

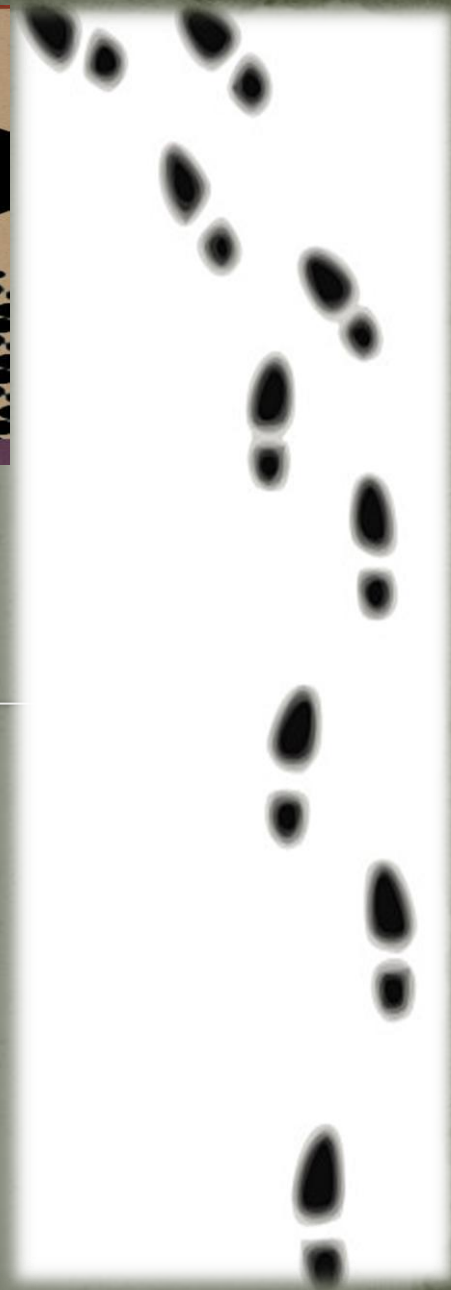


# Handic

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2013



# Disclosures



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None!

# Mystery Patient #1

- 64 year old retired male (former millwright)
- Past medical history
  - Type II Diabetes with Chronic Kidney Disease
  - Sjogren's syndrome – treated with plaquenil
  - Autoimmune hemolytic anemia – prednisone
  - Steven's Johnson syndrome (diffuse with oral involvement) secondary to amoxicillin 2010

# Mystery Patient #1

- Travelled to his native Philippines from May to October 2011
- He spent time on his family's farm, planting pineapples
- Occasionally walked barefoot on the farm
- Recalls abrasions on his feet from these walks



# Mystery Patient #1

January 2012

- Presents to ER fever 39° C on the background of recurrent nighttime fevers in the past three months
- Other complaints include chills, myalgias and fatigue
- Physical examination significant for fever, tachycardia and tenderness on palpation of the liver edge and spleen tip

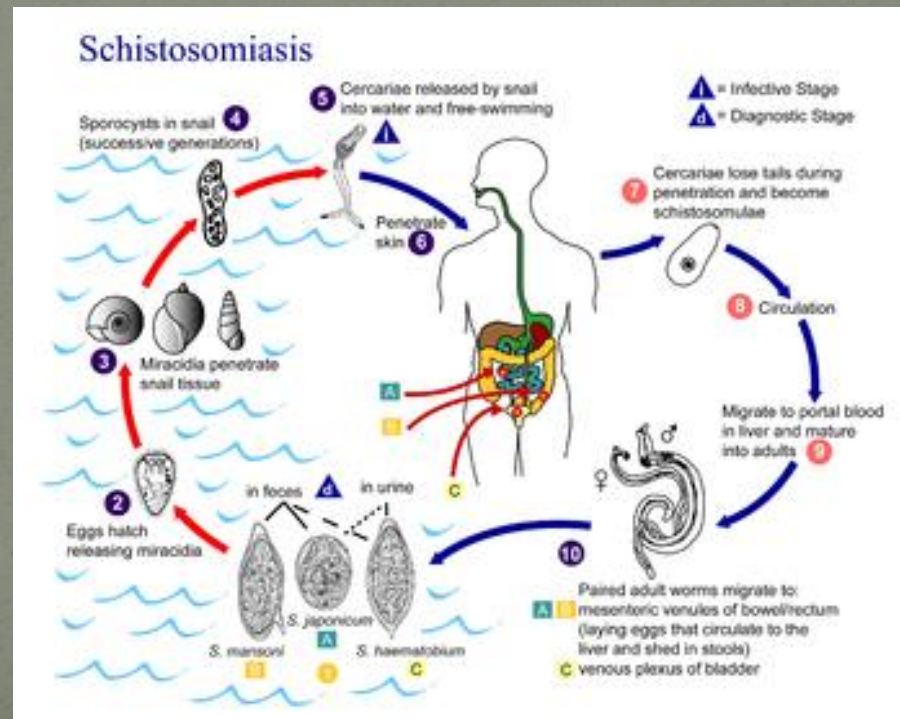


# Mystery Patient #1

- CT scan of the abdomen
  - revealed multiple hypoattenuations in the spleen, which were suggestive of micro-abscesses on MRI. The liver on MRI was within normal limits.
- TB skin testing was negative
- Malaria blood films negative X<sub>3</sub>
- Blood and urine culture were negative
- Empirically treated with levofloxacin and metronidazole for 10 days
- referred to an Infectious Diseases specialist

# Mystery Patient #1

- February 2012 – seen by ID
  - Full workup → Malaria / TB / Cultures negative
  - Schistosoma serology positive → treated with praziquantel





Mystery solved???



# Mystery patient #1 .... continued....

- Continued to spike fevers (38.5), weight loss, chills, sweats
- ++ fluid intake to overcome
- fevers abated with tylenol
- Early October presents to ER with acute L ankle pain/swelling
- Blood cultures growing gram negative bacilli
- Transferred to Hamilton for management

# Mystery patient #1 arrives in Hamilton

- Initial exam – 38.5 deg, splenomegaly, pain on palpation L lateral malleolus (no other findings)
- Sodium 123
- Admitted for further workup
- Blood cultures, urine culture, joint cultures

# Mystery Patient #1

- ID consulted
  - Athrocentesis cultures negative x 2
  - Urine culture negative
  - *Pseudomonas aeruginosa* in blood from community hospital (sensitivities pending)
- Started on empiric colistin
  - Avoid  $\beta$ -lactams due to previous SJS
  - Concern re using aminoglycoside alone plus chronic renal dysfunction
  - Possibility of ciprofloxacin resistance

# In the lab...

- Blood cultures positive → gram negative bacilli at 24 hours (3/4 samples)
  - Large and small coliform ( ? 2 types)
  - Non-lactose fermenter
  - Oxidase positive
  - Greyish → not typical for *Pseudomonas aeruginosa*
  - To vitek / TPHL...
- Meanwhile – previous isolate → RESISTANT to colistin?

# The organism is identified

- *Burkholderia pseudomallei*
  - Large and small purity → 96 and 94% confidence
- Toronto Public Health Lab alerted
- Public health alerted
- Audit of specimens
- Samples sent to Winnipeg for confirmation

# *Burkholderia pseudomallei*

- Widely found in soil and water in tropical climates
- Enters the body through inhalation or skin abrasions
- Incubation period unclear
- May present acutely or subacutely
- Localized skin infection, pulmonary infection, bacteremia, disseminated infection
- Rx usually ceftazidime or meropenem as first line or septr, doxycycline

# Mystery Solved!

- Story compatible with melioidosis
  - Epidemiologic link, chronic symptoms, positive blood culture
- Given septria and doxycycline (ceftazidime / meropenem contraindicated)
- Defervesced, discharged home
- Still doing well as of January 2013





# What about the lab?

- 4 laboratory technologists handled the organism
  - MLT sniffed the plates
  - MLT handled blood culture in BSC without gloves
  - 2 MLTs set up VITEK
- Detailed histories from all regarding potential exposures
  - No MLTs given prophylaxis
- Baseline and follow up serologies done at CDC
- Laboratory protocols adjusted, staff re-educated, audits of PPE use done

# Laboratory safety / bioterrorism

- 2 previous cases
  - 48-year-old laboratory worker centrifuge exposure
    - chills, fever and malaise, tenderness in the right axilla, and pleuritic pain right side of the chest
  - 33-year-old laboratory worker who performed antimicrobial drug susceptibility testing
    - fever, pleuritic chest pain, a productive cough, and swelling of the right calf
- Both cured with antimicrobial therapy

# Laboratory safety / bioterrorism

- Samples should be handled in a Biosafety 3 laboratory
- Any processing involving aerosolization should be handled with respiratory barrier protection
- Accidental exposures, particularly those with aerosol exposure, may benefit from chemoprophylaxis with sulfamethoxazole-trimethoprim, doxycycline, or amoxicillin-clavulanic acid
- Clinicians should alert labs if suspicion

# Mystery Patient #2

- 69F previously healthy
- Presents to outside hospital with bowel perforation
- Emergency surgery – Hartmann procedure
- Post-operative abdominal compartment syndrome
- Broad spectrum antibiotics
- Clostridium difficile colitis (po vancomycin)
- Multiple intra-abdominal collections
- Colo-cutaneous fistula

# Mystery Patient #2

- Treated with piperacillin-tazobactam for intra-abdominal collections
- Vancomycin (po) for *C. difficile*
- VAC dressing for abdomen
- Multiple drains in place
  
- Stabilized and transferred out of ICU and on to surgical ward

# Mystery Patient #2

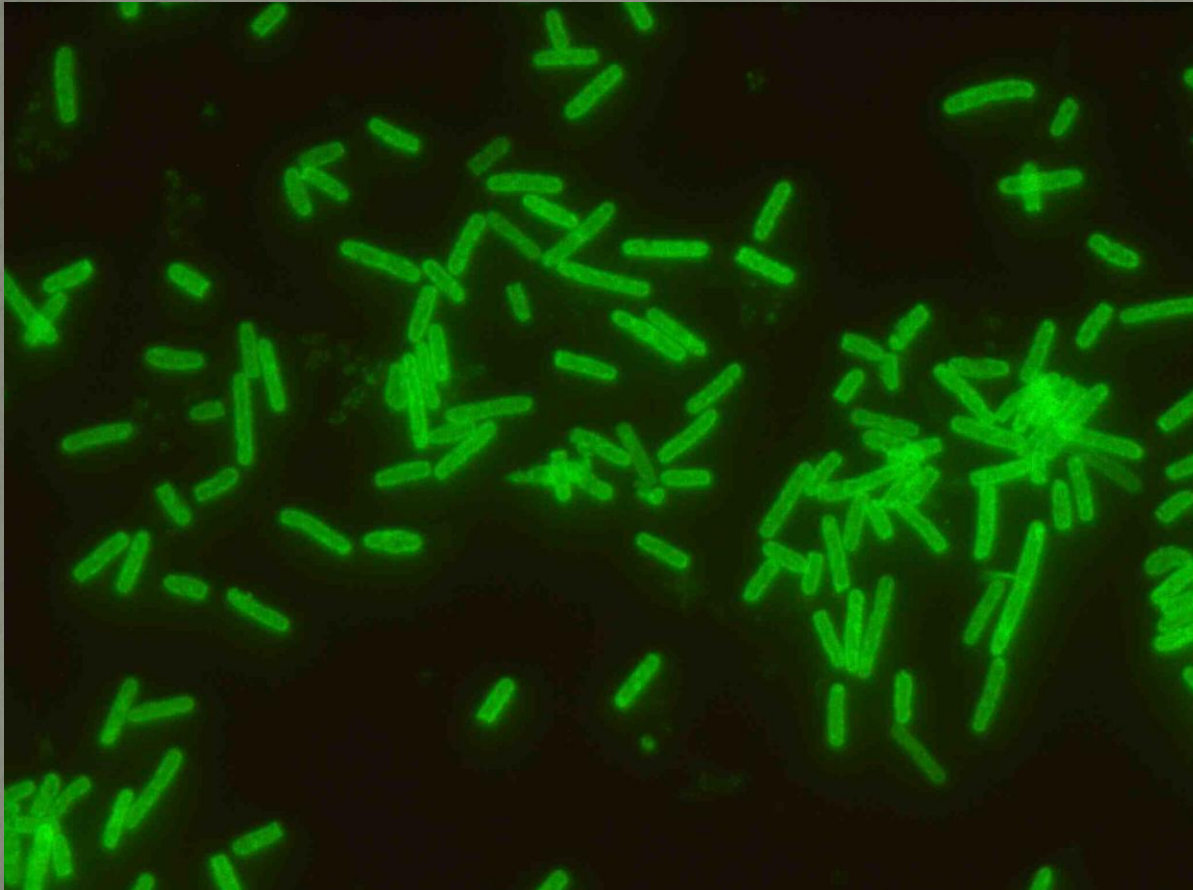
- A few days later becomes septic
- Transferred back to ICU
- Piperacillin-tazobactam changed to meropenem, vancomycin added
- Blood cultures grow yeast (*Candida parapsilosis*), antifungal added
- Repeat stool for *C. difficile* testing **NEGATIVE**

# Mystery Patient #2

- Improving but persistent fevers
- CXR shows moderate right pleural effusion



- Effusion tapped
- Anaerobic gram positive bacilli growing in the lab





# Mystery #2 Solved!

- *Clostridium difficile*
- Identification confirmed by TPHL
  - Resistant Cefoxitin, Penicillin, Clindamycin
  - Susceptible to meropenem and metronidazole



# Mystery Patient #3

- 76 F with painful right ankle
- PMH: OA
- Hx of painful R ankle >2 years
- Pt had stepped on a nail 1 month before symptoms began
- Evidence of lytic lesion on bone scan
- Joint aspirate did not grow any bacteria
- Bone biopsied – no growth, pathology showed synovitis but no organisms seen

# Mystery Patient #3

- Empirically treated with antibiotics, but no clinical response
- Develops back pain 6 months later
- T4-5 discitis seen on CT scan
- Minimal response to ciprofloxacin
- 3 months later developed swelling on dorsum L wrist



# Mystery Patient #3



- Surgical discectomies T4-5
- Tissue cultures negative for bacteria, fungi
- Acid fast stains negative

Cultures positive:

***Mycobacterium intracellulare***

# *Mycobacterium intracellulare*

- Part of the *Mycobacterium avium* complex
- Most commonly seen in immunocompromised pt.
- Reports of spinal osteomyelitis, disseminated infection
- Treat with combination Rx for many months
- Surgical excision may also be therapeutic

# Mystery Patient #3 continued.....

- Patient started on azithromycin, amikacin, ethambutol, rifampin while waiting for susceptibilities
- Organism susceptible to azithromycin
- No CLSI criteria for ethambutol, rifampin but MICs low
- Resistant to moxifloxacin, linezolid

Currently on ethambutol, rifampin, azithromycin

# Mystery Patient #4

- 78 M admitted to LTC from home
- Significant cognitive impairment
- Scaly rash on elbows, hands, knees and ankles



# Mystery Patient #4

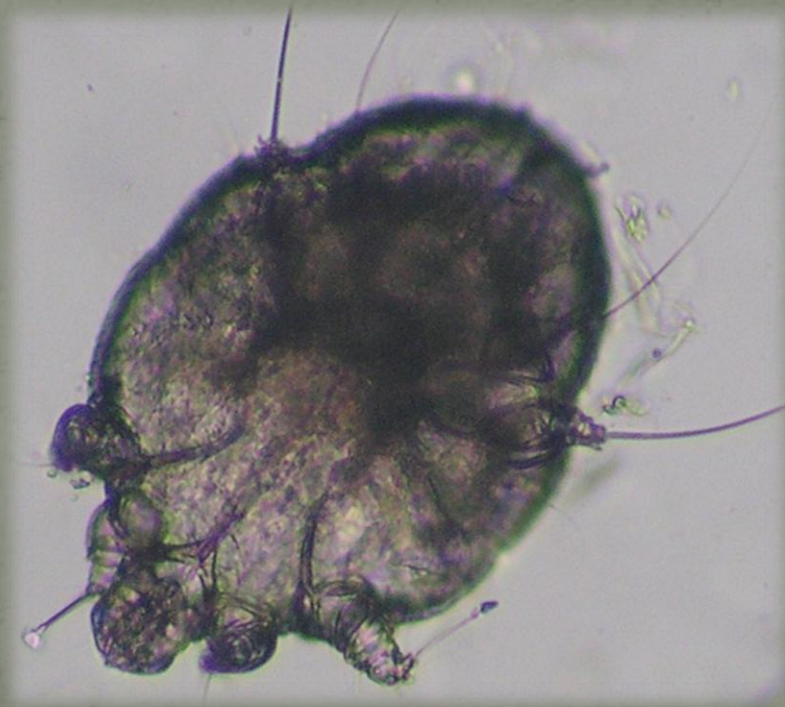
- Dermatology consulted - ? Psoriasis
- Rx with topical steroid
- One week later a nurse complains of an itchy rash





# Mystery patient #4

- Over the next 2 weeks 4 nurses and 5 patients develop similar symptoms
- Skin scrapings collected on index case



# Mystery #4 solved!

- Index case – Norwegian scabies
- Rx ivermectin + permethrin
- Subsequent cases and all other contacts Rx 5% permethrin
- Mites survive 3-4d without skin contact, killed by wash in hot water/dry
- No need for environmental cleaning
- Contact precautions until fully Rxed

# Questions???

