What’s new in scabies?  
Will it make a difference?

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Scabies in Remote Indigenous Communities in Australia

- Prevalences currently high (but weren't always)
  - children up to 50%
  - adults up to 25%

- Underlie 50 - 70% of streptococcal pyoderma

- Multiple overlapping epidemic cycles

- “Core-transmitters” with hyper-infestation (crusted/Norwegian scabies) important in some communities
Pathway of skin infections & sequelae

- Scabies
- Insect Bites
- APSGN
- Streptococcal (GAS)
- Pyoderma
- Injury
- ARF
- ? direct

Factors:
- Crowding
- Hot Weather
- Water Supply
- Humidity
- Hygiene

Invasive GAS

Dermatophytes (skin fungi)
Pathway of skin infections & sequelae

- Crowding
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Pathway of skin infections & sequelae

- Crowding
- Hot Weather
- Water Supply
- Humidity
- Hygiene

- Scabies
- Dermatophytes (skin fungi)

- Insect Bites
- Injury

- Trauma & Skin Damage

- Streptococcal (GAS)
  - Pyoderma

- APSGN
- ARF
  - ? direct

- Invasive GAS
Scabies
Norwegian (crusted) scabies
Scabies Diagnosis

• Clinical

• Microscopy of skin scrapings (oil, 10% KOH)

• Dermatoscopy (epiluminescence microscopy) (x10 – x1000)

• Microscopy of adhesive ("sticky") tape

• Videodermatoscopy

• Serology under development
Scabies algorithm for presumptive diagnosis and treatment

- Itch
  - yes: Examine skin - burrows or papules in classical distribution
    - yes: Contact with scabies
      - yes: Treat as scabies
      - no: Other diagnosis evident after full assessment
        - yes: Other treatment
    - no: Scabies unlikely
Conclusions

A handheld dermatoscope (x10) is a useful tool for diagnosing scabies, but “extensive training is required to avoid confusion of artifacts” (ie false +ves).

Can direct area for skin scrapings.

Good for “scabies incognito” (eg patient on steroid therapy)
The Diagnostic Accuracy of Dermoscopy for Scabies

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Fig. 1. Under 10× dermoscopic magnification, numerous hanglider-like triangles indicating the scabies mites’ head (arrows) were observed.
Videodermatoscopy: Telemedicine application?

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Correspondence

Low-Cost Equipment for Diagnosis and Management of Endemic Scabies Outbreaks in Underserved Populations

A

B

C

D

High cost $20,000

Low cost $30

x150
Heine  
standard dermatoscope

Celestron  
low magnification  
USB-powered and-held microscope

Winmax  
high magnification  
Wireless hand-held microscope

Reflectance Confocal Microscope  
RCM
Mass Drug Administration (MDA)

Mass Drug Administration for Scabies Control in a Population with Endemic Disease


Impact of an Ivermectin Mass Drug Administration on Scabies Prevalence in a Remote Australian Aboriginal Community

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2016-2017: Crusted scabies CDC notifiable in the NT
NT CDC Healthy Skin Guidelines updated and promoted
“One Disease at a Time” Care pathways & community-support
Moxidectin looks very promising for scabies Tx and MDAs
RESEARCH REPORT

Factors supporting sustainability of a community-based scabies control program

Li-Chuen Wong,1 Beth Amega,5 Ruth Barker,2 Christine Connors,4 Mary Elizabeth Dulla,5 Angela Ninnal,5 Margaret Mary Cumaiyi,5 Loyola Kolumboort3 and Bart J Currie6

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Figure 1 Logo for ‘Scabies Day’, June 2001, created by the well-known local artist Timothy Dumoo (reproduced with the artist’s permission).

Figure 2 Children with ‘antiscabies’ sticker; ticket of admission to the community barbecue (published with the permission of the community elders).
Community involvement and initiative was achieved as part of this ‘Healthy Skin’ intervention. This included local council initiatives such as the monthly ‘best backyard’ competition, with prizes such as a washing machine.

rate. Similar programs have been tried in other Aboriginal communities with variable results.\textsuperscript{2,11,12} The majority of these programs have been successful in achieving an initial reduction in scabies and pyoderma. However, the sustainability of these programs has been problematic, with a rise in scabies prevalence back towards pre-intervention levels within 1 year in some cases. We believe the success of our program relies on three factors: regular rescreening, community education and community involvement.

Although our program has been successful in reducing the prevalence of scabies in this community, the lower rates may be unsustainable unless all related communities within the area achieve a similar reduction in scabies prevalence.
Moxidectin is a second-generation macrocyclic lactone, related to ivermectin but with critical pharmacokinetic differences:

- Superior bioavailability: half-life >20 days versus 14 hours for ivermectin
- No CNS toxicity in collie dogs
- When it comes to scabies, this factor could be a game changer—if the drug is retained at therapeutic concentrations in the skin through the 14-day scabies life cycle, a single-dose regimen may be possible.
Why is scabies so hard to eradicate?
Why is scabies so hard to eradicate?

1

2

3

4: population mobility
Why is scabies so hard to eradicate?

5: primordial factors

4: population mobility
Primordial prevention of scabies

- Housing
- Education
- Employment
- Communications
- Transport & access to services

McDonald E et al. BMC Public Health 2008; 8:153
Bailie R et al. BMC Public Health 2010; 10:147
Primordial prevention of pyoderma

- Housing
- Education
- Employment
- Communications
- Transport & access to services

McDonald E et al. BMC Public Health 2008; 8:153
Bailie R et al. BMC Public Health 2010; 10:147
Primordial prevention of ARF/RHD

- Housing
- Education
- Employment
- Communications
- Transport & access to services

McDonald E et al. BMC Public Health 2008; 8:153
Bailie R et al. BMC Public Health 2010; 10:147
Primordial prevention of trachoma

- Housing
- Education
- Employment
- Communications
- Transport & access to services

McDonald E et al. BMC Public Health 2008; 8:153
Bailie R et al. BMC Public Health 2010; 10:147