case report form (CRF). Samples were collected for smear, MGIT culture and MODS culture.
Results: 738 consecutive sputum samples collected from 307 HIV-positive individuals suspected of TB were tested by smear, MODS and MGIT. The sensitivity of smear, MODS and MGIT were 56.9%, 70.7% and 74.9%, respectively against clinical gold standard (MODS vs. smear: $P < 0.001$, MODS vs. MGIT: $P = 0.03$). For diagnosis of smear negative patients, the sensitivity of MODS and MGIT were 37.7% and 45.1%, respectively ($P = 0.08$). The median time to detection of MODS and MGIT were 8 days and 11 days, respectively, and 11 and 17 days, respectively, for smear negative samples. Original bacterial/fungal contamination rate of MODS was 1.08% while it was 2.57% for MGIT. The cross-contamination rate of MODS was 4.74%.
Conclusion: MODS is a sensitive, specific and rapid test which is appropriate for detection of HIV-associated TB in developing countries.

PS-100417-14 Efficiency of combined use of solid media and liquid culture media in diagnosis of tuberculosis

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Background: Mycobacteriology Laboratories are integral components in the diagnosis and management of tuberculosis. This is not always possible as many settings are poor and faced with limited resources. As part of its Refugee and immigrant's relocation program, International organization for migration Laboratory Nairobi Kenya employed the use of both liquid and solid culture to increase its recovery rates.
Method: All samples were processed using the standard N-acetyl-cysteine (NALC-NaOH) method. 0.5 ml of already decontaminated sample was inoculated into an already treated MGIT BBL tube and 2–3 drops on Löwenstein-Jensen slants. A total of 1650 sputum samples were processed. Identification, were both tentative and confirmatory. For the tentative identification, it was based on colonial morphology, time to detection, visual appearance, and staining to check morphology. For the confirmatory it was done using capillia, Niacin and Nitrate tests.
Results: Out of 1650 sputum samples, 142 were *M. tuberculosis* whereby 28 were isolated on MGIT, 18 on LJ and 96 on both MGIT and LJ. The contamination rates were 9.6% and 6.3% for MGIT and Löwenstein-Jensen respectively. The mean time to detection was 14 days for MGIT and 28 days for Löwenstein-Jensen.
Conclusion: The use of liquid media is justified by increased sensitivity and reduced time to detection as opposed to Löwenstein-Jensen which takes longer time and low sensitivity. From positive specimens, preliminary identification on staining morphology for presence or absence of cording as opposed to Löwenstein-Jensen can be done. MGIT is highly prone to contamination which is well catered for by low contamination rates of LJ, its colonial morphology is a mode of preliminary identification. Both systems complements each other in recovery, as what is missed by one system is captured by the other.

PS-100573-14 Field TB and MDR-TB diagnosis: the effect of delayed sputum testing

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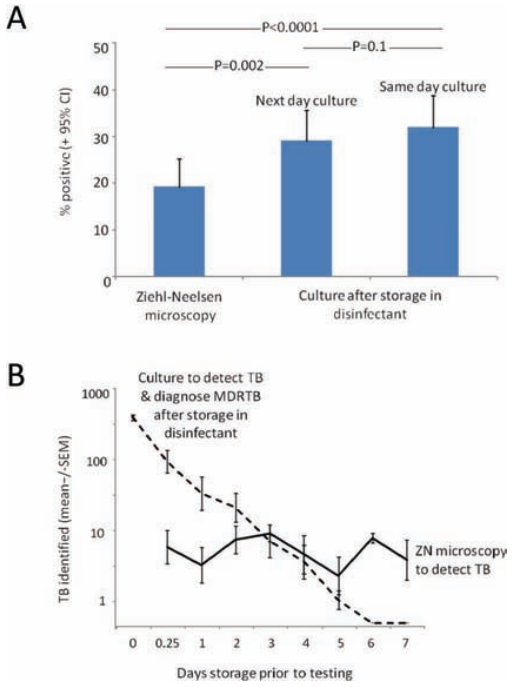
Background: The complexity and biohazard of conventional sputum decontamination largely restrict TB culture with drug-susceptibility testing to reference laboratories. Thus sensitive TB diagnostics are often unavailable where they are most needed. Transport of sputum samples in disinfectant allows field testing for TB and MDR-TB. We studied the effect of delayed testing on results of sputum microscopy and field culture for TB.
Methods: Paired sputum samples were collected from 204 patients with suspected TB, half into a dry sputum pot for testing by Ziehl-Neelsen (ZN) microscopy. The other half was expectorated directly into trisodium phosphate-based disinfectant transport medium and on reaching the laboratory 2 drops



were applied directly to selective 7H11 agar without any processing. After 24 hours storage, another 2 drops were applied to another culture plate. Plates included quadrants with isoniazid and rifampicin for direct susceptibility testing. Subsequently, 6 patients with newly diagnosed smear positive TB provided large volumes of sputum that were cultured after 0–7 days storage in disinfectant. ZN microscopy on neat sputum was done after the same time intervals.
Results: Same day culture detected 70% more TB cases than microscopy (32% vs. 19% positive, $P < 0.0001$). When delayed until the next day, culture remained superior to microscopy (29% vs. 19% positive, $P = 0.002$; graph A). Culture following up to 3 days storage in disinfectant had greater sensitivity than microscopy for diagnosis, while also allowing concurrent resistance testing (graph B). Beyond 3 days, sensitivity for diagnosis dropped to less than that of microscopy.
Conclusions: In-transit sputum disinfection allowed TB culture with concurrent MDR-TB testing using minimal technical skills and equipment. Sputum disinfected in-transit should be processed in the first days after collection; or if prolonged transit is unavoidable then disinfection should be postponed until sputum reaches the laboratory.

PS-100905-14 The diagnosis of pulmonary tuberculosis by concentrating sputum with filtration

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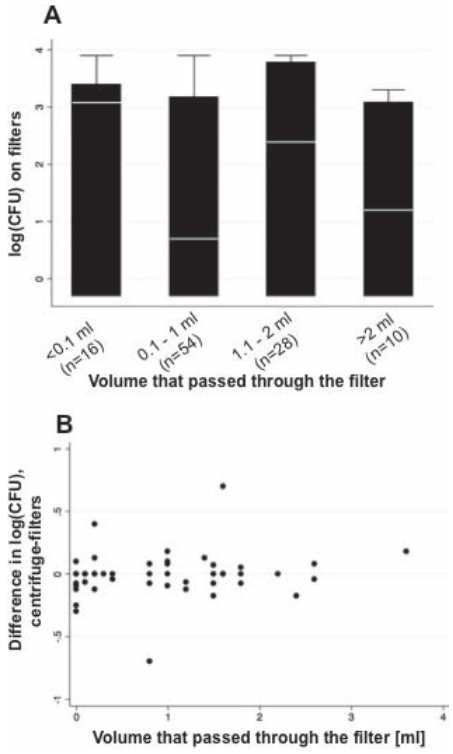
Background: Filtration concentrates TB from sputum, potentially avoiding the expense and biohazard of centrifugation. We characterized the determinants of sputum filtration performance.
Methods: 111 sputum samples (2 ml) underwent standard NALC-NaOH decontamination and were neutralised in PBS. Half of each sample was centrifuged and the pellet cultured in the MODS technique. The other half was aspirated with a syringe through a 25 mm diameter 0.4-μm pore size polycarbonate filter (Millipore) in a reusable holder. Filters were cultured directly in MODS culture broth.
Results: Centrifuge vs. filter-concentration yielded similar sensitivity, colony forming units (CFU), and speed (all $P > 0.2$). This was despite most of the filtration aliquot being discarded because only a median 0.8 ml (IQR 0.2–1.5) of the intended 3.5 ml volume could be aspirated through the filter before blockage. Filterable volume was not associated with microscopy grade ($P = 0.2$) but was influenced by sputum viscosity: median 0.8 ml for salivary/mucoid samples but only 0.2 ml for mucopurulent samples ($P < 0.03$). The volume that could be passed through the filter was not associated with culture speed ($P > 0.1$), CFU that grew on the filter (graph A), or the relative concentrating efficiency of filtration compared with centrifugation (graph B). CFU on the filter was independently associated with ($P < 0.05$) culture speed, CFU in the paired centrifuge-concentrated culture and the microscopy grade but there was no association with ($P > 0.1$) the sputum viscosity.



Conclusion: Filtration sensitivity for detecting TB was unrelated to how much sputum would pass through the filter and even when this was <10% of the sample, the sensitivity was similar to centrifuge-concentration. This paradoxical finding implies that filterable volume is not the principal predictor of the efficiency with which filters concentrate TB from sputum.