



Healthy Skin Aspirations

Scabies:

Both under recognised and over diagnosed

Bart Currie

Infectious Diseases Department, Royal Darwin Hospital

**Global and Tropical Health Division, Menzies School of
Health Research at Charles Darwin University**

Scabies Epidemiology

- Endemic in many developing countries
- Endemic in disadvantaged populations in the developed world
- Outbreaks (epidemics) in nursing homes, hospitals, long-term care facilities
- Major animal disease but NOT zoonotic

Scabies Diagnosis

- Clinical
- Microscopy of skin scrapings (oil, 10% KOH)
- Dermatoscopy (epiluminescence microscopy) (x10 – x1000)
- Microscopy of adhesive (“sticky”) tape
- Videodermatoscopy
- Serology under development
- Point of Care PCR or Antigen detection (eg LFI)

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Definition of an algorithm for the management of common skin diseases at primary health care level in sub-Saharan Africa

A. Mahé^{a,*}, O. Faye^b, H. Thiam N'Diaye^b, F. Ly^a, H. Konaré^b, S. Kéita^b,
A.K. Traoré^b, R. Hay^c

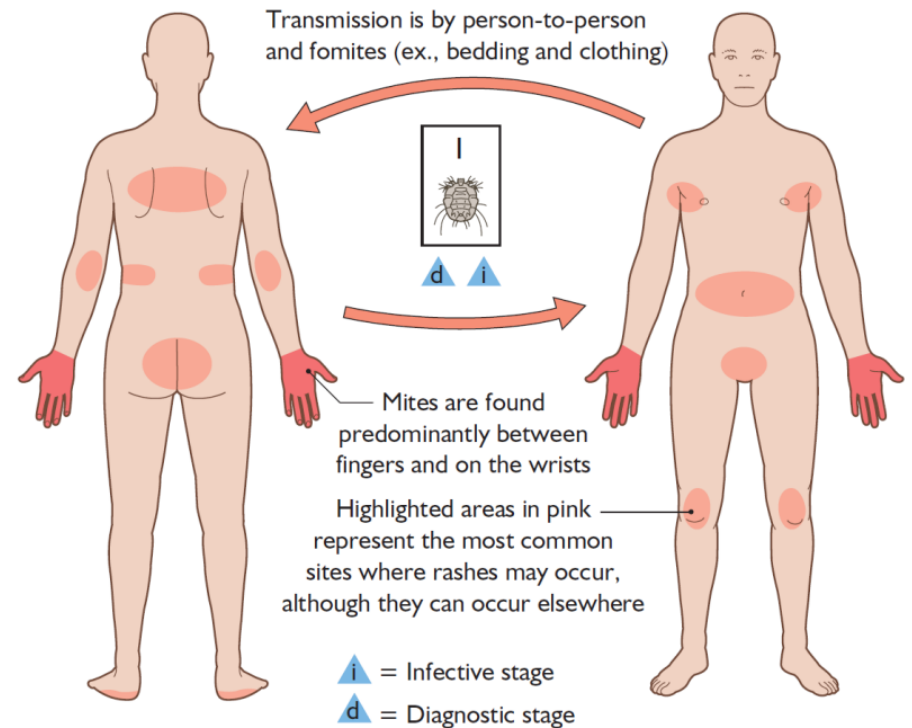
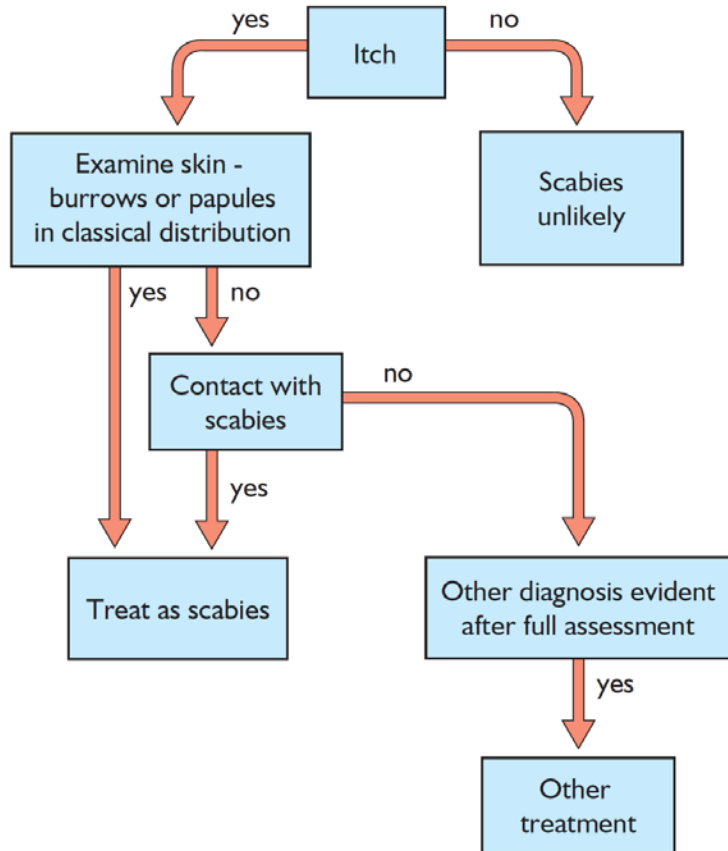
Scabies Clinical Definition

- Presence of itching involving at least two sites of the body
- Visible lesions involving typical sites for scabies
 - Interdigital spaces of hands, wrists, axillae, elbows, knees, buttocks, genitalia in men, breast areolae in women, palms and soles in children aged less than two years
- Presence of others in the same household with itch

Sensitivity, specificity, PPV & NPV were high for scabies
Also for pyoderma & mycoses

Scabies algorithm

for presumptive diagnosis and treatment







16 yo “healthy” male 2015



**69yo male 2015
COAD**



Scabies Diagnosis

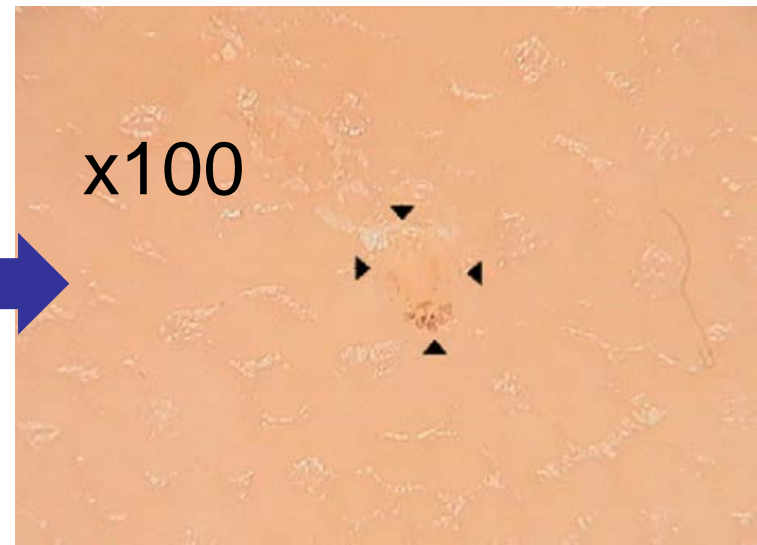
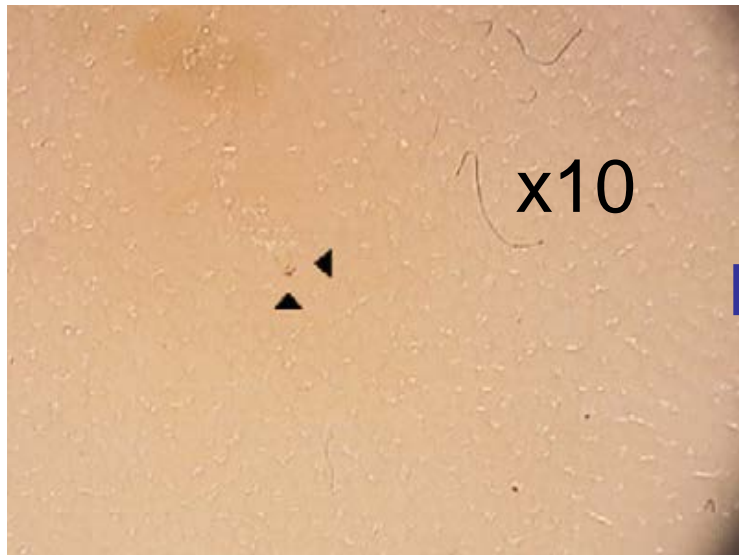
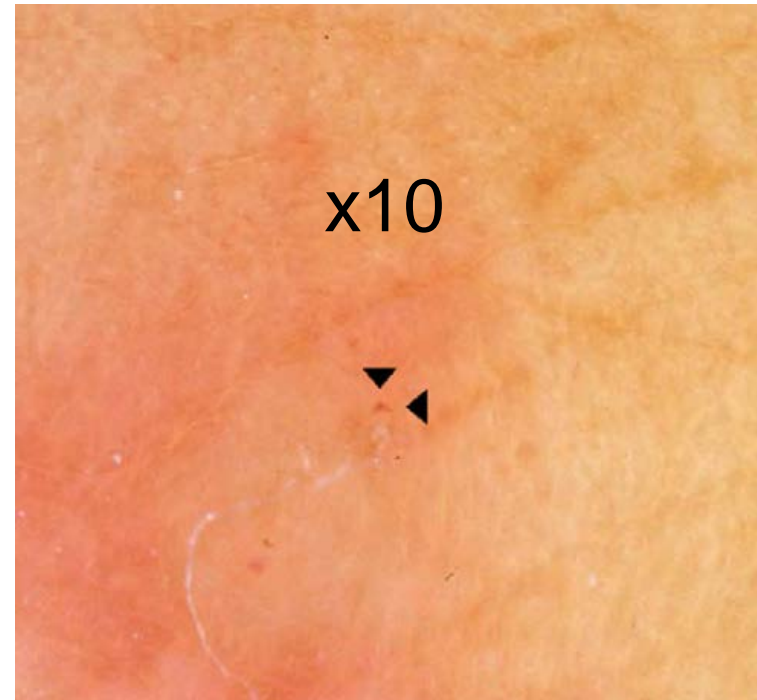
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Accuracy of standard dermoscopy for diagnosing scabies

Alain Dupuy, MD, MPH,^a Laure Dehen, MD,^b Emmanuelle Bourrat, MD,^a Claire Lacroix, PharmD, PhD,^c
Mazouz Benderdouche, MD,^c Louis Dubertret, MD,^b Patrice Morel, MD,^a
Martine Feuillade de Chauvin, MD,^c and Antoine Petit, MD^b
Paris, France

Conclusions: A handheld dermatoscope (x10) is a useful tool for diagnosing scabies, with high sensitivity, even in inexperienced hands. It greatly enhances clinical skills for making treatment decisions.

Limitations: There is no definitive standard for ruling out the diagnosis of scabies.
Specificity (false +ve) issues for beginners



The Diagnostic Accuracy of Dermoscopy for Scabies

Ju Hyuk Park, M.D., Chul Woo Kim, M.D., Sang Seok Kim, M.D.

Department of Dermatology, Kangdong Sacred Heart Hospital, Hallym University College of Medicine, Seoul, Korea

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.

Comparison of Dermoscopy, Skin Scraping, and the Adhesive Tape Test for the Diagnosis of Scabies in a Resource-Poor Setting

Birke Walter, MD; Jörg Heukelbach, MD, PhD; Gernot Fengler, MD; Christine Worth, MD; Ulrich Hengge, MD, MBA; Hermann Feldmeier, MD, PhD

Conclusions

Combination of dermoscopy and the adhesive tape test is the optimal approach to diagnose scabies in resource-poor settings.

If a trained dermoscopist is not available,
then the adhesive tape test is the method of choice.

Dermoscopy more difficult for dark skin.

Testing a Test

Joerg Albrecht, MD
Michael Bigby, MD

Critical Appraisal of Tests for Diagnosing Scabies

Conclusions

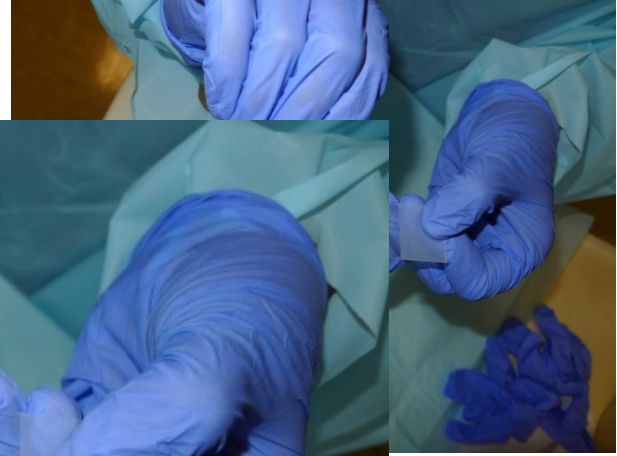
Dermoscopy was not a useful test in the setting studied because it did not significantly increase the posttest probability and PPV was <0.5 .

Dermoscopy-guided skin scrapings can help to identify mites previously missed by the naked eye.

Dermoscopy-guided tape testing may be similarly helpful.

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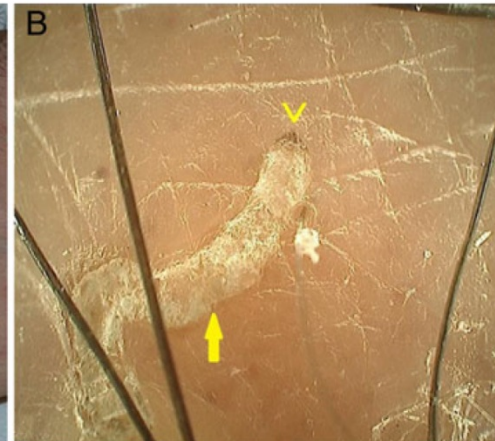
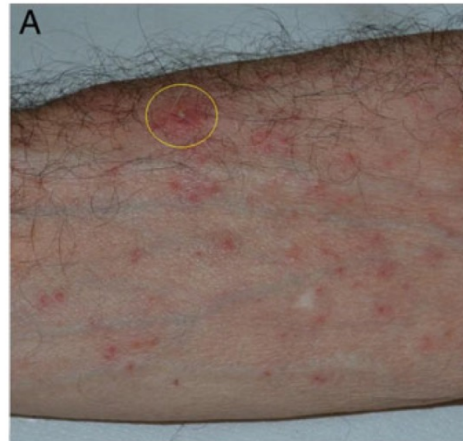
Videodermatoscopy: Telemedicine application?

Clinical Infectious Diseases Advance Access published November 8, 2014

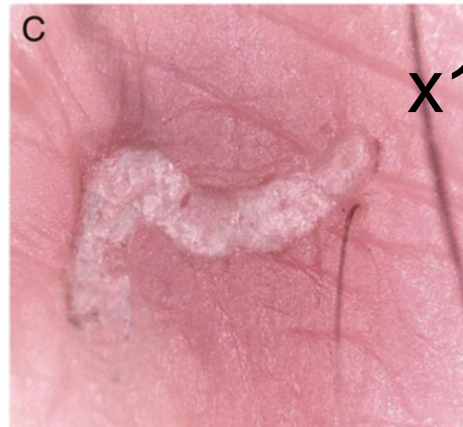
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Correspondence

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



**High
cost
\$20,000**



x150

**Low
cost
\$30**

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Serology for diagnosing scabies: No assay clinically useful as yet

A diagnostic test for scabies: IgE specificity for a recombinant allergen of *Sarcoptes scabiei*^{☆,☆☆}

Rama Jayaraj^{a,b}, Belinda Hales^c, Linda Viberg^a, Susan Pizzuto^a, Deborah Holt^a, Jennifer M. Rolland^d, Robyn E. O’Hehir^d, Bart J. Currie^{a,e}, Shelley F. Walton^{a,f,*}

^aMenzies School of Health Research, Darwin, Northern Territory 0810, Australia

Specific IgE antibodies to major scabies antigen Sar s 14.3.

rSar s 14.3-specific IgE quantified using dissociation-enhanced lanthanide fluorescent immunoassays (DELFLIA).

Sensitive & differentiated scabies from house dust mite allergy.

But assay too complex and not reproducible.

Diagn Microbiol Infect Dis 2011;71:403-7

Scabies Differential Diagnosis

- Impetigo & furunculosis
- Eczema
- Bites from mosquitoes, midges, fleas, lice, bedbugs, chiggers, other mites
- Tinea corporis
- Paronychia
- Papular urticaria & other allergic reactions
- Dermatitis herpetiformis
- Eczema herpeticum

Crusted Scabies Differential Diagnosis

- Psoriasis
- Skin malignancy – lymphoma, Sezary syndrome
- Tinea corporis and nail tinea
- Syphilis
- Pellagra

Persistent symptoms despite scabies Tx

- Incorrect initial diagnosis
- Topical scabicide failure – incorrect or inadequate application
- Topical scabicide failure – drug resistance
- Ivermectin failure in crusted scabies – inadequate doses
- Cured but continuing immune response to mite antigen (may be weeks)
- Cured but secondary eczema
- Cured but reaction to topical scabicide
- Reinfection from untreated contacts or contaminated fomites

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

Lucia Romani, M.Soc.Dev., Margot J. Whitfeld, M.B., B.S., Josefa Koroivueta, M.B., B.S., Mike Kama, M.B., B.S., Handan Wand, Ph.D., Lisi Tikoduadua, M.B., B.S., Meciusela Tuicakau, M.B., B.S., Aminiasi Koroi, B.A., Ross Andrews, Ph.D., John M. Kaldor, Ph.D., and Andrew C. Steer, Ph.D.



October 30, 2015

RESEARCH ARTICLE

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

Thérèse M. Kearns^{1*}, Richard Speare², Allen C. Cheng³, James McCarthy⁴, Jonathan R. Carapetis⁵, Deborah C. Holt¹, Bart J. Currie¹, Wendy Page⁶, Jennifer Shield⁷, Roslyn Gundjirryirr¹, Leanne Bundhala¹, Eddie Mulholland⁶, Mark Chatfield¹, Ross M. Andrews¹

**Pyoderma = Skin sores = Impetigo
which bacterial species??**



Streptococcal pyoderma from Gp A streptococcus



Streptococcal pyoderma from Gp A streptococcus



Pyoderma: Its not all Gp A streptococcus and the epidemiology is changing



Community-acquired MRSA



NT CA-MRSA
CC 75
Divergent from others
Usually low virulence
PVL gene –ve
Skin sepsis



Other skin diseases

Tinea: *Trichophyton rubrum* dominates









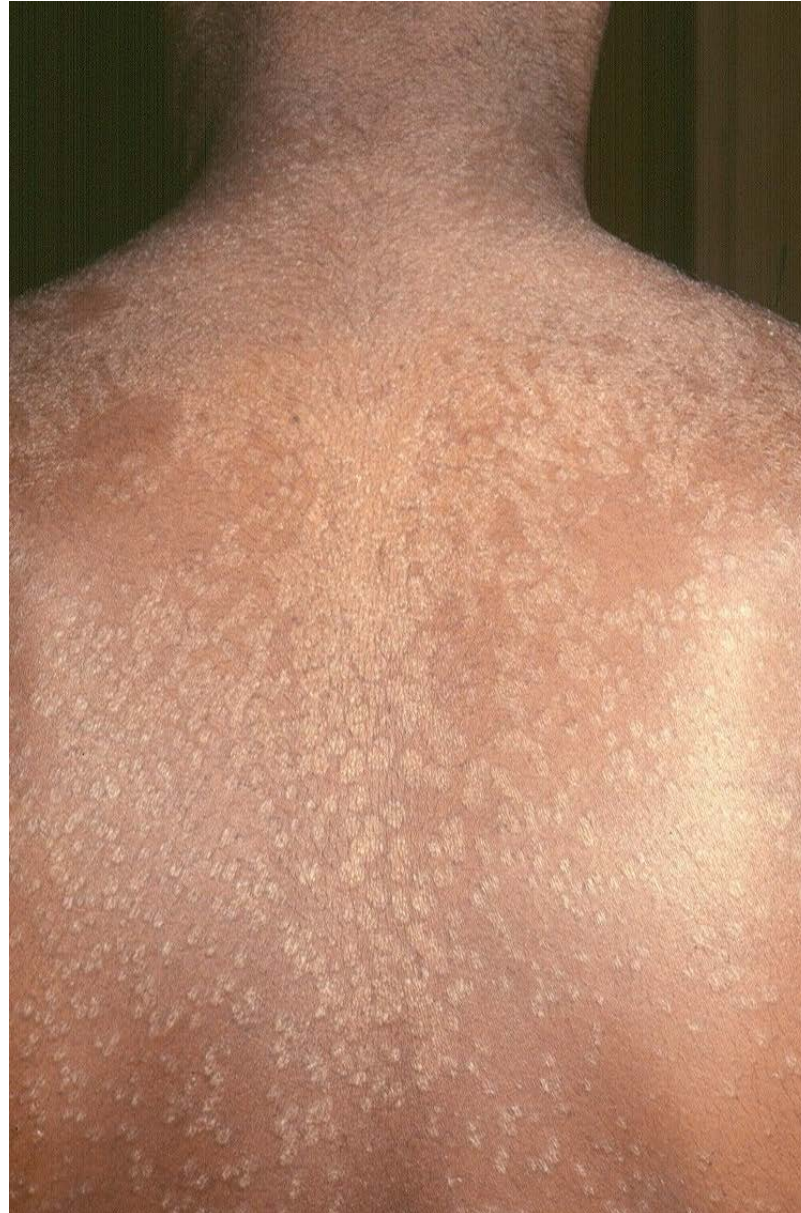








Tinea: *Malassezia furfur*



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- 😊 Katja Fischer

International Colleagues

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- 😊 Rod Hay
- 😊 Ulrich Hengge