TB THE AIR WE SHARE

17th ANNUAL CONFERENCE

International Union Against Tuberculosis and Lung Disease – North America Region

FEBRUARY 28-MARCH 2, 2013 SHERATON VANCOUVER WALL CENTRE HOTEL, VANCOUVER, BC

SUPPORTING ORGANIZATIONS
British Columbia Lung Association
The Union—North America Region
American Thoracic Society
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Menn Biagtan, MD, MPH
British Columbia Lung Association
2675 Oak Street
Vancouver, BC, Canada V6H 2K2
P: 604-731-5864
F: 604-731-5810
Email: Biagtan@bc.lung.ca

Certificate of **CME** Designation and Accreditation Statement

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17th Annual Conference of the Union - North American Region

February 28 - March 2, 2013

Sheraton Vancouver Wall Centre Hotel, Vancouver, BC, Canada

22.0 CME Credits

This live activity is jointly sponsored by The American Thoracic Society and The Union – North American Region. This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the American Thoracic Society and The Union - North American Region. The American Thoracic Society is accredited by the ACCME to provide continuing medical education for physicians.

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Signature:

Jennifer Siegel-Gasiewski

Jennifer Siegel-Gasiewski

Manager, Professional Accreditations

American Thoracic Society

Date: September 21, 2012

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Messages

E. JANE CARTER, MD

President, The Union—North America Region

It is with great pleasure that I welcome you to the 17th Annual Meeting of the North American Region of the International Union Against TB and Lung Disease. If you have been at this meeting in the past, you will note one important change in the program. Opening remarks are on Thursdsay morning to reflect the critical inclusion of two longstanding initiatives into the formal conference: The STOP TB Meeting which emphasizes global issues and the afternoon session led by our Nursing Section which reflects the absolutely critical role that nursing and paraprofessionals play in TB care. The program theme – The Air we Share- highlights the connectiveness of TB control (no one is safe until we are all safe) and brings forth both lessons learnt and warnings of trouble ahead. One of our four symposia focuses on pediatric TB issues aligning us with the STOP TB Partnership 2012 year theme of a TB FREE WORLD for our children. The UNION meeting is my favorite conference of the year. I learn. I see old friends. I find new colleagues. I am rejuvenated and excited by sharing our work to STOP TB. I know you will feel the same way about this conference as I do. Enjoy!

KEVIN SCHWARTZMAN, MD, MPH

Program Chair/Vice-President, Planning Committee

On behalf of our planning committee, and the North America Region of the International Union Against Tuberculosis and Lung Disease, I am delighted to welcome you to our 17th Annual Conference. Our theme is "Tuberculosis: The Air We Share." We are particularly fortunate to learn from a superb group of speakers, with a shared interest in tuberculosis, and in improving health in diverse communities. Plenary talks will address such issues as international TB control, building successful partnerships, TB in children, health care for the homeless, TB and indigenous communities, TB in our cities, and the science of TB transmission. We also look forward to stimulating discussions of emerging research and public health findings. We hope you will take advantage of the many opportunities for sharing experiences and learning from colleagues, and we look forward to your active participation and feedback. Enjoy your conference, and your stay in Vancouver!

SCOTT McDONALD

President and CEO, BC Lung Association

Welcome to the beautiful city of Vancouver and to this important conference of the North American Region of the International Union Against TB and Lung Disease (IUATLD). The British Columbia Lung Association has been very fortunate to have had the opportunity to work for the past year with a committed group of volunteers, led by Dr. Kevin Schwartzman, who made up this year's Conference Planning Committee. We are especially grateful to the many presenters and participants who will share their expertise with us to enable us to make a difference in the lives of people who suffer from TB in North America, and throughout the world. Thank you!

Program at a Glance

Wednesday, February 27, 2013
Registration 10:00am – 6:00pm *Pre-Event Meetings* 6:00pm – 8:00pm

Thursday, February 28, 2013
Morning Session 8:00am – 12:00pm *Afternoon Session* 1:30pm – 4:30pm *Evening Session* 5:00pm – 7:00pm

Friday, March 1, 2013
Morning Session 8:30am – 12:00pm *Afternoon Session* 1:30pm – 4:30pm *Evening Session* 4:30pm – 7:00pm

Saturday, March 2, 2013
Morning Session 8:30am – 12:00pm *Afternoon Session* 1:30pm – 5:00pm

WEDNESDAY, February 27, 2013

Registration — 10:00am – 6:00pm
Pre- Event Meeting – NAR Council Meeting & NAR Executive Committee Meeting — 6:00pm – 8:00pm

THURSDAY, February 28, 2013

STOP TB Meeting – International Initiatives: Childhood TB and Other TB Control Interventions — Morning Session 8:00am – 12:00pm

Chairs: Dr. Anne Fanning, Ms. Eileen Napolitano, and Ms. Sue Etkind

- Video Conferencing
  - Global Overview of Childhood TB: Plan to Scale-Up Training and Implement Framework
  - Contact Follow-up and Treatment of LTBI in Households of Infectious Cases in Pakistan
  - Childhood TB: Using Trained Healthcare Workers in Bangladesh
  - Algorithmic Approaches to Child TB Management in Resource-Limited Settings
- Live Presentations
  - 4RIF vs. 9INH - A Large Scale International Trial of 4RIF vs. 9INH for Treatment of Latent TB: Challenges and Progress
  - Experiences of Drug-Resistant Tuberculosis Programs: Is Success Within Our Reach?
  - Engaging Practitioners in Excellence in MDR Patient Care: An Online Course Collaboration with the World Medical Association
  - CREATE: Key Outcomes and Next Directions
- Panel Discussion
- Oral Abstract Presentation: Engaging Communities in Tuberculosis Research: New Developments in Stakeholder Engagement

Lunch Break — 12:00pm – 12:30pm

Satellite Symposium - Canadian Tuberculosis Standards, 7th Edition: What's New? — 12:30pm – 1:30pm

Nursing Assembly – Partnering with Communities to Control TB — Afternoon Session 1:30pm – 4:30pm

Chairs: Ms. Shirley Rempel and Ms. Rose Pray

- Inuit TB: A View from the Ground and the Air
- Introducing Directly Observed Therapy (DOTS) to Strengthen TB Programming in Suriname
- Integrating Comprehensive Health Services into Social Housing Initiatives in Vancouver's Downtown Eastside (DTES)
- TB Outbreak in a Low Incidence Setting: A Case Study to Demonstrate Challenges and Outcomes in a Canadian Long Term Care Facility (LTCF)
- Call to Action 2012: Next Steps

Beyond TB Lecture – Health Care for the Homeless: Then and Now — Evening Session 5:00pm – 7:00pm

The George Comstock Lecture: The Place of Children in the Global Epidemiology of TB

FRIDAY, March 1, 2013

TB and Indigenous Peoples
Morning Session
8:30am – 12:00pm

Chairs: Dr. Anne Fanning and Dr. Pam Orr

- Nothing About Us Without Us: Self-Determination Influences on TB Care and Control
- Contribution of a Community Case Finding Study in a High Prevalence Region
- TB Control in the American Southwest: Lessons Learned about Community Engagement
- TB Control in Alaska

➢ Panel Discussion
➢ Oral Abstract Presentation: TB Education for Aboriginal and Non-Aboriginal Youth
➢ Oral Abstract Presentation: Old Keyam - A Framework for Examining the Disproportionate Experience of Tuberculosis Among Aboriginal Peoples of the Canadian Prairies

Lunch Break/NAR Annual General Meeting
12:00pm – 1:30pm

Childhood TB: Clinical and Research Agenda
Afternoon Session
1:30pm – 4:30pm

Chairs: Dr. Ian Kitai and Dr. Anna Mandalakas

- Epidemiology of Pediatric and Adolescent TB in North America
- Screening, Diagnosis and Treatment of Latent TB Infection
- Problems in Diagnosis and Treatment of Childhood TB in Developed Country Settings
- Diagnosis and Management of TB in Adolescents
- Case Management in Childhood TB

➢ Panel Discussion
➢ Oral Abstract Presentation: A TB Contact Investigation in a Neonatal Intensive Care Unit in Toronto, Canada
➢ Oral Abstract Presentation: Accuracy of GeneXpert MTB/RIF in Malnourished Hospitalized Malawian Children

Poster Session and Awards Ceremony
Evening Session
4:30pm – 7:00pm

SATURDAY, March 2, 2013

Abstract Writing Session
7:30am – 8:30am

TB and the City
Morning Session
8:30am – 12:00pm

Chairs: Dr. Sapna Bamrah and Dr. Kevin Schwartzman

- TB and the Homeless: The Toronto Experience
- Urban TB and Outbreaks in the US
- Management of TB in the Homeless: CDC's Experience with Outbreaks
- The Connection of Health Care for the Homeless and TB Control

➢ Panel Discussion
➢ Oral Abstract Presentation: TB Contact Tracing for Homeless Individuals: Management and Surveillance Outcomes
➢ Oral Abstract Presentation: High TB Incidence in a Tent City, Port-au-Prince

Lunch Break/Latin American Liaison Committee Meeting
12:00pm – 1:15pm

The Science of TB Transmission
Afternoon Session
1:30pm – 5:00pm

Chairs: Dr. Sundari Mase and Dr. Ed Nardell

- What Guinea Pigs have Taught Humans about TB Transmission
- Population Epidemiology of Transmission Events: Aberration Detection/Outbreak Identification and Interruption Using Genotyping
- A Sentinel Event: Pediatric TB and TB Transmission
- Superspreading in TB?

➢ Panel Discussion
➢ Oral Abstract Presentation: The Double Edged-Sword: Diabetes Mellitus and Tuberculosis in Georgia, USA
➢ Oral Abstract Presentation: Inhaled Colistin: A Novel Approach for Reducing Drug-Resistant TB Transmission

Closing Remarks/Evaluation

Committees

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Brown University/Miriam Hospital
Providence, RI, USA

Program Chair/Vice President:
Kevin Schwartzman, MD, MPH
McGill University
Montreal, QC, Canada

Secretary/Treasurer:
Alfred Lardizabal, MD, MPH
NJMS Global Tuberculosis Institute
Newark, NJ, USA

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University of Manitoba
Winnipeg, MB, Canada

Immediate Past President:
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QIAGEN
Valencia, CA, USA

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Scott McDonald
British Columbia Lung Association
Vancouver, BC, Canada

Christine Hunt
The Union—NAR
New York, NY, USA

Secretariat:
Menn Biagtan, MD, MPH
British Columbia Lung Association
Vancouver, BC, Canada

CME Planning Committee

Kevin Schwartzman, MD, MPH *(Chair)*
McGill University
Montreal, QC, Canada

Sapna Bamrah, MD
Centers for Disease Control and Prevention
Atlanta, GA, USA

Shawna Buchholz, BScN, MPH
BC Centre for Disease Control
Vancouver, BC, Canada

Sue Etkind, BSN, MS
Stop TB USA
Jamaica Plain, MA, USA

Anne Fanning, MD
University of Alberta
Edmonton, AB, Canada

Masae Kawamura, MD
QIAGEN
Valencia, CA, USA

Ian Kitai, MD
Hospital for Sick Children
Toronto, ON, Canada

Anna Mandalakas, MD, MPH
Baylor College of Medicine
Houston, TX, USA

Sundari Mase, MD, MPH
Centers for Disease Control and Prevention
Atlanta, GA, USA

Eileen Napolitano
NJMS Global Tuberculosis Institute
Newark, NJ, USA

Ed Nardell, MD
Harvard School of Public Health
Boston, MA, USA

Pamela Orr, MD
University of Manitoba
Winnipeg, MB, Canada

Nursing Assembly Committee

Shirley Rempel, RN, MPH
Health Canada
Vancouver, BC, Canada

Kathy Hursen, RN, MS
Jamaica Plain, MA, USA

Julia Lechner, RN, BScN
Toronto Public Health
Toronto, ON, Canada

April MacNaughton, BScN
First Nations and Inuit Health Branch
Health Canada
Vancouver, BC, Canada

Joy Marshall, RN
Ministry of Health and Long-Term Care
Toronto, ON, Canada

Ann Raftery, RN, PHN
Curry International Tuberculosis Center
San Francisco, CA, USA

Faculty

Nisha Ahamed, MPH
NJMS Global Tuberculosis Institute
Newark, NJ, USA

Gonzalo Alvarez, MD
University of Ottawa
Ottawa, ON, Canada

Farhana Amanullah, MD
Interactive Research and Development
Karachi, Pakistan

Sapna Bamrah, MD
Centers for Disease Control and Prevention
Atlanta, GA, USA

Paul Bangah, RN
Vancouver Coastal Health
Vancouver, BC, Canada

Richard E. Chaisson, MD
Johns Hopkins University Center for Tuberculosis Research
Baltimore, MD, USA

Michael Cooper, MD
State of Alaska, Division of Public Health
Anchorage, AK, USA

Andrea Cruz, MD
Baylor College of Medicine
Houston, TX, USA

Peter Donald, MD
Stellenbosch University
Cape Town, South Africa

Valerie Edelman, RN
Vancouver Coastal Health
Vancouver, BC, Canada

Kevin Fennelly, MD
University of Florida
Gainesville, FL, USA

Jennifer Flood, MD, MPH
University of California San Francisco
San Francisco, CA, USA

Stephen Graham, MD
University of Melbourne
Melbourne, Australia

Malgorzata Grzemska, MD
WHO Stop TB Partnership
Geneva, Switzerland

Jonathan Iralu, MD
Gallup Indian Medical Center
Gallup, NM, USA

Ian Kitai, MD
Hospital for Sick Children
Toronto, ON, Canada

John Lozier, MWSS
National Health Care for the Homeless Council
Nashville, TN, USA

Anna Mandalakas, MD
Baylor College of Medicine
Houston, TX, USA

Richard Menzies, MD
McGill University
Montreal, QC, Canada

Karen Mulvey
Wellington Dufferin Guelph Public Health
Guelph, ON, Canada

Ed Nardell, MD
Harvard School of Public Health
Boston, MA, USA

Tom Navin, MD
Centers for Disease Control and Prevention
Atlanta, GA, USA

Jim O'Connell, MD
Boston Health Care for the Homeless Program
Boston, MA, USA

Gloria Oramasionwu, MD
Centers for Disease Control and Prevention
Atlanta, GA, USA

Eyal Oren, MD
University of Arizona
Tucson, AZ, USA

Nordai Persaud, RN
Ministry of Health
Suriname

Lillian Pirog, RN
University of Medicine and Dentistry of New Jersey
Newark, NJ, USA

Rose W. Pray
Denver, CO, USA

Elizabeth Rea, MD
Toronto Public Health
Toronto, ON, Canada

Michael Rich, MD
Partners in Health
Boston, MA, USA

Zena Smith
Gallup Indian Medical Center
Gallup, NM, USA

Khurshid Talukder, MD
Centre for Women and Child Health
Savar, Dhaka, Bangladesh

Gail Turner
Inuit Tapiriit Kanatami (ITK)
Ottawa, ON, Canada

Lifetime Achievement Award

EDWARD CARL ELLIS, MD, MPH

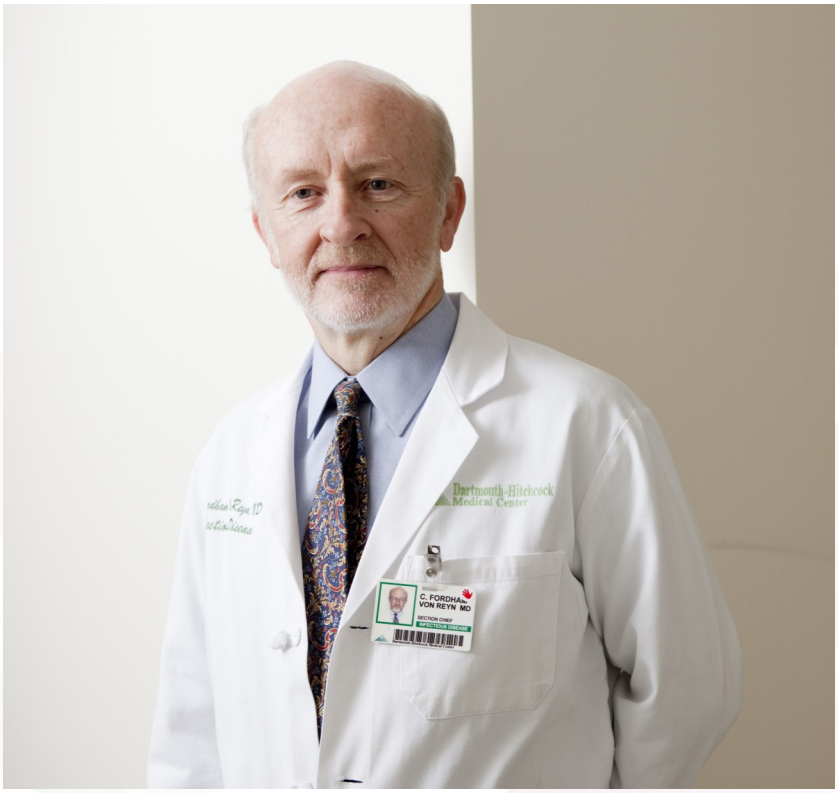
Public Health/Preventive Medicine Consultant

Dr. Edward Ellis retired from the Public Health Agency of Canada in 2011 where he was Manager of the Tuberculosis Prevention and Control Program since 2002. He is currently working part time as a public health/preventive medicine consultant.

Previous positions include Health Canada's Chief of Quarantine, Travel and Migration Health; Associate Medical Officer of Health with Ottawa Public Health and Toronto Public Health; communicable disease epidemiology at Health Canada; Alberta provincial public health; and managing the public health component of a rural development project in Malawi for 5 years. In all positions, he has dealt with TB in some capacity.

He earned his Masters of Public Health degree at the University of Michigan, has a Royal College fellowship in public health and preventive medicine and is an Adjunct Professor in the Department of Epidemiology and Community Medicine at the University of Ottawa where he teaches communicable disease control and critical appraisal.

Lifetime Achievement Award



C. FORDHAM VON REYN, MD

Dartmouth Medical School, Hanover, NH, USA

Dr. C. Fordham von Reyn is Professor of Medicine, Infectious Disease and International Health, Geisel Medical School (GMS) at Dartmouth, and Director, DarDar International Programs, a collaboration between GMS and Muhimbili University of Health and Allied Sciences (MUHAS) in Tanzania. He has been an NIH-funded investigator for 18 years focused on HIV-associated tuberculosis in Africa, BCG vaccine, nutritional supplementation in TB, infections due to non-tuberculous mycobacteria and new vaccines for preventing tuberculosis. He was PI for the NIH-sponsored DarDar Tuberculosis Vaccine Trial, the first successful Phase III trial of a new TB vaccine in the world, and is Director of the Dartmouth-Boston University Fogarty program for training Tanzanians in HIV-TB research. He is the Section Editor for TB and Mycobacteria for UpToDate, has served as a consultant to WHO on BCG and other routine childhood immunizations in HIV, and is a two time recipient of the GMS Clinical Faculty Teaching Award.

Service Award

MARGARITA ELSA VILLARINO, MD, MPH

Division of Tuberculosis Elimination
National Center for HIV, Hepatitis, STD and TB Prevention
Centers for Disease Control and Prevention, Atlanta, GA, USA

Margarita Elsa Villarino, MD, MPH, medical epidemiologist started in December of 2012 an assignment as a senior member of the U.S.-Mexico Unit in CDC's Division of Global Migration and Quarantine (DGMQ), with an official duty location of Mexico City, Mexico where she will serve as CDC Country Director for the U.S. Embassy in Mexico City and as CDC Liaison to the Mexican Ministry of Health in the area of infectious diseases. Elsa earned her MD at the Universidad Autonoma de Baja California (UABC). She interned at the Hospital General (Secretaria de Salubridad) in Tijuana, Mexico and later earned an MPH degree at San Diego State University Graduate School of Public Health. She came to CDC in 1988 as an Epidemic Intelligence Service (EIS) officer in the Hospital Infections Program, where she worked with Dr. William Jarvis. She completed a preventive medicine residency at CDC, and in 1991 joined Dr. Larry Geiter in the Clinical Research Branch in the Division of Tuberculosis Elimination (DTBE), CDC. She has served in DTBE/CDC for 21 years, building a distinguished career as an expert in TB research and control. She has authored original research, and drafted guidelines and recommendations in virtually all areas of TB control, including epidemiology, therapeutics, prevention, diagnostics, and vaccines. For the past 10 years she was the team lead for CDC's TB Trials Consortium. In 2012, the publication of results from TBTC's Study 26, for which she was project officer and co-investigator, earned CDC's highest scientific prize, the Charles C. Shepard Science award. That study publication reported on a much-shortened regimen for treatment of latent TB infection. She serves as an associate editor for Enfermedades Emergentes (Emerging Infections; a Spanish medical journal) and for the International Journal of Tuberculosis and Lung Diseases, and has built a national and international reputation, with invitations to speak on tuberculosis in locations as diverse as Argentina, Barcelona, Brazil, Hong Kong, Hanoi, London, Mexico, and Paris.

Service Award

REYNARD J. McDONALD, MD

UMDNJ-New Jersey Medical School
Global Tuberculosis Institute, Newark, NJ, USA

Dr. Reynard J. McDonald earned his medical degree from Meharry Medical College in Nashville, Tennessee and completed his residency in internal medicine at Harlem Hospital in New York City. Following residency training, he was inducted into the U.S. Army Medical Corps where he served as a Major before being honorably discharged. He then completed a pulmonary fellowship at Harlem Hospital and subsequently joined the faculty of the New Jersey Medical School. Dr. McDonald is currently a Professor of Medicine at the New Jersey Medical School and has been the Medical Director of the NJMS Global TB Institute since 1993. He has served on several national TB committees and task forces, including the PHS Advisory Council for the Elimination of Tuberculosis of which he was chairman from 1993 to 1994. Dr. McDonald also serves as the Chairman of the New Jersey TB Medical Advisory Board and is the medical consultant for the state's regional chest clinics. He personally consults with all health care providers managing multi-drug resistant TB cases in the state of NJ. In the early to mid 1980s, he was one of the first to notice, help characterize, and report TB cases with unusual clinical manifestations that were later determined to be related to the HIV epidemic.

Service Award

CHARLES M. CRANE, MD, MPH

TB Program, Contra Costa Health Services, Martinez, CA, USA

Dr. Crane has recently retired from a distinguished career as Medical Director, TB Program, Contra Costa Health Services, Martinez, CA, since 1992. He is staying on in that position until a successor can be selected and trained. He served as the Chair of the Abstract Committee of NAR from 2000-2010, and still participates as an active member. He served as President of the National Society of TB Clinicians, an affiliate of the National TB Controllers Association, from 2010-2012, and remains on their Executive Committee. He has also been a leader of the CA TB Controllers Association (CTCA) since 1992, serving for a total of 7 years on the Executive Committee, including 2 separate terms as President. He has been an active member of their Planning Committee, including several terms as co-Chair, consistently over these years. After a few months off, he looks forward to resuming his work in TB Control in a different capacity.

Service Award

VERNON HOEPPNER, MD

Department of Medicine, University of Saskatchewan
Saskatoon, SK, Canada

Dr. Vernon Hoeppner is a respirologist at the University of Saskatchewan, Department of Medicine, where his interests are TB epidemiology and program outcomes. He was the Medical Director of the Saskatchewan Tuberculosis Control Program from 1986-2011 , serving as a member of the Canadian Tuberculosis Committee during that time and chairing the committee from 2002—2005. He has been a consultant advisor to Nunavut TB Program since 2001.

Dr. Hoeppner's career highlights include: suggesting epidemiologically and showing molecular biologically that higher TB rates in northern compared to southern Saskatchewan aboriginal populations are largely due to later onset of the epidemic, establishing an electronic database, implementing DOTS for both active and LTBI, as well as implementing social network analysis into TB control.

Travel Grant Awards

North American Region Recipients

DR. CARLOS VERA-GARCIA

Cure TB Binational Tuberculosis Referral Program, HSSA
San Diego, CA, USA

Carlos Vera-Garcia works with the CureTB Binational Tuberculosis referral program at the San Diego County Health Department. He graduated from medical school at the Universidad Autonoma del Estado de Puebla, in Puebla, Mexico. As an M.D. in Mexico, he provided for several underserved communities, including the Tarahumaras in Chihuahua, Mexico and the Mayan Zapatistas in Chiapas, Mexico. He has worked for the Binational TB program for 4 years. His main interest has been to improve the continuity of care for transborder tuberculosis patients and to improve the communication between the established TB programs in Mexico and the United States.

ANDREW THORNTON

Centers for Disease Control, HSSA, San Diego, CA, USA

Andy Thornton is a CSTE Fellow with the CDC's Division of Global Migration and Quarantine and the County of San Diego's Epidemiology Program, where he's been since August, 2011. In this role Andy coordinated a study on TB screening and follow-up practices among civil surgeons. He has a particular interest in TB among foreign-born populations and is involved in TB contact investigations and CDC Do-Not-Board/Border-Lookout consultations with states for non-adherent TB patients who may attempt to travel while infectious.

DR. ALEXANDRA DUQUE-SILVA

Children's Hospital and Research Center of Oakland
Oakland, CA, USA

Alexandra Duque-Silva is a Colombian in origin U.S trained pediatrician currently doing her fellowship in Infectious Diseases at Children's Hospital and Research Center Oakland, California. She has always been interested in tuberculosis since she was in Medical School. Currently she is doing her research at the California Department of Health on pediatric CNS TB. The purpose of the study is to measure long-term outcomes of pediatric CNS TB cases in California from 2001 to 2011 and to identify the risk factors associated with poor outcomes that might be amenable for intervention. In the future, she would like to focus her career on pediatric TB from both the clinical and public health perspectives.

PATRICIA WOODS

New Jersey Department of Health, Old Bridge, NJ, USA

Patricia Woods is a public health nurse consultant for the New Jersey Department of Health, Tuberculosis (TB) Program since 2009. She has fifteen years experience in Tuberculosis which has incorporated direct patient care, contact investigations and developing TB policy at the state and county levels. Her responsibilities include developing new educational programs/ tools and implementing these in the statewide TB clinics using practical in-services and state held webinars. She conducts research gleaned from her TB projects.

DR. SYLVIA LaCOURSE

University of Washington, Seattle, WA, USA

Sylvia LaCourse is a 1st year Infectious Disease Fellow at the University of Washington, Seattle. As a Fogarty Fellow in Malawi, she examined the accuracy of GeneXpert in severely malnourished children. Her research interests include the implementation of low cost rapid TB diagnostics in resource-limited settings, as well as the incorporation of TB screening into antenatal and prevention of maternal to child HIV transmission programs.

DR. MARY M.K. FOOTE

Emory University School of Medicine, Atlanta, GA, USA

Mary Foote is an Infectious Diseases Fellow at Emory University in Atlanta, Georgia. She earned a MD/MPH from the University of Arizona and completed Social Internal Medicine residency at Montefiore Medical Center in Bronx, NY. She is interested in studying health disparities and social determinants of health. Her current research includes exploring the links between TB and diabetes and investigating the role of correctional facilities in the spread of TB in the state of Georgia.

DR. MEHDI MIRSAEIDI

University of Illinois at Chicago, Chicago, IL, USA

Mehdi Mirsaeidi, MD, MPH, is a fellow in the Division of Pulmonary and Critical Care Medicine at University of Illinois at Chicago. He has conducted studies in mycobacterial diseases and other lung infections. He is beginning a project on the genetic factors associated with latent tuberculosis in Hispanic persons.

KATHLEEN McMULLIN

First Nations Lung Health Project, University of Saskatchewan, Prince Albert, SK, Canada

Kathleen McMullin is a Program Manager for a large population based study 'First Nations Lung Health Project' (**"**Assess, Redress, Re-Assess: Addressing Disparities in Respiratory Health Among First Nations People") conducted by the Canadian Centre of Health and Safety in Agriculture at the University of Saskatchewan in conjunction with Beardy's /Okemasis First Nation and Montreal Lake Cree Nation. Kathleen was Program Coordinator for the Determinants of TB Transmission Project (TB Population Evaluation Research Unit, University of Alberta) from 2006-2012 where she looked at the Cree concept of "Old Keyam" as a framework to examine the disproportionate experience of Tuberculosis amongst Canadian Aboriginal people of the Prairie Provinces.

Travel Grant Awards

International Recipients

ERIC STEVE RAMOS MAGUIÑA

Universidad Peruana Cayetano Heredia, Lima, Peru

Eric Steve Ramos Maguiña is a Biologist in Lima, Peru who has worked at the Innovation for Health and Development Laboratory, Cayetano Heredia University, since May 2006. He is head of the laboratory staff and participates in several research projects in the field of tuberculosis. He also coordinates the field team to organize safe and timely transfer of potentially hazardous sputum samples. In addition to these roles, he is also chief of safety within the laboratory including up to P-3 level, assists in researching and writing laboratory protocols and teaches both students and doctors regularly within his daily work in the laboratory.

MAYARA BASTOS

Gama Filho University, Rio de Janeiro, Brazil

Mayara Bastos is a last-year medical student from Rio de Janeiro, Brazil. In the last four years she has participated as undergraduate research trainee in different research projects on tuberculosis. Also for two years (2010-2012) she participated in Brazilian branch of the Stop TB Partnership. In 2012 she received a scholarship from the Brazilian Government to spend a 12-month period at McGill University under supervision of Dr. Dick Menzies, at the Montreal Chest Institute.

DR. EUNICE ATSUKO CUNHA

Mato Grosso do Sul Public Health Central Laboratory

Eunice Atsuko Totumi Cunha is a Pharmacist - Biochemist, specialized in Public Health and Epidemiology, Master in Public Health and PhD in Health Sciences, has been working in the public health laboratory for over 30 years in Brazil. She is a supervisor and trainer in the municipal laboratories of diagnosis of tuberculosis and leprosy. She also acts as a Monitor of the Ministry of Health in training and supervision and collaborator in the Department of Indigenous Health of Mato Grosso do Sul in laboratory diagnosis of tuberculosis.

DR. GERARDO ALVAREZ

Universidad de Sonora, Hermosillo, Mexico

Gerardo Alvarez is a professor at the Department of Medicine and Health Sciences, Universidad de Sonora, Mexico, and an epidemiologist at the Children's Hospital of the Sonora State. He has conducted field outbreak investigations on TB, and has been involved in the design of preventive interventions at the population level since 20 years ago. As a researcher on TB his interest focuses on spatial epidemiology, vulnerable populations, and diagnostic methods for pediatric TB.

DR. VANESSA ROUZIER

LES GHESKIO Centers, Port-au-Prince, Haiti

Dr. Vanessa Rouzier completed her medical training at McGill University in Montreal with specialties in Pediatrics and Infectious Diseases. She returned to Haiti in 2009 where she joined the GHESKIO Centers and has been the head of the Pediatrics Unit there since October 2010. Her research interests currently involve prevention of mother-to-child transmission of HIV, evaluation of strategies for safe breastfeeding in the context of HIV and improving diagnosis and treatment interventions for pediatric TB, including MDR-TB.

DR. TOM WINGFIELD

Universidad Peruana Cayetano Heredia, Lima, Peru

Tom Wingfield is an Infectious Diseases and Tropical Medicine Physician with a training post in The Monsall Infection Unit, North Manchester General Hospital, Manchester, UK. Tom has worked in clinical medicine in Botswana, Malawi and Peru and has been given a 3-year sabbatical from Manchester to gain epidemiological research experience and a higher degree. He is currently based in Peru working voluntarily with Innovations for Health and Development, a research team and charity aiming to reduce tuberculosis in impoverished communities in shantytowns surrounding Lima. His latest research project has dealt with the seasonality of vitamin D, TB infection and disease.

DR. SUMONA DATTA

IFHAD: Innovations for Health & Development, Lima, Peru

Dr. Sumona Datta is a fellow in infectious diseases at the Royal Free Hospital, London. She had recently been working with the Innovation in Health and Development (IFHAD) research group in Lima, Peru. Her main role there was to compare the sensitivity of Ziehl-Neelsen stained with Auramine stained sputum smear microscopy, but she also participated in other projects within the organisation. Her interest in TB, health disparity and migrant care stems from NGO work she was involved in while in Lesotho, Nepal and London.

DR. RICARDO STEFFEN

Universidade Federal do Rio de Janeiro, Brazil

Ricardo Ewbank Steffen is pursuing his Masters degree at the Federal University of Rio de Janeiro. Since medical school, he has been studying the economic impact of tuberculosis on the patients and the health system. He is currently working on the cost-effectiveness of IGRAs for the diagnosis of latent tuberculosis infection. He is working on the economic analysis of the impact of the implementation of GeneXpert MTB/RIF for the diagnosis of tuberculosis in Brazil.

Agenda: Thursday FEBRUARY 28, 2013, Grand Ballroom

Welcome and First Nations Opening Prayer

8:00—8:15 am

Dr. E. Jane Carter, President, The Union—NAR; Dr. Kevin Schwartzman, Program Chair/Vice President, The Union—NAR; Tenalh, Gloria Nahanee, Squamish Nation

Stop TB Meeting – International Initiatives: Childhood TB and Other TB Control Interventions

Chairs: Dr. Anne Fanning, Ms. Eileen Napolitano, and Ms. Sue Etkind

Overall Objectives

At the end of this session, participants will be able to:

1) describe the burden of undiagnosed childhood TB cases, and reasons for this
2) consider best practices for the diagnosis of childhood TB in resource-limited settings
3) understand that latent TB represents a key opportunity for prevention
4) demonstrate the importance of supporting investments into new diagnostics

Videoconferencing:

8:15—9:45 am

Global Overview of Childhood TB: Plan to Scale-Up Training and Implement Framework

Dr. Malgorzata Grzemska, Stop TB Partnership, World Health Organization, Geneva, Switzerland

Learning Objectives

At the end of this session, participants will be able to:

1) understand and describe the WHO's rationale for its focus on childhood TB
2) apply new knowledge to improve diagnosis and treatment of childhood TB

Contact Follow-up and Treatment of LTBI in Households of Infectious Cases in Pakistan

Dr. Farhana Amanullah, Interactive Research and Development, Karachi, Pakistan

Learning Objectives

At the end of this session, participants will be able to:

1) identify key challenges in diagnosing and treating LTBI in resource-limited settings
2) understand and apply systematic approaches to management of LTBI in such settings

Childhood TB: Using Trained Healthcare Workers in Bangladesh

Dr. Khurshid Talukder, Centre for Women and Child Health (CWCH), Savar, Dhaka, Bangladesh

Learning Objectives

At the end of this session, participants will be able to:

1) describe the Bangladeshi model of training labs and health centres to consider TB as a diagnosis in children
2) understand the importance of awareness at the health centre level

Algorithmic Approaches to Child TB Management in Resource-Limited Settings

Dr. Stephen Graham, University of Melbourne, Melbourne, Australia

Learning Objectives

At the end of this session, participants will be able to:

1) recognize the importance of diagnostic algorithms for childhood TB, especially in resource-limited setting
2) select and apply the best algorithm for their own practice setting

BREAK 9:45—10:00 am

Live Presentations: 10:00—10:20 am

4RIF vs. 9INH - A Large Scale International Trial of 4RIF vs. 9INH for Treatment of Latent TB: Challenges and Progress

Dr. Dick Menzies, McGill University, Montreal, QC, Canada

Learning Objectives

At the end of this session, participants will be able to:

1) identify the risks and benefits of 4 months RIF versus 9 months INH
2) identify advantages and disadvantages of each regimen for their practice and understand the difficulties of cross-border studies

Experiences of Drug-Resistant Tuberculosis Programs: Is Success Within Our Reach? 10:20—10:40 am

Dr. Michael Rich, Partners in Health, Boston, MA, USA

Learning Objectives

At the end of this session, participants will be able to:

1) describe the growing magnitude of MDR-TB
2) understand the need for systematic approaches to its management and describe the importance of case individualization

Engaging Practitioners in Excellence in MDR Patient Care: An Online Course Collaboration with the World Medical Association 10:40—11:00 am

Ms. Nisha Ahamed, MPH, NJMS Global Tuberculosis Institute, Newark, NJ, USA

Learning Objectives

At the end of this session, participants will be able to:

1) identify benefits and limitations of distance learning techniques for MDR-TB training
2) discuss approaches for developing effective online courses
3) identify potential uses of the WMA online MDR-TB course for global MDR-TB training

CREATE: Key Outcomes and Next Directions 11:00—11:30 am

Dr. Richard E. Chaisson, Johns Hopkins University Center for Tuberculosis Research, Baltimore, MD, USA

Learning Objectives

At the end of this session, participants will be able to:

1) identify obstacles to and advantages of treatment for latent TB infection
2) describe how to best target candidates for treatment of latent infection
3) identify key steps to building successful partnerships

Panel Discussion 11:30—11:50 am

Oral Abstract Presentation: Engaging Communities in Tuberculosis Research: New Developments in Stakeholder Engagement 11:50 – 12:00pm

Mr. Renaud Boulanger, St. Michael's Hospital, University of Toronto, Toronto, ON, Canada

LUNCH BREAK 12:00 – 12:30 pm

Agenda: Thursday FEBRUARY 28, 2013, Grand Ballroom

Satellite Symposium - Canadian Tuberculosis Standards, 7th Edition: What's New?

12:30 – 1:30 pm

Moderators: Dr. Tom Wong, Public Health Agency of Canada; Dr. Dick Menzies, Canadian Thoracic Society

Nursing Assembly – Partnering with Communities to Control TB

Chairs: Ms. Shirley Rempel and Ms. Rose Pray

Welcome Address — 1:30—1:35 pm

Inuit TB: A View from the Ground and the Air

1:35—2:05 pm

Ms. Gail Turner, Inuit Tapiriit Kanatami (ITK), Ottawa, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1) view TB through a social determinant lens, portraying how self-determination influences other determinants
2) illustrate how self-determination facilitates meaningful engagement for Nunangat at regional, provincial and national levels

Introducing Directly Observed Therapy (DOTS) to Strengthen TB Programming in Suriname

2:05—2:35 pm

Ms. Nordai Persaud, RN, Ministry of Health, Suriname

Learning Objectives

At the end of this session, participants will be able to:

1) describe challenges and successes of implementing DOTS in a high TB burden country
2) understand the importance of an Indigenous Strategy for reducing TB rates among the Suriname Amerindians populations

Integrating Comprehensive Health Services into Social Housing Initiatives in Vancouver's Downtown Eastside (DTES)

2:35—3:05 pm

Mr. Paul Bangah and Ms. Valerie Edelman, Vancouver Coastal Health, Vancouver, BC, Canada

Learning Objectives

At the end of this session, participants will be able to:

1) understand the range of social housing services offered to residents in the DTES
2) to understand the importance of a comprehensive social housing strategy in reducing TB rates and understand the complexity of providing access to health care for residents living in DTES

BREAK

3:05—3:25 pm

TB Outbreak in a Low Incidence Setting: A Case Study to Demonstrate Challenges and Outcomes in a Canadian Long Term Care Facility (LTCF)

3:25—3:55 pm

Ms. Karen Mulvey, Wellington Dufferin Guelph Public Health, Guelph, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1) understand the psychosocial impact of a TB outbreak on LTCF residents, staff, family members and surrounding community
2) understand the operational challenges of managing a TB outbreak in a rural location with limited access to TB diagnostics and specialists
3) understand the demand on public health resources required for management of a TB outbreak in a LTCF

Call to Action 2012: Next Steps

3:55—4:30 pm

Ms. Rose Pray, Denver, CO, USA

Learning Objectives

At the end of this session, participants will be able to:

1) describe current challenges threatening optimum/quality patient outcomes in TB treatment
2) describe the rationale for the "Call to Action" drafted by the 2012 NAR IUATLD conference in San Antonio
3) discuss next steps with respect to the Call to Action

Beyond TB Lecture – Health Care for the Homeless: Then and Now

5:00—6:00 pm

Mr. John Lozier, National Health Care for the Homeless Council, Nashville, TN, USA

Learning Objectives

At the end of this session, participants will be able to:

1) articulate the common threads binding urban homelessness with the spread of communicable diseases such as tuberculosis
2) understand the origins and the future of health care for homeless and unstably housed individuals (and how these populations obtain care), and how the network of homeless providers and the National Health Care for the Homeless Council intersect with others in public health and TB control

The George Comstock Lecture – The Place of Children in the Global Epidemiology of TB

6:00—7:00 pm

Dr. Peter Donald, Stellenbosch University, Cape Town, South Africa

Learning Objectives

At the end of this session, participants will be able to:

1) describe the epidemiology of TB and how pediatric TB and its prevention are vital in controlling the epidemic
2) describe the global burden of childhood TB, and the particular challenges it poses in resource-limited settings
3) identify key knowledge gaps and potential next steps with respect to epidemiology, prevention and management of childhood tuberculosis, in the global context

Agenda: Friday MARCH 1, 2013, Grand Ballroom

TB and Indigenous Peoples

Chairs: Dr. Anne Fanning and Dr. Pam Orr

Learning Objectives:

At the end of this session, participants will be able to:

1) explore ways to form , maintain and "grow" partnerships in TB Control with Aboriginal/Native peoples
2) understand the similarities and differences in TB control priorities and methods used in Canadian and US Aboriginal/Native TB programs, with a view to learning from the resulting historical and current successes and failures

Nothing About Us Without Us: Self-Determination Influences on TB Care and Control — 8:30—9:00 am

Ms. Gail Turner, Inuit Tapiriit Kanatami (ITK), Ottawa, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1) recognize the challenges of providing TB care in remote communities in northern Canada
2) understand the role of community participation in TB control
3) describe strategies to help providers improve patient outcomes and better meet the health needs of indigenous communities

Contribution of a Community Case Finding Study in a High Prevalence Region — 9:00—9:30 am

Dr. Gonzalo Alvarez, University of Ottawa, Ottawa, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1) describe how TB rates are rising in Inuit communities, and why
2) describe potential case-finding interventions
3) understand the challenges of delivering sustained care in the North

TB Control in the American Southwest: Lessons Learned about Community Engagement — 9:30—10:00 am

Dr. Jon Iralu and Ms. Zena Smith, Gallup Indian Medical Center, Gallup, NM, USA

Learning Objectives

At the end of this session, participants will be able to:

1) understand the challenges encountered in treating TB in a Native population
2) understand the need for collaboration between tribal and federal TB treatment programs

BREAK — 10:00—10:30 am

TB Control in Alaska — 10:30—11:00 am

Dr. Michael Cooper, State of Alaska, Division of Public Health, Anchorage, AK, USA

Learning Objectives

At the end of this session, participants will be able to:

1) describe the epidemiology of TB disease in Alaska over time
2) identify strategies used in TB prevention and treatment among indigenous peoples in Alaska now and in the past and to describe their successes and challenges
3) understand the role of community involvement in TB control in Alaska

Panel Discussion	11:00—11:40 am
Oral Abstract Presentation: TB Education for Aboriginal and non-Aboriginal Youth *Ms. Courtney Heffernan, Tuberculosis Program Evaluation and Research Unit, University of Alberta, Edmonton, AB, Canada*	11:40—11:50 am
Oral Abstract Presentation: Old Keyam- A Framework for Examining the Disproportionate Experience of Tuberculosis Among Aboriginal Peoples of the Canadian Prairies *Ms. Kathleen McMullin, B.Ed, M.Ed, First Nations Lung Health Project, University of Saskatchewan, Prince Albert, SK, Canada*	11:50—12:00 pm
ANNUAL GENERAL MEETING (Lunch will be provided)	12:00—1:30 pm

Childhood TB: Clinical and Research Agenda

Epidemiology of Pediatric and Adolescent TB in North America

Dr. Gloria Oramasionwu, Centers for Disease Control and Prevention, Atlanta, GA, USA — 1:30 —1:55 pm

Learning Objectives

At the end of this session, participants will be able to:

1) summarize recent data and trends in the epidemiology of pediatric and adolescent TB in the United States and Canada
2) identify settings and groups where the risk of latent TB infection and active TB disease may be concentrated
3) apply these insights to management of TB in their own practice settings

Screening, Diagnosis and Treatment of Latent TB Infection

1:55—2:20 pm

Dr. Anna Mandalakas, Baylor College of Medicine, Houston, TX, USA

Learning Objectives

At the end of this session, participants will be able to:

1) summarize recent evidence for optimal screening, testing and treatment strategies for latent TB in infants and children
2) identify key strengths and limitations of diagnostic tests for latent TB infection in the pediatric setting, including future research needs
3) identify key strengths and limitations of alternative treatment regimens for latent TB infection in the pediatric setting, including future research needs

Problems in Diagnosis and Treatment of Childhood TB in Developed Country Settings

2:20—2:45 pm

Dr. Ian Kitai, Hospital for Sick Children, Toronto, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1) describe clinical settings in which the diagnosis of childhood TB is particularly challenging despite adequate resources, and articulate the reasons for this
2) describe key challenges in the management of childhood TB in the United States and Canada, and key gaps that research can address
3) describe and apply best practices for optimizing clinical outcomes in childhood TB, including choice of treatment regimen

BREAK	2:45—3:00 pm

Agenda: Friday MARCH 1, 2013, Grand Ballroom

Diagnosis and Management of TB in Adolescents — 3:00—3:25 pm

Dr. Andrea Cruz, Baylor College of Medicine, Houston, TX, USA

Learning Objectives

At the end of this session, participants will be able to:

1) describe the differences between adolescents and younger children, and between adolescents and young adults, that create distinctive challenges for clinicians managing TB in adolescents
2) summarize evidence for best practices in diagnosing and treating latent and active TB in adolescents
3) identify potential strategies to apply these practices in their own settings

Case Management in Childhood TB — 3:25—3:50 pm

Ms. Lillian Pirog, University of Medicine and Dentistry of New Jersey, Newark, NJ, USA

Learning Objectives

At the end of this session, participants will be able to:

1) describe the role of the case manager in diagnosis, treatment, and follow-up of children with latent or active TB, and support of their families
2) identify best practices in TB case management in the pediatric setting, and key questions for operations research
3) identify potential strategies to improve case management, and patient and family outcomes, in their own practice settings

Panel Discussion — 3:50—4:10 pm

Oral Abstract Presentation: A TB Contact Investigation in a Neonatal Intensive Care Unit in Toronto, Canada — 4:10—4:20 pm

Ms. Rita Kadri, Toronto Public Health,Toronto, ON, Canada

Oral Abstact Presentation: Accuracy of GeneXpert MTB/RIF in Malnourished Hospitalized Malawian Children — 4:20—4:30 pm

Dr. Sylvia LaCourse, Division of Allergy and Infectious Disease, University of Washington, Seattle, WA, USA

Awards Ceremony: Lifetime Achievement, Service Awards, Travel Grants — 4:30—5:30 pm

Moderated Poster Session/Light Reception — 5:30—7:00 pm

Agenda: Saturday MARCH 2, 2013, Grand Ballroom

Abstract Writing Session

7:30—8:30 am

TB and the City

Chairs: Dr. Sapna Bamrah and Dr. Kevin Schwartzman

Introduction — 8:30 - 8:35 am

TB and the Homeless: The Toronto Experience — 8:35—9:05 am

Dr. Elizabeth Rea, Toronto Public Health, Toronto, ON, Canada

Learning Objectives

At the end of this session, participants will be able to:

1) understand the successes and challenges a Canadian urban TB control program has had
2) describe and apply TB control interventions that have successfully reduced transmission in Toronto

Urban TB and Outbreaks in the US — 9:05—9:35 am

Dr. Eyal Oren, University of Arizona, Tucson, AZ, USA

Learning Objectives

At the end of this session, participants will be able to:

1) understand the findings of Dr. Oren's study of urban TB control and recent outbreaks in the U.S., and their relevance to their own practice settings
2) identify strengths and weaknesses of genotyping techniques for the detection of transmission in the urban setting

Management of TB in the Homeless: CDC's Experience with Outbreaks — 9:35—10:05 am

Dr. Sapna Bamrah, Centers for Disease Control and Prevention, Atlanta, GA, USA

Learning Objectives

At the end of this session, participants will be able to:

1) understand the epidemiology of TB in the homeless in the U.S., and its relevance to their local communities
2) describe successful strategies and best practices in addressing TB outbreaks among homeless and unstably housed persons

BREAK — 10:05—10:30 am

The Connection of Health Care for the Homeless and TB Control — 10:30—11:00 am

Dr. Jim O'Connell, Boston Health Care for the Homeless Program, Boston, MA, USA

Learning Objectives

At the end of this session, participants will be able to:

1) understand the relationship between TB control activities and the establishment of Health Care for the Homeless
2) understand TB control from the perspective of health care providers for homeless persons
3) describe successful strategies and partnerships for improving health in the homeless

Agenda: Saturday MARCH 2, 2013, Grand Ballroom

Panel Discussion — 11:00—11:40 am

Oral Abstract Presentation: TB Contact Tracing for Homeless Individuals: Management and Surveillance Outcomes — 11:40—11:50 am
Ms. Julie Seemangal, St. Michael's Hospital, Division of Respirology, Toronto, ON, Canada

Oral Abstract Presentation: High TB Incidence in a Tent City, Port-au-Prince — 11:50—12:00 pm
Dr. Vanessa Rouzier, Les Centre GHESKIO, Port-au-Prince, Haiti

Latin American Liaison Committee Meeting — 12:00—1:15pm

The Science of TB Transmission

Chairs: Dr. Sundari Mase and Dr. Ed Nardell

What Guinea Pigs have Taught Humans about TB Transmission — 1:30—2:00 pm
Dr. Ed Nardell, Harvard School of Public Health, Boston, MA, USA

Learning Objectives
At the end of this session, participants will be able to:
1) understand and apply TB infection control principles based on important laboratory studies
2) understand the role of new rapid diagnostics in achieving better TB transmission control

Population Epidemiology of Transmission Events: Aberration Detection/Outbreak Identification and Interruption Using Genotyping — 2:00—2:30 pm
Dr. Tom Navin, Centers for Disease Control and Prevention, Atlanta, GA, USA

Learning Objectives
At the end of this session, participants will be able to:
1) describe the current surveillance system in the United States for recent tuberculosis transmission
2) identify factors that predict which new small tuberculosis clusters are most likely to become outbreaks

BREAK — 2:30—3:00 pm

A Sentinel Event: Pediatric TB and TB Transmission — 3:00—3:30 pm
Dr. Jennifer Flood, University of California San Francisco, San Francisco, CA, USA

Learning Objectives
At the end of this session, participants will be able to:
1) describe potential causes of increases in pediatric TB cases within a community, and discuss the various approaches to investigation
2) understand the options for intervention in these circumstances

Superspreading in TB? 3:30—4:00 pm

Dr. Kevin Fennelly, University of Florida, Gainesville, FL, USA

Learning Objectives

At the end of this session, participants will be able to:

3) understand the concept of superspreading
4) appreciate the possible implications of identifying the most highly infectious patients for TB control

Panel Discussion 4:00—4:20 pm

Oral Abstract Presentation: The Double Edged-Sword: Diabetes Mellitus and Tuberculosis in Georgia, USA 4:20—4:30 pm

Mary M.K. Foote, MD, MPH, Emory University, School of Medicine, Atlanta, GA, USA

Oral Abstract Presentation: Inhaled Colistin: A Novel Approach for Reducing Drug-Resistant TB Transmission 4:30—4:40 pm

Edward Nardell, MD, Brigham & Women's Hospital, Harvard Medical School, Boston, MA, USA

Closing Remarks/Evaluation 4:40—5:00 pm

Conference Debrief/2014 Conference Planning 5:00—6:00 pm

NOTES

TB THE AIR WE SHARE

abstract

FEBRUARY 28-MARCH 2, 2013
SHERATON VANCOUVER WALL CENTRE HOTEL, VANCOUVER, BC

17th ANNUAL CONFERENCE
International Union Against Tuberculosis and Lung Disease – North America Region

Abstract Committee

Alfred Lardizabal, MD, MPH
NJMS Global Tuberculosis Insititute
Newark, NJ, USA

Eyal Oren, MS, PhD
University of Arizona
Tucson, AZ, USA

Kevin Elwood, MD
BC Centre for Disease Control
Vancouver, BC, Canada

E. Jane Carter, MD, MPH
Brown University/Miriam Hospital
Providence, RI, USA

Edward Ellis, MD, MPH
Ottawa, ON, Canada

Ann Raftery, RN, PHN
Curry International Tuberculosis Center
San Francisco, CA, USA

Victoria Cook, MD
BC Centre for Disease Control
Vancouver, BC, Canada

Charles M. Crane, MD, MPH
Contra Costa Public Health
Martinez, CA, USA

James Johnston, MD, MPH
BC Centre for Disease Control
Vancouver, BC, Canada

Laura Freimanis, PhD
WESTAT
Rockville, MD, USA

Gayle M. Schack, RN, MS
California Department of Public Health
Richmond, CA, USA

Joan Mangan, PhD, MST
Centers for Disease Control and Prevention
Atlanta, GA, USA

Howard Njoo, MD
Public Health Agency of Canada
Ottawa, ON, Canada

Oral Presentations

Engaging Communities in Tuberculosis Research: New Developments in Stakeholder Engagement
Mr. Renaud Boulanger, St. Michael's Hospital, University of Toronto, Toronto, ON, Canada

TB Education for Aboriginal and Non-Aboriginal Youth
Ms. Courtney Heffernan, Tuberculosis Program Evaluation and Research Unit, University of Alberta, Edmonton, AB, Canada

Old Keyam- A Framework for Examining the Disproportionate Experience of Tuberculosis Among Aboriginal Peoples of the Canadian Prairies
Ms. Kathleen McMullin, First Nations Lung Health Project, University of Saskatchewan, Prince Albert, SK, Canada

A TB Contact Investigation in a Neonatal Intensive Care Unit in Toronto, Canada
Ms. Rita Kadri, Toronto Public Health,Toronto, ON, Canada

Accuracy of GeneXpert MTB/RIF in Malnourished Hospitalized Malawian Children
Dr. Sylvia LaCourse, Division of Allergy and Infectious Disease, University of Washington, Seattle, WA, USA

TB Contact Tracing for Homeless Individuals: Management and Surveillance Outcomes
Ms. Julie Seemangal, St. Michael's Hospital, Division of Respirology, Toronto, ON, Canada

High TB Incidence in a Tent City, Port-au-Prince
Dr. Vanessa Rouzier, Les Centre GHESKIO, Port-au-Prince, Haiti

The Double Edged-Sword: Diabetes Mellitus and Tuberculosis in Georgia, USA
Dr. Mary M.K. Foote, Emory University, School of Medicine, Atlanta, GA, USA

Inhaled Colistin: A Novel Approach for Reducing Drug-Resistant TB Transmission
Dr. Edward Nardell, Brigham & Women's Hospital, Harvard Medical School, Boston, MA, USA

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A.10) THE DOUBLE-EDGED SWORD: DIABETES MELLITUS AND TUBERCULOSIS IN GEORGIA, USA

Foote M, Kempker RR, Magee MJ, Maggio DM, Ray SM. Emory University Schools of Medicine and Public Health, GA State TB Program, Department of Public Health, Atlanta, GA, USA.

A.11) HEPATOTOXICITY OF TB DRUGS IN THE ELDERLY

Hosford J[1], Von Fricken M[2], Fennelly K[1], Lauzardo M[1], Shuster J[3], Lyon JA[4], Nayfield S[5]. [1]Southeastern National Tuberculosis Center and Emerging Pathogens Institute, Department of Medicine, [2]Department of Global Health, Emerging Pathogens Institute, [3]Clinical and Translational Science Institute, [4]Health Science Center Libraries, [5]Department of Aging and Geriatric Research, College of Medicine, University of Florida, Gainesville, USA.

A.12) TREATMENT OUTCOME OF MULTIDRUG-RESISTANT *MYCOBACTERIUM TUBERCULOSIS* IN NEPAL

Jnawali BN[1], Kakchapati S[2], Choonpradub C[2], Gyawali A[3], Subedi KC[4], Jha RK[5]. [1]National Tuberculosis Center, Bhaktapur, Nepal; [2]Prince of Songkla University, Muang, Thailand; [3]Kutztown University, Kutztown, PA, USA; [4]Rural & Alternative Energy, Nepal; [5]Wuhan University, Wuhan, China.

A.13) THE UTILITY OF GASTRIC ASPIRATES IN DIAGNOSING TUBERCULOSIS IN CHILDREN

Kordy F[1], Kitai I[1], Jamieson F[2], Richardson SE[1]. [1]The Hospital for Sick Children, [2]Toronto Public Health Laboratory, University of Toronto, Toronto, ON, Canada.

A.14) ACCURACY OF GeneXpert MTB/RIF IN MALNOURISHED HOSPITALIZED MALAWIAN CHILDREN

LaCourse SM[1,2], Chester FM[2], Preidis G[3], McCrary M[2], Arscott-Mills T[4], Maliwichi M[2], McCollum ED[2,5], Hosseinipour MC[2]. [1]Division of Allergy & Infectious Diseases ,University of Washington, Seattle, WA, USA; [2]UNC Project, Lilongwe, Malawi; [3]Department of Pediatrics, Baylor College of Medicine, Houston, TX, USA; [4]Botswana-UPenn Partnership, Gaborone, Botswana; [5]Department of Pediatrics, Division of Pulmonology, Johns Hopkins School of Medicine, Baltimore, MD, USA.

A.15) INCREASE IN MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB) AMONG FOREIGN-BORN PERSONS IN ALBERTA, CANADA: IMPLICATIONS FOR TUBERCULOSIS MANAGEMENT

Long R, **Langlois-Klassen D.** University of Alberta, Edmonton, AB, Canada.

A.16) UTILITY OF MODIFIED SPUTUM INDUCTION AS A RESEARCH METHOD IN TUBERCULOSIS (TB)

Lardizabal A, Mangura BT, Vlalet T, Lakehal K, Pine R, Gennaro ML. NJMS Global Tuberculosis Institute & Publlo Health Research Institute, Newark, NJ, USA.

A.17) BEST PRACTICES OF SURGICAL OPTION IN MDR-TB TREATMENT AT GTBI

Lardizabal A, Mangura BT, Sharma A, Bolanowski P, McDonald RJ, Reichman LB. NJMS Global Tuberculosis Institute, Newark, NJ, USA.

A.18) THE IMPACT OF THE TB DIAGNOSTIC COMMITTEE ON THE OUTCOME OF SMEAR NEGATIVE TB SYMPTOMATICS AT VETERANS MEMORIAL MEDICAL CENTER

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Magnabosco GT, Arakawa T, Wysocki AD, Lopes LM, Brunello MEF, Andrade RLP, Monroe AA, Ruffino-Netto A, Villa TCS. University of Sao Paulo, School of Nursing of Ribeirao Preto, Sao Paulo, Brazil.

A.20) CAN ORAL IMMUNIZATION WITH BCG MOREAU RDJ PREVENT REINFECTION WITH *MYCOBACTERIUM TUBERCULOSIS* IN MICE?

Monteiro-Maia R[1], Rodrigues-Junior VS[2], Dos Santos Junior A[2], Campos MM[2], Santos DS[2], Castello-Branco LRR[1]. [1]Laboratório de Imunologia Clínica, Instituto Oswaldo Cruz, Fundação Oswaldo Cruz, Rio de Janeiro; [2]Instituto Nacional de Ciência e Tecnologia em Tuberculose, PUCRS, Porto Alegre, Brazil.

A.21) NEGATIVIZACIÓN DE CULTIVO EN PACIENTES CON TUBERCULOSIS MULTIFARMACORRESISTENTE (TB-MDR) EN RETRATAMIENTO. INSTITUTO NACIONAL DE ENFERMEDADES RESPIRATORIAS, MÉXICO 2011

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Mirsaeidi M, Hadid W, Ericsoussi B, Rodgers D, Sadikot RT. Department of Veterans Affairs, Jesse Brown VA Hospital, and Section of Pulmonary, Critical Care, and Sleep Medicine, University of Illinois, Chicago, IL, USA.

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A.24) INHALED COLISTIN: A NOVEL APPROACH FOR REDUCING DRUG-RESISTANT TB TRANSMISSION

Dharmadhikari A, Stoltz A, Mphahele M, Venter K, Jensen P, Van der Walt M, Mathebula R, **Nardell E.** Brigham & Women's Hospital, Harvard Medical School, Boston, MA, USA.

A.25) TUBERCULOSIS AND DIABETES IN THE MUNICIPALITY OF GUARULHOS, SAO PAULO, BRAZIL

Penon Rujula MJ, Galesi VMN, **Souza Pinto V**, Cunha Barbosa R, Bombarda S. Sao Paulo State Tuberculosis Control Program, Tuberculosis Division, Epidemiological Surveillance Center, Center for Disease Control, Sao Paulo State Health Secretariat, Brazil.

A.26) THE SPECIFICITY OF MDR/XDR-TB COLOUR TEST FOR DIFFERENTIATING MYCOBACTERIUM TUBERCULOSIS FROM ATYPICAL MYCOBACTERIA

Ramos Maguina ES[1,2], Osorio CE[1], Valencia TR[1], Llacza MF[1], Tovar MA[1,2], Montoya R[2], Wingfield T[1,2], Evans CA[1,2]. [1]IFHAD: Innovation For Health And Development, Universidad Peruana Cayetano Heredia, San Martin de Porres, [2]Innovación por la Salud y el Desarrollo (IPSYD), Asociación Benéfica Prisma, San Miguel, Lima, Perú

A.27) PREDICTING XDR-TB PHENOTYPES ACCURATELY WITH SINGLE NUCLEOTIDE POLYMORPHISMS

Rodwell TC, Valafar F, Garfein RS, Douglas J, Rodrigues C, Crudu V, Victor T, Gler M, Catanzaro A. University of California, La Jolla, San Diego State University, San Diego, University of Hawaii, Honolulu, USA; Hinduja National Hospital, Mumbai, India; Institute of Phthisiopneumology (IP), Chisinau, Moldova; Stellenbosch University, Cape Town, South Africa; Tropical Disease Foundation, Makati City, Philippines.

A.28) HIGH TB INCIDENCE IN A TENT CITY IN PORT-AU-PRINCE

Rouzier V[1], Koenig S[2], Peck M[1], Pape JW[1,3.] [1]Groupe Haiti en d'Etude du Sarcome de Kaposi et des Infections Opportunistes (GHESKIO), Port au Prince, Haiti; [2]Division of Global Health Equity, Brigham and Women's Hospital, Boston, MA, [3]Department of Medicine, Weill Cornell Medical College, New York, NY, USA.

A.29) USE OF THE TREK SENSITITRE® MYCOTB MIC PLATE METHOD FOR ANTIMYCOBACTERIAL SUSCEPTIBILITY TESTING (AST) OF *MYCOBACTERIUM TUBERCULOSIS* COMPLEX (MTBC) ISOLATES AND EVALUATION OF A BROTH CULTURE INOCULUM

Rowlinson MC[1], Tanner C[1], Miles P[1], Lee Y[1], Crowe S[1], Şimşek H[2], Willis D[1], **Salfinger M[1,3].** [1]Florida Department of Health-Bureau of Public Health Laboratories (BPHL), FL, USA; [2]Refik Saydam National Public Health Agency, National Tuberculosis Reference Laboratory, Ankara, Turkey; [3]National Jewish Health, Denver, CO, US.

A.30) DETECCION MOLECULAR DE RESISTENCIA A RIFAMPICINA E ISONIAZIDA EN *MYCOBACTERIUM TUBERCULOSIS*

Salim J, Annoni M, Ibañez M. Gutierrez M, Zerdiew A. Hospital General de Agudos Dr Enrique Tornú, Centro de Referencia en Buenos Aires, Argentina.

A.31) MICOBACTERIAS NO TUBERCULOSAS: IDENTIFICACION MOLECULAR

Salim J, Annoni M, Ibañez M. Gutierrez M, Zerdiew A. Hospital General de Agudos Dr. Enrique Tornú, Buenos Aires, Argentina.

A.32) THE EFFECT OF PREVALENT TUBERCULOSIS ON MORTALITY AFTER COMBINATION ANTIRETROVIRAL THERAPY INITIATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Soeters HM, Poole C, Patel MR, Van Rie A.University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.

A.33) DIAGNOSTIC ACCURACY AND REPRODUCIBILITY OF WHO-ENDORSED PHENOTYPIC DRUG SUSCEPTIBILITY TESTING METHODS FOR FIRST-LINE AND SECOND-LINE ANTI-TUBERCULOSIS DRUGS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Horne DJ[1], Pinto L[2], Arentz M[1], Lin SG[3], Desmond E[3], Flores, LL[4], **Steingart KR[5]**, Minion J[6]. [1] Division of Pulmonary and Critical Care Medicine, University of Washington , Seattle, WA, USA; [2]Department of Epidemiology, Biostatistics & Occupational Health, McGill University, Montreal, QC, Canada; [3]California Department of Public Health, Richmond, CA; [4]College of Chemistry, University of California, Berkeley, CA; [5]Department of Health Services, University of Washington School of Public Health, Seattle, WA, USA; [6]Regina Qu'Appelle Health Region, Dept. of Laboratory Medicine, Regina, SK, Canada.

A.34) ETUDE DES EFFETS INDÉSIRABLES DES RÉGIMES ANTITUBERCULEUX ET ANTIRÉTROVIRAUX CONTENANT LA NÉVIRAPINE ET LES RÉGIMES CONTENANT L'ÉFAVIRENZ

Kouanda S[1], Ouédraogo HG[1], **Tarnagda G[1]**, Rouamba N[1], Saleri N[2, 6], Roggi A[2,6], Tiendrébeogo S[1], Dembelé M[2], Combary A[2], Konseimbo GA[2], Bayala R[2], Badoum G[3], Sanou JM[4], Simporé J[5], Diagbouga S[2], Ouédraogo M[3], Sondo B[1], Matteelli A[6]. [1]Institut de Recherche en Science de la Santé (IRSS), Burkina Fasso; [2]Programme National de Lutte Contre la Tuberculose, Port-au-Prince, Haiti; [3]CHU-Yalgado Ouédraogo, [4]Comité Ministériel de Lutte Contre le Sida/Santé, [5]CERBA-Faso, Burkina Fasso; [6]Université de Brescia, Italie.

A.35) PROFIL BIOLOGIQUE DES PATIENTS CO-INFECTÉS VIH/TUBERCULOSE SOUS ANTITUBERCULEUX ET ANTIRÉTROVIRAUX CONTENANT LA NÉVIRAPINE VERSUS ÉFAVIRENZ

Kouanda S[1], Ouédraogo HG[1], **Tarnagda G[1]**, Rouamba N[1], Saleri N[2, 6], Roggi A[2,6], Tiendrébeogo S[1], Dembelé M[2], Combary A[2], Konseimbo GA[2], Bayala R[2], Badoum G[3], Sanou JM[4], Simporé J[5], Diagbouga S[2], Ouédraogo M[3], Sondo B[1], Matteelli A[6]. [1]Institut de Recherche en Science de la Santé (IRSS), Burkina Fasso; [2]Programme National de Lutte Contre la Tuberculose, Port-au-Prince, Haiti; [3]CHU-Yalgado Ouédraogo, [4]Comité Ministériel de Lutte Contre le Sida/Santé, [5]CERBA-Faso, Burkina Fasso; [6]Université de Brescia, Italie.

A.36) TUBERCULOSIS SCREENING AND FOLLOW-UP PRACTICES AMONG CIVIL SURGEONS IN CALIFORNIA

Thornton A[1,2,3], Lowenthal P[4], Rodriguez-Lainz A[1], Flood J[4]; Moser K[2]. [1]Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, [2]County of San Diego Health and Human Services Agency, [3]CDC/CSTE Applied Epidemiology Fellowship, [4]Tuberculosis Control Branch, California Department of Public Health, CA, USA.

A.37) A SUCCESFUL MODEL FOR THE MANAGEMENT OF MDR-TB IN THE AFTERMATH OF A MAJOR NATURAL CATASTROPHE

Vilbrun SC[1], Charles M[1, 2], Rouzier V[1], Morose W[1], Joseph J[1], Sobieskye D[1], Edouard J[1], Legrand D[1], Saintil N[1], Guiteau C[1], Koenig SP[1, 3], Pape JW[1, 2]. [1]GHESKIO (Haiti Study Group for Kaposi's Sarcoma and Opportunistic Infections), Port-au-Prince, Haiti; [2]Weill Medical College of Cornell University, New York, NY; [3]Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.

A.38) ADVERSE DRUG-REACTIONS ASSOCIATED WITH CLOFAZIMINE

Wang S[1], Pal S[2], Falzon D[3], Jaramillo E[3], Olsson S[4]. [1]The Ohio State University, Internal Medicine Department, Columbus, OH, USA; [2]Department of Essential Medicines and Pharmaceutical Policies, [3]World Health Organization; World Health Organization, Stop TB Department, Geneva, Switzerland; [4]The Uppsala Monitoring Center, Uppsala Sweden.

A.39) COMPARISON OF TUBERCULOSIS (TB) IN YOUNG AND ELDERLY PATIENTS

Wang S[1], Butler B[2], Webb-Yeates M[1], Denkowski P[2], Turner J[2]. [1]The Ohio State University, [2]Columbus Public Health, Columbus, OH, USA.

A.40) ELECTRONIC RECORDING AND REPORTING FOR MULTIDRUG-RESISTANT TUBERCULOSIS CARE AND CONTROL

Wang S[1], Falzon D[2], Timimi H[2]. [1]The Ohio State University, Internal Medicine Department, Columbus, OH, USA; [2]World Health Organization, Stop TB Department, Geneva, Switzerland.

A.41) FREQUENCY OF RESISTANCE TO FLUOROQUINOLONES AMONG MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB) PATIENTS

A.42) A DESCRIPTIVE ANALYSIS OF TB-HIV CO-INFECTED CASES IN ONTARIO 2007 - 2011

Whelan M, Lee B, Bateman T, Guthrie J, Jamieson F. Public Health Ontario, Toronto, ON, Canada.

A.43) VITAMIN D DEFICIENCY IN PERUVIAN TB CONTACTS WAS FREQUENT AND CORRECTED MORE BY SUMMER THAN SUPPLEMENTS

Wingfield T[1,2], Jongkaewwattana C[1], Schumacher SG[1], Zevallos K[1,2], Montoya R[1,2], Baldwin MR[1], Rivero M[1,2], Gilman RH[2], Evans CA[1,2]. [1]IFHAD: Innovation for Health and Development, Universidad Peruana Cayetano Heredia, [2]Asociación Benefica Prisma, Lima, Perú.

A.44) LABORATORY CHALLENGES ASSOCIATED WITH MOLECULAR DETECTION OF ANTIBIOTIC RESISTANCE IN CLINICAL SAMPLES CONTAINING MULTIPLE STRAINS OF *MYCOBACTERIUM TUBERCULOSIS*

Christianson S[1], Ainslie M[2], Sharma M[1,3], **Wolfe J**[1]. [1]Public Health Agency of Canada, [2]Department of Medicine, University of Manitoba, [3]Department of Medical Microbiology, University of Manitoba, Winnipeg, MB, Canada.

B. LTBI

B.1) COST BENEFIT EVALUATION OF 3HP AND 9H TREATMENT REGIMENS FOR LATENT TUBERCULOSIS INFECTION (LTBI)

Balaban V[1], Ho C[1], Patil N[2], Mukasa L[2], Marks S[1], Shepardson D[3], Galvis M[4], Grant G[1], Khan A[1]. [1]US Centers for Disease Control and Prevention, Atlanta, GA; [2]Arkansas Department of Health, Little Rock, AR; [3]Mount Holyoke College, South Hadley, MA; [4]US Centers for Disease Control and Prevention, Las Vegas, NV, USA.

B.2) FACTORS ASSOCIATED WITH LATENT TUBERCULOSIS THERAPY COMPLETION IN RIO DE JANEIRO, BRAZIL

Bastos M[1,2], Belo MTCT [1,2,3], Teixeira EG, Silva AP, Raggio R[4], Menzies D[5], Trajman A[1,2,5]. [1]Gama Filho University, [2]Tuberculosis Scientific League, [3]Souza Marques Foundation, [4]Federal University, Rio de Janeiro, Brazil; [5]McGill University, Montreal, QC, Canada.

B.3) QUANTIFERON GOLD IN TUBE DURING FOLLOW UP OF SUBJECTS TREATED FOR LTBI

Bastos M[1,2], Menzies D[3], Belo MTCT [1,2,4], Abreu ST[5], Antas PZ[6], Trajman A[1,2,3]. [1]Gama Filho University, [2]Tuberculosis Scientific League, [4]Souza Marques Foundation, [5]Paschoal Granto Lab, [6]Oswaldo Cruz Foundation, Rio de Janeiro, Brazil; [3]McGill University, Montreal, QC, Canada.

B.4) SAFETY, ADHERENCE, AND EFFICACY OF INTERMITTENT THERAPY FOR CHILDHOOD TUBERCULOSIS EXPOSURE OR INFECTION

Cruz AT, Starke JR, Baylor College of Medicine, Houston, TX, USA.

B.5) MINIMIZING SEVERE ISONIAZID (INH) TOXICITY IN THE SICK KIDS TUBERCULOSIS PROGRAM: A SICKKIDS-TORONTO PUBLIC HEALTH (TPH) COLLABORATION

Lam R[1,5], Rea E[2,3], Lechner J[2], Chong K[2], Canizares G[2], Science M[1,4], Malloy P[1], Louch D[1], Kitai I[1,4]. [1]Division of Infectious Diseases, SickKids Hospital, [2]Toronto Public Health; [3]Dalla Lana School of Public Health, University of Toronto, [4]Department of Paediatrics University of Toronto, [5]Bloomberg Faculty of Nursing, University of Toronto, Toronto, ON, Canada.

B.6) FACTORS ASSOCIATED WITH LTBI TREATMENT COMPLETION IN AN INNER CITY CLINIC (EDMONTON, CANADA)

Malejczyk K[1], Gratrix J[2], Beckon A[3], Moreau D[4], Williams G[3], Kunimoto D[5], **Ahmed R[5]**. [1]Department of Laboratory Medicine, University of Alberta, [2]Communicable Disease Control, Alberta Health Services, [3]Edmonton Tuberculosis Clinic, Alberta Health Services, [4] Central TB Services, Alberta Health Services, [5]Department of Medicine, University of Alberta, Edmonton, AB, Canada.

B.7) DO PATIENTS COMPLETE TREATMENT FOR LATENT TUBERCULOSIS INFECTION IN QUEBEC? A POPULATION-BASED STUDY

Ronald LA[1,2], FitzGerald JM[2,3], Bartlett GB[1], Schwartzman K[1], Boivin JF[1], Benedetti A[1], Menzies DM[1]. [1]McGill University, Montreal, QC, Canada; [2]Centre for Clinical Epidemiology and Evaluation, Vancouver Coastal Health Research Institute, [3]University of British Columbia, Vancouver, BC, Canada.

B.8) COST EFFECTIVENESS OF QuantiFERON®-TB GOLD-IN-TUBE VERSUS TUBERCULIN SKIN TESTING FOR CONTACT SCREENING AND TREATMENT OF LATENT TUBERCULOSIS INFECTION IN BRAZIL

Steffen RE, Caetano R, Pinto MFT, Chaves D, Ferrari R, Bastos M, de Abreu ST, Menzies D, Trajman A. Universidade Federal do Rio de Janeiro, Brazil.

B.9) COMMUNITY BASED TB PREVENTION: IMPROVING POPULATION HEALTH AND DECREASING MEDICAID COSTS

Tschampl C, Bernardo J. Brandeis University and Medical Advisory Committee for the Elimination of TB, Waltham, MA, USA.

C. TB Epidemiology and Transmission

C.1) INCREASE IN REPORTED TB CASES, LOS ANGELES COUNTY, CALIFORNIA, USA, 2011

Baker B[1,2], Singh R[1], Yumul J[1], McMullen S[1,2], Poonja S[1,2], King-Todd A[1], Alvarez F[1]. [1]Los Angeles County Department of Public Health, Tuberculosis Control Program; Los Angeles, CA, [2]Centers for Disease Control and Prevention, Division of Tuberculosis Elimination, Atlanta, GA, USA.

C.2) INCREASED NUMBER OF CASES OF TUBERCULOSIS IN INDIVIDUALS BORN IN AN EASTERN MEDITERRANEAN COUNTRY, MONTÉRÉGIE, QUÉBEC, CANADA, 2012

Belanger P[1], Lacroix C[2], Milord F[3]. [1]Public Health Agency of Canada, Ottawa, [2]Direction de santé publique de la Montérégie et Université de Sherbrooke, [3]Direction de santé publique de la Montérégie et Université de Sherbrooke, Longueuil, Canada.

C.3) EPIDEMIOLOGY OF PEDIATRIC CENTRAL NERVOUS SYSTEM (CNS) TUBERCULOSIS (TB) —CALIFORNIA, 1993–2011

Duque-Silva A[1], Robsky K[2], Flood J[2], Barry P[2]. [1]Children's Hospital and Research Center Oakland, [2]Tuberculosis Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, CA, USA.

C.4) EPIDEMIOLOGICAL ASPECTS OF PULMONARY TUBERCULOSIS IN MATO GROSSO DO SUL

Ferraz AF, Valente JG. Ministry of Health - Oswaldo Cruz Foundation (FIOCRUZ), Campo Grande, Mato Grosso do Sul, Brazil.

C.5) EPIDEMIOLOGY OF PEDIATRIC CENTRAL NERVOUS SYSTEM (CNS) TUBERCULOSIS (TB) —CALIFORNIA, 1993–2011

Duque-Silva A[1], Robsky K[2], Flood J[2], Barry P[2]. [1]Children's Hospital and Research Center Oakland, [2]Tuberculosis Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, Richmond, CA, USA.

C.6) SIMULATING EVOLUTION OF M. TUBERCULOSIS OVER TRANSMISSION NETWORKS: MODELING STUDIES TO GUIDE THE USE OF GENOMICS IN TB OUTBREAK INVESTIGATIONS

Gardy J[1], Colijn C[2]. [1]British Columbia Centre for Disease Control, Vancouver, BC, Canada; [2]Imperial College London, London, United Kingdom.

C.7) CHARACTERIZATION OF TUBERCULOSIS ISOLATES IN TB HIV-CO-INFECTED PATIENTS IN ONTARIO 2007-2011

Guthrie JL, Whelan M, Lee B, Jamieson FB. Public Health Ontario, Toronto ON, Canada.

C.8) A TB CONTACT INVESTIGATION IN A NEONATAL INTENSIVE CARE UNIT IN TORONTO, CANADA

Kadri R[1], Fox B[1], Lechner J[1], Chong K[1], Stuart R[1], Rea E[1], Kitai I[2], Schwartz K[2], Lovinsky R[3], Azzopardi P[3]. [1]Toronto Public Health, [2]SickKids Hospital, [3]The Scarborough Hospital, Toronto, ON, Canada.

C.9) PREVALENCE AND COFACTORS FOR NON-TUBERCULOUS MYCOBACTERIA AMONG NEWLY ARRIVED IMMIGRANTS AND REFUGEES IN THE UNITED STATES

Jonnalagadda S, Cuffe K, Painter J. Immigrant, Refugee and Migrant Health Branch, Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, Atlanta, GA, USA.

C.10) ACTIVE TUBERCULOSIS IN FOREIGN-BORN ENTERING BRITISH COLUMBIA FROM 2004 - 2010

Roth DZ[1], Gilbert M[1], Cook V[1, 2], Johnston J[1, 2]. [1]British Columbia Centre for Disease Control, [2]Division of Respiratory Medicine, University of British Columbia, Vancouver, BC, Canada.

C.11) SITUATION OF TUBERCULOSIS IN NEPAL FROM 1996 TO 2010

Subedi KC[1], Gyawali A[2]. [1]Rural & Alternative Energy Nepal, [2]Kutztown University, Kutztown, PA, USA.

C.12) LOW-LEVEL ISONIAZID RESISTANCE IN AN OUTBREAK POPULATION: A GENOMIC INVESTIGATION

Tang P[1], Rodrigues M[1], Michaleski M[2], Hickey T[2], Coope R[3], Pleasance S[3], Corbett R[3], Johnston J[4], Gardy J[4], Cook V[4]. [1]BC Public Health Microbiology and Reference Laboratory, [2]University of British Columbia, [3]Canada's Michael Smith Genome Sciences Centre, [4]British Columbia Centre for Disease Control, Vancouver, BC, Canada.

D. Programs, Innovations, and Impact

D.1) BUILDING A WINNING WEBSITE

Bible SP, Miodovski R, Bagchi C, King-Todd A, Garcia B, Hwang S, Alvarez F. Los Angeles County Department of Public Health, Tuberculosis Control, Los Angeles, CA, USA.

D.2) A COMMUNITY-BASED APPROACH TO EVALUATING ISONIAZID PREVENTIVE THERAPY IMPLEMENTATION AMONG PLWH IN SOUTH AFRICA

Boffa J[1], Mayan M[2], Wilson D[3], Ndlovu S[4], Fisher D[1], Sauve R[1], Cowie RL[1]. [1]Department of Community Health Sciences, University of Calgary, Calgary, [2]Community-University Partnership for the Study of Children, Youth and Families, University of Alberta, Edmonton, AB, Canada; [3]Edendale community representative, [4]Edendale Hospital, South Africa.

D.3) TUBERCULOSIS AND DIABETES IN THE MUNICIPALITY OF GUARULHOS, SAO PAULO, BRAZIL

Penon Rujula MJ, Galesi VMN, **Souza Pinto V**, Cunha Barbosa R, Bombarda S. Sao Paulo State Tuberculosis Control Program, Tuberculosis Division, Epidemiological Surveillance Center, Center for Disease Control, Sao Paulo State Health Secretariat, Sao Paolo, Brazil .

D.4) ESTRATEGIAS PARA AUMENTAR LA TASA DE CURACIÓN EN TUBERCULOSIS

Etchevarria M, Chirico C, Iribarren S, Sanjurjo M. Programa Control Tuberculosis, Region Sanitaria V, Buenos Aires, Argentina.

D.5) IDEAS IN ACTION: TORONTO PUBLIC HEALTH'S HOMELESS TEAM'S INFLUENCE ON TB CONTROL

Bain A, Scott S, **Fuller J**, Stuart R, Seemangal, J, Batt , Rea E. Toronto Public Health & St. Michael's Hospital, Toronto, ON, Canada.

D.6) REACHING THE TARGETS: LESSONS LEARNED IN DECENTRALIZATION OF TUBERCULOSIS DRUG RESISTANCE TESTING USING THE Xpert MTB/Rif ASSAY IN NYANZA PROVINCE, KENYA

Gachengo J[3], Okumu A[1],Opiyo E[1] ,Mburu M[2], Basiye F[2], Odhiambo J[2], Laserson K[1,2], McCarthy K[2] Cain K[1, 2], Sitienei J[3]. [1]Centre for Global Health and Research (CGHR) Kenya Medical Research Institute (KEMRI), Centres for Disease Control and Prevention (CDC), [2]Division of Global HIV and AIDS (DGHA), Centers for Disease Control and Prevention (CDC), [3]Division of Leprosy, Tuberculosis and Lung Disease (DLTLD), Ministry of Public Health and Sanitation (MOPHS), Kenya.

D.7) EASE OF IMPLEMENTING THE INH/RPT REGIMEN STATEWIDE

Galanowsky K, **Woods P**. New Jersey Department of Health, Trenton, NJ, USA.

D.8) AIDS MORTALITY AND TUBERCULOSIS NOTIFICATION: KNOWING BOTH DATABASES

Galesi VMN, Pereira EC. Tuberculosis Division, Sao Paulo State Health Secretariat, Brazil

D.9) THE USE OF VIDEOPHONE FOR DIRECTLY OBSERVED THERAPY

Gassanov M, Feldman L, Sebastian A, Kraguljac M and **Rea E**. Toronto Public Health, Toronto, ON, Canada .

D.10) TEXTTB: A PARALLEL DESIGN RANDOMIZED CONTROL PILOT STUDY TO EVALUATE ACCEPTANCE AND FEASIBILITY OF A PATIENT-DRIVEN MOBILE PHONE BASED INTERVENTION TO SUPPORT ADHERENCE TO TB TREATMENT

Iribarren S[1], Chirico C[2], Etchevarria M[2], Cardinali D[2]. [1]University of Utah, College of Nursing, Salt Lake City, UT, USA; [2]TB Program Director Health Region V, Hospital Dr. A Cetrangolo, Buenos Aires, Argentina.

D.11) TIMING OF TUBERCULOSIS SCREENING AMONG NON-IMMIGRANT APPLICANTS FOR LEGAL PERMANENT RESIDENCY IN THE UNITED STATES

Jonnalagadda S, Painter J. Immigrant, Refugee and Migrant Health Branch, Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, Atlanta, GA, USA.

D.12) ENGAGING COMMUNITIES IN TUBERCULOSIS RESEARCH: NEW DEVELOPMENTS IN STAKEHOLDER ENGAGEMENT

Lavery J, **Boulanger R.** St. Michael's Hospital, Toronto, ON, Canada; Critical Path to TB Drug Regimens – Stakeholder & Community Engagement Workgroup.

D.13) DRUGS AND MONEY: ADVOCATING FOR ZERO TB DEATHS IN THE U.S.

Daniels CA, **Lessem EM**, Jervis C, Harrington M, McKenna L. Treatment Action Group, New York, NY, USA.

D.14) AN ASSESSMENT OF THE QUALITY OF CARE GIVEN TO TUBERCULOSIS PATIENTS IN GUYANA

Mohanlall J, **Melville-Nero N**, Khan D, Foo A. Ministry of Health, National Tuberculosis Programme, Guyana.

D.15) EVALUATION OF MD-TB DATA SYSTEM – STATE OF SAO PAULO – BRAZIL – NINE YEARS

Oliveira ML, Fukasava S, Goldgrub N. Tuberculosis Division, Sao Paulo State Health Secretariat, Sao Paolo, Brazil.

D.16) TB PATIENTS WHO WERE LOST TO FOLLOW-UP FROM GENERAL HOSPITAL OF PORT-AU-PRINCE, HAITI AFTER THE EARTHQUAKE IN JANUARY 2010

Richard M, Docteur W. NTP, Port-au-Prince, Haiti.

D.17) TUBERCULOSIS SITUATION ROOM – SP STATE, BRAZIL

Santos LAR, Galesi VMN, Fukasava S. Center of Epidemiological Surveillance, Secretary of Health of Sao Paulo State, Brazil.

D.18) TB CONTACT TRACING FOR HOMELESS INDIVIDUALS: MANAGEMENT & SURVEILLANCE OUTCOMES

Bain A, **Seemangal J**, Batt J. St. Michael's Hospital, Toronto, ON, Canada.

D.19) MAIN FACTORS THAT HINDER THE ADHERENCE TO ISONIAZID PREVENTIVE THERAPY IN PEOPLE LIVING WITH HIV IN THE DEPARTMENT OF CHALATENANGO EL SALVADOR JANUARY TO DECEMBER 2011

Soto M. NTP Ministry of Health, San Salvador, El Salvador.

D.20) TB-HIV COINFECTION CONTROL AFTER REFERENCE HOSPITAL DISCHARGE: AN OPERATIONAL RESEARCH IN SAO PAULO, BRAZIL

[1,2]**Souza Pinto V**, [1]Bamman RH.[1]Emilio Ribas Institute for Infectious Diseases (IIER), Post-Graduation Program, Sao Paulo State Health Secretariat, [2]Sao Paulo State Tuberculosis Control Program, Tuberculosis Division, Epidemiological Surveillance Center, Center for Disease Control, Sao Paulo State Health Secretariat, Sao Paolo, Brazil.

D.21) EFFECTS OF ECUADOR'S NATIONAL MONETARY INCENTIVE PROGRAM ON DRUG-RESISTANT TUBERCULOSIS TREATMENT COMPLIANCE

Sripad A, Castedo J, Danford N, Murray J, Zaha R, Freile C. Geisel School of Medicine at Dartmouth, Hanover, The Dartmouth Center for Health Care Delivery, Hanover, NH, USA; National Tuberculosis Program of Ecuador, Quito, Ecuador.

D.22) STRATEGIES FOR REDUCING TREATMENT DEFAULT IN DRUG RESISTANT TUBERCULOSIS: SYSTEMATIC REVIEW AND META-ANALYSIS

Toczek A[1], Cox H[2,5], du Cros P[3], Cooke G[1,4], Ford N[1,5]. [1]Faculty of Medicine, Imperial College London, UK; [2]Medecins Sans Frontieres, Cape Town, South Africa; [3]Manson Unit, Medecins Sans Frontieres, London, UK; [4]Africa Centre for Health and Population Studies, University of KwaZulu-Natal, [5]Centre for Infectious Disease Epidemiology and Research, University of Cape Town, South Africa.

D.23) EVALUATION OF PRIMARY HEALTH CARE SERVICES STRUCTURE FOR TB TREATMENT

Wysocki AD[1], Scatolin BE[1], Ponce MAZ[1], Andrade RL[1], **Arakawa T[1]**, Magnabosco GT[1], Monroe AA[1], Scatena LM[2], Villa TCS[1]. School of Nursing, University Sao Paulo, Ribeirao Preto, [2]Federal University of Triangulo Mineiro, Uberaba, Brazil.

D.24) PROGRAM USE OF IGRA REDUCES COSTS OF LTBI

Woods P[1], Privett T[1], Lardizabal A[2]. [1]New Jersey Department of Health, Trenton, [2] Global TB Institute, Newark, NJ, USA.

D.25) IMPORTANCE OF COMMUNITY INVOLVEMENT IN TB, HIV/AIDS AND OTHER CLINICAL TRIALS: A RECENT PREDICAMENT OF AIDS CLINICAL TRIALS GROUP (ACTG) COMMUNITY ADVISORY BOARD IN KALINGALINGA, LUSAKA, ZAMBIA

Ziba PN. Center for Infectious Diseases Research in Zambia, ACTG Community Advisory Board, Lusaka, Zambia.

E. TB Education and Training

E.1) KNOWLEDGE, ATTITUDES AND BEHAVIORAL PRACTICES OF POPULATION ON TUBERCULOSIS IN BURKINA FASO

Bila A, Kouanda S, Ouédraogo G, Combary A, Moyenga I, Diagbouga S. Institut de Recherche en Sciences de la Santé (IRSS), Programme National de Lutte Contre la Tuberculose (PNT), Ouagadougou, Kadiogo, Burkina Faso.

E.2) MAXIMIZING THE USE OF WEB-BASED EDUCATIONAL RESOURCES

Campbell JK, Ahamed N. New Jersey Medical School Global TB Institute, Newark, NJ, USA

E.3) KNOWLEDGE, ATTITUDE AND PRACTICES (KAP) STUDY FOR PROVIDERS OF ALTERNATE SYSTEM OF MEDICINE (FORMAL AND NONFORMAL) IN MUNGER DISTRICT OF BIHAR

Singh RJ[1], Dr. S. Srinath[2]. [1]LEPRA India, Road no. 1B/13, New Patli Putra Colony, Patna, Bihar, [2]Union, C-6, Qutub Institutional area, New Delhi, India

F. TB Among at Risk and Vulnerable Populations

F.1) TUBERCULOSIS AMONG MEXICAN MIGRANTS INDIGENES IN SONORA, MEXICO

Álvarez G[1], Candia MC[1], Reguera ME[1], Rivera MB[2], Weaver T[3], Greenberg J[3]. [1]Department of Medicine and Health Sciences. Universidad de Sonora, [2]Department of Sonora Public Health, Sonora, Mexico; [3]School of Anthropology. University of Arizona, Tucson, AZ, USA.

F.2) EFFICACY AND EFFICIENCY OF TUBERCULOSIS TREATMENT ADMINISTERED TO NEW TBPBK (+) OF 14 INDIGENOUS POPULATIONS DURING 2004 TO 2010 IN EL SALVADOR

Bonilla GH. Minister of Health, San Salvador, El Salvador.

F.3) TUBERCULOSIS ON THE BRAZIL-BOLIVIA BORDER: EARLY DIAGNOSIS AND DRUG RESISTANCE

Cunha EAT[1], Marques M[2], Lempke L[1], Zarate J[3], Antonio F[3], Maia R[4]; Costa IP[5]. [1]Mato Grosso do Sul Public Health Central Laboratory, Campo Grande, [2]State Department of Health, [3]Municipal Secretariat of Health, [4]Ministry of Health, [5]Mato Grosso do Sul Federal University, Mato Grosso do Sul, Brazil.

F.4) HEALTH CANADA'S STRATEGY AGAINST TUBERCULOSIS FOR FIRST NATIONS ON-RESERVE

Courtemanche J[1], Garcia D[2], **Long R**[3], Rees S[1], Coady A[1]. [1]Health Canada, [2]Assembly of First Nations, Ottawa, ON; [3]University of Alberta, Edmonton, AB, Canada.

F.5) DESCRIPTIVE ANALYSIS OF TUBERCULOSIS PATIENTS TREATED BI-NATIONALLY, US-MEXICO BORDER, 1993-2010

Escobedo M[1], Vlasich E[2], Pinheiro G[3]. [1]Centers for Disease Control and Prevention, [2]Texas Department of State Health Services, El Paso, TX; [3]Centers for Disease Control and Prevention, Atlanta, GA, USA **.**

F.6) EFFECTS OF BORDERS IN PULMONARY TUBERCULOSIS IN MATO GROSSO DO SUL, FROM 2001 TO 2009

Ferraz AF, Valente JG. Ministry of Health - Oswaldo Cruz Foundation (FIOCRUZ), Campo Grande, Mato Grosso do Sul, Brazil.

F.7) PULMONARY TUBERCULOSIS IN PRISONERS OF MATO GROSSO DO SUL

Ferraz AF, Valente JG. Ministry of Health - Oswaldo Cruz Foundation (FIOCRUZ), Campo Grande, Mato Grosso do Sul, Brazil.

F.8) MARKED DISPARITY IN TB ON THE PRAIRIES AMONG ABORIGINAL PEOPLES

Long R[1], Hoeppner V[2], Orr P[3], Ainslie M[3], King M[1], Abonyi S[4], Mayan M[5], Kunimoto D[1], Langlois-Klassen D[1], **Heffernan C[1]**, Lau A[1], Menzies D[6]. [1]Department of Medicine, University of Alberta, Edmonton, AB, [2]Department of Medicine, University of Saskatchewan, [4]Department of Community Health and Epidemiology Saskatoon, SK, [3]Department of Medicine, University of Manitoba, Winnipeg, MB, [5]The Faculty of Extension, University of Alberta, Edmonton, AB, [6]Department of Medicine, McGill University, Montreal, QC, Canada.

F.9) TB EDUCATION FOR ABORIGINAL AND NON-ABORIGINAL YOUTH

Heffernan C[1], McMullin K[2], Long R[1]. [1]Department of Medicine, University of Alberta, Edmonton, AB; [2]The Department of Community Health and Epidemiology, University of Saskatchewan, Saskatoon, SK, Canada.

F.10) CURRENT EPIDEMIOLOGICAL TREND OF ACTIVE TUBERCULOSIS AMONG FIRST NATIONS ON–RESERVE IN SASKATCHEWAN, CANADA

Khan I, Kazadi GB, Ceaser M, Czernick C, El-Azeem A, Shridhar G. Health Canada, First Nations and Inuit Health Branch, Regina, Saskatoon Health Region, TB Control, Saskatoon, SK.

F.11) REVIEW OF PATTERNS OF TUBERCULOSIS (TB) TRANSMISSION IN SOUTH SASKATCHEWAN FIRST NATIONS COMMUNITIES

Alexander D[1], Arnold L[2], Bukassa Kazadi G[2], Ceaser M[2], Czernick C[2], Khan I[2], **Knuuttila V[2]**. [1]SK Health, [2]Health Canada First Nations and Inuit Health Branch (FNIHB), Saskatchewan Region, Regina, SK, Canada.

F.12) THE MAGNITUDE OF TUBERCULOSIS ON THE BORDER OF MATO GROSSO DO SUL (BRAZIL), BOLIVIA AND PARAGUAY

Marques M, Cunha EAT, Andrade SMO, Fernandes SM. Secretaria de Estado de Saude de Mato Grosso do Sul, Campo Grande, Brazil.

F.13) OLD KEYAM – A FRAMEWORK FOR EXAMINING THE DISPROPORTIONATE EXPERIENCE OF TUBERCULOSIS AMONG ABORIGINAL PEOPLES OF THE CANADIAN PRAIRIES

McMullin K[1], Abonyi S[1], Mayan M[2], Orr P[3], Lopez-Hille C[3], King M[2], Boffa J[4], Long R[2]. [1]University of Saskatchewan, Saskatoon, SK; [2]University of Alberta, Edmonton, AB; [3]University of Manitoba, Winnipeg, MB; [4]University of Calgary, Calgary, AB, Canada.

F.14) CROSS BORDER CONTINUITY OF TUBERCULOSIS (TB) CARE

Vera-Garcia C. CureTB Binational Tuberculosis Referral Program (HHSA), San Diego, CA, USA.

A.1) PREDICTIVE VALUE OF RIFAMPICIN RESISTANCE TESTING FOR MULTI-DRUG RESISTANT TUBERCULOSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Arentz M[1], Sorensen B[2], Horne DJ[1], Zignol M[3], Steingart K[4], Walson JL[5]. [1]Division of Pulmonary and Critical Care Medicine, [2]Center for AIDS Research, [4]Department of Health Services, Departments of Medicine, Global Health, Pediatrics and Epidemiology, University of Washington, Seattle, USA; [3]World Health Organization, Geneva, Switzerland; [5]School of Public Health; Center for Clinical Research, Kenya Medical Research Institute, Nairobi, Kenya.

BACKGROUND: Rapid tests for rifampicin resistance may identify multidrug-resistant TB (MDR-TB). However, choice of test and prevalence of rifampicin resistance may impact a diagnostic strategy for identifying MDR-TB. We performed a systematic review on the performance of WHO-endorsed rapid tests for rifampicin resistance detection. We utilized the WHO drug resistance surveillance (DRS) database to determine the positive and negative predictive value (PPV and NPV) of rifampicin resistance testing for MDRTB.

METHODS: We searched Medline, Embase and the Cochrane Library through January 1, 2012. For each rapid test, we determined pooled sensitivity and specificity estimates using a hierarchical random effects model. We evaluated countries in the DRS database with drug resistance testing performed after January 1, 2000. Predictive values of the tests were determined at different prevalence rates of rifampicin resistance and MDRTB.

RESULTS: We identified 61 publications involving six different tests (INNO-LiPA, Genotype MTBDR assay, Genotype MTBDR plus assay, Colorimetric Redox Indicator (CRI) assay, Nitrate Reductase Assay (NRA) and MODS tests: For all tests, NPVs were high when rifampicin resistance prevalence was ≤ 30%; PPVs were considerably reduced when rifampicin resistance prevalence was < 5%. Among 96,833 samples evaluated from the DRS database, PPV of rapid rifampicin testing for MDR-TB was 68% and < 90% in countries with MDR-TB prevalence <16%.

CONCLUSION: Rapid tests for rifampicin resistance alone cannot accurately predict MDRTB in areas with low MDR-TB prevalence. However, in areas with high MDR-TB prevalence, these tests may be a valuable component of an MDR-TB management strategy.

A.2) TUBERCULOSIS: TENDENCIA EN LA ÚLTIMA DECADA REGION SANITARIA V. PROVINCIA DE BUENOS AIRES, ARGENTINA. 2000- 2010

Chirico C, Etchevarria M, Iribarren S, Sanjurjo M. Programa Control Tuberculosis, Region Sanitaria V, Buenos Aires, Argentina.

RESUMEN: La Tuberculosis (TB) es la causa mas importante de mortalidad debida a un solo agente infeccioso. En la República Argentina continua siendo un problema de Salud Pública con mas de 10 000 casos anualmente. La Región Sanitaria V (RSV), contribuyó con la cuarta parte de los casos, notificados en la Provincia de Buenos Aires (1051/4298); TI: 33.6/100,000 habitantes

OBJETIVO: Describir la distribucion y tendencia de la tasa de incidencia (TI) de TB en RSV, arios 2000- 2010.

MATERIAL Y MÉTODO: los datos provienen de notfficaciones oficiales al Programa Nacional de Control de la TB.

VAP: Variación anual promedio, expresa en forma porcentualla tendencia de una enfermedad en la población a lo largo del tiempo. Las tendencias fueron calculadas por regresión lineal simple. Una VAP negativa significa descenso. Un valor inferior a 5% constituye un indicador de alarma (IA). Periodo de estudio: 1/01/2000 a 31/12/2010

RESULTADOS: EI valor de VAP fue menor (-5%), con poca disminución del problema y tendencia estacionaria.

CONCLUSIÓN: Las acciones del programa control de T8 deben orientarse a lograr la disminución de esta enfermedad, en el menor tiempo posible. El análisis en relación a los datos obtenidos permitió evaluar cual fue la efectividad de las estrategias implementadas.

A.3) PULMONARY TUBERCULOSIS VS EXTRA PULMONARY TUBERCULOSIS: DOES DIABETES HAVE A PREFERENTIAL PREY: A HOSPITAL BASED RETROSPECTIVE STUDY

Chugh Y, Subba S, Chakrapani M. Kasturba Medical College, Manipal Univestiy, Mangalore, India.

BACKGROUND: From an immunological stand point, Extra Pulmonary Tuberculosis (EPTB) should be more common among diabetics than Pulmonary tuberculosis (PTB), as this acquired immunosuppresion would favour bacterial dissemination and thus such a clinical manifestation. This study aims to explore the possible association between diabetes and extra pulmonary tuberculosis.

METHODS: A retrospective case control study was conducted analyzing patient records from January 2011 to January 2009. Cases of TB and EPTB ,as diagnosed by the Revised National Tuberculosis Control Program (RNTCP), without any comorbid immunosuppression were included and data pertaining to their glycemic control (IGT/DM) was recorded. The two patient groups were matched for age and sex, further analysis was made using the Odds Ratio.

RESULTS: Between January 2009 to 2011 a total of 1744 patients were diagnosed and treated at the hospital of which two groups of 46 patients, each of TB and EPTB, were randomly selected after fitting the inclusion criteria.

We found that the odds of EPTB in a diabetic patient was infrequent (OR 0.09), and the odds of EPTB in a patient with impaired glucose tolerance was 0.62. However on the contrary, a diabetic would have a 9.71 greater chance, and a patient with impaired glycemic control a 1.6 greater chance of getting PTB.

CONCLUSION: Diabetes, despite being a prevalent form of Acquired Immunosuppression, failed to be a risk factor for EPTB, unlike the T cell attack by the Human Immunodeficiency Virus. Decreased propensity for EPTB in diabetes would require further studies with regard to specific immunological alterations in diabetes.

A.4) EVALUACIÓN CLINICA Y DEMOGRÁFICA EN PACIENTES QUE RECIBIERON TRATAMIENTO PREVIO PARA TUBERCULOSIS EN LIMA-PERÚ

Contreras C[1], Moro R[3], Yagui M[2], Atwood S[6], Cegielski P[3], Shin SS[1,3,4,5]. [1]Socios En Salud, [2]Instituto Nacional de Salud, Lima, Perú; [3]U.S. Centers for Disease Control and Prevention, Atlanta, GA, [4]Department of Medicine, Brigham and Women's Hospital, Boston, [5]Division of Global Health Equity, Brigham and Women's Hospital, Boston, [6]Division of Infectious Diseases, Brigham and Women's Hospital, Boston MA, USA.

BACKGROUND: Información reciente encuentra asociación entre tratamientos no-supervisados para tuberculosis (TB) y el incremento de resistencia a múltiples drogas. El objetivo fue evaluar características clínicas y demográficas en pacientes con antecedentes de tratamiento anti-TB.

METODOS: Estudio descriptivo realizado en Lima-Perú en el periodo 2005-2008. Se recopilo información de las historias clínicas. Se realizó análisis usando SAS 9.2. Significancia estadística con un alpha de 0.05 y con un IC del 95%.

RESULTADOS: Se enrolaron 1416 pacientes mayores de 18 años y con antecedentes de tratamiento previo: 141 (10%) auto-administrado (SA) y 1275 (90%) supervisado (ST). Existen diferencias significativas en las características clínicas y demográficas en ambos grupos (edad, educación, consumo de droga, problemas de salud relacionados y extensión de la TB). Comparando las características del tratamiento previo en el grupo SA, el grupo ST muestra diferencias significativas en: menor número de tratamientos previos (1-6vs1-7), menor tiempo desde que el paciente inició su primer tratamiento anti-TB (5.9vs.90 meses), menor porcentaje de tratamientos drogo-resistentes (3.1 vs. 9.2); en relación a su último tratamiento los pacientes recibieron más drogas de segunda línea, mayor abandono (44.3% vs. 33.3%) y menor fracaso a tratamiento (6.6% vs. 17.5%).

CONCLUSION: Los grupos SA y ST fueron no homogéneos, el grupo SA presenta más fracasos en tratamientos anteriores, probablemente por tratamientos no supervisados y con riesgo de incrementar drogo-resistencia. Se recomienda integrar los servicios de salud asegurando un óptimo tratamiento con normativas nacionales.

A.5) 2010 TUBERCULOSIS FOLLOW-UP EXAMINATION FOR IMMIGRANTS AND REFUGEES WHO RELOCATED TO THE UNITED STATES WITH TB CONDITIONS

Cuffe K, Philen R, Gray N, Weems M, Painter J. Centers for Disease Control and Prevention, Atlanta, GA, USA.

BACKGROUND: The Electronic Disease Notification system (EDN) notifies U.S. health departments of immigrants and refugees identified with suspected tuberculosis (TB) during overseas examinations. U.S. TB programs conduct follow-up examinations of these immigrants and refugees and report the results to CDC through EDN. We evaluated EDN data to determine the follow-up rate and final diagnosis.

METHODS: We analyzed EDN TB follow-up data for Class B arrivals who arrived in the U.S. in 2010. The Class B TB definition includes having a chest radiograph consistent with TB but having negative sputum smears (1991 TB technical instructions [TI]) or negative cultures (2007 TB TI); or children 2-14 years of age with latent TB infection (LTBI) (2007 TB TI); or being a contact of a TB case (1991 and 2007 TB TI).

RESULTS: In 2010, EDN notified states of 24,728 individuals arriving with Class B TB. 17.3% were refugees, 81.6% were immigrants, and 1.1% held other U.S. visas; the Philippines was the country of origin for 38.4%. TB evaluation results were reported for 80.4%; 80.9% were completed, 5.5% were incomplete, and 13.6% were not started. Of those with a completed evaluation, the final diagnosis was 1.3% with active TB and 42.3% with LTBI.

CONCLUSION: The high rate of TB and LTBI diagnosed in this cohort highlights the importance of timely and thorough follow-up examination. To increase the number of TB and LTBI cases identified and treated, efforts should be increased address any challenges to follow-up examination and reporting.

A.6) REACHING FOR ZERO TB DEATHS, NEW INFECTIONS AND SUFFERING

Daniels C, Harrington M, Keshavjee S, Gonsalves G, Becerra MC. Treatment Action Group, Harvard Medical School, ITPC, Boston, MA, USA.

BACKGROUND: Tuberculosis (TB) devastates communities although it has been preventable--and curable--for decades. Current inadequate efforts to reach unambitious targets delay progress in the fight against TB. A new target is now being called for: zero TB deaths, new infections, and suffering. Reaching for this target requires a paradigm shift.

METHODS: To develop an evidence base for a new paradigm, campaign members conducted literature reviews, interviewed key stakeholders and met with experts to develop discussion papers outlining the current challenges and possible solutions.

RESULTS: Evidence about optimal approaches to preventing TB infections, cases and deaths has been applied widely in the rich countries and rarely in the rest of the world. One example of this divergence is the paradigm of family-centered care for TB, where children are at the core. This paradigm leads to a metric of success that counts the number of child contacts evaluated and treated. It further drives an ambitious research agenda to fill gaps with new tools. Similarly, evidence-based approaches to protecting individuals in high-risk social networks can be applied more widely.

CONCLUSION: Over the next decade, the response to the TB epidemic can be transformed by reaching for zero TB deaths, infections and suffering. One place to start is by systematically closing the TB practice gap: ensuring existing knowledge is applied widely and without delay. This will be the most fruitful ground in which new discoveries can be deployed.

A.7) REDUCED SENSITIVITY OF AURAMINE STAINED SPUTUM SMEARS IN MDR-TUBERCULOSIS

Datta S[1,2], Quino W[2], Valencia T[2], Ramos E[2], Osorio C[2], Llacza M[2], Glover S[2], Montaya R[1,2], Evans CA[2]. [1]Asociacion Benefica Prisma, [2]IFHAD: Innovation for Health and Development, Universidad Peruana Cayetano Heredia, Lima, Peru.

BACKGROUND: Sputum microscopy is the front line tool for diagnosing pulmonary tuberculosis. Auramine stained sputum smears have greater sensitivity than Ziehl-Neelsen stained smears for the detection of acid fast bacilli and auramine is now the recommended stain for sputum microscopy. We investigated whether microscopy results were affected by drug resistance.

METHOD: In this blinded study, 517 fresh sputum samples from patients with suspected or proven tuberculosis underwent duplicate smears, one stained with Ziehl-Neelsen and read by light microscopy, and the other stained with auramine and read by fluorescence, both using the same number of high-power microscopy fields with the ZEISS iLED microscope. All samples were collected pre-treatment and underwent culture and drug-susceptibility testing with 7H9 broth and thin-layer 7H11 agar techniques to differentiate multi-drug resistant (MDR)-tuberculosis.

RESULTS: Auramine microscopy had 80% diagnostic sensitivity for patients with non-MDR tuberculosis versus 64% sensitivity for diagnosing patients with MDR TB (p=0.012). This difference in test sensitivity between MDR and non-MDR was not observed in Ziehl-Neelsen stained sputum smears, agar cultures nor in broth cultures (Figure 1, all p>0.3). The median colony forming units in culture between non-MDR and MDR were similar (p=0.4). In logistic regression, multidrug resistance was associated with a false-negative auramine microscopy result (OR 2.3 p=0.01), while it was not for Ziehl-Neelsen (p=0.9).

CONCLUSION: The sensitivity of auramine microscopy is reduced for MDR. Consequently the true prevalence of MDR strains will be underestimated if auramine microscopy is the principal test used for tuberculosis case finding.

A.8) OUTCOMES OF CLOFAZIMINE FOR THE TREATMENT OF DRUG-RESISTANT TUBERCULOSIS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Dey T[1], Brigden G[2], Cox H[3,4], Shubber Z[5], Cooke G[1,6], Ford N[2,7]. [1]Faculty of Medicine, Imperial College, [2]Médecins Sans Frontières, [5]Division of Infection and Immunity, University College Hospital, London, UK; [4]Monash University, Melbourne, Australia; [3]Médecins Sans Frontières; [6]Africa Centre for Health and Population Studies, University of KwaZulu-Natal, [7]Centre for Infectious Disease, Epidemiology and Research, University of Cape Town, South Africa.

BACKGROUND: Current anti-tuberculosis therapeutics are not sufficiently effective against the drug resistant *Mycobacterium tuberculosis* (DR-TB) epidemic, and there is a need for new drugs and therapeutic approaches. It has been proposed that repurposing clofazimine for DR-TB treatment might be one way to increase therapeutic options.

METHODS: We conducted a systematic review of studies reporting on the efficacy and safety of clofazimine as part of combination therapy for DR-TB. 6 databases and 6 conference abstract sites were searched for articles from inception until April 2012. All studies involving the use of clofazimine in the treatment of DR-TB were included.

RESULTS: 12 studies, comprising 3489 patients across 10 countries, were included in this review. Treatment success ranged from 16.5% (95%CI 2.7-38.7%) to 87.8% (76.8-95.6%). Mortality, treatment interruptions, defaulting, and adverse events were all in line with expected MDR-TB treatment outcomes. The most commonly reported adverse events were gastrointestinal disturbances and skin pigmentation.

CONCLUSION: The available evidence to date suggests that clofazimine could be considered as an additional therapeutic option in the treatment of DR-TB. The optimal dose and duration of clofazimine use requires further investigation.

A.9) A CORRELATION OF CLINICAL FACTORS OF EXTRAPULMONARY TUBERCULOSIS WITH THE OUTCOME OF CHILDREN WITH AND WITHOUT BCG SCAR ADMITTED AT A GOVERNMENT HOSPITAL IN THE PHILIPPINES

Duran A, Campos-Manansala, S. East Avenue Medical Center, Philippine Pediatric Society, Quezon City, Philippines.

BACKGROUND: Despite the massive campaign making health care available, extrapulmonary TB remains to exist. This study was undertaken to present the clinical features and outcome of patients with EPTB and correlate factors to outcome among patients who had BCG scar in comparison to those who did not have the scar.

METHODS: 39 patients with EPTB with and without BCG scar were reviewed based on demographic data, clinical features and laboratory findings. All analyses were performed using STATA 10.

RESULTS: No statistical difference between those with BCG scars against those without BCG scar in terms of demographic characteristics and clinical features. Those who died are younger (mean 5.8 v 10.5, p=0.012) with lower weights (mean 16.1 v 30.3, p=0.006). PPD test was positive in 82% of patients with a higher percentage among those without the scar (91%) than those with scar (78%) (p=0.023). All patients without a scar turned positive for CSF AFB culture. A higher proportion of children with meningitis and communicating hydrocephalus was also noted among those without the scar.

CONCLUSION: Nutritional status and age affect outcome of patients with EPTB. BCG provides protective effect on TB meningitis. Vaccine efficacy may wane after sometime; hence booster dose is recommended.

A.10) THE DOUBLE-EDGED SWORD: DIABETES MELLITUS AND TUBERCULOSIS IN GEORGIA, USA

Foote M, Kempker RR, Magee MJ, Maggio DM, Ray SM. Emory University Schools of Medicine and Public Health, GA State TB Program, Department of Public Health, Atlanta, GA, USA.

BACKGROUND: Diabetes mellitus (DM) confers a significant risk of developing active tuberculosis (TB), yet questions remain regarding the characteristics of this association. This report is a comparison between diabetic and non-diabetic pulmonary TB cases reported to a state TB program in Georgia, USA.

METHODS: All verified TB cases reported 2009-2011 were reviewed using the State Electronic Notifiable Disease Surveillance System (SENDSS). Associations between DM and TB characteristics were assessed using chi-square, t-tests, and multivariable logistic regression.

RESULTS: Among 1,168 reported TB cases in Georgia, 133 (11.4%) had DM and 612 (52.4%) were sputum culture positive (cPTB). Among cPTB patients, those with DM (n=76) were on average older (54 vs. 43 years, $p < 0.05$) and had lower prevalence of HIV (2.6% vs. 14.4%, $p<0.05$) than those without DM (n=536). After adjusting for HIV, age, and sex, DM was independently associated with a positive AFB smear at diagnosis (aOR 2.0, 95% CI 1.1-3.6) and cavitary disease (aOR 1.8, 95% CI 1.1-3.1). There were no significant associations between DM and race/ethnicity, drug resistance, or death.

CONCLUSION: TB patients with DM have evidence of more severe disease at the time of presentation. The increased severity may be due to faster progression or later recognition of disease in these patients. TB/DM patients also pose a higher infectious risk given the association with sputum smear positivity and cavitary disease. Prioritizing DM detection and management should be an essential component to future TB control efforts.

A.11) HEPATOTOXICITY OF TB DRUGS IN THE ELDERLY

Hosford J[1], Von Fricken M[2], Fennelly K[1], Lauzardo M[1], Shuster J[3], Lyon JA[4], Nayfield S[5]. [1]Southeastern National Tuberculosis Center and Emerging Pathogens Institute, Department of Medicine, [2]Department of Global Health, Emerging Pathogens Institute, [3]Clinical and Translational Science Institute, [4]Health Science Center Libraries, [5]Department of Aging and Geriatric Research, College of Medicine, University of Florida, Gainesville, USA.

BACKGROUND: Tuberculosis (TB) occurs at an increased rate in older individuals. Unfortunately, these individuals are more likely to have adverse events to the toxic drugs used to treat the disease. The goal of this investigation was to conduct a systematic literature review in order to determine if older age was a risk factor for hepatotoxicity resulting from treatment with first line drugs used to treat active and latent tuberculosis. We hypothesized that older patients would have higher rates of hepatotoxicity.

METHODS: We defined" elderly" as being 60 years of age or greater. Our main outcome of interest was elevation in LFTS >3–5 times the upper reference level and/or symptoms of hepatitis. The English literature was searched to identify relevant articles published between January 1970 and January 2012.

RESULTS: The search strategy, using two independent readers, resulted in 321 potentially relevant indexed citations, of which 42 full text studies (23 datasets) were included for final analysis. All articles combined yielded a sample size of 41,404. Of these 5,023 (12%) persons were over the age of 60 and 35259 were under age 60. A total of 394 (26%) of the hepatotoxic events in all studies occurred in persons over the age of 60 ($X2= 283.49$, p-val <0.0001).

CONCLUSION: A significantly increased number of hepatotoxic events occurred in those over the age of 60. The data from this study suggest that a different approach for TB treatment in the elderly should be considered.

A.12) TREATMENT OUTCOME OF MULTIDRUG-RESISTANT *MYCOBACTERIUM TUBERCULOSIS* IN NEPAL

Jnawali BN[1], Kakchapati S[2], Choonpradub C[2], Gyawali A[3], Subedi KC[4], Jha RK[5]. [1]National Tuberculosis Center, Bhaktapur, Nepal; [2]Prince of Songkla University, Muang, Thailand; [3]Kutztown University, Kutztown, PA, USA; [4]Rural & Alternative Energy, Nepal; [5]Wuhan University, Wuhan, China.

BACKGROUND: Multidrug-resistant *Mycobacterium tuberculosis* (MDR TB) is an emerging problem of great importance to public health with higher mortality rates. Emerging MDR-TB is posing a new threat to TB control in Nepal. The purpose of this study was to examine factors associated with treatment outcome of MDR–TB cases in Nepal.

METHODS/RESULTS: A retrospective analysis of MDR-TB cases by demographic determinants and treatment was conducted. A total of 494 MDR-TB cases were registered from years 2005 to 2008, with data obtained from the National Tuberculosis Center (NTC). Chi-squared tests were used to assess statistically the association between smear and culture conversion and treatment outcome. Determinants were analyzed with the use of Kaplan–Meier curves and Cox proportional-hazards models to generate estimates of the associations with the time to treatment outcome. Sputum conversion status and culture conversion status were positively associated with treatment outcome. The results of fitting survival curves indicated that any treatment benefit was confined to the first 24 months. In a multiple Cox proportional-hazards regression model, no determinants were found to be associated with time to cure.

CONCLUSION: In conclusion, our findings highlight the magnitude of MDR TB in Nepal and also provide information on individual-level factors associated with MDR TB in Nepal. No determinants were found to be associated with time to cure in multiple Cox proportional-hazards regression model. Plans to expand appropriate diagnostic and treatment services for patients with MDR-TB are urgently needed, particularly in regions where the burden of MDR-TB is greatest.

A.13) THE UTILITY OF GASTRIC ASPIRATES IN DIAGNOSING TUBERCULOSIS IN CHILDREN

Kordy F[1], Kitai I[1], Jamieson F[2], Richardson SE[1]. [1]The Hospital for Sick Children, [2]Toronto Public Health Laboratory, University of Toronto, Toronto, ON, Canada.

BACKGROUND: Rapid buffering of gastric aspirates (GA) for TB culture is recommended to prevent death of organisms. Prior to 2007 pH adjustment of specimens at SickKids was performed after receipt in the laboratory. Thereafter, aspirates were placed directly in alkali containing kits.

OBJECTIVES: To determine the utility of gastric aspirates (GA) in the diagnosis of TB and identify issues with regards to optimal collection and diagnosis.

METHODS: A retrospective review from 1999-2011 of all TB cultures from microbiology database. Data collected included the number of specimens per patient, time of collection, time of receipt in lab, positivity rate, and relation to other specimens for TB culture on the same patient.

RESULTS: 785 gastric aspirates were collected from 285 patients. GA constituted 17% (785/4677) of all respiratory samples. The median time from collection to lab receipt was 2.5 hours; 659/785 (84%) were received within 4 hours. 222/285 (78%) of patients had three or more GA. 20/63 (32%) patients treated for TB disease had positive GAs. 70% of positives were identified on first GA and 95% by the 3rd specimen. All patients (8/8) with disseminated TB had positive GAs. 21/558 (4%) GAs before year 2007 were culture positive and 14/237(6%) after year 2007 (p=0.196). Only 6 GA samples were rejected due to quality issues.

CONCLUSION: GA had the highest sensitivity for the diagnosis of disseminated TB. TB culture positivity increased incrementally with the number of GA taken per child. The majority of GA specimens were submitted to the laboratory within the recommended time frame. Direct placement of GAs into buffer kits had culture yields as good as, or possibly better than, pH adjustment of individual specimens. Overall yield of GAs in our institution was low, consistent with the low incidence of TB. Given the importance of obtaining cultures in young children the optimal utilization of this test compared to other respiratory diagnostic modalities warrants further study.

A.14) ACCURACY OF GeneXpert MTB/RIF IN MALNOURISHED HOSPITALIZED MALAWIAN CHILDREN

LaCourse SM[1,2], Chester FM[2], Preidis G[3], McCrary M[2], Arscott-Mills T[4], Maliwichi M[2], McCollum ED[2,5], Hosseinipour MC[2]. [1]Division of Allergy & Infectious Diseases ,University of Washington, Seattle, WA, USA; [2]UNC Project, Lilongwe, Malawi; [3]Department of Pediatrics, Baylor College of Medicine, Houston, TX, USA; [4]Botswana- UPenn Partnership, Gaborone, Botswana; [5]Department of Pediatrics, Division of Pulmonology, Johns Hopkins School of Medicine, Baltimore, MD, USA.

BACKGROUND: Despite advances in *Mycobacterium tuberculosis* diagnostics, smear microscopy and culture confirmation remain difficult in children since tuberculosis is generally paucibacilliary or extrapulmonary, especially those HIV-infected or malnourished. In Malawi GeneXpert MTB/RIF may improve diagnosis in children with severe malnutrition but data is limited.

METHODS: Hospitalized patients, aged 6-60 months, meeting World Health Organization guidelines for severe malnutrition, were clinically screened for tuberculosis and two induced sputums were collected for smear microscopy, culture and GeneXpert MTB/RIF evaluation. Patients were scheduled 6 week follow-up.

RESULTS: Between February and June 2012, 300 malnourished children (51% female, mean age 20.7 months) were screened for tuberculosis. 15.7% were HIV-infected (47) 12.7% (38) HIV exposed. Clinical tuberculosis was diagnosed in 124 (41.3%); only 2 (0.66%) were positive by GeneXpert MTB/RIF and culture (1 of which was smear positive). In-hospital mortality was 8.5%. HIV infected patients were more likely to have fever, edema, diagnosed with clinical tuberculosis, and die than HIV uninfected (p=0.0167).

CONCLUSION: Tuberculosis diagnosis remains challenging in severely malnourished children. Although the number diagnosed with clinical tuberculosis likely overestimates the true burden of disease, the large proportion of patients with exposure suggests that prevalence is likely higher than those confirmed with microbial confirmation. In a severely malnourished pediatric population Gene Xpert and culture of induced sputum specimens were low yield, with GeneXpert MTB/RIF offering no clear diagnostic advantage overall. Alternative diagnostics for tuberculosis should be researched.

A.15) INCREASE IN MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB) AMONG FOREIGN-BORN PERSONS IN ALBERTA, CANADA: IMPLICATIONS FOR TUBERCULOSIS MANAGEMENT

Long R, **Langlois-Klassen D.** University of Alberta, Edmonton, AB, Canada.

BACKGROUND: The prevalence of anti-tuberculosis drug resistance has been increasing globally. This study describes the epidemiologic trends in multidrug-resistant tuberculosis (MDR-TB) among foreign-born persons in Alberta, a major immigrant-receiving province of Canada.

METHODS: All foreign-born culture-positive TB cases reported in Alberta in 1982-2011 were included. Relevant demographic, clinical and laboratory data was abstracted from the TB Registry, individual medical records and the Provincial Laboratory for Public Health.

RESULTS: Twenty-seven (1.2%) of the 2,234 foreign-born culture-positive TB cases in 1982-2011 had MDR-TB. Overall, MDR was associated with age <65 years (p=0.025), TB relapse/retreatment (p<0.0001), and diagnosis and arrival in 2002-2011 (p=0. 006). The prevalence of MDR-TB in 2002-2011 was 2.1 %, an increase from 0.65% in 1982-1991 (p=0.022) and 0.56% in 1992-2001 (p=0.009). The prevalence of MDR-TB in each 10-year period increased 1.6 to 2.2 times when limited to cases that arrived in that period. Of individuals born in high MDR-TB burden countries, only those born in the Philippines and Vietnam showed a significant increase in the prevalence of MDR-TB between 1982-2001 and 2002-2011 (p=0.017 and p=0.040, respectively). MDR-TB cases in 2002-2011 relative to 1982-2001 tended to be younger than 35 years (57.9% versus 25.0%; p=0.265), new active TB (73.7% versus 37.5%; p=0.102) and non-respiratory disease (36.8% versus 0%; p=0.068).

CONCLUSION: Recent trends in the prevalence and clinical characteristics of foreign-born MDR-TB cases have important implications for TB case management in Canada. Early diagnosis of MDR-TB, using genotypic drug susceptibility testing, is suggested in foreign-born TB cases at increased risk of being MDR.

A.16) UTILITY OF MODIFIED SPUTUM INDUCTION AS A RESEARCH METHOD IN TUBERCULOSIS (TB)

Lardizabal A, Mangura BT, Vlalet T, Lakehal K, Pine R, Gennaro ML. NJMS Global Tuberculosis Institute & Publlo Health Research Institute, Newark, NJ, USA.

BACKGROUND: Repeated access to lung cells is necessary to understand tuberculosis. Bronchoalveolar lavage (BAL) is limited because of invasiveness. Sputum is accessible by sputum induction (SI). SI is noninvasive but rarely used because of variable results in different settings. To utilize SI as a research method, we standardized SI in MTB-exposed study subjects using sputum macrophage of analysate as a marker.

METHODS: We modified published SI procedure before application on study subjects. IRB approval and consents were obtained; and enrollment of three clinically defined groups with MTB exposure [LTBI(-), L TBI(+) and TB] was conducted. Subjects underwent SI with 3% saline using a high-volume ultrasonic nebulizer. Subjects were observed and coached throughout the procedure; as needed, they cleared oral contents prior to coughing and expectorating into a collection tube. The process was repeated until desired volume was obtained. Samples were analyzed by hemocytometry and flow cytometry.

RESULTS: SI protocol: Stage 1 established timing, duration (20 min), volumes of instill ale (15 ml) and desired sample (10 ml); Stage 2: Modified 81 application. Lung samples of 40/59 eligible subjects enrolled were analyzed: 5 TB exposed LTBI (-) = 59.1 % macrophages, 22 L TBI(+) = 44.42 % macro phages and 13 TB disease"' 31.23 % macrophages.

CONCLUSION: With a modified SI protocol, we obtained sufficient macrophages for studies that are typically performed using BAL. The reduced proportion of macrophages In TB vs LTBI (-) subjects may result from inflammatory responses during active TB. SI is patient-acceptable, reproducible and safe to obtain lung cells for repeated studies.

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A.17) BEST PRACTICES OF SURGICAL OPTION IN MDR-TB TREATMENT AT GTBI

Lardizabal A, Mangura BT, Sharma A, Bolanowski P, McDonald RJ, Reichman LB. NJMS Global Tuberculosis Institute, Newark, NJ, USA.

BACKGROUND: Surgery is an adjunctive procedure in MDRTB treatment. Lattimore Practice serves as referral site for MDTRB cases in NJ. Lessons learned from a 10-yr period with 21 cases resulted in GTBI's best practices with the surgical option.

METHODS: Retrospective review on treatment of 21 MDRTB cases managed from 1999-20008 by the Lattimore Practice, Newark, NJ. Information was coded and entered into a database. Analysis was performed on timing and surgical indications of combined medical and surgical case management.

RESULTS: 9 men, 12 women, ages 19-55 years underwent MDTB medical management with second line drugs. 15 were treated solely with medical MDRTB treatment without relapses; 6/21 underwent surgery. Surgical indications were presence of severe lung destruction, persistent positive cultures despite appropriate medical regimens and decreasing 2nd line drug options. Preoperative preparation included bronchoscopy with biopsy of bronchial stump and pulmonary artery embolization. Pneumonectomy, wedge resection or segmental resection was performed. No operative complications were observed; one had post-operative complication of BP fistula. All 6 achieved culture conversion post-surgery with continued medical regimen; however 2/6 relapsed after 12-36 months of negative cultures. There was no mortality.

CONCLUSION: Culture conversion and shortening of duration of treatment of MDRTB were achieved using a combination of case management, appropriate second line drug management and adjunct surgical resection. Lessons learned were earlier surgery was preferable, adequate preoperative preparation limits complications, and delineated resection preserves lung function. Optimal medical management remains the basis of successful MDRTB treatment. Surgery is an important adjunct in specific clinical conditions.

A.18) THE IMPACT OF THE TB DIAGNOSTIC COMMITTEE ON THE OUTCOME OF SMEAR NEGATIVE TB SYMPTOMATICS AT VETERANS MEMORIAL MEDICAL CENTER

Macalino M, De Guia E, Aquino T. Veterans Memorial Medical Center, Quezon City, Philippines.

BACKGROUND: The TB Diagnostic Committee (TBOC) was established to screen symptomatic smear negative cases with chest x-ray findings suggestive of pulmonary tuberculosis that may need treatment. Since the formation of the Veterans Memorial Medical Center (VMMC) TBDC in 2006, no data has been gathered to look into its impact on the community.

METHODS: A prospective cohort study of TB symptomatic >18 years-old with negative AFB smear presented to the VMMC-TBDC were followed up at 2nd, 6th, 9th and 12th month. Based on the committee's decision to treat or not to treat, they were monitored for clinical symptoms, weight and chest x-ray changes. The differences in these groups were analyzed. Correlation between symptoms and weight and between symptoms and chest x-ray findings among those given medications were also tested.

RESULTS: A total of 100 patients were included, 73 received treatment and 27 did not, based on the TBDC recommendations. Among the clinical symptoms, cough and sputum production resolved by the 2nd month of observation for the group that were treated. Regression of chest x-ray lesions were also seen by the 2nd month but it did not correlate with the clinical symptoms of the patient. Weight gain correlated well with radiologic improvement.

CONCLUSION: The VMMC-TBDC's decision to give anti-Koch's to these smear-negative patients who they believe were suffering from active tuberculosis was appropriate. Weight gain, clinical and radiologic improvements were evident among all treated patients.

A.19) COINFECTION TB/HIV: NOTIFIED CASES STUDY IN SÃO PAULO STATE (2010)

Magnabosco GT, Arakawa T, Wysocki AD, Lopes LM, Brunello MEF, Andrade RLP, Monroe AA, Ruffino-Netto A, Villa TCS. University of Sao Paulo, School of Nursing of Ribeirao Preto, Sao Paulo, Brazil.

BACKGROUND: HIV infection is considered a major factor risk in the progression of latent infection with *Mycobacterium tuberculosis* to active disease. Tuberculosis (TB) is the leading cause of death among people living with HIV/AIDS and the appropriate management of TB treatment among this population is indispensable. Objective: The aim of this study was to characterize TB cases co-infected (HIV/TB) reported in the São Paulo state (SP) as new cases of TB in 2010.

METHODS: A descriptive study of new TB cases co-infected with HIV, reported on TB surveillance system in SP (Web-TB) in 2010. For this study, we excluded cases of change of diagnosis, transfer to another state and unknown information about the outcome. Socio-demographic, clinical and follow-up were analyzed using descriptive statistics.

RESULTS: In 2010, 16,688 new cases of TB were reported in TBWeb. Information on the status of HIV infection was available in 16,656 records (99.7%). Of these, 1784 were coinfected individuals, and a total of 1608 were included in this study. The extrapulmonary form was identified in 27.2% of cases, with 9.9% of cases with mixed presentation (pulmonary and extra) and 3.4% with disseminated forms of the disease. The default rate was 15.7%, the cure of 60.0%, the proportion of deaths reached 24.1%, and of these, 97.2% did not constitute TB deaths. 49.6% of patients had an indication to perform the directly observed therapy. However, for the realization of the DOT, 49.6% was observed for completeness of this data, and the data valid 44.6% had supervision fulfilled. The percentage of effectiveness calculated between the cures was higher (59.9%) than the percentage calculated in defaults (15.1%) and deaths (8.1%).

CONCLUSION: This study reinforces the need for greater knowledge about the characteristics and peculiarities of the population in question, TB/HIV. The guarantee of a favorable outcome to the treatment of coinfected patients remains a challenge to health services, and highlights the need for execution of an integrated program of HIV/AIDS and TB, with a view to reducing the burden of disease, early detection, appropriate treatment, strengthening the DOT and regular monitoring of cases, supporting strategies for prevention and control of both and proper management of users.

A.20) CAN ORAL IMMUNIZATION WITH BCG MOREAU RDJ PREVENT REINFECTION WITH *MYCOBACTERIUM TUBERCULOSIS* IN MICE?

Monteiro-Maia R[1], Rodrigues-Junior VS[2], Dos Santos Junior A[2], Campos MM[2], Santos DS[2], Castello-Branco LRR[1]. [1]Laboratório de Imunologia Clínica, Instituto Oswaldo Cruz, Fundação Oswaldo Cruz, Rio de Janeiro; [2]Instituto Nacional de Ciência e Tecnologia em Tuberculose, PUCRS, Porto Alegre, Brazil.

BACKGROUND: The impact of the global epidemic of TB on public health has triggered the urgent demand for development of new prevention and treatment tools. Patients treated with the four-drug regimen have a low incidence of recurrence (2-3%). Up to 7% of treated patients, cured after short-term treatment, have recurrent infection, requiring further treatment within 1 to 2 years. BCG is the only vaccine available against TB. Studies have shown that oral vaccination was able to prevent re-infections in adults. This study aimed to evaluate the effects of oral immunization with BCG Moreau RDJ on re-infection with *M. tuberculosis* using a mice model.

METHODS: Swiss mice were divided into 4 groups: the groups 1 and 2 were infected with *M.tb* and treated for 2 months with isoniazid and rifampicin in the drinking water, while the groups 3 and 4 received no treatment. Groups 2 and 3 were immunized, for 3 consecutive days, with BCG Moreau RDJ by the oral mucosa. All groups were re-infected with *M.tb*, and they were euthanized at 15 or 30 days after re-infection.

RESULTS: The protocol of oral immunization used by us was not able to significantly modify the number of colony-forming units in either the lungs or spleens of re-infected mice. However, we observed a tendency of reduction in lung mycobacterial loads in BCG-treated animals.

CONCLUSION: Animals that received oral BCG Moreau RDJ showed a tendency to prevent the establishment of lung reinfection. Whole blood and spleens were collected and lung samples are being currently prepared for histopathology and flow cytometry analysis. This study might help to explain the mechanisms of action of oral BCG Moreau RDJ in cellular and humoral immunity during re-infection in murine model.

A.21) NEGATIVIZACIÓN DE CULTIVO EN PACIENTES CON TUBERCULOSIS MULTIFARMACORRESISTENTE (TB-MDR) EN RETRATAMIENTO. INSTITUTO NACIONAL DE ENFERMEDADES RESPIRATORIAS, MÉXICO 2011

Salazar-Lezama MÁ, Nuñez OS. Muñoz M, **Martínez-Mendoza D.** Instituto Nacional de Enfermedades Respiratorias Ismael Cosio Villegas (INER), Distrito Federal, México.

INTRODUCCIÓN: La Clínica de Tuberculosis del INER entre otras funciones, atiende pacientes con TB MDR, realiza el diagnóstico, diseña el tratamiento y hace el seguimiento clínico y bacteriológico, identifica y maneja las reacciones adversas a fármacos y las comorbilidades. El tiempo de negativización del cultivo es un predictor de éxito en el tratamiento de estos pacientes.

MATERIAL Y MÉTODOS: Estudio observacional, longitudinal y analítico. Se estudiaron los pacientes con TB-MDR en retratamiento individualizado con fármacos de segunda línea que iniciaron en el 2010-2011. Se midió el tiempo de negativización del cultivo en medio Lowenstein Jensen (LJ) en muéstras de expectoración durante el seguimiento del retratamiento.

RESULTADOS: Durante el periodo 2010 - 2011 iniciaron 24 pacientes retratamiento individualizado, el 66.7%(16) fueron de sexo masculino, la edad media fue 39.8 años (DS±14.7). En el 29.2%(7) el patron de resistencia fue a ísoniacida y rifampicina, el resto tuvieron resistencia de tres a siete fármacos. El esquerna mas frecuentemente indicado (33;3%) fue Etambutol, Pirazinamida, Amikacina, Levofloxacino, Protionamida y Cicloserina. El promedio de negativización del cultivo fue de 3.6 meses (DS±2.5). El promedio de meses de seguimiento es de 10.9 meses (DS±5.1).

CONCLUSIONES: Los resultados de negativización permiten predecir el éxito del tratamiento, sin embargo, la varianza que existe entre este tiempo, nos lleva a evaluar otras variables como son, comorbilidades y su manejo, reacciones adversas a fármacos, patrones iniciales de resistencia y el apego al tratamiento.

A.22) NON-TUBERCULOUS MYCOBACTERIAL DISEASE IS COMMON IN PATIENTS WITH NON-CYSTIC FIBROSIS BRONCHIECTASIS

Mirsaeidi M, Hadid W, Ericsoussi B, Rodgers D, Sadikot RT. Department of Veterans Affairs, Jesse Brown VA Hospital, and Section of Pulmonary, Critical Care, and Sleep Medicine, University of Illinois, Chicago, IL, USA.

BACKGROUND: Non-tuberculous mycobacteria (NTM) are ubiquitous environmental organisms. Cystic fibrosis (CF) patients are susceptible to NTM, but there is limited data about NTM in the patients with non-cystic fibrosis (CF) bronchiectasis.

METHODS: We conducted a retrospective, descriptive study at the University of Illinois Medical center. All patients diagnosed with Bronchiectasis code (494) using the International Classification of Disease, version 9 (ICD-9) were identified between 1999 and 2006. Clinical data including lung function, radiology studies and presence of NTM in sputum were abstracted from those who met the study criteria.

RESULTS: A Hundred and eighty two patients were enrolled in the study. Patients were divided into two groups: bronchiectasis with NTM isolates (n = 68), bronchiectasis without isolates (n =114) and compared for clinical characteristics and underlying diseases. *Mycobacterium avium* complex (MAC) was the most common isolate. 55 (30%) patients met the ATS criteria for diagnosis of NTM disease. Gram-negative rods were commonly co-isolated. The probability of NTM isolation was significantly higher in elderly female patients (p = 0.04). Moreover, the probability of NTM isolation was significantly higher in female group with low BMI (P=0.002).

CONCLUSION: NTM infections are common in non-cystic fibrosis bronchiectasis. MAC is the most frequently isolated NTM in these patients. There is also great variability in age and sex characteristics for NTM in non-CF-bronchiectasis patients. The female patients with low BMI are high risk group for NTM infection in non-cystic fibrosis bronchiectasis. The routine screening for NTM is strongly recommended in this patient population.

A.23) AVAILABILITY OF CO-TRIMOXAZOLE PREVENTIVE THERAPY (CTXp) AT RURAL TB CLINICS IS ASSOCIATED WITH INCREASED UPTAKE

Mubanga M[1], Kancheya N[1], Harris J[1], Chibinga F[2]. [1] Centre for Infectious Disease Research, [2]Provincial Health Offices –Southern Province, Zambia.

BACKGROUND: Co-trimoxazole (CTXp) is a simple, well-tolerated and cost-effective intervention which can extend and improve the quality of life for persons co-infected with tuberculosis (TB) and HIV. Despite the proven clinical benefits of CTXp and recommendations by World Health Organization, it is not yet a routine part of care in some TB programs. Until recently in Zambia, CTXp was available only in antiretroviral therapy (ART) clinics which limited its availability. In 2009-2010 the Ministry of Health began dispensing CTXp at TB Clinics.

OBJECTIVES: Improve uptake of CTXp by dispensing the drug at TB clinics in four districts of Zambia.

METHODS: Four District officers, TB clinic, ART, Pharmacy staff, from 131clinics were trained in CTXp administration. Ongoing mentoring and technical support was provided. Program data was collected in MOH TB registers and summarized in quarterly reports. The proportions of HIV-infected TB patients on CTXp during 12-month periods pre- and post-implementation were compared using a Pearson's chi-squared test.

RESULTS: The proportion of co-infected patients accessing CTXp at TB clinics increased significantly from 85% pre-implementation to 98% post-implementation ($p<0.0001$). Challenges encountered included drug stock outs, work overload and trained staff being transferred to other departments or health centers.

CONCLUSION: Despite challenges, provision of CTXp in TB clinics increased uptake to almost 100% and should be scaled-up in similar settings

A.24) INHALED COLISTIN: A NOVEL APPROACH FOR REDUCING DRUG-RESISTANT TB TRANSMISSION

Dharmadhikari A, Stoltz A, Mphahele M, Venter K, Jensen P, Van der Walt M, Mathebula R, **Nardell E.**
Brigham & Women's Hospital, Harvard Medical School, Boston, MA, USA.

BACKGROUND: M/XDR-TB transmission is a serious threat to global TB control, especially in areas where HIV co-infection is prevalent. Measures to rapidly control transmission are urgently needed, particularly where physical isolation capacity is limited. Polymixin E (Colistin) although never used systemically for TB because of toxicity, has modest broad antimycobacterial activity, and should be effective against MDR and XDR TB in airways due to high local concentrations. We hypothesized that inhaled dry powder antibiotics such as colistin may help significantly reduce transmission by inhibiting organisms about to be aerosolized such as from the airways. Colistin's surface-disrupting mechanism of action, not dependent on microbial replication, makes it further suited for a rapid effect until systemic therapy starts working.

METHODS: Prospective, cross-over, proof-of-concept study to investigate whether inhaled dry powder colistin given to M/XDR-TB patients initiating systemic therapy significantly reduces TB transmission. Two guinea pig (GP) cohorts (n=90 each) are alternately exposed to exhaust air from a 6-bed inpatient M/XDR-TB ward in South Africa. Four successive groups of sputum smear positive M/XDR-TB patients (with and without HIV infection) serve as sources of TB aerosols and receive dry powder colistin three times daily on alternating weeks over 4 weeks per groups. The intervention GP cohort receives ward air during 'colistin' weeks while the control GP cohort receives ward air during 'non-colistin' weeks. Comparison of GP tuberculin skin test conversions in each cohort provides a measure of efficacy.

INTERIM RESULTS: At one month, 8/90 (8.8%) intervention versus 18/90 (20%) control GPs have become infected. Results of 4 more months of testing are pending at the time of submission.

DISCUSSION: Interim results suggest a reduction in M/XDR-TB transmission when patients receive inhaled colistin in addition to systemic therapy. If final results are consistent with these early findings, inhaled colistin may offer a novel approach to rapidly reducing M/XDR-TB transmission. Other antibiotics that are not suitable for systemic use, to which highly drug resistant organisms are likely to be susceptible, could also be tried as a form of chemo-transmission control.

A.25) TUBERCULOSIS AND DIABETES IN THE MUNICIPALITY OF GUARULHOS, SAO PAULO, BRAZIL

Penon Rujula MJ, Galesi VMN, **Souza Pinto V**, Cunha Barbosa R, Bombarda S. Sao Paulo State Tuberculosis Control Program, Tuberculosis Division, Epidemiological Surveillance Center, Center for Disease Control, Sao Paulo State Health Secretariat, Brazil.

BACKGROUND: Diabetes (DM) is growing worldwide and associated with increased risk of tuberculosis (TB) and unfavorable treatment outcomes, which is a challenge for control of both diseases. In Sao Paulo State, the largest Brazilian TB burden state, 6% of patients in the TB information system have DM, this is self-reported and should not represent the real situation. Studies for these 2 co-morbidities are very important.

METHODS: Cross sectional study to determine the prevalence of DM associated with TB and outcomes of notified TB patients from August 2010 to August 2011 in the municipality of Guarulhos. We review clinical records of all cases and compared the diagnoses of DM using Brazil Diabetes Association classification guidelines with self-reported to study: DM prevalence, outcome, HIV status, sex and age. We used Epi-info to statistical analysis.

RESULTS: We studied 412 cases: only 51.0% had blood glucose tests; 32.0% were female; 7.1% HIV+, there was no difference in age distribution; 7.8% are self-reported diabetes and 11.8% have glucose >125mg/dl; the outcomes are in ***Table 1*** (non-statistically significant).

CONCLUSION/RECOMMENDATIONS: The prevalence of DM between TB and vice versa and their epidemiologic characteristics are fundamental for the control of two co-morbidities. In practice this is done so unsatisfactory, that's why we need to create protocols by two programs (TB and DM) to control better these 2 co-morbidities. In 2011 were notified in the municipality of Guarulhos 517 TB cases, where 37 (7.2%) presented association with DM. The prevalence of TB associated to DM was 7.2%. Therefore, the analysis of these data shows the necessity of HCWs training and closer monitoring.

Table1: Distribution of the patients studied according to diagnostic criteria to DM and outcomes in Guarulhos, 2010-2011

	Cure %	Default %	Death %	Failed %
All Cases	83,1	8,6	3,7	2,9
Self-reported diabetes	81,5	3,7	3,7	7,4
Glucose >125mg/dl	80	2,5	7,5	5

A.26) THE SPECIFICITY OF MDR/XDR-TB COLOUR TEST FOR DIFFERENTIATING MYCOBACTERIUM TUBERCULOSIS FROM ATYPICAL MYCOBACTERIA

Ramos Maguina ES[1,2], Osorio CE[1], Valencia TR[1], Llacza MF[1], Tovar MA[1,2], Montoya R[2], Wingfield T[1,2], Evans CA[1,2]. [1]IFHAD: Innovation For Health And Development, Universidad Peruana Cayetano Heredia, San Martin de Porres, [2]Innovación por la Salud y el Desarrollo (IPSYD), Asociación Benéfica Prisma, San Miguel, Lima, Perú

BACKGROUND: For culture-based TB diagnosis in resource-limited settings, M. tuberculosis is usually differentiated from atypical mycobacteria by the presence of cording morphology. However, the reliability of this approach is poorly characterised and has not been reported for the new MDR/XDR-TB Colour Test technique in which samples are decontaminated in the sputum pot and applied directly to a sealed thin-layer agar culture plate that changes colour if TB grows, providing concurrent MDR-TB testing and XDR-TB screening in basic laboratories.

METHODS: Positive mycobacterial cultures (n=4,371) from the Microscopic-Observation Drug-Susceptibility (MODS), Ogawa, Lowenstein Jensen (LJ) and Colour Test culture techniques were retested with the gold standard immunochromatographic Capilia TB Neo rapid assay for *M. tuberculosis* complex that was performed according to the manufacturers' instructions using 80 µl from MODS broth cultures or colonies from solid cultures suspended in extraction buffer. All tests were performed blinded to all other study data and proportions are stated with their 95% confidence intervals (95%CI).

RESULTS: Examination of culture colonies revealed cording morphology in 4362/4405 (99.02%). The proportion of these cultures that were morphologically mis-identified as M. tuberculosis but were defined by the Capilia test to be atypical mycobacteria was 5/1514 (0.33%, 95% CI 0.11-0.77%) for MODS, 1/1044 (0.096%, 95% CI 0.024-0.53%) for Ogawa, 0/848 for LJ and 1/955 (0.10% 95%CI 0.0027-0.58%) for the Colour Test (P>0.1), indicating >99.6% specificity. Atypical mycobacteria were uncommon and all 43/43 (100%) of cultures with non-cording morphology were confirmed by the Capilia test to be atypical mycobacteria, indicating 100% (95% CI 92-100%) specificity.

CONCLUSION: The morphological differentiation of M. tuberculosis from atypical mycobacteria was highly reliable for MODS, LJ, Ogawa and the thin-layer agar MDR/XDR-TB Colour Test culture techniques.

A.27) PREDICTING XDR-TB PHENOTYPES ACCURATELY WITH SINGLE NUCLEOTIDE POLYMORPHISMS

Rodwell TC, Valafar F, Garfein RS, Douglas J, Rodrigues C, Crudu V, Victor T, Gler M, Catanzaro A. University of California, La Jolla, San Diego State University, San Diego, University of Hawaii, Honolulu, USA; Hinduja National Hospital, Mumbai, India; Institute of Phthisiopneumology (IP), Chisinau, Moldova; Stellenbosch University, Cape Town, South Africa; Tropical Disease Foundation, Makati City, Philippines.

BACKGROUND: Molecular diagnostics, based on detection of SNPs associated with drug-resistance, are currently the only technologies with the potential to detect XDR-TB in clinical specimens in a matter of hours. However, data on the precise sensitivity and specificity of SNPs as markers of resistance are scarce. We conducted a detailed analysis of the sensitivity and specificity of SNPs related to drug resistance in >400 M/XDR-TB isolates from India, Moldova, Philippines and South Africa in order to inform development and interpretation of molecular diagnostics globally.

METHODS: Isolates underwent drug susceptibility testing for resistance to isoniazid (INH), rifampin (RIF), moxifloxacin (MOX), ofloxacin (OFX), amikacin (AMK), kanamycin (KAN) and capreomycin (CAP) using MGIT 960 and WHO cutoff concentrations. The genes *katG, inhA promoter, rpoB, gyrA, gyrB, rrs, eis* and *tlyA* were sequenced and SNPs were associated with phenotypic resistance.

RESULTS: Of 416 isolates analyzed, 370 were INH^R, 356 RIF^R, 292 MOX^R/OFX^R, 230 AMK^R, 219 CAP^R and 286 KAN^R. Mutations in *katG/inhA* had a combined sensitivity of 93.8% as markers of INH^R. SNPs in *rpoB* predicted 97% of RIF^R, and mutations in *gyrA* had a sensitivity/specificity of 90% and 99% as markers of MOX^R. Two SNPs in *rrs* plus three SNPs in *eis* predicted 90% of AMK^R and KAN^R with approximately 100% specificity while 89% of CAP^R was predicted by only two SNPs in *rrs*.

CONCLUSION: Less than 25 SNPs in six genes predict 90% of phenotypic drug resistance with >95% specificity in XDR-TB isolates.

A.28) HIGH TB INCIDENCE IN A TENT CITY IN PORT-AU-PRINCE

Rouzier V[1], Koenig S[2], Peck M[1], Pape JW[1,3.] [1]Groupe Haiti en d'Etude du Sarcome de Kaposi et des Infections Opportunistes (GHESKIO), Port au Prince, Haiti; [2]Division of Global Health Equity, Brigham and Women's Hospital, Boston, MA, [3]Department of Medicine, Weill Cornell Medical College, New York, NY, USA.

BACKGROUND: In the aftermath of Haiti's 2010 earthquake, over a million people lost their homes, were forced into crowded tent camps, and most TB facilities were destroyed, increasing the risk of TB transmission.

METHODS: Active TB screening was conducted daily in the GHESKIO tent camp. Immediately post-earthquake, the tent camp had 7,376 residents; the numbers decreased over time.

RESULTS: From April 1, 2010 to June 30, 2011, 358 patients reported cough of at least 10 days duration, were evaluated by a physician and 35 diagnosed with active pulmonary TB (American Thoracic Society case definition). Sputum smear microscopy was positive in 23 (85% of patients of ≥8 years old). During each quarter after July 1, 2010, the observed number of incident TB cases was 1.7 to 3.8 fold higher than the number expected (based on WHO estimate of 230 cases/100,000 person-years), with TB incidence ranging from 382 to 879 cases/100,000 PY.

CONCLUSION: No systematic active case finding strategies are currently underway in the tent camps of Port-au-Prince and it is probable that patients with active TB remain undiagnosed and untreated. If the TB incidence in other camps is as high as that of GHESKIO, we estimate that 8770 incident TB cases have occurred in tent camp inhabitants in the first 24 months post-earthquake (4480 more than the expected number of cases). Our experience demonstrates that active case finding can be an effective strategy for identifying patients with active TB.

A.29) USE OF THE TREK SENSITITRE® MYCOTB MIC PLATE METHOD FOR ANTIMYCOBACTERIAL SUSCEPTIBILITY TESTING (AST) OF *MYCOBACTERIUM TUBERCULOSIS* COMPLEX (MTBC) ISOLATES AND EVALUATION OF A BROTH CULTURE INOCULUM

Rowlinson MC[1], Tanner C[1], Miles P[1], Lee Y[1], Crowe S[1], Şimşek H[2], Willis D[1], **Salfinger M[1,3].** [1]Florida Department of Health-Bureau of Public Health Laboratories (BPHL), FL, USA; [2]Refik Saydam National Public Health Agency, National Tuberculosis Reference Laboratory, Ankara, Turkey; [3]National Jewish Health, Denver, CO, US.

BACKGROUND: The BPHL, until recently, performed AST for MTBC isolates utilizing the radiometric BACTEC™ 460TB instrument (BACTEC). Due to the discontinuation of the BACTEC, BPHL evaluated the TREK Sensititre® MYCOTB plate method (MYCOTB) from 2011 to 2012 as an alternative. The MYCOTB is a minimal inhibitory concentration (MIC) method performed in a microtiter plate format.

METHODS: Susceptibility results (n =203; including 51 isoniazid (INH)-resistant and 30 rifampin (RIF)-resistant strains) obtained with MYCOTB were compared with BACTEC. Discordant results were evaluated with the Hain Genotype® MTBDRPlus test and sequencing, if necessary. An additional 25 isolates were evaluated to compare two sources of inoculum, solid culture versus broth culture. The turnaround-time of each method was evaluated.

RESULTS: Agreement between BACTEC and MYCOTB was 100% for all pan-susceptible samples (n=123). For INH, agreement between BACTEC and MYCOTB was 98.5% (201/203). One specimen was resistant to INH with BACTEC but susceptible with MYCOTB. Another specimen was susceptible to INH with BACTEC and had an MIC of 0.25 µg/ml for INH using MYCOTB. For RIF, agreement between BACTEC and MYCOTB was 98.5% (201/203). Two specimens demonstrated resistance to RIF with BACTEC and susceptibility with MYCOTB. Also, evaluating two sources of inoculum, there was a shorter turnaround-time through inoculation from positive broth cultures, but a greater risk of contamination versus solid culture.

CONCLUSION: MYCOTB is an acceptable alternative to BACTEC for AST of MTBC. Turnaround-time can be decreased by using a broth culture inoculum but measures should be taken to ensure that culture inocula are pure.

A.30) DETECCION MOLECULAR DE RESISTENCIA A RIFAMPICINA E ISONIAZIDA EN *MYCOBACTERIUM TUBERCULOSIS*

Salim J, Annoni M, Ibañez M. Gutierrez M, Zerdiew A. Hospital General de Agudos Dr Enrique Tornú, Centro de Referencia en Buenos Aires, Argentina.

INTRODUCCION Y OBJETIVOS: La tuberculosis (TBC) tiene muy alto impacto en la salud pública mundial, debido a elevados índices de pobreza, desigualdad social y enfermedades como el SIDA. Según OMS mas de un 4% de los nuevos casos son TBC multirresistente (TBCMR) par 10 que ugiere la implementacion de métodos rápidos de detección de resistencia. Presentamos nuestra experiencia con un métoda molecular de detección de TBCMR.

METODOS: 87 aislamientos (muestras pulmonares y extrapulmonares) fueron procesados. La ensibilidad a Isoniazida (H) y Rifampicina (R) se determinó por métodos radiométrico y fluoromé rico automatizado (tiempo promedio de detección 8 dias). EI ADN extraido fue amplificado con ebadores marcados e hibridados con sondas unidas a membranas. Los genes rpoB, inhA, katG se revelaron en bandas de reacción obteniéndose los resultados en una jornada laboral.

RESULTADOS: El 53.6% resultaron sensibles, 17.8% (15) fueron TBCMR, 8.4% (7) resistentes a R 20.2% (17) a H siendo la sensibilidad y especificidad global del 93% y 100% respectivamente. Para R los codones 526-529 y 530-533 fueron los más afectados, siendo las mutaciones más frecuentes la S531 L Y H526Y (57.1% Y 28.6% respectivamente). Para H la mutación S315T (gen katG) fue la más frecuente (61%), le sigue la mutación C15T en la región promotora del gen inhA (30%) ninguna con mutación en la posición -8.

CONCLUSIONES: El ensayo permitió la identificación en un día laboral y fue aplicable a la deteccion simultánea de resistencia a RIF y a INH en muestras directas y de cultivo, con una satisfactoria concardancia respecto de los métodos de referencia.

A.31) MICOBACTERIAS NO TUBERCULOSAS: IDENTIFICACION MOLECULAR

Salim J, Annoni M, Ibañez M. Gutierrez M, Zerdiew A. Hospital General de Agudos Dr. Enrique Tornú, Buenos Aires, Argentina.

INTRODUCCION Y OBJETIVOS: Las Micobacterias No Tuberculosas (MNT) se han incrementado omo agentes productores de enfermedad mundialmente. Su identificación permite la instauración del tratamiento adecuado y evita el deterioro clínico del paciente. Las pruebas bioquimicas son insuficientes para distinguir entre las cientos de especies existentes. El creciente conocimiento de las secuencias de los genes de las MNT, permitió desarrollar equipos de biologia molecular para realizar la identificación de especies. Presentamos nuestra experiencia de genotipificación de MNT.

METODOS: A 40 aislamientos clínicos en los que inicialmente se descartó la presencia de *Mycobacterium tuberculosis* (MTB), se les realizó la extracción de ADN y se amplificó la region del gen ARNr 23S en termociclador, seguido de una hibridización reversa con sondas oligonucleótidoespecificas inmovilizadas en una membrana. EI ensayo permitió la identificacion de 15 especies de MNT de importancia clínica, en un día laboral.

RESULTADOS: Se obtuvo patrón de hibridización en 38 aislamientos : *M.intracellulare* (30%), *M. kansasii* (28%), *M. avium* (17%), *M. fortuitum* (13%) y en igual frecuencia *M. gardonae*, *M. chelonae*, *M. marinum*, y *M. abcsessus* (3%), 2 resultaron pertenecientes al complejo MTB, 6 no se pudieron identificar y solo 2 aislamientos no amplificaron.

CONCLUSION: Esta metodologia demostró ser un método rápido y confiable para la identificación de micobacterias. Permitió confirmar 2 casos de tuberculosis que no habían side detectados par pruebas iniciales. Los aislamientos que no pudieron ser identificados correspondieron a especies que no detecta el equipo ensayado (patógenos poco frecuentes).

A.32) THE EFFECT OF PREVALENT TUBERCULOSIS ON MORTALITY AFTER COMBINATION ANTIRETROVIRAL THERAPY INITIATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

Soeters HM, Poole C, Patel MR, Van Rie A.University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.

BACKGROUND: Tuberculosis (TB) is a common presenting condition leading to an HIV diagnosis. To determine the impact of prevalent TB on mortality after combination antiretroviral therapy (cART) initiation among HIV-infected adults, we performed a systematic review and meta-analysis.

METHODS: We systematically searched MEDLINE/PubMed, EMBASE and selected conferences for studies that presented mortality after cART initiation among HIV infected adults, stratified by prevalent TB status at cART initiation. Random-effects summarization was used to combine relative risks. Stratified and meta-regression analyses were used to assess the influence of study and population characteristics on the study results.

RESULTS: We identified 21 eligible studies providing data on 82,819 (range 74 to 16,198) individuals, of which 17,524 (21%) had prevalent TB at cART initiation. Median CD4 cell count at initiation ranged from 31 to 196 cells/μL. Summarizing the 35 available effect estimates, those with prevalent TB vs. without had a relative risk of mortality of 1.12 (95% confidence interval 0.92-1.37) at 1-3 months, 1.50 (1.07-2.11) at 6-12 months, and 1.47(1.10-1.96) at >12 months following cART initiation. The later estimates were markedly heterogeneous. When limited to adjusted estimates, the effect of prevalent TB on later mortality moves towards the null: 1.00 (0.82-1.22) at 6-12 months; 1.20 (0.83-1.75) at >12 months.

CONCLUSION: Though prevalent TB appears to increase mortality after 6 months of cART, thoughtful adjustment for baseline covariates indicates no significant increase in mortality associated with prevalent TB.

A.33) DIAGNOSTIC ACCURACY AND REPRODUCIBILITY OF WHO-ENDORSED PHENOTYPIC DRUG SUSCEPTIBILITY TESTING METHODS FOR FIRST-LINE AND SECOND-LINE ANTI-TUBERCULOSIS DRUGS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Horne DJ[1], Pinto L[2], Arentz M[1], Lin SG[3], Desmond E[3], Flores, LL[4], **Steingart KR[5]**, Minion J[6]. [1] Division of Pulmonary and Critical Care Medicine, University of Washington , Seattle, WA, USA; [2]Department of Epidemiology, Biostatistics & Occupational Health, McGill University, Montreal, QC, Canada; [3]California Department of Public Health, Richmond, CA; [4]College of Chemistry, University of California, Berkeley, CA; [5]Department of Health Services, University of Washington School of Public Health, Seattle, WA, USA; [6]Regina Qu'Appelle Health Region, Dept. of Laboratory Medicine, Regina, SK, Canada.

BACKGROUND: In an effort to update policies on TB drug susceptibility testing (DST), the World Health Organization (WHO) commissioned a systematic review on diagnostic accuracy and reproducibility of WHO-endorsed phenotypic DST methods for first-line and second-line anti-TB drugs.

METHODS: We searched multiple databases (30 November 2011) for primary studies. Acceptable reference standards for diagnostic accuracy were proportion method on Lowenstein-Jensen or Middlebrook *7H10/11* media and BACTEC 460. We summarized results by drug and test, and whether the study used recommended critical concentrations for the reference standard and estimated pooled performance using a hierarchical random effects model.

RESULTS: We identified 108 papers, evaluating 11 different index tests, on diagnostic accuracy and/or reproducibility of phenotypic DST: 45 papers involved first-line drugs; 12 papers, second-line drugs; and 51 papers, both first-line and second-line drugs. Adequate studies were available to perform meta-analyses for isoniazid, rifampicin , ethambutol, streptomycin and ofloxacin. Isoniazid and rifampicin DST by most assays yielded pooled sensitivity> 95% and pooled specificity> 98%. Ethambutol DST for MGIT 960 using the recommended critical concentration of 5 ug/ml showed relatively low pooled sensitivity, 83.3% (42.0-97.2).

CONCLUSION: This systematic review provides support for critical concentrations recommended for commercial broth systems for isoniazid and rifampicin DST. Further studies are needed to evaluate critical concentrations for ethambutol. There are insufficient data to make recommendations on DST for pyrazinamide and the majority of second-line drugs.

A.34) ETUDE DES EFFETS INDÉSIRABLES DES RÉGIMES ANTITUBERCULEUX ET ANTIRÉTROVIRAUX CONTENANT LA NÉVIRAPINE ET LES RÉGIMES CONTENANT L'ÉFAVIRENZ

Kouanda S[1], Ouédraogo HG[1], **Tarnagda G[1]**, Rouamba N[1], Saleri N[2, 6], Roggi A[2,6], Tiendrébeogo S[1], Dembelé M[2], Combary A[2], Konseimbo GA[2], Bayala R[2], Badoum G[3], Sanou JM[4], Simporé J[5], Diagbouga S[2], Ouédraogo M[3], Sondo B[1], Matteelli A[6]. [1]Institut de Recherche en Science de la Santé (IRSS), Burkina Fasso; [2]Programme National de Lutte Contre la Tuberculose, Port-au-Prince, Haiti; [3]CHU-Yalgado Ouédraogo, [4]Comité Ministériel de Lutte Contre le Sida/Santé, [5]CERBA-Faso, Burkina Fasso; [6]Université de Brescia, Italie.

Remerciements : OMS/TDR

INTRODUCTION: Plusieurs études biologiques publiées, concluent que la névirapine peut être utllisée chez les malades sous rifampicine. Cependant, peu d'études cliniques sur l'utilisation de la névirapine en association la rifampicine. Nous comparons la tolerance des associations névirapine/rifampicine et éfavirenz/rifampicine.

METHODOLOGIE: Les patients co-infectés ont été randomisés dans deux bras, dans la proportion 1/1 entre 2008-2011. Ils ont reçu un traitement antituberculeux associé aux antirétroviraux incluant la névirapine ou l'éfavirenz.

RESULTATS: Pendant 12 mois de suivi de 67 patients nous avons observé les effets suivants: troubles neurosensoriels, cutanés. L'incldence cumulée des troubles digestifs pour 100 personnes-mois était: Douleurs abdominales 28.5 à J14-M2; 32 à M6-M12. Nausées 25.2 à J14-M2; 17.8 à M3-M5 et 22.6 à M6-M12. Vomissement 20.7 à J14-M2 ; 23 à M3-M5 et 110.4 à M6-M12. Diarrhées 11.4 à J14-M2. Une faible proportion de patients a présenté des eftets sévères comme; anémie-neuropathies-éruptions cutanées-mélaena-hallucinations et délire dans les proportions suivantes (6.9 vs. 2.9 p=O.27) à J14, (3.6% vs. 3.1% p=0.41) à M1 et 3.1% de rash cutanée chez EFV à M2. Trois décès chez NVP contre deux dans le bras EFV suite aux complications tuberculeuses.

CONCLUSION: Les effets les plus rencontrés sont les troubles neurosensoriels persistante au cours du suivi, les troubles digestifs s'atténuants apres six mois, les troubles cutanés régressant au cours du traitement II n'y avait pas de différence entre les patients sous névirapine et l'éfavirenz.

A.35) PROFIL BIOLOGIQUE DES PATIENTS CO-INFECTÉS VIH/TUBERCULOSE SOUS ANTITUBERCULEUX ET ANTIRÉTROVIRAUX CONTENANT LA NÉVIRAPINE VERSUS ÉFAVIRENZ

Kouanda S[1], Ouédraogo HG[1], **Tarnagda G[1]**, Rouamba N[1], Saleri N[2, 6], Roggi A[2,6], Tiendrébeogo S[1], Dembelé M[2], Combary A[2], Konseimbo GA[2], Bayala R[2], Badoum G[3], Sanou JM[4], Simporé J[5], Diagbouga S[2], Ouédraogo M[3], Sondo B[1], Matteelli A[6]. [1]Institut de Recherche en Science de la Santé (IRSS), Burkina Fasso; [2]Programme National de Lutte Contre la Tuberculose, Port-au-Prince, Haiti; [3]CHU-Yalgado Ouédraogo, [4]Comité Ministériel de Lutte Contre le Sida/Santé, [5]CERBA-Faso, Burkina Fasso; [6]Université de Brescia, Italie.

Remerciements : OMS/TDR

INTRODUCTION: Le traitement de la co-infection VIH-l/Tuberculose rencontre des difficultés d'observance et de toxicité cumulée. L'OMS recommande en première ligne les antituberculeux associés à l'efavirenz, contre indiqué chez la femme enceinte contrairement à la névirapine. Nous examinons le profil biologique du traitement névirapine/rifampicine versus éfavirenz/rifampicine chez les co-infectés.

METHODE: Etude, randomisée à deux bras, chez des patients co-infectés recevant concomitamment les antituberculeux/névirapine versus antituberculeux/efavirenz au Burkina d'octobre 2008 à Juin 2011.

RESULTATS: Un échantillon de 67 patients a été suivi doni 32 sous névirapine et 35 sous éfavirenz. L'évolution des CD4 médians était respectivement de CD4 231 cell/mm3 contre 224 ceIl/mm3 (p=0.8) à trois mois de traitement, de 224 cell/mm3 contre 225cell/mm3 (p=0.9) à six mois de traitement, 306 cell/mm3 contre 304 cell/mm3 (p=0.9) à un an de traitement contre un taux moyen initial de 85 cell/mm3 chez le groupe NVP vs 106 cell/mm3 chez le groupe EFV. La charge virale <20 copie/ml chez 67.9% patients NVP contre 67.7% patients EFV p=0.6 à six mois et chez 78.3% patients NVP contre 65.5% patients EFV p=0.2 à douze mois. Environ 18% d'hépatoxicité grade3 chez NVP contre 14% chez EFV.

CONCLUSION: Selon le type de traitement on observe qu'il n'y a pas de différence statistiquement significative entre les médianes des CD4, les charges virales elles toxicités. Cette équivalence biologique corrobore avec l'analyse des données cliniques et on pourrait envisager I'usage de la névirapine en première ligne en cas de nécessité.

A.36) TUBERCULOSIS SCREENING AND FOLLOW-UP PRACTICES AMONG CIVIL SURGEONS IN CALIFORNIA

Thornton A[1,2,3], Lowenthal P[4], Rodriguez-Lainz A[1], Flood J[4]; Moser K[2]. [1]Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, [2]County of San Diego Health and Human Services Agency, [3]CDC/CSTE Applied Epidemiology Fellowship, [4]Tuberculosis Control Branch, California Department of Public Health, CA, USA.

BACKGROUND: Eligible foreign-born citizens applying to adjust their status to Permanent Resident Alien must undergo a medical examination performed by civil surgeons. Since 2005, on average, 660,000 persons adjust their status each year. The examination includes screening for tuberculosis (TB) in accordance with Technical Instructions for Civil Surgeons (TI) provided by the Centers for Disease Control and Prevention (CDC). However, civil surgeons receive little formal TI training. Incorrect interpretation of TIs may lead to missed or improperly managed TB cases. The purpose of this evaluation is to describe TB screening and follow-up knowledge and practices among civil surgeons.

METHODS: A survey was mailed to all 974 civil surgeons in California. After one month, the survey was re-mailed and non-responders were called. Data were analyzed using SAS 9.2.

RESULTS: Of the 586 (60%) responders, 85% read the TI, and the median number of exams performed in the past year was 30. Sixty percent correctly identified a ≥5mm induration as a positive tuberculin skin test for purposes of status adjustment. Thirty-one percent correctly identified the TI criteria for obtaining a chest radiograph. Ten percent of responders who suspected active TB disease would neither report nor refer the applicant to the public health department, as required by the TI.

CONCLUSION: The results suggest that gaps in CDC TB TI knowledge and practice exist among civil surgeons. Educational and quality assurance efforts might help ensure proper TI implementation and improve TB screening and follow-up.

A.37) A SUCCESFUL MODEL FOR THE MANAGEMENT OF MDR-TB IN THE AFTERMATH OF A MAJOR NATURAL CATASTROPHE

Vilbrun SC[1], Charles M[1, 2], Rouzier V[1], Morose W[1], Joseph J[1], Sobieskye D[1], Edouard J[1], Legrand D[1], Saintil N[1], Guiteau C[1], Koenig SP[1, 3], Pape JW[1, 2]. [1]GHESKIO (Haiti Study Group for Kaposi's Sarcoma and Opportunistic Infections), Port-au-Prince, Haiti; [2]Weill Medical College of Cornell University, New York, NY; [3]Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA.

BACKGROUND: In January 2010, Haiti suffered a devastating earthquake. All inpatient TB facilities in the capital city of Port-au-Prince were destroyed, including the only MDR-TB treatment center in the region.

METHODS: GHESKIO opened a TB field hospital immediately after the earthquake. Patients with risk factors or confirmed MDR-TB were housed in isolation tents. MDR-TB diagnoses were confirmed with DST, and patients were treated with second-line therapy according to WHO guidelines. There was no outpatient treatment capacity, so patients were hospitalized in tents for the intensive phase of therapy and then discharged home for twice-daily DOT for 24 total months.

RESULTS: Eighty-two patients were treated for MDR-TB in the GHESKIO field hospital in the first 30 months post-earthquake (January 2010 to July 2012). The median age was 28 years (IQR: 23 to 38), 45 (55%) were female, 30 (37%) had no school or primary school only, and 74 (90%) were living on <$US 1 per day. Twenty-one (26%) were HIV-positive, with a median CD4 cell count of 206 (IQR: 42 to 468). Seventy-one patients (87%) have been cured or remain on successful treatment, 4 (5%) were lost to follow up, and 7 (9%) died (5 of these were HIV-positive). Though the outcomes are outstanding, the long hospitalization in the field hospital is challenging for patients. We seek funding to develop the infrastructure required to provide supervised outpatient DOT during the intensive phase of therapy.

CONCLUSIONS: MDR-TB can be successfully treated under highly adverse circumstances.

A.38) ADVERSE DRUG-REACTIONS ASSOCIATED WITH CLOFAZIMINE

Wang S[1], Pal S[2], Falzon D[3], Jaramillo E[3], Olsson S[4]. [1]The Ohio State University, Internal Medicine Department, Columbus, OH, USA; [2]Department of Essential Medicines and Pharmaceutical Policies, [3]World Health Organization; World Health Organization, Stop TB Department, Geneva, Switzerland; [4]The Uppsala Monitoring Center, Uppsala Sweden.

BACKGROUND: Clofazimine, a riminophenazine drug, is used to treat TB patients with advanced patterns of drug resistance. We use data on clofazimine adverse drug reactions (ADRs) from WHO's International Drug Monitoring Programme.

METHODS: 20 countries submitted spontaneous individual case safety reports (ICSR) on clofazimine – each associated with >1 ADR – between 1976 and 2012.

RESULTS: Clofazimine was associated with 288 ICSRs accounting for 674 ADRs (median ADRs: ICSR = 2: range 1-29). Patient median age was 40 years (range 2-95). In only 21 ICSRs with 56 associated ADRs, was an indication for TB specified (Table). Nervous-system ADRs were more frequently reported when clofazimine was used for TB than other/unknown conditions. TB-related ICSRs were more frequently categorized as serious compared to those not associated with TB or unknown (62% [13/21] vs. 10% [26/267] respectively; P<0.01), at a dose of 100 mg-200mg/day (data for 11/13 cases).

CONCLUSION: Adverse effects – including serious ones – affecting multiple organs have been reported in patients receiving clofazimine. Some of these effects may be caused by concomitant medication or the underlying disease process itself, considering that clofazimine is generally reserved for patients with broad patterns of drug-resistance. Moreover, severe ADRs and those with fatal outcome are more likely to be reported on spontaneous systems. Nonetheless, these data underline the need to strengthen pharmacovigilance for clofazimine, a drug expected to be included in the future in new innovative TB regimens.

Systemic/organ class involved in ADRs	TB n = 56(%)	Other than TB or unknown n = 618%
Central and peripheral nervous system	13(23)	28(5)
Gastrointestinal	10(18)	105(17)
Skin	9(16)	129(21)
General	7(13)	62(10)
Blood and lymphatic	5(9)	45(7)
All other organs	12(21)	249(40)

A.39) COMPARISON OF TUBERCULOSIS (TB) IN YOUNG AND ELDERLY PATIENTS

Wang S[1], Butler B[2], Webb-Yeates M[1], Denkowski P[2], Turner J[2]. [1]The Ohio State University, [2]Columbus Public Health, Columbus, OH, USA.

BACKGROUND: Aging is a major risk factor for both the development of primary TB and for reactivation of TB. As our global elderly population increases, we can anticipate a significant rise in TB cases in older individuals. The objective of the study is to improve understanding of the distribution of TB in the elderly and compare cases of TB disease among young and elderly patients in central Ohio.

METHODS: Retrospective review of all active TB cases in Franklin County (Columbus), Ohio from *1/1994* to *12/2011*. Descriptive analysis of the TB cases was performed using STATA. Young is defined as a case 25·44 years old and elderly is defined as a case 65 years of age or older.

RESULTS: A total of 995 active cases were reported during the study period: 40% *(401/995)* as young and 11 % *(114/995)* as elderly. Elderly cases were more likely to be US born, tuberculin skin test negative, reside in a long term care facility at diagnosis, with increased mortality compared to young patients.

CONCLUSION: Increased mortality seen in the elderly may be due to a delay in diagnosis, poor diagnostic tests, or co-morbid conditions. Increased clinical suspicion and improved diagnostic tests are needed in the elderly with TB.

Characteristics	Young (25-44 years) n = 401(%)	Elderly (≥65 years) n = 114(%)	p-value
Male	256(64)	59(52)	0.019
US born	131(33)	64(56)	<0.0001
Sputum smear positive	138(34)	32(28)	0.943
Culture confirmed diagnosis	322(80)	100(88)	0.301
Pulmonary	273(68)	83(73)	0.147
Tuberculin skin test Positive	287/327(88)	41/64(64)	<0.0001
Abnormal CXR	278(69)	89(78)	0.236
HIV status Positive	36(9)	1(1)	<0.0001
Long term care facility	3(1)	9(8)	<0.0001
Susceptible to HRZE	266/307(86)	84/90(94)	0.042
Completed treatment	n = 384 336(88)	n = 102 71(70)	<0.0001
Died	9(2)	26(25)	<0.0001

A.40) ELECTRONIC RECORDING AND REPORTING FOR MULTIDRUG-RESISTANT TUBERCULOSIS CARE AND CONTROL

Wang S[1], Falzon D[2], Timimi H[2]. [1]The Ohio State University, Internal Medicine Department, Columbus, OH, USA; [2]World Health Organization, Stop TB Department, Geneva, Switzerland.

BACKGROUND: In 2009, the World Health Assembly urged countries to ensure that multidrug-resistant tuberculosis (MDR-TB) patients have universal access to effective treatment by 2015. For TB control programmes to assess progress towards this goal they need to improve their monitoring systems. Of the 27 countries which concentrate >85% of estimated MDR-TB cases in the world, seven (Bangladesh, India, Myanmar, Nigeria, the Russian Federation, Ukraine and Viet Nam) were not handling their data electronically by end-2011.

METHOD: In 2012, the World Health Organization in collaboration with its technical partners, published guidance to reinforce electronic recording and reporting in TB control programmes.[i]

RESULTS: MDR-TB diagnosis, treatment and management are more complicated than those for drug-susceptible forms of disease. Consequently, data requirements are much more demanding. The 2012 WHO guidance provides step-by-step details on how to plan, develop and implement electronic systems or how to enhance ones already in place. We describe how to match needs to resources, dealing with infrastructural constraints, staff requirements, as well as budgeting. We illustrate with real-life examples how electronic systems can decrease workload, and improve data quality.

CONCLUSION: TB control programmes should deploy efficient means to handle their data, taking advantage of the ever-increasing powers of computers and ubiquitous mobile electronic devices in today's world. Automation of indicators allows the manager to understand better and rapidly how the programme is performing and where problems occur. Systems need to be funded sustainably and staff involved in supervision, monitoring and evaluation, and system maintenance supported adequately.

http://www.who.int/tb/publications/electronic_recording_reporting/en/index.html

A.41) FREQUENCY OF RESISTANCE TO FLUOROQUINOLONES AMONG MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB) PATIENTS

Wang S[1], Falzon D[2], Zignol M[2]. [1]The Ohio State University, Internal Medicine Department, Columbus, Ohio, USA; [2]World Health Organization. Stop T6 Department, Geneva, Switzerland.

BACKGROUND: Multidrug-resistance (MDR-TB; resistance to bath isoniazid and rifampicin) complicates the treatment of tuberculosis patients. Further loss of susceptibility to f1uoroquinolones reduces treatment success and may lead to acquisition of additional resistance to second-line injectable drugs (XDR-TB: extensive drug-resistance). We describe global data on drug susceptibility testing (FQ-DST) coverage and resistance to f1uoroquinolones among MDR-TB cases.

METHOD: The World Health Organization (WHO) routinely collects and analyses national, representative surveillance data on fluoroquinolone-resistant MDR-TB in aggregated format. We group countries according to the 6 WHO Regions.

RESULT: Between 2007 and 2011, 59 countries (5 with subnational data) reported FQ-DST results for 77% of 11,692 confirmed MDR-TB cases [Table). Sixty-one percent of cases with results were from South Africa. DST data from the Americas were incomplete. Both fluoroquinolone resistance and XDR-TB were highest in the European Region (19% & 11% respectively); fluoroquinolone resistance was also >10% in the South-East Asian and African Regions.

CONCLUSION: Fluoroquinolones are destined to remain crucial in the treatment of MDR~TB tor the foreseeable future. The occurrence of resistance to them among MDR-TB from all over the world signal that the effectiveness of Treatment arid infection control measures need to be improved and better monitored globally.

WHO Regions	MDR-TB cases	MOR·TB with FQ-DST N, (%)	Fluoroquinolone resistance § N, (%*)	XDR-TB N, (%*)
African	8359	5771(69)	791(14)	579(10)
Americas	150	115(77)	6(5)	4(3)
Eastern Mediterranean	25	25(100)	1(4)	0
European	2949	2866(97)	558(19)	303(11)
South-East Asian	173	173(100)	26(15)	1(0.6)
Western Pacific	36	35(97)	1(3)	0
Global	11692	8985(77)	1383(15)	887(10)

*among MDR-TB cases With results; § Includmg XDR-TB cases

1. Global tuberculosis control: WHO report 2012 (WHO/HTM/TB/2012.6). Geneva, World Health Organization, 2012.

A.42) A DESCRIPTIVE ANALYSIS OF TB-HIV CO-INFECTED CASES IN ONTARIO 2007 - 2011

Whelan M, Lee B, Bateman T, Guthrie J, Jamieson F. Public Health Ontario, Toronto, ON, Canada.

BACKGROUND: Tuberculosis (TB) control is greatly affected by human immunodeficiency virus (HIV) in populations with co-infection. Acquired immune deficiency syndrome (AIDS) is the biggest risk factor for progression of latent TB infection to active TB disease leading to higher morbidity and mortality. Identification of co-infections is of particular importance for case management purposes because such cases are more difficult to treat.

METHODS: All laboratory and clinically confirmed TB cases, reported from 2007 to 2011 were extracted from Ontario's integrated Public Health Information System (iPHIS). TB-HIV co-infected cases were identified for this analysis.

RESULTS: Over the five year period examined, approximately 3.4% (111/3235) of active TB cases in Ontario were reported to be co-infected with HIV. The number of co-infected cases declined from a high of 29 in 2008 to 18 in 2011. Among cases where HIV status was known, co-infected cases were younger on average at 40.4 years of age compared to an average age of 43.7 among HIV negative cases (p=0.003). The ratio of males to females was higher in co-infected cases than HIV negative cases (1.6:1 versus 1.1:1). HIV status was unknown for 58.7% (1899/3235) of TB cases.

CONCLUSION: Between 2007 and 2011, 111 of Ontario's TB cases were found to be co-infected with HIV. While the number of cases identified as being co-infected has declined, the HIV status of almost 60% of the TB cases in this study was unknown. All patients with newly diagnosed TB should be strongly encouraged to undergo informed HIV testing.

A.43) VITAMIN D DEFICIENCY IN PERUVIAN TB CONTACTS WAS FREQUENT AND CORRECTED MORE BY SUMMER THAN SUPPLEMENTS

Wingfield T[1,2], Jongkaewwattana C[1], Schumacher SG[1], Zevallos K[1,2], Montoya R[1,2], Baldwin MR[1], Rivero M[1,2], Gilman RH[2], Evans CA[1,2]. [1]IFHAD: Innovation for Health and Development, Universidad Peruana Cayetano Heredia, [2]Asociación Benefica Prisma, Lima, Perú.

BACKGROUND: Tuberculosis incidence increases in summer months in several countries when, paradoxically, skin sunlight exposure increases blood vitamin D concentrations, potentially augmenting anti-TB immunity. Vitamin D concentrations are poorly characterised in settings with high TB risk.

METHODS: We examined seasonal plasma vitamin D levels and effects of vitamin D supplementation in impoverished TB affected households in Lima, Peru. Household contacts of microbiologically confirmed TB patients were randomised to receive daily placebo or vitamin D supplements (400iu) for 6 months. 299 Vitamin D plasma blood levels were tested in 102 participants.

RESULTS: Vitamin D deficiency (<50nmol/L) was common, occurring in 57% of baseline samples and in 90% of participants at some time. Plasma vitamin D levels were higher in the summer 6 months than winter (53 nmol/L vs 47 nmol/L, P=0.004) and in those who received vitamin D supplementation rather than placebo (52 nmol/L vs 49 nmol/L, P=0.036). This association held true in multiple regression but revealed a larger effect of season than supplementation (Table 1).

CONCLUSION: In a Peruvian shantytown with high TB incidence, there was a high rate of vitamin D deficiency with significantly lower vitamin D levels during the winter months. Vitamin D supplementation increased plasma vitamin D levels but this effect was outweighed by that of season.

	Mean vitamin D concentration	**Univariate regression**		**Multiple regression**	
	(95% CI)	Coefficient (95% CI)	P Value	Coefficient (95% CI)	P Value
Summer	53 (50-55)	5.8 (2.9 - 8.8)	<0.001	5.8 (2.9 - 8.7)	<0.001
Winter	47 (45-49)				
Supplemented	52 (49-55)	3.4 (0.2 - 6.5)	0.036	3.3 (0.2 - 6.4)	0.036
Not supplemented	49 (47-50)				

Table 1: Regression of plasma vitamin D levels against season and vitamin D supplementation

A.44) LABORATORY CHALLENGES ASSOCIATED WITH MOLECULAR DETECTION OF ANTIBIOTIC RESISTANCE IN CLINICAL SAMPLES CONTAINING MULTIPLE STRAINS OF *MYCOBACTERIUM TUBERCULOSIS*

Christianson S[1], Ainslie M[2], Sharma M[1,3], **Wolfe J[1]**. [1]Public Health Agency of Canada, [2]Department of Medicine, University of Manitoba, [3]Department of Medical Microbiology, University of Manitoba, Winnipeg, MB, Canada.

BACKGROUND: With the advent of molecular testing, simultaneous infections with multiple strains of *Mycobacterium tuberculosis* (*M.tb*) have been reported, primarily in high-incidence settings. The occurrence of "mixed" infections is presumed to be less common in low incidence settings and therefore the associated challenges are not often encountered. A recent Manitoba patient with a clinical history suggestive of multi-drug resistant (MDR) *M.tb* infection illuminated challenges posed to rapid molecular techniques by mixed *M.tb* infections.

METHODS: A sputum sample was submitted for real-time PCR detection of *M.tb*. The DNA was subjected to gene sequencing to detect antibiotic resistance to isoniazid (INH) and rifampin(RIF). Upon the availability of positive culture, phenotypic antibiotic sensitivity testing was completed along with genotyping and sequencing of the genes associated with antimicrobial resistance.

RESULTS: Real-time PCR indicated the presence of *M.tb* in the sputum sample. PCR from the sputum sample showed no antibiotic resistance mutations. Testing of the subsequent culture showed phenotypic resistance to both INH and RIF (MDR-TB), and mixed gene sequences and genotyping results. Results indicated that this patient was infected with both antibiotic sensitive TB and MDR-TB. The lack of antibiotic-resistance mutations in the sputum sample points to an over-growth of the sensitive strain in that sample.

CONCLUSION: Despite the speed and convenience of molecular testing, phenotypic testing is still needed to correctly identify resistance in *M.tb*, especially in cases complicated by infection with multiple strains of *M.tb.*

B.1) COST BENEFIT EVALUATION OF 3HP AND 9H TREATMENT REGIMENS FOR LATENT TUBERCULOSIS INFECTION (LTBI)

Balaban V[1], Ho C [1], Patil N [2], Mukasa L [2], Marks S [1], Shepardson D [3], Galvis M [4], Grant G [1], Khan A[1].
[1]US Centers for Disease Control and Prevention, Atlanta, GA; [2]Arkansas Department of Health, Little Rock, AR; [3]Mount Holyoke College, South Hadley, MA; [4]US Centers for Disease Control and Prevention, Las Vegas, NV, USA.

BACKGROUND: The US Centers for Disease Control and Prevention has recently recommended that a regimen of 12 weekly doses of INH and rifapentine (3HP) given by directly observed therapy (DOT), is as effective as the standard 9-month regimen of self-administered daily INH (9H) for treating LTBI. Evidence about the relative cost effectiveness of the two regimens is limited. This report describes preliminary results from an evaluation of the cost- effectiveness of 3HP vs. treatment regimens for LTBI.

METHODS: As part of a larger assessment of the use of 3HP in non-research settings for adverse effects, cost data is being collected from 3 U.S. sites that are using both 3HP and 9H regimens to treat LTBI. Costs associated with staff and patient time for clinic visits, DOT and adverse events are being collected as are data on costs for diagnostic tests, medications, incentives, supplies and outreach. As data on adherence rates becomes available, costs, quality-adjusted life-years gained, and instances of active tuberculosis averted will be calculated for each regimen.

RESULTS: Preliminary results suggest that the cost effectiveness of the 3HP regimen at different sites is likely to be affected by factors such as the costs associated with delivery DOT and the use of translators.

CONCLUSION: The present study will help to determine whether and under what circumstances 3HP is a cost-effective alternative to the 9H regimen for treating LTBI.

B.2) FACTORS ASSOCIATED WITH LATENT TUBERCULOSIS THERAPY COMPLETION IN RIO DE JANEIRO, BRAZIL

Bastos M[1,2], Belo MTCT [1,2,3], Teixeira EG, Silva AP, Raggio R[4], Menzies D[5], Trajman A[1,2,5]. [1]Gama Filho University, [2]Tuberculosis Scientific League, [3]Souza Marques Foundation, [4]Federal University, Rio de Janeiro, Brazil; [5]McGill University, Montreal, QC, Canada.

BACKGROUND: Latent tuberculosis (TB) infection (LTBI) therapy has a very low completion rate under programmatic conditions. A few studies have aimed to identify factors associated with completion of LTBI treatment. However, to our knowledge, socioeconomic status (SES) or knowledge and beliefs (K&B) has not been analyzed.

METHODS: We analyzed factors associated with LTBI treatment adhesion, including SES and K&B in 182 participants of a randomized pragmatic trial to treat LTBI with 4RIF or 9INH. Subjects who signed the informed consent answered a questionnaire. Those who took at least 80% of prescribed doses were considered adherent. SES was classified according to Critério Brasil (www.abep.org).

RESULTS: The following factors were independently associated with completion: immunosuppression (HIV and use of immune modulator), being a household contact, higher socioeconomic status and older age. In contrast, K&B, habits, and drug regimen were not.

CONCLUSION: Interestingly, fear of having TB did not explain why patients with immunosuppression or household contacts adhere more to LTBI treatment. Maybe the importance attributed to this treatment by their physicians enhances their commitment to LTBI treatment. In this sample, drug regimen was not associated with completion, contrasting with previous findings. More than a shorter regimen, healthcare workers' commitment and incentives for the poorest may increase completion of LTBI treatment. Qualitative studies on health system and patients' barriers may contribute to this discussion. Studies on acceptance to start treatment, out of the scope of our study, are equally important.

B.3) QUANTIFERON GOLD IN TUBE DURING FOLLOW UP OF SUBJECTS TREATED FOR LTBI

Bastos M[1,2], Menzies D[3], Belo MTCT [1,2,4], Abreu ST[5], Antas PZ[6], Trajman A[1,2,3]. [1]Gama Filho University, [2]Tuberculosis Scientific League, [4]Souza Marques Foundation, [5]Paschoal Granto Lab, [6]Oswaldo Cruz Foundation, Rio de Janeiro, Brazil; [3]McGill University, Montreal, QC, Canada.

BACKGROUND: Many countries have replaced or complemented tuberculin skin testing (TST) with interferon-gamma release assays (IGRA) for diagnosis of latent tuberculosis infection (LTBI). However, the role of serial IGRA testing as a marker of LTBI cure is not established. The aim of the present study was to analyze IGRA test results before and after treatment of LTBI.

METHODS: Participants of a trial to treat LTBI with a positive TST were invited to perform Quantiferon Gold-in-Tube (QFT-GIT)® before starting treatment, at 4th and 9th month of follow up. The differences between quantitative results in different timing were compared. Results were also categorized using different cut-off points.

RESULTS: Out of 215 trial participants, 118 were adherent to treatment of whom 58 had the three tests done. Most had stable results. Decrease in IFN- γ levels eventually leading to reversions were more frequent in non-adherent subjects and occurred after the fourth month of follow up. Although slightly more frequent among those with an initial result close to the cut-off point, reversions were also frequent among those with very high initial IFN-γ levels (>2IU/ml).

CONCLUSION: LTBI treatment had no effect in QFT-GIT results. Different cut-offs were tried to see possible trends over the time, but fluctuations were frequent, showing the poor reproducibility of the test, making it difficult for a clinician to interpret conversions and reversions of QFT-GIT.

B.4) SAFETY, ADHERENCE, AND EFFICACY OF INTERMITTENT THERAPY FOR CHILDHOOD TUBERCULOSIS EXPOSURE OR INFECTION

Cruz AT, Starke JR, Baylor College of Medicine, Houston, TX, USA.

BACKGROUND: Few data have been reported for the use of intermittent directly observed preventive therapy (DOPT) for tuberculosis (TB) infection and disease.

METHODS: Children treated with INH or RIF twice weekly via DOPT [administered by a local health department] seen from 1989 to 2011 in the Children's Tuberculosis Clinic in Houston, TX, were included. Reported side effects, results of laboratory evaluation, completion of therapy, and progression to disease were evaluated.

RESULTS: 1383 children were treated for 8 to 12 weeks for TB exposure (935, 68%) or 6-9 months for LTBI (448, 32%). All children with exposure and 411 (92%) of those with LTBI were identified via contact investigations. Twelve (1.3%) children with exposure experienced any side effect (5 abdominal pain, 4 vomiting, 3 rash); 8 had transaminases evaluated, and only 1 child had elevated transaminases. Thirty (6.7%) of children with LTBI experienced any side effect (16 abdominal pain, 6 rash, 3 vomiting, 2 headache, and 2 abdominal pain/vomiting); 19 had transaminases obtained and 2 had elevated transaminases. All transaminases normalized after discontinuation of therapy. Over 99% of exposed and 95.8% of infected children completed therapy. One child, who had sickle cell anemia, was treated for LTBI and developed disease 3 years later. The rate of TB disease in our cohort was 1/1383, 0.07%.

CONCLUSION: Intermittent DOPT in childhood TB is safe, effective, and offers high adherence rates.

B.5) MINIMIZING SEVERE ISONIAZID (INH) TOXICITY IN THE SICK KIDS TUBERCULOSIS PROGRAM: A SICKKIDS-TORONTO PUBLIC HEALTH (TPH) COLLABORATION

Lam R[1,5], Rea E[2,3], Lechner J[2], Chong K[2], Canizares G[2], Science M[1,4], Malloy P[1], Louch D[1], Kitai I[1,4].
[1]Division of Infectious Diseases, SickKids Hospital, [2]Toronto Public Health; [3]Dalla Lana School of Public Health, University of Toronto, [4]Department of Paediatrics University of Toronto, [5]Bloomberg Faculty of Nursing, University of Toronto, Toronto, ON, Canada.

BACKGROUND: A 5 yr. old child developed severe hepatotoxicity during the 5th month of INH therapy for Latent Tuberculosis Infection (LTSI) despite regular follow up, normal baseline liver function tests (LFTs), and counseling on medication side-effects. The child had a prolonged hospitalization but made a full recovery.

OBJECTIVE: To minimize further cases of severe INH-related hepatotoxicity

METHODS: a) Case review identified ongoing parental administration of INH despite vomiting and abdominal pain. b) Literature review confirmed ongoing INH ingestion despite symptoms as a significant risk factor for severe toxicity. c) Informal survey of Ontario Health Units did not detect other severe hepatotoxicity over 1 year. d) Review of 17 months experience showed *2/150* children receiving INH prophylaxis developed side effects with elevated transaminases.

SickKids TS Clinic and TPH collaborated as follows:

1) A written script is given to patients at first clinic visit stressing pertinent selected side-effects, a plan of action if symptoms occur, and contact telephone numbers.

2) A structured check list of side effect is used at each follow-up visit and by telephone using translation services wherever necessary.

3) INH is held if side-effects are reported: the child is evaluated clinically and with LFT's

4) A pamphlet incorporating side effect information has been produced and translated to many relevant languages.

RESULTS/CONCLUSION: During the telephone monitoring pilot period, 11/38 patients reported side-effects for which INH was initially held: none had elevated transaminases. Thereafter, telephone check-in by TPH staff continues monthly, alternating with the monthly T8 clinic visits, so that side-effects are explicitly assessed every 2 weeks. Parent and patient recall of side effects is now excellent.

B.6) FACTORS ASSOCIATED WITH LTBI TREATMENT COMPLETION IN AN INNER CITY CLINIC (EDMONTON, CANADA)

Malejczyk K[1], Gratrix J[2], Beckon A[3], Moreau D[4], Williams G[3], Kunimoto D[5], **Ahmed R[5]**. [1]Department of Laboratory Medicine, University of Alberta, [2]Communicable Disease Control, Alberta Health Services, [3]Edmonton Tuberculosis Clinic, Alberta Health Services, [4] Central TB Services, Alberta Health Services, [5]Department of Medicine, University of Alberta, Edmonton, AB, Canada.

BACKGROUND: In low TB incidence countries, treatment for latent TB infection (LTBI) is an important strategy for TB control programs. The challenge of effective LTBI treatment lies in high-risk groups and difficult to treat settings. Injection drug use, excessive alcohol use, unemployment and homelessness have been associated with failure to complete preventative treatment. The purpose of this study was to determine the rate of LTBI treatment completion within an inner city population and examine factors correlating with treatment completion.

METHODS: A retrospective chart review was conducted on patients who started LTBI treatment between January 1, 2005 and December 31, 2010 through a clinic offering multidisciplinary healthcare to Edmonton's inner city population. LTBI treatment completion rates were described and compared by demographics, clinical characteristics, regimen, and delivery. Categorical variables were compared using χ^2 or Fisher's exact and continuous variables were analyzed using the Mann-Whitney test.

RESULTS: A total of 77 patients were started and 57 (74%) completed LTBI treatment. Homelessness was the only variable that was significantly different between those who completed (1.8%) and those who did not complete treatment (25%, p=0.001).

CONCLUSION: Our study found rates of LTBI treatment completion in an inner city population that were comparable or better than that previously reported for a general population (22-90%). Homelessness was the only predictor of treatment non-completion suggesting the need for a greater focus on social services interventions in order to improve outcomes in this risk group.

B.7) DO PATIENTS COMPLETE TREATMENT FOR LATENT TUBERCULOSIS INFECTION IN QUEBEC? A POPULATION-BASED STUDY

Ronald LA[1,2], FitzGerald JM[2,3], Bartlett GB[1], Schwartzman K[1], Boivin JF[1], Benedetti A[1], Menzies DM[1].
[1]McGill University, Montreal, QC, Canada; [2]Centre for Clinical Epidemiology and Evaluation, Vancouver Coastal Health Research Institute, [3]University of British Columbia, Vancouver, BC, Canada.

BACKGROUND: Treatment of latent tuberculosis infection (LTBI) is an important component of many TB control programs. Prior studies comparing completion rates for isoniazid (INH) and rifampin (RIF) regimens have been single clinic- or clinical trial-based, which may overestimate completion rates compared to the general population. The objective was to compare rates of LTBI treatment completion for INH and RIF regimens in the general Quebec population

METHODS: A cohort of LTBI Cases was identified using TB drug prescriptions data in the Quebec provincial health administrative database. The cohort included all individuals dispensed at least 30 days of mono-INH or RIF, between 1998 and 2007. Completion was defined as dispensation 216 doses within 12 months (9INH), 144 doses within 9 months (6INH) or 96 doses within 6 months (4RIF). Completion rates for INH and R1F were compared using log-binomial regression, after adjustment for confounders.

RESULTS: In total, 18,172 patients started INH and 1,506 started RIF. Crude completion rates were *54.0%* (4RIF), 65.3% (6INH), and 46.6% (9INH). A high proportion of patients stopped treatment after the first month (12% INH, 23% RIF). Predictors of completion were 4RIF vs 91NH (adjusted risk ratio=1.22, 95% CI=1.15-1.29), male sex (adjRR=1.09, 1.05-1.12), having a TB-related co-morbidity (adjRR=1 .09, 1.02-1.16), TB-experienced physician (adjRR=1 .18, 1.14-1.23), and living in an urban region (adjRR=1.16, 1.03-1.08).

CONCLUSION: Completion rates were higher for 4RIF than 91NH after adjusting for measured confounders. High dropout rates after one month suggest that many patients fail to return after their first prescription.

B.8) COST EFFECTIVENESS OF QuantiFERON®-TB GOLD-IN-TUBE VERSUS TUBERCULIN SKIN TESTING FOR CONTACT SCREENING AND TREATMENT OF LATENT TUBERCULOSIS INFECTION IN BRAZIL

Steffen RE, Caetano R, Pinto MFT, Chaves D, Ferrari R, Bastos M, de Abreu ST, Menzies D, Trajman A. Universidade Federal do Rio de Janeiro, Brazil.

BACKGROUND: Latent tuberculosis infection (LTBI) is a reservoir for new TB cases. Isoniazid preventive therapy (IPT) reduces in up to 90% the risk of active TB, but LTBI screening has limitations. Unlike tuberculin skin testing (TST), interferon-gamma release assays are not affected by BCG vaccination, and have been reported to be cost-effective in low-burden countries. The goal of this study was to conduct a cost-effectiveness analysis from the health system perspective comparing three strategies for LTBI diagnosis in TB contacts: tuberculin skin testing (TST), QuantiFERON®-TB Gold-in-Tube (QFT-GIT) and TST confirmed by QFT-GIT if positive (TST/QFT-GIT) in Brazil, a middle-income, high-burden country with universal BCG coverage.

METHODS: Costs for LTBI diagnosis and treatment of a hypothetical cohort of 1,000 adult immunocompetent close contacts were considered using a decision analytic model. Effectiveness measure was number of averted TB cases in two years.

RESULTS: Health system costs were US$ 94,370 for TST, US$ 114,886 for QFT-GIT and US$ 97,866 for TST/QFT-GIT; they averted 12.57, 12.70 and 8.80 TB cases. The most cost-effective strategy was TST (US$7,508/averted case).The incremental cost-effectiveness ratio was US$ 161,560 for QFT-GIT. TST/QFT-GIT was dominated.

CONCLUSION: Unlike previous studies, we found that TST is the most cost-effective strategy for averting new TB cases in the short term. QFT-GIT would be more cost-effective if its costs were reduced to US$ 29.35 considering a TST specificity of 59% and US$ 20.36 considering a more realistic TST specificity of 80%. Nevertheless, 239.9 unnecessary IPTs are prescribed to avert one case with TST, compared to 32.5 with QFT.

B.9) COMMUNITY BASED TB PREVENTION: IMPROVING POPULATION HEALTH AND DECREASING MEDICAID COSTS

Tschampl C, Bernardo J. Brandeis University and Medical Advisory Committee for the Elimination of TB, Waltham, MA, USA.

BACKGROUND: Most TB in the U.S. results from reactivation of TB infection (LTBI), a treatable condition. Public health programs have expertise and some resources to manage TB and other diseases impacting population health, yet experts often cannot access those most at risk. In contrast, federally-funded Community Health Centers (CHCs) are often located within high-incidence communities, but limited models of care, provider knowledge, and understanding of community priorities undermine important health concerns, including TB prevention. Federal health reform and the move toward value-based purchasing further change the context for TB elimination.

METHODS: We collected gray literature and information from TB practitioners and composed a proposal for community-based TB prevention that incorporates key aspects of health care reform (e.g. community-needs assessments). The proposal was reviewed by the Massachusetts Medical Advisory Committee for the Elimination of TB and submitted to the Center for Medicare & Medicaid Innovation.

RESULTS: We proposed the following components:

1. Move TB prevention to CHCs, led by core provider teams, typically MD-nurse, trained by public health experts;

2. Create referral and information-sharing between public health and CHCs (via a liaison-nurse/provider);

3. Provide regular performance feedback to CHCs; and

4. Link these services with targeted, needs-based community education and primary care.

CONCLUSION: Based on evidence from earlier TB programs, the severe externalities of TB, and new federal incentives, there is reason to believe the proposal would lead to improved population health and decreased Medicaid costs. Recently created TB-related quality measures for primary care may aid implementation. Further studies are needed.

C.1) INCREASE IN REPORTED TB CASES, LOS ANGELES COUNTY, CALIFORNIA, USA, 2011

Baker B[1,2], Singh R[1], Yumul J[1], McMullen S[1,2], Poonja S[1,2], King-Todd A[1], Alvarez F[1]. [1]Los Angeles County Department of Public Health, Tuberculosis Control Program; Los Angeles, CA, [2]Centers for Disease Control and Prevention, Division of Tuberculosis Elimination, Atlanta, GA, USA.

BACKGROUND: In 2011, the number of reported TB cases in Los Angeles County increased for the first time since 1993. This increase raises concerns about current TB prevention and treatment strategies, and merits closer examination to focus public health resources.

METHODS: We analyzed 5,445 incident TB cases reported to Los Angeles County for standard surveillance, January 1, 2005-December 31, 2011. Accounting for prior trends using a regression analysis, we calculated the deviation between observed and expected TB cases in 2011.

RESULTS: From 2010 to 2011, the number of TB cases in Los Angeles County increased from 674 to 679 (0.7%); the deviation in TB cases in 2011 was +4.1% with 52 more cases reported than expected ($P < .01$). The case increase for U.S.-born patients was greatest among children 0-4 years old (+93.3%, from 15 to 29). The foreign-born case count decreased from 530 to 521 (-1.7%). While cases among recent entrants (≤2 years of U.S. entry) declined from 94 to 67 (-28.7%), cases among non-recent entrants (>2 years since U.S. entry) increased from 427 to 453 (+6.1 %). The number of homeless persons with TB also increased, among both U.S.-born (+73.3%, from 15 to 26) and foreign-born (+33.0%, from 18 to 24) populations.

CONCLUSION: The increase in reported TB cases in Los Angeles County in 2011 was characterized by increases among homeless adults, US-born children, and foreign-born non-recent entrants. Further study is needed to determine the root causes of these increases and to guide optimal public health interventions.

C.2) INCREASED NUMBER OF CASES OF TUBERCULOSIS IN INDIVIDUALS BORN IN AN EASTERN MEDITERRANEAN COUNTRY, MONTÉRÉGIE, QUÉBEC, CANADA, 2012

Belanger P[1], Lacroix C[2], Milord F[3]. [1]Public Health Agency of Canada, Ottawa, [2]Direction de santé publique de la Montérégie et Université de Sherbrooke, [3]Direction de santé publique de la Montérégie et Université de Sherbrooke, Longueuil, Canada.

BACKGROUND: Though tuberculosis (TB) incidence is stable in Montérégie region, the proportion of foreign-born cases reached 67% in 2009–2011 compared to 48% in 2001–2004. An increased number of cases in people born in one Eastern Mediterranean country was also observed. Our objective was to better understand the epidemiologic and immigration characteristics of these cases to target preventive measures.

METHODS: All confirmed and clinical TB cases born in this Eastern Mediterranean country, reported between January 2001 and November 2012, were included in the study. TB incidence was calculated using regional Census data for this ethnic population. Demographic, immigration and risk factor data for the first TB episode of each case were collected from public health charts.

RESULTS: Twenty-three cases were reported among 22 persons, for an estimated incidence rate of 80.9 per 100 000. Fifteen were pulmonary TB (68%). Mean age was 48 years (range: 16–80) and 12 were females (55%). Cases were in Canada for 6 years on average (range: 0–14) before diagnosis. No case reported receiving treatment of latent TB infection (LTBI) following immigration to Canada. Local transmission was identified in an extended family cluster, in which contacts non-compliant with recommended LTBI treatment became secondary cases.

CONCLUSION: The increase in TB cases observed in this community emphasizes the importance of evaluating recent immigrants from high TB incidence countries for LTBI. Cases resulting from local transmission triggered the need to reinforce the importance of LTBI treatment and find efficient outreach strategies in this community.

C.3) EPIDEMIOLOGY OF PEDIATRIC CENTRAL NERVOUS SYSTEM (CNS) TUBERCULOSIS (TB) —CALIFORNIA, 1993–2011

Duque-Silva A[1], Robsky K[2], Flood J[2], Barry P[2]. [1]Children's Hospital and Research Center Oakland, [2]Tuberculosis Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, CA, USA.

BACKGROUND: Pediatric CNS TB is an important public health problem. It results from recent transmission, is difficult to diagnose and can have severe outcomes including death. We aimed to describe the epidemiology of pediatric CNS TB in California.

METHODS: We analyzed data from the California TB registry on characteristics of persons aged 0–18 years diagnosed with TB during 1993–2011. TB cases with cerebrospinal fluid, meninges, brain, or spinal cord reported as site of disease or source of positive culture were included.

RESULTS: During 1993–2009, 178 (3.1%) of 5681 pediatric TB cases had CNS TB, whereas during 2010–2011 22 (7.0%) of 312 had CNS TB (1993–2011 Cochrane-Armitage trend: p=.0047). Overall, cases occurred in 23 of 46 jurisdictions reporting pediatric cases. There were 115 (57.5%) culture-positive cases; 92 (80%) were positive from the CNS. Half of cases were male; 144 (72%) were children aged 0–4 years and 150 (75%) were Hispanic. Of all cases, 18% were born outside the U.S. Nine (4.7%) died on treatment. Of culture-positive cases, 3 (1.5%) had multidrug resistance (MDR), 7 (6.1%) had isoniazid resistance (not MDR), 2 (1.7%) had rifampin resistance (not MDR), and 11 (5.5%) had pyrazinamide resistance alone.

CONCLUSIONS: California pediatric CNS TB appears to be increasing and occurs most frequently among Hispanic children aged <5 years. Information about disabling outcomes was unavailable. Further analysis on long-term outcomes of CNS TB is needed, particularly among Hispanic children.

C.4) EPIDEMIOLOGICAL ASPECTS OF PULMONARY TUBERCULOSIS IN MATO GROSSO DO SUL

Ferraz AF, Valente JG. Ministry of Health - Oswaldo Cruz Foundation (FIOCRUZ), Campo Grande, Mato Grosso do Sul, Brazil.

OBJECTIVE: To describe the profile and analyze reported cases of pulmonary tuberculosis in the state of Mato Grosso do Sul, in the period 2001-2009, according to categories of selected variables.

METHODS: We carried out an ecological study of cases of pulmonary tuberculosis and estimated incidence rates of tuberculosis, for socio-demographic variables and proportions for other selected variables. Internal comparisons were performed for rates and proportions found in each category of the study variables.

RESULTS: We observed a mean annual incidence rate of 39 cases in the general population of the state of Mato Grosso do Sul, and among inmates, a rate of 871 cases of tuberculosis per 100,000 population-years, 25.2 (CI 95%: 22.3 to 28.5) times the rate for the general population. It was observed also among the indigenous population of the state, a rate of 244 cases, with a relative risk of 7.32 (95% CI: 6.1 to 8.8) compared with the general population of the state. In areas bordering Paraguay and Bolivia, could be observed a rate of 62 cases per 100,000 population-years, corresponding to a relative risk of 1.74 (95% CI: 1.46 to 2.07), when comparing with the overall population of the state.

CONCLUSION: Indigenous population, inmates and population border with Bolivia and Paraguay have been identified as high risk for pulmonary tuberculosis and deserve special attention by health services.

C.5) EPIDEMIOLOGY OF PEDIATRIC CENTRAL NERVOUS SYSTEM (CNS) TUBERCULOSIS (TB) —CALIFORNIA, 1993–2011

Duque-Silva A[1], Robsky K[2], Flood J[2], Barry P[2]. [1]Children's Hospital and Research Center Oakland, [2]Tuberculosis Control Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, Richmond, CA, USA.

BACKGROUND: Pediatric CNS TB is an important public health problem. It results from recent transmission, is difficult to diagnose and can have severe outcomes including death. We aimed to describe the epidemiology of pediatric CNS TB in California.

METHODS: We analyzed data from the California TB registry on characteristics of persons aged 0–18 years diagnosed with TB during 1993–2011. TB cases with cerebrospinal fluid, meninges, brain, or spinal cord reported as site of disease or source of positive culture were included.

RESULTS: During 1993–2009, 178 (3.1%) of 5681 pediatric TB cases had CNS TB, whereas during 2010–2011 22 (7.0%) of 312 had CNS TB (1993–2011 Cochrane-Armitage trend: p=.0047). Overall, cases occurred in 23 of 46 jurisdictions reporting pediatric cases. There were 115 (57.5%) culture-positive cases; 92 (80%) were positive from the CNS. Half of cases were male; 144 (72%) were children aged 0–4 years and 150 (75%) were Hispanic. Of all cases, 18% were born outside the U.S. Nine (4.7%) died on treatment. Of culture-positive cases, 3 (1.5%) had multidrug resistance (MDR), 7 (6.1%) had isoniazid resistance (not MDR), 2 (1.7%) had rifampin resistance (not MDR), and 11 (5.5%) had pyrazinamide resistance alone.

CONCLUSIONS: California pediatric CNS TB appears to be increasing and occurs most frequently among Hispanic children aged <5 years. Information about disabling outcomes was unavailable. Further analysis on long-term outcomes of CNS TB is needed, particularly among Hispanic children.

C.6) SIMULATING EVOLUTION OF M. TUBERCULOSIS OVER TRANSMISSION NETWORKS: MODELING STUDIES TO GUIDE THE USE OF GENOMICS IN TB OUTBREAK INVESTIGATIONS

Gardy J[1], Colijn C[2]. [1]British Columbia Centre for Disease Control, Vancouver, BC, Canada; [2]Imperial College London, London, United Kingdom.

BACKGROUND: Over the course of a tuberculosis outbreak, microevolutionary events within an individual host give rise to mutations that can be used as markers of transmission. When interpreted in the context of epidemiological data (e.g. existence, nature, duration of a contact) and clinical data (e.g. disease site, smear-status, symptom onset), the genomic data can assist in identifying transmission events. What has yet to be quantified is the degree to which genomic data alone can provide insight into the transmission dynamics underlying an outbreak. Can individual transmission events reliably be inferred from a phylogenetic tree or network? Does the topology of an outbreak phylogeny reflect specific patterns of spread, such as super-spreading versus transmission chains?

METHODS: To address these questions, we modeled the evolution of an *M. tuberculosis* genome as it spread over a series of defined transmission networks. We then constructed Bayesian phylogenies and median-joining phylogenetic networks from the simulated genomic data.

RESULTS: Examining the phylogenies in the context of known transmission events revealed topological patterns unique to each type of transmission network. A series of metrics were then used to describe each topology, and we found that these metrics were able to distinguish superspreader phylogenies from transmission chain phylogenies.

CONCLUSION: We are presently developing these metrics into a classifier which, when given an outbreak phylogeny as input, will provide epidemiologically useful insight into the outbreak's pattern of spread, which may then be used to shape the resulting outbreak investigation.

C.7) CHARACTERIZATION OF TUBERCULOSIS ISOLATES IN TB HIV-CO-INFECTED PATIENTS IN ONTARIO 2007-2011

Guthrie JL, Whelan M, Lee B, Jamieson FB. Public Health Ontario, Toronto ON, Canada.

BACKGROUND: Genotyping of tuberculosis (TB) facilitates the identification of TB clusters, discovery of unexpected transmission and improves understanding of transmission dynamics. TB strains of patients co-infected with HIV are of particular interest, and characterization of these isolates has not previously been undertaken in Ontario.

METHODS: 75 TB isolates from patients identified in Ontario's integrated Public Health Information System (iPHIS) as HIV positive between 2007 and 2011 were genotyped using standard methods for 24-loci MIRU-VNTR and spoligotyping (SM24). Relationships among the isolates were determined by cluster analyses of SM24 patterns using BioNumerics v6.1. Isolates were further examined for drug resistance using phenotypic antimicrobial susceptibility testing methods.

RESULTS: Unique SM24 patterns were identified for 92% of the 75 TB-HIV cases, and the remaining 8.0% with identical SM24 patterns was comprised of 3 pairs of SM24 identical isolates. Isolates from this study were compared to the Public Health Ontario Laboratories (PHOL) TB genotyping database (OUT-TB), and 20 had identical SM24 matches to isolates obtained from patients not known to have HIV (as indicated in iPHIS). Antimicrobial susceptibility testing of all 75 TB-HIV co-infected isolates found 8.4% resistant to isoniazid (INH), 3.2% to rifampicin (RIF), and isolates simultaneously resistant to INH and RIF represented 2.1%.

CONCLUSION: While the majority of TB in HIV infected patients is likely reactivation of a latent TB infection, it is important to characterize the TB strains present in this population. Understanding TB at the strain level can only strengthen surveillance programs for these diseases separately and as co-infecting agents.

C.8) A TB CONTACT INVESTIGATION IN A NEONATAL INTENSIVE CARE UNIT IN TORONTO, CANADA

Kadri R[1], Fox B[1], Lechner J[1], Chong K[1], Stuart R[1], Rea E[1], Kitai I[2], Schwartz K[2], Lovinsky R[3], Azzopardi P[3]. [1]Toronto Public Health, [2]SickKids Hospital, [3]The Scarborough Hospital, Toronto, ON, Canada.

BACKGROUND: A nurse at a community hospital Neonatal Intensive Care Unit (NICU) was diagnosed with smear negative, fully sensitive tuberculosis (TB). Despite the low risk of transmission, if infected, the neonates are at high risk for severe TB disease. 94 infants were identified as contacts. Challenges included tuberculin skin test (TST) interpretation in neonates; weighing risks/benefits of window isoniazid (INH) prophylaxis; and complex follow-up logistics for this large cohort.

METHOD: The hospital, public health TB program, and SickKids Pediatric TB Clinic collaborated to develop clinical pathways and assess the exposed infants. A series of special joint clinics were held at the hospital. Initial assessment included physical examination, chest x-ray, TST, and liver function tests. Window INH was recommended for infants less than 3 months corrected age, and stopped if the 3 month (corrected age) TST remained negative and the infant was>12 weeks post-exposure. Infants on INH were monitored for toxicity. TSTs will be repeated at 6 months of age.

RESULTS: The initial clinic was held five days after case diagnosis. Three infants were out of country; one family refused follow-up. The remaining 90 infants were assessed following the clinical pathway. To date no secondary TB cases have been identified; all babies tested have negative initial and post 3month TSTs. INH was generally well tolerated.

CONCLUSION: A proactive, coordinated approach involving specialist clinicians, public health, and the hospital is essential for timely, high-quality follow-up for infant NICU exposures. Secondary cases are rare and INH window prophylaxis is likely a safe option.

C.9) PREVALENCE AND COFACTORS FOR NON-TUBERCULOUS MYCOBACTERIA AMONG NEWLY ARRIVED IMMIGRANTS AND REFUGEES IN THE UNITED STATES

Jonnalagadda S, Cuffe K, Painter J. Immigrant, Refugee and Migrant Health Branch, Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, Atlanta, GA, USA.

BACKGROUND: Non-tuberculous mycobacteria (NTM) may cause disease but are generally non-communicable. NTM cross-react with the tuberculin skin test (TST), confounding the diagnosis of latent tuberculosis (TB) infection (LTBI). Extent of NTM cross-reactivity with interferon-gamma release assays (IGRA) is not well defined. We assessed prevalence and cofactors for NTM infection among immigrants and refugees arriving in the US.

METHODS: We analyzed reports of U.S.-based TB examinations from recent arrivals between January1, 2008 to December 31, 2011. Individuals were defined as NTM positive when two or more sputum cultures were positive for NTM and negative when no sputum cultures were positive for NTM. Arrivals per country were obtained from the US Department of Homeland Security.

RESULTS: We included 22,639 arrivals, of whom 945 (6%) were NTM positive. Annual NTM prevalence was 42/100,000 arrivals. Annual prevalence was 20-fold greater for immigrants from the Philippines (314/100,000) and Vietnam (248/100,000) than for all other countries (151100,000). NTM positivity was significantly associated with positive TST (~ 10 mm) (Odds Ratio (OR): 1.35; 95% Confidence Interval (CI): 1.13-1.62; p=0.0006) but not with positive IGRA (OR: 1.13; 95% CI: 0.91 - 1.39; p=0.21). Of those who were NTM positive, 89 (9.7%) had 1 or more smears positive for acid-fact bacilli.

CONCLUSION: NTM positivity was unusually high for immigrants from the Philippines and Vietnam. The impact of NTM on TST and IGRA testing in this population warrants further investigation.

C.10) ACTIVE TUBERCULOSIS IN FOREIGN-BORN ENTERING BRITISH COLUMBIA FROM 2004 - 2010

Roth DZ[1], Gilbert M[1], Cook V[1, 2], Johnston J[1, 2]. [1]British Columbia Centre for Disease Control, [2]Division of Respiratory Medicine, University of British Columbia, Vancouver, BC, Canada.

BACKGROUND: Citizenship and Immigration Canada (CIC) perform tuberculosis (TB) screening on all foreign-born individuals applying for permanent residency, along with students, visitors or workers staying > 6 months. In 2011, 72% of TB cases in British Columbia (BC) were foreign-born.

METHODS: For foreign-born individuals entering BC from 2004-2010, TB incidence measures were calculated by immigration class, birth country, and age at diagnosis. The total number of foreign-born entries per immigration class, and proportion of foreign-born T6 cases referred for CIC follow-up were identified.

RESULTS: From 2004-2010, 35% *(107/308)* of foreign-born TB cases were detected in people referred by CIC for post-landing surveillance. Overall incidence was *42.2/100,000* entries. Incidence was greatest in Landed Immigrants *(19.5/100,000* person-years; *66.91100,000* entries) and Humanitarian populations *(49 .3/100,000* entries), and lowest in Temporary Workers *(12.5/100,000* entries) and Students *(8 .71100, 000* entries). Incidence in Landed Immigrants was greatest in those aged >65 years *(80 .1/100,000* person years) at arrival. TB incidence in the Humanitarian population is greatest in 20-50 year olds *(74 .7/100,000* entries). The relative incidence for groups defined by country of birth reflected relative incidence in the country of origin.

CONCLUSION: Nearly 35% of TB cases in this cohort occurred in individuals referred by CIC for post-landing surveillance, highlighting the value of immigrant screening. Improving adherence to post-landing surveillance may reduce provincial TB rates in high risk subgroups, such as those from high incidence countries. Physicians should consider referring recent migrants from high burden countries and risk factors for developing TB for follow-up.

C.11) SITUATION OF TUBERCULOSIS IN NEPAL FROM 1996 TO 2010

Subedi KC[1], Gyawali A[2]. [1]Rural & Alternative Energy Nepal, [2]Kutztown University, Kutztown, PA, USA.

BACKGROUND: About 45% of population in Nepal is estimated to be infected with TB. Approximately 40,000 TB cases occur annually; 20,000 of these are infectious. Over time, the gap between notified incident cases and expected incident cases of TB is steadily decreasing.

OBJECTIVE: The study aim was to follow trends in the disease estimates of TB in Nepal using regular secondary data.

METHODS: An analytical study of TB reported data for 1996-2010 periods was done using least square method. Linear regression and t-test were calculated for comparison of notification and expected TB incidence of all forms of TB using the SPSS package.

RESULTS: During the study period, the reported incidence of all forms of TB was 136/100000/year in 1996 decreasing to 126/100000/year in 2010. The overall decreasing trend in TB incidence is 0.825/100,000 annually as modeled by the equation $IRt=113.925-0.825*t$ ($p<0.001$), given the assumption that the model remains valid if the HIV situation remains stable in the whole country.

The reported incidence in comparison with expected incidence during this period shows that while TB is decreasing, it is still a public health problem in Nepal (t-test<0.001). The notified and expected TB incidence is also significantly decreasing during study period.

CONCLUSIONS: The reported decrease in incidence reflects the decrease in the estimated TB incidence in Nepal. The equation correlating the two can provide future information to guide program planning and management in order to achieve program goals and targets.

C.12) LOW-LEVEL ISONIAZID RESISTANCE IN AN OUTBREAK POPULATION: A GENOMIC INVESTIGATION

Tang P[1], Rodrigues M[1], Michaleski M[2], Hickey T[2], Coope R[3], Pleasance S[3], Corbett R[3], Johnston J[4], Gardy J[4], Cook V[4]. [1]BC Public Health Microbiology and Reference Laboratory, [2]University of British Columbia, [3]Canada's Michael Smith Genome Sciences Centre, [4]British Columbia Centre for Disease Control, Vancouver, BC, Canada.

BACKGROUND: The BC Public Health Microbiology and Reference Laboratory's Mycobacteriology Laboratory has identified a cluster of 30+ *Mycobacterium tuberculosis* isolates with identical 24-loci MIRU-VNTR genotypes and low-level monoresistance to isoniazid (INH, 0.1 ug/mL). Sequencing of genes known to confer INH resistance (including inhA and katG) did not identify any candidate mutations.

METHODS: We proposed a genomics approach to identify resistant-associated mutations. Using serial samples from the suspected index case, in whom low-level INH resistance developed during treatment, we generated whole genome sequences for an INH-susceptible (K7) and an INH-resistant (K8) isolate on the Ion Torrent Personal Genome Machine. Reads were mapped against the CDC1551 reference strain and the location of mutations in K8 relative to K7 identified.

RESULTS: Two mutations potentially associated with the INH resistance phenotype were identified in K8 and were analyzed in silico to determine their potential effects. We also generated genome sequence data for several other INH-susceptible and INH-resistant isolates in the same cluster using the Illumina HiSeq. Surprisingly, neither of the mutations found in K8 were observed in any of the other INH-resistant isolates. Furthermore, no consistent genetic differences were observed between genomes from INH-susceptible (n=10) and INH-resistant (n=30) isolates.

CONCLUSION: Possible explanations for our inability to detect a mutation responsible for the resistance phenotype include: i) the reference mapping approach to genome assembly missing the genomic region in which the mutation occurs, ii) the mutation being selected against during the culture process, or iii) an alternative explanation for the phenotype, such as epigenetic modification.

D.1) BUILDING A WINNING WEBSITE

Bible SP, Miodovski R, Bagchi C, King-Todd A, Garcia B, Hwang S, Alvarez F. Los Angeles County Department of Public Health, Tuberculosis Control, Los Angeles, CA, USA.

BACKGROUND: The Los Angeles County Tuberculosis Control Program (TBCP) website was created over twenty years ago and since then the staff assigned to review and update the website had left. The website itself was not written in plain language, making it difficult for visitors to navigate, understand and find what they were looking for, and was written in long sentences with excessive words, resulting in few hits from visitors. Mechanisms for communicating local, state and national information and educational opportunities on tuberculosis were dependent on direct communication.

METHODS: Each Program unit collaborated to redesign the website according to Departmental Guidelines. They brainstormed new ideas and reviewed materials in an effort to update information on the website. The goals for the new site included: (1) easy navigation, (2) use of plain language, and (3) greater access to information and resources regarding tuberculosis for public and private sector healthcare providers.

RESULTS: The website redesign improved communication and increased the number of visitors, including access through mobile and handheld devices. Consultation with the Public Health web developer team was essential for proper website structure and goal achievement.

CONCLUSION: The TBC Program website redesign was a key programmatic activity and, as a result of staff contributions, now provides the public and health care professionals with up-to-date information and resources that are easy to locate and understand. Website design and interactivity that reflects current technology can be a powerful communication tool.

D.2) A COMMUNITY-BASED APPROACH TO EVALUATING ISONIAZID PREVENTIVE THERAPY IMPLEMENTATION AMONG PLWH IN SOUTH AFRICA

Boffa J[1], Mayan M[2], Wilson D[3], Ndlovu S[4], Fisher D[1], Sauve R[1], Cowie RL[1]. [1]Department of Community Health Sciences, University of Calgary, Calgary, [2]Community-University Partnership for the Study of Children, Youth and Families, University of Alberta, Edmonton, AB, Canada; [3]Edendale community representative, [4]Edendale Hospital, South Africa.

BACKGROUND: Although Isoniazid Preventive Therapy (IPT) is commonly used to treat latent TB infection, it has not been widely offered in areas with high rates of TB-HIV. In June 2011, clinics in the Edendale Hospital catchment area, South Africa (an area with high TB-HIV and MDR-TB incidence) began to offer IPT to people living with HIV (PLWH). Given concerns with inappropriate treatment and drug resistance, we collaboratively developed a protocol for evaluating IPT implementation.

METHODS: In August 2011 resource mapping was undertaken in Edendale, a peri-urban community adjacent to the hospital, to identify populations with whom to undertake ethnographic focus group discussions (FGDs) on perceptions of IPT and to identify stakeholder groups for community advisory teams. Walkabouts were undertaken to describe community strengths contributing to health infrastructure. An FGD tool was collaboratively developed and pilot tested at an HIV clinic.

RESULTS: Populations identified for FGDs included people living with and without HIV and minibus drivers. Responses from FGD pilot testing suggested that PLWH were unaware of IPT and its local availability, although there was much interest. Stakeholders for advisory teams included traditional healers, health workers, and faith-based leaders. Community strengths included community gardens and feeding schemes.

CONCLUSION: Although little was known about IPT in pilot testing, patients wanted to learn more. FGDs will occur in 2012 following two years of IPT implementation, with results tied to community strengths and vetted through advisory teams.

D.3) TUBERCULOSIS AND DIABETES IN THE MUNICIPALITY OF GUARULHOS, SAO PAULO, BRAZIL

Penon Rujula MJ, Galesi VMN, **Souza Pinto V**, Cunha Barbosa R, Bombarda S. Sao Paulo State Tuberculosis Control Program, Tuberculosis Division, Epidemiological Surveillance Center, Center for Disease Control, Sao Paulo State Health Secretariat, Sao Paolo, Brazil .

BACKGROUND: Diabetes (DM) is growing worldwide and associated with increased risk of tuberculosis (TB) and unfavorable treatment outcomes, which is a challenge for control of both diseases. In Sao Paulo State, the largest Brazilian TB burden state, 6% of patients in the TB information system have DM, this is self-reported and should not represent the real situation. Studies for these 2 co-morbidities are very important.

METHODS: Cross sectional study to determine the prevalence of DM associated with TB and outcomes of notified TB patients from August 2010 to August 2011 in the municipality of Guarulhos. We review clinical records of all cases and compared the diagnoses of DM using Brazil Diabetes Association classification guidelines with self-reported to study: DM prevalence, outcome, HIV status, sex and age. We used Epi-info to statistical analysis.

RESULTS: We studied 412 cases: only 51.0% had blood glucose tests; 32.0% were female; 7.1% HIV+, there was no difference in age distribution; 7.8% are self-reported diabetes and 11.8% have glucose >125mg/dl; the outcomes are in ***Table 1*** (non-statistically significant).

CONCLUSION/RECOMMENDATIONS: The prevalence of DM between TB and vice versa and their epidemiologic characteristics are fundamental for the control of two co-morbidities. In practice this is done so unsatisfactory, that's why we need to create protocols by two programs (TB and DM) to control better these 2 co-morbidities. In 2011 were notified in the municipality of Guarulhos 517 TB cases, where 37 (7.2%) presented association with DM. The prevalence of TB associated to DM was 7.2%. Therefore, the analysis of these data shows the necessity of HCWs training and closer monitoring.

Table1: Distribution of the patients studied according to diagnostic criteria to DM and outcomes in Guarulhos, 2010-2011

	Cure %	Default %	Death %	Failed %
All Cases	83,1	8,6	3,7	2,9
Self-reported diabetes	81,5	3,7	3,7	7,4
Glucose >125mg/dl	80	2,5	7,5	5

D.4) ESTRATEGIAS PARA AUMENTAR LA TASA DE CURACIÓN EN TUBERCULOSIS

Etchevarria M, Chirico C, Iribarren S, Sanjurjo M. Programa Control Tuberculosis, Region Sanitaria V, Buenos Aires, Argentina.

ANTECEDENTES: Existen intervenciones en todo Programa de Control de Tuberculosis (TB) para lograr adherencia y curación, documentadas y probadas como el DOTS. En Buenos Aires, Argentina desde 1991 la ley N° 10436 brinda asistencia económica al paciente con TB sin seguridad social, residencia permanente durante más de 2 años en la Provincia, equivalente al salario minima y es percibido mensualmente durante el tratamiento.

OBJETIVO: Analizar la utilidad del subsidio en relación a la adherencia al tratamiento y conocer si la aplicación de la ley junto al DOTS funciona como herramienta eficaz para aumentar la tasa de curación.

MATERIAL Y MÉTODO: Mediante un estudio de cohorte retrospectivo fueron analizados durante el ana 2004-2008, dos grupos de pacientes con tuberculosis confirmados por bacteriologia. Los datos se obtuvieron de la ficha de notificacion de casos en ese período. Grupo 1: Pacientes con subsidio economico durante ese período. Grupo 2: Pacientes sin subsidio elegidos al azar durante ese período. La base de datos se procesó con software Excel 7.0 y el análisis estadístico con MelcCalc*7.02.

RESULTADOS: Grupo 1: 804 pacientes 76,6% DOTS *I* Grupo 2: conformado por 847 pacientes 51,1 % DOTS. Las diferencias estadísticamente significativas halladas fueron a favor del grupo de pacientes subsidiados con mayor tasa de curación (93,3%) y reducción de abandonos (4,6%) .

CONCLUSIÓN: La implementación del subsidio en combinación con DOTS demostró mejorar la adherencia al tratamiento superando la meta recomendada por la OMS: curar al 85% de los casos.

D.5) IDEAS IN ACTION: TORONTO PUBLIC HEALTH'S HOMELESS TEAM'S INFLUENCE ON TB CONTROL

Bain A, Scott S, **Fuller J**, Stuart R, Seemangal, J, Batt , Rea E. Toronto Public Health & St. Michael's Hospital, Toronto, ON, Canada.

BACKGROUND: On average, 3-5% of individuals with active TB disease in Toronto are homeless (5-15 cases/year). However, due to the social instability and high prevalence of medical co-morbidities within this population, mortality rates are higher; achieving TB control is challenging and time intensive. The last decade has seen two outbreaks (2001, 2004) and a recent smaller cluster in 2011-2012 in the Toronto homeless/ under housed population.

METHOD: In order to better control TB transmission in Toronto's homeless population, Toronto Public Health (TPH) created the Homeless Team Initiative in 2005. The team collaborates closely with community partners and uses an integrated system of intensive case management, contact tracing, health education and active case finding.

RESULTS: Contact tracing is difficult within the homeless population as many individuals are transient and have difficulty completing follow-up. Since the development of the Homeless Team, contact tracing conducted in 2007-2010 resulted in the identification of 996 contacts of homeless TB cases and 584 (59%) completed at least some TB assessment (skin test, chest X-ray, and/or sputum samples).

CONCLUSION: TB disease among the homeless remains a persistent problem in Toronto that requires strong collaboration amongst community partners to manage. Initiation of the Homeless Team by TPH has significantly improved the quality and continuity of care of the homeless/under housed TB cases in Toronto including the completion of TB treatment and addressing issues including housing, income and links to primary care.

D.6) REACHING THE TARGETS: LESSONS LEARNED IN DECENTRALIZATION OF TUBERCULOSIS DRUG RESISTANCE TESTING USING THE Xpert MTB/Rif ASSAY IN NYANZA PROVINCE, KENYA

Gachengo J[3], Okumu A[1],Opiyo E[1] ,Mburu M[2], Basiye F[2], Odhiambo J[2], Laserson K[1,2], McCarthy K[2] Cain K[1, 2], Sitienei J[3]. [1]Centre for Global Health and Research (CGHR) Kenya Medical Research Institute (KEMRI), Centres for Disease Control and Prevention (CDC), [2]Division of Global HIV and AIDS (DGHA), Centers for Disease Control and Prevention (CDC), [3]Division of Leprosy, Tuberculosis and Lung Disease (DLTLD), Ministry of Public Health and Sanitation (MOPHS), Kenya.

BACKGROUND: Emergence of multiple drug-resistant tuberculosis (MDR-TB) threatens to reverse gains Kenya achieved with WHO TB control targets. The national MDR-TB surveillance policy stresses TB culture and drug susceptibility testing (TBC – DST) on sputum specimens for all re-treatment and treatment failure cases which contribute about 10% of notified TB cases annually. Nyanza Province with the highest HIV-driven TB burden, registered low TBC-DST coverage of 10% in 2007, 30% in 2008 and 50% in 2009. We share lessons on decentralizing and improving MDR-TB surveillance using Xpert MTB/Rif Assay in Nyanza.

METHODS: The Kenya Division of Leprosy, TB, and Lung Disease (DLTLD) and KEMRI/CDC collaborated to decentralize MDR-TB testing using the KEMRI/CDC TB laboratory in Kisumu. Sputum specimens from all retreatment patients in Nyanza were sent to the lab for the Xpert MTB/Rif Assay, then liquid culture (MGIT) and for positive specimen first line DST testing for rifampin resistance.

RESULTS: From January-March 2012, 338 sputum specimens were tested , 128 (37.8%) confirmed *M.tb* positive, 20 (5.9%) had rifampin resistance and 8 (2.4%) were MDR- TB by DST, 1 (0.29%) rifampin mono-resistant, and > 57 (16.8%) of the 338 sputum specimens were rejected. Results were relayed through email to district TB coordinators within 2 hours after testing, and hardcopies sent to facilities under 24 hours.

CONCLUSION: Eight MDR-TB cases detected within the 1st quarter of implementation, demonstrates untapped potential to increase MDR-TB detection and reduce turnaround time. Targeted efforts will be directed to address challenges with rejected specimen.

D.7) EASE OF IMPLEMENTING THE INH/RPT REGIMEN STATEWIDE

Galanowsky K, **Woods P**. New Jersey Department of Health, Trenton, NJ, USA.

BACKGROUND: The use of INH/RPT regimen was initiated, May, 2012, in NJ public health clinics. Goals were to improve treatment completion rates for Latent Tuberculosis Infection (LTBI) among high risk populations, determine acceptability in patient population, and closely monitor tolerability and safety of medication.

METHOD: Policy and procedure was written and adopted by the Medical Advisory Committee, including eligibility criteria, dosage/adverse drug reactions, monitoring, and procedures for implementation. Medication was procured by the New Jersey State Health Department and distributed by Nurse Consultants after training. Training tools were developed for staff and physicians. On-site trainings and webinar were provided. An access program for data collection was developed for evaluation.

RESULTS: Twenty-one individuals were started on this regimen. Evaluation indicates no one was lost to follow-up, one possible adverse drug reaction (ADR), one patient removed due to pregnancy, ten successfully completed treatment, and remaining individuals are progressing without incident. One person refused the regimen due to the large number of tablets. Despite education of physicians, resistance among a few physicians occurred pending future data. Limited staffing for directly observed therapy (DOT)is an on-going challenge to increased enrollment of patients. Possible use of electronic device for DOT is a consideration for the future.

CONCLUSION: The educational component is critical to implementation, monitoring and safety of the regimen. The findings indicate acceptability by patients, increased compliance for LTBI treatment, and low incidence of ADR. There is potential for implementation in other settings.

D.8) AIDS MORTALITY AND TUBERCULOSIS NOTIFICATION: KNOWING BOTH DATABASES

Galesi VMN, Pereira EC. Tuberculosis Division, Sao Paulo State Health Secretariat, Brazil

BACKGROUND: AIDS patients are under a 10% risk of developing tuberculosis (TB) disease yearly, while in the general population, the 10% risk of getting TB occurs during life span. Also, 23% of AIDS patients die during TB treatment. Therefore, it is of utmost importance to carry out in-depth investigation to be aware of the diagnostic and therapeutic aspects of patients that died of TB/AIDS.

METHOD: A database system was constructed based on Mortality Information System (SIM). All residents that died in Sao Paulo City during the 2006-2010 period and whose death certificates included AIDS (B20-B24) and tuberculosis (A15-A19) were the cases selected. The mortality database were compared with the tuberculosis cases notification system (TBWEB), utilizing the Reclinck III Program, that implements the probabilistic association technique of database registration. Patient's name, mother's name and birth date were the variables used.

RESULTS: During the 2006-2010 period, 4,956 AIDS deaths occurred, with 1,113 (22.5%) being TB/AIDS patients. From 1,113, 110 (9.9%) had not TBWEB notifications and 5 (0.4%) were unidentified persons. From those 998 (89.7%) registered as TB cases, 697 (69.8%) were male, 826 (82.8%) presented treatment outcome as deaths, 431 (61.1%) of which occurred during the first month of treatment and 265 (26.6%) had more than one treatment. These figures show that both information systems have relatively consistent data.

CONCLUSION: Multiple cause mortality studies provide valuable information for planning actions against AIDS and tuberculosis.

RECOMMENDATION: Implementing routines of database comparisons with intervention proposals.

D.9) THE USE OF VIDEOPHONE FOR DIRECTLY OBSERVED THERAPY

Gassanov M, Feldman L, Sebastian A, Kraguljac M and **Rea E**. Toronto Public Health, Toronto, ON, Canada .

BACKGROUND: logistical and client reasons, Community Directly Observed Therapy (CDOT) cannot be provided to all TB patients for their entire treatment period. Videophone for Directly Observed Therapy (VDOT)-where visits take place over live video stream-is designed to supplement CDOT for compliant clients on a well-established treatment regimen.

METHODS: Thirteen clients participated in a pilot project: 5 weeks of CDOT visits (n=278), followed by 5 weeks of VDOT visits. Data was collected on time and kilometrage used, technical issues, and client and staff satisfaction.

RESULTS: VDOT is a practical and cost-effective method of delivering DOT to carefully selected TB clients:

• A census of CDOT clients found that 30% (n=48) were eligible for VDOT.

• Compliance rates were similar for both CDOT (98.2%, n=273) and VDOT visits (98.9%, n=263).

• The health unit should achieve substantial cost savings with VDOT both in staff compensation and reimbursement for kilometrage.

• Client feedback on VDOT was overwhelmingly positive. Clients and staff reported that the technology was easy to use and VDOT visits were fast, convenient, and private. The standard of care is maintained, but the interaction of an in-person visit is missed. There are limitations in conducting a physical assessment over a videophone, and nurses reported possible difficulties in identifying medications if picture quality is poor.

CONCLUSIONS: The health unit is expanding VDOT to eligible clients.

D.10) TEXTTB: A PARALLEL DESIGN RANDOMIZED CONTROL PILOT STUDY TO EVALUATE ACCEPTANCE AND FEASIBILITY OF A PATIENT-DRIVEN MOBILE PHONE BASED INTERVENTION TO SUPPORT ADHERENCE TO TB TREATMENT

Iribarren S[1], Chirico C[2], Etchevarria M[2], Cardinali D[2]. [1]University of Utah, College of Nursing, Salt Lake City, UT, USA; [2]TB Program Director Health Region V, Hospital Dr. A Cetrangolo, Buenos Aires, Argentina.

BACKGROUND: Purpose was to test feasibility and explore initial efficacy of a Short Message Service (SMS)-based intervention to improve adherence and support TB patients where self-administration is standard care.

METHODS: A randomized control pilot study using mixed-method design was conducted Nov 2011 - Aug 2012. Thirty-seven participants were recruited from a pulmonary specialized hospital in Argentina. Intervention included: 'text-in' after self-administration; reminders when patient did not text-in; bi-weekly SMS education; and option to consult. Frontline SMS was used to send/receive/manage messages. A protocol, developed with TB-specialized team, guided decision making. Educational messages were based on the Informational-Motivational-Behavioral Model. Individual and text-message interviews were conducted. Outcomes included: feasibility (e.g. eligible participants, cost, barriers); efficacy (e.g. sputum-smear conversion, % adherence); and how intervention was used.

RESULTS: 122 patients were evaluated and excluded for <18yrs (21, 17%), no mobile phone (3, 2.5%), HIV + or unknown resistance (8.7%). Preliminary results from participant interviews indicate acceptability, "feeling cared for" and rated "highly recommend" for other patients with TB. 2607 text messages were sent and received. Patients utilized program to ask questions, report side effects and notify self-administration of medication. Adherence and group comparison data are currently being analyzed and will be presented.

CONCLUSION: Text messaging has potential to improve TB outcomes. Collaborating with staff and patients improves implementation and evaluation. Recommendations included: dedicated staff for intervention, phone contracts to provide service free of charge to patient. Frontline SMS platform can manage a large number of users, however scheduling message function could be improved. Other challenges and limitations will be presented.

D.11) TIMING OF TUBERCULOSIS SCREENING AMONG NON-IMMIGRANT APPLICANTS FOR LEGAL PERMANENT RESIDENCY IN THE UNITED STATES

Jonnalagadda S, Painter J. Immigrant, Refugee and Migrant Health Branch, Division of Global Migration and Quarantine, Centers for Disease Control and Prevention, Atlanta, GA, USA.

BACKGROUND: In the United States (US), foreign-born (FB) persons accounted for 62% of tuberculosis (TB) cases in 2011. Annually, 500,000 US-residing FB persons apply for status adjustment (SA) to permanent residency and undergo required screening for active TB by US Customs and Immigration Services (USCIS)-designated civil surgeons (CS), yet little data are available about the timing and results of this examination. To understand the potential impact of this exam for reducing TB among FB persons, we estimated time from US arrival to the CS exam.

METHODS: We obtained data from USCIS on CS exams from 1999-2011. Years between last entry into the US and application for SA were calculated by country, geographic region of birth and TB incidence of birth country [high (≥100), medium (20-100) and low (<20/100,000)].

RESULTS: Of 3,074,503 CS exams analyzed, 50% of applicants were from Mexico, China, India, Cuba, and the Philippines. Countries with high TB-incidence accounted for 42% (66% from Asia) and medium TB-incidence accounted for 39% of all applicants (80% from Central and South America). Median time to SA was 1.7 (IQR: 0.5-4.7) for high, 4.3 (IQR: 0.9-10.0) for medium, and 1.1 (IQR: 0.6-1.9) years for low incidence countries.

CONCLUSION: Based on timing, the potential impact for reducing TB among foreign-born persons through diagnosis and treatment of TB disease and latent tuberculosis infection at the CS exam is greater for individuals from high TB-incidence countries than from medium TB-incidence countries.

D.12) ENGAGING COMMUNITIES IN TUBERCULOSIS RESEARCH: NEW DEVELOPMENTS IN STAKEHOLDER ENGAGEMENT

Lavery J, **Boulanger R.** St. Michael's Hospital, Toronto, ON, Canada; Critical Path to TB Drug Regimens – Stakeholder & Community Engagement Workgroup.

BACKGROUND: Stakeholder engagement is becoming more widely recognized as a critical component of research. At its core it is the commitment to create a beneficial, respectful, sustained, and transparent partnership that recognizes and addresses the interests of all stakeholders in the research project. Stakeholder engagement can facilitate local ownership of research and increase the likelihood of successful research conduct and trial completion.

METHODS: Stakeholder engagement is well established in some fields of biomedical research, most notably in HIV/AIDS where the *Good Participatory Practice Guidelines for Biomedical HIV Prevention Trials* (GPP-HIV) have received extensive support. In contrast, there are few resources available to guide stakeholder engagement in tuberculosis (TB) drug trials. To address this need, the Critical Path to TB Drug Regimens' (CPTR) Stakeholder and Community Engagement Workgroup (SCE-WG) has adapted the GPP-HIV for use in TB drug trials. The *Good Participatory Practice Guidelines for TB Drug Trials* (GPP-TB) were developed in close collaboration with AVAC, through an iterative writing process, incorporating feedback from an international sample of people actively involved in community engagement in TB drug trial settings.

RESULTS/ RECOMMENDATIONS: The GPP-TB aim to provide trial funders, sponsors, and research teams involved in TB drug trials with a principle-based framework explaining how to effectively engage stakeholders. The broader objective is to encourage greater attention to community interests and to help establish shared standards, expectations, and accountability for effective and outcome-driven engagement throughout *all* phases of TB drug trials.

D.13) DRUGS AND MONEY: ADVOCATING FOR ZERO TB DEATHS IN THE U.S.

Daniels CA, **Lessem EM**, Jervis C, Harrington M, McKenna L. Treatment Action Group, New York, NY, USA.

BACKGROUND: The global tuberculosis (TB) community is calling for rapid movement towards zero deaths and suffering—and eventually zero new infections—from this curable disease. The U.S. has long led the global fight against TB; however, recent funding cuts and drug shortages jeopardize its ability to get to "zero". Treatment Action Group (TAG) is a U.S.-based organization advocating for accelerated research and improved access to tools and sound policies to fight HIV and TB globally.

METHODS: Information gathering is the cornerstone of TAG's evidence-based approach. TAG works with TB care providers, academic researchers, TB program managers, advocates and activists (including survivors) and policymakers at all levels to document challenges and identify potential solutions. TAG, and partners then conduct targeted advocacy, including: high-level discussions with policymakers, exploring challenges and solutions, and challenging those responsible for policies and practices that hinder effective efforts.

RESULTS: Information gathering revealed that domestic funding cuts are threatening both research and programmatic efforts. Rising drug costs and stock outs endanger patients, and burden TB programs and staff. These are related to a lack of engagement of drug developers and manufacturers in TB, and linked with broad supply and demand challenges. Calling attention and demanding solutions to these problems can achieve tangible results.

CONCLUSION: Increased advocacy for U.S. government and global investment in TB research and programming is necessary to get to "zero." Engaging with drug developers and manufacturers, and overhauling global drug procurement mechanisms are also essential to addressing these issues.

D.14) AN ASSESSMENT OF THE QUALITY OF CARE GIVEN TO TUBERCULOSIS PATIENTS IN GUYANA

Mohanlall J, **Melville-Nero N**, Khan D, Foo A. Ministry of Health, National Tuberculosis Programme, Guyana.

BACKGROUND: Tuberculosis traditionally has been synonymous with stigma and discrimination and as a result persons affected by this disease often feel ashamed or alienated with a commensurate reluctance to access health care services independently. However, TB patients managed by trained health care workers using the Directly Observed Treatment (DOT) showed significantly improved treatment outcomes.

METHODOLOGY: For the purpose of this comparative study, a list was compiled of all TB patients who were managed by trained and untrained health workers over the ages 18 years, male and females who successfully completed the full course of treatment or who were still on treatment during the period March to November, 2009. A simple random sample was done and data analysis was performed for both groups using the SPSS software.

RESULT: 95 out of 100 eligible TB patients who were managed by 40 trained and untrained health care workers were interviewed in the study. In the area of adherence those managed by trained health care workers were measured at 87.8% as compared to 48.1% who were managed by untrained health care workers.

CONCLUSION: It was clear that training health care workers to administer TB treatment using the DOT approach has a positive and significant impact on TB patients' outcome; the patients were in praise of the trained staff who were kind, tolerance, knowledgeable and a pleasant overall demeanor.

D.15) EVALUATION OF MD-TB DATA SYSTEM – STATE OF SAO PAULO – BRAZIL – NINE YEARS

Oliveira ML, Fukasava S, Goldgrub N. Tuberculosis Division, Sao Paulo State Health Secretariat, Sao Paolo, Brazil.

BACKGROUND: Multidrug resistance is a biological phenomenon resulting from inadequate treatments either by irregular drug intake or due to low potency therapeutic schedules. Drug resistance is escalating worldwide in the latest years, claiming for attention and effective measures for its monitoring and control. In 2000, the Brazilian Health Ministry introduced, a National System of Epidemiological Surveillance of Multidrug Resistant TB Resistance (MDR-TB), with the health care units generating information from notification and follow-up of MRTB cases. A standardized therapeutic schedule including amikacin, ethambutol, a quinolone, terizidone and pyrazinamide was also proposed.

METHODS: Study of clinical and epidemiological characteristics of cases notified and followed up in the MDR-TB SYSTEM during the 2000 to 2009 period in the State of Sao Paulo, Brazil. Discovery of cases of resistance to isoniazid, rifampin and/or other drug resistances, according to susceptibility test results. All cases originated from MDR-TB reference centers in the State of Sao Paulo.

RESULTS: During the 2000-2009 period, 762 cases were notified and started treatment, 509 (66.8%) of which were male and 82 (10.8%) were HIV+. The examined case contacts that developed disease were 15 (7.8%). The lower cover DOT was 52.4%. Regarding co-morbidities, stood alcoholism and diabetes. Treatment outcomes showed that mortality rates were very high, varying from 5 (7.7%) in 2000 to 11 (10.3%) in 2009 while cure rates were low, between 30 (4.6%) in 2000 and 54 (50.5%) in 2009.

CONCLUSION: These results strongly highlight the necessity of diagnosis and susceptibility testing for early resistance identification and treatment supervision.

RECOMMENDATION: To strengthen surveillance over MRTB cases.

D.16) TB PATIENTS WHO WERE LOST TO FOLLOW-UP FROM GENERAL HOSPITAL OF PORT-AU-PRINCE, HAITI AFTER THE EARTHQUAKE IN JANUARY 2010

Richard M, Docteur W. NTP, Port-au-Prince, Haiti.

BACKGROUND: Haiti has the highest burden of TB among the Caribbean nations, and the success rate for completion of therapy has decreased from 82% in 2008 to 79% in 2010. The national default rate was 8%, and at General Hospital, the default rate was increasing. The most common reason for defaulting before January 2010 was economical. Our objectives were to assess the magnitude, time, and reasons for treatment interruption of TB patients at General Hospital after the earthquake.

METHODS: Retrospective analysis of the 2010 cohort of patients recorded at the hospital, and persons who were lost to follow up were contacted and interviewed with a dedicated questionnaire to assess their knowledge and determine reasons for stopping TB treatment.

RESULTS: Of 653 TB patients being treated at the hospital, 180 (27%) were lost. Of those, 52% were women. Most (79%) gave up after initiating treatment. Only 38% were retraceable by using their address or cell phone number. Most (91%) accepted the interview. Their mean age was 38 years old, 43% had not completed primary school, and 73% were unemployed before the earthquake. The most common reasons reported were: lack of communication with providers (43%), fear of military soldiers at the hospital gate (19%), patients did not think they were sick (35%), and they did not know that they needed to return to treatment (27%).

CONCLUSION: Better communication efforts are needed to educate and empower people with TB about treatment duration and the importance of adherence to minimize TB treatment interruption after a natural disaster.

D.17) TUBERCULOSIS SITUATION ROOM – SP STATE, BRAZIL

Santos LAR, Galesi VMN, Fukasava S. Center of Epidemiological Surveillance, Secretary of Health of Sao Paulo State, Brazil.

BACKGROUND: Evaluating and monitoring TB situation is an essential activity in times of growing drug resistance. Monitoring and evaluating are essential to TB control, but there are difficulties for many stakeholders to access updated data and indicators about it.

METHODS: It was developed a virtual TB situation room in Sao Paulo State. The target audience is: municipal authorities, health managers, health-care workers and community leaders interested in sharing information and to publicize their activities in TB control.

RESULTS: SP State TB situation room can be accessed from tuberculosis page at www.cve.saude.sp.gov.br. Following topics are addressed: a) TB situation in SP State: b) An individual evaluation chart report with the main TB indicators for each municipality or region; c) Tables of indicators, maps and graphs by municipality and by region d) Activities, events and news from the TB State Program, municipal TB programs and civil society TB stakeholders. Data are obtained from TB surveillance systems and will be updated quarterly. This site was developed under responsibility of the TB State Program. The project was sponsored and funded by the Tuberculosis Global Fund - Brazil.

CONCLUSION: This site is an easy tool to access data on SP State TB situation and can contribute to decision-making process, as well as sustainability of TB control in this State.

D.18) TB CONTACT TRACING FOR HOMELESS INDIVIDUALS: MANAGEMENT & SURVEILLANCE OUTCOMES

Bain A, **Seemangal J**, Batt J. St. Michael's Hospital, Toronto, ON, Canada.

BACKGROUND: Homeless individuals with latent TB infection (LTBI) have difficulty receiving contact tracing assessment. However, studies demonstrate 33-62% of homeless contacts completed an assessment when specific treatment protocols were constructed for this group. In the absence of protocols, approximately 25% completed assessment. In 2010, one Toronto shelter client developed active pulmonary TB, and generated 500 contacts. 41 contacts resided at Seaton House Shelter, which services clients with alcohol abuse and mental illness. These high risk contacts were referred to St. Michael's Hospital's (SMH) TB program for assessment. A LTBI Clinical and Process protocol was developed to manage this complicated population.

OBJECTIVE: To evaluate the number of homeless contacts who completed assessment by adhering to the TB Program's Clinical and Process Protocol.

METHODS: SMH created a Clinical and Process Protocol to standardize assessments and improve service delivery for the homeless contacts. Pathway components include chest x-ray surveillance for 24 months, LTBI prophylaxis for recent skin test convertors, protected clinic times, accompanied client visits, high staff to client ratio, and priority registration.

RESULTS: 76% of the homeless contacts completed an initial assessment. Of those who completed an initial assessment, 37% went on to complete 24 months of chest x-ray surveillance, whereas 5% developed active TB, and 5% died of non-related TB causes.

CONCLUSION: Protocol development, in combination with Seaton House Shelter and Toronto Public Health case management skills, allowed for optimal care delivery for a marginal group.

D.19) MAIN FACTORS THAT HINDER THE ADHERENCE TO ISONIAZID PREVENTIVE THERAPY IN PEOPLE LIVING WITH HIV IN THE DEPARTMENT OF CHALATENANGO EL SALVADOR JANUARY TO DECEMBER 2011

Soto M. NTP Ministry of Health, San Salvador, El Salvador.

METHODS: Descriptive and retrospective study, through a survey with informed consent.

RESULTS: From a universe of 34 HIV and on ART, distributed as follows: 20 (62%) of the urban area and 14 (38%) of the rural area of the ages of 20-65 years old, 9 unschooled and 25 schooled and those with schooled 19 singles, 8 married, 4 accompanied and one separate, the 50% do not have any support from family and 37% (12) do not know the used of isoniazid although 75% knows the treatment to prevent tuberculosis, 75% had received preventive therapy and 25% had not received, of these 58% (14 people) did not fulfill their therapy for the following reasons: 65% medicine had not given in the hospital, 7% caused them to vomit, 14% did not need it and 14% gave adverse effect. Of the 75% who started therapy with isoniazid, only 42% completed nine months of treatment, the main factor influencing no adherence was because the Hospital did not give the drug, 76% of cases ranging in age 20-49 years (76%).

CONCLUSION: Lack of education, low self-esteem, lack of family support makes these people abandon therapy. It is recommended to strengthen educational and psychological component of people living with HIV and their families, to ensure family support and lower the risk of abandonment of therapy.

D.20) TB-HIV COINFECTION CONTROL AFTER REFERENCE HOSPITAL DISCHARGE: AN OPERATIONAL RESEARCH IN SAO PAULO, BRAZIL

Souza Pinto V[1,2], Bamman RH[1]. Emilio Ribas[1]. [1]Institute for Infectious Diseases (IIER), Post-Graduation Program, Sao Paulo State Health Secretariat, [2]Sao Paulo State Tuberculosis Control Program, Tuberculosis Division, Epidemiological Surveillance Center, Center for Disease Control, Sao Paulo State Health Secretariat, Sao Paolo, Brazil.

BACKGROUND: The reference public services are essential, but they do not exempt from complicators as the geographical complexity where they are involved, mostly in the context of TB-HIV co-infection. The purpose is to assess the two year follow-up and the outcomes of those patients discharged from a hospital reference – the IIER.

METHOD: Analysis of TB Database System of Sao Paulo State (TBWEB) compared to the hospital's medical registers regarding inpatients that were discharged from July 2008 to June 2009 with diagnosis of TB-HIV co-infection (ICD-10: B-20; and A-15 to A-19).

RESULTS: There were 240 discharges during study period, corresponding to 219 patients. Fifty-three out of these 240 cases (22.1%) were not notified on TBWEB, 113/187 notified cases (60.4%) were new, 35 (18.7%) retreatments after default, 5 (2.7%) retreatments after failure, and 34 (18.2%) relapsed. TB culture of sputum/other biological specimen was performed in only 162/187 (86.6%) cases, 75 of these were positive. The sensitivity test was done in 53/75 cases (32.7%) and 19 presented some kind of resistance. No patient was registered as receiving directly observed treatment. Treatment outcomes, the respective rates were: cure 41.7%; default 27.3%; failure 3.2%; change of diagnosis 3.2%; remain in treatment 3.2%; and death 21.4%.

CONCLUSION: The high rates of sub-notification, the relevant number of cultures and sensitivity tests not performed and, low percentage of cure achieved (many of them relapsed and re-treated) implicate on urgent, practical and effective measures to improve these outcomes. All providers must be involved and committed through mutual responsibility. More efforts should be made towards the supervised treatment.

D.21) EFFECTS OF ECUADOR'S NATIONAL MONETARY INCENTIVE PROGRAM ON DRUG-RESISTANT TUBERCULOSIS TREATMENT COMPLIANCE

Sripad A, Castedo J, Danford N, Murray J, Zaha R, Freile C. Geisel School of Medicine at Dartmouth, Hanover, The Dartmouth Center for Health Care Delivery, Hanover, NH, USA; National Tuberculosis Program of Ecuador, Quito, Ecuador.

BACKGROUND: Noncompliance to tuberculosis treatment jeopardizes patient health and promotes disease transmission. Experimental programs that compensate compliance are associated with higher adherence. In July 2011, the National Tuberculosis Program (NTP) of Ecuador enacted a policy that rewards compliant drug-resistant TB patients $240 monthly. The purpose of the current study was to qualitatively and quantitatively assess the policy's early effects.

METHODS: 96 current and abandoned patients in four regions were interviewed about demographics, treatment, economic status, and impressions of the program. Patient answers were coded by key words and themes, and analyzed descriptively. Further, we obtained the NTP's quantitative data from 2009-2012 to compare dropout rates from before and after the program.

RESULTS: Preliminary analysis indicates that patients are financially challenged. Many find the money from the program helpful for nutrition, maintaining family, and treatment aid. A frequent complaint was that the reward delivery was irregular. Further analysis will determine if 1) the abandonment rate was lower during the monetary compensation period than in the two previous one-year cohorts, 2) there are clear patient perceived strengths and weaknesses of the program and (3) demographic factors related to abandonment.

CONCLUSION: As we continue analyzing our data, our conclusions are speculative. While the purpose of our study is preliminary and descriptive in nature, our findings could reveal which challenges to adherence a national incentive program may or may not address. Lessons learned from Ecuador's program could benefit other nations considering similar programs.

D.22) STRATEGIES FOR REDUCING TREATMENT DEFAULT IN DRUG RESISTANT TUBERCULOSIS: SYSTEMATIC REVIEW AND META-ANALYSIS

Toczek A[1], Cox H[2,5], du Cros P[3], Cooke G[1,4], Ford N[1,5]. [1]Faculty of Medicine, Imperial College London, UK; [2]Medecins Sans Frontieres, Cape Town, South Africa; [3]Manson Unit, Medecins Sans Frontieres, London, UK; [4]Africa Centre for Health and Population Studies, University of KwaZulu-Natal, [5]Centre for Infectious Disease Epidemiology and Research, University of Cape Town, South Africa.

BACKGROUND: Scaling up treatment for multidrug resistant TB is a global health priority. However, current treatment regimens are long and associated with considerable side effects, and reported rates of defaulting from treatment are consequently high, This systematic review aimed to identify strategies for reducing defaulting from treatment.

METHODS: We conducted a systematic search of Medline and Embase up to May 2012 to identify studies describing interventions to support patients receiving MOR-TB treatment. The potential influence of study interventions were explored through subgroup analyses.

RESULTS: 75 studies provided outcomes for 18294 patients across 31 countries. Default rates ranged from 0.5-56%, with a pooled proportion of 14.8% (95% CI12.4-17.4%). Strategies identified to be associated with lower default rates included the engagement of community health workers as DOT providers, the provision of DOT throughout treatment, smaller cohort sizes, and the provision of patient education.

CONCLUSION: Current interventions to support adherence and retention are poorly described and based on weak evidence. This review was able to identify a number of promising, inexpensive interventions feasible for implementation and scale up in MDR-TB programs. The high reported rates of defaulting from many programs underscores the pressing need to further refine and evaluate simple packages of interventions to support patients.

D.23) EVALUATION OF PRIMARY HEALTH CARE SERVICES STRUCTURE FOR TB TREATMENT

Wysocki AD[1], Scatolin BE[1], Ponce MAZ[1], Andrade RL[1], **Arakawa T[1]**, Magnabosco GT[1], Monroe AA[1], Scatena LM[2], Villa TCS[1]. School of Nursing, University Sao Paulo, Ribeirao Preto, [2]Federal University of Triangulo Mineiro, Uberaba, Brazil.

BACKGROUND: To improve epidemiological indicators of tuberculosis (TB), it is necessary to consider the respects related to health staff ability and qualification.

OBJECTIVE: To evaluate the structure of PHC services for the treatment of TB patients in Sao Jose do Rio Preto, Brazil.

METHODS: Descriptive and exploratory study conducted with 239 key informants working in the 25 PHC services of the municipality. Structured interviews based on the definitions of the components of health services quality assessment were conducted from June to August 2011. The variables received different weights, according to the relevance for the TB treatment in the PHC services. PHC structure was analyzed using mean and confidence interval, adopting a significance level of 5%, and was ranked satisfactory or unsatisfactory considering the general average of the municipality for the structure component. A multiple correspondence analysis (MCA) was used to assess associations between variables which composed the evaluative component structure and health services evaluated.

RESULTS: Eight PHC services were considered with an unsatisfactory structure component, with averages below the municipality average of 26.8 [26.06, 27.49]. The MCA results showed that the five poorest PHC services were associated with absences in: training of staffs by municipal department of health, professional responsible for DOT, TB reporting forms, patient file, DOT recording card.

CONCLUSION: To strength cases recording, health care organization and improve staff training for TB is essential to assure a satisfactory structure for TB management in PHC.

D.24) PROGRAM USE OF IGRA REDUCES COSTS OF LTBI

Woods P[1], Privett T[1], Lardizabal A[2]. [1]New Jersey Department of Health, Trenton, [2] Global TB Institute, Newark, NJ, USA.

BACKGROUND: The New Jersey TB program began Quanti-Feron Gold (OFT) testing in collaboration with the state laboratory July 2010 with the intent to reduce workload and costs associated with latent TB infection (LTBI).

METHOD: Policies and procedures developed by the lab for the correct handling of samples. Phlebotomy and incubation would occur at clinical sites after training was provided by the lab. Criteria for OFT testing were established.

RESULTS: Of the 1638 results submitted to date, 65.1% negative, 34.7% positive, 0.4% indeterminate and 0.5% were rejected. 1123 persons with a BCG history, 62.2% were negative and 37.3% positive. Of 755 OFT results for TST reactors, 60.9% were negative, 39.1 % positive. Breaking down those with a history of BCG versus no BCG, 567 persons with a previous positive TST/BCG, 62.4% were negative and 37.5% positive. 188 persons with a previously positive TST no BCG, 56.4% negative and 43.6% positive.

Estimated cost of diagnosing and treating uncomplicated LTBI with INH using TST is $169 and QFT $182. For the patient population with a previously positive TST regardless of BCG history, QFT saved $67,006 or 53% compared to TST. These savings were proportionately higher for TST reactors with positive BCG $51,747 or (54%) than for TST reactors with no BCG ($15,258 or 48%).

CONCLUSION: With close collaboration with the state lab the implementation of OFT was operationally feasible on a program level significantly improving the productivity and cost savings in an era of declining resources.

D.25) IMPORTANCE OF COMMUNITY INVOLVEMENT IN TB, HIV/AIDS AND OTHER CLINICAL TRIALS: A RECENT PREDICAMENT OF AIDS CLINICAL TRIALS GROUP (ACTG) COMMUNITY ADVISORY BOARD IN KALINGALINGA, LUSAKA, ZAMBIA

Ziba PN. Center for Infectious Diseases Research in Zambia, ACTG Community Advisory Board, Lusaka, Zambia.

BACKGROUND: Center for Infectious Diseases Research in Zambia built a contemporary laboratory to conduct different types of medical testing and examinations such as HIV/AIDS, T.B. and other research trials. In spite of all the efforts made in disseminating on TB and Research, some members of the Community do not have adequate information on TB and HIV treatments and research. A recent incidence happened in the newly opened TB/HIV study at the ACTG site. A lady was enrolled in the study and did her first visit, 2 bottles of blood were drawn at the second visit 8 bottles were drawn and from there she was very sure about the suspicions of Satanism and resented from coming for visits. Rumor began to spread out around her neighborhood saying that "we knew that Satanism is still being practiced at the clinic and it will never end." Study staff feared to approach her.

METHODS: To take in hand of this problem, the Community Advisory Board and the Community Peer Educator took a courageous step to visit the client and talked about why she was not willing to come for visits and what kind of information was disturbing. Community Advisory Board has strategized and intensified the educational program around the area and met section leaders.

RESULTS: Myths and misconceptions have been addressed and corrected and that these clinical trials are clearly understood.

CONCLUSION: For any TB/HIV clinical trials or research to succeed, there is need for community involvement to intensify mobilization, sensitization and education programs. Without such, negative assumptions, myths and misconceptions will cause less impact and participation in TB/HIV clinical trials.

E.1) KNOWLEDGE, ATTITUDES AND BEHAVIORAL PRACTICES OF POPULATION ON TUBERCULOSIS IN BURKINA FASO

Bila A, Kouanda S, Ouédraogo G, Combary A, Moyenga I, Diagbouga S. Institut de Recherche en Sciences de la Santé (IRSS), Programme National de Lutte Contre la Tuberculose (PNT), Ouagadougou, Kadiogo, Burkina Faso.

BACKGROUND: Tuberculosis remains a public health problem. In Burkina Faso, there is an annual risk of infection estimated at about 400 per 100,000 inhabitants with an infection rate of new cases less than 50% (NTP, 2009). To fight tuberculosis, a study on knowledge, attitudes, and behavioral practices of population on tuberculosis was made.

METHODS: Three regions of Burkina (High-Basins, North and East) selected on the basis of the number of new TB cases reported in 2010 and two health districts (rural and urban) by region were selected for the qualitative survey. Individual interviews were conducted with resource persons (health workers, traditional healers, community health workers, traditional leaders). Data collected are transcribed and have been the subject of a thematic content analysis.

RESULTS: The study showed that TB is a communicable disease. The population perceives tuberculosis as an incurable, mystical and deadly disease. For them, this is a disease that is transmitted during sexual intercourse. Also, populations' attitudes reflect a stigmatization toward persons with TB and a low use by respondents and populations of health services in case of chronic cough. The most frequent recourses respectively remain the self-medication, traditional healers, quacks and health formations.

CONCLUSION: There is a struggle in training educators and the availability of financial and materials resources for the sensitization awareness are recommended to improve the knowledge and behavior of populations.

E.2) MAXIMIZING THE USE OF WEB-BASED EDUCATIONAL RESOURCES

Campbell JK, Ahamed N. New Jersey Medical School Global TB Institute, Newark, NJ, USA

BACKGROUND: As TB rates in the US decline, accompanied by decreasing financial and staff resources, online access to the education and training offered by CDC and its Regional Training and Medical Consultation Centers becomes increasingly important. Since completing a regional needs assessment in 2011, the Global Tuberculosis Institute (GTBI) has undertaken a number of efforts to make educational materials more easily accessible to providers in the region through the internet; a powerful means of sharing this information.

METHODS: Based on needs assessment data, GTBI has initiated several efforts to make educational materials more accessible: a website redesign, a mobile site, online videos and an online roadmap for training new public health nurses.

RESULTS: The redesigned website will be more user-friendly. The mobile site provides a subset of the full website, tailored for viewing on iPhones, Android, and other handheld devices. Website visitors can more easily access information about upcoming trainings and educational materials. Brief online videos will focus on latent TB infection for primary care providers, and incorporate moving images and text. The interactive online roadmap can either be self-directed or used with a supervisor to tailor a training plan for new public health nurses.

CONCLUSION: Web-based educational material, based on needs assessment and pilot tested with the target audience can be useful for health care providers. A variety of new GTBI web-based materials will be finalized in winter 2012.

E.3) KNOWLEDGE, ATTITUDE AND PRACTICES (KAP) STUDY FOR PROVIDERS OF ALTERNATE SYSTEM OF MEDICINE (FORMAL AND NONFORMAL) IN MUNGER DISTRICT OF BIHAR

Singh RJ[1], Dr. S. Srinath[2]. [1]LEPRA India, Road no. 1B/13, New Patli Putra Colony, Patna, Bihar, [2]Union, C-6, Qutub Institutional area, New Delhi, India

BACKGROUND: Bihar state is the third most populated state in India and 89% of the population lives in rural villages. Patients travel long distances from their villages to access public health care facilities and TB diagnostic services. Rural medical practitioners are still first choice of contact for the community. TB patients are seeking TB treatment from these providers. The annual new case detection rate of district is very low.

OBJECTIVE: To assess the knowledge, attitude, and practices of providers for alternate system of medicine (formal and non-formal) regarding management of patients with cough and chest symptomatic in Munger district of Bihar.

METHODS: Descriptive, cross-sectional study using a structured close ended questionnaire administered in Hindi & English. Data entry filled in Epi info and analyzed.

RESULTS: These providers are holding the 51% cases of the district, with 35% of providers having no formal degree. 66% do not know about RNTCP. 97% of providers were not exposed to any TB training. 45% of providers start treatment without any tests. 76% want to isolate patient from family member. 39% of providers want to quit the job. 62% indicate that patients should not attend the social function.

CONCLUSION: The study findings show, providers not involved in RNTCP program and their capacity to diagnose, treatment and attitude regarding TB patients were minimal, however these providers are first choice of contact for community and play a major role. Thus the study suggests involving them in TB program and they may act in different capacity such as for “suspect, referral and DOTS provider” in their area.

F.1) TUBERCULOSIS AMONG MEXICAN MIGRANTS INDIGENES IN SONORA, MEXICO

Álvarez G[1], Candia MC[1], Reguera ME[1], Rivera MB[2], Weaver T[3], Greenberg J[3]. [1]Department of Medicine and Health Sciences. Universidad de Sonora, [2]Department of Sonora Public Health, Sonora, Mexico; [3]School of Anthropology. University of Arizona, Tucson, AZ, USA.

BACKGROUND: Tuberculosis (TB) is a challenge for the Mexican Health System. Its burden is particularly high among migrants indigenes. Cultural barriers aggravate vulnerability of these groups that travel along the "Mexican Pacific Corridor" to get jobs in Sonora, and eventually will migrate to the United States. Little is known about how perceptions of disease, barriers to care, marginalization, and migration history, relate to the TB burden of these communities.

METHODS: We conducted a cross-sectional study to examine the TB incidence in Mexican migrant indigenes assented in agricultural fields of Sonora, Mexico. The epidemiological profile of TB was characterized, and a qualitative approach was used to examine perceptions of health personnel, and TB patients.

RESULTS: A four-fold excess of TB incidence rate (121.2/100,000) was found in these groups when compared with national and state average. Very low rates of cure (25%) were found in indigenes, and a high proportion (54%) of patients was detected belatedly. A mixture of indigenes patients was observed, most of them coming from the south of Mexico. TB burden may be underestimated in these groups because ethnicity is not routinely investigated by health personnel.

CONCLUSION: The TB burden among Mexican migrant indigenes arriving to Sonora is well above the national average. The Mexican Health System does not systematically identify ethnicity in TB patients, which may exacerbate difficulties for the TB control, and eventually to favor its dissemination along the US-Mexico Border.

F.2) EFFICACY AND EFFICIENCY OF TUBERCULOSIS TREATMENT ADMINISTERED TO NEW TBPBK (+) OF 14 INDIGENOUS POPULATIONS DURING 2004 TO 2010 IN EL SALVADOR

Bonilla GH. Minister of Health, San Salvador, El Salvador.

BACKGROUND: There is small amount information regarding to demographics characteristic and to efficacy and efficiency of Tuberculosis treatment administered by the Minister of Health in the primary care units to a New TBPBK (+) Indigenous Populations. This study evaluates efficacy and efficiency of Tuberculosis treatment in order to implement new strategies for Indigenous Populations management.

METHODS: The study was Descriptive and Retrospective. Official Norm of Tuberculosis in primary care unit's outcome definitions were used, reviewing tuberculosis treatment control cards and mechanic system of information data of the program; data was collected on a standardized form and they were analyzed with Epi Info program. Six-one primary care units that had new Indigenous Populations cases TBPBK (+) were visited and their TB nurses were interviewed. Data base to national program was reviewing too, during 2004 to 2010.

RESULTS: There were 72 cases TBPBK (+) analyzed during 2004 to 2010 and 100% received treatments directly observed; 53% cases were male, San Isidro had Indigenous Populations with a high number of cases: 96% cured, 3% deaths, 0% dropouts and 1 % failures.

CONCLUSION: Proportion of cure rate (96%) compares favorably with WHO recommendations (85%). Implications of death rate 3% do not affect the efficiency (96%). efficacy of treatment (98%) was not affected by failures.

F.3) TUBERCULOSIS ON THE BRAZIL-BOLIVIA BORDER: EARLY DIAGNOSIS AND DRUG RESISTANCE

Cunha EAT[1], Marques M[2], Lempke L[1], Zarate J[3], Antonio F[3], Maia R[4]; Costa IP[5]. [1]Mato Grosso do Sul Public Health Central Laboratory, Campo Grande, [2]State Department of Health, [3]Municipal Secretariat of Health, [4]Ministry of Health, [5]Mato Grosso do Sul Federal University, Mato Grosso do Sul, Brazil.

BACKGROUND: The Stop TB strategy establishes the investigation of MDR-TB in at least 20% of new cases and 100% of treated cases. In Corumbá county, on the Brazilian border with Bolivia, tuberculosis incidence and mortality rate are 80 and 7.9/100 ODD, respectively. In Bolivia, these values are estimated at 135 and 20/100 000, respectively.

OBJECTIVE: To evaluate the rates of diagnosis and resistance to antituberculosis drugs after sputum culture techniques were implemented in Corumbá.

METHOD: Since February 2007 sputum samples are seeded by swabbing on Ogawa- Kudoh medium. The seeded material it forwarded to the Mato Grosso do Sui Public Health Central Laboratory for growth and drug sensitivity testing (SIRE) using MGIT equipment.

RESULTS: From 2007 to 2010, 4487 cultures were performed, 390 (8.7%) of which were positive. Of the 301 tuberculosis cases reported in this period, 177 (58.8%) were subjected to culture, with 140 positive results (79.1 %). Sensitivity tests were conducted on 138 patients (98.6%). Cultures confirmed 94 acid-fast negative samples, representing a 24.1 % increase in early diagnosis. Thirty-one samples (22 .5%) were categorized as 'any resistance'; 6 (4.3%) as MDR-TB.

CONCLUSION: Cultures not only contributed to early diagnosis in 94 patients (24.1 %), but also to disrupting the transmission chain. The technique also allowed drug resistance and MDR-TB to be detected, providing support to adjustments to drug therapy approaches, with gains in treatment length and drug scheme selection.

F.4) HEALTH CANADA'S STRATEGY AGAINST TUBERCULOSIS FOR FIRST NATIONS ON-RESERVE

Courtemanche J[1], Garcia D[2], **Long R**[3], Rees S[1], Coady A[1]. [1]Health Canada, [2]Assembly of First Nations, Ottawa, ON; [3]University of Alberta, Edmonton, AB, Canada.

BACKGROUND: Since 1990, rates of tuberculosis (TB) in Canada's First Nations on-reserve have significantly decreased over time; however, they continue to remain higher than those of the overall Canadian population.

METHODS: To address this inequity, Health Canada renewed its TB Elimination Strategy by working with the Assembly of First Nations, communities, TB experts, provincial partners and other federal departments. *Health Canada's Strategy Against Tuberculosis for First Nations On-Reserve* is a national framework based on current evidence, best practices and lessons learned to support TB prevention and control for First Nations on-reserve. (Available on Internet at the following address: www.health.gc.ca/tuberculosis)

RESULTS: The Strategy set a foundation for several promising initiatives developed and launched during the initial stages of its implementation. Examples include: moving research on the determinants of TB transmission into action; increasing awareness and knowledge about TB in high incidence communities and increasing capacity of health care providers by developing on line training on TB.

CONCLUSION: The Strategy aims to significantly reduce the incidence and burden of TB in First Nations on-reserve which will be achieved by continuing to strengthen partnerships for the integration of TB services while sharing lessons learned. To measure progress, the Strategy places a strong emphasis on evaluation and continuous quality improvement. Next steps for implementation include developing a monitoring and evaluation framework in collaboration with partners.

F.5) DESCRIPTIVE ANALYSIS OF TUBERCULOSIS PATIENTS TREATED BI-NATIONALLY, US-MEXICO BORDER, 1993-2010

Escobedo M[1], Vlasich E[2], Pinheiro G[3]. [1]Centers for Disease Control and Prevention, [2]Texas Department of State Health Services, El Paso, TX; [3]Centers for Disease Control and Prevention, Atlanta, GA, USA .

BACKGROUND: The large volume of US-MX land border traffic and shared tuberculosis patients are obstacles to border TB efforts. Binational TB Project JUNTOS (Together) was established in 1991 to improve cross-border TB treatment and control in El Paso Texas-Juarez Chihuahua. We describe JUNTOS treatment outcomes.

METHODS: We analyzed data from an ongoing reporting database for patients enrolled in JUNTOS during 1993–2010. We obtained frequencies for the variables: socio-demographics, co-morbidities, drug resistance, and cure rates. We compared treatment outcomes for the following covariates: presence of MDR TB, treatment through DOT, previous TB treatment, and drug addiction

RESULTS: Of 1,224 patients, 1.0% were U.S.-born, 64% were born outside Juarez, 23% were U.S. visa holders, 90.4% received DOT, 22.5% of patients (>19 years old) had diabetes, 9.0% had HIV co-infection. Of 782 MTB isolates, 11% were resistant to isoniazid and 9% were resistant to at least isoniazid and rifampicin (MDR TB). The overall successful treatment completion rate was 85%, 91.4% for patients treated with DOT, 72% for patients without DOT, 85% for MDR TB patients, 78% for patients who failed previous treatment, 75% for illicit drug addiction, and 77% for patients with alcohol addiction. Sputum conversion rates at 3 months was 91% for drug susceptible patients, 56% for MDR TB, and 87% overall.

CONCLUSION: Favorable TB treatment outcomes can be achieved through continuing binational collaboration. Outcome was improved through the use of DOT, and impaired by previous TB therapy and drug addiction.

F.6) EFFECTS OF BORDERS IN PULMONARY TUBERCULOSIS IN MATO GROSSO DO SUL, FROM 2001 TO 2009

Ferraz AF, Valente JG. Ministry of Health - Oswaldo Cruz Foundation (FIOCRUZ), Campo Grande, Mato Grosso do Sul, Brazil.

OBJECTIVE: To estimate the incidence of pulmonary tuberculosis in the border areas of the state of Mato Grosso do Sul (MS), with Paraguay and Bolivia, and compare them with areas that are not boundaries.

METHODS: This was an ecological study, based on data from reporting cases of pulmonary tuberculosis in the period 2001-2009. We calculated incidence rates of pulmonary tuberculosis or proportions, according to categories of selected variables. For incidents, comparisons were made with the global state, and for proportions, with non-border areas.

RESULTS: We obtained incidence rate of 39 cases per 100,000 population-year for the State of Mato Grosso do Sul as a whole, and 50 cases per 100,000 population-year for the border area with Paraguay and 84 cases per 100,000 population-year to the area of the border with Bolivia, representing relative risks of 1.28 (95% CI: 1.19 to 1.37) and 2.16 (95% CI: 2.01 to 2.33) respectively, in comparison with the specific rate of pulmonary tuberculosis in the state of Mato Grosso do Sul as a whole.

CONCLUSION: The incidence rates of pulmonary tuberculosis were significantly higher in the border areas than in the overall state of MS in the period 2001-2009.

F.7) PULMONARY TUBERCULOSIS IN PRISONERS OF MATO GROSSO DO SUL

Ferraz AF, Valente JG. Ministry of Health - Oswaldo Cruz Foundation (FIOCRUZ), Campo Grande, Mato Grosso do Sul, Brazil.

OBJECTIVE: To describe the profile and analyze reported cases of pulmonary tuberculosis in prisoners in the state of Mato Grosso do Sul, in the period 2007-2009, according to categories of selected variables.

METHODS: We carried out an ecological study of cases of pulmonary tuberculosis and estimated incidence rates of tuberculosis, for selected variables. Internal comparisons were performed for rates and proportions found in each category of the study variables.

RESULTS: We observed a mean annual incidence rate of 38 per 100,000 population-year and 978 per 100,000 population-year prison in inmates in Mato Grosso do Sul, in the period 2007-2009, indicate a relative risk of 25.4 - tuberculosis was 25.4 times more common among inmates in state penal system than in the general population. In fact, rates among individuals deprived of their liberty were always plenty times higher than those for the whole state, the various categories of the study variables.

CONCLUSION: From the point of view of public health and control of tuberculosis transmission, we need effective traces of prisoners at the time of entry into prison. In fact, we need to treat tuberculosis in prisons, not only in the general population, if one wants success in controlling disease transmission. The effective strategy for the control of tuberculosis in prisons should build a broad approach in the actions of all stakeholders: managers and security professionals, inmates, their families, health professionals, lawyers, teachers and religious leaders. Thus, it creates behavioral changes that may influence the outcome of a tuberculosis control inside and outside the prison.

F.8) MARKED DISPARITY IN TB ON THE PRAIRIES AMONG ABORIGINAL PEOPLES

Long R[1], Hoeppner V[2], Orr P[3], Ainslie M[3], King M[1], Abonyi S[4], Mayan M[5], Kunimoto D[1], Langlois-Klassen D[1], **Heffernan C[1]**, Lau A[1], Menzies D[6]. [1]Department of Medicine, University of Alberta, Edmonton, AB, [2]Department of Medicine, University of Saskatchewan, [4]Department of Community Health and Epidemiology Saskatoon, SK, [3]Department of Medicine, University of Manitoba, Winnipeg, MB, [5]The Faculty of Extension, University of Alberta, Edmonton, AB, [6]Department of Medicine, McGill University, Montreal, QC, Canada.

BACKGROUND: The incidence of TB is increasing in the Inuit and plateauing in the First Nations of Canada. The Prairies bear a large burden of TB.

METHODS: Provincial reporting systems for TB, Statistics Canada censuses and population estimates of Registered Indians provided by Aboriginal Affairs and Northern Development were used to estimate the overall (2004-8) and pulmonary (2007-8) TB rates in the Prairie provinces. The place-of-diagnosis of pulmonary TB cases in 2007-8 was noted.

RESULTS: The age- and sex-adjusted incidence of TB in Registered Indians is 38 times higher than in Canadian-born "others". Registered Indian rates were higher in Manitoba than in Saskatchewan and higher in Saskatchewan than in Alberta. In Alberta and Saskatchewan, on-reserve rates were more than twice that of off-reserve rates. In Saskatchewan, rates in the Métis and Registered Indians were similar (50.0 and 52.2 per 100,000 person-years respectively). In 2007-8, ~90% of Canadian-born pulmonary TB cases were Aboriginal. Outside of one major metropolitan area, most Registered Indian and Métis pulmonary TB cases were concentrated in a relatively small number of communities above the 53rd parallel. Rates of pulmonary TB In eleven of these communities were >300 per 100,000 person-years. In Manitoba, 49% of off-reserve Registered Indian pulmonary cases were linked to high incidence communities.

CONCLUSIONS: Overall, the incidence of TB is much higher in Aboriginal than non-Aboriginal Canadian-born people on the Prairies. Pulmonary TB is remarkably focal - a finding that represents both concern and opportunity.

F.9) TB EDUCATION FOR ABORIGINAL AND NON-ABORIGINAL YOUTH

Heffernan C[1], McMullin K[2], Long R[1]. [1]Department of Medicine, University of Alberta, Edmonton, AB; [2]The Department of Community Health and Epidemiology, University of Saskatchewan, Saskatoon, SK, Canada.

BACKGROUND: In 2010, our team undertook a baseline needs assessment for TB education in three high incidence Aboriginal communities on the Prairies and found that TB knowledge was lacking. As such, our team set out to develop a TB specific resource guide for use in high schools attached to high-incidence reserve communities and Métis settlements on the Prairies.

METHODS: The project was guided by an iterative approach, and overseen by an advisory committee made up of teachers, an elder, a curriculum specialist and the project team. This approach helped ensure that the project was culturally relevant, and relevant for use in the classrooms of interest. Three thematic modules were developed and piloted: (1) What is TB? (2) The connection of TB to other diseases and social determinants of health, and (3) The history of TB. Following the delivery of the resources in the classroom, the baseline needs assessment was re-administered.

RESULTS: The resource was used in a grade 8 (Saskatchewan), a grade 10 (Saskatchewan) and a grade 11 classroom (Alberta). Knowledge was greatly improved from baseline following the delivery of the lessons and interest remained high.

CONCLUSION: There is an interest among youth to learn more about TB, particularly in communities where TB Is endemic or hyper-endemic. This interest can be met with the delivery of knowledge from the guide developed by the TB PE & RU and its affiliates. (See: http://tbper.med.ualberta.ca/tb-education/)

Funded by PHAC

F.10) CURRENT EPIDEMIOLOGICAL TREND OF ACTIVE TUBERCULOSIS AMONG FIRST NATIONS ON–RESERVE IN SASKATCHEWAN, CANADA

Khan I, Kazadi GB, Ceaser M, Czernick C, El-Azeem A, Shridhar G. Health Canada, First Nations and Inuit Health Branch, Regina, Saskatoon Health Region, TB Control, Saskatoon, SK.

BACKGROUND: The reported incidence of Tuberculosis (TB) has steadily declined in the general Canadian population over the past 30 years. However, certain populations in Canada continue to be disproportionately affected, including foreign-born Canadians (…), the homeless and Aboriginal peoples. The persistence of tuberculosis in Aboriginal populations is the result of a complex set of factors. These include the existence of high-risk sub-populations such as people with HIV-TB co-infection or chronic conditions. The incidence of pulmonary TB infectious cases in high incidence communities and the co-infection HIV/HCV associated tuberculosis remains a concern in Saskatchewan.

OBJECTIVE: To describe the recent epidemiological trend of TB during the last decade (2000 to 2011) and to determine the factors related to the trend of incidence rate in specific ages groups.

DESIGN: Perform descriptive analyses of tuberculosis notification rates and mortality rates by age, gender, year and birth-cohort from the surveillance tuberculosis system (TBIs) data set.

RESULTS: The TB notification rate started to decline around 1999. The increase in the TB mortality rate had also begun to slow down, but started to rise again in 2011. Although deaths due to TB occur mostly among young adults, the rate of increase in mortality among middle-aged males has increased. The trend in the mortality rate of birth-cohorts has recently shown an upward trend with age.

CONCLUSION: The current decline in TB notification rates is due to the better pediatric TB case definition, the early TB diagnosis, the increase of successful Drug Observatory Therapy and clinical patient-centered approach.

F.11) REVIEW OF PATTERNS OF TUBERCULOSIS (TB) TRANSMISSION IN SOUTH SASKATCHEWAN FIRST NATIONS COMMUNITIES

Alexander D[1], Arnold L[2], Bukassa Kazadi G[2], Ceaser M[2], Czernick C[2], Khan I[2], **Knuuttila V**[2]. [1]SK Health, [2]Health Canada First Nations and Inuit Health Branch (FNIHB), Saskatchewan Region, Regina, SK, Canada.

BACKGROUND: Health Canada works with the provincial TB Program to deliver tuberculosis programs in First Nations communities. First Nations communities, TB Control and FNIHB collaborate in contact tracing for individual clients with infectious TB. There have been outbreaks in communities which are separated by time and distance. Contact tracing is conducted in these communities by the Community Health Nurse (CHN), TB Nurse, Tuberculosis Program Worker (TBPW) and other health staff. Identified contacts are assessed by TB Control, and are offered Directly Observed Treatment (DOT) or prevention by Directly Observed Treatment of Latent Tuberculosis Infection (DOTLTBI), depending on diagnosis and risk factors,

METHODS: A retrospective review of TB cases in South Saskatchewan from 1995 to 2011 was undertaken, using contact trace data, and information on clients receiving Directly Observed Therapy (DOT). This information was then transferred to a graph with the location as X axis, and the year of diagnosis as the Y axis. Clients were identified by age and gender. The DNA genotyping, where available, was matched to the client.

RESULTS: Clear connections of TB transmission were established through time and distance. One pediatric case of TB meningitis occurred in a child who fought DOTLTBI and the medication was postponed.

CONCLUSION: Contact tracing is extensive and well documented. The promotion of DOTLTBI uptake could help prevent TB disease. Identification of contacts allows for development of screening for high risk clients who have not participated in DOTLTBI.

F.12) THE MAGNITUDE OF TUBERCULOSIS ON THE BORDER OF MATO GROSSO DO SUL (BRAZIL), BOLIVIA AND PARAGUAY

Marques M, Cunha EAT, Andrade SMO, Fernandes SM. Secretaria de Estado de Saude de Mato Grosso do Sul, Campo Grande, Brazil.

OBJECTIVE: To evaluate the magnitude of tuberculosis (TB) along this border in the period 2007-2010 and compared it with non-border areas.

METHOD: Descriptive epidemiological study of pulmonary TB cases, deaths, laboratory results, and demographic data obtained from official databases (SINAN, SIM, GAL, DATASUS). The variables analyzed were rates of TB-HIV incidence, mortality, and co-infection, treatment dropout, coverage of culture for *M. tuberculosis*, sensitivity tests for rifampicin, isoniazid, streptomycin, ethambutol, and drug resistance.

RESULTS: The following values were found for border and non-border areas, respectively: mean rate per 100 thousand (incidence, mortality, and TB-HIV co-infection), 49.0, 4.0, and 1.0 vs. 28.9, 2.1 and 2.9; mean percent of cultures, positive cultures, and sensitivity tests, 48.3, 78.2, 87.3 vs. 52.4, 75.0, and 74.1; treatment dropout, 12% vs. 7.7%. Of 219 samples from the border area, 21.0% were categorized as "any resistance" and 3.2% as MDR vs. 14.4% and 1.6% of 699 samples from non-border areas, respectively.

CONCLUSION: Higher risk for illness and death, and higher rates of dropout, drug resistance, and MDR were found in the border area, despite the wider availability of services for diagnosis of TB and drug resistance. The findings warrant improved attention to this region in order to identify and tackle factors currently shaping this situation.

F.13) OLD KEYAM – A FRAMEWORK FOR EXAMINING THE DISPROPORTIONATE EXPERIENCE OF TUBERCULOSIS AMONG ABORIGINAL PEOPLES OF THE CANADIAN PRAIRIES

McMullin K[1], Abonyi S[1], Mayan M[2], Orr P[3], Lopez-Hille C[3], King M[2], Boffa J[4], Long R[2]. [1]University of Saskatchewan, Saskatoon, SK; [2]University of Alberta, Edmonton, AB; [3]University of Manitoba, Winnipeg, MB; [4]University of Calgary, Calgary, AB, Canada.

BACKGROUND: This paper explores the Cree concept of 'keyam' or giving up as a social determinant of TB transmission among Aboriginal people of the Prairie provinces (Alberta, Saskatchewan, and Manitoba) who are disproportionately affected by tuberculosis (TB).

METHODS: A semi-structured interview tool captured 55 self-identified Aboriginal participants' experience and perceptions of TB. The outcome, in looking closely at patients' stories, is to prevent transmission, especially to the most vulnerable: children and people with immunocompromising conditions such as HIV.

The storytelling approach, common in Aboriginal societies, allowed participants the freedom to include whatever they considered important. Interviews were transcribed and participants reviewed their responses prior to analysis. Coordinators coded the transcripts for emergent themes using the software ATLAS.ti 5.2. Preliminary observations were reported to the PNCs, who further guided the analysis and offered various perspectives on honoring these stories in a respectful way.

RESULTS: The stories uncovered a continuing influence of colonization in TB transmission. Overwhelming feelings of apathy and despair for the hold that TB continues to have in the lives of patients, families, and communities is captured by the Cree word "keyam," which may be translated as "to give up" or to ask, "What is the use?"

CONCLUSION: Future research could explore the ways in which the stories, and in particular the feelings shared here, may become part of prevention, treatment, and overall approach to TB infection among Aboriginal people.

F.14) CROSS BORDER CONTINUITY OF TUBERCULOSIS (TB) CARE

Vera-Garcia C. CureTB Binational Tuberculosis Referral Program (HHSA), San Diego, CA, USA.

BACKGROUND: TB treatment can last from 4 – 24 months depending on the type of TB and response to treatment. Hundreds of suspected or confirmed TB cases move between Mexico and the US each year and are referred to the CureTB program to assist with continuity of care across borders. CureTB works closely with state and local programs, and generally retrieves treatment outcomes directly from those programs. However, in Mexico, patients and outcomes were frequently not verifiable in the Mexican National data system.

METHODS: Since 2010, CureTB and the National Tuberculosis Program from Mexico have been engaged in developing enhanced strategies to improve outcomes and communication about outcomes for patients that move in either direction during their TB treatment. Implemented activities include: 1) Quarterly meetings to match referral information, update treatment status for each case, and plan next steps for specific patients needing enhanced assistance, 2) Enhanced discussion regarding patients with drug resistance in order to maximize continuous and appropriate regimens, 3)Meet & Greet/bilateral continuity of care planning for patients being deported/returned and those having co-morbidities or social problems that can impede continuity of treatment after moving to Mexico, 4) Placement of border alerts to improve notification to CureTB and partner health departments if the patient moves back to the US.

RESULTS: As a result of this enhanced bilateral cooperation, the percentage of CureTB referred patients that were also reported to the National Program (through the national registry system) increased from 2.9% to 69.9%. Drug resistance for the 237 culture confirmed patients from Jan 2010 through June 2012 was 10% monoresistance, 0.8% polyresistant and 2% multidrug resistant. The rate of completion of treatment for referred patients increased from 48% in 2009 to 85% for Jan-June 2011.

CONCLUSION: Assuring completion of therapy for patients crossing international boundaries is possible and an important TB control strategy. Close collaboration between sending and receiving countries is critical for maximizing treatment success and assuring outcomes are captured in surveillance systems.

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Menn Biagtan, MD, MPH

British Columbia Lung Association

2675 Oak Street

Vancouver, BC

Canada V6H 2K2

P: 604.731.5864

F. 604.731.5810

E: biagtan@bc.lung.ca