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**ABSTRACT BOOK**

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## **FA-95590-07 Multidrug-resistant tuberculosis acquisition during DOTS**

M G Hollm-Delgado,<sup>1</sup> F Arenas,<sup>2</sup> R H Gilman,<sup>2,3</sup>

J Cordova,<sup>2</sup> P Sheen,<sup>2</sup> E Ticona,<sup>4</sup> J Ortiz,<sup>5</sup> C A Evans.<sup>2,3,6</sup>

<sup>1</sup>Departement de Medecine Sociale et Preventive, Universite de Montreal, Montreal, Canada; <sup>2</sup>Laboratorio de Enfermedades

Infecciosas, Universidad Peruana Cayetano Heredia, Lima,

Peru; <sup>3</sup>Department of International Health, Johns Hopkins

Bloomberg School of Public Health, Baltimore, Maryland, USA;

<sup>4</sup>Hospital Dos de Mayo, Lima, <sup>5</sup>Hospital Maria Auxiliadora,

Lima, Peru; <sup>6</sup>IFHAD: Innovation for Health and Development,

London, UK. Fax: (+51) 1 464 0781.

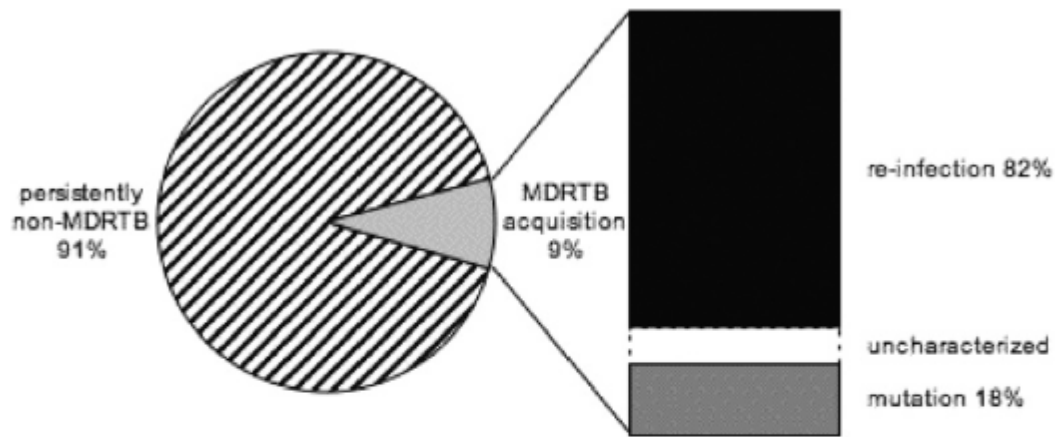
e-mail: carlton.evans@yahoo.com

**Background:** The prevalence of multidrug-resistant (MDR) TB is increasing despite widespread use of directly-observed therapy short-course (DOTS). We studied MDR acquisition in patients receiving DOTS for non-MDR pulmonary TB at treatment centers in Lima, Peru.

**Methods:** We collected sequential sputum samples that were cultured for TB and MDR-TB, and typed for clonality using IS6110 Restriction Fragment Length Polymorphism. TB clones were compared between diagnosis and follow-up.

**Results:** Of 423 patients with non-MDR-TB at the start of DOTS, 9% (37/423) changed to MDR-TB during treatment. For the 34 patients who converted to MDR-TB and had DNA fingerprinting, 82% (28/34) had baseline non-MDR-TB that was a different clonal type from their acquired MDR-TB. A sub-analysis of patients at one treatment center revealed that all 19 patients who acquired MDR-TB changed to an identical MDR clone as another patient with MDR-TB receiving DOTS at the same treatment centre. Patients identified as potential infectors by their shared cluster clones of MDR-TB at the start of DOTS were more infectious during treatment as compared to patients infected with other MDR clones [Weighted Relative Risk (RR): 3.24 (95%CI: 2.0–5.4)]. In contrast, for the other 18% (6/34) of patients who changed from non-MDR to MDR-TB during treatment, this change was caused by mutation in the same TB clone. These patients were adherent to treatment and were more likely mono-resistant at the start of DOTS as compared to patients who acquired MDR-TB due to a different clone [RR: 23 (95%CI: 1.8–1133)].

**Conclusions:** MDR-TB acquisition during DOTS occurred in 1 in 11 patients with initially non-MDR-TB. Patients with mono-resistant TB were at greater risk of developing MDR-TB caused by mutation of the same bacterial clone. However, most acquired MDR was caused by re-infection with an MDR-TB strain. Therefore, MDR-TB patients should be cared for separately from non-MDR-TB patients with enhanced infection control measures.



**Figure** Most MDRTB acquisition during DOTS was caused by re-infection.