

TB

That Came From Across the Deep Blue Sea



A Case Study



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The Call

- * HD receives a call at 10 AM from local hospital infection control nurse regarding a TB suspect in their Emergency Department (ED)
- * Patient arrived at the ED by taxi wearing a mask at 1 AM



The Patient

- * The patient is a 30 year old male foreign national from the Philippines
- * The patient speaks English
- * Patient is an officer on a international cargo ship from Japan delivering fertilizer to the port in this county



Symptoms

- * Productive cough x 8 weeks
- * Hemoptysis
- * Sharp stabbing chest pain
- * Malaise
- * Fever
- * Chills



History



- * Joined the crew 6 months ago
- * Began coughing 8 weeks ago in Haiti
- * Treatment with Augmentin for pneumonia 4 weeks ago in Jamaica
- * No real improvement in symptoms after completing antibiotics
- * Transported to hospital for severe chest pain

Evaluation



- * TST – 20 mm
- * CXR & CT – Revealed a cavitory lesion in right apex and patchy infiltrates
- * Sputum – 1st smear AFB Negative
2nd smear AFB Positive 1 +
PCR Positive for MTB



Diagnosis TB





- * TB suspect
- * Hospitalized
- * Placed in isolation
- * Hospital visit made by local HD TB nurse

Notifications




- * Maritime Communicable Disease Emergency Response Plan
- * 1st Call – HD to Coast Guard
- * 2nd Call – Coast Guard to CDC
- * 3rd Call – CDC to Atlanta, GA Quarantine Center

TB Treatment





Dosage for daily directly observed therapy (DOT) calculated by weight (143 lbs/65 kg)

- * Isoniazid (INH) 300 mg
- * Rifampin (RIF) 600 mg
- * Ethambutol (EMB) 1200
- * Pyrazinamide (PZA) 1500




Drug Resistance


Problem	Solution
<ul style="list-style-type: none"> * Patient is from the Philippines – INH drug resistance suspected 	<ul style="list-style-type: none"> * Started on standard 4-drug TB therapy * Order susceptibilities * Sent specimen to NC State Lab * Request State Lab send specimen to CDC for Molecular Detection of Drug Resistance

Contacts Identified

- * 10 Members of the ship's crew
- * 2 Crew members on the pilot boat - ship to port
- * 1 Port worker – met patient at the dock – took to the hospital
- * 1 Cab driver – took patient to the hospital



Contact Investigation

Problem	Solution
<ul style="list-style-type: none"> * Nurse cannot board ship * Ship's crew are all foreign born * Ship's crew had BCG * HD will not be able to treat infected for LTBI 	<ul style="list-style-type: none"> * Ship's crew will be brought to shore * TB Nurse will do symptom screen on crew members instead of TST or IGRA * Crew with symptoms will be transported to ED for evaluation 

Contact Investigation Results Initial TST

- * 10 Members of the ship's crew - symptom screens all negative
- * 2 Crew members on the pilot boat – TST negative
- * 1 Port worker – TST negative
- * 1 Cab driver – TST negative



Hospital Discharge

Problem

- * Hospital wants to release patient as soon as possible
- * Patient is infectious

Solution

- * Locate housing for patient
- * Provide DOT in the home
- * Collect sputum every week to document



Hospital Discharge



- * HD nurse located appropriate housing
- * HD nurse will provide grocery shopping
- * HD nurse will provide daily DOT
- * HD nurse coordinated the delivery of the patient's personal items from the ship





Collaboration

Port Authority

- * Homeland Security
- * Vessel's Agent
- * Hospital
- * Local Health Department
- * Coast Guard
- * State TB Control & Communicable Disease Programs
- * Attorney for the P&I Club (Ship Worker's Union)
- * Atlanta Quarantine Station (Commander, Quarantine Medical Officer, PHA)
- * CDC Quarantine Officer



Lab Results

- * Sputum cultures – positive MTB
- * Susceptibilities – Resistant to INH, susceptible to RIF, EMB & PZA
- * HIV test – negative
- * Liver function tests – within normal limits
- * CBC with differential – within normal limits
- * Serum creatinine – within normal limits




Costs and Expenditures

- * Hospital Expenses (\$15,000)
- * Cost of keeping the ship in port longer (\$5,000/day)
- * Housing Expense (\$1250/week)
- * Groceries (\$100 - \$150 /week)
- * Sea Food Market (\$25/week)
- * Fast Food (\$10 - \$15/week McDonald's)
- * Medical Expenses/Urgent Care (\$140)
- * Airline Ticket to return Philippines (\$1200)





Incentives

- * American Lung Association (ALA) - \$50 each month for incentives available
- * Not necessary because this patient's Union paid all of his expenses

Emotional Isolation

Problem		Solution
* Foreign national on home isolation		* Allowed to walk on the beach
* Alone in a foreign country		* Allowed to sit on his private patio
* No relatives or friends in the US		* HD nurses lent patient DVDs to watch
		* Condo had cable TV and wireless internet
		* Patient had personal computer to email, Skype family



Heading Home



- * Collect sputum every week to document negative smears – took 4 weeks
- * Send a letter to State Port Director stating patient was no longer infectious to release him to travel
- * Notified CDC in order for them to release him for travel (Do NOT BOARD LIST)
- * Complete interjurisdictional notification – sent copy to State and CDC
- * Copied records for State, CDC, Patient and patient's physician

Patient's Outcome



- * Unfortunately despite numerous efforts we have been unable to document this patient's completion of therapy in the Philippines



Contacts' Outcomes



- * Port worker – second TST negative
- * Cab driver – second TST negative
- * 1st Crew member on the pilot boat – second TST negative
- * 2nd Crew member on the pilot boat – second TST positive - LTBI treatment with RIF – LTBI treatment completed



How Did the Management of this Case Differ From Previous Cases?



- * Symptom screen only for high priority contacts aboard ship
- * Management of INH resistance – treatment with RIF, EMB & PZA for 6 minimum of 26 weeks
- * Collaboration of TB care with a number of other agencies
- * Money to pay for patient's
- * Referral of international TB patient to another to country

