Hawaii’s Leprosy Epidemic
What is Leprosy? (Hansen’s Disease)

- Bacterial infection
- *Mycobacterium Leprae*
  - Rod shaped bacterium
  - Only bacterium known to infect nervous tissue
  - Long doubling time of 13 days
  - Difficult for lab research
- Infects skin (33 degrees C/91.4 degrees F)
- No, doesn’t cause arms to fall off.
  - People get hurt, but don’t realize it
  - Tissues shrink, cartilage absorbed into body, bones shorten

http://www.onlyinyourstate.com/hawaii/former-leper-colonies-hi/
Symptoms

- Loss of feeling/sensation
- Skin lesions
- Growths on the skin
- Thick, stiff or dry skin
- Severe pain
- Muscle weakness or paralysis (hands and feet)
- Vision loss
- Enlarged nerves
- Nosebleeds
- Ulcers on the soles of feet

http://www.dermnet.com/images/leprosy/picture/7632
Transmission and Causes

- Most people immune to leprosy
  - Approximately 95% of the world population immunity
- Transmission: Primarily through respiratory droplets or nasal discharge
  - Exposure to infected soil, animals, or insect vectors may also spread the disease, but much lower risk
  - Stay away from nine-banded armadillos!!
Treatment and Prevention

- Early 1900’s: Chaulmoogra nut oil injections (no long term benefit)
- 1941—Promin (sulfone drug): The first cure (many injections)
- 1950’s: Dapsone pills (but resistance)
- 1970’s-Present: Multi-drug regimen including dapsone, rifampicin, and clofazimine
- Treated for 6 months to 2 years depending on severity
Hawaiian Outbreak

- Detected in the 1830s
- Hawaiians had no hereditary immunity (unlike most of the world)
- Individuals infected with leprosy usually had short life spans.
  - Immune systems weakened
- Isolation for leprosy seemed like the best solution
- 1865: Hawaiian Legislative Assembly and King Kamehameha V approved the 1865 Act to Prevent the Spread of Leprosy
- Banished to the remote north peninsula of Molokai.
- More than 8,000 individuals forced to relocate
Kalaupapa

- Accessible only by sea or by hazardous pathways down steep cliffs — a natural prison
- Initially: infected individuals were sent to Kalawao on East Coast
- Roman Catholic Church has had strong ties to the Kalaupapa community
  - No medical service from 1865-1880's
  - Most patients too ill/demoralized to be self-sufficient
  - Saint Damien & Saint Marianne Cope cared for patients
    - Primarily only care takers from 1873-1889
Kalaupapa-Population

- 1865-1887: 97% of people (more than 7,500) were sent here in the first 20 years
  - Mortality rate was between 11% and 23% per year, 1865-1897
- 1888-1902: Peaked at around 1,100
- 1903: 888
- 1924: 485 patients
- Decline of new patients until 1940's
Life on Kalaupapa--1900’s before treatment

- Hawaii provided healthcare, hospitals, food, supplies, houses, etc.
  - Too many patients
- 1900: major construction program began
  - Cottages, dormitories, hospital facilities, other buildings, roads
- 1902: Dr. William J. Goodhue became resident physician. John D. McVeigh became superintendent.
  - Promoted sports and other activities
  - Improved medical procedures
  - Treated patients with respect and human decency
- 1905: Hospital complex built to conduct Hansen's Disease research.
  - 1913: closed due to insufficient amount of people willing to participate in clinical trials/experiments.
Kalaupapa After Treatment

- Immediate reductions of symptoms
- Vast improvements in the quality of health and life
- Patients no longer contagious
- State lifted its mandatory exile of leprosy patients in 1969 (40’s was first treatment, 70’s was MDR)
Kalaupapa Today

- Preservation of Peninsula's history has gained momentum among park service members.
- Kalaupapa National Historical Park was established in 1980.
- Prior to treatment, no restaurants, no movie theaters, no shopping malls, and only a few miles of road to drive.
- Just 16 leprosy patients remain at Kalaupapa.
- Youngest current resident is 73.
- Restricted to organized tours only, must be 16 or older.
- Difficult and expensive to visit.
  - Airplane ride, hike down cliff, or mule tour.

http://www.molokai-aloha.com/molokai/kala.html
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