

STUDY PROTOCOL

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Optimising remote health workforce retention: protocol for a program of research

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Abstract

Background Nowhere is optimising healthcare staff retention more important than in primary health care (PHC) settings in remote Australia, where there are unacceptably high rates of staff burnout and turnover. Ensuing consequences for the remote health services and the community are acute – staffing shortfalls in clinics; organisational instability; excessive costs associated with frequent staff recruitment and orientation; diminished access to PHC for patients in need; and lack of continuity of patient care; all of which further entrench poor health outcomes for the community. Optimising remote healthcare staff retention is critical in order to provide high quality and continued PHC. Currently, however, there is paucity of knowledge to inform targeted and effective retention strategies in remote health services.

This research program seeks to develop a stronger evidence base to understand (i) what retention strategies are effective in improving morale, job satisfaction, intention to remain in the job, and consequent length of service for remote healthcare staff; (ii) how best to ‘bundle’ these strategies for different health workforce groups; and (iii) how these ‘bundles’ work in different service contexts.

Methods This paper describes a five-year implementation research program in partnership with twelve remote Aboriginal and Torres Strait Islander Community Controlled Health Services (ATSICCHS) in the Northern Territory and Queensland, Australia. Overall methodology follows a participatory action research approach which incorporates co-design and realist elements. The program comprises two broad phases involving evidence consolidation and synthesis (Phase 1), and co-design, implementation, and prospective evaluation of ‘bundles’ of retention strategies (Phase 2) to improve retention of healthcare staff in participating ATSICCHSs.

Discussion This innovative research program has the potential to develop a comprehensive evidence base required to optimise health workforce retention in remote health services. This new evidence will strengthen understanding of what ‘bundles’ of retention strategies are effective, for which groups of employees, and how they work to improve staff retention.

Keywords Realist evaluation, Participatory action research, Health workforce, Remote health, Retention, Personnel turnover, Aboriginal Community Controlled Health Services

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Background

Health services in remote and rural areas of Australia have experienced long-term and persistent workforce shortages and often rely on short-term agency and locum staff (Wakerman et al. 2019). These workforce problems are greatest in remote Australia where residents have by the poorest health status and greatest health needs [1], and result in poorer access to primary health care (PHC) [2]. Associated remote workforce issues include high levels of burnout [3, 4] and high turnover [5, 6] of staff, which result in remote healthcare organisations constantly needing to recruit and orient new staff to fill vacancies. Annual turnover of staff in remote Aboriginal Community Controlled Health Services has been shown to average 151%, excluding the even more frequent turnover of agency and locum staff [6], and are similar to the levels previously reported in Northern Territory (NT) Government Department of Health (DoH) remote PHC clinics [5]. Twelve-month stability rates were approximately 50%, meaning that on average only 50% of staff who were working at the clinic at the start of the year were still there at the end of the year [6].

Since 2020, the COVID-19 pandemic has exacerbated the longstanding workforce problems characterising PHC services in remote Australia and has highlighted workforce fragility [7]. Remote health services are relying even more heavily on short-term or fly-in/fly-out staff, particularly remote area nurses [8]. This reliance on short-term or agency and locum staff, who may work in a community for only a short period and then move to work in a different community, has significant consequences for patient quality-of-care, patient satisfaction, and health outcomes, need for hospitalisation and emergency department visits, existing resident health service staff, and health system costs at large [9, 10]. Optimising staff retention is key to improving continuity of patient care and delivering better health outcomes for residents of remote communities [11].

To date, a range of retention strategies have been implemented by remote health services. Generally, such responses have focused on a single strategy, for example, introducing financial incentives such as retention bonuses [12]. This narrow focus often ignores the need to maintain a broader platform of measures to retain remote healthcare workers, including adequate staffing, appropriate infrastructure, flexible working arrangements (such as job sharing), a safe workplace environment, supportive leadership and management which fosters a workplace culture that values and rewards employees, participation in decision-making, professional development, and community support [12, 13]. Clearly the effectiveness of workforce retention strategies depends on what form they take, their timing, contextual features, and importantly, what particular staff group or aspects

they are intended to affect. In Australia, implementation of retention strategies which have been trialed either at the health service level or more broadly at the state/jurisdictional level, are often based on limited empirical evidence [14], without insight into their effectiveness nor explicit description of how they work.

Many inter-related factors contribute to poor health workforce retention in remote areas [15]. Lack of understanding as to exactly how retention strategies work to influence decisions made by individual staff and improve the attractiveness and sustainability of their workplace and community may fail to adequately address key 'triggers' to leave [16]. It is, therefore, critical to examine the needs and preferences of remote health workers and to better understand how best to fulfil them so as to improve their retention. Strategies to effectively address these multiple factors need to reflect their complexity, suggesting the need to 'bundle' together different strategies that target both living and working environments of remote healthcare staff [12, 17]. Currently, there exists a major gap in the evidence about which workforce retention strategies are most effective in different circumstances, how a particular strategy works, and how best to 'bundle' various strategies designed to retain staff in remote healthcare services.

Aim and objectives

This research program aims to develop the evidence-base underpinning remote health workforce retention strategies, and to co-design and implement comprehensive, multi-faceted, affordable, culturally safe, and evidence-based workforce retention strategies, and to prospectively evaluate the effectiveness of these strategies.

The specific objectives are to ascertain:

1. What components of remote health workforce retention strategy 'bundles' improve retention, for whom, and in what circumstances?
2. How do the key components (attributes) of effective remote health workforce retention strategy 'bundles' and their weightings (levels) vary according to different characteristics and contexts of the workforce (e.g. gender, Aboriginal status, profession)?
3. What is the 'break-even threshold' of a 'bundle' of retention measures (in terms of their total cost versus estimated health service savings resulting from improved length of stay), and what is the cost of each different component of these bundles?

Methods

Conceptual basis

The focus of this research program is on ‘avoidable turnover’ in Aboriginal and Torres Strait Islander Community Controlled Health Services (ATSICCHS) resulting from factors that are potentially modifiable within the realm of the organisations [18]. All else being equal, minimising ‘avoidable turnover’ will result in an increase in average length of employment, while at the same time providing greater continuity of care and positive health outcomes to the community. Conceptually, this research focuses on creating and maintaining an employment and social environment which is congruent with staff members’ needs and aspirations, and wherein potential ‘triggers’ to leave are limited [16]. For example, maximising influences to stay may require providing greater professional support and fostering strong community engagement, while minimising influences to leave may require alleviating after-hours workload, reducing the management workload, and improving safety. Hence, the need for bundling of strategies that target the most important workforce issues in a particular context for different groups of employees.

Realist philosophy underpins this implementation research, whereby development, implementation, and evaluation of ‘bundles’ of strategies is primarily theory driven [19] (Fig. 1). One of the first steps of realist evaluation entails developing and refining a ‘program theory’ to draw out testable hypotheses about “what works, for whom, in what contexts, in what respects and how” [19]. The subsequent co-design, implementation, and the evaluation, focuses on testing these hypotheses. Based

on these findings, middle-range theories (or ‘program specifications’) will be developed. In line with these principles, the program theory on the effectiveness of retention strategies or ‘bundles’ to optimise remote health workforce retention, constructed in terms of Context (C), Intervention (I), Mechanism (M) and Outcome (O) configurations using a realist approach, forms the conceptual basis for this research.

Setting

This research will be undertaken predominantly in remote communities located across northern and Central Australia, with focused activities occurring in up to twelve remote ATSICCHSs located in the Northern Territory and Queensland. The focused activities will include co-design, implementation, and evaluation of retention bundles. Most participating ATSICCHSs provide comprehensive PHC services, though one is currently providing targeted health and wellbeing services to meet community priorities, whilst aspiring to establish comprehensive PHC services in the future. The communities they serve are characterized by different levels of geographical remoteness (all are remote or very remote, as defined by the Modified Monash Model classification, MMM 6 or 7) and accessibility (some are islands), and a range of population sizes (from ~200 to >20000), though most are small at <500 [20].

Research funding and governance

This implementation science research program has evolved from the expressed needs of the participating ATSICCHSs to address dire workforce issues. The

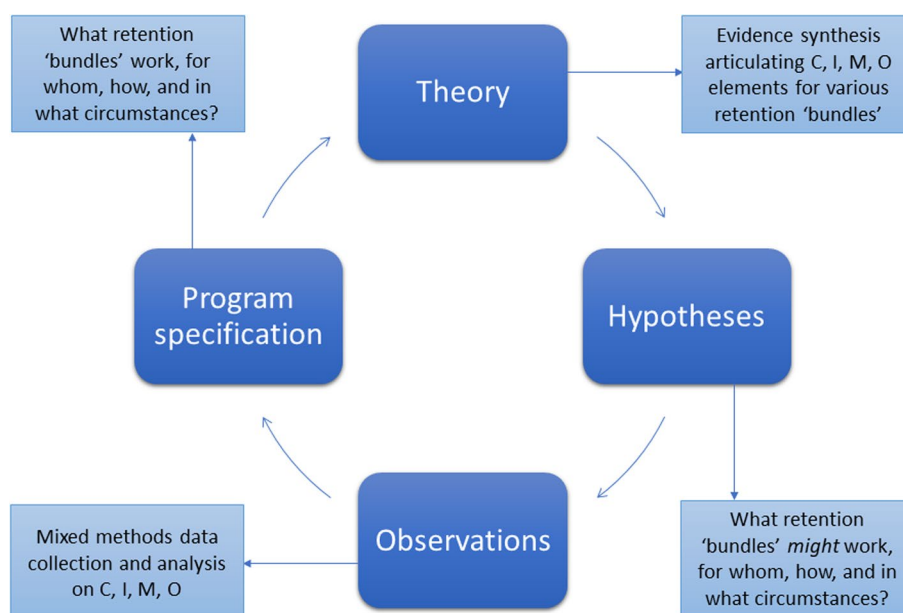


Fig. 1 The Realist Evaluation cycle. NOTE: C, Context; I, Intervention; M, Mechanism; O, Outcome. (Adapted from Pawson and Tilly [19])

research is supported by funding from the Cooperative Research Centre for Developing Northern Australia, a Medical Research Future Fund Rapid Applied Research Translation grant and a National Health and Medical Research Council Centre of Research Excellence grant. Some of these resources are for the express purpose of funding ATSI CCHSs partners’ retention interventions. The research program will be conducted over a five-year period and has been shaped and approved by the Boards of the partnering ATSI CCHSs. A Steering Committee has been established with representation from the following:

1. Chief Executive Officers (CEOs) or their delegates from partnering ATSI CCHSs;
2. Jurisdictional peak bodies from the ATSI CCHSs sector;
3. The National ATSI CCHSs peak body, National Aboriginal Community Controlled Health Organisation; and
4. Other key stakeholder organisations including NT DoH, NT Primary Health Network, and Healthy Communities Foundation Australia.

The Steering Committee will provide guidance on and contribute to key decisions relating to research design, data collection (including both field work to collect primary data and collection of secondary administrative data), data analysis and interpretation.

Research design

This program of research comprises three articulating projects funded from three different sources as outlined above. The objectives, timelines, and expectations of each of these projects have been aligned to develop a unified and coherent program around remote health workforce retention, while at the same time minimising the workload and intrusiveness of the research activity on health service delivery.

Participatory action research and co-design approaches will be taken whereby the research team will work closely with each of the partnering ATSI CCHSs and Aboriginal and Torres Strait Islander engagement will be a key aspect. The program objectives will be addressed using a mixed methods design.

The overall research program will be implemented in two broad phases over a five-year period. The two phases comprise evidence synthesis (Phase 1), and co-design, implementation, and evaluation of retention strategies (Phase 2) (Fig. 2). Due to the flexible and evolving nature of the co-design and realist elements incorporated in the methodology, the phases will be iterative rather than strictly consecutive.

Participants and recruitment

Four distinct groups of participants will be engaged across the program phases:

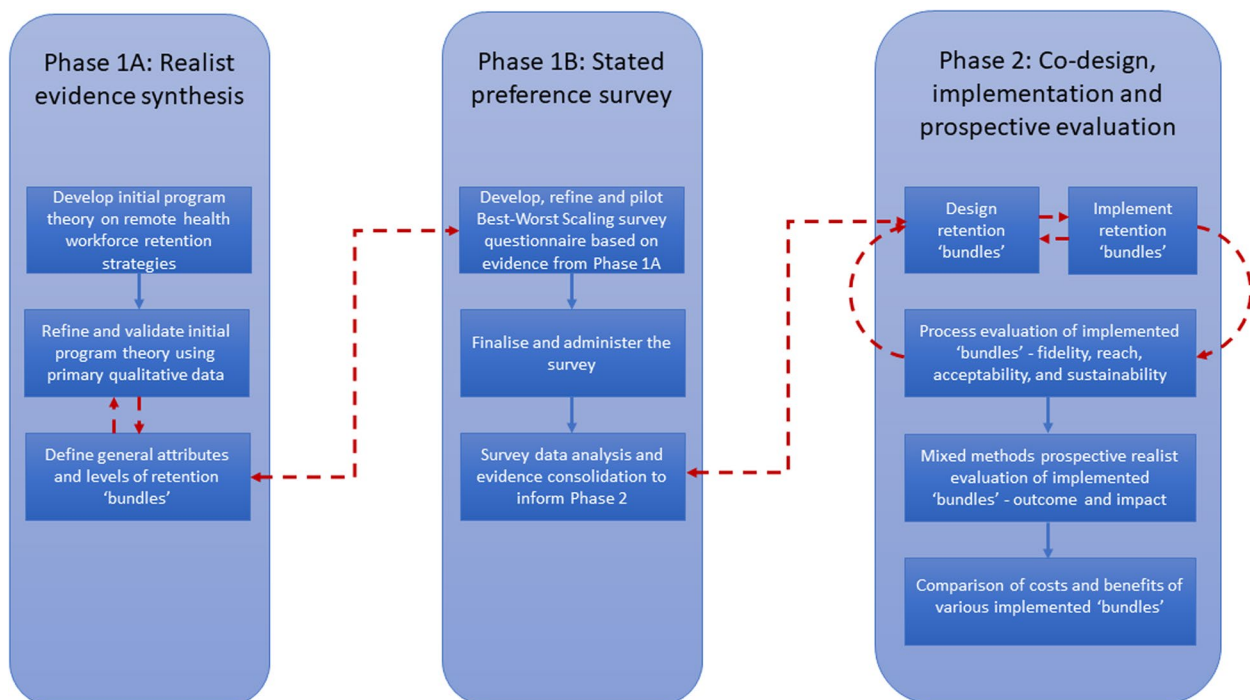


Fig. 2 Schematic outlining different phases of the research program. NOTE: dotted red lines indicate iterative process

Group 1 - Health service staff, including clinical and non-clinical staff, workforce portfolio staff, managers, CEOs, and Board members at the participating ATSI CCHSs (Phases 1 and 2).

Group 2 - Partner organisation staff (Phase 1).

Group 3 - Other key stakeholders and 'thought leaders' (Phase 1).

Group 4 - People with recent or current experience of working in a remote PHC clinic (Phase 1).

Because the program entails evidence review, co-design, implementation and evaluation phases iterating over time, some participants may be contacted on more than one occasion (at different stages of the research) by the researchers. Purposive and convenience recruitment methods will be used to recruit participants.

Verbal, electronic and/or written invitations to participate will initially be extended to potential participants using usual organisational communication methods or directly by the researchers. In small clinics, all permanent staff will be invited to participate. In larger clinics, a representative sample will be purposively selected based on diversity of teams and levels of employment, as well as manager support and availability. Where possible, agency/locum/fly-in fly-out staff engaged with the clinics will also be invited.

Phase 1: Evidence consolidation and synthesis

Phase 1 entails comprehensive synthesis of existing evidence on retention strategies pertaining to remote health workforces. The relevant evidence will be gathered from a realist evidence synthesis (Phase 1a); and a stated preference survey (Phase 1b).

Phase 1a: Realist evidence synthesis

Phase 1a comprises a rapid realist review in which we develop and refine program theory using evidence gathered from published literature and primary data obtained from qualitative interviews with 'thought leaders' in this field. The program theory will then be validated and further refined using evidence drawn from semi-structured interviews with staff employed by partnering ATSI CCHSs. Importantly, this program theory will inform subsequent co-design, implementation and evaluation with partnering ATSI CCHSs to be undertaken in Phase 2.

The specific steps will involve:

1. Development and refinement of program theory: Searching, collating and synthesising relevant existing published peer-reviewed and grey literature, including literature recommended to us by 'thought leaders', to develop mid-range program theory which explains which retention interventions (I) might be

effective, for whom, in what circumstances (C) and how these interventions operate (M) to improve remote health workforce retention (O). This involves exploring differences in their influence on retention of various groups of remote health workers. Data from the literature synthesis will be complemented by primary data from semi-structured interviews with 'thought leaders' in the field. The Steering Committee members and research team members will identify and contact key stakeholders and 'thought-leaders' and invite them to participate in qualitative interviews.

2. Identifying attributes and levels of retention 'bundles': Conducting semi-structured interviews with key informants including staff at participating ATSI CCHSs, partner organisations, other stakeholders and 'thought leaders' to identify the key components (attributes) and levels of retention interventions appropriate for implementation in remote health services. 'Attributes' are individual strategies such as providing a financial incentive or offering flexible job arrangements. 'Levels' are different value characteristics of an attribute. For example, levels of a financial incentive might be \$5000, \$10000, and \$15000.

Phase 1b: Stated preference survey

This phase extends the evidence generated in Phase 1a Step 2, through the development, implementation and analysis of a Case 2 "Profile" Best-Worst Scaling (BWS) survey, which is a form of discrete choice experiment [21].

An online BWS survey will be developed. The choices and number of attributes and attribute levels for the BWS survey will be informed by the evidence generated from the realist synthesis (Phase 1a) and interviews with remote health service staff. PHC staff of different professions currently working or recently having worked in remote Australia will be invited to complete the survey. Peak professional bodies (e.g. Services for Australian Rural and Remote Allied Health, Council of Remote Area Nurses of Australia plus etc.,) will be asked to share a link to the electronic survey which will be administered using Qualtrics.

Phase 2: Co-design, implementation, and evaluation of retention 'bundles'

Phase 2 comprises iterative co-design and implementing retention 'bundles' with each of the participating ATSI CCHSs, followed by a realist evaluation to ascertain whether and how these implemented 'bundles' worked in different contexts.

The specific steps in Phase 2 are as follows:

1. Collection of baseline data: Conducting semi-structured interviews with staff from different professional and demographic groups employed in partnering remote ATSI CCHSs. These qualitative data will capture participants' perceptions of key retention issues, preferences for retention interventions and how certain interventions would work to influence their decision-making about where to work for how long. The data will include evaluation of baseline (pre-implementation) employee engagement and job satisfaction using qualitative interviews.
2. Co-design of retention 'bundles': Evidence-based retention 'bundles' will be co-designed in workshops conducted with each partnering ATSI CCHS's executive leadership team. The findings from Phase 1, including proposed retention strategies for different groups, health services decisions about what strategies to implement and for whom, will be presented and discussed, highlighting the findings emerging from interviews with their employees (from baseline data collected in Phase 2). A facilitated discussion will occur to enable each leadership team to identify and prioritise different retention intervention attributes and levels. Feasibility, budget availability, time and resources, employee preferences and other relevant local implementation considerations will be taken into account. Thus, the workshops will support individual ATSI CCHS's to develop retention 'bundles' tailored to the needs of their staff and service.
3. Implementation: The different co-designed and tailored retention 'bundles' will be progressively implemented at each ATSI CCHS.
4. Evaluation: The outcomes of retention 'bundles' will be evaluated for fidelity, reach, acceptability, and sustainability [22]. A pre- and post-design will be used, with data collected using mixed methods. This will include conducting qualitative interviews with staff to evaluate post-implementation levels of employee engagement and job satisfaction and analysing secondary administrative data (including payroll data to calculate staff turnover and retention [23] and finance data to calculate expenditure on retention interventions and costs of turnover). These data (both quantitative and qualitative) will be collected at two stages – first, at the baseline prior to implementation; secondly, after the implementation. The specific time horizon for collection of these data will depend on the nature of retention 'bundles' implemented and the corresponding target healthcare staff groups (e.g. new staff).

Sample size

Qualitative sample

A total of up to 250 participants across the four groups will be recruited for the qualitative component over the five-year research program. For Group 1, approximately 20 health service staff at each ATSI CCHS site will be invited to participate. Up to 5 managers and other relevant staff at partner organisations in Group 2, and 25 key stakeholders and 'thought leaders' in Group 3 will be invited from the researcher and Steering committee networks.

Quantitative sample

We expect that across the range of different employee groups employed by remote ATSI CCHSs there will be a large number of attributes that are potentially relevant for remote retention interventions. The sample size for the BWS survey will be determined following the rule of thumb formula proposed by Johnson and Orme [24]: $n > 500 * c / (t * a)$; where n is the minimum number of participants required, c is the largest product of levels of any two attributes, t is the number of choice tasks, and a is the number of alternatives. For example, assuming the maximum number of attributes is 8, with a maximum of 5 levels within each attribute, and these are presented to respondents as 10 choice tasks (questions) of 5 alternatives each (respondents choose the best of the 5 alternatives and the worst of the 5 alternatives), we will require a minimum sample size of 250 respondents. Survey construction will follow a balanced fractional factorial design, such that levels of each attribute appears an equal number of times and co-appears with the levels of other attributes an equal number of times [21].

De-identified individual-level payroll data will be sought for all staff employed by the partnering ATSI CCHSs. These administrative data from the ATSI CCHS payroll will include some basic demographic data such as age, sex, professional group, Aboriginal status (where available) to enable variations in the patterns of retention to be understood for different staff groups. Finance data relating to staff turnover and the implemented retention 'bundles' will also be requested from the participating ATSI CCHSs. All data will be requested from 1st January 2017 to latest available (which is estimated to be up to 2 years post-intervention).

Data analysis

Phase 1

Data from Phase 1a interviews among different groups of participants will be analysed using a realist evaluation approach [19] to validate the developed program theory. Findings from these interviews will be used to capture the perceptions of participants on what retention strategies would be/were effective, how they worked (whether

as theorized or in some unanticipated alternative way) and for whom.

BWS survey data from Phase 1b will be analysed using sequential best-worst multinomial logit models to estimate the probabilities of the participants' preferences, where the model coefficients represent the relative importance of different attributes and are scaled to produce preference scores [25]. This assumes that respondents will pick the best option first then choose the worst of the remaining options. In addition, panel latent class models will be estimated to investigate heterogeneity of participant preferences that are not captured in the sequential best-worst multinomial models, i.e., whether there are differences in the perceived importance for an attribute among the different subgroups of participants [25].

Phase 2

Overall, co-design and implementation of retention 'bundles' will involve an iterative approach of collecting and analysing data from workshops with different participant groups and refining the 'bundles' as new data become available.

A realist evaluation will investigate the outcomes and impact of retention 'bundles' implemented by participating ATSI CCHSs.

Outcome evaluation of retention 'bundles' will involve analysing pre- and post-implementation interview data for Group 1 participants to identify changes in their perceptions regarding workplace morale and engagement, job satisfaction, and intention to remain in the job; and to identify and understand any unintended consequences.

The impact of retention 'bundles' on staff retention will be measured using key workforce metrics as previously outlined [23], calculated using payroll data. The definitions of these workforce metrics will be modified to account for the type of retention 'bundle' implemented, and the specific staff group(s) targeted. For example, if retention 'bundles' aim to encourage flexible employment arrangements such as job sharing, then turnover will be defined accordingly, i.e., measuring how often the same staff member returns to work in the same community. Evaluation will compare changes in these workforce metrics pre and post implementation and will take account of various demographic, professional and health service characteristics.

For each participating ATSI CCHS, the 'break-even threshold' of an implemented retention 'bundle' will be measured as the reduction in turnover rate that is required in order for the cost of each 'bundle' of retention measures to equal the estimated savings in turnover costs. Staff turnover rates will be measured before and after the intervention using a standard formula [23]. Turnover costs will be estimated and will include costs of advertising, recruiting new staff, filling vacancies with

temporary staff (including travel and accommodation), orientation and training of new and temporary staff, and reduced productivity.

Triangulation of qualitative and quantitative data will help understand which implemented bundles (I) are effective in improving staff retention (O), for whom and in what circumstances (C), and how they bring about improved retention (M).

Knowledge translation

It is vital that any new knowledge generated on the outcomes of retention strategies in remote health services on staff morale and job satisfaction and, ultimately, on staff retention, be translated to the health service end-users. A multifaceted knowledge translation strategy will be implemented.

Service-level and overall findings will be reported to executives at each participating ATSI CCHS. The ATSI CCHS executives will have an important role in feeding back research findings within their organisations; for example, the CEOs of the participating ATSI CCHSs through the ATSI CCHS Boards, health service staff and to the communities they serve through existing mechanisms and in accordance with their organisational preferences. They will be well-supported by the research team, who will, for example, offer to provide presentations to senior leadership teams and the Boards.

There will be regular reports to Steering Committee meetings either face-to-face or via tele/videoconferences. The first Steering Committee meeting held in the second quarter of 2023 enabled all members of the research team to meet the Steering Committee, receive advice from the Steering Committee members and discuss mutual expectations and reach agreement on the program design, implementation, and timeline. At future meetings the research team will report on progress and preliminary analysis of results, with a focus on knowledge exchange and research translation strategies. Regular communication will be maintained through email, telephone conversations/meetings, discussions during fieldwork and summary progress reports.

In addition, regular communications about the emerging findings will be provided to the jurisdictional and Commonwealth government representatives in order to encourage broad discussions about the potential policies and programs for improved staff retention at remote health service sites beyond the solutions emanating from this research.

Aggregated and summary information arising from the research will be published in the public domain for all to access (such as open access publications in peer-reviewed journals). Any limitations of the research will be clearly identified in publications as part of the standard

discussion around key findings, implications for policy and practice and limitations.

Research participants who are willing to receive information about the findings will be provided with a summary at the end of the program.

Abbreviations

ATSICCHS	Aboriginal and Torres Strait Islander Community Controlled Health Service
BWS	Best-Worst Scaling
CEO	Chief Executive Officer
DoH	Department of Health
NT	Northern Territory
PHC	Primary Health Care

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Authors' contributions

JW, JH, AC, DJR, ST, YZ, MPJ, JB, KDM, and SM conceived of the research program and contributed to the writing of different grant proposals. JH, DJR, SM, and PV designed specific research elements and led the overall development of the protocol. JB, RW, LM, SC, AR, MR and KL contributed to the research design. PV drafted and revised the manuscript. JH, DJR, and SM contributed to the drafting. All authors critically reviewed and approved the final manuscript.

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Availability of data and materials

Not applicable.

Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

This research program received ethics approval from the Human Research Ethics Committee of the Northern Territory Department of Health and Menzies School of Health Research (reference number HREC 2023–4649). Informed consent (written or verbal) will be obtained from all individual participants in the research prior to data collection.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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