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Scanning the respiratory service landscape in NSW-based Aboriginal Community Controlled Health Services

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Abstract

Background Chronic respiratory diseases, such as chronic obstructive pulmonary disease (COPD), disproportionately impact the Aboriginal and Torres Strait Islander population of Australia. Aboriginal Community Controlled Health Services (ACCHSs) are primary care services, established to provide healthcare in culturally safe environments for Aboriginal people. There is little information about the respiratory services for people with chronic respiratory diseases provided by ACCHSs.

Aim To describe current provision of respiratory services of ACCHSs based in New South Wales (NSW), with a focus on identifying barriers and facilitators to providing pulmonary rehabilitation.

Methods A researcher-administered survey was conducted via Zoom plus a follow-up email to collect client and health workforce data. Participants were NSW-based ACCHSs, members of the Aboriginal Health and Medical Research Council (AH&MRC). Exclusions were ACCHSs that only delivered drug and alcohol rehabilitation, housing or employment services. The survey collected information related to client numbers, smoking history, COPD diagnoses, health workforce, and respiratory services with a focus on pulmonary rehabilitation programs.

Results Forty-one ACCHSs were invited to participate and 18 (44%) completed the survey. Most provided respiratory care, although variation existed in service scope and delivery. The main respiratory services provided were smoking cessation (100%), spirometry (89%) and respiratory clinics (33%). Most ACCHSs (78%), reported some access to respiratory physicians. No ACCHSs provided pulmonary rehabilitation. Main barriers included staff shortages, lack of staff training, financial constraints and lack of space. Several ACCHSs expressed interest in providing a pulmonary rehabilitation program, if appropriate resourcing was available. Ten ACCHS (56%) reported that Aboriginal clients would not access mainstream public health services for pulmonary rehabilitation. Barriers to accessing these externally available pulmonary rehabilitation programs included transportation issues, cultural considerations and geographical location.

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Conclusions ACCHSs are delivering respiratory services for Aboriginal people living with chronic respiratory diseases within constrained infrastructure and resources. Additional funding is required to improve access to best practice care for Aboriginal people living with COPD including culturally safe, evidence-based and accessible pulmonary rehabilitation programs.

Keywords Pulmonary rehabilitation, Aboriginal Community Controlled Health Service, Health workforce, Respiratory services, Smoking cessation, Spirometry, Physiotherapist, Exercise physiologist

Introduction

Chronic obstructive pulmonary disease (COPD), is a serious Australian public health issue, contributing to significant morbidity, mortality and health economic burden [1, 2]. Aboriginal and Torres Strait Islanders are the Indigenous peoples of Australia, (hereafter respectfully referred to as Aboriginal peoples) and are disproportionately impacted by COPD compared to other people [3], with COPD being the most common cause of potentially preventable hospitalisation for Aboriginal peoples [4]. Many of these hospitalisations could be avoided by access to best practice COPD management provided in primary care [5–8].

Pulmonary rehabilitation is a key component of evidence-based COPD management [9]. Programs are commonly delivered over a 6–8-week period by physiotherapists in mainstream public hospitals [9, 10]. Pulmonary rehabilitation includes individualised exercise training and health education to optimise treatment and manage symptoms that impact quality of life, such as shortness of breath and fatigue [5].

There is a disparity in access to health care for Aboriginal peoples which is influenced by colonisation, racial discrimination, as well as social and geographical barriers, leading to poor health outcomes [11]. To address the unacceptably high rates of COPD hospitalisations for Aboriginal people with COPD, there is a growing recognition that access to culturally safe pulmonary rehabilitation programs needs to be improved [12]. Aboriginal Community Controlled Health Services (ACCHSs) were established to improve Aboriginal peoples' access to culturally safe health care grounded in local Aboriginal culture and communities' perspectives to inform service delivery and address the failures of the mainstream health care system [13, 14]. Current evidence, although limited, suggests that delivery of pulmonary rehabilitation programs by ACCHS for Aboriginal people with COPD have achieved improvements in health outcomes [15] and highlighted the importance of culturally meaningful relationships to increase uptake to such programs by Indigenous communities [16]. There is limited published evidence describing the current landscape of respiratory service provision within NSW-based ACCHSs, including barriers and enablers to implementing sustainable pulmonary rehabilitation programs. The study aim was to describe the current respiratory service provision and infrastructure within NSW-based ACCHS, with a focus on COPD and the availability of pulmonary rehabilitation.

Methods

The study was a cross-sectional, observational design using a researcher-administered survey conducted via Zoom and was nested within a NHMRC funded project titled: *Implementing evidence into practice to improve chronic lung disease management in Indigenous Australians: the Breathe Easy, Walk Easy - Lungs for Life (BE WELL)*. Ethics approval was granted by the Aboriginal Health and Medical Research Council of NSW (AH&MRC) Human Resource Ethics Committee (HREC 1261/17).

Participants

Participants were NSW-based ACCHSs. To be eligible, services had to be a member of the AH&MRC and listed on the AH&MRC website as delivering culturally safe health-related primary care services [17]. Services were excluded if they solely delivered drug and alcohol rehabilitation, housing or employment services.

Procedure

Recruitment occurred from August 2021 until April 2023. Aboriginal members (DM, SPP and JC) of the research team telephoned each ACCHS to verbally confirm eligibility. A personalised email addressed to the Chief Executive Officer of eligible ACCHSs was then sent, inviting them and their service to participate in the study. This email included a study overview, participant information sheet and consent form. Following the invitation, ACCHSs received up to three telephone prompts from the research team to enquire about their interest in participating in the study. Participation was voluntary with consent provided by the Chief Executive Officer (CEO) of the ACCHS.

The survey, a copy of which had been sent to the ACHHS via email, was administered in real time, using video conferencing via a scheduled Zoom interview by Aboriginal members of the research team (DM, SPP and JC), experienced in conducting research with Aboriginal communities [18]. During the interview, the researchers guided the CEO or their delegate (a senior manager or senior clinician) through the survey and entered

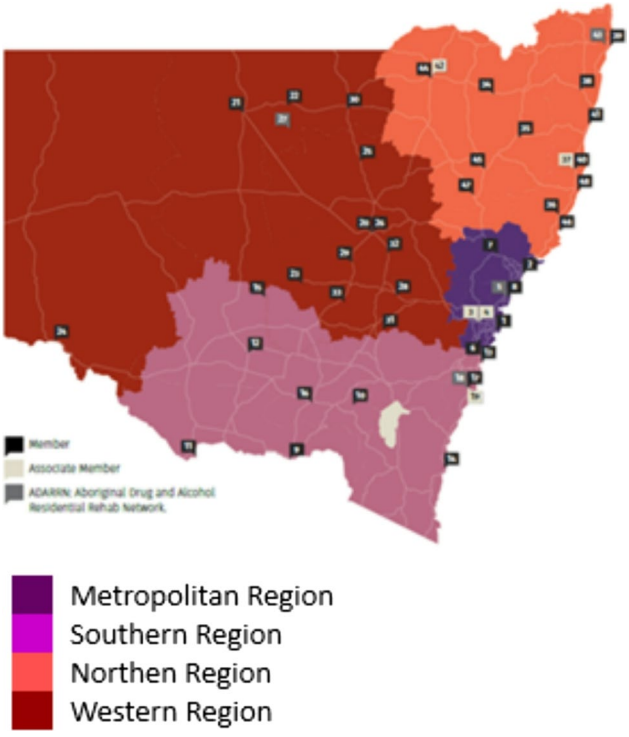

Fig. 1 AH&MRC member services map [22]

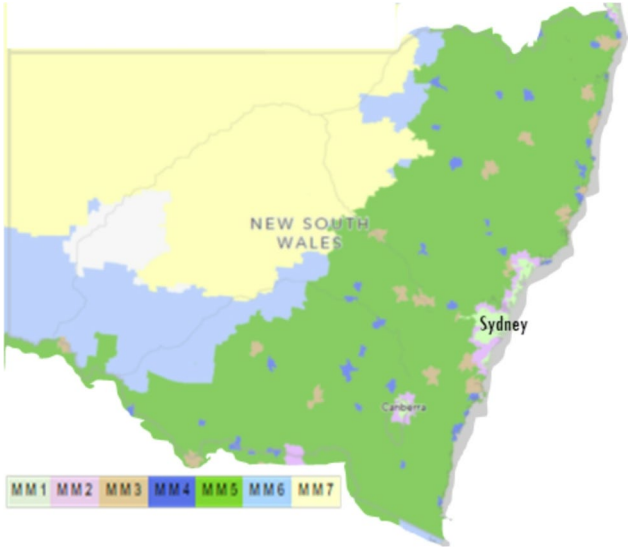

Fig. 2 New South Wales by MM. Source: Generated using a geospatial platform [23]. Legend: MM1: Metropolitan, MM2: Regional centres, MM3: Large rural towns, MM4: Medium rural towns, MM5: Small rural towns, MM6: Remote communities, MM7: Very remote communities

participant responses directly into the survey tool. This approach enabled clarification of any aspect of the survey. Following the interview, a brief follow-up email was sent requesting client and health workforce data, which required participants to generate client reports in Communicare or Medical Director and review their health workforce establishment.

Survey

The survey was piloted in a previous study titled, *Breathe Easy*, *Walk Easy* which upskilled the health workforce to deliver pulmonary rehabilitation in rural and remote Australian health care settings [19, 20]. The survey was adjusted to fit the BE WELL project and the ACCHS context (Supplementary Information File 1). The survey comprised two sections and consisted of between 35 and 59 questions depending on participants' responses. The survey quantified the client population managed by the ACCHS, health workforce employed, respiratory services provided, and barriers and facilitators to providing pulmonary rehabilitation. Additionally, if a pulmonary rehabilitation program was provided by the ACCHS, the survey assessed the model of pulmonary rehabilitation, insights into the enablers to establishing a PR program or enhancing an existing program.

Data analysis

Survey responses were analysed using SPSS Statistics, version 28 (IBM Corporation, Armonk, NY, USA). Descriptive statistics (frequency, percentage, mean, standard deviation, median and interquartile range) were generated for appropriate variables and correlations were performed to determine relationships between variables. Participants were able to verbally provide additional context for their responses, which were recorded and transcribed, with key comments summated. Data are presented de-identified by ACCHS location in terms of the regions of NSW designated by the AH&MRC as either Metropolitan, Northern, Southern, Western (Fig. 1) and also by the Modified Monash Model (MM) which defines whether a location is metropolitan, rural, remote or very remote on a scale of MM1 to MM7, with MM 1 being a major city and MM 7 being very remote (Fig. 2) [21].

Results

Of the 48 ACCHSs that were members of AH&MRC, seven did not meet the inclusion criteria [22]. The 41 eligible NSW-based ACCHS were invited to participate, and 18 services (44%) completed the survey.

The geographical regions and population size of the local town in which the ACCHS were located are presented in Table 1. There was one ACCHS in the Metropolitan Region, six in the Northern Region, six in the Southern Region and five in the Western Region. ACCHSs were located in MM categories 1 to 6 [24] (Fig. 2). Eleven ACCHSs provided data on overall client numbers, Aboriginal client numbers, number of Aboriginal clients who had a smoking history, and number with a COPD diagnosis (Table 2). Aboriginal people who had a history of tobacco smoking as a percent of total Aboriginal clients ranged from 18% to 66%, noting that

Table 1 Geographical region and classification sites of participating ACCHS (*n* = 18)

Region	Classification	ACCHS, *n*	Average population, *n*	Average Aboriginal population, *n*
Metropolitan	MM1	1	170,000	9000
Northern	MM3	3	64,000	6000
	MM4	2	15,000	3000
	MM5	1	7000	1500
Southern	MM1	1	136,000	4000
	MM2	1	56,000	2500
	MM3	4	3 towns: 89,000	7000
			1 town: 13,000	600
Western	MM3	3	39,000	6000
	MM5	1	6000	1400
	MM6	1	4,000	1700

Legend: Region, geographical regions identified by AH&MRC; *MM* Modified Monash Model; Average town population, classified by Local Government Area; Average Aboriginal population, classified by Local Government Area; *n* number.

the denominator included Aboriginal people of all ages who were clients of the ACCHS and therefore may be an underestimation of the percentage of adults with a smoking history. Aboriginal clients with COPD as a percentage of the entire Aboriginal client population ranged from 4% to 6%, noting again that the denominator is the whole client population and not age-specific for people 40 years and older, which is usually when symptoms appear, and a diagnosis of COPD is made [25]. Aboriginal clients with a COPD diagnosis as a percent of those with a smoking history ranged from 7% to 24%.

The total full time equivalent (FTE) health workforce employed by ACCHSs within their respective staffing establishments ranged from 11 to 60 FTE, comprised mostly of GPs (median, IQR) (3.7, 2.1 to 5.4) nurses (3.0, 2.4 to 5.0), and AHWs (3.0, 3.0 to 6.0). A very limited number of allied health professionals were employed, for example, one ACCHS employed a physiotherapist (0.02 FTE) (one day a month), two ACCHSs employed exercise physiologists (1 FTE and 0.2 FTE) and seven ACCHSs employed dietitians (range 0.02 FTE to 1 FTE). Clinical staff FTE was not related to the size of the client population serviced by the ACCHSs, however there was a high correlation between total clinical staff FTE and episodes of care provided in the last financial year when the survey was completed ($n = 10$ ACCHSs, $r_\rho = 0.88$, $p < 0.001$).

All 18 (100%) ACCHSs reported using either Communicare ($n = 17$) or Medical Director ($n = 1$) as their local client management system to record clinical service activity and related funding, hospital discharge summaries and correspondence, internal reporting, reviews and recalls, referrals and allowing client records to be shared internally with the GPs and health workforce co-ordinating care, (or as needed with specialists) to support management plans and case conferencing. The main reasons for ACCHSs to use the client management systems in relation to chronic respiratory disease were to review GP management plans and team care arrangements (16/18, 89%) and record and schedule vaccinations (12/18, 67%) (Fig. 3). Twelve ACCHSs (67%) reported having a local process in place for annual reminders for influenza, pneumococcal and COVID-19 vaccinations. This included eight ACCHSs that sent proactive text messages about vaccinations to clients with chronic respiratory disease who were considered at high risk of exacerbations.

The main respiratory specific services provided by ACCHSs were smoking cessation, spirometry and respiratory clinics (Table 3).

All 18 ACCHSs provided smoking cessation programs with nurses or GPs providing this in 10 ACCHSs. Other staff who provided smoking cessation programs

Table 2 ACCHS client numbers, smoking history and COPD diagnosis (*n* = 11)

ACCHS by MM category	Clients, total, *n**	Aboriginal clients, *n* (% of total)*	Aboriginal clients with a smoking history, *n* (% of Aboriginal clients)	COPD diagnosis in Aboriginal clients *n*, (%)	COPD diagnosis in Aboriginal clients with smoking history, %
MM 1	2521	2291, (91)	939, (41)	79, (3)	8
MM 1	2122	1980, (93)	1305, (66)	87, (4)	7
MM 2	2816	2594, (92)	934, (36)	78, (3)	8
MM 3	3660	3248, (89)	894, (28)	159, (5)	18
MM 3	3696	3334, (90)	1292, (39)	110, (3)	9
MM 3	3300	2600, (79)	1200, (46)	115, (4)	10
MM 3	2928	2522, (86)	462, (18)	113, (4)	24
MM 3	3637	2481, (68)	1312, (53)	106, (4)	8
MM 4	8060	4530, (56)	1578, (35)	148, (3)	9
MM 5	2807	649, (23)	174, (27)	17, (3)	10
MM 6	3227	1703, (53)	485, (28)	104, (6)	21

Legend: *ACCHS* Aboriginal Community Control Health Service, *n* number, % percent, *COPD* chronic obstructive pulmonary disease, *MM* Modified Monash Model

*client numbers include clients of all ages registered with the ACCHS

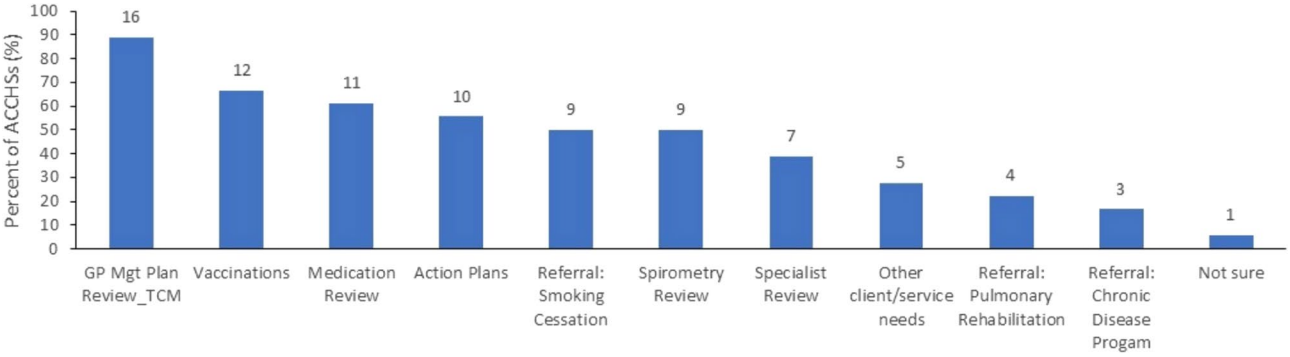

Fig. 3 Use of patient management systems for chronic respiratory disease management. Legend: GP, general practitioner; Mgt, management; TCM, team care management. Numbers above the bars are the number of ACCHSs.

Table 3 Types of respiratory services of participating ACCHSs ($n = 18$)

Type of respiratory services	Number of respiratory services, *n*, (% of ACCHSs)
Smoking cessation	18 (100)
Spirometry	16 (89)
Respiratory clinic (Adult)	5 (28)
Asthma/COPD education*	5 (28)
Respiratory clinic (Paediatric)	1 (6)
Pulmonary Rehabilitation	0 (0)

Legend: * Asthma/COPD education provided within ACCHS clinics

were AHWs (8 ACCHSs), health promotion workers (4 ACCHSs), exercise physiologists (2 ACCHSs), pharmacists (2 ACCHSs), psychologist (1 ACCHS) and respiratory physician (1 ACCHS). Some ACCHSs reported they had a long history of delivering smoking cessation programs, some for more than 10 years. ACCHSs reported that the availability of smoking cessation programs was dependent on the funding from the Australian Government's *Tackling Indigenous Smoking (TIS)* program, which was in place until 2022. Concerns were expressed as to whether smoking cessation programs could continue to be provided by ACCHSs if this funding ceased.

Sixteen ACCHSs reported spirometry was conducted within the ACCHS, with the other two ACCHSs referring to the local hospital. During COVID-19 related restrictions, three of these ACCHSs reported ceasing spirometry on site as it was challenging to conduct spirometry in line with infection control recommendations, so referred clients to the local hospital. In the 16 ACCHSs that provided spirometry, the staff that performed spirometry varied. Nurses conducted spirometry in 13 ACCHSs, AHWs in 5 ACCHSs, GPs in four ACCHSs, pharmacists in two ACCHSs and an exercise physiologist in one ACCHS.

Adult respiratory clinics that were available in five ACCHSs were staffed by GPs and/or nurses. In two ACCHSs a respiratory physician attended via tele-health. One ACCHS had a monthly paediatric respiratory clinic provided by a respiratory physician.

A total of 14/18 ACCHS (78%) reported they had access to a respiratory physician. Of these, three ACCHSs (17%) had a visiting respiratory physician who delivered an adult or paediatric respiratory clinic within the ACCHS. The remainder either accessed a respiratory physician from the local health district (face-to-face or via tele-health) and/or referred clients to a respiratory specialist in a major capital or regional city.

Five ACCHSs provided asthma and COPD education at the respective clinics, reviewing medications, and inhaler techniques. The staff involved in the education included nurses in four ACCHSs and a pharmacist in one ACCHS.

No ACCHSs provided pulmonary rehabilitation programs. The main reasons were lack of adequate staff, current staff not trained to deliver pulmonary rehabilitation, lack of financial resources and inadequate space (Fig. 4). ACCHSs reported limited funding for staff in general, and none specifically for pulmonary rehabilitation as there is no federal government scheme to support billable care items to enable financially viable PR programs. Three ACCHSs had definite plans to deliver pulmonary rehabilitation through the BE WELL project and at the time of data collection had commenced service planning and staff training. One other ACCHS reported being at an early stage of planning a pulmonary rehabilitation program and determining how to provide within existing financial constraints, and two other ACCHS expressed an interest in providing pulmonary rehabilitation if funding were available. ACCHSs also stated many clients would benefit from attending pulmonary rehabilitation, and that they had enough clients who would benefit from pulmonary rehabilitation to establish a viable ACCHS-led PR program. Seven ACCHSs reported that in comparison to other chronic care services, pulmonary rehabilitation was not often identified as a local service priority. For many ACCHSs ($n = 14$) there were no plans to establish a pulmonary rehabilitation program within existing financial

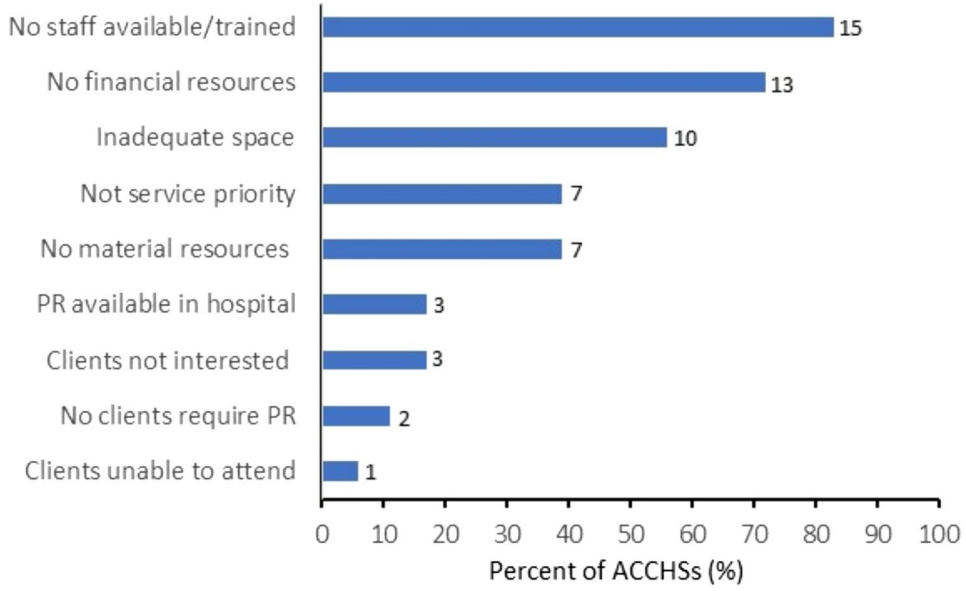

Fig. 4 Reasons why there are no pulmonary rehabilitation programs provided by the ACCHS. Legend: ACCHSs, Aboriginal Community Controlled Health Services; PR, Pulmonary Rehabilitation. Numbers are number of ACCHSs.

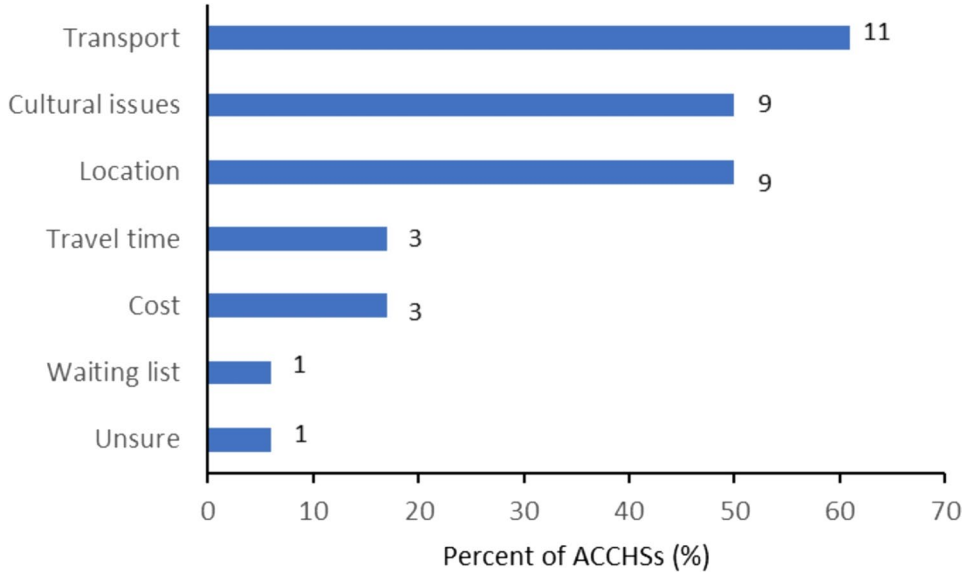

Fig. 5 Perceived reasons ACCHS clients with COPD do not access hospital-based pulmonary rehabilitation programs. Legend: ACCHSs, Aboriginal Community Controlled Health Services. Numbers are number of ACCHSs

resources. However, ACCHSs did identify they could improve access to pulmonary rehabilitation by increasing referrals to programs delivered by hospitals in the local health district. One ACCHS reported that they had established a cardiac rehabilitation program integrated with the local hospital program, which may be a model for pulmonary rehabilitation. Another ACCHS, located in a small rural town, (MM5) stated that if funding were available, they would adapt a pulmonary rehabilitation program to align with their existing chronic care team and chronic disease model of care.

A total of 12/18 (67%) ACCHSs reported a pulmonary rehabilitation program delivered by the local hospital was available for clients, but only 8/18 (44%) reported Aboriginal clients would regularly access these external programs. Transportation, cultural issues and location of these programs were identified as key reasons for not accessing these programs (Fig. 5). One ACCHS reported that attending the nearest program required a 320 km round trip, which was a significant barrier, was costly for clients, and many did not have access to a private vehicle.

In addition, pulmonary rehabilitation program times did not always fit with local public transport schedules.

Accessing pulmonary rehabilitation delivered by the local heath districts presented barriers for Aboriginal clients. These included concerns about programs being in hospitals with the potential to experience racism, engaging with unknown services, and staff making judgements about client's lifestyle choices and making them feel 'shame'. The absence of AHWs at these services was identified as a barrier to access, as well as perceptions that the hospitals and the pulmonary rehabilitation programs were culturally unsafe. Some ACCHSs provided further information about reasons for limited attendance at pulmonary rehabilitation delivered by hospitals, such as a lack of information promoting the availability of pulmonary rehabilitation programs to the Aboriginal community. ACCHSs reported that from the clients' perspective, local hospitals needed to better promote the value and benefit of pulmonary rehabilitation programs, as sometimes this is not evident to clients.

ACCHSs identified positive aspects of their existing respiratory services, such as their long-term collaborative relationships with local hospitals and respiratory physicians or chronic care specialists, providing nicotine replacement therapy to support clients to quit tobacco smoking, and spirometry for diagnosis of chronic respiratory disease. ACCHSs also recognised opportunities for improvement to respiratory services, including being more proactive with spirometry for screening and diagnosing asthma and COPD, particularly reinstituting spirometry after cessation during the COVID-19 pandemic. ACCHSs commonly identified the need for more funding, staff education and training, exercise and clinical equipment and larger facilities to strengthen existing respiratory services and for establishing pulmonary rehabilitation programs.

Some ACCHSs also spoke of the range of existing key performance indicators (KPIs) and reporting mechanisms to funding bodies, such as, but not limited to the Australian Government Department of Health and Aged Care, National Disability Insurance Scheme, National Aboriginal Community Controlled Health Organisation and the NSW Ministry of Health. Although these current reporting requirements are extensive, ACCHSs reported that only smoking rates and vaccination for influenza for clients with COPD were required, and there are no current KPIs relating to COPD diagnosis or management.

Discussion

The study found that the most common respiratory service provided by ACCHSs was smoking cessation programs, followed by spirometry, with a few ACCHSs having an adult respiratory clinic staffed by GPs and nurses. Access to respiratory physicians was mostly from a regional hospital either face-to-face or via tele-health and, in some instances, clients were referred to a respiratory specialist in a major capital or regional city. No ACCHS provided a PR program.

The high availability of smoking cessation programs was most likely related to the Australian Government's TIS program which has funded ACCHSs to provide such programs since 2010 [26]. The TIS program is reported to have been successful in reducing the percent of Aboriginal people aged 15 years and older who were daily smokers from 50 to 37% [27]. In the ACCHSs represented in our study, Aboriginal clients with a smoking history ranged from 18 to 66% (mean [SD] 36% [13]) of the total Aboriginal clients of all ages. While these percents reflect those who have had a smoking history and not necessarily current smokers, these percentages are relatively high.

Spirometry was widely available, due in part to spirometry being funded via the Medicare Benefits Schedule when performed before and after inhalation of a bronchodilator [28]. Spirometry is used to diagnose COPD [29], therefore it is of critical importance for case finding, particularly for clients at known risk, such as those with a smoking history [25]. Providing spirometry in primary health care settings has been reported to improve rates of COPD diagnosis, leading to improved COPD management [30]. Increasing the availability of spirometry in primary care, such as in ACCHSs, may support earlier COPD diagnosis which would offer opportunities for early treatment to reduce disease progression [31].

The percentage of Aboriginal clients with a smoking history who have been diagnosed with COPD in this study ranged from 7% to 24% (median 9%). A recent study in Australian GP practices that screened clients who were over 40 years old with a history of smoking, identified 17% with COPD [32]. The overall lower percentage in our study suggests that although spirometry is available in ACCHSs there may be a lack of proactive case finding. Aboriginal people who have smoked generally develop symptoms of COPD at a younger age [8] which may indicate that case finding for COPD using spirometry should occur in Aboriginal people as young as 35 years with a smoking history.

Since ACCHSs are primary care services, it was not expected that they would have embedded respiratory specialists. However, the study showed that most ACCHSs had contact with respiratory physicians for their clients if needed, complimenting ACCHSs' respiratory service provision. Access to respiratory specialists, especially in regional, rural and remote locations was available through various government funded outreach programs and initiatives, such as the Rural Health Outreach Fund and Medical Outreach Indigenous Chronic Disease Program [33, 34] which aim to enable equitable access to specialists doctors and other health workforce.

These initiatives have been reported to improve access to care, client satisfaction, treatment adherence and health outcomes [35, 36].

While pulmonary rehabilitation is a key component in the management of COPD, no ACCHSs provided these programs. This is not surprising given ACCHSs prioritise local service provision and operate within financially restrictive environments [37], and there is currently no funding model for pulmonary rehabilitation in primary care. However, given the strong evidence that pulmonary rehabilitation can reduce symptoms of breathlessness and fatigue [38], increase exercise capacity [38], reduce anxiety and depression [39], improve health-related quality of life [38] and reduce hospital admissions in people with COPD [40], making pulmonary rehabilitation widely available for Aboriginal people is critically important. Although pulmonary rehabilitation programs are often available in hospital settings through the local health districts where ACCHSs are located, the ACCHSs reported that few Aboriginal people with COPD access these programs. The main reasons cited by ACCHSs were related to transportation, program location, similar to other studies in non-Aboriginal peoples [41, 42] and cultural issues linked to racism and the perception that these pulmonary rehabilitation programs are culturally unsafe, as well as not engaging with Aboriginal people to help them understand the benefits of pulmonary rehabilitation [15, 16, 43].

The main barriers to establishing pulmonary rehabilitation programs within ACCHSs were the lack of adequate staff, lack of training for staff to provide pulmonary rehabilitation, no specific funding for pulmonary rehabilitation and inadequate space to run a program. Addressing these barriers should enable pulmonary rehabilitation programs to be provided in the culturally safe environments of ACCHSs. For this to be successful, some adaptations to programs may be required so that they fit the context of ACCHSs and local Aboriginal communities. Adapting pulmonary rehabilitation programs to the contexts of the health systems where programs are provided has been highlighted previously [41].

The availability of client management systems in ACCHSs (Communicare or Medical Director) provides a robust clinical infrastructure enabling effective clinical management for chronic conditions, such as chronic respiratory disease. These systems enable ACCHSs to monitor and update client treatments, such as GP management plans, vaccination recalls, medication reviews, asthma/COPD action plans, referral for smoking cessation and spirometry. ACCHSs reported that there were potential opportunities to use these systems more effectively to enable more proactive COPD case finding and clinical management of chronic respiratory diseases, such as conducting COPD management reviews and audits, and identifying gaps in relation to COPD and pulmonary rehabilitation guidelines [9, 25]. For this to be successful clinicians in ACCHSs should be involved in co-designing these processes.

Clinical implications

ACCHSs acknowledged the high prevalence of smoking and respiratory disease impacting Aboriginal peoples across the life span and the limited range of respiratory services and programs currently delivered within NSW-based ACCHSs. To improve outcomes for Aboriginal people with chronic respiratory disease requires additional financial investment for ACCHSs. Achieving parity in respiratory disease outcomes between Aboriginal and non-Aboriginal people also requires mirroring the investments that the Australian government has made to address the gaps for other chronic diseases, such as diabetes.

No ACCHSs provided pulmonary rehabilitation, which is known to be a highly effective intervention to improve the health of people with COPD and reduce hospital admissions. To develop sustainable pulmonary rehabilitation programs within culturally safe ACCHS environments, requires the establishment of a funding stream aligned to clinical activity and models of care. This would also require employing and upskilling the ACCHSs health workforce to deliver programs, such as physiotherapists, accredited exercise physiologists and Aboriginal health workers.

A critical component of delivering health services is health workforce availability and retention [44]. ACCHSs employ a significant number of Aboriginal people, with nearly 4000 Aboriginal employees across Australia in 150 ACCHSs [45]. The study revealed staffing establishments in ACCHSs ranged from 11 to 60 FTE, comprising mostly GPs, nurses, and AHWs. There were very limited numbers of physiotherapists or accredited exercise psychologists, who are key health workforce in the delivery of pulmonary rehabilitation programs [10]. Enhancing respiratory services, particularly pulmonary rehabilitation delivered within ACCHSs, requires increased funding to employ physiotherapists, accredited exercise physiologists and AHWs, the latter who are essential to supporting culturally safe pulmonary rehabilitation programs.

Study strengths and limitations

This study provides information about existing lung health services for the management of COPD delivered by NSW-based ACCHSs which has not previously been available. A strength of the study was the ability for respondents to clarify questions and expand their responses, enabling greater insights into the Aboriginal primary health care sector. A limitation of the study

was that the findings are only representative of 44% of eligible ACCHSs in one state in Australia. While some findings may be relevant to ACCHSs in other states or territories, generalisability of findings beyond NSW should be approached with caution and in consideration of local context. The study is the first to report any data on respiratory services provided by ACCHSs in Australia. Such data are needed to begin to address the disparity in outcomes for Aboriginal people with COPD (e.g. five times the hospitalisation rate than non-Aboriginal Australians) [46], that require greater focus on availability of evidence-based care.

Conclusion

This study reported data on respiratory services from 18 NSW-based ACCHSs. Information about service delivery has highlighted investments made by the Aboriginal community-controlled sector in the management of clients with respiratory disease. The study also identified gaps that require future focus and government funding to enable Aboriginal peoples with COPD to have equitable access to best-practice, evidenced-based care. Further studies in collaboration with ACCHSs from across Australia and with the National Aboriginal Community Controlled Health Organisation are needed to extend these findings.

Abbreviations

COPD	chronic obstructive pulmonary disease
ACCHS	Aboriginal Community Controlled Health Services
NSW	New South Wales
BE WELL	Breathe Easy, Walk Easy, Lungs for Life
PR	pulmonary rehabilitation
FTE	Full time equivalent
AH&MRC	Aboriginal Health & Medical Research Council
CEO	Chief Executive Officer
MM	Modified Monash Model
TIS	Tackling Indigenous Smoking

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12913-025-13361-w.

Supplementary Material 1.

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Authors' contributions

J.A. and D.M. conceived the study and J.A, D.M, S.P.P, S.D, K.G, C.J, G.M, S.J, T.S, Z.M, B.R, D.Mc, J.N, H.L, J.C and S.E contributed to aspects of the study design. D.M, S.P.P and J.C conducted participant interviews. J.A, D.M analysed and interpreted participant qualitative data. B.R, J.N, H.L, S.E, S.P.P, J.C and D.M provided an Aboriginal and/or Torres Strait Islander perspective to the study design. D.Mc, J.N and H.L provided the Aboriginal Community Controlled Health Service sector perspective to the study design. All authors read and approved the manuscript.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request [DM]. The data are not publicly available due to them containing information that could compromise research participant privacy and consent.

Declarations

Ethical approval and consent to participate

The study involved human participants and was performed in accordance with the Declaration of Helsinki. The study was approved by the Aboriginal Health & Medical Research Council of NSW Human Resource Ethics Committee (HREC 1261/17). All participants provided informed written consent to participate in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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