



'Beyond core business': A qualitative review of activities supporting environmental health within remote Western Australian schools

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ABSTRACT

Background: Aboriginal children and families contend with higher rates of preventable infectious diseases that can be attributed to their immediate living environment. The environments in which children spend most of their time are their homes and schools. We aimed to understand the opportunities in the school setting to support student skin health and wellbeing through environmental health activities, how these activities were completed, and the barriers to their implementation.

Methods: Recognising the importance of healthy skin for educational success, this work was embedded within a larger cluster randomised stepped-wedge Trial aimed at reducing the rate of skin infections among Aboriginal children living in the Kimberley region of Western Australia by 50 %. We used qualitative data collected via a culturally appropriate yarning methodology during trial evaluation interviews. The data from 35 yarns with 41 individuals were thematically analysed.

Findings: Data indicated that schools serve as a hub of health and hygiene support and maintenance, with school staff balancing teaching responsibilities while also meeting the basic health and wellbeing needs of students. Uncertainties regarding funding and policies governing these activities remained; ongoing exploration is required.

Interpretation: Staff in remote Kimberley schools devote substantial time and resources to supporting student hygiene needs, often stepping in when health infrastructure at home is inadequate. These activities are seen as necessary to support student wellbeing and participation in learning. While schools are well-positioned to respond in this way, these responsibilities extend beyond their core role and place additional pressure on staff and budgets. There is a need to better understand how such work is resourced and to consider how policy and funding frameworks might more formally support it.

1. Introduction

Housing is a strong determinant of health and wellbeing, yet many remote Aboriginal communities in the Kimberley region of Western Australia (WA) contend with substandard living conditions compared to

the rest of the country [1,2]. These inadequacies contribute to higher rates of preventable diseases such as skin infections, ear disease and lung illness among Aboriginal young people compared to non-Indigenous people [3–6]; Strategies to mitigate these health issues, including the washing of hands, clothing, and bodies, depend on the appropriate

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installation and maintenance of infrastructure, and water provision [7,8]. Kimberley schools—with stable water supplies and regular health programs—can uniquely support student health, particularly where access to health-sustaining infrastructure in homes is inadequate. These actions, however, extend beyond the core mandate of education: providing students with learning opportunities that support their intellectual, social, and emotional development [9,10].

Many Kimberley Aboriginal communities are located hundreds of kilometres from the nearest town and are often inaccessible during heavy rains, floods, or wildfires [11]. As a result of remoteness, maintenance requests such as repairing broken showers or unclogging drains may take weeks or months to address, unlike same-day repairs available in urban areas [11]. In designated communities, land is accessed under a 99-year lease with all ‘permanent’ residents becoming tenants in public housing, meaning maintenance requests must be managed through the housing provider [12]. This adds further complexities in accessible and timely maintenance, reducing tenant autonomy. As a consequence, affected households may rely on family or friends for access to health and hygiene infrastructure, such as washing machines (which further increases pressure), or go without for prolonged periods [7,13]. The cumulative effects of delayed maintenance and inadequate resources impact both individual households and the broader community’s health hardware sustainability [2].

In the Kimberley, environmental health services extend beyond municipal local government responsibilities due to continuing gaps in State and Federal policy, expanding the scope to address areas including insufficient housing, inadequate water supplies, and poor sewage facilities [1]. The concept of environmental health therefore is broadened in this context to consider how health and hygiene within the home environment can be maintained, while continuing the usual protection of natural and built environments beyond the home. This definition recognises that improvements in environmental health outcomes have not corresponded to those seen in other communities. Remote-living Aboriginal families contend with general living conditions well below standards found elsewhere in Australia. Additional investment and efforts are needed to address this inequity.

Housing faults such as unrepaired plumbing or broken insect screens are closely linked to health outcomes. Aboriginal children in the Kimberley experience higher hospitalisation rates due to illnesses attributable to the home environment [14] and often need to travel long distances for care [14]. Within the Kimberley and beyond in WA, Aboriginal Community Controlled Organisations (ACCOs) and Aboriginal Community Controlled Health Organisations (ACCHOs) have responded to this need by developing Aboriginal Environmental Health (AEH) services and a referral process to address health impacts by facilitating necessary ‘fixes’ in the home [15]. Health service providers—mostly clinicians—can request a home assessment by a local AEH practitioners if householders present to the clinic with an illness that can be attributable to the environment. These environmental health practitioners are trained to fix several defects in homes at time of inspection (e.g., blocked pipes, corroded shower heads [2]) or request further service provision through relevant pathways [1]. The scope and priorities are directed by the Nine Healthy Living Practices (HLPs), a set of standards commonly followed in remote Aboriginal communities and by AEH providers to maintain safe and clean housing [16,17]. However environmental health practitioners are limited by regulations to completing only a small number of repairs without consulting the Housing Authority for permission, and they also face extensive personnel and budget constraints [1].

Skin infections—one illness that can mostly be prevented in a healthy home environment—can lead to serious health conditions [8]. Driven by the pathogen *Streptococcus pyogenes* (Strep A) [18], untreated skin sores may cause immune-mediated lifelong complications like acute rheumatic fever (ARF), and subsequent rheumatic heart disease (RHD) [19]. While largely eliminated elsewhere in Australia, such diseases persist in areas with poor housing and infrastructure [20]. Strategies

such as the washing of bodies, clothes, and bedding, and reducing household crowding, are crucial to preventing Strep A infections [10].

In the remote Kimberley, the local school often serves as a community hub, providing public resources like libraries and internet access, and is sometimes the only consistent service provider. Schools often offer additional provisions such as daily meals and clean uniforms for students [21]. Kimberley schools are externally managed either by the State Department of Education, Catholic Education Western Australia, or independent entities [11], meaning the process for undergoing urgent maintenance and repairs of infrastructure and health-related hardware is independent of processes elsewhere in community, and are prioritised by providers to ensure a prompt response. Guided by Kimberley Aboriginal leaders and ACCHOs, schools were chosen as settings for skin checks as part of the four-year SToP (See, Treat, Prevent) Skin Sores and Scabies Trial within which this work is situated [22]. This paper aims to understand the opportunities in the school setting to support student hygiene through environmental health activities, how these were completed, and the barriers to their implementation.

2. Methods

2.1. Setting

The Kimberley spans 423,517km² in northern WA, nearly twice the size of the United Kingdom [23]. It includes six major and around 100 smaller Aboriginal communities, which vary in size from approximately 100 to over 1000 individuals [24]. Of the 35,000 Kimberley residents, 41 % identify as Indigenous, with many speaking multiple local languages alongside English [23]. The region’s remoteness poses significant challenges for service provision, contributing to high workforce turnover and an increase in infrastructure costs [25]. However, these logistical difficulties do not define the Kimberley, with the region characterised by strong and resilient communities with deep cultural knowledge and connection to the land.

2.2. The SToP (See, Treat, Prevent) Skin Sores and Scabies Trial

The SToP Trial commenced in 2019 across nine remote Kimberley communities with the aim of reducing skin infections in children aged five to nine by 50 %. Over four years, the Trial involved ten visits to eight community schools, with two communities sharing a school, during Terms 2, 3, and 4 in 2019, 2021, and 2022, and once in Term 4 of 2020 [22]. The SToP Trial focused on improving the identification and treatment of skin infections through enhanced training, providing evidence-based treatments using a treatment as prevention framework, and delivering environmental health and health promotion activities. It was designed as a stepped-wedge cluster randomised, with a strong emphasis on prevention, a priority identified by Kimberley partners to ensure equitable access to study activities while addressing environmental and social determinants of health. A key component of the SToP Trial was its commitment to Community Participatory Action Research (CPAR), a collaborative approach that positions communities as equal partners in the research process [26]. CPAR recognises that research is not something done to communities but with and for them. This participatory approach ensured that community members played a central role in shaping the direction of the study, reflecting on findings, and guiding Trial activities to ensure outcomes were locally relevant and meaningful [27].

2.3. Evaluation

To evaluate the SToP Trial [22], a predefined evaluation framework, grounded in program theory [28] was applied. The framework examined how SToP activities influenced the recognition, treatment, and incidence of skin infections, as well as the efficiency, acceptability, effectiveness, and sustainability of the Trial activities. A detailed

protocol [22], along with the Trial's results [29] and evaluation [30] has been previously published.

Given that most SToP Trial team members identified as non-Indigenous Australians, cultural mentoring played a critical role in shaping both research activities and evaluation. The team engaged in cultural training and ongoing mentorship with Aboriginal colleagues to ensure the study was guided by local perspectives, priorities, and ways of knowing [30,31]. This was particularly important in the use of qualitative methods such as yarning, an approach widely used in Aboriginal communities that values storytelling, relationship-building, and two-way knowledge exchange [32]. Unlike structured interviews, yarning creates a space where participants can share experiences in a way that aligns with cultural protocols and storytelling traditions. More than just a data collection method, yarning was central to fostering trust and meaningful engagement throughout the SToP Trial.

A purposive sampling approach [33] was used to recruit school staff, clinic staff, and community members for all evaluation activities, ensuring that key voices were represented. Community engagement was further strengthened through an exponential snowball sampling method, where Aboriginal participants introduced researchers to family or community members who they felt might be interested in participating. While snowball sampling is a well-established qualitative research technique, it also served an important cultural function in this study. By relying on existing relationships, participation was facilitated in a way that respected local protocols around introductions and trust-building, reinforcing that involvement was not solely researcher-driven but rather supported by community members themselves [34,35].

Community members and service providers were invited to take part in yarning sessions and semi-structured, face-to-face interviews. These sessions were flexible and conducted individually or in groups, depending on participant preferences, and held in locations chosen by participants. At the beginning of each session, team members introduced themselves and provided an overview of the SToP Trial, reinforcing that participation was entirely voluntary, that participants could choose not to answer questions, and that confidentiality would be maintained. Each participant received an information sheet and consent form, and informed consent was obtained before recording. Interviews/yarns were audio-recorded using a handheld Olympus recorder unless participants preferred not to be recorded, in which case a non-participating scribe took notes. Where possible, notes and transcripts were later shared with participants to confirm accuracy.

At the start of the SToP Trial, community partners advised that collecting detailed demographic data could increase the risk of identifying individuals, which was not desirable. To respect this, participants were only asked to self-identify as either community members or service providers, such as school or clinic staff. All interviews and yarns were conducted in English.

2.4. Data analysis

Interviews were de-identified and transcribed verbatim, with identifying information removed before analysis as per the requests of community members. Transcripts and notes were managed using NVivo QSR International Pty Ltd. Version 12 (2022) [36]. We applied a qualitative descriptive approach, which prioritises staying close to participants' language and descriptions to represent participants' perspectives on everyday practices and challenges [37]. Two research team members (TM and IAD) independently conducted line-by-line coding to develop an initial coding framework. Through discussion, these codes were refined into categories, which were further consolidated into overarching themes and sub-themes. A third researcher (MM) reviewed the coding and contributed to theme development, drawing on their field experience to enhance interpretive rigour. A shared codebook was developed and refined collaboratively throughout this process to support consistency across the team.

Given the centrality of environmental health within the SToP Trial, as emphasised by participating communities, a focused secondary analysis of all environmental health-related content was undertaken. This analysis was led by SE, a team member with environmental health expertise in the Kimberley, who conducted detailed coding of relevant data and contributed to interpretation. Preliminary themes were reviewed with a Kimberley-based Aboriginal Environmental Health Practitioner (CC) familiar with the SToP Trial communities to ensure findings were grounded in local knowledge and practice. Additional insights on preliminary themes were provided by RD and EW, both former Aboriginal educators working in the Kimberley. Informal discussions were also held with teaching staff and representatives from the Department of Education to help contextualise the findings; these were not recorded and were used solely to support accurate interpretation and presentation of results.

3. Results

Between 2019 and 2022, 208 individuals participated in individual and group interviews or yarning sessions. This included 62 community members, 47 clinic staff, 91 school staff, and eight other service providers, such as pool managers. Of these, 131 sessions were recorded and transcribed, with interview durations ranging from five minutes to an hour, depending on participant preferences.

Findings identified six overarching themes related to individuals and the home, offering insights into the environmental health experiences of Aboriginal people in the Kimberley. While five themes focused on individual and community environmental health will be explored in a forthcoming publication, the significance of environmental health service provision in schools warranted a more detailed analysis. Accordingly, this paper presents an analysis of 35 yarns, representing 25.5 % of the dataset, involving 41 individuals, primarily school staff, along with three clinic staff. Four specific health and hygiene practices in schools were identified, alongside three key barriers to their implementation.

3.1. Practices to support health

The identified practices occurring in schools to support the environmental health of students were: health education (including highlighting the link between the environment, behaviour and health); having access to handwashing infrastructure (and associated programs); having showers available at school, and the washing of student clothes and uniforms by staff.

3.2. Health education

Most health education was delivered internally by school staff as part of the curriculum, including programs like Breathe, Blow, Cough [38] (for ear health) and daily toothbrushing. Occasionally, external providers like Nirrumbuk Environmental Health and Services (NEHS), or the WA Trachoma Program funded by the WA Department of Health visited the school to provide health-based activities. Health education was often integrated into morning routines.

"It is very much about the five basic needs for the kids, so my routine of the day is the first thing that we do when we come in is all about hand hygiene, washing our face, cleaning our teeth and it takes half an hour. We do it every morning and then we sing a song about germs and bacteria on our hands... and how our skin can make us sick on the inside..." – School staff member (S002).

Some school staff spoke about turning health activities into a game where students could compete to win a prize.

"So, they have a wet wipe because I cannot always trust them to wash their hands and face as you can imagine. And that baby wipe or that wet wipe has to be clean, whoever has the cleanest wet wipe wins a prize." – School staff member (S002).

3.3. Handwashing programs and infrastructure

Handwashing was a regular part of classroom routines, with many classrooms having internal sinks for convenience. Several respondents noted handwashing activities were scheduled at specific times of the day i.e., before and after recess and lunch times. Others identified education programs or activities occurring alongside handwashing, sometimes with external providers.

"[Local environmental health provider] came out and we did do a lot of hand washing here as well. The children are always encouraged to wash their hands as soon as they get to school, before they eat, then after, after play when they go back into class, they have to wash their hands again." – School staff member and community member (H004).

"Well we have got just the general hand washing, so before every meal they wash their hand, when they arrive they wash their hands, wash their face. They have got morning routines and then eating routines, all to do with hygiene." – School staff member (S033).

One educator spoke about plumbing issues causing the water to be cut off several times to the school and the effect this had on students. On each occasion, the water was not returned within two hours, and in line with school policy, students were sent home. However, the problem was rectified rapidly and with great communication to all involved.

"I think we've had to close the school three times this year because the water has been cut off.... They had to send a plumber from Broome, so I think they were quite good at communicating and saying what the solution was, yeah, what had caused it and what the solution was but it was a number of hours before it was rectified." – School staff member (S038).

During the years of the SToP Trial, all schools reported having sufficient soap, which was often supplied by the not-for-profit organisation Soap Aid, to support remote communities facing hygiene challenges with recycled soap [39,40]. Deliveries of soap were also stated to have increased in frequency since the COVID-19 pandemic; however, this period also increased wariness of sharing soap and many respondents thought dispensers of hand soap would be more suitable.

Interviewer: "Why would people use hand wash more than soap?"

Responder: "Because they don't like sharing the soap. You know, one bar of soap and we have sort of drilled the kids, I think a bit too much, in that we use the hand wash because you are not sharing soap, you are not sharing towels, they have paper towels. I put some bars of soap out in my classroom and the kids just left in the sink and it disintegrated. It felt horrible." – School staff member (S023).

3.4. School showers

In many schools, showers were available primarily for younger children who lacked access to hot water or functioning plumbing at home. This, however, was dependent upon the provision and replenishment of health supplies (i.e., towels, soap, shampoo) by schools, including the laundering and replacement of towels by school staff.

"Some kids that come in that maybe haven't had a shower at home, like they have that opportunity to have a shower at school if they need to or want to. So I know a few kids do that." – School staff member (S018).

Cold weather made encouraging students to shower more difficult.

"We encourage them to have a shower. Does not always work especially when it is cold. They are really reluctant to get in the shower. But we have lots of soaps and shampoos, conditioners. You name it, we have got it." – School staff member (S002).

Three of the eight schools were in communities with a local pool, open between September and May and closed during the cooler months. These schools operated a 'No School, No Pool' policy to encourage attendance. One school also concluded their school day at the pool, allowing students to have a supervised swim prior to going home. These also served as an opportunity for a wash both in the chlorinated water and the shower required by all prior to entering the pool.

"We like having the swimming pool here for during the summertime, the students get a daily good shower, good wash every day." – School staff

member (S044).

3.5. School washing machines and access to washing machines within the school

Some schools had washing machines on-site, allowing staff to wash students' uniforms and occasionally the students' personal clothes. Students often changed into uniform shirts upon arriving at school and left them there for cleaning, with Aboriginal Teaching Assistants often managing this task.

"So we wash their uniforms, provide clean clothes for them. We have clean underwear. And if their clothes need washing, we'll pop them in the washing machine and wash them as well." – School staff member (S052).

Given washing clothes is far from ordinary school business, staff often completed it after hours. It was emphasised that this was an expectation of the staff from leadership despite not being formally included in their job description. No recorded quotes captured staff reflecting on how they fulfilled a need in doing this task given many students did not have access to functioning laundry facilities at home, but informal discussions throughout the lifetime of the SToP Trial indicated no individual resented this task despite the addition to their workload.

Interviewer: "Who does all their washing?"

Responder 1: "We do. So that is why you will still see teachers doing washing after school."

Responder 2: "So sometimes when they come in in the morning, they will be like all right, if you would like you can take your home shirt off and we will put it in the washing machine for you and get done for you by the end of the day." – School staff members (Group S001).

3.6. Barriers to supporting health

A lack of time and resources, reduced access to appropriate health-sustaining infrastructure, and challenges between balancing 'learning' and 'health' were noted barriers to supporting student wellbeing within school.

3.7. Deficiencies in time and resources

Several respondents noted that they had experience at their remote community school with a school health nurse who had taken on health responsibilities; something that was perceived as an asset. However, this role was often left vacant if someone moved on, with a detriment to the health of students and adding an extra burden to the school staff.

"In term three we had a school health nurse for approximately six to seven weeks... She was very proactive, came out on home visits with us to speak to the families. Really worked collaboratively between the clinic and the school which is so powerful...So that few weeks, six weeks of having that really powerful resource of a school nurse was just amazing. Unfortunately, though, we have not had a school nurse since and so all that work I don't feel is flawed, it is not good, it is negative impact now because we are constantly chasing to get kids to the clinic and then for medical reasons we are having to fight for their health to be prioritised and then health systems which are so important aren't being completed." – School staff member (S025).

Importantly, there was a challenge between completing the core curriculum of the school and the associated teaching tasks and providing health education and opportunities for hygiene. Balancing education with health support posed significant challenges. Staff wished they had more time and resources to offer hygiene support, such as showers and laundry.

"But resources at school wise, it would be lovely if we had time in the morning to say 'okay, everyone hit the showers' and make sure you have clean clothes on and you have washed your hair, you are ready to go. You have brushed your teeth. We would love to be able to do that but it is just..." – School staff member (S001).

"The school's core business is obviously education." – School staff

member (S015).

There was an underlying understanding among respondents that the learning abilities of a child could not be optimised if their basic needs were not met, but tension existed in what was feasible within the hours of a school day.

3.8. Inadequate access to showers

Some schools had showers, but access was often limited to younger students due to privacy and supervision concerns.

Interviewer: "Are there showers here at the school?"

Responder 1: "Yes."

Responder 2: "We are not allowed to use those. It is just like because [redacted]'s class used those ones because her class is right there, so it is really close."

Responder 3: "And they are a bit older as well. So she could just let them go off by themselves without it being crossing the line with adults and children in a shower." – School staff members (Group S001).

Ultimately, while showers were often available, the cost of health supplies like towels needed to accompany use were cost-prohibitive, especially within a school budget that did not cater for such items and when supplies provided by not-for-profit organisations were exceeded.

"That money comes out of my budget, for toilet paper, for soaps, for head lice treatments, for you know, towels, for tissues for cough and blow, so it becomes very expensive exercise and we don't get any free, you know, products at all." – School staff member (S013).

3.9. 'Learning' versus 'health'

A key theme that emerged was the tension between maintaining classroom learning and behavioural expectations, and ensuring students could access resources that supported their health.

Most pertinent was access to the pool if a child had misbehaved and a greater need for staff to be aware of the wider situation and the detrimental effects that not allowing a child to swim may have.

"...even the pool is being used as a health outcome. Some of our teachers do not understand that. They think well no [redacted] has been naughty today, he can't go swimming. Well, it is like, well no, [redacted] needs to go swimming for his health. It is not about behaviour it is about health outcomes... This is about children's health. It would be good to have some of that stuff." – School staff member and community member (HP004).

"Again it is taking away from them being here to learn even though they are learning life skills. I get that." – School staff member (S001).

Addressing these barriers often fell outside formal staff roles, and it was clear that these school staff were doing tasks that were not expected of metropolitan educators.

4. Discussion

Extending beyond the initial aims of the SToP Trial, this work describes the experiences of remote Kimberley schools and staff working to support the environmental health and hygiene practices of children within the school environment. It was apparent that these activities are conducted within an already crowded curriculum and often driven by school staff responding to the holistic needs of their students beyond their core education curriculum.

The SToP Trial was designed to complete skin checks at school to streamline engagement and connect schools with healthcare providers. This provided the opportunity to frequently engage with school staff and explore their role in optimising skin health. Early conversations introduced an awareness that school staff were working beyond their role description to enhance student health and hygiene with a recognition of inadequate environmental health infrastructure standards beyond the school gates. The impetus for this paper was unexpected at the commencement of the Trial but evolved as it became clearer how integral schools and school staff in the Kimberley are to sustaining student

health, and that greater support is needed compared to metropolitan schools.

Teachers in remote communities face significant challenges, as highlighted by Lock et al. [41], with exhaustion and stress driving turnover. This can be further surmised as the need to provide '24/7 input.' [41] Staff in our study spoke about completing activities like washing student uniforms or cleaning the classroom when formal cleaning roles are unfilled, which may contribute to staff attrition. Our attempts to clarify the origin of laundering activities with those interviewed indicated it to be a practice existing at their school prior to their employment. Discussions with stakeholders since to understand where this activity originated and specifically if the community were accepting of staff washing the clothes of students at schools elucidated a possible link to the Aboriginal Student Support and Parent Awareness (ASSPA) program, a Federal initiative dating back to the 1990s [42]. No longer functioning, the program facilitated funding for each school per Aboriginal student, with committees comprised of family members to determine how funds were spent. There was a prioritisation for activities designed to enhance educational opportunities for Aboriginal students as well as those that encouraged school attendance or improved the wellbeing of students; laundry services included. While we cannot make definitive conclusions, it appears that despite the program's cessation, the laundering and hygiene activities continue; driven by community needs but unsupported by formal funding or policies.

While one example of a remote school needing to close for a day due to plumbing issues was shared, most said that repairs are generally timely. This contrasts with delays in remote household maintenance, often waiting weeks or months for repairs that would be considered 'urgent' and actioned within 24 h elsewhere in the State. For this reason, environmental health and hygiene infrastructure within schools remains consistently accessible to students—but as noted in this work—requires the provision of health supplies (i.e., soap, towels) and often supervision and additional workload for school staff, although such supplies are usually not included in school budgets. We note examples of schools identifying student needs, having an available solution, and responding accordingly despite workforce and financial constraints, highlight the need for flexibility in funding to ensure schools can cater to their unique necessities. None of the participants were familiar with how these services are funded within Education budgets. Elsewhere in WA public schools, parents provide tissues, hand soap, hand sanitiser, paper towels, and wipes at the start of each year at the request of the school as part of their annual book list [43].

The timely recognition of illnesses, including skin infections, prevents downstream and more serious consequences. Throughout the period of the SToP Trial [22], some schools were serviced by a school health nurse, based at the local clinic but visiting the school regularly to complete health checks on children and facilitate treatment where required. This role was viewed by school staff as being integral to supporting student wellbeing and allowing school staff to defer health concerns to a professional health provider. However, this model has not been sustainable over the long term [44]. Transiency of health staff in remote communities is also as frequent as turnover of educators, meaning school health nurse positions may not always be filled or face periods of limited traction as new staff take time to become familiar with community and develop trust [30,45].

Whilst not core educational curriculum, school staff in remote Kimberley schools have adapted to fill gaps in the ability to achieve several of the HLPs [16,17]. The HLPs have been identified by Aboriginal leaders as core to wellbeing, but not available in many instances due to the legacies of colonisation, land appropriation, and dislocation from cultural practices. The HLPs that school staff support include washing bodies (HLP1), washing clothes (HLP2), and providing additional health education beyond core curriculum.

No evidence of similar hygiene activities in other school settings reported in the published literature or policies were found. While the primary limitation of this research is that this work is specific to very

remote regions and no comparison to health and hygiene initiatives in urban Western Australian schools were made; the authors are confident in their assessment of the descriptions shared as being accurate in the context of remote Aboriginal communities. The authors were present in the schools to conduct the SToP Trial for up to 18 weeks of each of four school years and observed these activities firsthand. Similarly, the research team were frequently asked to advise on how to improve health education and hygiene practices. Additional limitations were that the analysis happened after Trial completion, so additional data to understand how these findings are funded or guided by policy was unable to be systematically captured. While some follow-up interviews were completed, we were unable to interview Principals or senior leaders within Government who may have had further insights into the activities, so this is a future opportunity. This work retains specificity only to very remote Aboriginal communities.

5. Conclusion

Those working in remote Kimberley schools dedicate significant time and resources to student hygiene activities, including personal care and laundry. This may affect their focus on core educational responsibilities but is a result of the educators recognising the critical health needs of the students which facilitate improved education outcomes. Remote schools, as highly resourced and functioning units, can serve as a 'back-up' for students when health hardware fails to be repaired in a timely fashion in the home. While these efforts address critical health needs, they extend beyond the core business of schools, placing additional pressure on school staff and school budgets. Improved funding, policy development, and resource allocation are essential to support these activities, which require a clearer understanding of how schools finance and sustain them within formal frameworks.

Statement of respect

Throughout this paper Aboriginal and Torres Strait Islander peoples are respectfully referred to as Aboriginal as this is the common terminology in Western Australia where this work was conducted. We recognise and acknowledge the diversity between Aboriginal and Torres Strait Islander cultures, and do not intend to diminish any identity. We respectfully acknowledge Aboriginal ownership of the land, waters and sky of Australia in continuity for more than 60,000 years.

CRedit authorship contribution statement

Stephanie L. Enkel: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Rebecca Dalton:** Writing – review & editing, Validation, Investigation. **Chicky Clements:** Validation, Supervision. **Hannah M.M. Thomas:** Writing – review & editing, Visualization, Validation, Supervision, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Tracy McRae:** Writing – review & editing, Validation, Formal analysis, Data curation. **Ingrid Amgarth-Duff:** Writing – review & editing, Formal analysis, Data curation. **Marianne Mullane:** Writing – review & editing, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis. **Lisa Wiese:** Writing – review & editing. **Liam Bedford:** Writing – review & editing, Supervision. **Nina Lansbury:** Writing – review & editing, Supervision. **Jonathan R. Carapetis:** Writing – review & editing, Supervision. **Edie Wright:** Validation. **Asha C. Bowen:** Writing – review & editing, Visualization, Validation, Supervision, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization.

Ethical approval

This project was approved by the health ethics review committees at the Child and Adolescent Health Service (Approval Number: RGS000000584), the Western Australian Aboriginal Health Ethics Committee (Reference Number: 819), the University of Western Australia (Reference Number: RA/4/20/4123), Catholic Education Western Australia (Reference Number: RP2017/57), and the Department of Education (Reference Number: D18/0281633).

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Declaration of competing interest

All authors declare that they have no conflicts of interest.

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Glossary

- ACCO: Aboriginal community-controlled organisation
 ACCHO: Aboriginal community-controlled health organisation
 ARF: Acute rheumatic fever
 ARIA: Accessibility/Remoteness Index of Australia
 ASSPA: Aboriginal Student Support and Parent Awareness
 NEHS: Nurrumbuk Environmental Health and Services
 RHD: Rheumatic heart disease
 SToP Trial: See, Treat and Prevent Skin Sores and Scabies Trial
 Strep A: *Streptococcus pyogenes*
 WA: Western Australia