Reaching the Unreached

Eliminating TB Among Indigenous and Marginalized Populations

PROGRAM

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SHERATON VANCOUVER WALL CENTRE HOTEL
EVALUATION OF COUGH PLATES FOR TUBERCULOSIS
DIAGNOSIS AND ASSESSMENT OF INFECTIOUSNESS IN
RESOURCE-POOR SETTINGS

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BACKGROUND: This study evaluated a novel diagnostic technique that utilizes a
selective solid culture medium and a direct patient cough aerosol sample. Using a cough
sample obviates sputum decontamination, may indicate infectiousness and has potential
utility for patients who have difficulty expectorating sputum.

METHODS: Suspected tuberculosis patients (n=399) were asked to cough ten times on a
cough plate for direct culture. For comparison, conventional sputum samples from each
participant were decontaminated and tested for tuberculosis by microscopy and culture in
Middlebrook 7H19 broth.

RESULTS: 45.6% (180/395) of subjects were sputum culture positive. Compared with
conventional sputum culture, the 164 uncontaminated cough plates had sensitivity of 14%
(23/164, 95% CI: 9.1–20.3). Cough plate sensitivity tended to be higher for subjects with
strongly positive sputum microscopy indicating high bacterial load [sensitivity 31.0% (9/29, 95% CI:
15.3 – 50.8)] but five subjects had positive sputum and cough plate cultures despite negative sputum microscopy. Cough plate specificity was 100%.

CONCLUSION: This novel cough plate test for tuberculosis identified a minority of
sputum culture-positive patients. This cohort of 180 tuberculosis patients is being
followed prospectively to determine whether this simple test for tuberculosis
aerosolization predicts infectiousness for household contacts.