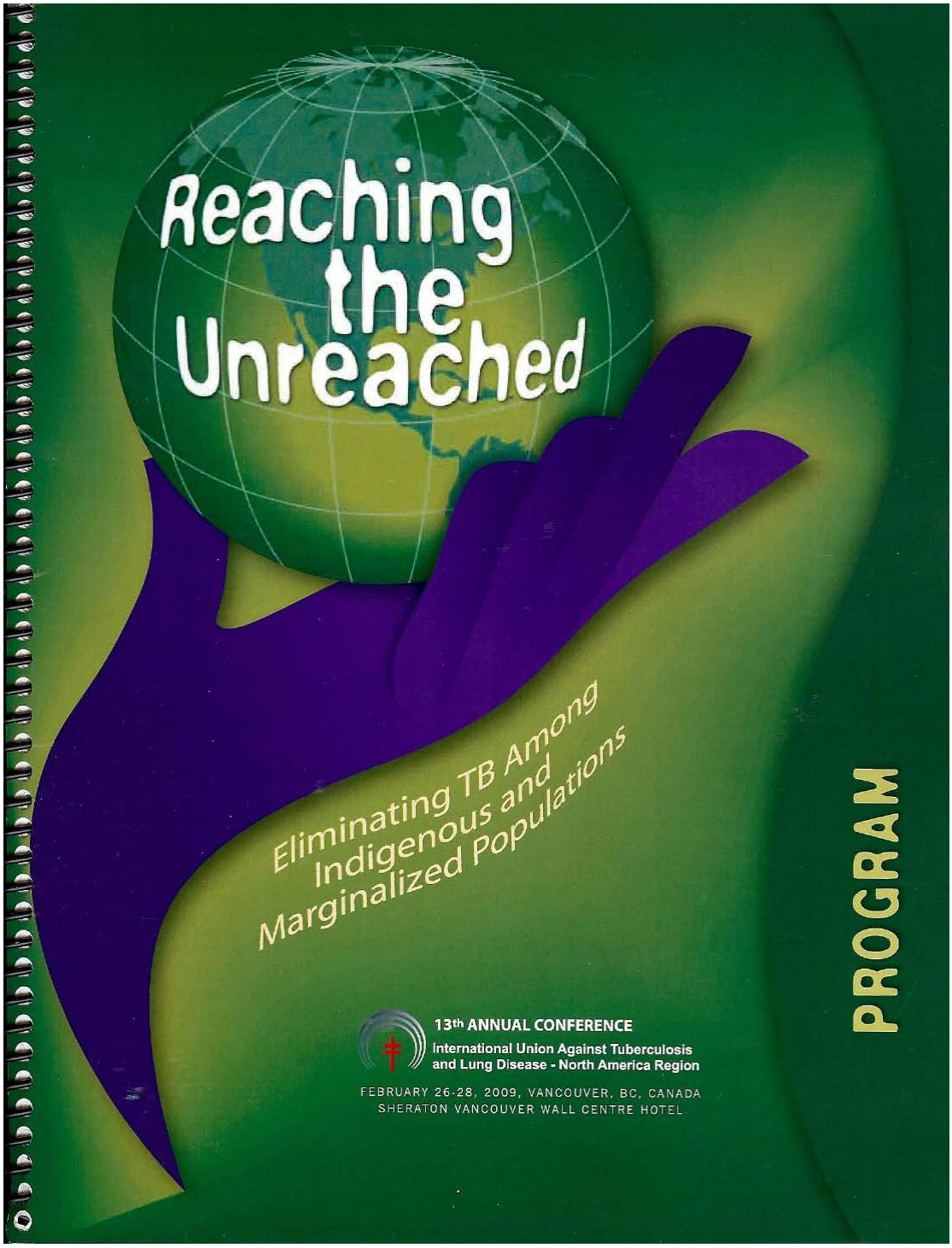
Reaching the Unreached
Eliminating TB Among Indigenous and Marginalized Populations
PROGRAM
13th ANNUAL CONFERENCE
International Union Against Tuberculosis and Lung Disease - North America Region
FEBRUARY 26-28, 2009, VANCOUVER, BC, CANADA
SHERATON VANCOUVER WALL CENTRE HOTEL

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 7H9 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.