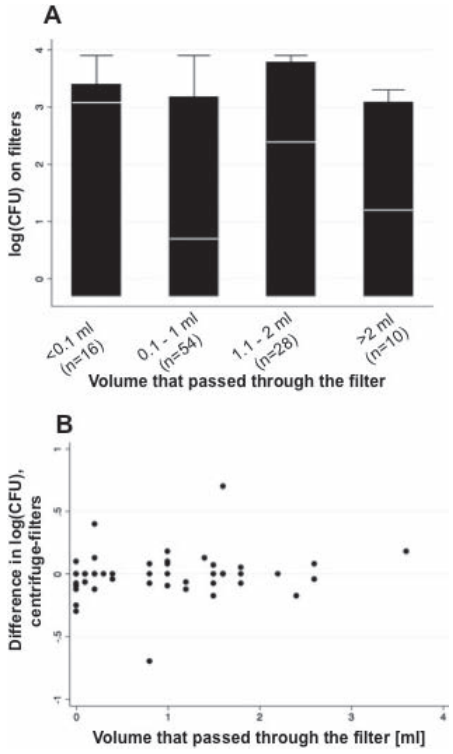
were applied directly to selective 7H11 agar without any processing. After 24 hours storage, another 2 drops were applied to another culture plate. Plates included quadrants with isoniazid and rifampicin for direct susceptibility testing. Subsequently, 6 patients with newly diagnosed smear positive TB 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

E Ramos,[1,2] S G Schumacher,[1,2] M Siedner,[3,4] B Herrera,[1,2] W Quino,[1,2] J Alvarado,[1,2] R H Gilman,[1,3,4] C A Evans.[1,2,5]
[1]Laboratory of Infectious Diseases Research, Department of Microbiology, Faculty of Sciences, Universidad Peruana Cayetano Heredia, Lima, Peru; [2]IFHAD: Innovation for Health and Development, London, UK; [3]Asociación Benefica Prisma, Lima, Peru; [4]Department of International Health, Johns Hopkins Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA; [5]Wellcome Trust Centre for Clinical Tropical Medicine, Department of Infectious Diseases & Immunity, Imperial College London, Hammersmith Hospital Campus, London, UK. Fax: (+511) 4832942.
e-mail: ericsteverm@yahoo.com

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.