Leprosy (Hansen's Disease, "Bungarun Sickness")

Case Definition

Background

- Chronic granulomatous infection, caused by *Mycobacterium leprae.*
- Transmission predominantly droplet spread.
- NOT highly infectious - requires prolonged, close, frequent contact - few household contacts ever develop disease.
- Incubation period: 3 to over 20 years to develop symptoms following exposure.
- Affects mainly skin, peripheral nerves, mucosa of the upper respiratory tract and eyes.
- One of the leading infectious causes of permanent deformity and disability worldwide.
- Timely diagnosis and treatment, before nerve damage has occurred, is the most effective way to prevent these complications.

Leprosy in the Kimberley

- No evidence of leprosy in Australia prior to European settlement.
- Well established in Kimberley Aboriginal population by 1930's.
- History of forcible removal of infected patients from homes and communities.
- 1936-1986 - Leprosarium "Bungarun" operated just outside of Derby. Multiple generations of some Kimberley families spent prolonged periods as residents.
- New cases of leprosy continue to be diagnosed - multiple patients currently on treatment.
- Patients previously treated and contacts require yearly review to detect signs of recurrence.

When to think of Leprosy?

- Non-healing skin lesions
- Neurological symptoms – sensory or motor
- Visual symptoms
- *Personal or family history of leprosy*
- Tread gently and explore the language preferred by the patient. Some people might know of family who stayed at Bungarun, but not that the person was treated for leprosy.

Assessment

History

- Symptoms related to skin (recent lesions, non-healing lesions), sensory changes (tingling, numbness, strange sensations), motor changes (loss of strength), eyes (including decreased vision, dry eyes, problems with blink)

- Personal history of previously diagnosed leprosy, previous admission to Bungarun

- Family or household contact of leprosy patient or Bungarun patient

- From endemic region overseas

- Remains a topic of fear and shame for some people – enquiries into a personal or family history of leprosy need to be undertaken in a sensitive and confidential manner.

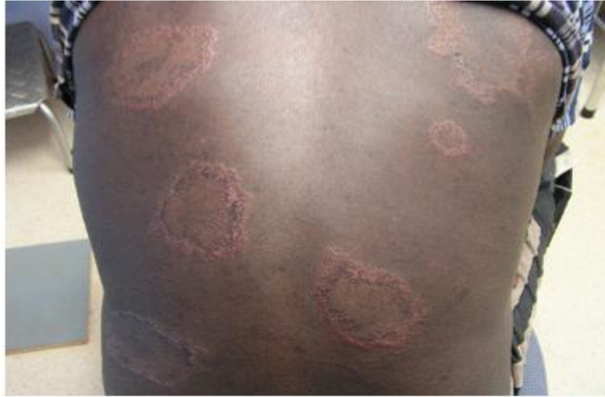
Skin signs

- Classic lesions are polymorphic, hypopigmented, (often described as "coppery" in Aboriginal patients).

- Shiny or thickened skin, may have raised edge with fungal appearance. Re-pigment from centre.

- Check for decreased or absent sensation, loss of sweating and hair growth in region of skin changes.

Images courtesy of CDC Darwin



Classic pale patches in children especially on face, trunk, buttocks

Nodules, thickened skin of the forehead, brow, ears in lepromatous leprosy, loss of eyebrows.

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Neurological signs

- Palpation of peripheral nerves to determine if enlarged or tender (always compare both sides).
- Standard peripheral neurological examination with clear documentation of any motor or sensory abnormalities.
- Specific sensory testing of any skin lesions.
- Documentation of any existing deformity (incl claw hand, foot drop, ulcers)
- Use VMT-ST (standardized form used by WHO and ILEP) to ensure consistent documentation. See page 3.

CDC Darwin

Characteristic "claw hand" complication of leprosy

Eye signs

- Check visual acuity
- Basic eye inspection including comments on eye, blink, eyelids and lashes, surrounding skin.
- Any eye symptoms/signs OR a confirmed diagnosis warrants ophthalmology review.

What happens next?

- Take a clear history and examination. Refer to page 3 and 4 for recommended documentation.
- Rule out other causes of the symptoms and signs
- treat for fungal rash (take skin scrapings, 6 weeks topical antifungal)
- investigate for other causes of peripheral neuropathy

DON'T FORGET LEPROSY!

If after basic investigation and treatment, unexplained symptoms and signs persist, THINK of leprosy and ASK FOR HELP.

Kimberley Population Health Unit - 9194 1630
Kimberley Regional Physician and Paediatric Teams - on call via Broome Hospital Switchboard **9194 2222**
Anita Clayton Centre, Perth **9222 8500** (ask for Leprosy Case Manager or ID Specialist)

Further investigation

- Slit skin smear (request "SSS for AFB ?leprosy" - consider referral if not familiar with procedure)
- Skin biopsy: note site/description. Ideally send:
1. Formalin - Fite stain/histopath/fungal stains,
2. Saline - *M.leprae* PCR,
3. Fresh sample - fungal MC&S.
- Nasal swab - in some cases a dry swab for M.leprae PCR may be useful (discuss with regional specialists/ID)
+/- Nerve biopsy may be required (discuss & refer)

Treatment

- involves long-term (6-24months) daily antibiotics
- Regular GP &/or Physician review of side effects, symptoms and lepra reactions.
- Contact tracing is undertaken in consultation with GP, KPHU and local Community Health teams. Annual screening of contacts.
- If there is evidence of deformity or disability at presentation, consider involving Allied Health early ➡ Occupation Therapy, Physiotherapy, Podiatry

Leprosy Myths

"Leprosy is highly infectious" - Very few contacts will develop disease. Health care practitioners who care for leprosy patients regularly touch the skin of affected patients without gloves. Routine hand hygiene and skin care should be encouraged.

"There is no cure" - Effective oral antibiotic treatments are now freely available. Once treatment has started, a patient is non-infectious within weeks, though for complete cure a course may be quite prolonged (up to 24 months). There is no need to isolate a person with leprosy - people can complete treatment in their own homes and rarely need to leave their community for medical care.

"Leprosy causes your toes, fingers and nose to fall off" - In advanced, untreated disease, peripheral neuropathy may develop, leaving patients more susceptible to injuries to their digits, shortening of digits, and decreased motor function. The nasal bridge can sometimes collapse due to bacilli multiplying in the upper respiratory tract mucosa. Appendages do not simply "fall off", and deformity can be prevented with early treatment.

"Leprosy isn't a problem in Australia" - Leprosy exists in new migrants from endemic areas, though they may not have symptoms for many years after arrival in Australia. Leprosy also exists in the Kimberley Aboriginal population, and should be thought of for patients with non-healing skin lesions or nerve symptoms.

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Leprosy Examination—nerves, nerve function impairment (VMT-ST), eyes

Date	Surname	Other name	HRN

Strength and blink

	Right		Left	
Blink problems?	Yes	No	Yes	No
Light closure lid gap	mm		mm	
Little finger out	S W P		S W P	
Thumb up and across	S W P		S W P	
Foot up	S W P		S W P	

SWP = Strong/Weak/Paralysed

Nerve size

	Right	Left
Supraorbital	N + ++	N + ++
Greater auricular	N + ++	N + ++
Median	N + ++	N + + +
Ulnar	N + ++	N + ++
Radial cutaneous	N + ++	N + ++
Lateral popliteal	N + ++	N + ++
Posterior tibial	N + ++	N + ++

Key: N=Normal: += Enlarged: ++=Very Enlarged

Sensation tested by light skin denting with biro tip at dot

Key √ = Feels within 3 cm X = Does not feel
C = Clawed = Wound or open crack
______ = Shortening level

R L L R

Posterior Tibial		Median	Ulnar		Median
/10	/10	/4	/4	/4	/6

Neuritis check

Sensation or strength change in the last 6 months	Yes	No
Nerve pain or tenderness	Yes	No
If answering 'yes' give details		

Visual acuity		
	Right	Left
Uncorrected	6/	6/
Corrected	6/	6/
Assessor		

Comments

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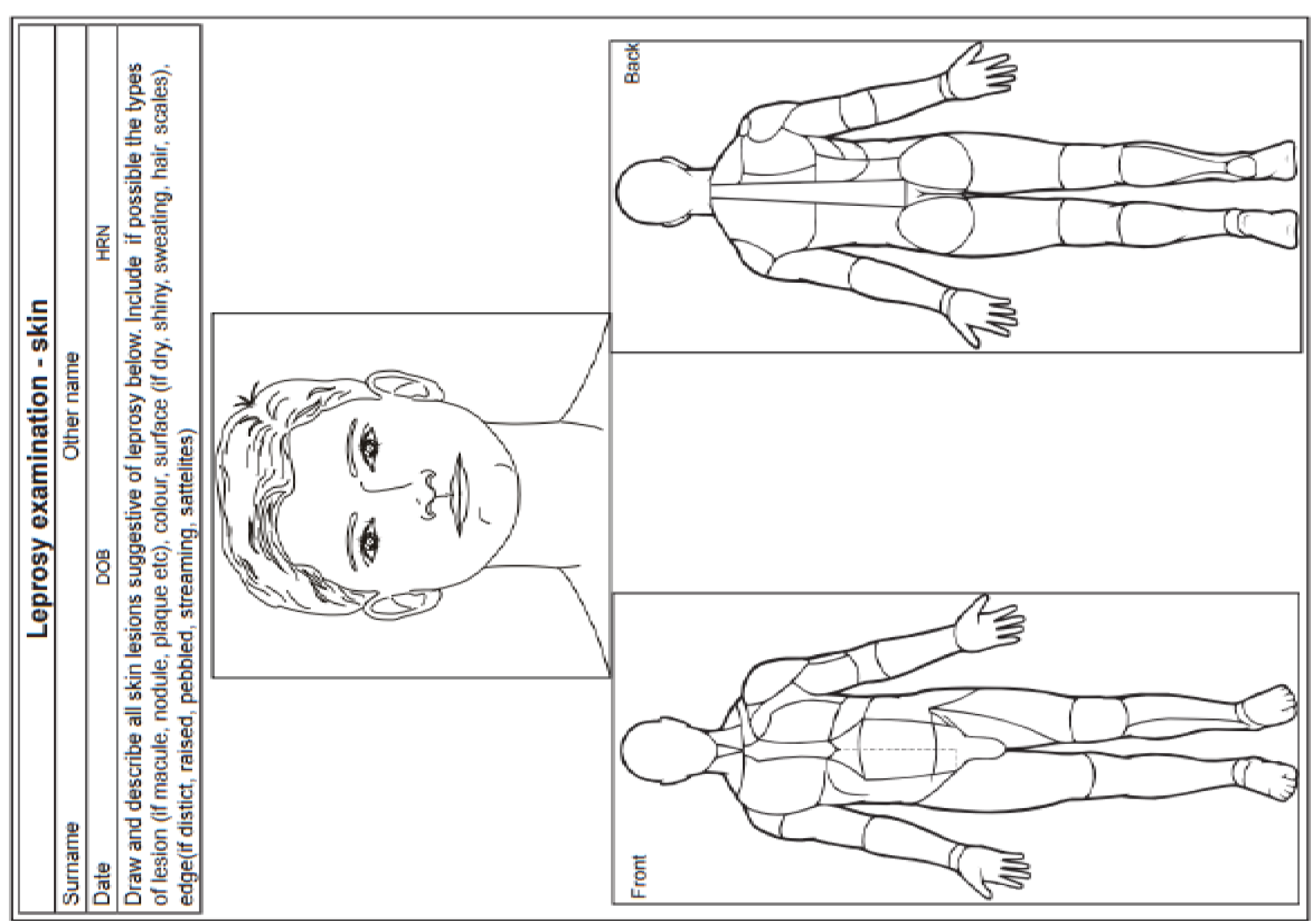

Leprosy examination - skin

Surname | Other name

Date | DOB | HRN

Draw and describe all skin lesions suggestive of leprosy below. Include if possible the types of lesion (if macule, nodule, plaque etc), colour, surface (if dry, shiny, sweating, hair, scales), edge(if distict, raised, pebbled, streaming, sattelites)

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