BIOGRAPHICAL SKETCH

NAME: Larissa Otero

eRA COMMONS USER NAME: larissaotero

POSITION TITLE: Assistant Research Professor, School of Medicine Alberto Hurtado, Instituto de Medicina Tropical Alexander von Humboldt, UPCH

EDUCATION/TRAINING

| INSTITUTION AND LOCATION | DEGREE | Completion Date | FIELD OF STUDY |
| --- | --- | --- | --- |
| Universidad Peruana Cayetano Heredia, Lima, Peru | MD | 04/2004 | Medicine |
| Institute of Tropical Medicine, Antwerp, Belgium | MPH | 07/2009 | Public Health |
| University of Ghent, Belgium | PhD | 10/2016 | Health Sciences |

# Personal Statement

I conduct epidemiological and operational research on tuberculosis (TB), multi drug resistant (MDR) TB and TB-HIV coinfection at the Instituto de Medicina Tropical Alexander von Humboldt (IMTAVH), Universidad Peruana Cayetano Heredia (UPCH) in Lima, Peru. I was trained as a medical doctor in Peru. For my thesis required to qualify as a medical doctor, I conducted a prospective study to compare clinical, epidemiological and therapeutic characteristics of female and male persons living with HIV before antiretroviral expansion. For my MPH thesis, I did a systematic review of the literature on the yield of conducting TB contact investigation. My doctoral thesis analyzed the bottlenecks of the TB and MDR TB case detection process in high incidence districts in Lima. For my PhD, I designed and implemented a study that enrolled a 2000 patient cohort of smear positive TB cases, collected data and samples, and followed them up for two years. That cohort resulted in more than 10 papers published in peer-reviewed journals. Some findings have contributed to local and national policy-making and three have been included in systematic reviews and meta-analysis. Furthermore, I am trained in qualitative methods and implementation science.

# Positions

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| 2004  2005-2006  2006-2007  2008-2009  2010-2011  2014-present  12/2014-01/2015  2015-2016  2016- present  2017- present  2017-present | Field worker. Health survey in La Libertad Peru. School of Public Health and Administration, UPCH.  Research fellow. “A system approach to improve the diagnosis of smear-negative tuberculosis in high and low incidence settings. European Union grant. IMTAvH, UPCH  Research fellow. Caribbean Central and South America network for epidemiological studies in HIV/AIDS (CCASAnet). NIH grant. IMTAVH, UPCH.  Medical officer and tuberculosis activity manager. Arua Regional Reference Hospital. Arua, Uganda. Doctors without Borders  Academic assistant to the Master in Disease Control and Diploma in Operational Research, IMTAvH, UPCH  Instructor in epidemiology tutorials. Clinical Tropical Medicine Gorgas Course  Field epidemiologist. Ebola outbreak control strategy in Monrovia, Liberia, Doctors without Borders.  Fogarty Global Health Postdoctoral Fellow through GloCal Health Fellowship Program, University of California  MAMAWAWA, Center for Maternal and Child Research, UPCH (member)  Consultant for Tuberculosis Epidemiological Reviews. Global Tuberculosis Department. World Health Organization  Assistant professor, School of Medicine, UPCH |

# Honors

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| 2002-2003  2004  2007  2010-2014  2015-2016  2018-2023 | Student Representative al the University Assembly, UPCH  Peruvian Society of Infectious Diseases and Induquímica Award for HIV Research.  Thesis, MD degree: Gender differences in clinical and therapeutic aspects of HIV/AIDS in a public hospital in Lima, Peru  Fellowship for Master in Public Health. Belgian Agency for Development Cooperation  Prize for Development Cooperation of the Province of Antwerp. Thesis, MPH degree: Contact investigation of tuberculosis patients.  PhD fellowship, Belgian Agency for Development Cooperation. Thesis, PhD degree: Pulmonary tuberculosis case detection in a medium incidence, middle-income country.  Fogarty Global Health Fellowship (GloCal Health Fellowship Program), University of California  Emerging Global Leader Award, Fogarty International Center, National Institutes of Health |
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# Contribution to Science

1. Case detection of TB patients is only efficient when they are started on treatment promptly. I determined the yield of household contact investigation as an active case finding strategy, up to two years after exposure. I found a high proportion of multidrug resistant TB patients taking over a months to start treatment after diagnosis had been made. Furthermore, we found a 10% of TB patients stopped treatment before completion and in the same population we many had major depressive disorders. The preliminary data studies used for this proposal that reports the proportion of children contacts starting isoniazid preventive therapy and completing it, were guided by the findings from the studies below in which we observed high rates of pediatric TB among household contacts.
2. **Otero L**, Shah L, Verdonck K, Battaglioli T, Brewer T, Gotuzzo E, Seas C, Van der Stuyft P. Tuberculosis among household contacts of smear- positive TB cases in Lima, Peru. BMC Infect Dis. 2016 8;16:259
3. **Otero L**, De Orbegoso A, Navarro AF, Ríos J, Párraga T, Gotuzzo E, Seas C, Van der Stuyft P. Time to initiation of multidrug-resistant tuberculosis treatment and its relation with outcome in a high incidence district in Lima, Peru. Trop Med Int Health. 2015;20(3):322-5. doi: 10.1111/tmi.12430.
4. Lackey B, Seas C, Van der Stuyft P, **Otero L**. Patient Characteristics Associated with Tuberculosis Treatment Default: A Cohort Study in a High-Incidence Area of Lima, Peru. PloS One. 2015;10(6):e0128541.
5. Ugarte-Gil C, Ruiz P, Zamudio C, Canaza L, **Otero L**, Kruger H, Seas C. Association of major depressive episode with negative outcomes of tuberculosis treatment. PLoS One. 2013;8(7):e69514. doi: 10.1371/journal.pone.0069514.
6. Peru has one of the highest burdens of drug resistance, especially MDR TB, in the region. The Peruvian National TB Program used to screen TB patients for MDR TB when they had risk factors of exposure to drug resistant strains. I conducted a study to determine the proportion of MDR TB patients that would be lost under that approach and found that MDR TB was highly prevalent among persons with no known risk factors. This evidence contributed to the policy change of the National TB Program to universal MDR TB testing at the end of 2013. We also found a high genetic variability among those strains and a high clustering rate of the Harlem family but not of the Beijing family or the LAM family. Recently, we reported the prevalence of isoniazid and rifampicin monoresistance in Peru.
7. Villegas L, **Otero L**, Sterling TR, Huaman MA, Van der Stuyft P, Gotuzzo E, Seas C. Prevalence, Risk Factors, and Treatment Outcomes of Isoniazid- and Rifampicin- Mono-Resistant Pulmonary Tuberculosis in Lima, Peru. PLoS One. 2016;11(4):e0152933. doi: 10.1371/journal.pone.0152933
8. **Otero L**, Krapp F, Tomatis C, Zamudio C, Matthys F, Gotuzzo E, Van der Stuyft P, Seas C. High prevalence of primary multidrug resistant tuberculosis in persons with no known risk factors. PLoS ONE. 2011; 6(19): e26276
9. Barletta F, **Otero L**, Collantes J, Asto B, de Jong BC, Seas C, et al. Genetic variability of Mycobacterium tuberculosis complex in patients with no known risk factors for MDR-TB in the North-Eastern part of Lima, Peru. BMC Infect Dis. 2013;13:397.
10. Barletta F, **Otero L**, de Jong BC, Iwamoto T, Arikawa K, Van der Stuyft P, et al. Predominant Mycobacterium tuberculosis Families and High Rates of Recent Transmission among New Cases Are Not Associated with Primary Multidrug Resistance in Lima, Peru. J Clin Microbiol. 2015;53(6):1854–63.
11. I have conducted operational studies on the process of case detection and diagnosis of tuberculosis (TB) and multidrug resistant (MDR) TB. I determined the performance of the working definition for TB suspects in Peru and found a gap between policy and practice. Half of the persons screened for TB did not meet the definition of TB suspects and the proportion of TB among them was low. I conducted a study comparing the routine quality control system for smear microscopy to a modification of the internationally recommended lot quality assurance sampling. The latter was more efficient in detecting laboratories with quality problems but poor supervisory practices did not allow an improvement in quality. I participated in a study evaluating the performance of Xpert MTB/RIF among HIV patients at risk of TB and in clinical audit systems to improve diagnosis at local level.
12. **Otero L**, Van Deun A, Agapito J, Ugaz R, Prellwitz G, Gotuzzo E, Van der Stuyft P. Quality assurance of acid fast bacilli smear microscopy by stratified lot sampling of treatment follow-up slides. Int J Tuberc Lung Dis. 2011;15(2):211-6
13. **Otero L**, Dieltiens G, Ugaz R, González E, Verdonck K, Van Deun A, Gotuzzo E, Van Der Stuyft P. Duration of cough, TB suspects characteristics' and service factors determine the yield of smear microscopy. Trop Med Int Health. 2010;15(12):1475-80
14. Siddiqi K, Volz A, Armas L, **Otero L**, Ugaz R, Ochoa E, Gotuzzo E, Torrico F, Newell JN, Walley J, Robinson M, Dieltiens G, Van der Stuyft P. Could clinical audit improve the diagnosis of pulmonary tuberculosis in Cuba, Peru and Bolivia? Trop Med Int Health. 2008;13(4):566-78.
15. Carriquiry G, **Otero L**, González-Lagos E, Zamudio C, Sánchez E, Nabeta P, et al. A diagnostic accuracy study of Xpert®MTB/RIF in HIV-positive patients with high clinical suspicion of pulmonary tuberculosis in Lima, Peru. PloS One. 2012;7(9):e44626.

Complete List of Published Work in MyBibliography: <https://www.ncbi.nlm.nih.gov/myncbi/1dS37gSPw26kN/bibliography/public/>

# Research Support

Ongoing Research Support

**1K43 TW011137 (Otero, Larissa)** 09/16/2018-04/30/2023

NIH/FIC

Patient-centered intervention to prevent tuberculosis among children < 5 years old

Role: Principal Investigator

**1R01AI131771-01 (Shepherd, Bryan)** 01/25/2018 - 12/31/2022

NIH/NIAID

Statistical methods for correlated outcome and covariate errors in studies of HIV/AIDS

Role: Co-Investigator

**Framework Agreement IV (Gotuzzo, Gryseels)** 01//01/2017 - 12/01/2021

Belgian Cooperation

A research capacity building program to strengthen Instituto de Medicina Tropical Alexander von Humboldt, UPCH as a center of excellence for research in infectious disease control and implementation of control tools in the community, with a tuberculosis component.

Role: Co-investigator, tuberculosis component

Completed Research Support

**GloCal fellowship, Fogarty International Center-NIH (Cohen, Craig)**  7/2015-5/2016

An 11-month program of mentored global health research at UPCH. I am using mixed method to understand the process and barriers of tuberculosis diagnosis in children in a large referral hospital in Lima, Peru under the mentorship of Eduardo Gotuzzo, Angela Bayer and Rolando Viani.

Role: Postdoctoral fellow

**Framework Agreement III Gotuzzo (PI) Gryseels (PI)** 01/2014-12/2016

A research capacity building program to strengthen Instituto de Medicina Tropical Alexander von Humboldt, UPCH as a center of excellence for research in infectious disease control and implementation of control tools in the community.

The tuberculosis component seeks to describe the cascade of the implementation of isoniazid preventive therapy among children who are household contacts of tuberculosis patients.

Role: Co-investigator, tuberculosis component

**Tuberculosis Network, Belgium-The Gambia-Peru. DeJong (PI)**  2012-2013

This seed grant aimed to determine the proportion of household contacts of tuberculosis patients that were infected with the same strain as that of the patient.

Role: Principal investigator