

# Infection Control in the Tropics

Claire Boardman, Adjunct Griffith University Queensland  
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## INFECTION CONTROL IN THE TROPICS


"Notes from a Dinghy"

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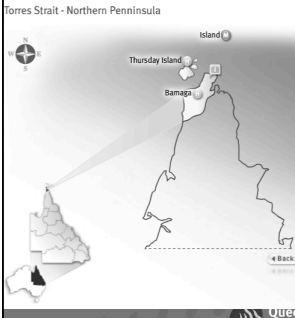
## OBJECTIVES

- Discuss barriers affecting IC programs in remote settings
- Review available data on HAIs in remote area settings
- Discuss the impact of cultural differences on staff education and implementation of an effective IC program
- Describe how to survive the challenges of living and working in a remote location
- Review available data on key public health issues in the Torres Strait such as MDR TB, MRGNs
- Understand the impact of bridging the Gap - National Indigenous Health Equality Summit Targets




## HEALTH SERVICE PROFILE

Torres Strait - Northern Peninsula



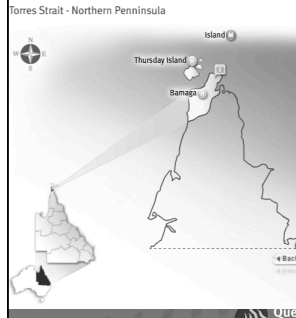
### POPULATION

- Northern Peninsula Area
  - 2,000 spread over 5 communities
  - 750 in Bamaga
  - 5 indigenous communities on Cape York Peninsula
    - Injinoo PHC
    - Umajico PHC
    - New Mapoon PHC
    - Seisia PHC
    - Bamaga PHC
    - Bamaga Hospital
      - 10 beds & 2 ED beds
  - Closest referral hospital (Cairns) = 850 km




## HEALTH SERVICE PROFILE

Torres Strait - Northern Peninsula




### POPULATION

- Thursday Island
  - Administrative hub for over 20 islands of which there is 25,000 inhabitants
  - 3500 on TI
    - TI PHC
    - TI Hospital
      - 26 beds, 2 wards
      - Operating Suite; Emergency Service; General Medicine; Maternity; High Dependency Unit; Paediatrics
  - Closest referral hospital (Cairns) = 850 km



## HEALTH SERVICE PROFILE




Torres Strait Treaty Zone  
Main language is Creole but with island variations


0 20 40 60 80 100 120 km

## WORKFORCE

- 650 Health Service employees
- SMOs (anaesthetists, surgeons, O&G, GPs) \*
- Midwives \*
- Nurses \*
- Health workers
- Allied Health
- Support staff
- Administration



\* High turnover




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### RISK FACTORS

**MEASURING PERFORMANCE**  
**A healthy start to life**

- Perinatal and infant mortality rates
- Birth weights
- Smoking rates in pregnancy
- 5 or more ante-natal visits
- Rates of anaemia in pregnancy
- Rates of gestational diabetes
- Breast feeding rates
- Levels of childhood obesity
- Injury rates in children
- Hearing loss in children
- Educational attainment
- Rates of out of home care
- Rates of risky alcohol consumption
- Rates of teenage births
- Numbers of child health checks





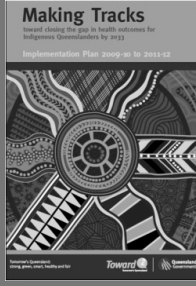
### RISK FACTORS


**ADDRESSING RISK FACTORS**

- Smoking rates
- Rates of risky alcohol consumption
- Rates of decreased tooth decay
- Levels of activity and nutrition
- Rates of sexually transmissible infections
- Numbers of people living in overcrowded and/or substandard housing

**MANAGING ILLNESS BETTER**

- Life expectancy and HALE
- Better detection (adult health checks)
- Less hospitalisation for cardio-vascular & respiratory diseases, diabetes, cancers and mental illness.
- Better Health Services
- Number of care plans
- Discharge against advice
- Indigenous identification
- Access to health services.





### COMMUNICABLE DISEASES SURVEILLANCE REPORT


<ul style="list-style-type: none"> <li>• Blood Borne diseases               <ul style="list-style-type: none"> <li>- HBV, HIV, HCV *</li> </ul> </li> <li>• Gastrointestinal infections               <ul style="list-style-type: none"> <li>- Typhoid *</li> <li>- Salmonellosis *</li> <li>- Shigellosis *</li> <li>- Norovirus *</li> <li>- Cholera *</li> <li>- Hepatitis A *</li> <li>- Food and water borne illness</li> </ul> </li> <li>• Vector borne               <ul style="list-style-type: none"> <li>- Japanese encephalitis</li> <li>- Dengue (6 in last 6 weeks)</li> <li>- Malaria</li> </ul> </li> <li>• Melioidosis</li> </ul>	<ul style="list-style-type: none"> <li>• Mycobacterium               <ul style="list-style-type: none"> <li>- MTB * *</li> <li>- Hansen's (leprosy)</li> </ul> </li> <li>• Vaccin Preventable               <ul style="list-style-type: none"> <li>- Varicella *</li> <li>- Measles *</li> <li>- Pertussis *</li> <li>- Influenza (Swine flu) *</li> <li>- Meningococcal *</li> </ul> </li> <li>• STIs               <ul style="list-style-type: none"> <li>- Syphilis *</li> <li>- Chlamydia</li> <li>- Gonorrhoea</li> </ul> </li> </ul>
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### COMMON DISEASES

- Rheumatic heart disease (RHD)
- Acute Post Streptococcal Glomerularnephritis Syndrome (APGNS)
- TB (MDRTB)
- Group A strep infections
- CA-MRSA
- Scabies (Norwegian)
- Intestinal worms

Education for RANS & HWS essential to allow early identification & Rx of cases



### SKIN HEALTH

Community Awareness Partnership Approach  
 Queensland Health





### KEEPING SKIN HEALTHY

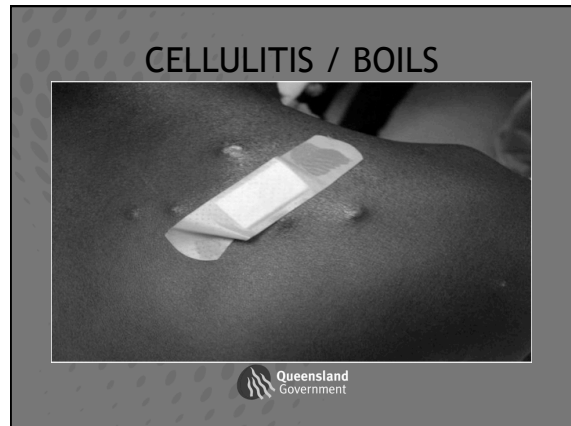
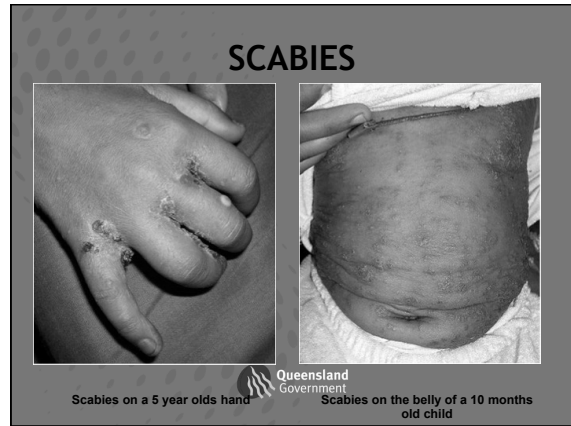
**To prevent harmful bacteria from entering your body keep the skin healthy by:**

- Cleaning your body (wash/bathe daily with soap & water)
- Cover any sores with a bandaid
- Use insect repellent when required
- Moisturise dry skin to keep soft
- Eat lots of fruit & vegies
- Drink water daily



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**PERSONAL PREVENTION OF SORES  
- HEALTHY SKIN**

- Wash all over your body with soap & warm water daily
- Look for sores daily on all members of the family, if any sores are found:
  - clean All sores with antiseptic and cover with a bandaid  
*(never leave old or wet bandaids on sores)*
- If sores have pus in or around them go to the clinic and have a Health Worker or Nurse look at it as you may need medication

**HEALTHY FAMILY  
PERSONAL PREVENTION**

- Sleep in a clean bed *(everyone)*
  - Wash sheets & blankets *(regularly)*
  - Air mattress in the sun *(like every Saturday)*
- Wash clothes regularly
  - Wear clean clothes every day
- Wash towels *(at least once a week when sickness is in the home wash more often)*

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### HEALTHY FAMILY ENVIRONMENTAL PREVENTION


- Animals to live outside the home (*not inside*)
- Children should not play where dogs live or sleep
- Keep the dogs off beds and chairs
- If your dog seems sick get some advice
- Wash your dogs in dog wash (*monthly*)



### OUTCOME AIM

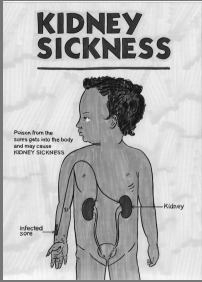
**Healthy Skin**  
**Healthy Children**  
**Healthy Family**  
**Healthy Home**  
**Healthy Community**

Thank you




### APSGN History

- The last large outbreak of acute post-streptococcal glomerulonephritis (APSGN) in Far North Queensland (FNO) occurred in 1993-94. The full extent of that outbreak remains unknown but 100 cases (mostly Indigenous children) were hospitalised, mainly for the management of hypertension but some because of encephalopathy and/or acute renal failure.
- There were two APSGN-related deaths (both Indigenous children) in that outbreak, which lasted for many months and affected all five Health Service Districts in the Far North.




Dr. Jeffrey Hanna, Medical Director, Communicable Disease Control, 21/02/2005




### Torres Strait and Northern Peninsula Area

- There have been several major outbreaks of APSGN in district including the Outer Islands, Thursday Island & NPA
- August 2008 3 cases on TI - offered prophylactic antibiotics ( IM Penicillin unless contraindicated) to children 2-12 yrs.
- Over 600 children required followup and Rx



### SIGNS AND SYMPTOMS

- Haematuria
- BP is higher than normal.
- Swelling and puffiness, particularly of the face, and maybe of both feet
- Other symptoms may include fatigue, irritability and pain over the kidneys.




### LONG TERM EFFECTS

- Nephritis can be severe, leading to rapid kidney failure, but this is rare. More often it would contribute to kidney failure later in life.

What is kidney failure?

- Signs and Symptoms often absent
- May be lack of appetite, nausea and vomiting, fatigue, difficulty sleeping, dry and itchy skin, and passing a smaller amount of urine than normal.
  - Once the kidney fails completely clients have to be put on dialysis (Renal Dialysis) or have to get a transplant.
  - Chronic Kidney failure leads to early death



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## OUTBREAK

- An outbreak is declared when there 3 or more confirmed cases in 4 weeks or as recommended by TPHU.

Confirmation from TPHU

Important

↓

Organise consent and information to be sent out to parents of kids age 2 - 12yrs old.

Stakeholders to clearly understand their roles.

↓

Mass IM Penicillin of kids age 2 - 12 years in the community to get rid of the bad strep germs going around

Hard to reach kids.

Queensland Government

## EPIDEMIOLOGY



### Melioidosis (*Burkholderia pseudomallei*)

- 5 year period, 23 cases diagnosed, 42.7/100,000
- Highest documented to date in this region
- Occurs due to:
  - Prevalence of diabetes (independent risk factor ¾)
  - High seasonal rainfall
  - Lifestyle of TSI
- Presented with CA pneumonia or deep seated abscess
- 22% of cases died

Queensland Government

## THE JOB

- Working closely with Public Health
- Community education & forums - radio
- Health promotion
- Staff Health
- 22 sites in TSNPA
- Recruitment of HW and CN
- Attendance dictates outcomes
- Remote area - Telehealth
- Weather dictates work
- Advising medical staff

Queensland Government Saibai Health Promotion team

## INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY UNIT

Education

Risk Mx

Staff Health

Public Health

CNC  
CN  
HW

P&P

Outbreak mx

Expert  
advice

Surveillance

Queensland Government


## SOME HAI FIGURES

- 39% compliance with HHA (WHO initiative)
- CSEC SSI rate: 24% (n= 29) 1 deep, 6 superficial
  - 18 month period, not risk adjusted
- ABPx: appropriate, given right drug, dose and duration (<24 hrs)
- 59% (n=29) of all *S. aureus* isolates, are CA-MRSA
- TB in 5 year at TIH
  - 3072 OBDs
  - 105 patients period 35% MDRTB (n=37)
- NSI rates between 0.65 - 1.76/1000 OBDs

Queensland Government

## CHALLENGES

- Rotating staff
- Geographical isolation
- Weather
- Confidentiality
- Deaths in community
- Family structures
- Regional TPHU
- Supply (time/distance/integrity)
- Lack of quality cycle/structure
- Treaty zone (PNG/Aust agreement)
- Communication & line reporting
- PH model of care
- Black magic/folklore
- The built environment
  - Maintenance
  - Cleaning
  - Weather



*What works well elsewhere probably won't work as well here*

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### CHALLENGES - BUILT ENVIRONMENT

- CSSD/THEATRE
- Air handling system failure
- Water supply
- Weather
  - Rain
  - Humidity
  - Heat
  - Wind



Vector borne disease  
 Skin infections
 

- Fungal
- Bacterial
- Gram negatives (burns)

 Respiratory disease
 

- Influenza
- Pulmonary TB



 Gastrointestinal disease


### ROLE of HEALTHWORKERS in IC

Expected to:


- work at advanced level with moderate supervision.
- have sound knowledge of standards, practices and procedures, & apply IC skills obtained through significant (on the job) training
- perform a range of tasks for immunisation of Staff
- exercise good communication and interpersonal skills
- understand and employ principles of confidential record management relating to staff and patient information


### PHCs




Mabuiag




- Access
- Health worker education and attendance
- Built environment poses a problem (cleaning/supplies/engineering)



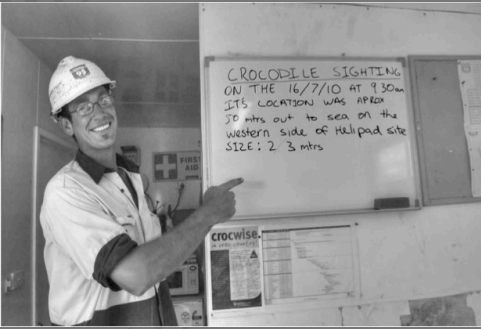
Dauan



Iama



### UNIQUE ENVIRONMENT



CROCODILE SIGHTING  
 ON THE 16/7/10 AT 9:30am  
 ITS LOCATION WAS APPROX  
 50 mtrs out to sea on the  
 western side of Huiipad site  
 SIZE: 2-3 mtrs



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