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Challenges in the Diagnosis and Management of Pediatric Pulmonary Tuberculosis in Madagascar

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Introduction:

- Mycobacterium Tuberculosis (TB) remains an important cause of morbidity and mortality in Madagascar.

Incidence of TB in Madagascar in 2015 [IP]:

General Incidence	57,000
Pediatric (<14 years old) Incidence	11,000
Percentage bacteriologically confirmed	89%

- However, bacteriologic confirmation of TB in children is especially difficult.
- Therefore, the incidence of TB in the pediatric population in Madagascar, and other developing countries, is considered under-estimated.
- We report a case of a 4 year old male that illustrates the challenges in diagnosis and management of TB in Madagascar.



Image 1. 4 year old cachectic patient in severe respiratory distress

Case Report:

- A 4 year old male presented to a hospital in northern Madagascar with five months of chronic, non-productive cough and cachexia. Past medical and family history was unremarkable, with no sick contacts.

Exam: Cachectic with severe respiratory distress and diffuse rhonchi bilaterally

Hemoglobin: 7.0

Chest XR: Diffuse Bilateral Infiltrates



Image 2. Chest XR with bilateral diffuse infiltrates

- Due to concern for TB, an acid-fast bacilli (AFB) smear and culture was attempted via early morning nasogastric aspirate and induced sputum. Both were negative.
- Due to concern for *Pneumocystis* pneumonia, trimethoprim/sulfamethoxazole was ordered, but administration was delayed for 36 hours due to resource constraints.
- Presumptive treatment of TB is not allowed due to local guidelines requiring a positive AFB.
- The patient's respiratory status declined and the patient expired before a positive AFB culture was obtained.

Discussion:

- The pediatric population with suspected pulmonary TB is challenging to manage in Madagascar.
- A positive AFB culture is required to initiate treatment for TB; however obtaining a positive AFB in children is difficult.
- Diagnostic accuracy hinders initiation of treatment.
- Treatment is government funded, but documented positive AFB is required. Otherwise, parents are asked to cover the expense of the medications, which is rarely a feasible option [Ave annual income = \$125/y].
- Finally, there is little public health effort to trace TB transmission in rural communities.
- Roughly 14% of the cases of TB in Madagascar are in patients less than 14; however, given the current means of diagnosis and reporting, this is likely an underestimate.
- This case demonstrates the obstacles in diagnosing and treating TB in the pediatric population in Madagascar as well as other developing countries.

References:

Madagascar Tuberculosis Profile. WHO Tuberculosis Country Profiles, 2015. https://extranet.who.int/sree/Reports?op=Replet&name=%2FWHO_HQ_Reports%2FG2%2FPROD%2FEXT%2FTBCountryProfile&ISO2=MG&LAN=EN&outtype=html. Accessed 13 Feb 2017.