnormalities.⁴ There is poor access across the country to specialist paediatric physiotherapy. Of particular concern is the poor access to after-hours chest physiotherapy treatment to relieve mucus plugging which may prevent intensive care admission and mortality.

There is good access to spirometry across the country, but limited access to more advanced testing, which is required for the follow-up of

rheumatoid and oncological diseases. There are concerns that adult respiratory physiology laboratories have limited experience testing children and decline paediatric age referrals, causing geographical inequities.

Many districts reported difficult or no access to chest CT scans with general anaesthetic which is required when investigating children under 6 years of age or with developmental concerns. As New Zealand has a high rate of bronchiectasis compared to other countries, this is likely leading to delayed diagnosis and increased morbidity.

Conclusion

Despite high levels of respiratory disease and morbidity in Aotearoa New Zealand, with serious disparities across the country, there is inadequate staffing and provision of services. There is an urgent need for better co-ordination of care but a lack of both national and regional frameworks for this. Significant investment in staffing is required throughout the country to improve our paediatric respiratory outcomes.

COMPETING INTERESTS

David G McNamara is an honorary committee member of the Asthma and Respiratory Foundation New Zealand (ARFNZ) Scientific Advisory Board.

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