

The 39th IUATLD World Conference on Lung Health

**LATE-BREAKER SESSION
ON TUBERCULOSIS**

Monday, 20 October 2008, 08:45–11:15, Bordeaux Room

Paris, France



DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION



The 39th IUATLD World Conference and
 CDC Late-Breaker Session on Tuberculosis
 Monday, 20 October 2008 08:45-11:15 Borden's Room

The 39th Union World Conference on Lung Health and the Centers for Disease Control and Prevention, Atlanta, Georgia, USA are pleased to co-sponsor the TB Late-Breaker Session. The session will feature 10 interesting presentations from around the world. Each presentation will be 10 minutes in length, followed by 5 minutes discussion time. Copies of the presentation abstracts will be available at the session. We look forward to seeing you there and to having a stimulating discussion around these issues.



With our regards,
 Margarita Elsa Villarino, MD, MPH
 Philip LoBuc, MD, FACP, FCCP
 Edward A. Nardell, MD



Centers for Disease Control and Prevention &
 International Union Against Tuberculosis and Lung Disease

Time	Titles	Presenters
08:45-08:55 am	A simple colour test for diagnosing DRTB & XDRTB under field conditions	Herrera B, Ramos E, Gilman RH, Grandjean L, Martin L, Alvarado J, Valencia T, Quino W, Sandhu G, Alva J, Sosa R, Carrera S, Coleman D, Mitchison D, Evans CA (Peru/UK)
09:00-09:10 am	Prevalence of tobacco use among TB DOTS-Patients in Cambodia: relevant findings for tobacco and TB control	Saint S, Mao TE, Yel D, Ramon Pardo P, Kennedy R, Onozaki I, Nobukatsu I, Keut P, Jimba M (Cambodia)
09:15-09:25 am	Early mortality in adults treated for pulmonary tuberculosis in Blantyre, Malawi	Banda P, Waitt C, Heyderman RS, Coesterhout J, Pirmohamed M, Squire SB (Malawi/UK)
09:45-09:55 am	Drug resistant tuberculosis in Brazil: a national survey, 2006-2008	Braga JC, Oliveira Garrett D, Badaró Moreira Pianissolla MG, Werneck AB, Hijjar MA, Rodrigues R, Barreira D (Brazil/USA)

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A simple colour test for diagnosing MDRTB & XDRTB under field conditions

Beatriz Herrera¹, Eric Ramos¹, Robert H. Gilman^{1,2,3}, Louis Grandjean², Laura Martin², Jessica Alvarado^{1,2}, Willi Quino¹, Gurjinder Sandhu^{1,2}, Jessica Alva^{1,2}, Rosario Sosa^{1,2}, Silvia Carrera^{1,2}, David Coleman⁴, Denis Mitchison⁴, Carlton A. Evans^{1,2,3,5}

¹Universidad Peruana Cayetano Heredia, Lima, Perú; ²Asociación Benéfica Prisma, Lima, Perú; ³Johns Hopkins Bloomberg School of Hygiene & Public Health, USA; ⁴St. George's Hospital Medical School, London, UK; ⁵London School of Hygiene & Tropical Medicine, UK.

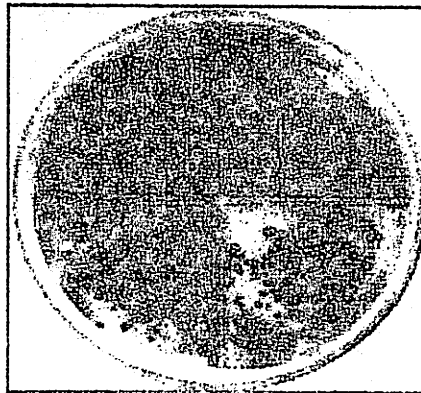
Background: The complexity and biohazard of conventional procedures largely restricts the use of TB culture and drug-susceptibility testing to reference laboratories. Thus sensitive TB, MDRTB and XDRTB diagnostics are infrequently available to patients in resource-poor settings who have greatest need for them.

Objective: To optimize safe sputum processing and culture for TB diagnosis and drug susceptibility testing for basic field laboratories in resource-poor settings.

Methods: Patients with suspected pulmonary TB expectorated into sputum pots containing disinfectant transport medium that liquefied and decontaminated sputum during transit. The sputum samples took between 6 hours and 5 days at room temperature to reach the laboratory. On arrival in the laboratory, the contents of the sputum pot were applied directly without any processing to each quadrant of a culture plate. The culture plate contained a transparent thin-layer of 7H11 agar made selective with antimicrobials to prevent contamination and also incorporated a colour-change indicator to detect positive cultures. Direct drug susceptibility testing for isoniazid, rifampicin and ciprofloxacin was also carried out concurrently in the other quadrants of the same culture plate. Immediately after sputum application, the culture plates were closed, double-sealed and incubated. Positive cultures were identified by naked-eye examination for colour change and *M. tuberculosis* was further confirmed by examining the areas of colour change within the sealed plates under a microscope with a 4x objective. For comparison, the same patients expectorated another sputum sample into a normal dry pot that was processed by the gold-standard Centres for Disease Control reference laboratory technique utilising N-acetyl l-cysteine NaOH decontamination with centrifugation, vortex re-suspension and culture on 7H11 agar.

Results. For 385 sputum samples cultured by both methods, 149 were culture-positive for *M. tuberculosis* by one or both methods, 49% of which were also smear microscopy positive. The sensitivity of the novel test was 91%, significantly more sensitive than the conventional centrifuge decontamination method (74% diagnostic sensitivity, $p=0.0001$) and yielded significantly more colonies ($p<0.0001$). The median estimated time to culture positivity with concurrent drug-susceptibility testing was 16 days, slightly faster than the centrifuge-decontamination method ($p<0.01$). Contamination resulted in the loss of 3.6% and 1.0% of test results, respectively ($p=0.02$). Processing 30 fresh sputa with the novel test took less than an hour, required less training and involved a similar sample processing bio-hazard to sputum smear microscopy, after which cultures were permanently sealed. In contrast, standard centrifuge decontamination took several hours, required specialized skills and risked biohazardous aerosol formation. The colour test materials cost ~\$1 and utilized standard laboratory equipment (a normal incubator and a conventional microscope).

Conclusions: This simple colour-change technique allows safe, inexpensive and sensitive TB diagnosis with concurrent testing for MDRTB and screening for XDRTB in basic field-level laboratories. This has the potential to make modern TB diagnostics more widely accessible in resource-poor settings, increasing equity in TB diagnosis.



MDRTB growth (red dots) is visible in the detection (clear), isoniazid (green), & rifampicin containing (yellow) quadrants. Ciprofloxacin (blue) prevented TB growth, ruling out XDRTB.

Prevalence of T Relevant findin

¹Saly Saint, ¹Ta Kennedy, ⁴Ikus Jimba

¹National Centre Tobacco Free In International Tobacco Canada; ²Research Japan; ³Department Japan.

Background: C. tuberculosis (TB) and death rate is the highest smoker for women in general behavior survey. Planning in 2004 has ratified the International Control (FCTC)

Objectives: To describe and identify the experiences with

Methodology: A randomly selected (Svay Rieng=46/253/100,000). Participants older who were not collected through CSPro 3.3 and SI

Results: The patients (SD±15.1) and 2 smokers (men: 1; current smokers (patients (33.5%) TB diagnosis (55 patients (420=87 TB services, and