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Beyond an outbreak response:
monitoring a sustained effect from healthy skin promotion in a remote Aboriginal community in the Kimberley

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Abstract

Objectives: To monitor whether previous achievements in skin health in partnership with a remote Aboriginal community were sustained one year later after service delivery adjustments.

Methods: Service delivery adjustments strengthened the impact of primary health care (PHC) in the community, reducing the need for frequent 'fly in, fly out' visits by the Public Health (PH) team. Evaluation repeated measures using clinic data to compare September-November 2016 with September-November 2015.

Results: Sustained reduction in 2016 in PHC presentations for scabies accompanied by statistical increases in PHC presentations in total and skin infections in particular due to implementation of a 'healthy skin program' through PHC.

Conclusions: This repeat evaluation shows that service redesign to raise the profile and contribution of on-site PHC in promoting healthy skin in this community has merit.

Implications: To service remote Aboriginal communities, enduring partnerships are required within service providers (in this case, PHC and PH) as well as with the community. Greater attention to clinical record information for public health purposes also recommended.

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Introduction

As reported in our earlier article to the Australian Indigenous Health*Bulletin* [1], a service-based '*healthy skin initiative*' was executed in 2015 in Kalumburu (a remote Aboriginal community in the Kimberley region of Western Australia) during an outbreak of Acute Post-Streptococcal Glomerulonephritis (APSGN). Four consecutive visits to this remote Aboriginal community were organised over six months combining environmental health (EH), health promotion (HP) and public health (PH) visits alongside on-site primary health care (PHC). Our first evaluation of that initiative showed a significant decrease in presentations at the PHC clinic for scabies among children 0-17 years from a baseline period (September to November 2014) when compared with the identical period exactly one year later (September to November 2015) (9.5% vs 2.2%) ($p<0.0001$) [1]. Scabies infestation is an established precursor to bacterial skin infections, including Group A Streptococcus impetigo, the most common antecedent of APSGN in tropical and low resource settings [2].

After this intensive APSGN outbreak response, efforts were subsequently deliberately reconfigured to enable the local on-site PHC clinic to continue a sustainable 'healthy skin program' and reduce scabies and bacterial skin infections. These service delivery adjustments made in 2016 acknowledged the permanent presence in the community of PHC rather than the 'fly in, fly out' nature of the non-resident public health staff involved previously in 2015. We first describe these service delivery adjustments and the findings of our repeated measurements exactly one year later again in order to monitor 'skin health' given these changes in service delivery.

Methods

Program re-design

The clinic's staffing establishment is unchanged from 2015. However, in 2016, service adjustments included re-prioritisation of skin health for PHC staff in the local clinic. This clinic provides service for a population of 412 [3] and is staffed by a local Aboriginal receptionist, at least one Aboriginal Health Worker, at least one clinic driver and at least two (and typically three) on-site Remote Area Nurses (RANs). A District Medical Officer (DMO) visits weekly by charter plane from the nearest hospital. A written plan for a 'healthy skin promotion program' for Kalumburu as part of the Remote Services Primary Health Action Plan was developed in December 2015 by remote primary health care staff for commencement in January 2016. Features of this program are presented in Box 1. To transition effectively to a local sustainable program, leadership from the RANs and other staff of the clinic were supported by the Public Health (PH) team, including a system of referring consenting households to Environmental Health for assistance with ameliorating those conditions contributing to skin sores, scabies and other conditions with an established environmental determinant [4]. In 2016, only two visits by 'fly in, fly out' staff from the Public Health (PH) team from Broome were organised (Box 2). In the second of these visits, PH staff aimed to perform skin checks on 104 enrolled school children (Box 2).

Box 1. Healthy skin program developed and managed by on-site PHC clinic staff

Target Group: All Community members, with a focus on children

Aim (purpose): To reduce the incidence of skin sores in the community, thereby reducing the incidence of sepsis, Community Acquired MRSA, new ARF cases and new APSGN cases

Objectives (steps to achieve aim);

1. Embed the Skin Sore Protocol in all aspects of clinical services, including early detection and treatment of scabies, head lice and sores.
2. Saturate the community with information and knowledge on healthy skin, and how skin sores can have long-term health consequences.
3. Provide the community with information about Environmental Health services, and how these services can be accessed.
4. Establish and promote a regular Environmental Health visiting service

Universal strategies:

- access to soap at the clinic: free bars of soap are available in the waiting room of the PHC clinic and also provided by staff to people who attended the clinic for care
- during dry season, use of sorbolene lotion on the skin is widely encouraged
- focus on all school-age children and utilising the iPad to show them the structure of the skin
- Working in partnership with the school, teachers are engaged to notify the clinic if they notice a child with skin sores, scabies or head lice.
- Working in partnership with other community workers e.g. Save the children, HACC, engage them to notify the clinic if they notice anyone with skin sores, scabies or head lice. Whenever possible, all people coming to PHC clinic were offered a skin check as part of a 'healthy skin promotion drive'
- People seen in clinic were advised regarding caring for skin sores. They were also advised that scabies and head lice are not normal. There was active encouragement by RANs to take free soap with education on prevention of skin sores and how to keep them clean.

Targeted strategies (example)

School children were screened at school by PHC staff whenever service demand permitted (March, May, August and November 2016). Each episode of skin screening completed by a RAN was recorded as an 'occasion of service' for a skin-related condition.

Box 2. Community visits by visiting PH team members

April 2016

Public health

- Presentation to the community of results from Healthy Skin program 2014-2015
- Influenza vaccination of community members with PHC

Health promotion

- Skin hygiene promotion and 'No Germs on me' at the school

Environmental health

- Engagement with community re dog program and skin health
- Resolution of issues about the initiation of the community laundry

November 2016

Public health

- Team screened 68/104 school children for skin health including head lice
- It was found that 1/71 or <1% of children had a skin sore. But it was healing and did not require treatment. It was also found that 32/71 or 45% had head lice without skin trauma

Health promotion

- Skin health education given to each individual student screened
- Kalumburu school teachers and the Principal were supportive of getting the children's skin checked
- Planning with PHC clinic lead RAN to develop a skin health program at the community school (school years Kindie to Year 12) focussed on skin health and facial cleanliness
- Opening of the community laundry provided an opportunity to promote skin hygiene along with regular washing of linen and clothes.

Environmental health

- Opening of the community laundry
- Planning of 2017 environmental/health promotion projects 'You've Gotta wash Your face to Come to My Place' with the governing Council, school, clinic and other service providers

Evaluation using repeated clinic measures

As described in our earlier article [1], de-identified data are accessible to KPHU through an administrative database for the entire Kimberley known as HCARE, permitting unobtrusive measurement of trends in PHC services. We obtained de-identified data from HCARE for the period September to November 2016 inclusive, applying the identical extraction method and correcting discrepancies likely due to updates since our first analyses [1]. We compared data for the third three-month block (September to November 2016) to that for the year before (September to November 2015) using uncorrected two-tailed chi-square. This approach replicates the method in the earlier study [1] and avoids the influence of seasonal factors on scabies prevalence [5].

Ethics

As with the earlier evaluation instigated as part of an outbreak response [1], this evaluation was conducted by an authorised public health team for public benefit without ethics committee approval. No identifying information was shared with any person outside KPHU. The results were provided to the Community in December 2017 and permission to publish as a follow up story provided.

Results

Over this three-month period in 2016, the absolute number of PHC services for Aboriginal children 0-17 years in 2016 (n=611) was nearly double that observed in 2015 (n=268). The percentage in 2016 of PHC consultations for children with scabies as a primary or additional reason for the 'occasion of service' was 2.1% (13 out of 611). Compared with the percentage in 2015 (2.2%), there was no significant increase in scabies presentations (2.1% vs 2.2%) (uncorrected two-tailed chi square value 0.06; p=0.79). Paradoxically, despite the absolute increase in total PHC attendances for children in 2016, there was also a striking increase in the proportion of these for skin infections as either a primary or additional reason for attendance (95 out of 611)(15.6%) which was significantly higher than the percentage twelve months earlier (15.6% vs 8.2%)(uncorrected two-tailed chi square value 14.85; p<0.001). No cases of APSGN were reported in Kalumburu in 2016 or 2017.

Discussion

Having detected no significant deterioration in scabies presentations to the clinic in this remote community, we have confidence in a transition to PHC leadership post-APSGN outbreak. However our data show an increase as measured in HCARE of skin presentations as a proportion of all presentations. What is immediately striking is the increase in PHC services performed and logged in HCARE over this time. Since our earlier experience, it was more evident that RANs were outside the clinic and working in the community in settings such as the school, local outdoor meetings places and child care centres to actively screen children for skin sores and provide health promotion. These are logged in HCARE but not in sufficient detail to discriminate episodes of care for identified skin sores from encounters that only involve screening and health promotion. While we attempted to further understand these dynamics, HCARE is not designed for this purpose. Similarly, our efforts as a public health team to describe prescribing practices from HCARE as a meaningful way of gleaning insight into clinical severity of these occasions of service for skin infections were unfruitful. As reported elsewhere [6,7] changes in both housing maintenance contracts and government contracts for essential municipal services are likely contributing to deficits in housing and community health hardware, exacerbating overcrowding in households which may also be a driver of increased clinic presentations for skin infections.

We remain buoyed by these findings one year on from our earlier published initiative. Our confidence in the continuing effectiveness of service adjustments on the ground by RANs to promote healthy skin in partnership with this remote community has been boosted by this finding of a sustained reduction in the presence of scabies among children in 2016 despite reducing dependence on 'fly in, fly out' PH capacity. As described above, the picture for skin infections is impossible to discern from the administrative database currently used across the Kimberley however anecdotally it has been remarked that skin infections are now denormalised in Kalumburu and RANs are much more visible in the community providing health promotion, education sessions, skin checks and general health information. Also anecdotally, children have been self-presenting to the clinic to view the iPad program about skin anatomy and skin health increasing their knowledge and awareness of skin integrity and the importance of healthy skin. What we continue to learn in partnership with Kalumburu will inform future strategies across the Kimberley. This continues to be 'a good story to share' [1].

Furthermore, introduction of a state-wide Clinical Health Information System (CHIS) will herald a new era for Continuous Quality Improvement in remote settings. Regional public health leaders will further support PHC in self-surveillance to check all components for a 'healthy skin program' are in place and ensure all children in the Kimberley have intact skin and lower rates of preventable, life-threatening conditions attributable to skin infections such as APSGN and Acute Rheumatic Fever (ARF).

Because quantitative surveillance such as this reveals only part of the impact of 'healthy skin' programs, we are also examining qualitative methods to determine community engagement with a program being led from the local PHC clinic. At a regional level, continuing expert focus on public health requires reliable orientation, on-site support and feedback. KPHU is developing formal programs for orientation to communicable disease control in the Kimberley including explicit learning objective by discipline (medical, nursing, AHW and so on) as well as preparing cost-effective teaching methods to continue to support staff scattered across a region the size of Germany. Additional focus on environmental determinants through the Kimberley Aboriginal Health Planning Forum is underway [4]. For the size of the population in Kalumburu, it seems appropriate to ensure at least one full-time on-site Aboriginal Environmental Health Worker is in place. A business case for such a proposal will require data about housing conditions and repair waitlists which appear to have deteriorated since 2015.

We conclude that a careful transition from an outbreak initiative to an integrated comprehensive PHC program incorporating principles of health promotion and prevention has had a welcome impact on the health of Aboriginal children living in this remote community.

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