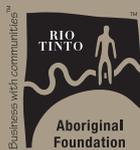
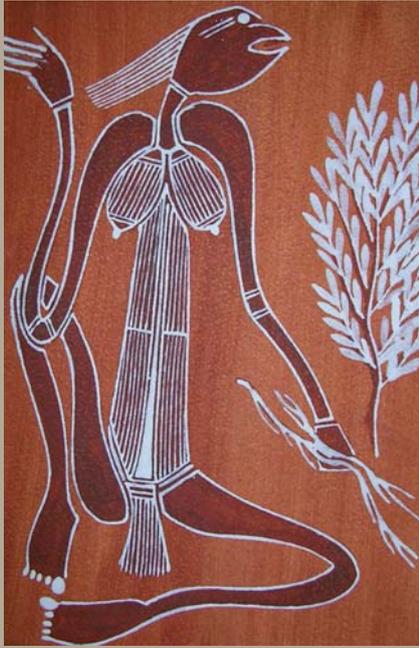




East Arnhem Regional Healthy Skin Project: Final Report 2008

Ross Andrews and Therese Kearns





Cover Artwork

‘Skin Remedies — Bush Salve’

By Gabriel Maralngurra

Clan: Ngainbali **Language:** Kurwinjku

The artist has depicted a woman collecting materials to treat skin ailments. In her hand is the root of the milkwood tree. The root is crushed up and applied to the skin like a salve. Behind the woman are the leaves of the Paperbark tree. The leaves are boiled up and the residue is also applied to the skin for various conditions.



Above: Workshop to discuss plans for the East Arnhem Regional Healthy Skin Project, Darwin, March 2004

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ISBN 978-0-7340-4101-2

First printed in August 2008; this edition updated in July 2009

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Cover artwork: 'Skin Remedies—Bush Salve' by Gabriel Maralngurra

Design and Print: Inprint Design

For citation: Andrews, R. & Kearns, T. 2009, *East Arnhem Regional Healthy Skin Project: Final Report 2008*, Cooperative Research Centre for Aboriginal Health, Darwin.

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Acknowledgments

The East Arnhem Regional Healthy Skin Project (EARHSP) is a collaboration between Aboriginal communities in the East Arnhem region of the Northern Territory, the Menzies School of Health Research, Murdoch Childrens Research Institute, the Cooperative Research Centre for Aboriginal Health (CRAH), the Northern Territory Government Department of Health and Community Services (NT DHCS), the Australasian College of Dermatologists and The University of Melbourne.

We gratefully acknowledge the involvement in the project of the following East Arnhem communities:

- Milingimbi
- Ramingining
- Galiwinku
- Marthakal Homelands
- Yirrkala
- Marngarr
- Gapuwiyak
- Lanyhapuy Homelands.

We would also like to thank our major funding partners:

- Rio Tinto Aboriginal Foundation
- The Ian Potter Foundation
- Cooperative Research Centre for Aboriginal Health
- Australian Government's Office for Aboriginal and Torres Strait Islander Health.

We thank the study participants, their families, health clinic and council staff, local schools and other community organisations for their support.

We also acknowledge the study staff and local community workers for their commitment and tireless contribution to the East Arnhem Regional Healthy Skin Project.



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on behalf of co-investigators:

Associate Professor Ross Andrews (Menzies School of Health Research)
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Professor Bart Currie (Menzies School of Health Research)

Introduction

The East Arnhem Regional Healthy Skin Project commenced in September 2004 with the aim of developing community-based control of skin infections in the region. The control had to be sustainable, properly evaluated and integrated into routine service delivery. The project provided screening for scabies, skin sores and tinea among children aged less than fifteen years, and was accompanied by treatment and follow-up services.

We developed resources to assist community workers and clinic staff in the diagnosis and treatment of skin conditions as well as a separate flip chart explaining the Healthy Skin Story. Electronic versions of these materials can be obtained from the CRC for Aboriginal Health's website (www.crcah.org.au).

In addition, with funding support from the Australian Government's Office for Aboriginal and Torres Strait Islander Health, a formal Healthy Skin training program was developed and made available to all community workers throughout north-east Arnhem Land. Provided through 'on-the-job' and 'off-the-job' components, the training covered health promotion material for scabies, streptococcal skin sores and

associated chronic diseases, as well as basic research skills. The training met the requirements for formal recognition towards a qualification in Aboriginal and/or Torres Strait Islander Primary Health Care.

Eleven workers who undertook the training (see below) were each credited with four units of competency towards Certificate II in Aboriginal and/or Torres Strait Islander Primary Health Care (HLT21307), Certificate III in Aboriginal and/or Torres Strait Islander Primary Health Care (HLT33207), and Certificate IV in Aboriginal and/or Torres Strait Islander Primary Health Care Practice (HLT43907).

Local Aboriginal community workers were employed through the project to screen children for skin disease, to collect research data for the program, to provide feedback and education to the community, and to liaise between visiting team members and the local school, council and clinic. Three of the workers have remained employed within their respective communities and two of these have also been engaged when the Commonwealth Intervention visited their community.



Final education workshop for eleven participants to complete VET II certificate in Healthy Skin, East Arnhem Regional Healthy Skin Project, October 2006

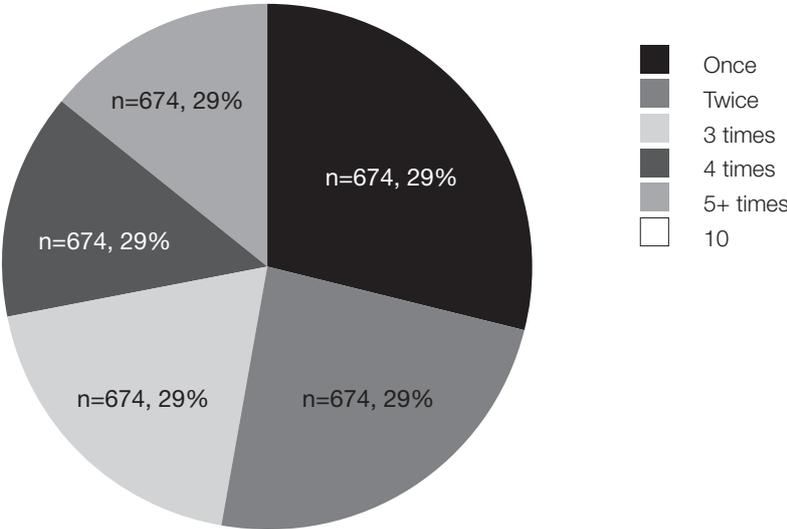


Results

Over the three-year period of the project, September 2004 to August 2007, the Darwin-based team made ninety-nine visits (one trip every 1.6 weeks) to the participating communities. On occasions, these visits also included dermatologists from the Australasian College of Dermatologists and paediatric registrars from the Northern Territory Department of Health and Community Services, usually in conjunction with the NT DHCS school-screening program.

We conducted 6038 skin assessments for 2329 children aged less than fifteen years within the East Arnhem region (88% of the target population group). A further 624 assessments were conducted as follow-up visits within one month of the initial assessment, but these visits have been excluded from the data presented in this report. The majority of children (53%) were seen once or twice during the three-year period. A further 19% were seen three times, and 28% were seen between four and nine times (Figure 1).

Figure 1: Children aged less than 15 years screened in EARHSP by number of times seen, September 2004 to August 2007 (total 2329 children)



Monthly Snapshots

Among the children seen, the average monthly prevalence of skin sores was 35.5% (95%CI:34.3,36.8) over the three-year study period. For scabies, the average monthly prevalence was 13.4% (95%CI:12.5,14.3), with similar rates for tinea at 15.0% (95%CI:14.1,15.9).

In order to monitor changes over time, we assessed the average monthly prevalence of skin infections in six-monthly intervals (Figures 2, 3 and 4). The September–February interval is the predominantly hot, humid wet season, while the March–August months are predominantly cooler dry season months.

Skin sores

There was a discernible reduction in skin sore prevalence over time (Figure 2). Whereas skin sore prevalence over the entire study period was 35.5% (95%CI:34.3,36.8), this reduced:

- from 46.0% (95%CI:44.1,48.0) during the first eighteen months of the project
- to 27.5% (95%CI:26.0,29.0) in the last eighteen months.

Skin sore prevalence increased during the last six-month period but remained lower than at any time during the first eighteen months of the project.

While still remaining unacceptably high, the skin sore prevalence during the last eighteen months represents an absolute difference of 18.5% (95%CI:-21.0,-16.1, $p < 0.001$). That is, eighteen fewer cases of skin sores in every 100 children seen, or a 40% reduction when compared to skin sore rates during the first eighteen-month period.

**Skin sore rates dropped by 40%:
from 460 children in every 1000 to
276 children in every 1000**

35 children out of every 100 seen each month were found to have skin sores

13 children out of every 100 seen each month were found to have scabies

15 children out of every 100 seen each month were found to have tinea

Within each age group, there was discernible reduction in skin sore prevalence during the last eighteen months (Figure 5).

- Older children (those aged three to fourteen years) had the greatest absolute difference in skin sore rates. Among this age group there were twenty fewer cases of skin sores for every 100 children seen (-20.3%, 95%CI:-23.0,-17.6).
- For children aged less than three years, there were twelve fewer cases of skin sores for every 100 children (-11.8%, 95%CI:-17.2,-6.3).



Figure 2: Skin sore prevalence by month, EARHSP September 2004 to August 2007

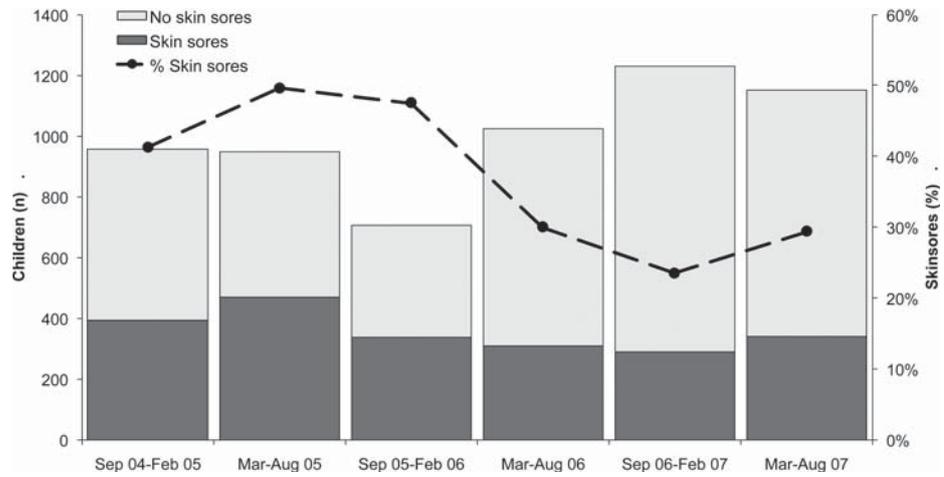


Figure 3: Scabies prevalence by month, EARHSP, September 2004 to August 2007

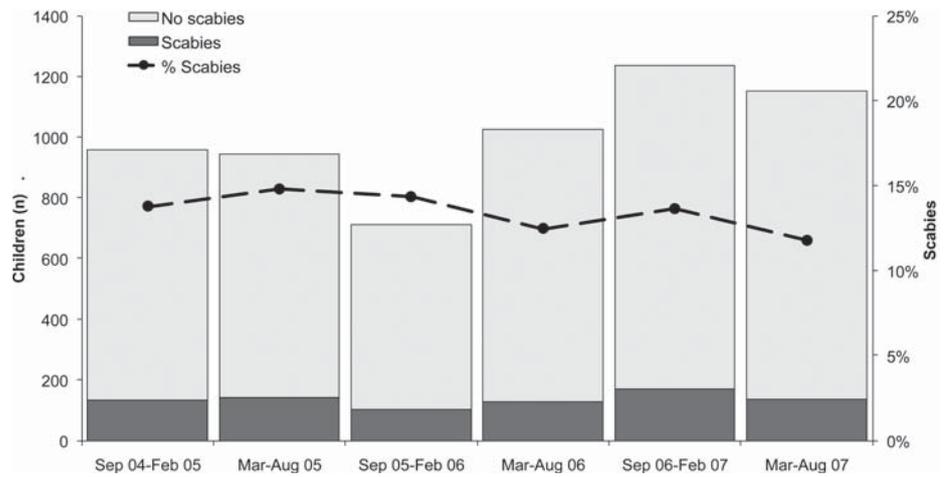


Figure 4: Tinea prevalence by month, EARHSP, September 2004 to August 2007

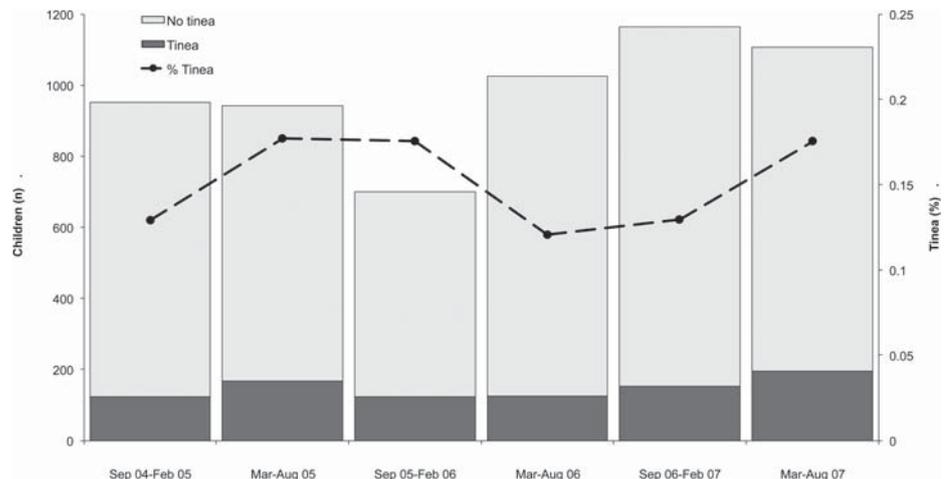
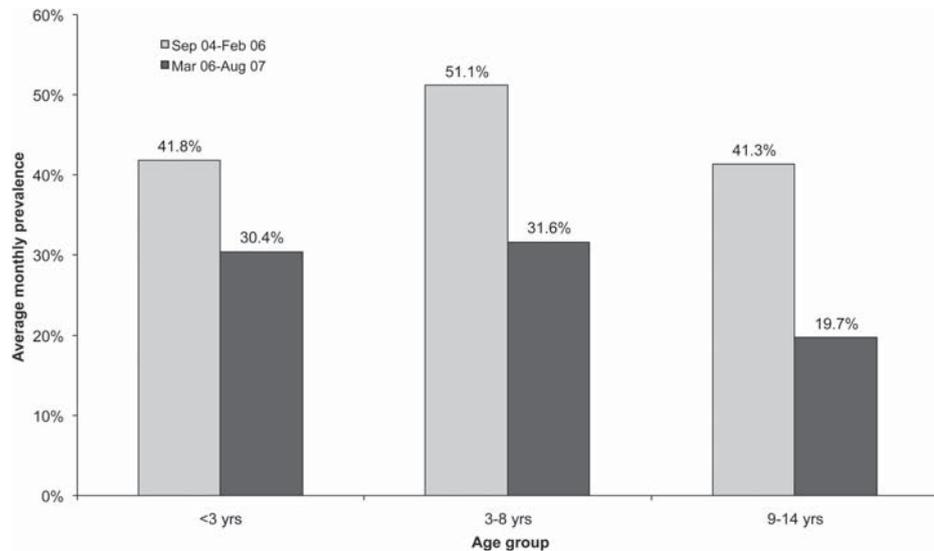


Figure 5: Skin sore prevalence by age group, EARHSP, September 2004 to August 2007



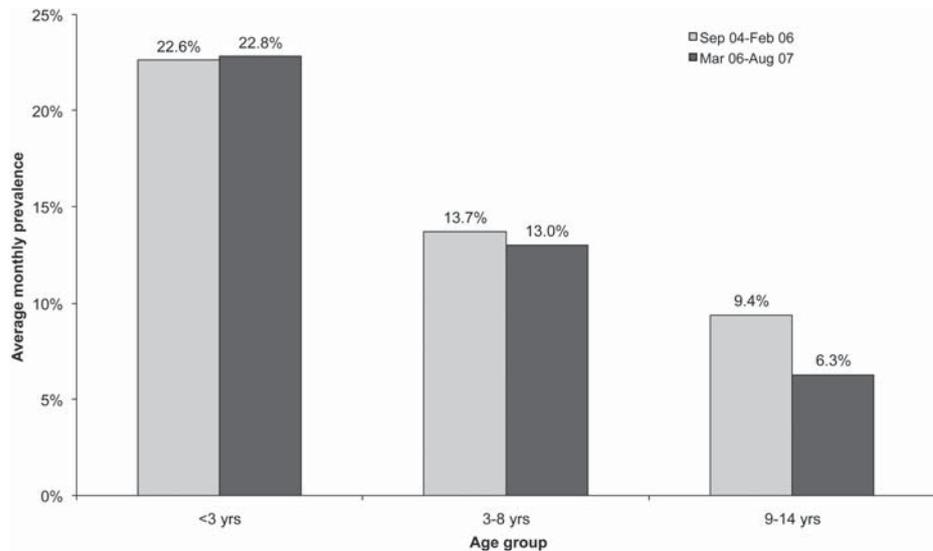
We also monitored the severity of skin sores among a subgroup of children aged three to fourteen years. We assessed both the nature of the sore (flat/dry versus crusted or purulent) and the absolute number of sores. In addition to the overall reduction in skin sore prevalence, there was a significant reduction in the proportion of children with crusted/purulent sores and those with five or more sores. The reduction for crusted/purulent sores was down from 31.6% (95%CI:29.4,33.8) of children seen during the first eighteen months to 21.6% (95%CI:19.0,24.1) during the last eighteen months. That is, there were ten fewer cases of crusted or purulent sores for every 100 children seen (-10.0%, 95%CI:-14.1,-6.0, $p < 0.001$). For five or more sores, the prevalence reduced from 19.9% (95%CI:17.2,22.7) in the first eighteen months to 12.6% (95%CI:10.6,14.7) during the last eighteen months. The difference meant that there were seven fewer children with many sores (five or more) for every 100 children seen (-7.3% 95%CI:-10.8,-3.9).

Scabies

Scabies prevalence over the entire study period was 13.4% (95%CI:12.5,14.3), with no discernible reduction over time (Figure 3). For young children (those aged less than three years), the prevalence of scabies was 22.7% (95%CI:20.3,25.1), more than twice that of children aged three to fourteen years: 11.1% (95%CI:10.2,12.0). There was a clear trend of scabies prevalence decreasing with age (Figure 6) but no evidence of a reduction in scabies prevalence between the first eighteen-month study period and the last eighteen-month period.

**Infected scabies dropped by 59%:
from 37 children in every 1000 to
15 children in every 1000**

Figure 6: Scabies prevalence by age group, EARHSP, September 2004 to August 2007

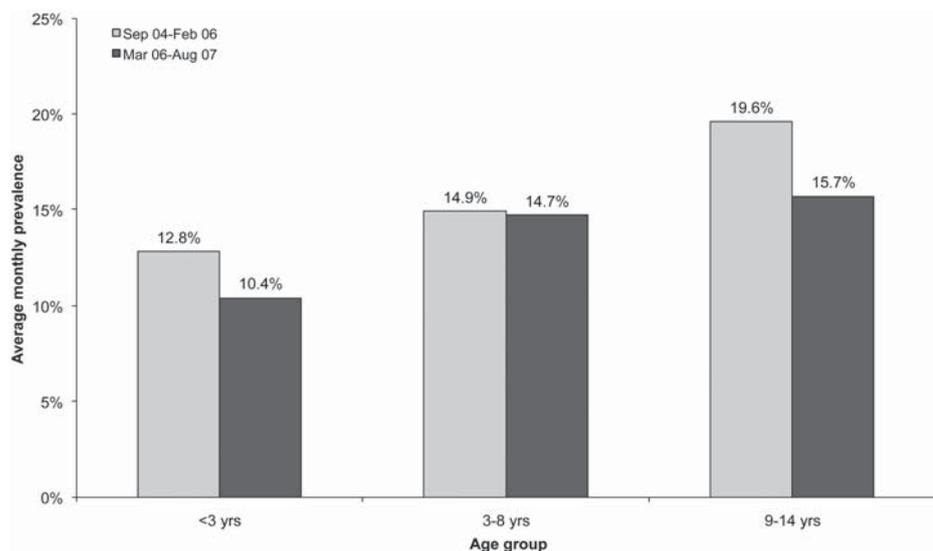


While there was no overall reduction in scabies prevalence over the study period, there was a significant reduction in prevalence of infected scabies among children aged three to fourteen years. Among this age group, the monthly prevalence of infected scabies fell from 3.7% (95%CI 2.4,4.9) of children seen in the first eighteen months to 1.5% (95%CI 0.7,2.2) in the last eighteen months.

Tinea

Tinea prevalence fluctuated over the study period from 12%–18% (Figure 4). Overall, tinea prevalence was slightly higher among older children: those aged three to fourteen years had a prevalence of 15.8% (95%CI:14.8,16.9) compared to those children aged less than three years at 11.6% (95%CI:7.7,13.4), but there was no apparent reduction over time (Figure 7).

Figure 7: Tinea prevalence by age group, EARHSP, September 2004 to August 2007

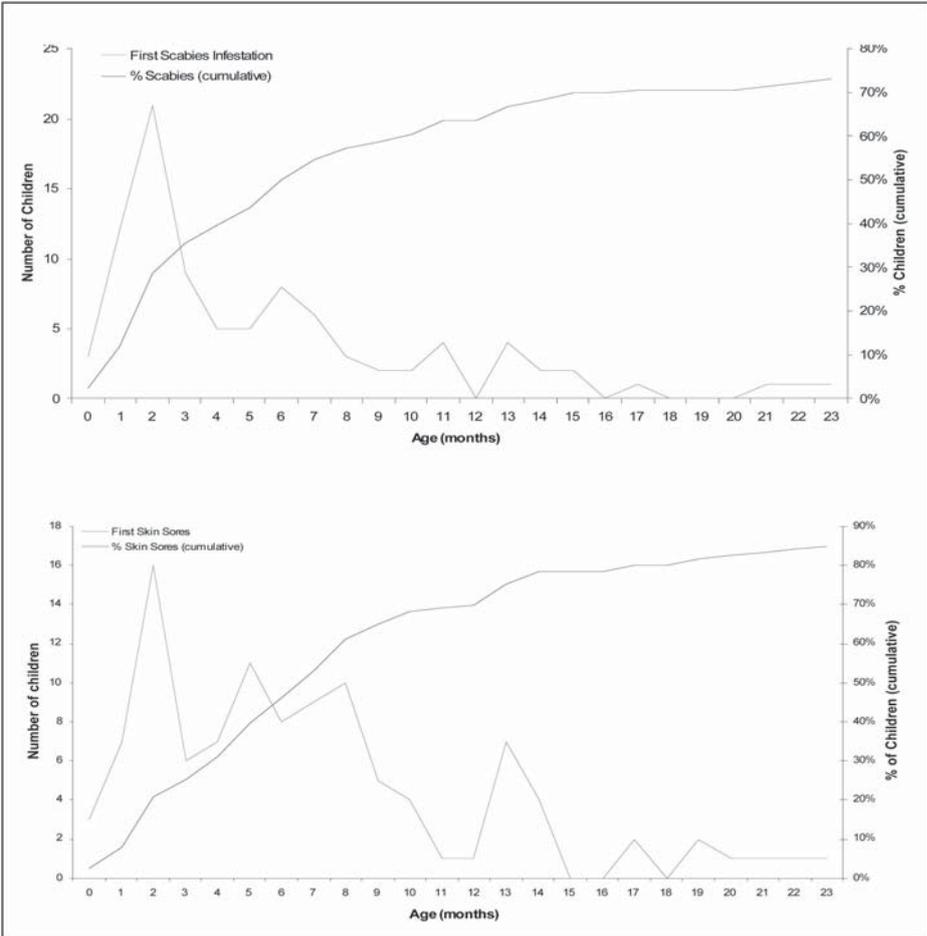


Integration of Outreach Services Linked to Baby Health Clinics

The original plan was to move to integration of the project into routine service delivery. However, outcomes over the initial eighteen-month period did not suggest that annual mass scabies treatment and routine screening was achieving the reductions in scabies and skin sores that were initially expected. This led us to re-evaluate our strategy in communities.

We conducted audits of presentations to two community health clinics. These data showed Aboriginal children average approximately two visits per month to the health clinic during their first year of life (Clucas *et al.* 2008). There were very high presentation rates for skin infections: almost seven out of every ten children had scabies at least once before their first birthday, with a similarly high proportion of children also having skin sores at least once (Figure 8).

Figure 8: Age at first presentation and cumulative incidence of presentations for scabies (A) and skin sores (B) in two remote communities in East Arnhem Land, January 2002 to September 2005 (Clucas *et al.* 2008)



We used this information to refine the Healthy Skin model. Instead of focusing on community-wide mass treatment at annual 'scabies days' and subsequent intensive follow-up screening of all children, we focused on:

- 1 Ensuring identification and treatment of skin infections among all infants and other children who presented at the clinic.
- 2 Providing follow-up outreach visits to each household where a child had been diagnosed with scabies.

Community workers now work closely with the Baby Health Clinic to ensure that all babies have skin checks. The community workers then provide follow-up home visits to families where a child has been diagnosed with scabies. Home visits are scheduled for the day following attendance at the clinic and again two weeks later. During these visits the community workers help to identify and resolve barriers to early diagnosis/treatment and they discuss prevention of ongoing transmission. The community workers, all of whom have completed the Healthy Skin training package, help to explain why household contacts of scabies cases require treatment and why people with skin infections need to seek early treatment.

Those who did not acquire scabies were almost six times more likely to belong to a household in which all members had used the treatment

The modified approach was monitored in forty households in two participating communities where at least one case of scabies had been identified (La Vincente *et al.* 2009). The study found high ongoing disease transmission (almost 10% of susceptible individuals acquired scabies during the four-week follow-up period) and poor treatment uptake (44%). While very few households had full treatment uptake among all household contacts, it was clear that individuals in those households where this did occur were much less likely to acquire scabies during the follow-up period (OR 5.9, 95%CI:1.3, 27.2, p=0.02).

Conclusion

There have been substantial gains over the past eighteen months in terms of reductions in skin sore prevalence and positive indicators of improvement through the reductions in the prevalence of infected scabies. Note that our results are not far away from those predicted at the start of the program—a halving of skin sore prevalence, and reduction in severity of residual sores. We have also made dramatic advances in our relationships with community workers and the wider community. We now have an established model of outreach service led by locally trained community workers. There is a strong level of commitment from the community workers that has been well supported by local health service providers and community leaders.

In March 2007 the CRCALH convened a one-day Roundtable in Darwin, at which community representatives and other stakeholders discussed progress of the Healthy Skin program, of which the East Arnhem project is a centrepiece. There was great enthusiasm for the way in which the East Arnhem project has evolved, and agreement that there is a need to continue the current model for at least a further twelve months in order to determine whether further gains can be made in the prevention of scabies, skin sores and tinea, and in the maintenance of healthy skin.

Our work to date has highlighted problems with both the community-wide mass treatment model of annual ‘scabies days’ and our modified model of household outreach visits. Clearly, although complete treatment of all contacts will reduce transmission, this is not occurring to any great extent in either model. There is an urgent need for a more practical and feasible treatment for community management of endemic scabies. Further discussions are currently in train to investigate alternative options for a ‘gold standard’ approach encompassing alternative treatments for both skin sores and scabies at the community level. This work will build on the existing relationships established within the East Arnhem region. We will therefore be approaching all our funding partners for support for this extension, during which time we will also undertake the full data analysis, including an economic analysis, and prepare guidelines for sustainable Healthy Skin programs as originally envisaged.



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