RePORT India

7TH ANNUAL JOINT LEADERSHIP MEETING

CATALYZING DISCOVERIES TOWARD TB ELIMINATION

15–17 FEB 2018

Hosted by Government of India, Department of Biotechnology
International Centre for Genetic Engineering and Biotechnology (ICGEB)
Aruna Asaf Ali Marg, Jawaharlal Nehru University
New Delhi, Delhi 110067, INDIA

Department of BioTechnology, Government of India
सत्यमेव जयते

INDO-U.S. VACCINE ACTION PROGRAM

NIH National Institute of Allergy and Infectious Diseases

Key Partners

- Bhagwan Mahavir Medical Research Center (BMMRC)
- Byramjee Jeejeebhoy Government Medical College (BJGMC)
- Boston University/Boston Medical Center (BU/BMC)
- Christian Medical College, Vellore (CMC)
- CRDF Global
- Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER)
- Johns Hopkins University (JHU)
- M. Viswanathan Diabetes Research Center (MVDRC)
- National Institute for Research In Tuberculosis (NIRT)
- PD Hinduja Hospital
- PPD
- RePORT International Coordinating Center (RICC)
- Rutgers University
- University of Cambridge
- University of Massachusetts (UMass)
- University of Texas Health Science Center at Tyler

Department of BioTechnology, Government of India
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NIH
National Institute of Allergy and Infectious Diseases

INDO-US VACCINE ACTION PROGRAM

Indian Council of Medical Research
New Delhi

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RePORT India Overview

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NEW DELHI | 15–17 FEB 2018

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RePORT INDIA OVERVIEW

BACKGROUND

RePORT India (Regional Prospective Observational Research for Tuberculosis (TB)) is a bilateral, multi-organizational, collaborative research effort established in 2013 under the Indo-US Vaccine Action Program (VAP). The consortium aims to address the threat of TB to the people of India and across the globe, a disease which also poses an increased risk for persons living with HIV or other immunocompromised conditions. RePORT India is one of six regional consortia—China, Brazil, Indonesia, Philippines, and South Africa are also undertaking multi-organizational TB research efforts. Each RePORT consortium is designed to support in-country data collection, specimen biorepositories, and associated research with the goal of adding additional regional consortia to encourage worldwide TB prevention and treatment research.

RePORT INDIA MISSION

RePORT India is charged with:

1. Advancing regional TB science in India;
2. Strengthening TB research capacity and infrastructure; and
3. Fostering research collaboration within India and with other countries with an aim of carrying out a wide range of basic and clinical research that can lead to clinically important biomarkers, vaccines, drugs, and diagnostics.

COHORT RESEARCH UNITS (CRUs)

RePORT India consists of six distinct TB Cohort Research Units (CRUs) at seven Indian clinical sites located in Western and Southern India. Each CRU is partnered with a US-based Principal Investigator (PI) and an academic institution. CRUs consist of one or more clinical sites where participants are enrolled and where data and samples are collected for research. There are two prospective observational cohorts of participants from whom specimens are collected:

- **Cohort A:** Participants who have active pulmonary TB. Studies involving this cohort of patients focus on TB diagnosis and treatment outcomes.
- **Cohort B:** Participants who are household contacts (HHCs) of an active case of TB. Studies involving this cohort of patients focus on risk of infection and TB disease after exposure.

COMMON PROTOCOL (RePORT INDIA-WIDE OBJECTIVE)

All CRUs collaborate to implement a RePORT India Common Protocol to establish an Indian biorepository of well-characterized and standardized specimens with associated clinical data for future TB research. The Common Protocol was launched in April 2017. The central repository for specimen storage is located at the National Institute of Research in Tuberculosis (NIRT) in Chennai, a statistical and data management center is housed at the Society for Applied Studies (SAS)-Centre for Health Research and Development (CHRD) in New Delhi, and a US coordination and support center is located at PPD.

The primary objective of the Common Protocol is to collect specimens and make them available to Indian biomarker researchers and collaborators over the next decade to achieve a better understanding of: 1) the prognosis of TB disease; and 2) the pathogenesis of progression from TB exposure to disease.

PARENT PROTOCOLS (CRU-SPECIFIC OBJECTIVES)

Prior to commencing the Common Protocol, and as early as 2014, CRUs began implementing individual "Parent Protocols" with distinct research objectives. Each CRU is connected to one or more laboratories where samples are processed for storage and specified for both protocol and future testing. The CRUs house their

RePORT INDIA OVERVIEW

Parent Protocol data and samples at their respective India-based institutions. Below are the CRUs and their Parent Protocols:

1. BMMRC and U of Texas, Tyler

- **Study:** Immunologic Markers of Persons at Highest Risk of Progression of Latent TB Infection to TB
- **India PI:** Dr. Vijaya Valluri, Bhagawan Mahavir Medical Research Centre (BMMRC), Hyderabad, India
- **US PI:** Dr. Krishna Vankayalapati, University of Texas Health Science Center, Tyler, TX, USA
- **Participating Patient Cohort:** Cohort B

2. BJGMC, NIRT, and JHU

- **Study:** Host and Microbial Factors Associated with Poor Treatment Response and Progression to Active TB (C-TRIUMPH)
- **India PIs:** Drs. Vidya Mave, Shashikala Sangle, and Sanjay Gaikwad, Byramjee Jeejeebhoy Government Medical College (BJGMC), Pune, India and Dr. Padma Chandrasekaran, National Institute for Research in TB (NIRT), Chennai, India
- **US PI:** Dr. Amita Gupta, Johns Hopkins University, Baltimore, MD, USA
- **Participating Patient Cohorts:** Cohort A (Adult Pulmonary TB, Pediatric TB, and Extrapulmonary TB) and Cohort B

3. CMC Vellore and U of Wash/U of Cambridge

- **Topic Study:** Host Determinants in the Eicosanoid Pathway that Modulate the Inflammatory Response, Disease Outcome, and Treatment Responsiveness in TB
- **India PI:** Dr. DJ Christopher, Christian Medical College (CMC), Vellore, India
- **US PI:** Dr. Lalitha Ramakrishnan, University of Washington/University of Cambridge, UK
- **Participating Patient Cohort:** Cohort A (Adult Pulmonary TB and TB Meningitis)

4. Hinduja and JHU

- **Topic of Study:** MDR-TB Treatment Outcomes, Adverse Effects, Mtb Genotyping, and Pharmacokinetic Testing
- **India PIs:** Drs. Zarir F. Udwadia, Tester F. Ashavaid, and Camilla Rodrigues; PD Hinduja Hospital, Mumbai, India
- **US PI:** Dr. Amita Gupta, Johns Hopkins University, Baltimore, MD, USA
- **Participating Patient Cohorts:** Cohort A (Adult/Adolescent MDR-TB) and Cohort B

5. JIPMER, BMC, and Rutgers

- **Topic of Study:** Biomarkers for Risk of TB and for TB Treatment Failure and Relapse
- **India PIs:** Drs. Subhash Parija, Gautam Roy, and Sonali Sarkar, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Puducherry, India
- **US PI:** Dr. Jerrold Ellner, Boston Medical Center (BMC), Boston, MA, USA, and Dr. Padmini Salgame, Rutgers University, Bridgeton, NJ, USA
- **Participating Patient Cohorts:** Cohort A (Adult Pulmonary TB and Pediatric TB) and Cohort B

6. MVDRC and UMass

- **Topic of Study:** Effects of Diabetes and Prediabetes on TB Severity
- **India PI:** Dr. Vijay Viswanathan, MV Diabetes Research Centre (MVDRC), Chennai, India
- **US PI:** Dr. Hardy Kornfeld, University of Massachusetts Medical School, Boston, USA
- **Participating Patient Cohort:** Cohort A (Adult Pulmonary TB)

RePORT INDIA SUBTUDIES

A complete list of RePORT-related grants and substudies can be found on page 53 of this booklet. Consortium-wide RePORT India studies include:

1. TST Comparison Study
The consortium received funding to conduct a TST comparison study with PIs Dr. DJ Christopher and Andrea DeLuca, MHS. The study objective is to compare the performance of latent TB diagnostics PPD and Quantiferon (QFT) among populations of interest, including children and immunocompromised adults. This study began in spring 2016.

2. TB Vaccine Trial
The consortium is collaborating with Serum Institute of India Pvt. Ltd. (SIIPL) and VPM, Germany, on a multicenter phase III double-blind, randomized, placebo controlled study to evaluate the efficacy and safety of VPM1002, a new recombinant BCG vaccine, in the prevention of TB recurrence in HIV uninfected adults after successful pulmonary TB Treatment in India. The study began in January 2018.

RePORT INDIA ADMINISTRATION

The RePORT India Consortium's primary governance body is the Executive Committee, whose mission is to:

- Set research priorities for the consortium and guide scientific activities;
- Ensure coordination of TB research; and
- Provide administrative and logistics support.

The consortium is currently governed by Dr. D.J. Christopher (India Chair), Dr. Vijaya Valluri (India Co-Chair), Dr. Amita Gupta (US Chair), and Dr. Hardy Kornfeld (US Co-Chair). The Executive Committee convenes a monthly teleconference. The consortium has several active working groups including: Operations, Basic Science, Clinical Epidemiology, Behavioral Science, and Data Management. The Common Protocol leadership also convene on a monthly basis. Consortium operations are facilitated by a RePORT India Coordinator located in India in Chennai and a US Secretariat located in the US at Johns Hopkins University.

FUNDING

The RePORT Indian Consortium is supported with funding from the Government of India's (GOI) Department of Biotechnology (DBT) as the primary GOI sponsor, the Indian Council of Medical Research (ICMR), and the US National Institutes of Health's (NIH) National Institute of Allergy and Infectious Diseases (NIAID), Division of AIDS (DAIDS), and Office of AIDS Research (OAR). CRDF Global administers and oversees the funding from the US government. Supplemental funding through RePORT has been made available in 2016-2017 with additional awards forthcoming in 2018.

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Data Tables

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PARENT PROTOCOLS: STATUS REPORT
COHORTS A & B | YEARS 2014–2017

Table 1: Sample Size Targets & Enrolments

COHORT A					COHORT B			
Site		Target SS, n	Enrolled, n (%)	Among Enrolled, < 15 years, n (%)	Site	Target SS, n	Enrolled, n (%)	Among Enrolled, < 15 years, n (%)
BJGMC	PTB	400	256 (64%)	NA	BJGMC	700	499 (71%)	164 (33%)
	Ped	100	132 (132%)	132 (100%)				
	EPTB	100	113 (113%)	NA				
NIRT	PTB	400	248 (62%)	NA	NIRT	700	551 (79%)	121 (22%)
	Ped	100	47 (47%)	47 (100%)				
	EPTB	100	85 (85%)	NA				
CMC	PTB	200	83 (42%)	NA	CMC	No Cohort B		
	TBM	200	160 (80%)	NA				
JIPMER	PTB	1100	1003 (91%)	4 (0.4%)	JIPMER	1500	1452 (97%)	273 (19%)
MVDRC	PTB	450	413 (92%)	NA	MVDRC	No Cohort B		
BMMRC	No Cohort A				BMMRC	1500	891 (59%)	48 (5%)
HINDUJA*	MDR-TB	200	6 (3%)	NA	HINDUJA	60	—	—
TOTAL		**3350**	**2546 (76%)**	**182 (7%)**	**TOTAL**	**4460**	**3393 (76%)**	**606 (18%)**

SS=Sample Size; PTB=Pulmonary TB; TBM=TB Meningitis; EPTB= Extra pulmonary TB; Ped=Pediatric; MDR-TB=Multidrug-resistant TB
*Hinduja launched parent protocol in Oct 2017; enrols PTB and EPTB patients with MDR-TB >15 years old.

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COHORTS A & B | YEARS 2014–2017
Table 2: Outcomes

COHORT A | n=2546					COHORT B | n= 3393				
Site		Tx Failure	Tx Relapse	All Cause Death	Site	Prevalent TB	Incident TB	Incident LTBI	All Cause Death
BJGMC	PTB n=256	29 (11%)	17 (7%)	20 (8%)	BJGMC n=499	21 (4%)	14 (3%)	61 (12%)	2 (0.4%)
	Ped n=132	5 (4%)	6 (5%)	0					
	EPTB n=113	6 (5%)	4 (4%)	5 (4%)					
NIRT	PTB, n=248	20 (8%)	10 (4%)	11 (4%)	NIRT n=551	7 (1%)	2 (0.4%)	161 (29%)	3 (0.5%)
	Ped n=47	1 (2%)	0	0					
	EPTB n=85	1 (1%)	0	3 (4%)					
CMC	PTB n=83	4 (5%)	1 (1%)	4 (5%)	CMC	No Cohort B			
	TBM n=160	0	0	34 (21%)					
JIPMER	PTB n=1003	17 (2%)	11 (1%)	34 (3%)	JIPMER n=1452	6 (0.4%)	3 (0.2%)	NA	1 (0.1%)
MVDRC	PTB n=413	19 (5%)	11 (3%)	11 (3%)	MVDRC	No Cohort B			
BMMRC	No Cohort A				BMMRC n=891	10# (1%)	13 (1%)	66 (7%)	0
HINDUJA*	MDR-TB n=6	0	0	0	HINDUJA n=0	0	0	0	0
TOTAL		102 (4%)	62 (2%)	122 (5%)	TOTAL	44 (1%)	32 (0.9%)	288 (8%)	6 (0.2%)

TB=Pulmonary TB; TBM=TB Meningitis; Tx=Treatment; LTBI=Latent TB Infection; EPTB=Extrapulmonary TB; Ped=Pediatric; MDR-TB=Multidrug-resistant TB; HHC=Household Contacts

* Hinduja launched parent protocol in Oct 2017, enrols PTB and EPTB patients with MDR-TB >15 years old.

Reported as prevalent TB infection for BMMRC.

Tx Failure: TB patients enrolled in the parent protocol and declared failure while on treatment between month five and end of treatment.

Tx Relapse: Patients diagnosed as TB after being declared as cured or treatment complete.

Incident LTBI: LTBI negative at baseline by either TST or IGRA and became positive by either TST or IGRA at follow-up visits among HHCs.

PARENT PROTOCOLS: PATIENT ENROLMENT, DEMOGRAPHICS & FOLLOW UP | COHORT A | YEARS 2014- 2017

Table 3a: Percentage of Subjects Enrolled among Those Screened

COHORT A						
Site		Total Approached or Screened, n	Subjects Enrolled, n (%)	BL Smear Positive, n (%)	BL Xpert Positive, n (%)	BL Culture Positive, n (%)
BJGMC	PTB*	969	256 (26%)	96 (38%)	168 (66%)	180 (70%)
	Ped	168	132 (79%)	10 (8%)	22 (17%)	19 (14%)
	EPTB	127	113 (89%)	2 (2%)	13 (12%)	20 (18%)
NIRT	PTB*	756	248 (33%)	211 (85%)	161 (65%)	229 (92%)
	Ped	58	47 (81%)	2 (4%)	4 (9%)	9 (19%)
	EPTB	118	85 (72%)	9 (11%)	8 (9%)	17 (20%)
CMC	PTB	90	83 (92%)	74 (89%)	80 (96%)	80 (96%)
	TBM	210	160 (76%)	CSF - 0	CSF - 21 (13%)	CSF - 32 (20%)
JIPMER	PTB	1090	1003 (92%)	1003 (100%)	NA	953 (95%)
MVDRC	PTB	522	413 (79%)	359 (87%)	NA	376 (91%)
HINDUJA	MDR-TB	53	6 (11%)	6 (100%)	6 (100%)	6 (100%)
TOTAL		**4161**	**2546 (61%)**	**1781 (70%)**	**483 (19%)**	**1937 (76%)**

BL=Baseline; ATT=Anti-TB Treatment; PTB=Pulmonary TB; TBM=TB Meningitis; Ped=Pediatric; EPTB=Extrapulmonary TB; CSF=Cerebrospinal Fluid; MDR-TB=Multidrug-resistant TB

*Approached or screened any patient who was started on ATT in the study area including new and re-treatment cases for adult PTB, EPTB and Pediatric TB. Smear negative TB patients and clinically diagnosed TB patients were included.

PARENT PROTOCOLS: PATIENT ENROLMENT, DEMOGRAPHICS & FOLLOW UP | COHORT A | YEARS 2014- 2017

Table 3b: Demographics among Those Enrolled

COHORT A | CHARACTERISTICS, n (%)								
Site		Age, median (min-max)	Male	HIV Positive	Current Smoker	Current Drinker	Diabetes†	Low BMI (<18.5)
BJGMC	PTB n=256	29 (15-70)	149 (56%)	31 (12%)	23 (9%)	78 (30%)	23 (9%)	148 (58%)
	Ped n=132	9 (1-14)	60 (23%)	7 (5%)	NA	NA	NA	88 (67%)
	EPTB n=113	30 (15-63)	55 (21%)	15 (13%)	4 (4%)	24 (21%)	5 (4%)	76 (67%)
NIRT	PTB n=248	45 (1-75)	170 (69%)	2 (1%)	38 (15%)	127 (51%)	115 (46%)	150 (60%)
	Ped n=47	10 (2-14)	27 (57%)	0	NA	NA	NA	42 (90%)
	EPTB n=85	28 (15-63)	39 (44%)	4 (5%)	3 (4%)	16 (13%)	8 (9%)	30 (35%)
CMC	PTB n=83	43 (18-79)	54 (65%)	Excluded	21 (25%)	22 (27%)	29 (35%)	52 (63%)
	TBM n=160	39 (18-78)	94 (59%)	20 (13%)	29 (18%)	44 (28%)	24 (15)%	30# (19%)
JIPMER	PTB n=1003	45 (13-82)	785 (78%)	6 (<0.1%)	205 (20%)	600 (60%)	262 (26%)	567 (57%)
MVDRC	PTB n=413	50 (25-73)	330 (80%)	Excluded	103 (25%)	165 (40%)	264 (64%)	198 (48%)
HINDUJA	MDR-TB n=6	27 (16-56)	5 (83%)	0	0	0	1 (17%)	1 (17%)
TOTAL n=2546		—	**1768 (69%)**	**76 (3%)**	**426 (17%)**	**1076 (42%)**	**735 (29%)**	**1381 (54%)**

PTB=Pulmonary TB; TBM=TB Meningitis; Ped=Pediatric; MDR-TB=Multidrug-resistant TB; EPTB=Extrapulmonary TB; CSF=Cerebrospinal Fluid

*Smoking, drinking, diabetes only assessed among patients 18 years old and above.

#BMI is approximate for TBM cohort.

†Diabetes defined as self-reported DM or >200 RBS or HbA1c > 6.5% among adults18 years old and above.

PARENT PROTOCOLS: PATIENT ENROLMENT, DEMOGRAPHICS & FOLLOW UP | COHORT A | YEARS 2014- 2017

Table 4a: % of Subjects on Follow Up among Those Enrolled

COHORT A			
Site		Subjects Enrolled, n	Subjects on Follow up, n (%)
BJGMC	PTB	256	75 (29%)
	Ped	132	87 (66%)
	EPTB	113	58 (51%)
NIRT	PTB	248	105 (42%)
	Ped	47	38 (81%)
	EPTB	85	68 (80%)
CMC	PTB	83	26 (31%)
	TBM	160	80 (50%)
JIPMER	PTB	1003	246 (25%)
MVDRC	PTB	413	190 (46%)
HINDUJA	MDR-TB	6	6 (100%)
TOTAL		**2546**	**973 (38%)**

PTB=Pulmonary TB; Ped=Pediatric; TBM=TB Meningitis; EPTB=Extrapulmonary TB; MDR-TB=Multidrug-resistant TB

PARENT PROTOCOLS: PATIENT ENROLMENT, DEMOGRAPHICS & FOLLOW UP | COHORT A | YEARS 2014- 2017

Table 4b: Outcomes among Those Who Have Completed Treatment

COHORT A						
Site		Completed ATT, n	Unfavourable Outcomes, n (%)			
			Tx Failure	Tx Relapse	All Cause Death	Lost to Follow-up*
BJGMC	PTB	222	29 (13%)	17 (8%)	20 (9%)	17 (8%)
	Ped	88	5 (6%)	6 (3%)	0	1 (1%)
	EPTB	110	6 (5%)	4 (4%)	5 (5%)	7 (6%)
NIRT	PTB	218	20 (9%)	10 (5%)	11 (5%)	8 (4%)
	Ped	23	1 (1%)	0	0	1 (1%)
	EPTB	46	1 (2%)	0	3 (7%)	1 (2%)
CMC	PTB	42	4 (10%)	1 (2%)	4 (10%)	8 (19%)
	TBM	51	0	0	20 (39%)	12 (24%)
JIPMER	PTB	752	17 (2%)	11 (1%)	34 (5%)	91 (12%)
MVDRC	PTB	274	19 (7%)	11 (4%)	11 (4%)	38 (14%)
HINDUJA	MDR-TB	—	—	—	—	—
TOTAL		**1826**	**102 (7%)**	**62 (3%)**	**108 (6%)**	**184 (10%)**

PTB=Pulmonary TB; Ped=Pediatric; TBM=TB Meningitis; EPTB=Extrapulmonary TB; ATT=Anti-TB Treatment; Tx=Treatment
*At end of follow-up period only.

PARENT PROTOCOLS: PATIENT ENROLMENT, DEMOGRAPHICS & FOLLOW UP | COHORT B | YEARS 2014- 2017

Table 5: % of Household Contacts Enrolled among Those Screened

COHORT B		
Site	**HHCs reported by Index Case, n**	**Total Enrolled Among Screened, n (%)**
BJGMC	658	499 (76%)
NIRT	1272	551 (44%)
JIPMER	776	1452 (97%)
BMMRC	1150	891 (85%)
TOTAL	**3856**	**3393 (76%)**

HHC=Household contact

Table 6: Baseline Demographics among Those Enrolled

COHORT B | CHARACTERISTICS, n (%)							
Site	**Age, median (min-max)**	**Male**	**LTBI Positive***	**Current Smoker**	**Current Drinker**	**Diabetes ****	**Low BMI (<18.5)**
BJGMC n=499	25 (1-71)	216 (43%)	299 (60%)	25 (5%)	56 (11%)	20 (6%)	198 (40%)
NIRT n=551	26 (1-70)	253 (46%)	416 (76%)	36 (7%)	79 (14%)	81 (14%)	191 (35%)
JIPMER n=1452	26 (5-90)	591 (41%)	782 (54%)	105 (7%)	152 (11%)	81 (6%)	485 (34%)
BMMRC n=891	28 (6-73)	422 (47%)	376 (42%)	44 (10%)	96 (11%)	Excluded	216 (24%)
TOTAL n=3393		**1482 (44%)**	**1960 (58%)**	**210 (6%)**	**383 (11%)**	**182 (5%)**	**1090 (32%)**

LTBI=Latent TB Infection; BMI=Body Mass Index
*TST or IGRA
**Diabetes defined as self-reported DM or >200 RBS or HbA1c > 6.5% among adults 18 years old and above

PARENT PROTOCOLS: PATIENT ENROLMENT, DEMOGRAPHICS & FOLLOW UP | COHORT B | YEARS 2014- 2017

Table 7a: % of Subjects on Follow Up among Those Enrolled

COHORT B				
Site	Subjects Enrolled, n	Subjects on follow-up, n (%)	Subjects completed follow up, n (%)	Subjects lost to follow up, n (%)
BJGMC	499	195 (39%)	201 (40%)	62 (12%)
NIRT	551	206 (38%)	327 (59%)	18 (3%)
JIPMER	1452	700 (48%)	724 (50%)	28 (2%)
BMMRC	891	541 (61%)	187 (21%)	150 (17%)
TOTAL	**3393**	**1642 (48%)**	**1439 (42%)**	**258 (8%)**

Table 7b: Assigned Outcomes among Household Contacts

COHORT B					
Site	Completed follow up, n (%)	Unfavourable Outcomes			
		Lost to follow up* n (%)	Incident TB**	Prevalent TB#	TB deaths
BJGMC (n=499)	201 (40%)	62 (12%)	14 (3%)	21 (4%)	2 (0.4%)
NIRT (n=551)	327 (59%)	18 (3%)	2 (0.4%)	7 (1%)	0
JIPMER (n=1452)	724 (50%)	28 (2%)	3 (0.2%)	6 (0.7%)	1 (0.1%)
BMMRC (n=891)	187 (21%)	150 (17%)	13 (1%)	10 (1%)	0
TOTAL n=3393	**1439 (42%)**	**258 (8%)**	**32 (0.9%)**	**44 (1%)**	**3 (<0.01%)**

*Only includes patients who have completed their follow up study period per the site's definition.
**Not Prevalent TB and diagnosed with TB either bacteriologically or clinically, four or more weeks from the time of enrolment.
Diagnosed as TB at site bacteriologically or clinically, at the time of screening or within 4 weeks since the time of enrolment.

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COMMON PROTOCOL: STATUS REPORT
COHORTS A & B | 2017

Table 1: Sample Size Targets & Enrolments

COHORT A					COHORT B				
Site	Target SS, n*	Date Enrolment Commenced	Enrolled, n (%)	Among Enrolled, < 15 years, n (%)	Site	Target SS, n*	Date Enrolment Commenced	Enrolled, n (%)	Among Enrolled, < 15 years, n (%)
CMC 101	180	Site Activated#	—	—	CMC 101	No Cohort B			
JIPMER 102	750	25-Sep-2017	35 (5%)	0	JIPMER 102	1020	05-Oct-2017	34 (3%)	4
MVDRC 103	120	08-Sep-2017	30 (25%)	0	MVDRC 103	No Cohort B			
NIRT 105	325	24-Jul-2017	32 (10%)	2 (6%)	NIRT 105	1290	24-Jul-2017	36 (3%)	3 (8%)
BJGMC 106	325	05-Apr-2017	80 (25%)	2 (3%)	BJGMC 106	1290	10-Apr-2017	73 (6%)	14 (19%)
BMMRC 107	No Cohort A				BMMRC 107	1500	Site Activated#	—	—
TOTAL	**1700**		**177 (10%)**	**4**	**TOTAL**	**5100**		**143 (3%)**	**21**

SS=Sample Size; CRU=Clinical Research Unit

* As per RePORT India common protocol version 2.0, 15-Sep-2016.

Site has been activated but enrolments have not begun as of 31-Dec-2017.

DATA TABLES: All data contained herein are for purposes of the RePORT India 7Th Annual Joint Leadership Meeting, and are not for distribution.

Table 2a: Demographics among Those Enrolled*

COHORT A | CHARACTERISTICS, n (%)								
CRU #	Site	Age (median (min - max)	Male	HIV Positive	Current Smoker	Current Drinker	Diabetes#	Low BMI (<18.5)
101	CMC	—	—	—	—	—	—	—
102	JIPMER n=35	45 (18-68)	30 (86%)	0	12 (34%)	21 (60%)	14 (40%)	17 (49%)
103	MVDRC n=30	42.5 (18-60)	21 (70%)	0	10 (33%)	15 (50%)	19 (63%)	13 (43%)
105	NIRT n=32	42 (0-69)	23 (72%)	0	9 (28%)	15 (47%)	6 (19%)	17 (53%)
106	BJGMC n=80	28 (14-67)	44 (55%)	4(5%)	9 (11%)	25 (31%)	0	55 (69%)
TOTAL n=177			**118 (67%)**	**4 (2%)**	**40 (23%)**	**76 (43%)**	**39 (22%)**	**102 (58%)**

*Preliminary data only.
#Self-reported diabetes or HbA1c >6.5; BMI=Body Mass Index

Table 2b: Demographics among Those Enrolled*

COHORT B | CHARACTERISTICS, n (%)								
CRU #	Site	Age (median, min - max)	Male	LTBI Positive**	Current Smoker	Current Drinker	Diabetes#	Low BMI (<18.5)
102	JIPMER n=34	28 (7-55)	10 (29%)	0	0	0	0	9 (26%)
105	NIRT n=36	39 (13-70)	12 (33%)	1 (3%)	4 (11%)	5 (14%)	0	7 (19%)
106	BJGMC n=73	30 (3-62)	36 (49%)	0	7 (10%)	9 (12%)	0	23 (32%)
107	BMMRC	—	—	—	—	—	—	—
TOTAL n=143			**58 (41%)**	**1 (1%)**	**11 (8%)**	**14 (10%)**	**0**	**39 (27%)**

*Preliminary data only. | **TST or IGRA. | # Diabetes defined as self-report, >200 RBS or HbA1c > 6.5

Table 3: Central Biorepository Banked Specimens 2017

# of Aliquots	SAMPLE TYPE								
	PBMCs	DNA	Urine	Plasma	QGIT Plasma	Sputum	MTB Isolates	PAXgene	Saliva
Cohort A	686	553	452	1372	NA	648	76	262	90
Cohort B	263	338	112	562	729	0	0	98	72

PARENT PROTOCOL BANKED SPECIMENS
Cohort A | Pulmonary TB | Years 2014-2017

# of Aliquots	Baseline (≤14 days)							2 Weeks				1 Month				2 Month					
	BJGMC	NIRT	CMC	JIPMER	MVDRC	Hinduja	**Total**	BJGMC	NIRT	Hinduja	**Total**	BJGMC	NIRT	Hinduja	**Total**	BJGMC	NIRT	JIPMER	MVDRC	Hinduja	**Total**
Plasma	2208	1740	76	1127	421		5572					2180	1551		3731	1742	1462		373		3577
Plasma for PK												335	226	6	567					1	1
PAXgene	251	242		2041	421	6	2961					217	220	6	443	207	207	1472	373	1	2260
PBMCs	492	511			295		1298					430	463		893	404	400		271		1075
DNA	272		70				342	6			6										
QGIT	2328	840					3168					2085	684		2769	1953	552				2505
Mtb Isolate	316	506	35	1464	404	6	2731	124	331	6	461	57	190	6	253	35	65			1	101
Urine	2001	924	77			6	3008					1732	914	6	2652	1691	876			1	2568
Hair	40	43					83					38	19		57		7				7
Sputum	242	295	73			6	616	113	245	6	364	121	231	6	358	120	229			1	350
Sputum Deposit	153					6	159	92		6	98	81		6	87	87				1	88
TOTALS	**8303**	**5101**	**331**	**4632**	**1541**	**30**	**19938**	**335**	**576**	**18**	**929**	**7276**	**4498**	**36**	**11810**	**6239**	**3798**	**1472**	**1017**	**6**	**12532**

# of Aliquots	5 Month			6 Month				12 Month			18 Month				24 Month		
	BJGMC	NIRT	**Total**	BJGMC	NIRT	MVDRC	**Total**	BJGMC	NIRT	**Total**	BJGMC	NIRT	MVDRC	**Total**	BJGMC	NIRT	**Total**
Plasma				1498	185	273	1956	1212	1187	2399			137	137	615	521	1136
Plasma for PK	283	213	496														
PAXgene				183	23	273	479	122	158	280			137	137	61	94	155
PBMCs				356	40	195	591	246	279	525			82	82	120	133	253
DNA	153	224	377		2		2										
QGIT				1319	24		1343	504		504							
Mtb Isolate	13	38	51	20	4		24	3	2	5	1	23		24			
Urine				1453	76		1529	970	710	1680					494	396	890
Hair	37	19	56	34			34								11		11
Sputum	108	234	342	106	33		139	13	2	15	95	148		243			
Sputum Deposit	83		83	74			74	3		3	46			46			
TOTALS	**677**	**728**	**1405**	**5043**	**387**	**741**		**3073**	**2338**	**5411**	**142**	**171**	**356**	**669**	**1301**	**1144**	**2445**

PTB Enrolled, n	BJGMC	NIRT	CMC	JIPMER	MVDRC	Hinduja	Total
	256	248	83	1003	413	6	2009

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Cohort A | Pulmonary TB | Years 2014-2017 (cont'd)

# of Aliquots	End TB Tx				TB Recurrence					TB Failure				Unscheduled		
	BJGMC*	NIRT*	JIPMER#	**Total**	BJGMC	NIRT	JIPMER	MVDRC	**Total**	BJGMC	NIRT	JIPMER	**Total**	BJGMC	NIRT	**Total**
Plasma	90	1327	35	1452	60	160	4		224	130	9	76	215	307	16	323
Plasma for PK														4		4
PAXgene	9	165	99	273	6	20	22		48	13	2	48	63	33	2	35
PBMCs	19	294		313	13	39		25	77	22	3		25	62		62
DNA		3		3		1			1							
QGIT	75	36		111										95		95
Mtb Isolate	6	12		18	6	25			31	9	4		13	7	32	39
Urine	64	758		822	48	50			98	127	60		187	245	28	273
Hair	3	9		12		1			1	6			6	3		3
Sputum	6	205		211	8	30			38	20	3		23	4	93	97
Sputum Deposit	4			4	8				8	5			5	2		2
TOTALS	**276**	**2809**	**134**	**3219**	**149**	**326**	**26**	**25**	**526**	**332**	**81**	**124**	**537**	**762**	**171**	**933**

# of Aliquots	TOTAL						
	BJGMC	NIRT	CMC	JIPMER	MVDRC	Hinduja	**Total**
Plasma	10042	8158	76	1242	1204		**20722**
Plasma for PK	622	439				7	**1068**
PAXgene	1102	1133		1682	1204	13	**5134**
PBMCs	2164	2162			868		**5194**
DNA	431	230	70				**731**
QGIT	8359	2136					**10495**
Mtb Isolate	597	1232	35	1464	404	19	**3751**
Urine	8825	4792	77			13	**13707**
Hair	172	98					**270**
Sputum	956	1748	73			19	**2796**
Sputum Deposit	638					19	**657**
TOTALS	**33908**	**22128**	**331**	**4388**	**3680**	**90**	**64525**

*For most BJGMC & NIRT cases, End of TB TX for BJGMC & NIRT to be combined.
#End of TB Tx for JIPMER = Failure/Controls Only

Cohort A | TB Meningitis Years 2014-2017

# of Aliquots	Baseline (≥14 days)
	CMC
CSF	99
Plasma	165
DNA	75
Urine	129
Total	**468**

TBM Enrolled, n	CMC
	160

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Cohort A | Pediatric TB | Years 2014-2017

# of Aliquots	Baseline (≤7 days)			2 Weeks			1 Month			2 Month			5 Month			6 month			12 month			18 Months			24 month		
	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total
Plasma	877	272	1149				886	224	1110	913	234	1147				723	59	782	560	88	648				171	29	200
Plasma for PK							165	41	206				140	30	170												
PAXgene	79	35	114				86	28	114	101	32	133				69	11	80	62	10	72				19	8	27
PBMCs	132	68	200				134	51	185	125	65	190				105	19	124	82	19	101				24	12	36
DNA													86	78	164		4	4									
QGIT	513	36	549				577	36	613	539	36	575				360		360	120		120						
Mtb Isolate	15	12	27	6	4	10	3	1	4	2	1	3															
Urine	812	166	978				792	164	956	791	136	927				632	28	660	485	52	537				152	36	188
Hair	18	3	21				24	1	25				23	1	24	24		24							3		3
Sputum	91	31	122	56	38	94	65	38	103	61	36	97	68	30	98	62	11	73	1		1	49		49		11	11
Sputum Deposit	83		83	56		56	49		49	47		47	36		36	44		44				12		12			
Gastric Aspirate	10		10	5		5	3		3	2		2	2		2	1		1				1		1			
TOTALS	2630	623	3253	123	42	165	2784	584	3368	2581	540	3121	355	139	494	2020	132	2152	1310	169	1479	62		62	369	96	465

# of Aliquots	End TB Tx			Tb Recurrence			TB Failure			Unscheduled			TOTALS		
	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total
Plasma	19	144	163	45	8	8	26			17	8	25	4166	1066	5232
Plasma for PK										2	1	3	307	72	379
PAXgene	2	17	19	5	1	1	3			1	1	2	419	143	562
PBMCs	4	34	38	7	3	3	3			2		2	608	271	879
DNA		1	1										86	83	169
QGIT													2109	108	2217
Mtb Isolate													26	18	44
Urine	16	76	92	40	4	4	19			16		16	3696	662	4358
Hair	1		1	1			2			1		1	94	5	99
Sputum	1	18	19	5	2	7	2		2	2		2	463	215	678
Sputum Deposit				2		2	2		2	4		4	335		335
Gastric Aspirate													24		24
TOTALS	43	290	333	7	18	25	4		4	45	10	55	12333	2643	14976

Pediatric TB	BJGMC	NIRT	Total
Enrolled, n	132	47	179

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Cohort A | Extrapulmonary TB | Years 2014-2017

# of Aliquots	Baseline (≤7 days)			2 Weeks			1 Month			2 Month			5 Month			6 month			12 month			18 Months			24 month		
	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total
Plasma	947	545	1492				812	410	1222	825	554	1379				702	91	793	437	259	696				159	83	242
Plasma for PK							137	73	210				103		103												
PAXgene	94	73	167				80	57	137	83	84	167		59	59	72	21	93	44	35	79				16	12	28
PBMCs	183	120	303				150	99	249	159	126	285				132	25	157	88	67	155				28	14	42
DNA				2		2							63		63												
QGIT	620	120	740				483	108	591	525	96	621		80	80	285		285	104		104						
Mtb Isolate	4	38	42	2	12	14	2	7	9		5	5	1		1												
Urine	753	314	1067				624	288	912	663	268	931		4	4	580	84	664	351	172	523				128	52	180
Hair	11	15	26				11	6	17		5	5	19		19	23		23							1		1
Sputum	81	93	174	60	83	143	52	75	127	55	75	130	47	6	53	51	24	75				41		41		27	27
Sputum Deposit	73		73	42		42	44		44	37		37	31	68	99	26		26	1		1	9		9			
TOTALS	2766	1318	4084	106	95	201	2395	1123	3518	2347	1213	3560	264	217	481	1871	245	2116	1025	533	1558	50		50	332	188	520

# of Aliquots	End TB Tx			Tb Recurrence			TB Failure			Unscheduled			TOTALS		
	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total	BJGMC	NIRT	Total
Plasma	89	244	333	21	8	8	40			40	14	54	4011	2194	6205
Plasma for PK													242	132	374
PAXgene	9	34	43	2	1	1	4			4			402	317	719
PBMCs	18	64	82	3	3	3	6			6			765	518	1283
DNA													66	80	146
QGIT	45	60	105										2062	384	2446
Mtb Isolate													9	68	77
Urine	72	184	256	12	4	4	29			29	2	2	3195	1370	4565
Hair	1	1	2				3			3	4	4	68	33	101
Sputum	6	48	54	1	1	2	5		5	5		5	400	502	902
Sputum Deposit	3		3	1		1	2		2	2	8	10	270		270
TOTALS	243	635	878	2	17	19	7		7	47	28	75	11490	5598	17088

EPTB	BJGMC	NIRT	Total
Enrolled, n	113	85	198

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PARENT PROTOCOL BANKED SPECIMENS
Cohort B | Household Contacts | Years 2014-2017

# of Aliquots	Baseline (≤14 days)					4 Months				8 Months		12 Months				
	BJGMC	NIRT	JIPMER	BMMRC	**Total**	BJGMC	NIRT	BMMRC	**Total**	BMMRC	**Total**	BJGMC	NIRT	JIPMER	BMMRC	**Total**
Plasma	4645	3872	2163	891	11571	3178	3148	306	6632	202	202	2924	2729	57	123	5833
PAXgene	450	524	3035		4009	306	473		779			288	388	68		744
PBMCs	946	1225			2171	635	982		1617			561	710			1271
DNA	476	513		891	1880	1			1							
QGIT	1832	5159			6991	1319	2105		3424			1199	692			1891
Mtb Isolate		40			40		23		23							
Urine	3787	2124			5911	2647	1704		4351			2450	1572			4022
Hair	588	3			591	426	3		429			337				337
Sputum	407	575			982	178	483		661			1				1
Sputum Deposit	300				300	171			171			2				2
Gastric Aspirate	17				17	4			4							
TOTALS	**13448**	**14035**	**5198**	**1782**	**34463**	**8865**	**8921**	**306**	**18092**	**202**	**202**	**7762**	**6091**	**125**	**123**	**14101**

# of Aliquots	16 Months		20 Months		24 Months				Active TB					Unscheduled Visit		
	BMMRC	**Total**	BMMRC	**Total**	BJGMC	NIRT	BMMRC	**Total**	BJGMC	NIRT	JIPMER	BMMRC	**Total**	BJGMC	NIRT	**Total**
Plasma	75	75	39	39			76	76	187	13	2	13	215	830		830
PAXgene									18	5	6		29	85		85
PBMCs									38	10			48	153		153
DNA									4	4			8			
QGIT					770	144		914	76	5			81	404		404
Mtb Isolate															4	4
Urine						4		4	144	5			149	691	56	747
Hair									20				20	95		95
Sputum					1			1	12	5			17	2	79	81
Sputum Deposit									2				2	7		7
Gastric Aspirate																
TOTALS	**75**	**75**	**39**	**39**	**771**	**148**	**76**	**995**	**501**	**47**	**8**	**13**	**569**	**2267**	**139**	**2406**

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Cohort B | Household Contacts | Years 2014-2017 (cont'd)

# of Aliquots	TOTALS				
	BJGMC	NIRT	JIPMER	BMMRC	**Total**
Plasma	11764	9762	2222	1725	**25473**
PAXgene	1147	1390	3109		**5646**
PBMCs	2333	2927			**5260**
DNA	481	517		891	**1889**
QGIT	5600	8105			**13705**
Mtb Isolate		67			**67**
Urine	9719	5465			**15184**
Hair	1466	6			**1472**
Sputum	601	1142			**1743**
Sputum Deposit	482				**482**
Gastric Aspirate	21				**21**
TOTALS	**33614**	**29381**	**5331**	**2616**	**70942**

HHCs Enrolled, n	BJGMC	NIRT	JIPMER	BMMRC	Total
	499	551	1452	891	3393

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Young Investigator Abstracts

RePORT India

7TH ANNUAL JOINT LEADERSHIP MEETING

CATALYZING DISCOVERIES TOWARD TB ELIMINATION

NEW DELHI | 15–17 FEB 2018

YOUNG INVESTIGATOR ABSTRACTS

Poster Number	Title	Presenter/ Submitting Author
Bhagwan Mahavir Medical Center		
1	NK Cells and Memory-like NK Cells as Immunological Markers of Protection against Latent TB Conversion in Household Contacts of TB Patients	Devalraju Kamakshi Prudhula
2	CD14+ CD16+ cells as Immunological Marker for Protection in Household Contacts with Latent Tuberculosis Infection	Venkata Sanjeev Kumar Neela
Byramjee Jeejeebhoy Government Medical College		
3	Interleukin-6, Interleukin-13 and Interferon-γ as Potential Biomarkers for Treatment Failure in Pulmonary Tuberculosis	Akshay Gupte
4	Poor Understanding of TB Infection among At-risk Tuberculin Skin-test Positive Household Contacts of Pulmonary TB Cases in Pune, India	Gauri Dhamal
5	Incidence of Mycobacterium Tuberculosis Infection among Household Contacts of Adult Pulmonary Tuberculosis Cases in India	Mandar Paradkar
N/A	The Effect of HIV on the Immune Response to Myobacterium Tuberculosis in Pregnant Women from Pune, India	Jyoti Mathad
N/A	Drug Susceptibility of Rifampin-resistant Tuberculosis using Whole Genome Sequencing to Identify Genes of Interest in Pune, India	Jeff Tornheim
Christian Medical College Vellore		
6	Profile of Indian Patients with Tubercular Meningitis in the CMC, Vellore Cohort	Samuvel S.
7	Are non-Tuberculous Disorders being Treated as Smear Negative Pulmonary Tuberculosis?	Allan Deepak Ilangovan/ Samuvel S.
8	Factors Affecting Time to Sputum Smear and Culture Conversion in Adults with Pulmonary Tuberculosis: A Prospective Cohort Study from CMC RePORT Data	Deepa Shankar
N/A	Prevalence of Latent TB Infection (LTBI) among Undergraduate Nursing Trainees in a Rural Secondary Care Hospital in Southern India	Allan Deepak Ilangovan
Jawaharlal Institute of Postgraduate Medical Education and Research		
9	Effect of Malnutrition on Tuberculosis Mycobacterial Burden and Chest Radiographic Findings	Kacie Hoyt
10	Alcohol Use and Clinical Presentation of Tuberculosis at Time of Diagnosis in Puducherry and Tamil Nadu, India	Megan Forsyth
11	Evaluation of Factors Influencing Mycobacterium Tuberculosis Complex Recovery and Contamination Rates in MGIT 960	Kalaiarasan Ellappan
N/A	Influence of Type of Tobacco Product on Chest X-ray findings in Pulmonary Tuberculosis Patients in India	Nicole Schenk
N/A	Wood Fuel Usage Is Associated with a Higher Leukocyte Count in Pulmonary Tuberculosis Patients	Divya Reddy
M. Viswanathan Diabetes Research Centre		
12	Effect of Anti-tuberculosis Treatment on the Systemic Levels of Tissue Inhibitors of Metalloproteinases in Tuberculosis–Diabetes Co-morbidity	Kadar Moideen
13	Effect of Standard Tuberculosis Treatment on Circulating Levels of Monocyte Activation Markers and RAGE Ligands in Tuberculosis–Diabetes Co-morbidity	Pavan Kumar
14	Impact of Metformin Use on TB Severity in Diabetes	Basavaradhya S. Shruthi
National Institute for Research on Tuberculosis		
15	Risk Factors Associated with Unfavorable Outcomes in a Cohort of Pulmonary TB Patients	Kavitha Dhanasekaran

Poster Number	Title	Presenter/ Submitting Author
PD Hinduja Hospital		
16	Implications of Acetylator Genotype on Plasma Rifampicin and Isoniazid Levels	Ishita Gajjar/ Prerna K. Chawla
17	Linezolid Experience among MDR-TB Patients in Mumbai	Jeff Tornheim

POSTER 1: NK Cells and Memory-like NK Cells as Immunological Markers of Protection against Latent TB Conversion in Household Contacts of TB Patients

Authors: Devalraju KP, Neela VSK, Chaudhury A, Vankayalapati R, Valluri VL

Background: House hold contacts (HHCs) of TB patients are at an increased risk of developing LTBI (Latent TB Infection) because of their continuous exposure to the bacteria. With new candidate vaccines aimed at either prevention of infection (POI) or prevention of disease (POD), there is a need for biomarkers and correlates of protection. Identification of immune biomarkers and correlates of protection would allow focused immunoprophylaxis to persons with increased risk. We determined if biomarkers can predict development of LTBI in these individuals.

Subjects: Individuals living with TB cases for at least 6 months from the date of diagnosis were enrolled as HHCs. Study was approved by institutional ethical committee. HHCs were screened for HIV and an in-house QuantiFERON test was performed to determine latent TB. Subjects were evaluated after every 4 months for 2 years.

Results: These observations were made regarding IL-17 levels in stimulated culture supernatants The baseline levels in LTBI- HHCs who converted to LTBI+ during follow-up were significantly high compared to those who did not ($p=0.02$, $n=25$). (b) The levels were high in LTBI+ HHCs who did not develop active tuberculosis when compared to those who did ($p=0.01$, $n=6$). Baseline CD16+CD56+ and CD3-CD56+CD27+CCR7+ cell numbers were significantly high in LTBI- individuals who never converted to LTBI+ compared to those did ($p=0.002$, $n=15$).

Conclusion: High IL-17 production at baseline by T-cells from HHCs who convert to latent or active TB indicates an ongoing inflammation and can be used as an early marker of conversion to latent/ active TB. We also could demonstrate differences in memory like NK cell percentages as potential markers of protection and might serve as a tool to identify individuals at risk for conversion and in need for immuno-prophylaxis. Future studies include determining the mechanisms involved in expansion of the above identified cell population using microarray, multiplex and siRNA technologies.

POSTER 2: CD14+ CD16+ cells as Immunological Marker for Protection in Household Contacts with Latent Tuberculosis Infection

Submitting Author: Venkata Sanjeev Kumar Neela

Background: One-third of the global population is estimated to have Latent TB Infection (LTBI). Biomarkers can be used to identify both; persons who are at great risk for development of active TB disease and those who are resistant to TB having significant exposure. Monocytes play a pivotal role as cellular component of the innate immune response also influence the process of adaptive immunity due to their role in antigen presentation. The CD14+CD16+ cells were found to secrete pro-inflammatory cytokines for arresting bacterial growth and

activation of T cells. Monitoring these cells with the cytokines levels in HHCs would be informative and indicative of either TB protection or progression. HIV negative household contacts (HHCs) of active pulmonary TB patients visiting clinics of Mahavir hospital and LEPRA were enrolled for the study after written and informed consent.

Methods: PBMCs from the venous blood (20ml) were isolated by density gradient centrifugation. Immunophenotyping of circulating CD14+CD16+ cells was performed by flow cytometry. PBMCs were cultured with CFP10+ESAT6 antigens for 96 hours. The IFN-γ levels in culture supernatants were assessed by ELISA and the levels were used to determining latency. Above experiments were repeated after every 4 months for 2 years.

Results: The baseline CD14+CD16+ cells were significantly high (p=0.03) in non-progressors (HHCs who remained LTBI+ on follow up) when compared to TB progressors (HHCs who progressed to active TB on follow up) (fig. 1a). PBMCs from non progressors expressed significantly lower levels of CFP+ESAT6 specific IFN-γ (p=0.003) when compared to TB progressors at baseline. The levels of IFN-γ significantly increased in non-progressors (p=0.0004) and decreased (p=0.01) in TB progressors on follow up (fig 1b). Conclusion: High percentages of CD14+CD16+ cells in non progressors indicates robust innate immune system and can be used as an immune correlate of protection against TB in high risk HHCs.

POSTER 3: Interleukin-6, Interleukin-13 and Interferon-γ as Potential Biomarkers for Treatment Failure in Pulmonary Tuberculosis

Authors: Gupte A, Andrade B, Kumar P, Selvaraju S, Lokhande R, Kulkarni V, Paradkar M, Kohli R, Thiru K, Shivakumar SVBY, Gupte N, Babu S, Golub J, Mave V, Chandrasekaran P, Gupta A

Background: Biomarkers are needed for the early identification of tuberculosis cases at risk of treatment failure.

Methods: New adult (≥18 years) drug-sensitive pulmonary tuberculosis cases were enrolled at or within 1 week of treatment initiation and, prospectively evaluated at 8 weeks and 24 weeks for plasma concentrations of 20 cytokines linked to the host immune response in tuberculosis in Pune and Chennai, India. Cytokine concentrations were evaluated, in duplicates, using multiplex ELISA according to manufacturer protocols. Markers associated with treatment failure, defined as *Mycobacterium tuberculosis* growth on liquid or solid culture at 24 weeks of treatment, were identified using non-parametric tests. Cytokine concentrations were $\log_2$ transformed and z-score normalized across study groups for analysis. P-values were adjusted for multiple comparisons using the Benjamini-Hochberg procedure and considered significant at $\alpha<0.05$.

Results: Of the 30 participants enrolled, 20 (74%) were male, 7 (26%) had diabetes (defined as HbA1c≥6.5%) and 2 (7%) had HIV-coinfection. The median (IQR) age and BMI at enrollment was 36 (28-50) years and 18 (16-20) kg/m^2, respectively. Four (13%) participants failed treatment; none had diabetes or HIV-coinfection. While plasma cytokine concentrations significantly declined with treatment, TIMP-4 and TNF-α were overexpressed at 8 weeks and 24 weeks of treatment relative to their baseline levels, respectively. Participants who failed treatment had significantly higher plasma concentrations of IL-6 ($p<0.001$), IL-13 ($p<0.001$) and IFN-γ ($p<0.001$) at treatment initiation compared to those who were cured, however this difference was not statistically significant at 8 and 24 weeks of treatment.

Conclusion: Overexpression of circulating IL-6, IL-13 and IFN-γ at treatment initiation may be associated with treatment failure among drug-sensitive pulmonary tuberculosis cases. Well powered validation studies should be undertaken to evaluate the performance of these biomarkers, individually or in combination, for predicting unfavorable tuberculosis treatment outcomes.

POSTER 4: Poor Understanding of TB Infection among At-risk Tuberculin Skin-test Positive Household Contacts of Pulmonary TB Cases in Pune, India

Authors: Dhumal G, DeLuca A, Paradkar M, Suryavanshi N, Mave V, Kohli R, Shivakumar SVBY, Kadam D, Gupta A

Background: Recent studies on contacts of tuberculosis (TB) cases in India have found TB infection (TBI) prevalence of 40-50% among people living in the same household. Previous research has shown the barriers to TB prevention are widespread, even in countries with strong policies. We evaluated knowledge and understanding of TBI and IPT among tuberculin skin-test positive (TST+) household contacts (HHCs) of recently diagnosed pulmonary TB (PTB) cases, and their preference for receiving information about TB.

Methods: This was a sub-study of CTRIUMPH, a cohort study enrolling TB patients and their HHCs that is part of RePORT-India. We approached TST+ HHCs of adult PTB, to administer a validated questionnaire on TB knowledge, and also asked open-ended questions on understanding of TBI and their preference to receive information about TBI and its prevention. Over one year, 100 adult HHCs were enrolled at a tertiary teaching hospital in Pune, India.

Results: General awareness of how TB is transmitted was low among HHCs, with a majority of participants believing that you can get TB from sharing dishes (70%) or touching something that has been coughed on (52%). Understanding of TBI was also low, with 42% believing that being TST+ means you have disease, and 88% reporting that they did not understand the difference between TBI and active disease. Median age of the participants was 35.5 years. Ninety-five (98%) participants preferred to receive TBI and its prevention information from doctor, with pamphlets in their mother tongue (n=75, 77%) or a video/DVD (n=74, n=76%) being the other methods preferred for receiving health information. Participants who are aware of IPT (n=4), all were willing to opt it.

Conclusions: Due to poor understanding of TB transmission and infection, adoption of health messaging in video or pamphlet form in Marathi may help to improve TB knowledge. Whenever possible, study physicians should communicate information about TB transmission to household contacts.

POSTER 5: Incidence of *Mycobacterium tuberculosis* Infection among Household Contacts of Adult Pulmonary Tuberculosis Cases in India

Authors: Paradkar M, Dhanasekaran K, Kinikar A, Kulkarni R, Bharadwaj R, Gaikwad S, Lokhande R, Meshram S, Dolla CK, Selvaraju S, Murali L, Thiruvengadam K, Jain D, Rajagopal S, Kulkarni V, Pradhan N, John S, Kohli R, Nayagam R, Shivakumar SVBY, Suryavanshi N, Cox S, Gupte A, Gupte A, Chandrasekaran P, Mave V, Gupta A for the CTRIUMPh Study Team

Background: Evaluating incident tuberculosis infection (TBI) in household contacts (HHC) of tuberculosis (TB) cases in high burden settings such as India is vital for TB biomarker and vaccine development.

Methods: CTRIUMPH study prospectively enrolled HHCs of (adults/children living in same house with adult pulmonary TB case) in Pune and Chennai, India. Tuberculin skin test (TST, 5TUs) and Quantiferon Gold-In Tube test (QGIT) were performed at enrollment, and at 4 and 12 months among HHCs without previous TBI. Incident TBI was defined as TST induration ≥5mm or positive QGIT (≥0.35 IU/mL) at follow up. We calculated incidence rates by Poisson regression and Kaplan-Meier estimate for cumulative incidence, for TST, QGIT and either. We performed Cox proportional hazards regression to assess the risk factors and McNemar's test to compare the age-specific incidence by TST and QGIT.

Results: 706/999 (70.6%) HHCs enrolled had TBI at baseline. 219 HHCs without baseline TBI completed 12 months follow-up and 87/219 (40 %) seroconverted by either or both tests within 12 months (Table 1). TBI incidence by QGIT, TST and either test was 288, 502and 642 per 1000 person-years respectively. Cumulative TBI incidence was stratified by age and index microbiological status (Figure 1). Risk factors independently associated with TBI were- HHC age 25-45 years by TST (aHR 2.81,CI 0.98-8.01,p=0.05), by QGIT (aHR 12.75,CI 1.64-98.83,p=0.02) and TST and/or QGIT (aHR 4.11,CI 1.63-10.37,p=0.003); HHC age>45 years by TST (aHR 5.98,CI 1.83-19.53,p=0.003) and TST and/or QGIT (aHR 5.15,CI 1.73-15.29,p=0.003); index age 18-25 years (aHR 2.98,CI 1.04-8.52,p=0.04) and high TB exposure score (aHR 2.70,CI 1.17-6.25,p=0.02) by QGIT; Peri-urban residence by TST (aHR 4.68,CI 2.05-10.07,p<0.001) and by TST and/or QGIT (aHR 2.91,CI 1.41-6.02,p=0.004). TBI was higher by TST than QGIT in HHCs aged 15-<25 (p-0.002) and <45 years (p=0.008).

Conclusion: Among our cohort of Indian HHCs recently exposed to TB, incidence of TBI was impacted by type of TBI test used, HHC age, index age, peri-urban residence and by TB exposure score.

TITLE: The Effect of HIV on the Immune Response to *Myobacterium tuberculosis* in Pregnant Women from Pune, India

Authors: Mathad J, Alexander M, Bhosale R, Naik S, Suryavanshi N, Mave V, Deshpande P, Balasubramanian U, Kulkarni V, Kumar P, Babu S, Gupte N, Nevrekar N, Patil S, Chandanwale A, Gupta A

Background: The incidence of active tuberculosis (TB) in women is highest during pregnancy and postpartum, making it a leading cause of maternal mortality. We sought to understand the impact of HIV on the immune response to *M. tuberculosis* in pregnant women in India.

Methods: We are conducting a longitudinal study of pregnant women with and without HIV in Pune. Women with a positive interferon gamma release assay (IGRA) are enrolled. From the IGRA supernatant, we measured Th1 and Th2 cytokines (e.g. IFN-g, IL-4) using the multiplex ELISA Luminex platform. Repeat IGRA testing was done at delivery.

Results: We enrolled 198 women; 45 HIV-infected, 153 HIV-uninfected. Among HIV-infected, the median CD4 count was 425 cells/mm^3 (IQR: 399-602) and 80% of them had undetectable viral loads. At delivery, 68% of HIV-uninfected women remained IGRA-positive versus only 43% of HIV-infected women (p=0.002). Compared to HIV-uninfected women, HIV-infected women had significantly lower IFN- g levels in response to MTB antigen stimulation at entry (5.4 IU/mL vs. 2.47 IU/mL, p=0.0004) and delivery (2.23 IU/mL vs. 1.1 IU/mL, p=0.004). In contrast, HIV-infected women had significantly higher IL-6 than HIV-uninfected women at entry (355.5 pg/mL vs. 48.8 pg/mL, p=0.02) and delivery (1499 pg/mL vs. 235 pg/mL, p=0.002). Levels of IL-2 and IL-4 decreased significantly between entry and delivery (IL-2: 23.5 pg/mL vs. 14.3 pg/mL, p=0.02; IL-4: 20.8 pg/mL vs. 2.07 pg/mL, p=0.0001) in all women.

Conclusions: Compared to HIV-uninfected women, women with HIV experience a greater suppression of their immune response to MTB during pregnancy. This is not related to increased IL-4 levels as IL-4 unexpectedly decreased in both HIV-infected and HIV-uninfected women. The suppressed IFN-g may, however, be related to higher IL-6 in HIV-infected women, which increased as pregnancy progressed. Our study provides novel insight into the pathogenesis of TB in HIV-infected pregnant women.

TITLE: Drug Susceptibility of Rifampin-resistant Tuberculosis using Whole Genome Sequencing to Identify Genes of Interest in Pune, India

Authors: Tornheim JA, Madugundu AK, Pradhan N, Bharadwaj R, Mave V, Golub J, Pandey A, Gupta A

Background and Rationale: India has the world's largest tuberculosis (TB) burden. Recent expansion of molecular drug susceptibility testing (DST) is revealing more drug resistance than previously identified. In many parts of India, resistance to second-line drugs needs further study. We performed whole genome sequencing (WGS) to evaluate the frequency of resistance mutations found among rifampin-resistant isolates from Pune, India, a city of 7 million people.

Methods: Samples were collected at a public hospital in Pune, India. Pulmonary TB patients provided spot and morning sputum samples for Xpert MTB/RIF, culture, and phenotypic DST. Samples with positive or indeterminate rpoB mutation results were included and were analyzed by patient. Phenotypic DST was performed for isoniazid, rifampin, ethambutol, and streptomycin. Raw WGS data were submitted to an analytic pipeline using BWA aligner, GATK, and snpEff to generate annotated variant call files. Identified variants were compared to genes of interest reported from the ReSeqTB Data Platform. Analysis was duplicated by multiple bioinformatic pipelines.

Results: From 2015-2016, 104 participants met inclusion criteria, and 32 had sufficient culture material for further analysis. Most were smear positive (84.4%), and all were culture positive, though 3 samples had insufficient growth for phenotypic DST. On average, WGS produced 8.6 million reads (5.1-31.2 million) per sample with 94.9% (77.0-98.5%) mapping to *M. tuberculosis*. This identified an average of 1,847 genetic variants per isolate. East Asian lineage was most common (40.6%) followed by Central Asian (31.3%). Phenotypic and genotypic tests for rifampin were concordant in 66.7% of cases. While injectable drug resistance was not identified, WGS frequently identified fluoroquinolone resistance among MDR-TB isolates.

Conclusions and Recommendations: WGS for DST of resistant TB isolates in the Indian public sector identified high rates of fluoroquinolone resistance. DST using WGS and published genes of interest can be performed in India and may help guide treatment guidelines, particularly with respect to fluoroquinolones.

POSTER 6: Profile of Indian Patients with Tubercular Meningitis in the CMC, Vellore Cohort

Authors: Christopher DJ, Thangakunam B, Samuvel S, Mathuram A, David T, Satheyendra S, Abraham OC, Ramya

Introduction: Tubercular meningitis (TBM) is one of the severe forms of tuberculosis with high morbidity and mortality. There are challenges in diagnosis and managing patients with tuberculosis. We have established a cohort of such patients as part of RePORT India consortium.

Materials & Methods: We analysed the clinical, laboratory, and radiological variables of the first 151 TBM patients in our cohort. We have compared the variables of these patients with the other large published cohorts.

Results: Of the 151 TBM patients, 62% were males and 42% were from the state of Tamil Nadu. Around 29% of patients did not have formal school education and 81% of patients were never smokers.
At presentation, 93% had fever, 43% had weight loss, 78% had headache and 60% had confusion. GCS score of 59% of the patients was normal. Past history of tuberculosis was reported by 7% of the patients, 13% were sero positive for HIV and 16% had diabetes mellitus. Definite, possible and probable TBM were diagnosed in 25%,

34% and 40% of patients respectively. At presentation the MRC clinical severity was stage 1 in 40%, stage 2 and 3 were 44% and 17% respectively.

MRI Brain showed hydrocephalus in 17%, Basilar Meningeal Enhancement in 40%, Tuberculoma in 7%, Infarct in 5%. Normal Chest X-ray was reported in 69% and 5 % of patients had cavitary lesions on CXR.
In all 34 patients have succumbed to the disease (mortality rate -23%).Among patients who are alive, 38 have completed 1 yr of treatment and are under follow up. The clinical and laboratory profiles of the patients was similar to other TBM cohorts.

Conclusion: Definite diagnosis of TBM has been possible in only 25% of the patients. The clinical severity of the majority of patients fell in MRC stage 2. Basilar meningeal enhancement is the commonest MRI finding. While the clinical and laboratory profiles of the patients were similar to other cohorts, the mortality rate was only 23%, which is lower than other cohorts.

POSTER 7: Are Non-tuberculous Disorders being Treated as Smear Negative Pulmonary Tuberculosis?

Authors: Oliver A, Samuvel S, Shankar D, Thangakunam B, Christopher DJ

Background: In most of the countries in the world, diagnosis of pulmonary tuberculosis (PTB) is primarily based on smear microscopy. Some patients, who have negative by sputum smears, end up being treated as smear negative TB on the basis of symptomatology and or chest x-ray which have poor specificity, and some patients are inappropriately prescribed anti-TB treatment.

Very few studies have looked at patients diagnosed to have smear negative Pulmonary TB (SNPTB) in detail to identify the precise etiology and also estimate the quantum of mis-diagnosis, this study was designed to address this question.

Methods: Consecutive consenting patients who were diagnosed as SNPTB under the Revised National TB control programme (RNTCP), of the city were recruited. The subjects were sequentially subjected to the following investigations: repeat AFB smears (twice), Gene Xpert (CB-NAAT) and MGIT culture on sputum samples, chest x-ray, CT Thorax, bronchoscopy, pulmonary function tests and other investigations as required, to arrive at specific diagnosis.

Results: A total of 102 patients were enrolled. Repeat sputum smears & CBNAAT confirmed PTB in 31(30%) subjects. The other 71 patients were recommended further evaluation but 25 dropped out at various stages and were excluded. Among the 46 who completed evaluation, 5(11%) more were diagnosed as PTB from bronchoscopy samples.

The others patients had non PTB diagnosis: COPD-8, bronchiectasis-6, sequel of healed PTB-6, bronchial asthma-5, bacterial pneumonia-4, gastro-oesophageal reflux disease-3, adenocarcinoma-1, cryptogenic organizing pneumonia-1, bacterial pyo-pneumothorax-1.

Conclusions: Of the 102 patients diagnosed to have SNPTB who were re-evaluated, only 41% turned out to have a confirmed diagnosis of PTB. The rest had non-TB causes for their symptoms. Use of CB-NAAT on smear negative cases identified most of true PTB. However expert evaluation and use of expensive technology may be required for the rest.

POSTER 8: Factors Affecting Time to Sputum Smear and Culture Conversion in Adults with Pulmonary Tuberculosis: A Prospective Cohort Study from CMC RePORT Data

Authors: Christopher DJ, Shankar D, Thangakunam B, Ramakrishnan L

Background: In patients with pulmonary tuberculosis (PTB), shortening the time of sputum smear and culture conversion is a challenge but is most enviable. Reduction in time to conversion leads to less mycobacterium transmission. Persistent positive sputum culture after 2 months of treatment is mostly associated to symptoms, high smear grading, grade of severity on chest x-ray, diabetes mellitus, smoking, alcohol, low BMI and lower socio-economic strata. Very few studies have done periodic microbiologic examination to identify the precise duration to sputum conversion and correlated this with the risk factors for delay in sputum conversion.

Methods: This study is an observational prospective study done in a tertiary care centre in southern India. All new sputum smear & or Genexpert positive pulmonary TB patients (& subsequently culture +ve),presenting to the Pulmonary medicine OPD & DOTS clinic of CMC, Vellore were included, if they were willing to participate in the RePORT observational study titled 'Host determinants in the eicosanoid pathway modulate the inflammatory response, disease outcome, and treatment responsiveness in TB'and fulfillthe requirements of the study, including providing weekly sputum samples for microbiologic examination for the first 2 months and if they remained +ve at the end of 2 months,until sputum cultures became negative. They were all treated with DOTS treatment under RNTCP. The following risk factors were evaluated: Symptoms, diabetes, smoking, alcohol, low BMI, socioeconomic status, chest x-ray severity scores and high AFB load.

Results: The data of the first 80 recruited patients was analyzed, 56.7% of the subjects were smear –ve by 2 months and 71% culture –ve. The median time to sputum smear conversion was 5.8 weeks and sputum culture conversion 6.3 weeks. Smoking and high AFB load showed a trend towards delayed sputum smear and culture conversion

Conclusion: The time to culture conversion correlates with various risk factors and could be helpful in predicting response to treatment.

TITLE: Prevalence of Latent TB Infection (LTBI) among Undergraduate Nursing Trainees in a Rural Secondary Care Hospital in Southern India

Authors: Christopher SA, Ilangovan AD, Shankar D, Thangakunam B, Christopher DJ

Objectives: To estimate the prevalence of LTBI among nursing trainees in a rural secondary care hospital and asses various factors contributing to LTBI.

Secondary objective is to compare the prevalence of LTBI among undergraduate nursing trainees between a Rural Secondary care Centre and Urban Tertiary care centre.

Methods: This is a Cross Sectional Observational Study done in Christian Fellowship hospital, Oddanchatram. From January 2017 – March 2017, 98 healthy Nursing students across 3 yrs had given informed consent to participate. All participants completed a questionnaire, underwent a physical examination and a TST to assess latent TB status that was read after 48 hours. The results were stratified by Age, year of course study, total length of work in health care, BMI, BCG vaccination status and presence of BCG scar to see if these factors affected TST results. The results were compared with a our previous study done in Christian Medical College Hospital, Vellore to ascertain if working in a Rural Hospital Centre made significant difference to Latent TB status.

Results: Among the 98 students enrolled, 100% were females. Mean age of the Cohort was 19.84 years with 56.12% being ≥ 20 years age. BMI was < 19 in 40.82% and 69.39% of students had BCG scar. A total of 80.61% students recalled work related exposure to TB patients and TST was positive in 40.82%. Significant association of positive TST was seen with low BMI <19 (p=0.002) and contact with TB patients (p=0.05) and not with presence of BCG scar. 40.82% of Undergraduate nurses in the Rural Hospital, Oddanchatram tested TST positive compared to 45.22% of Undergraduate nurses in CMC, Vellore.

Conclusions: First study on LTBI in a rural secondary care hospital. A total of 80.61% Students had been exposed to TB and 40.82% had evidence of Latent TB. The major contributing factors were found to be low BMI and increased exposure to TB patients. The prevalence of LTBI was lower than that in Urban Tertiary care Hospital.

POSTER 9: Effect of Malnutrition on Tuberculosis Mycobacterial Burden and Chest Radiographic Findings

Authors: Hoyt K, White L, Sarkar S, Pleskunas J, Zhou T, Noyal J, Muthuraj M, Vinod K, Roy G, Ellner JJ, Horsburgh CR, Hochberg NS

Background: The relationship between malnutrition and tuberculosis (TB) severity is understudied. We aimed to investigate the effect of malnutrition on mycobacterial burden and chest radiograph findings.

Methods: Subjects included newly diagnosed, smear-positive, culture-confirmed, pulmonary TB cases enrolled in the Regional Prospective Observational Research for TB (RePORT) cohort in Puducherry and two districts of Tamil Nadu, India. Multivariate negative binomial and linear regression were used to evaluate the relationship between body mass index (BMI) and mycobacterial growth indicator tube (MGIT) time to positive (TTP) at start of treatment and percentage of lung affected, respectively. Severe malnutrition was defined as BMI<16.5 kg/m^2, moderate malnutrition as 16.5-18.4kg/m^2, and "normal"/overweight as ≥18.5 kg/m^2.

Results: Of 776 subjects, 599 (77%) were male. The median age was 45 years (range 15-82); 222 (29%) had severe malnutrition and 271 (35%) moderate malnutrition. Median MGIT TTP was 195 hours. Compared to those with normal BMI, MGIT TTP was not statistically different for individuals with severe and moderate malnutrition (aRR=1.05 [95% CI 0.97-1.15] and aRR=1.03 [95% CI,0.96-1.12], respectively), after adjusting for confounders. Among 173 subjects with chest x-ray data, 132 (76%) had cavitation including 37/42 (88%) and 45/58 (78%) severely malnourished and malnourished cases, respectively. Median percentage of lung affected was 32%. Severe malnutrition was associated with more lung affected (46%) compared to moderate malnutrition (30%) and normal BMI (24%). Percentage of lung affected in those with severe malnutrition was, on average, 10.9% greater than those with normal BMI (p=0.004).

Conclusion: This study found no significant association between BMI and MGIT TTP but did detect an association between malnutrition and percentage of lung affected. These findings suggest that malnutrition might affect long-term pulmonary sequelae of TB.

POSTER 10: Alcohol use and clinical presentation of tuberculosis at time of diagnosis in Puducherry and Tamil Nadu, India

Authors: Forsyth M, Ragan EJ, Sahu S, Jenkins HE, Sarkar S, Horsburgh CR, Roy G, Ellner JJ, Hochberg NS, Jacobson KR

Background: Alcohol use increases the risk of developing tuberculosis (TB) disease and is associated with worse TB treatment response. Whether alcohol use affects disease severity at diagnosis has not been

investigated. Our objective was to assess the association between alcohol use and TB disease burden and presentation at diagnosis.

Methods: Study participants were smear-positive TB patients enrolled prospectively in the Indian states of Puducherry and Tamil Nadu. TB disease severity was assessed four ways: 1) high (2+ and 3+) versus low (1+) smear grade, 2) time to positivity (TTP) on culture, 3) cavitation on chest x-ray (CXR), and 4) percent lung affected on CXR. Alcohol use was assessed using the Alcohol Use Disorders Identification Test (AUDIT-C). Exposure was categorized as 1) alcohol drinker versus non-drinker, and 2) at risk for alcohol use disorders (AUD) versus not at risk (included non-drinkers). Associations were studied through univariate and multivariate analysis, controlling for known risk factors. Final multivariate models were determined using backward selection at $p \leq 0.20$.

Results: High smear grade (aOR 1.11, 95% CI: 0.77, 1.56), cavitation (aOR 0.97, 95% CI 0.34, 2.74), and TTP (mean difference 0.43 days, p=0.15) did not differ between drinkers and non-drinkers, nor between those at risk for AUD compared to those not at risk (smear: OR a0.95, 95% CI 0.68, 1.33; cavitation: aOR 1.07, 95% CI 0.42, 2.70; TTP: mean difference 0.04 days, p=0.89). Drinkers had greater percent lung affected than non-drinkers (adjusted mean difference 11.83% p<0.001), but this did not differ by risk for AUD (adjusted mean difference 5.51%, p=0.088).

Conclusion: Alcohol drinkers had significantly greater percent lung affected on CXR at time of diagnosis than non-drinkers. Although there were no differences for other clinical characteristics, our findings warrant further investigation of potential biologic or behavioral pathways between alcohol use and TB disease.

POSTER 11: Evaluation of Factors Influencing Mycobacterium tuberculosis Complex Recovery and Contamination Rates in MGIT 960

Authors: Ellappan K, Datta S, Muthuraj M, Joseph NM, Subitha L, Pleskunas JA, Horsburgh CR, Salgame P, Hochberg N, Sarkar S, Ellner JJ, Roy G

Background: Tuberculosis (TB) is a major public health problem. The contamination rate and poor recovery of Mycobacterium tuberculosis complex (MTBC) in MGIT960 culture may affect the early diagnosis of TB. Evidence is needed to determine the factors associated with contamination rates and MTBC recovery.

Objectives: To determine the factors affecting the MTBC culture positivity and contamination rates using MGIT960.

Methodology: Newly diagnosed, smear-positive, active pulmonary TB notified to DOTS centres were enrolled in RePORT study since May 2014. Repeat smear examination and sputum culture using MGIT960 were done for these patients. Chi-square test was performed to study the impact of sputum appearance, volume, transport duration, smear grading, location of residence, age and gender on the culture positivity and contamination rate.

Results: Of the 849 cases studied, 95.5% (811/849) were culture positive for MTBC, 2.7% (23/849) were culture negative and 1.8% (15/849) were contaminated. Salivary sputum showed significantly less culture positivity (91.4%) compared to mucopurulent/blood stained samples (96.6%) (p 0.003). Sputum from individuals <20 years of age and those ≥60 showed lower culture positivity of 89.8% and 91.3%, respectively, compared to those aged 20-39yr (97.1%) and 40-59yr (96.7%) (p 0.007). Based on smear grading, negative, scanty and positive (1+/2+/3+) samples showed a culture positivity of 79.8%, 91.7% and 98.2%, respectively (p <0.0001). Contamination rates were higher in smear negatives (6.0%), compared to scanty (2.1%) and smear positives (1.1%) (p 0.007). Transport duration (3.2% vs. 1.4% for samples transported > 3hr and < 3 hr, respectively, p

0.090) and sputum appearance (3.4% vs. 1.3% for mucopurulent/blood stained and salivary sputum, respectively, p 0.059) also influenced the contamination rates.

Conclusion: Sputum appearance and smear grading were the most important factors influencing both culture positivity and contamination. Transport duration affected the contamination rates. Awareness of these factors may improve the diagnostic performance of MGIT960.

TITLE: Influence of Type of Tobacco Product on Chest X-ray findings in Pulmonary Tuberculosis Patients in India

Authors: Schenk NM, Sahu S, Roy G, Ellner JJ, Horsburgh Jr CR, Kumar V, Amsaveni S, Pleskunas J, Sarkar S, Hochberg NS, Reddy D

Background and Rationale: Tobacco smoking is associated with increased morbidity and mortality in pulmonary tuberculosis (PTB) disease. Bidis, commonly smoked in India, are unprocessed cigarettes that contain less tobacco but more harmful chemicals. This study aims to assess the influence of the type of tobacco product used on chest x-ray (CXR) findings in PTB patients.

Methods: Data from PTB cases enrolled in the Regional Prospective Observational Research for TB (RePORT) cohort in Puducherry and Tamil Nadu, India were analyzed. Smoking was self-reported through standardized questionnaires and defined as ever (current or former) and never smokers. CXRs were obtained prior to initiation of PTB treatment and were read by trained clinicians. Univariate associations were examined using the chi-square, two-sample t-test and analysis of variance test.

Results: Among 161 newly diagnosed smear-positive, culture-confirmed PTB cases with CXRs, 119 (73.9%) were male, the median age was 45 years, and 71/161 (44.1%) were ever smokers. Of the 71 smokers, 39 (54.9%) smoked bidis and 23 (32.9%) smoked cigarettes. On univariate analysis, ever smokers were more likely to have bilateral infiltrates (OR=3.7; 95% CI 1.4 – 9.7; p=0.005) and upper zone involvement (OR=3.3; 95% CI 1.2 -9.4; p=0.020) on CXRs compared to never smokers. Further investigation revealed that those who smoked bidis were significantly more likely than never smokers to have bilateral infiltrates on CXR (OR=6.4; 95% CI 1.4 -28.5; p=0.007), but those who smoked cigarettes were not (OR=2.3; 95% CI 0.6 -8.4; p=0.203).

Conclusion and Recommendations: Bidis are the preferred form of tobacco among PTB patients in this cohort in southern India. Initial univariate analyses suggest that PTB patients who smoke are more likely to have more severe lung disease on CXR; the effects were particularly notable for bidi smokers. Additional multivariate analyses are ongoing to control for potential confounders.

TITLE: Wood Fuel Usage Is Associated with a Higher Leukocyte Count in Pulmonary Tuberculosis Patients

Authors: Eisenberg RE, Mowry WB, Sahu S, Roy G, Ellner JJ, Pleskunas J, Amsaveni S, Sarkar S, Hochberg NS, Reddy D

Background: Toxic environmental exposures such as wood fuel and tobacco smoke have been associated with neutrophil dysfunction. Studies also suggest an association between neutrophils and tuberculosis (TB) pathology, higher bacterial burden, and more extensive lung destruction. This study aims to looks at the effect of wood fuel use on leukocyte counts in pulmonary tuberculosis (PTB) patients.

Methods: Data from newly diagnosed, culture-confirmed, HIV-uninfected PTB cases enrolled in the Regional Prospective Observational Research for TB (RePORT) cohort in Puducherry and Tamil Nadu, India were

analyzed. Standardized questionnaires were used to obtain demographic and socioeconomic data at enrollment; complete blood counts were measured. The main outcomes of interest were total leukocyte, absolute neutrophil and lymphocyte count. T-tests and Pearson's chi-squared tests were used to compare groups. Linear regression and logistic regression were used to adjust for potential confounders including age, sex, poverty, crowding, location of care, tobacco and alcohol use, and duration of illness.

Results: Of 344 PTB patients with household data, 262 (76%) were male and the median age was 44 years (range 14 —77). 166/344 (48%) used wood fuel for cooking. Compared to non-wood fuel users, wood fuel users had a significantly higher leukocyte count (mean: 10,981 vs 10,014; p = 0.01) and this association remained significant after adjusting for potential confounders (mean difference: 795 ± 392; p = 0.04). Wood fuel users had a higher proportion of high (vs. normal) absolute neutrophil count (91% vs. 83%; p = 0.03) compared to non-wood fuel users and this association was borderline significant (OR 1.95; 95%CI 0.98-3.85; p = 0.056) with adjustment.

Conclusion: Wood fuel usage in PTB patients is associated with a significantly higher leukocyte count and borderline significant higher absolute neutrophil count. Further studies looking at the mechanism behind this association and its effect on PTB severity are underway.

POSTER 12: Effect of Anti-tuberculosis Treatment on the Systemic Levels of Tissue Inhibitors of Metalloproteinases in Tuberculosis–Diabetes Co-morbidity

Authors: Moideen K, Viswanathan V, Shruthi BS, Sivakumar S, Menon PA, Kornfeld H, Babu S, Kumar NP

Background: Matrix metalloproteinases (MMPs) are considered to be key mediators of tuberculosis (TB) pathology and tissue inhibitors of metalloproteinases (TIMPs) facilitate the remodeling and repair of tissue following destruction by MMPs but their role in tuberculosis – diabetes comorbidity (TB-DM) is not well understood. We have previously described elevation of TIMP levels in TB-DM and hence in this study sought to evaluate the effect of anti-TB treatment on TIMP levels in TB-DM.

Methods: The systemic levels of TIMP 1, 2, 3, 4 were measured by multiplex ELISA in individuals with either TB alone or TB-DM at baseline and at 6 months of anti-TB treatment.

Results: Circulating levels of TIMP 1, 3, 4 were significantly higher in TB-DM compared to TB at baseline and 6 months post treatment. Moreover, the levels of TIMP 1, 3, 4 were significantly higher in TB-DM individuals with bilateral and cavitary disease and also exhibited a significant positive relationship with bacterial burdens at baseline. Moreover, TIMP 3 and 4 levels exhibited a positive relationship with HbA1c levels. In addition, among the TB-DM group, individuals with a known history of DM (KDM) displayed enhanced levels of TIMP 1, 2, 3 and 4 compared to newly diagnosed DM (NDM) at baseline. Finally, known diabetic patients who are taking metformin treatment showed decreased levels of TIMP 1, 2 and 4 at baseline compared to patients who are on non-metformin anti –DM drugs.

Conclusions: Therefore, our results imply that TIMP upregulation is a characteristic feature of TB-DM and more specifically, TB with known history of DM, perhaps as a response to MMP upregulation. Our data also suggest that MMP inhibition or promoting TIMP function might be a useful host directed therapy (HDT) in TB-DM patients.

POSTER 13: Effect of Standard Tuberculosis Treatment on Circulating Levels of Monocyte Activation Markers and RAGE Ligands in Tuberculosis-diabetes Co-morbidity

Authors: Kumar NP, Moideen K, Viswanathan V, Shruthi BS, Sivakumar S, Menon PA, Kornfeld H, Babu S

Background: Type 2 diabetes mellitus (DM) is a major risk factor for the development of active pulmonary tuberculosis (PTB), However, the effect of anti-TB treatment (ATT) on monocyte activation markers and RAGE ligands in TB-DM co-morbidity is not well understood. We have previously shown an effect of anti-TB treatment on the circulating levels of monocyte subsets in TB DM comorbidity. Hence, we wanted to examine the association of monocyte activation markers and RAGE ligands in TB-DM comorbidity.

Methods: To identify the influence of DM on circulating monocyte activation markers and RAGE ligands in TB disease, ELISA was performed to examine the systemic levels of monocyte activation markers - sCD14, sCD163, C-reactive protein(CRP), soluble tissue factor(sTF) and RAGE ligands - soluble receptor for advanced glycation end product(sRAGE), advanced glycation end products(AGE), S100A12 and high mobility group protein B1(HMGB-1) in TB patients with DM(TB-DM) and without DM(TB-NDM) at baseline and at 2nd and 6th month of ATT.

Results: TB-DM is characterized by elevated levels of monocyte activation markers, sCD14, sCD163, CRP and sTF in comparison to TB Non-DM before, during and after completion of ATT. Similarly, TB-DM is characterized by elevated levels of RAGE ligands, AGE, sRAGE, S100A12 but not HMGB-1 in comparison to TB-NDM before, during and after completion of ATT. Finally, TB-DM is characterized increased levels of sCD14, sCD163 and AGE and decreased levels of CRP and S100A12 were observed at the successful completion of ATT. Among the monocyte activation markers and RAGE ligands, only sCD14, CRP and sRAGE exhibited a highly significant area under the curve during ROC calculations to discriminate TB-DM from TB-NDM.

Conclusion: Our data demonstrate that TB-DM is associated with heightened levels of monocyte activation and RAGE ligands, indicating an association with disease severity and potentially contributing to increased immune pathology in tuberculosis-diabetes co-morbidity.

POSTER 14: Impact of Metformin Use on TB Severity in Diabetes

Authors: Shruthi BS, Liu J, Kumar NP, Babu S, Sivakumar S, Menon PA, Sathyavani K, Kornfeld H, Viswanathan V

Background: Diabetes mellitus (DM) is a major TB risk factor, with South India among the most affected regions. The anti-diabetic drug metformin has been studied as an adjuvant therapy for TB based on its immunomodulatory activity. Among EDOTS study participants reporting DM history at enrolment, DM treatment data is available. We aim to compare TB disease severity at presentation and response to TB treatment in diabetic participants treated with metformin vs non-metformin regimens. Data collection is ongoing with final analysis pending. Here we present preliminary findings.

Methods: Data will be obtained from EDOTS study participants with DM diagnosed prior to incident TB, classified as self-reported metformin users or non-users. Baseline variables including HbA1c, symptom score, sputum score and radiographic severity score will be compared. Treatment response will be assessed by time to sputum conversion, change in radiographic score, TB treatment outcome and TB recurrence within 12 months. Linear regression models will be used to compare the differences in TB outcomes by metformin use status, with and without adjustment for covariates.

Results and Conclusion: Preliminary analysis of baseline data from 133 eligible diabetic participants identified 87 (65%) as metformin-users. There were no significant differences in median HbA1c, BMI, demographic or

lifestyle characteristics between metformin-users and non-users. This suggests that major potential confounders will not seriously limit interpretation once longitudinal data are available from all participants. Preliminary comparison of baseline chest X-rays showed no difference in median severity score or lung cavitation by metformin use status. Preliminary results suggest no benefit of metformin on baseline TB severity. Final results, when available, will reveal any differences in treatment response or outcomes in diabetic participants attributable to metformin exposure prior to incident TB. A negative outcome would not necessarily predict the results of a randomized, prospective clinical trial in diabetic or non-diabetic TB patients.

POSTER 15: Risk Factors Associated with Unfavorable Outcomes in a Cohort of Pulmonary TB Patients

Authors: Dhanasekaran K, Chandrasekaran P, Paradkar M, Marinaik SB, Gupte A, Dolla CK, Joseph B, Subramanyam B, Sivaramakrishnan GR, Thiruvengadam K, Gupte N, Rajagopal S, Pradhan N, Selvaraju S, Kulkarni V, Hannah LE, Nayakam R, Suryavanshi N, Shivakumar SVBY, Mave V, Thomas B, Bharadwaj R, Gaikwad S, Meshram S, Lokhande R, Kinikar A, Daware R, Murali L, Swaminathan S, Gupta A

Background: India accounts for 25%of the global tuberculosis (TB) burden. Vaccines for treatment shortening, prevention of recurrence require precise estimates of treatment failure, death and recurrence to adequately power clinical trials. We sought to determine prevalence of these outcomes and risk factors associated with treatment failure in a cohort of pulmonary TB (PTB) patients.
Methods: C-TRIUMPH is a multi-centric, prospective ongoing study enrolling drug-sensitive PTB patients with 24 months of follow-up post-treatment initiation. Outcomes are defined as-Confirmed failure -Positive on 2 cultures (MGIT or LJ) at 6 months; Probable failure –1positive culture and symptomatic; Possible failure-Positive on culture/smear but asymptomatic; Cure-2successive culture negatives; Treatment complete-1culture negative and no subsequent cultures. Death, recurrence were also documented. Uni variable and multi variable Poisson regression was performed to assess factors associated with treatment failure in PTB patients

Results: Of 476 enrolled, the characteristics were: median age 32, (61%) male, (31%) diabetic or (24%) pre-diabetes, (6%) HIV infected, 25%smokers, 24% with alcohol dependence (AUDIT scale>8), (64%) with BMI<18.5, (41%) with cavity and 59% with smear positive. (86%) had favorable outcome & (14%) treatment failure (23% confirmed, 58% probable, 19% possible), 20(4%) recurrence/relapse, (4%) deaths. Excluding the possible failure, Alcoholics (aRR1.88, 95%CI: 1.06-3.33), smokers (RR2.52, 95%CI: 1.43–4.42), low BMI (aRR2.45, 95%CI: 1.19–5.05) culture positivity at baseline with high smear grade (RR6.83, 95% CI: 2.13–21.91) had a higher risk of failing treatment

Conclusion: Smoking, alcohol use, malnutrition, and anemia play pivotal role in emergence of failures. Early diagnosis and nutrition supplement for undernourished will decrease failure. Counseling and intervention for smokers and alcoholics will enhance successful outcomes in Management of TB.

POSTER 16: Title: Implications of Acetylator Genotype on Plasma Rifampicin and Isoniazid Levels

Authors: Chawla PK, Lokhande RV, Naik PR, Dherai AJ, Udwadia ZF, Mahashur AA, Soman R, Patel J, TF Ashavaid

Background: Rifampicin(Rif) and Isoniazid(Inh) exhibit wide inter-individual variability. Factors like inadequate absorption, inaccurate dosing(as per mg/kg), drug–drug interactions or acetylator status of the individual etc. may interfere with drug exposure thus altering the bioavailability of these drugs. The present study aims to assess plasma Rif and Inh levels & correlate them with the human acetylator status and other factors contributing to sub-optimal levels.

Methods: In-house validated HPLC methods were used for plasma Rif and Inh level estimation. Allelic variants from human NAT2 gene(*4,*6,*11, *12 and*13)were genotyped by conventional PCR. Detailed clinical & drug history was obtained from 168 clinically proven Rif susceptible TB patients.

Results: Among the study population, 100 patients(59%) had Rif levels in the sub-therapeutic range while 2 patients(1%) had toxic levels. Isoniazid levels observed in 107 patients showed a sub-optimal & variable trend with 34 patients(33%) having sub-therapeutic levels & 24 patients(23%) had toxic levels. Among the NAT2 polymorphisms available for 75 patients so far, about 45%(n=34) were slow acetylators(carriers of NAT2*6 allele) & 39%(n=29) were intermediate acetylators(carriers of *11, *12 & *13 alleles) while remaining 16%(n=12) were rapid acetylators. Most of the slow acetylators had isoniazid levels at a higher side as compared to the intermediate and rapid acetylators. Plasma rifampicin levels were inversely proportional to the acetylator status. Thus most rapid acetylators had high rifampicin and low isoniazid levels.

Conclusions: Sub-optimal levels of rifampicin and isoniazid are common and warrant attention. A high prevalence of slow or intermediate acetylators suggests the importance of assessment of NAT2 gene polymorphisms prior to dose initiation. Monitoring drug levels is necessary to optimize drug doses & achieve therapeutic efficacy & desired patient outcome.
Recommendations: Therapeutic Drug Monitoring of Rifampicin and isoniazid is recommended in all slow responders. Determination of acetylator status before treatment will help clinicians titre isoniazid doses.

POSTER 17: Title: Linezolid Experience Among MDR-TB Patients in Mumbai

Authors: Tornheim JA, Ganatra S, Deluca A, Banka R, Rodrigues C, Gupta A, Udwadia ZF

Background and Rationale: India has 25% of the world's tuberculosis. Mumbai is home to 12% of India's cases that are resistant to rifampin and isoniazid (MDR-TB), but they are often resistant to standard treatment. Linezolid (LZD) resistance is rare, but toxicity limits widespread use.

Methods: From October 2015–November 2016, MDR-TB patients were recruited from a Mumbai chest clinic for a prospective cohort. Medical history and side-effects were evaluated by structured questionnaires. Odds ratios (ORs) and differential time to culture conversion were determined by logistic regressions and t-tests.

Results: Of 286 participants, 105 had LZD resistance testing, and 3 (1%) were resistant to LZD. LZD was prescribed to 147 (51.4%) participants, and 112 (76.2%) of those still take LZD. Most received 600mg daily (56.8%) or 300mg daily (37.1%). Mean duration of LZD was 166.3 days (8-722 days), at a mean daily dose of 12.2mg/kg (4.5-26.6mg/kg) and a mean cumulative dose of 102g (7.2–903.6g). 40 participants reported neuropathy (27.3%), which was associated with duration of LZD (OR 1.13/month, p=0.046) but not cumulative dose or dose per kg. Daily dose per kg was associated with a trend towards anemia (OR 1.1 per mg/kg, p=0.124). Participants taking >10mg/kg had higher odds of anemia (OR 2.1, p-0.096). Treatment duration and cumulative dose/kg had small associations with time to culture conversion (R-squared: 0.27, p=0.007 and 0.186, p=0.031, respectively). Higher doses (>10mg/kg or >15mg/kg) were not associated with faster culture conversion.

Conclusions and Recommendations: LZD has an increasing role in MDR-TB due to infrequent resistance. Treatment approaches that maximize efficacy and minimize toxicity are urgently needed.

Publications

PARENT & COMMON PROTOCOLS

RePORT India

7TH ANNUAL JOINT LEADERSHIP MEETING

CATALYZING DISCOVERIES TOWARD TB ELIMINATION

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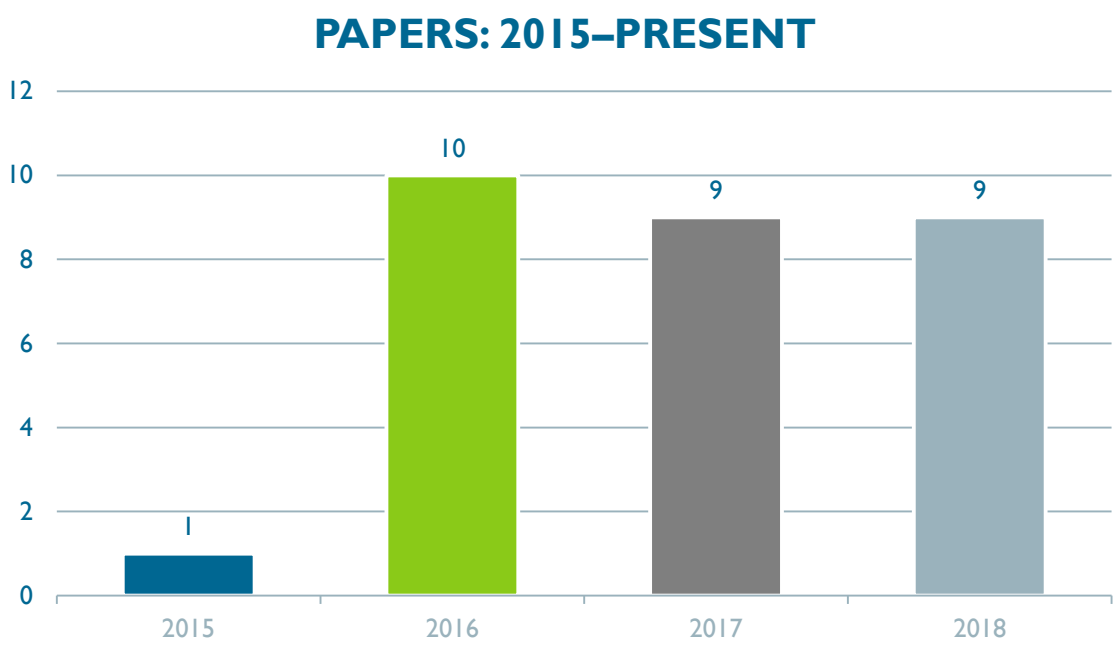

RePORT India Consortium

RePORT International: Advancing Tuberculosis Biomarker Research through Global Collaboration
Hamilton CD, Swaminathan S, Christopher DJ, Ellner J, Gupta A, Sterling TR, Rolla V, Srinivasan S, Karyana M, Siddiqui S, Stoszek SK, Kim P. Clinical Infectious Diseases (CID).2015 October 15; 61(Suppl 3): S155–S159.
PubMed: http://www.ncbi.nlm.nih.gov/pubmed/26409277

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- Indian Council of Medical Research and Department of Health Research, Government of India
- Pulmonary Medicine, Christian Medical College, Vellore, India
- School of Medicine, Boston University, MA, USA
- School of Medicine, Johns Hopkins University, Baltimore, MD, USA
- Department of Medicine, Division of Infectious Diseases, Vanderbilt University School of Medicine, Nashville, TN, USA
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- Division of AIDS, National Institute of Allergy and Infectious Diseases, National Institutes of Health
- Collaborative Clinical Research Branch, Division of Clinical Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health
- The National Institute of Research and Development, Indonesia Ministry of Health, Jakarta, Indonesia
- Collaborative Clinical Research Branch, Division of Clinical Research, National Institute of Allergy and Infectious Diseases, National Institutes of Health
- Health Studies Sector, Westat, Rockville, MD, USA

Bhagwan Mahavir Medical Research Centre/LEPRA Society/University of Texas Health Science Center at Tyler (CRU 107)

1. **Defective MyD88 and IRAK4 but not TLR-2 expression in HIV+ individuals with latent tuberculosis infection**
   Devalraju KP, Neela VSK, Gaddam R, Chaudhury A, Van A, Krovvidi SS, Vankaylapati R, Valluri VL. (Cytokine. Revision.)

2. **IL-17 and IL-22 production in HIV+ individuals with latent and active tuberculosis**
   Devalraju KP, Neela VSK, Ramaseri SS, Van A, Chaudhury A, Krovvidi SS, Vankayalapati R, Valluri VL. *BMC* (Infectious Diseases. Revision.)

3. **Alcohol enhances type 1 interferon-α production and mortality of young mice infected with Mycobacterium tuberculosis**
   Tripathi D, Welch E, Cheekatla SS, Radhakrishnan R, Venkatasubramanian S, Paidipally P, Van A, Samten B, Devalraju P, Neela V, Valluri V, Mason C, Nelson S and Vankayalapati R. (Mucosal Immunology, under review).

4. **IL-21 regulates NK cell responses during Mycobacterium tuberculosis infection**
   Paidipally P, Tripathi D, Van A, Radhakrishnan R, Dhiman R, Venkatasubramanian S, Devalraju K, Tvinnereim A, Valluri V, Vankayalapati R. (J Infect Dis, in press).

5. **IL-21-dependent expansion of memory-like NK cells enhances protective immune responses against Mycobacterium tuberculosis**
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   PubMed: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5462891/

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   - [2]Department of Immunology, M. D. Anderson Cancer Center, Houston, Texas, USA

6. **A TLR9 agonist promotes IL-22-dependent pancreatic islet allograft survival in type 1 diabetic mice**
   Tripathi D, Venkatasubramanian S, Cheekatla SS, Paidipally P, Welch E, Tvinnereim AR, Vankayalapati R. Nat Commun. 2016 Dec 16;7:13896. doi: 10.1038/ncomms13896.
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/27982034

   Collaborating Organizations:
   - Department of Pulmonary Immunology, Center for Biomedical Research, University of Texas Health Science Center at Tyler, Tyler, Texas, USA

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   Cheekatla SS, Tripathi D, Venkatasubramanian S, Nathella PK, Paidipally P, Ishibashi M, Welch E, Tvinnereim AR, Ikebe M, Valluri VL, Babu S, Kornfeld H, Vankayalapati R. PLoS Pathog. 2016 Oct 26;12(10):e1005972. doi: 10.1371/journal.ppat.1005972. eCollection 2016.
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/27783671

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- Department of Medicine, University of Massachusetts Medical School, Worcester, MA, USA

Byramjee Jeejeebhoy Medical College (BJGMC)/ National Institute for Research in Tuberculosis (NIRT)/ Johns Hopkins University (JHU) (CRU 106 & 105)

1. **Diabetes and Prediabetes among Household Contacts of TB Patients in India: Is it time to screen them all?**
   Shivakumar SVBY, Chandrasekaran P, Kumar AMV, Paradkar M, Dhanasekaran K, Suryavarshini N, Thomas B, Kohli R, Thiruvengadam K, Kulkarni V, Hannah LE, Gomathy NS, Pradhan N, Dolla C, Gupte A, Ramachandran G, DeLuca A, Meshram S, Bhardawaj R, Bollinger RC, Golub J, Selvaraj K, Gupte N, Swaminathan S, Mave V, Gupta A for the CTRIUMPH- RePORT India Study Team. (Accepted for publication in Int J Tuberc Lung Dis 01/12/18.)

2. **Sources of household air pollution and their association with fine particulate matter in low-income urban homes**
   Elf J, Kinikar A, Khadse S, Mave V, Suryvavanshi N, Gupte N, Kulkarni V, Patekar P, Raichur P, Breysse P, Gupta A, Golub J. (Accepted for publication in J Exposure Sci Environmental Epidemiol 12/18/17.)

3. **Secondhand smoke exposure and validity of self-report in low-income women and children in India**
   Elf J, Kinikar A, Khadse S, Mave V, Gupte N, Kulkarni V, Patekar V, Raichur P, Cohen J, Breysse PN, Gupta A, Golub JE. Pediatrics. 2018 Jan; 141 (Suppl 1): S118-S129. doi: 10.1542/peds.2017-1026O
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/29292312

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   - Department of Pediatrics, Sassoon General Hospital and Byramjee Jeejeebhoy Medical College, Pune, India
   - Bloomberg School of Public Health, Johns Hopkins University, Baltimore, MD, USA

4. **Isoniazid concentrations in hair and plasma area-under-the-curve exposure among children with tuberculosis**
   Mave V, Kinikar A, Kagal A, Nimkar S, Koli H, Khwaja S, Bharadwaj R, Gerona R, Wen A, Ramachandran G, Kumar H, Bacchetti P, Dooley KE, Gupte N, Gupta A, Gandhi M. PLoS One. 2017 Dec 7;12(12):e0189101. doi: 10.1371/journal.pone.0189101.
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/29216273

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5. **Prevalence of dysglycemia and clinical presentation of pulmonary tuberculosis in Western India**
   Mave V, Meshram S, Lokhande R, Kadam D, Dharmshale S, Bharadwaj R, Kagal A, Pradhan N, Deshmukh S, Atre S, Sahasrabudhe T, Barhwal M, Meshram S, Kakrani A, Kulkarni V, Raskar S, Suryavanshi N, Shivakoti R, Chon S, Selvin E, Gupte A, Gupta A, Gupte N, Golub J. Int J Tuberc Lung Dis. 2017 Dec 1;21(12):1280-1287. doi: 10.5588/ijtld.17.0474
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/29297449

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   - Johns Hopkins University School of Medicine, Baltimore, MD, USA
   - Dr D Y Patil Medical College, Pune, India
   - Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

6. **Isoniazid hair concentrations in children with tuberculosis: a proof of concept study**
   Mave V, Chandanwale A, Kinikar A, Khadse S, Kagal A, Gupte N, Suryavanshi N, Nimkar S, Koli H, Khwaja S, Bharadwaj R, Joshi S, Horng H, Benet LZ, Ramachandran G, Dooley KE, Gupta A, Gandhi M. Int J Tuberc Lung Dis. 2016 Jun; 20(6): 844–847.doi: 10.5588/ijtld.15.0882
   PubMed: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4889729/

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   - University of California, San Francisco, CA, USA
   - National Institute of Research in Tuberculosis, Chennai, India

7. **Cohort for Tuberculosis Research by the Indo-US Medical Partnership (CTRIUMPH): protocol for a multicentric prospective observational study**
   Gupte A, Padmapriyadarsini C, Mave V, Kadam D, Suryavanshi N, Shivakumar SVBY, Kohli R, Gupte N, Thiruvengadam K, Kagal A, Meshram S, Bharadwaj R, Khadse S, Ramachandran G, Hanna LE, Pradhan N, Gomathy NS, DeLuca A, Gupta A, Swaminathan S; CTRIUMPH Study Team. BMJ Open 2016 Feb 25;6(2):e010542.
   PubMed: http://www.ncbi.nlm.nih.gov/pubmed/26916698

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   - Byramjee Jeejeebhoy Government Medical College, Pune, Maharashtra, India
   - Indian Council of Medical Research, New Delhi, India

Christian Medical College, Vellore (CMC-Vellore)/University of Cambridge-University of Washington (CRU 101)

1. **Thoracoscopic pleural biopsy improves yield of Xpert MTB/RIF for diagnosis of pleural tuberculosis.**
   Christopher DJ, Dinakaran S; Gupta, R; James P; Isaac B, Thangakunam B. (Accepted for publication in Respirology 01/18.)

Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER)/Boston Medical Center (BMC) (CRU 102)

1. **Existing blood transcriptional classifiers accurately discriminate active tuberculosis from latent infection in individuals from South India**
   Leong, S, Yue Zhao, Joseph NM, Hochberg NS, Sarkar S, Pleskunas J, Hom D, Lakshminarayanan S, Horsburgh Jr, CR, Roy G, Ellner JJ, Johnson WE, Salgame, P. (Accepted for publication in Tuberculosis 01/18).

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   - Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, India
   - Boston Medical Centre, Boston, MA, USA
   - Boston University, School of Public Health, Boston, MA, USA
   - Department of Biostatistics, Boston University, Boston, MA, USA

2. **Comorbidities in pulmonary tuberculosis cases in Puducherry and Tamil Nadu, India: Opportunities for intervention**
   Hochberg NS, Sarkar S, Horsburgh, Jr, CR, Knudsen S, Pleskunas J, Sahu S, Kubiak RW, Govindarajan S, Salgame P, Lakshminarayanan S, Sivaprakasam A, White LF, Joseph NM, Ellner JJ, Roy G. PLoS One. 2017; 12(8): e0183195.
   PubMed: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5568341

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   - Boston University School of Public Health, Boston, MA, USA
   - Boston Medical Center, Boston, MA, USA
   - Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry, India
   - Government Chest Clinic, Puducherry, India
   - Rutgers University, Newark, New Jersey, USA

3. **Predictors of delay to accessing care among tuberculosis patients in southern India. (Predictors of delayed care seeking for tuberculosis in Southern India: an observational study)**
   Van Ness SE, Chandra A, Sarkar S, Pleskunas J, Ellner JJ, Roy G, Lakshminarayanan S, Sahu S, Horsburgh Jr CR, Jenkins HE, Hochberg NS. BMC Infect Dis. 2017 Aug 15;17(1):567. doi: 10.1186/s12879-017-2629-9.
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/28806911

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   - Boston University School of Medicine, Boston, MA, USA
   - Boston University School of Public Health, Boston, MA, USA

4. **Advances in basic and translational tuberculosis research proceedings of the first meeting of RePORT international**
   Geadas C, Stoszek SK, Sherman D, Andrade BB, Srinivasan S, Hamilton CD, Ellner J. Tuberculosis (2016), doi: 10.1016/j.tube.2016.11.006
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/28061953

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- Center for Infectious Disease Research, Seattle, Washington, USA
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- Division of AIDS, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, MD, USA
- Scientific Affairs, Global Health, Population and Nutrition, FHI 360
- Department of Medicine, Division of Infectious Diseases, Duke University, School of Medicine, Durham, North Carolina, USA

MV Diabetes Research Centre – NIRT-NIH-ICER /University of Massachusetts (CRU 103)

1. **Heightened circulating levels of antimicrobial peptides in tuberculosis-diabetes co-morbidity and reversal upon treatment**
   Kumar NP, Moideen K, Viswanathan V, Sivakumar S, Menon PA, Kornfeld H, Babu S. PLoS One. 2017 Sep 14;12(9):e0184753. doi: 10.1371/journal.pone.0184753. eCollection 2017.
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/28910369

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   - National Institute for Research in Tuberculosis, Chennai, India
   - University of Massachusetts Medical School, Worcester, MA, USA
   - LPD, NIAID, NIH, Bethesda, MA, USA

2. **Systems immunology of diabetes tuberculosis comorbidity reveals signatures of disease complications**
   Prada-Medina CA, Fukutani KF, Kumar NP, GilSantana L, Babu S, Lichtenstein F, West K, Sivakumar S, Menon PA, Viswanathan V, Andrade BB, Nakaya HI, Kornfeld H. Sci Rep. 2017 May 17;7(1):1999. doi: 10.1038/s41598-017-01767-4.
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/28515464

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   - Unidade de Medicina Investigativa, Laboratório Integrado de Microbiologia e Imunorregulação, Instituto Gonçalo Moniz, Fundação Oswaldo Cruz, Salvador, Brazil
   - Multinational Organization Network Sponsoring Translational and Epidemiological Research, Instituto Brasileiro para a Investigação da Tuberculose, Fundação José Silveira, Salvador, Brazil
   - Curso de Medicina, Faculdade de Tecnologia e Ciências, Salvador, Brazil
   - Department of Medicine, University of Massachusetts Medical School, Worcester, MA, USA
   - National Institute for Research in Tuberculosis, Chennai, India
   - Prof. M. Viswanathan Diabetes Research Center, Chennai, India
   - Universidade Salvador (UNIFACS), Laureate Universities, Salvador, Brazil
   - Division of Infectious Diseases, Department of Medicine, Vanderbilt University School of Medicine, Nashville, TN, USA

3. **Defining a research agenda to address the converging epidemics of tuberculosis and diabetes. Part 2: Underlying biological mechanisms**
Ronacher K, van Crevel R, Critchley J, Bremer A, Schlesinger LS, Kapur A, Basaraba R, Kornfeld H, Restrepo BI. Chest. 2017 Jul;152(1):174-180. doi: 10.1016/j.chest.2017.02.032. Epub 2017 Apr 20.
PubMed: https://www.ncbi.nlm.nih.gov/pubmed/28434937

Collaborating Organizations:
- Mater Research Institute-The University of Queensland, Translational Research Institute,
- Woolloongabba, Queensland, Australia
- Department of Science and Technology/National Research Foundation Centre of Excellence for Biomedical TB Research/Medical Research Council Centre for Molecular and Cellular Biology, Division of Molecular Biology and Human Genetics, Faculty of Medicine and Health Sciences, Stellenbosch University, Tygerberg, South Africa
- Department of Internal Medicine, Radbourd University Medical Center, Nijmegen, the Netherlands
- Population Health Research Institute, St George's, University of London, UK
- Division of Diabetes, Endocrinology, and Metabolic Diseases, National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, Bethesda, MD, USA
- Department of Microbial Infection & Immunity, The Ohio State University, Ohio, USA
- World Diabetes Foundation, Copenhagen, Denmark
- Department of Microbiology, Immunology and Pathology, Colorado State University, Colorado, USA
- Department of Medicine, University of Massachusetts Medical School, USA
- University of Texas Health Science Center Houston, School of Public Health, Brownsville Campus, Texas, USA

4. **Defining a research agenda to address the converging epidemics of tuberculosis and diabetes. Part 1: Epidemiology and clinical management**
Critchley JA, Restrepo BI, Ronacher K, Kapur A, Bremer AA, Schlesinger LS, Basaraba R, Kornfeld H, van Crevel R. Chest. 2017 Jul;152(1):165-173. doi: 10.1016/j.chest.2017.04.155. Epub 2017 Apr 20.
PubMed: https://www.ncbi.nlm.nih.gov/pubmed/28434936

Collaborating Organizations:
- Population Health Research Institute, St George's, University of London, UK
- University of Texas Health Science Center Houston, School of Public Health, Brownsville
- Campus, Texas, USA
- Mater Research Institute – The University of Queensland, Translational Research Institute, Woolloongabba, Queensland, Australia
- World Diabetes Foundation, Copenhagen, Denmark
- Division of Diabetes, Endocrinology, and Metabolic Diseases, National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, Bethesda, MD, USA
- Department of Microbial Infection & Immunity, The Ohio State University, Ohio, USA
- Department of Microbiology, Immunology and Pathology, Colorado State University, Colorado, USA
- Department of Medicine, University of Massachusetts Medical School, USA
- Department of Internal Medicine, Radbourd University Medical Center, Nijmegen, the Netherlands

5. **Tuberculosis-diabetes co-morbidity is characterized by heightened systemic levels of circulating angiogenic factors**
Kumar NP, Moideen K, Sivakumar S, Menon PA, Viswanathan V, Kornfeld H, Babu S. J Infect. 2017 Jan;74(1):10-21. doi: 10.1016/j.jinf.2016.08.021. Epub 2016 Oct 4.
PubMed: https://www.ncbi.nlm.nih.gov/pubmed/27717783

Collaborating Organizations:
- National Institutes of Health-NIRT-International Center for Excellence in Research, Chennai, India
- Prof. M. Viswanathan Diabetes Research Center, Chennai, India
- University of Massachusetts Medical School, Worcester, MA, USA
- LPD, NIAID, NIH, MD, USA

6. **Modulation of dendritic cell and monocyte subsets in tuberculosis- diabetes co-morbidity upon standard tuberculosis treatment**
   Kumar NP, Moideen K, Sivakumar S, Menon PA, Viswanathan V, Kornfeld H, Babu S. Tuberculosis (Edinb). 2016 Dec; 101:191-200. doi: 10.1016/j.tube.2016.10.004. Epub 2016 Oct 11.
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/27865391

   Collaborating Organizations:
   - National Institutes of Health NIRT International Center for Excellence in Research, Chennai, India
   - Prof. M. Viswanathan Diabetes Research Center, Chennai, India
   - National Institute for Research in Tuberculosis, Chennai, India
   - University of Massachusetts Medical School, Worcester, MA, USA
   - LPD, NIAID, NIH, MD, USA

7. **High prevalence and heterogeneity of diabetes in patients with TB in South India: A report from the Effects of Diabetes on Tuberculosis Severity (EDOTS) Study**
   Kornfeld H, West K, Kane K, Kumpatla S, Zacharias RR, Martinez-Balzano C, Li W, Viswanathan V. Chest. Volume 149, Issue 6, June 2016, Pages 1501–1508.
   PubMed: http://www.ncbi.nlm.nih.gov/pubmed/26973015

   Collaborating Organizations:
   - University of Massachusetts Medical School, Worcester, MA, USA
   - Prof. M. Viswanathan Diabetes Research Center, Royapuram, India

8. **Effect of standard tuberculosis treatment on naive, memory and regulatory T-cell homeostasis in tuberculosis-diabetes co-morbidity**
   Kumar NP, Moideen K, Viswanathan V, Kornfeld H, Babu S. Immunology. 2016 Sep;149(1):87-97. doi: 10.1111/imm.12632. Epub 2016 Jul 26.
   PubMed: https://www.ncbi.nlm.nih.gov/pubmed/27289086

   Collaborating Organizations:
   - National Institutes of Health - NIRT - International Centre for Excellence in Research, Chennai, India
   - Prof. M. Viswanathan Diabetes Research Centre, Chennai, India
   - University of Massachusetts Medical School, Worcester, MA, USA
   - Laboratory of Parasitic Diseases, National Institute of Allergy and Infectious Diseases, NIH, Bethesda, MD, USA

Lectures & Presentations

RePORT India

7TH ANNUAL JOINT LEADERSHIP MEETING

CATALYZING DISCOVERIES TOWARD TB ELIMINATION

NEW DELHI | 15–17 FEB 2018

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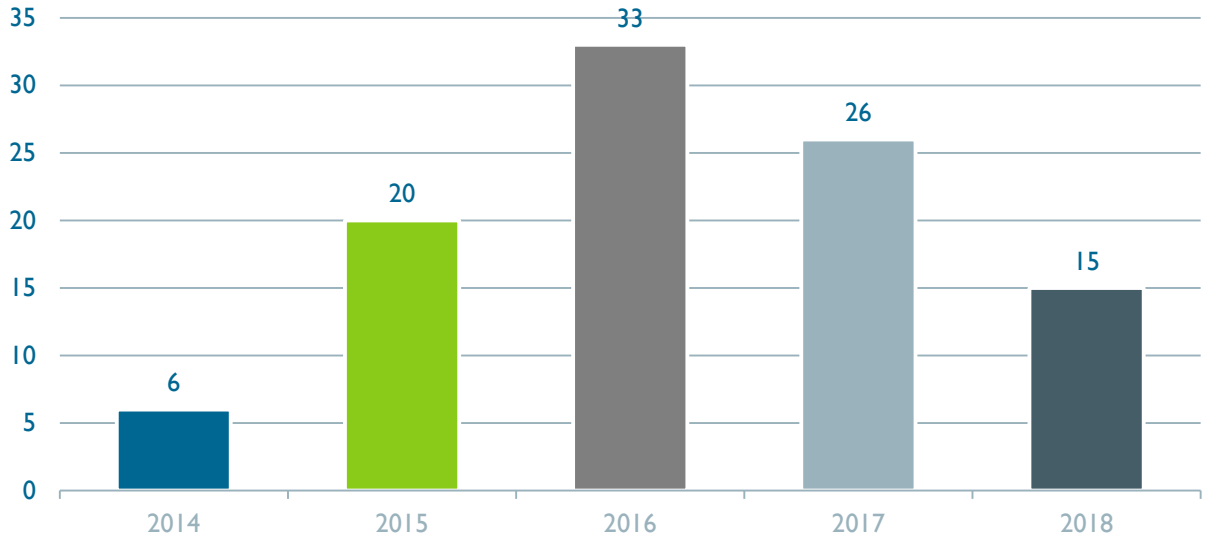
LECTURES & PRESENTATIONS: 2013–JAN 2018



RePORT India Consortium

LECTURE

- Gupta A. An Overview of the RePORT India Consortium. Presented at: Annual IeDEA Meeting; National Institutes of Health; June 22, 2016; Rockville, MD, USA.

PRESENTATION

- Hamilton CD, Ellner J, Swaminathan S, Christopher D, Gupta A, Sterling T, Rolla VC, Stoszek S. Regional Prospective Observational Research for Tuberculosis (RePORT) Consortia using a Common Protocol to Collect Specimens for Biomarker Research. Poster presented at: 45th Union World Conference on Lung Health of the International Union Against TB and Lung Disease; October 28-November 1, 2014; Barcelona, Spain.

Bhagwan Mahavir Medical Research Centre (BMMRC)/LEPRA Society/ University of Texas Health Science Center at Tyler

PRESENTATIONS

- Devalraju KP, Neela VSK, Chaudhury A, Vankayalapati R, Valluri VL. NK cells and Memory-like NK Cells as Immunological Markers of Protection against Latent TB Conversion in Household Contacts of TB Patients. Accepted for oral presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

Category Definitions

- **LECTURE:** Individual presentation on topic or field of expertise
- **PRESENTATION:** Multiple authors, includes poster and oral abstract discussions

- Neela VSK, Devalraju KP, Sumnalatha G, Chowdary A, Ansari MS, Vankayalapati R, Valluri VL. CD14+ CD16+ Cells as Immunological Marker for Protection in Household Contacts with Latent Tuberculosis Infection. Accepted for poster presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

- Devalraju KP. Identify Potential Biomarkers for Development of Latent Tuberculosis Infection (LTBI) by Longitudinal Follow-Up of HHC's of TB Patients. Presented at: RePORT International 2016 Meeting; July 14-15, 2016.

- Cheekatla SS, Tripathi D, Venkatasubramanian S, Nathella PK, Paidipally P, Ishibashi M, Welch E, Tvinnereim AR, Mitsuo I, Babu S, Kornfeld H, Vankayalapati R. NK-DC Crosstalk in Diabetes Enhances Il-6 Mediated Inflammation during Tuberculosis Infection. Poster presented at: Keystone Symposium on Tuberculosis Co-Morbidities and Immunopathogenesis (B6); February 28-March 3, 2016; Keystone, CO, USA.

- Venkatasubramanian S, Paidipally P, Cheekatla SS, Welch E, Raghunath A, Tvinnereim AR, Nurieva R, Barnes PF, Vankayalapati R. IL-21 Dependent Expansion of Memory-like NK Cells Enhances Protective Immune Responses against *Mycobacterium tuberculosis.* Presented at: NK 2015—15th Meeting of the Society for Natural Immunity; May 2-6, 2015; Montebello, Canada.

Byramjee Jeejeebhoy Medical College (BJMC)/National Institute for Research in Tuberculosis (NIRT)/Johns Hopkins University (JHU)

LECTURES

- Chandrasekaran P, TB Research in India. Presented at: 1st BRICS TB Research Network Meeting. September 14-15, 2017, Rio de Janeiro, Brazil.

- Chandrasekaran P. Ongoing Research and Research Priorities for India on LTBI. Presented at: WHO Global TB Programme Technical Consultation Meeting on Programmatic Management of Latent Tuberculosis Infection (LTBI). August 31-September 1, 2017, Seoul, Republic of Korea.

- Gupta A. TB in Pregnancy. Presented at: RePORT India meeting: Advancing TB Research; February 2, 2016; CMC Vellore, India.

- Gupta A. TB in Pregnancy. Presented at: RePORT India TB Workshop; March 5, 2015; Mumbai, India.

- Mave V. RePORT India: Objectives and Future Directions. Presented at: TB Vaccine 4th Global Forum; 2015; Shanghai, China.

- Mave V. Therapeutic Drug Monitoring (TDM) of TB in Young Children: The Role of Hair Assays. Presented at: IMPAACT Annual Meeting; June 2015; Washington DC, USA.

PRESENTATIONS

- Dolla CK, Paradkar M, Gupte A, Thiruvenkadam K, Gupte N, Kukarni V, Balasubranian U, Hannah LE, Dhanasekaran K, Bharadwaj R, Shivakumar SVBY, Gaikwad S, Meshram S, Kohli R, Lokhande R, Thomas B, Kinikar A, Swaminathan S, Mave V, Gupta A, Chandrasekaran P. TB Infection among Household Contacts: Preventive Therapy for All? Accepted for poster presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

LECTURES & PRESENTATIONS

- Dhanasekaran K, Chandrasekaran P, Paradkar M, Marinaik SB, Gupte A, Dolla CK, Joseph B, Subramanyam B, Sivaramakrishnan GN, Thiruvengadam K, Gupte N, Rajagopal S, Pradhan N, Selvaraju S, Kulkarni V, Hannah LE, Nayakam R, Suryavanshi N, Shivakumar SVBY, Mave V, Thomas B, Bharadwaj R, Gaikwad S, Meshram S, Lokhande R, Kinikar A, Daware R, Murali L, Swaminathan S, Gupta A for C-TRIUMPh Study Team. Risk Factors Associated with Unfavorable Outcomes in a Cohort of Pulmonary TB Patients. Accepted for poster presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

- Paradkar M, Dhanasekaran K, Kinikar A, Kulkarni R, Bharadwaj R, Gaikwad S, Lokhande R, Meshram S, Dolla CK, Selvaraju S, Murali L, Thiruvengadam K, Jain D, Rajagopal S, Kulkarni V, Pradhan N, Shalini J, Kohli R, Nayagam R, Shivakumar SVBY, Suryavanshi N, Gupte A, Gupte N, Chandrasekaran P, Mave V, Gupta A for the CTRIUMPh Study Team. Incidence of *Mycobacterium tuberculosis* Infection among Household Contacts of Adult Pulmonary Tuberculosis Cases in India. Accepted for poster presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

- Selvaraju S, Thiruvenkadam K, Paradkar M, Marinaik SB, Bharadwaj R, Rajagopalan S, Gaikwad S, Pattabiraman S, Kinikar A, Sivaramakrishnan GN, Meshram S, Hanna LE, Lokhande R, Dhanasekaran K, Gupte A, John S, Gupte N, Thomas B, Kukarni V, Ayyanu S, Kohli R, Shivakumar SVBY, Swaminathan S, Mave V, Gupta A, Chandrasekaran P for the CTRIUMPh Study Team. Incidence of Tuberculosis Disease among the Household Contacts of Adult Pulmonary TB Patients in India—A Multicentric Cohort Study. Accepted for poster presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

- Mave V, Chandrasekaran P, Paradkar M, Gupte A, Pradhan N, Sivaramakrishnan GN, Thiruvenkadam K, Shivakumar SVBY, Kulkarni V, Dhanasekaran K, Subramanyam B, Selvaraju S, Murali L, Bharadwaj R, Gaikwad S, Meshram S, Kinikar A, Hanna LE, Swaminathan S, Gupte N, Gupta A. Infection Free "Resistors" among Household Contacts of Culture-Confirmed Adult Pulmonary TB Cases. Accepted for poster presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

- Tornheim JA, Paradkar M, Valvi C, Gupte N, Madugundu A, Kulkarni V, Sreenivasamurthy S, Raja R, Pradhan N, Shivakumar SVBY, Kohli R, Gupte A, Chandrasekaran P, Mave V, Pandey A, Gupta A. Gene Expression Profiles of Pediatric Tuberculosis Patients and Exposed Controls from India. Accepted for oral presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

- Belgaumkar, V. Barriers to Contact Screening and Isoniazid Preventive Therapy among Pediatric Contacts of Adults with Smear-Positive Tuberculosis. Presented at: 48th Union World Conference on Lung Health; October 13, 2017; Guadalajara, Mexico.

- DeLuca A, Dhumal G, Paradkar M, Suryavanshi N, Mave V, Kohli R, Shivakumar SVBY, Gupta A. Lack of TB Knowledge among TST-positive Household Contacts of Pulmonary Cases: A Missed Opportunity. Presented at: 48th Union World Conference on Lung Health, October 13, 2017; Guadalajara, Mexico.

- Tornheim J, Paradkar M, Valvi C, Gupte N, Madugundu A, Kulkarni V, Sreenivasamurthy S, Raja R, Pradhan N, Shivakumar SVBY, Kohli R, Chandrasekaran P, Pandey A, Mave V, Gupta A. Gene Expression Profiles of Pediatric Tuberculosis Patients and Exposed Controls from India. Presented at: RePORT International Meeting; September 13; 2017; Rio de Janeiro, Brazil.

- Gupte A, Mave V, Meshram S, Lokhande R, Kadam D, Dharmshale S, Bharadwaj R, Kagal A, Pradhan N, Deshmukh S, Atre S, Sahasrabudhe T, Barthwal M, Meshram S, Kakrani A, Kulkarni V, Raskar S, Suryavanshi N, Shivakoti R, Chon S, Selvin E, Gupte N, Gupta A, Golub J. Trends in Glycated Hemoglobin Levels and Implications for Diabetes Screening among Pulmonary Tuberculosis Cases Undergoing Treatment in India. Presented at: RePORT International Meeting; September 13; 2017; Rio de Janeiro, Brazil.

LECTURES & PRESENTATIONS

- Gupte A, Shrinivasa BM, Paradkar M, Danasekaran K, Pradhan N, Gomathy NS, Hannah LE, Kulkarni V, Ramachandran G, Thomas B, Kohli R, Suryavarshini N, Thiruvengadam K, Dolla CK, Meshram S, DeLuca A, Golub J, Shivakumar SVBY, Gupte N, Chandrasekaran P, Mave V, Gupta A. Hyperglycemia and Treatment Outcomes in Adults with Newly Diagnosed Drug-sensitive Extra-pulmonary Tuberculosis in India. Presented at: RePORT International Meeting; September 13; 2017; Rio de Janeiro, Brazil.

- Shivakumar SVBY, Chandrasekaran P, Paradkar M, Danasekaran K, Kumar AMV, Ramachandran G, Thomas B, Suryavarshini N, Kohli R, Thiruvengadam K, Gupte N, Kulkarni V, Hannah LE, Gomathy NS, Pradhan N, Dolla CK, Gupte A, DeLuca A, Meshram S, Kagal AD, Golub J, Selvaraj K, Murali L, Swaminathan S, Mave V, Gupta A. High Burden of Dysglycemia among Contacts of Tuberculosis Patients in India: Is it Time to Screen Them All? Presented at: RePORT International Meeting September 13, 2017; Rio de Janeiro, Brazil.

- Gupte A, Mave V, Meshram S, Lokhande R, Kadam D, Dharmshale S, Bharadwaj R, Kagal A, Pradhan N, Deshmukh S, Atre S, Sahasrabudhe T, Barthwal M, Meshram S, Kakrani A, Kulkarni V, Raskar S, Suryavanshi N, Shivakoti R, Chon S, Selvin E, Gupte N, Gupta A, Golub J. Trends in Glycated Hemoglobin Levels and Implications for Diabetes Screening among Pulmonary Tuberculosis Cases Undergoing Treatment in India. Presented at: JHU Center for TB Research Annual Scientific Meeting; June 2017, Baltimore, MD, USA.

- Tornheim J, DeLuca A, Ganatra S, Radhika B, Gupta A, Udwadia Z. It Simply Won't Work Here – Few Eligible for the Newly Recommended Short Course MDR-TB Regimen in a Mumbai Private Clinic. Presented at: American Thoracic Society 2017 International Conference; May 21, 2017; Washington, DC, USA.

- Tornheim J. Paradkar M. CTRIUMPh Pediatric Biomarker Substudy. Session: The Future of MDR-TB Treatment in Children. Invited Presentation. 2017 IMPAACT Annual Meeting; May 30, 2017; Washington, DC, USA.

- Mathad J, Alexander M, Bhosale R, Naik S, Shivakoti R, Mave V, Suryavanshi N, Gupte N, Kulkarni V, Pradan N, Patil N, Gupta A. Impact of Immune Changes of Pregnancy and HIV Infection on Tuberculosis. Poster Presentation. 6th Annual Regional Prospective Observational Research for Tuberculosis (RePORT) India Joint Leadership Meeting; February 3, 2017; Hyderabad, India.

- Gupte A, Meshram S, Selvaraju S, Gupte N, Shivakumar SVBY, Paradkar M, Kohli R, Thiruvengadam K, Suryavanshi N, Chandrasekaran P, Mave V, Swaminathan S, Gupta A, Golub J, Checkley W. Host Factors Associated with Poor Respiratory Health-related Quality of Life in Pulmonary Tuberculosis. Presented at: RePORT India Annual Meeting; February 3, 2017; Hyderabad, India.

- Chandrasekaran P, Thiruvengadam K, Gupte N, Luck EH, Mave V, Gupte A, Gupta A, Swaminathan S. Household Contact Tracing of Adult Pulmonary TB Patients in India: Prevalence of TB Disease and Infection. Presented at: 6th Annual Regional Prospective Observational Research for Tuberculosis (RePORT) India Joint Leadership Meeting; February 3, 2017. Hyderabad, India.

- Paradkar M, Kavitha D, Shiva Kumar SVBY, Khadse S, Khwaja S, Hari K, Rani N, Thiruvengadam K, Gupte N, Raskar S, Jain D, Suryavanshi S, Kohli R, Kulkarni V, Pradhan N, Sathyamurthi B, Tornheim J, Gupte A, DeLuca A, Mave V, Chandrasekaran P, Gupta A for the CTRIUMPH Study Team. Descriptive Baseline Characteristics, Treatment Outcomes and Biorepository of Pediatric TB Cases in CTRIUMPh-RePORT India Prospective Cohort. Presented at: 6th Annual Regional Prospective Observational Research for Tuberculosis (RePORT) India Joint Leadership Meeting; February 3, 2017. Hyderabad, India.

LECTURES & PRESENTATIONS

- John S, DeLuca A, Paradkar M, Nayagam R, Shivakumar SVBY, Gupte A, Gupte N, Thomas B, Suryavanshi N, Kolhi R, Golub J, Kulkarni V, Pradhan N, Mave V, Chandrasekaran P, Gupta A. Alcohol Use Among Adult Pulmonary and Extra-pulmonary TB Cases in the CTRIUMPH India Cohort. Presented at: 6th Annual Regional Prospective Observational Research for Tuberculosis (RePORT) India Joint Leadership Meeting; February 3, 2017. Hyderabad, India.

- Tornheim JA, Ganatra S, DeLuca A, Banka R, Gupta A, Udwadia ZF. Impact of Drug Susceptibility Testing on Drug Choice in a Tuberculosis Cohort with High Rates of Drug Resistance from the Private Sector in Mumbai. Presented at: 6th Annual Regional Prospective Observational Research for Tuberculosis (RePORT) India Joint Leadership Meeting; February 3, 2017. Hyderabad, India.

- Mave V, Pradhan R, Kagal A, Bharadwaj R, Gupte N, Gupta A, Meshram S, Golub J. Third Anti-TB Drug in Continuation Phase for TB patients: Is It the Need of the Hour for India? Presented at: 47th Union World Conference on Lung Health; October 27, 2016; Liverpool, UK.

- Mave V, Gupte N, Meshram S, Kagal A, Gupta A, Bharadwaj R, Pradhan R, Golub J. Xpert® MTB/RIF Assay for Pulmonary Tuberculosis Diagnosis in Patients with Pre-Diabetes Mellitus and Diabetes Mellitus. Presented at: 47th Union World Conference on Lung Health; October 27, 2016; Liverpool, UK.

- Gupte A, Meshram S, Selvaraju S, Gupte N, Shivakumar SVBY, Paradkar M, Kohli R, Thiruvengadam K, Suryavanshi N, Chandrasekaran P, Mave V, Swaminathan S, Gupta A, Golub J, Checkley W. Host Factors Associated with Poor Respiratory Health-related Quality of Life in Pulmonary Tuberculosis.Presented at: 2016 IDSA Conference; October 27, 2016; New Orleans, LA, USA.

- Chandrasekaran P, Mave V, Tiruvengadam K, Gupte N, Hannah LE, Meshram S, Swaminathan S, Gupta A. Household Contact Tracing of Adult Pulmonary TB Patients in India: Prevalence of TB Disease. Presented at: 2016 IDSA Conference; October 27, 2016; New Orleans, LA, USA.

- Shivakumar SVBY, Thiruvengadam K, Gupte N, Chandrasekaran P, Mave V, Hannah LE, Kulkarni V, Gupte A, DeLuca A, Pattabiraman S, Sharma GN, Pradhan N, Subramaniyan B, Chandrakumar D, Thomas B, Suryavanshi B, Paradkar M, Meshram S, Kagal A, Kohli R, Golub J, Ramachandran G, Swaminathan S, Gupta A. TB Infection Prevalence, Incidence and Risk Factors among Child and Adult Household Contacts of Adult TB Cases in India. Presented at: 2016 IDSA Conference; October 27, 2016; New Orleans, LA, USA.

- Elf JL, Kinikar A, Khadse S, Mave V, Gupte N, Kulkarni V, Patekar S, Raichur P, Breysse P, Gupta A, Golub J. The Association of Exposure to Air Pollution from Biomass Fuels, Kerosene, and Secondhand Tobacco Smoke with TB in Adult Women and Children in Pune, India. Presented at: RePORT International; July 14, 2016; Durban, South Africa.

- Gupte A, Meshram S, Selvaraju S, Gupte N, Shivakumar SVBY, Paradkar M, Kohli R, Thiruvengadam K, Suryavanshi N, Chandrasekaran P, Mave V, Swaminathan S, Gupta A, Golub J, Checkley W. Host Factors Associated with Poor Respiratory Health-related Quality of Life in Pulmonary Tuberculosis.Presented at: RePORT International; July 14, 2016; Durban, South Africa.

- Gupte A, Meshram S, Selvaraju S, Gupte N, Shivakumar SVBY, Paradkar M, Kohli R, Thiruvengadam K, Suryavanshi N, Chandrasekaran P, Mave V, Swaminathan S, Gupta A, Golub J, Checkley W. Host Factors Associated with Poor Respiratory Health-related Quality of Life in Pulmonary Tuberculosis. Presented at: JHU Center for TB Research Annual Scientific Meeting; July 2016; Baltimore, USA.

- Ogale YP, Elf JL, Lokhande R, Mave V, Roy S, Gupta A, Golub JE, Mathad J. Characteristics Associated with Mobile Phone Access Among TB Patients in Pune, India. Poster presented at: 46th World Conference on Lung Health of the International Union Against TB and Lung Disease; December 1-5, 2015; Cape Town, South Africa.

- Elf JL, Kinikar A, Khadse S, Mave V, Gupte N, Kulkarni V, Patekar S, Raichur P, Breysse P, Gupta A, Golub J. The Association of Exposure to Air Pollution from Biomass Fuels, Kerosene, and Secondhand Tobacco Smoke with TB in Adult Women and Children in Pune, India. Presented at: American Thoracic Society International Conference; May 1, 2015; Denver, CO, USA.

Christian Medical College, Vellore (CMC-Vellore)/University of Cambridge-University of Washington

LECTURES

- Christopher DJ. Targeted LTBI Testing. Presented at: LTBI Knowledge Seminar; January 11, 2018; Hyderabad, India.

- Christopher DJ. LTBI Screening in High TB Prevalence Setting. Presented at: Qiagen Knowledge Seminar; November 2, 2017; Bangalore, India.

- Christopher DJ. LTBI Screening: A Clinician's Perspective. Presented at: CME organized by Qiagen; April 5, 2017; New Delhi, India.

- Christopher DJ. LTBI: To Screen or Not to Screen. Presented at The Three T's of TB Prevention: Test, Treat and Track Symposium. Asia Pacific Regional Conference; International Union against Tuberculosis; March 23, 2017; Tokyo, Japan.

- Christopher DJ. Large Thoracoscopic Pleural Biopsy Improves Yield of Xpert MTB/RIF for Diagnosis of Pleural Tuberculosis. Presented at: BRONCOCON; CMC Vellore; March 2-4, 2017; Vellore, India.

- Christopher DJ. Advances in the Management of Drug Resistant TB. Presented at: TB Symposium. Convened by Krishna Medical College in collaboration with McGill University (Canada); December 21, 2016; Manipal, India.

- Christopher DJ. Healthcare Worker TB: A Panel Discussion. Presented at: TB Symposium. Convened by Krishna Medical College in collaboration with McGill University (Canada); December 21, 2016; Manipal, India.

- Christopher DJ. Evolution of Drug Resistant TB in India. Presented at: Annual Update in Tuberculosis. Convened by CMC Vellore. November 19, 2016; Vellore, India.

- Christopher DJ. Screening for LTBI in Healthcare Personnel to Assess TB Risk- lessons from India. Presented at: 5th Meeting of Asian Experts Community; August 26-28, 2016; Taipei, Taiwan.

- Christopher DJ. TB Risk in Health Care Workers: Myth or Reality? Presented at: RePORT International Meeting. July 14-15, 2016; Durban, South Africa.

LECTURES & PRESENTATIONS

- Christopher DJ. From Lab to Clinic: Optimizing the Importance of New Diagnostics. Presented at: Advancing TB Research – An Exploration of Opportunities. Convened by PD Hinduja Hospital and NIH (USA); March 23-24, 2016; Mumbai, India.

- Christopher DJ. Lessons from Healthcare –TB Research in India. Presented at: CMC Winter Symposium and the 5th RePORT Leadership Group Meeting; February 12-13, 2016; Vellore, India.

- Christopher DJ. Pleural Tuberculosis. Presented at: Association of Physicians of India Meeting. January 29-31, 2016; Hyderabad, India.

- Christopher DJ. TB in Healthcare Workers. Presented at: National Update in Respiratory Medicine. Convened by PD Hinduja Hospital; November 27-29, 2015; Mumbai, India.

- Christopher DJ. Road for TB Elimination in India. Presented at: 4th Meeting of Asian Experts Community; August 7-9, 2015; Bali, Indonesia.

- Christopher DJ. Newer Diagnostics in TB. Presented at: Institute of Thoracic Medicine, MMC, CME Program for the PG Students of Southern States; September 2014; Chennai, India.

- Christopher DJ. Relevance of TST and IGRA in Current Day Practice. Presented at: ASHRAICON Conference 2014; July 27, 2014; Ahmedabad, India.

PRESENTATIONS

- Dinakaran S, Christopher DJ, Gupta R, Prince J, Isaac B, Thangakunam B. Large Thoracoscopic Pleural Biopsy Improves Yield of Xpert MTB/RIF for Diagnosis of Pleural Tuberculosis. Presented at: BRONCOCON; CMC Vellore; March 2-4, 2017; Vellore, India.

- Christopher DJ , Balamugesh T, Dhabi P. The Prevalence of Active and Latent Tuberculosis Infection in Patients with Type 2 Diabetes Mellitus in a Tertiary Care Hospital of South India. Presented at: Winter Symposium RePORT Leadership Group Meeting; February 12-14, 2016; Vellore, India.

- Christopher DJ, Balamugesh T ,Rohit KO, James P, Gupta R. Diagnostic Yield of Various Microbiologic and Histopathologic Tests in TB Pleural Effusion Diagnosed with Thoracoscopy and Outcomes of Such Patients on 6 Months Follow Up. Presented at: Winter Symposium RePORT Leadership Group Meeting; February 12-14, 2016; Vellore, India.

- Christopher DJ, Mitra S, Saroini JS, Balaji V, Gupta M, Therese M, Yadav B, Jeyaseelan L. Burden of Diabetes Among Patients with Tuberculosis: Ten-Year Experience from an Indian Tertiary Care Teaching Hospital. Presented at: 45 Annual Union World Conference on Lung Health. October 28-Nov 1, 2014; Barcelona, Spain.

- Christopher DJ, Denkinger C, Thangakunam B, Sarojini JS, Pai M, Schumacher S. Point-of-Care Implementation of Xpert: Evaluating the Impact of Product and Process Innovation in TB Diagnosis. Presented at: 45 Annual Union World Conference on Lung Health. October 28–Nov 1, 2014; Barcelona, Spain.

Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER)/ Boston Medical Center (BMC)

LECTURES

- Hochberg, NS. Indo-US TB Cohort: Study Design and Preliminary Results. Presented at: TB Research Unit (TBRU) Investigators Meeting. September 2017; Boston, MA, USA.

- Hochberg, NS. Updates in Tuberculosis: The Era of Sea Changes. Medicine Grand Rounds. Presented at: Carney Hospital. March 2017.

- Hochberg, NS. Indo-US TB Cohort: Study Design and Preliminary Results. Invited speaker, JIPMER. February 8, 2017; Puducherry, India.

- Hochberg, NS. Malnutrition and TB in India: Intersection and Implications. Presented at: Northeastern World TB Day Symposium.

- Hochberg, NS. Tuberculosis: The Fundamentals and the Sea Changes. Presented at: MPH Course: Global Health Priorities & Approaches. Tufts University School of Medicine. Boston, MA, USA.

PRESENTATIONS

- Chua A, Mowry WB, Sahu S, Roy G, Ellner JJ, Horsburgh Jr CR, Pleskunas J, Sarkar S, Hochberg NS, Reddy D. Does the Form of Tobacco Product Used by Smokers Influence Pulmonary Tuberculosis Severity? Accepted for poster presentation at: ATS 2018; San Diego, CA, USA.

- Schenk NM, Sahu S, Roy G, Ellner JJ, Horsburgh Jr CR, Pleskunas J, Sarkar S, Hochberg NS, Reddy D. Influence of Type of Tobacco Product on Chest X-ray findings in Pulmonary Tuberculosis Patients in India; Accepted for poster presentation at: ATS 2018; San Diego, CA, USA.

- Hoyt K, White L, Sarkar S, Pleskunas J, Zhou T, Noyal J, Muthuraj M, Vinod K, Roy G, Ellner JJ, Horsburgh Jr CR, Hochberg NS. Effect of Malnutrition on Tuberculosis Mycobacterial Burden and Chest Radiographic Findings. Accepted for poster presentation at: Union Regional Conference, North America 2018; Chicago, IL, USA.

- Svadzian A, Sahu A, Pleskunas JA, Sarkar S, Roy G, Ellner JJ, Hochberg NS, Reddy D. Association between Wood Fuel Usage and Disease Severity among Pulmonary Tuberculosis Cases. Poster presented at: American Society of Tropical Medicine & Hygiene Meeting; November 2016; Atlanta, GA, USA.

- Stigma as a Barrier to Tuberculosis Care: A Literature Review. Poster presented at: Evans Department of Medicine Research Days, Boston University School of Medicine; October 2016; Boston, MA, USA.

- Roy G, Sivaprakasam A, Kubiak R, Govindarajan S, Salgame P, Ellner J, Hochberg N, Sarkar S. Description of New Pulmonary Tuberculosis Cases in Southern India. Poster presented at: Evans Department of Medicine Research Days, Boston University School of Medicine; October 2016; Boston, MA, USA.

- Svadzian A, Sahu A, Pleskunas JA, Sarkar S, Roy G, Ellner JJ, Hochberg NS, Reddy D. Association between Wood Fuel Usage and Disease Severity among Pulmonary Tuberculosis Cases. Poster presented at: Evans Department of Medicine Research Days, Boston University School of Medicine; October 2016; Boston, MA, USA.

- Conversion among Pulmonary Tuberculosis Cases in India. Poster presented at: Evans Department of Medicine Research Days, Boston University School of Medicine; October 2016; Boston, MA, USA.

- Predictors of 2 Month Sputum Conversion among Tuberculosis Patients in India. Poster presented at: Evans Department of Medicine Research Days, Boston University School of Medicine; October 2016; Boston, MA, USA.

- Prolonged Cough among Tuberculosis Patients In Tamil Nadu and Pondicherry, India. Poster presented at: Evans Department of Medicine Research Days, Boston University School of Medicine; October 2016; Boston, MA, USA.

- Reddy D, Sahu S, Roy G, Ellner JJ, Horsburgh Jr CR, Pleskunas JA, Sarkar S, Hochberg NS. Association between Biomass Fuel, Tobacco Use and Two-month Sputum Smear Conversion among Pulmonary Tuberculosis Cases in India. Poster presented at: American Thoracic Society Conference; May 2016; San Francisco, CA, USA.

- Roy G, Sivaprakasam A, Kubiak R, Govindarajan S, Salgame P, Ellner J, Hochberg N, Sarkar S. Description of New Pulmonary Tuberculosis Cases in Southern India. Poster presented at: 46th Union World Conference on Lung Health of the International Union Against TB and Lung Disease; December 1-5, 2015; Cape Town, South Africa.

- Sarkar S, Fernandes P, Lakshminarayanan S, Kubiak R, Horsburgh CR, Ravikumar T, Ellner J, Hochberg N. Age and Gender Distribution of Latent Tuberculosis Infection Cases in a Household Contact Study, India**.** Poster presented at: 46th Union World Conference on Lung Health of the International Union Against TB and Lung Disease; December 1-5, 2015; Cape Town, South Africa.

- Reddy, D, Sahu S, McIntosh A, Kubiak R, Roy G, Ellner J, Sarkar S, Hochberg N. Association Between Latent Tuberculosis Infection and Indoor Air Pollution among Household Contacts of Pulmonary Tuberculosis Cases. Poster presented at: 46th Union World Conference on Lung Health of the International Union Against TB and Lung Disease; December 1-5, 2015; Cape Town, South Africa.

MV Diabetes Research Centre (MVDRC)/ University of Massachusetts

PRESENTATIONS

- Kornfeld H. Sugar, Fat and Consumption. Invited seminar: Boston University School of Medicine; January 16, 2016; Boston, MA, USA.

- Kornfeld H. Tuberculosis: The Rise of Comorbidities. Medical Grand Rounds, University of Massachusetts Medical School; June 4, 2015; Worcester, MA, USA.

- Kornfeld H. TB and Diabetes. Invited seminar: Singapore Immunology Network; February 27, 2015; Singapore.

- Kornfeld H. TB and Diabetes. Keystone Symposium on Granulomas in Infectious and Non-Infectious Disease, January 22-27, 2015, Santa Fe, NM, USA.

- Kornfeld H. The Effects of Diabetes on TB Susceptibility. Invited seminar: No.4 People's Hospital of Nanning; January 12, 2015; Nanning, China.

LECTURES & PRESENTATIONS

- Kornfeld H. Sugar, Fat, and Consumption. Invited seminar: University of Texas, Health Science Center at Tyler; August 22, 2014; Tyler, TX, USA.

- Kornfeld H. Determinants of TB Severity. Invited seminar: Shenzhen-Hong Kong Institute of Infectious Diseases; Shenzhen, China.

ABSTRACTS

- Kumar NP, Moideen K, Sivakumar S, Menon P, Viswanathan V, Kornfeld H, Babu S. Effect of Standard Tuberculosis Treatment on Circulating Levels of Pro-inflammatory Cytokines in Tuberculosis-diabetes Co-morbidity. Accepted for poster presentation at: Keystone Symposia -Tuberculosis: Translating Scientific Findings for Clinical and Public Health Impact; April 15-19, 2018; Whistler, BC, Canada.

- Kumar NP, Moideen K, Sivakumar S, Menon P, Viswanathan V, Kornfeld H, Babu S. Effect of Anti-tuberculosis Treatment on the Systemic Levels of Matrix Metalloproteinases and Tissue Inhibitors of MMP in Tuberculosis–Diabetes Co-morbidity. Accepted for poster presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

- Moideen K, Kumar NP, Bethunaickan R, Sivakumar S, Menon PA, Viswanathan V, Shruthi BS, Kornfeld H, Babu S. Altered Systemic Levels of Neutrophil and Mast Cell Granular Proteins in Tuberculosis-Diabetes Co-morbidity and Changes Following Treatment. Accepted for poster presentation at: 5th Global Forum on TB Vaccines; February 20-23, 2018; New Delhi, India.

- Cheekatla SS, Venkatasubramanian S, Tripathi D, Paidipally P, Welch E, Tvinnereim AR, Vankayalapati R. IL-21 Is Essential for the Optimal Control of *Mycobacterium tuberculosis* Infection. Presented at: American Association of Immunologist Meeting; May 8-12, 2015; New Orleans, LA, USA.

- Cheekatla SS, Tripathi D, Venkatasubramanian S, Paidipally P, Welch E, Tvinnereim AR, Kornfeld H, Vankayalapati R. IL-6 regulates Pro- and Anti-Inflammatory Cytokine Production and Mortality of *Mycobacterium tuberculosis* Infected Type 2 Diabetic Mice. Presented at: American Association of Immunologist Meeting; May 8-12, 2015; New Orleans, LA, USA.

- Tripathi D, Venkatasubramanian S, Cheekatla SS, Paidipally P, Welch E, Tvinnereim AR, Vankayalapati R. Liver NK1.1 Cells and IL-22 Promote Pancreatic Islets Allograft Survival in Type 1 Diabetic Mice. Presented at: American Association of Immunologist Meeting; May 8-12, 2015; New Orleans, LA, USA.

- Tripathi D, Venkatasubramanian S, Cheekatla SS, Paidipally P, Welch E, Tvinnereim AR, Vankayalapati R. CD4+CD25+Foxp3+ Cells from JNK$^{-/-}$ Mice Prolong Pancreatic Allograft Survival in Type 1 Diabetic Mice. Presented at: American Association of Immunologist Meeting; May 8-12, 2015; New Orleans, LA, USA.

- Venkatasubramanian S, Dhiman R, Paidipally P, Cheekatla SS, Tripathi D, Welch E, Tvinnereim AR, Brenda Jones B, Theodorescu D, Barnes PF, Vankayalapati R. A Rho GDP Dissociation Inhibitor Produced by Apoptotic T-cells Inhibits Growth of *Mycobacterium tuberculosis*. Presented at: American Association of Immunologist Meeting; May 8-12, 2015; New Orleans, LA, USA.

PD Hinduja Hospital/Johns Hopkins University (JHU)

PRESENTATIONS

- Chawla PK, Lokhande RV, Naik PR, Dherai AJ, Udwadia ZF, Mahashur AA, Soman R, Patel J, Ashavaid TF. Therapeutic Drug Monitoring of Rifampicin & Isoniazid and Implications of Acetylator Genotype on Plasma Levels. Presented at: 15th International Congress on Therapeutic Drug Monitoring and Clinical Toxicology (IATDMCT); September 27, 2017; Kyoto, Japan.

- Udwadia ZF, Tornheim JA, Ganatra S, DeLuca A, Banka R, Gupta A. Impact of Drug Susceptibility Testing on Drug Choice in a Tuberculosis Cohort with High Rates of Drug Resistance from the Private Sector in Mumbai. Presented at: 2016 IDSA Conference; October 27, 2016; New Orleans, LA, USA.

- Tornheim J, Ganatra S, Deluca A, Banka R, Rodrigues C, Gupta A, Udwadia Z. Linezolid Experience among MDRTB Patients in Mumbai. Presented at: ERS International Congress, European Respiratory Society; September 14, 2016; Milan, Italy.

Grants & Substudies

RePORT India

7TH ANNUAL JOINT LEADERSHIP MEETING

CATALYZING DISCOVERIES TOWARD TB ELIMINATION

NEW DELHI | 15–17 FEB 2018

RePORT INTERNATIONAL SUPPLEMENTAL FUNDED PROJECTS | AWARDED					
	Title	Partners	CRDF #	Start Date	Investigators
1.	Validation of Transcriptional Signature to Predict Active TB Disease among Advanced HIV Patients	BMC, BJGMC, JHU, RePORT Brazil	RICC	2017	**Mave V, Rolla V,** Salgame P, Kadam D, Andrade B, Gupta A, Meshram S, Kulkarni V, Ellner J
2.	Molecular Signatures of Tuberculosis-Diabetes Interaction (MSTDI) study	JHU, UMass, BJGMC, NIRT, MVDRC	RICC	2017	**Kornfeld H,** P Chandrasekaran, Gupte A, Mave V, Bharadwaj R, Golub J, Andrade B, Paradkar M, Luke H, Kulkarni V, Gupte N, Shivakumar SVBY, Gupta A
3.	Biomarkers for TB Diagnosis and Treatment Response	BJGMC NIRT Emory JHU	23737	2016	**Rengarajan J,** Hanna LE, Mave V, Chandrasekaran P, Thiruvengadam K, Toidi A, Gupte N, Kulkarni V, Gupta A and CTRIUMPH team
4.	Impact of HIV and Diabetes Mellitus on TB Drug Resistance and Recurrence	BJGMC NIRT JHU MVDRC UMass	23738	2016	**Mave V,** Devi U, Chandrasekaran P, Mathema B, Vishwanathan V, Kornfeld H, Kreiswirth B, Golub J, Gupte N, Shivakumar SVBY, Gupta A
5.	MDR-TB and HIV at RePORT Sites India	BJGMC NIRT JIPMER JHU BMC	23723	2016	**Horsburg R,** Chandrasekaran P, Mave V, Gupta A, Sarkar S
6.	Validation and Fine Tuning of the Computer Aided Diagnosis of Pulmonary Tuberculosis Model for the Indian Subcontinent	CMC	23734	2016	**Christopher DJ,** Thangakunam B, Lal B, Agrawal A
7.	Extracranial Involvement as Detected by Positron Emission Tomography Scan in Patients with Tubercular Meningitis	CMC	23721	2016	**Thangakunam B,** Christopher DJ
8.	Inflammatory Biomarkers as a Triage Test for Screening Symptomatic TB	JIPMER Rutgers BMC	23732	2016	**Ellner J,** Salgame P, Sarkar S, Pleskunas J
9.	Characterization of Monocyte Responses in Pulmonary TB Patients with or without Type 2 Diabetes	NIRT-NIH – ICER MVDRC	23722	2016	**Kumar P**
10.	Effect of Malnutrition on Latent TB	JIPMER Rutgers BMC	23719	2016	**Hochberg NS,** Negi VS, Mahalakshmy T, Johnson WE, Salgame P, Pleskunas J

RePORT INTERNATIONAL SUPPLEMENTAL FUNDED PROJECTS | AWARDED					
	Title	Partners	CRDF #	Start Date	Investigators
11.	Determining Barriers to TB Care	JIPMER BMC BU	23730	2016	**Sabin L, Sarkar S, Hochberg NS,** Fernandes P, Pleskunas J, Amsaveni
12.	TH17 Cell Subsets as Potential Risk Markers of Latency and Active TB Infection in Household Contacts	BMMRC UT	23725	2016	**Devalraju KP,** Neela VSK, Valluri VL, Vankayalapati K
13.	Comparison of Available Purified-Protein Derivative (PPD) Tuberculin Skin Test (TST) Antigen Solutions in Detecting Latent Tuberculosis Infection in India	CMC BJGMC JIPMER BMMRC NIRT JHU BMC	61783	2015	**Christopher DJ,** DeLuca A, Ellner J, Gupta A, Horsburgh B, Kadam D, Kulkarni V, Lakshmi V, Amsaveni, Chandrasekaran P, Mave V, Jones F, Hochberg N

GRANTS & SUBSTUDIES | AWARDED					
	Title	Partners	Grant Source	Start Date/ Duration	Investigators
1.	Tuberculosis: Learning the Impact of Nutrition (TB LION)	JIPMER BMC Rutgers Tufts NIRT	Warren Alpert Foundation	2018-2023	**Hochberg NS, Parija S, Chandrasekaran P,** Ellner JJ, Johnson WE, Wanke C, Sarkar S, Negi VS, Joseph N, Rajkumari N, Mahalakshmy T, Reddy D, Saravanan N, Harisankar, Tripathy S
2.	Therapeutic Outcomes with Second-Line Drug Exposures in a Cohort of South African and Indian Patients with Drug Resistant TB: A Pharmacokinetic-Pharmacodynamic Assessment	Hinduja PHRU JHU	DBT/South Africa MRC	2017	**Ashavaid TF**, Variava E, Rodrigues C, Udwadia ZF, Gupta A, Martinson N
3.	Predictors of Resistance Emergence Evaluation in MDR-TB Patients on Treatment - (PREEMPT)	JIPMER NIRT BJGMC Brazil Vanderbilt Rutgers CDC JHU BMC Hinduja	NIH/NIAID: R01	7/1/2017-6/30/2022	**Horsburgh R**, **Sterling TR,** Pelloquin C, Alland D, Ciegelski P, Collins J, Chandrasekharan P, Ellner J, Gupta A, Mave V, Rolla V, Kritski A, Sarkar S

GRANTS & SUBSTUDIES | AWARDED					
	Title	**Partners**	**Grant Source**	**Start Date/ Duration**	**Investigators**
4.	Transcriptomic and Metabolomic Analysis of Microbiologically Confirmed Pediatric Tuberculosis Patients and Uninfected Household Contacts	BJGMC JHU	Ujala Foundation Wyncote Foundation BWI-CTU C-TRIUMPH	2017	**Tornheim JA, Paradkar M,** Dutta N, Bader J, Kulkarni V, Balasubramanian U, Bharadwaj R, Raja R, Sreenivasmurthy S, Karakousis P, Mave V, Pandey A, Gupta A
5.	The Role of Innate Immunity in the Acquisition of Sterile Protection Against TB Infection	U Colorado, JHU, BJMC	NIH R21	2017	**Weinberg A,** Segano Z, Mave V, Gupte N, Paradkar M, Suryavanshi N, Kulkarni V, Balasubramanian U, Bharadwaj R, Gupta A
6.	Association of Lipid Mediators of Inflammation with TB Treatment Outcomes	JHU, NIRT, BJGMC	CTRIUMPH and Gilead Foundation	2017	**Shivakoti R, Chandrasekaran P,** Mave V, Kulkarni V, Gupte A, Gupte N, Shivakumar SVBY, Nimkar S, Dalli J, Natarajan, S, Karunaianantham R, Gupta A
7.	IFN-γ Independent Inhibition of MTB Growth in Human Macrophages.	BMMRC UT	NIH/NIAID: R01AI123310-01A1	2017	**Vankayalapati K,** Valluri V and others
8.	Validation Study of TruNAT-MTB-Rif in EPTB	CMC/NIRT/Hinduja/ AIIMS	ICMR	2017	**Christopher DJ**, Singh M, Gomathi, Rodrigues C, Singh U
9.	Validation Study of TruNAT-MTB-Rif in Pediatric TB	CMC/NIRT/Hinduja/ AIIMS	ICMR	2017	**Christopher DJ,** Singh M, Gomathi, Rodrigues C, Singh U
10.	Measuring TB Drugs in Hair as a Tool to Monitor Adherence, Exposure and Response	BJGMC NIRT JHU	NIH/NIAID: R21	2016-2018	**Mave V**, Dooley K, Ramachandran G, Gupta A, Bacchetti, Sushant M, Gupte N, Gandhi M
11.	The Role of Monocyte Subpopulation in HIV+LTB+ Individuals and Development of Active TB	BMMRC UT	NIH: R21AI127178-01 Indo-US Vaccine Program, RePORT India Cohort	2016-2018	**Vankayalapati K,** Valluri V, and others
12.	Role of Iron Deficiency in Resistance of Women of Child-Bearing Age to Tuberculosis	JIPMER BMC	NIH	2016-2017	**Ellner J,** Salgame P, Sarkar S, Pleskunas J, Amsaveni, Hochberg NS

GRANTS & SUBSTUDIES | AWARDED					
	Title	**Partners**	**Grant Source**	**Start Date/ Duration**	**Investigators**
13.	Studying T cell Memory Responses for Understanding Protective Immune Response in Tuberculosis (TB)	CMC, NIRT, Saint Louis University	American Society of Tropical Medicine and Hygiene/ Burroughs Wellcome Fund)	2016	**Christopher DJ**, Chatterjee S, Balamugesh T
14.	Impact of Immune Changes of HIV and Stages of Pregnancy on TB	BJGMC NIRT JHU	NIH/NICHD : R01	2015-2019	**Gupta A**, **Mathad J**, Bhosale R, Alexander M, Mave V, Gupte N, Padhan N, Kulkarni V, Hannah LE, Babu S
15.	Impact of Pregnancy on Tuberculosis	JIPMER BMC	NIH/NIAID R01	2015-2018	**Ellner J,** Sarkar S, Hochberg N, Horsburgh CR, Salgame P, Savic R, Dartois V, Joseph NM, Jacob SE, Jayalakshmy R, Plakkal N, Ramachandran G, Sasirekha R, White LF
16.	D4GDI-mediated Immune Responses in LTBI+HIV+ Individuals	BMMRC UT	NIH: R21AI120257-01 Indo-US Vaccine Program, RePORT India	2015-2017	**Vankayalapati K,** Valluri V and others
17.	Residual Respiratory Impairment Following Pulmonary Tuberculosis: The Lung Health Sub-Study	BJGMC NIRT JHU	UJALA/ Gilead Foundation/ RePORT India	2015-2017	**Gupte A,** Gupta A, Meshram S, Kadam D, Mandar, Gupte N, Chandrasekaran P, Salvi S, Golub J, Selvaraju S
18.	Targeting Mycobacterium Tuberculosis Persisters By Enhancing Stringent Response-Specific Cellular Immunity	JHU, BJMC	NIH R21	2015	**Karakousis P**, Gupta A, Mave V, Kulkarni V, Dutta N
19.	Understanding of Tuberculosis Infection and Preventive Therapy Among Skin-Test Positive Household Contacts of Tuberculosis Cases	BJGMC NIRT JHU	NIH CFAR and D43	2015	**Deluca A**, Suryavanshi N, Mave V, Kadam D, Chandrasekaran P, Shivakumar SVBY, Pardeshi G, Thomas B, Kolhi R, Gupta A
20.	T-regs Mediated Immune Responses in LTBI+HIV+ Individuals	BMMRC UT	UT	2015	**Vankayalapati K,** Valluri V and others
21.	Compare Drug Levels in Newly Diagnosed or Relapsed PTB/ EPTB Following Daily ATT vs DOTS Regimen	CMC	Internal fluid research grant	2015	**Christopher DJ**, Balamugesh T

GRANTS & SUBSTUDIES | AWARDED					
	Title	**Partners**	**Grant Source**	**Start Date/ Duration**	**Investigators**
22.	Impact of Personal Exposure to Black Carbon on Pulmonary Tuberculosis Severity	JIPMER BMC	Potts Memorial Foundation	2014-2018	**Hochberg NS,** Reddy D, Sahu S, Sarkar S
23.	Yield of TB using GeneXpert (Xpert MTB-Rif) by Induced Sputum Compared to Standard Sputum Samples	CMC	Internal fluid research grant	2014	**Christopher DJ,** Balamugesh T
24.	Multicenter Phase II/III Double-Blind, Randomized, Placebo Controlled Study to Evaluate the Efficacy and Safety of VPM1002 in the Prevention of TB Recurrence in Pulmonary TB Patients after Successful TB Treatment in India.	RePORT India Sites	Serum Institute	2017 - 2020	**RePORT India PIs**

GRANTS & SUBSTUDIES | NOT AWARDED					
	Title	**Partners**	**Grant Source**	**Start Date/ Duration**	**Investigators**
1.	RePORT India TB Transmission Training Program (RITP)	RePORT India Consortium	NIH Fogarty D43	2017	Gupta A, Christopher DJ, Bollinger R, Deluca A, Golub J
2.	Developing a Rapid Point-of-Care TB Diagnostic	RePORT International	NIH/NIAID: R01	2017	Walt D (Tufts PI), Rushdy A (Broad Institute co-PI), Rolla V, Santos M, Kristi A, Sterling T, Li Y, Mave V, Cristopher DJ, Gupta A, Pim A, Walzl G, Hamilton C, Duffy D, Gillette M
3.	Research and Interventions for HIV, Alcohol, Tobacco and Tuberculosis in India and South Africa (The HATT Consortium)	BJGMC NIRT JHU	NIH/NIAAA: R01	2017	Gupta A, Chander G, Heidi H, Thomas B, Kadam D, Suryavanshi N, Chandrasekaran P, Mave V, Gupte N
4.	Bio-markers for Risks of Development of LTBI and TB Disease in a Cohort of Childhood Contacts of Sputum Positive TB Patients.	CMC	RePORT India Supplemental Funding	2017	Christopher DJ, Rose W
5.	Impact of Air Pollution on Inflammation and Anti TB Immunity	BJGMC NIRT JHU	RePORT India Supplemental Funding	2016-2017	Shivakoti R, Gupta A, Chandrasekaran P, Chandrakumar D, Golub J, Mave V, Babu S, Elf J, Hannah LE, Kulkarni V, Gupte N

GRANTS & SUBSTUDIES | NOT AWARDED					
	Title	**Partners**	**Grant Source**	**Start Date/ Duration**	**Investigators**
6.	Characterizing the Host Inflammatory Response, and its Association with Treatment Outcomes and Lung Health in Adult Pulmonary TB Patients Undergoing Treatment in India	BJGMC NIRT JHU	RePORT India Supplemental Funding	2016-2017	Gupte A, Chandrasekaran P, Gupta A, Babu S, Mave V, Gupte N, Kornfeld H
7.	Does Tubercular Infection Adversely Affect Cardiovascular Risk?	JIPMER BCM	RePORT India Supplemental Funding	2016	Kar S, Sarkar Si, Negi VS, Prasanna MD, Roy G, Premarajan KC, Hochberg N, Lakshminarayanan S
8.	Impact of Malnutrition on Latent Tuberculosis Infection	JIPMER BMC Rutgers OHSU Tufts	NIH/R01	2016	Hochberg NS, Salgame P, Wanke C, Johnson WE, Ellner JJ, Parija S, Negi VS, Joseph NM, Rajkumari N, Mahalakshmy T, White LF, Lewinsohn D
9.	Geographical and Genotypic Distribution of TB Cases Under RePORT India – Tools for Understanding Epidemiology	JIPMER BMC BU	RePORT India Supplemental Funding	2016	Sarkar S, Roy G, Mahalakshmy T, Lakshminaraya S, Joseph NM, Jenkins H, Amsaveni, Hochberg NS
10.	Determining Barriers to TB Care	JIPMER BMC	BU SPH Pilot	2016	Fernandes P, Sabin L, Sarkar S, Pleskunas J, Amsaveni, Hochberg NS
11.	Novel Serum Based Biomarkers for Diagnosis of TB and Treatment Monitoring in HIV-infected and Uninfected Children	BJGMC NIRT DTTC, Capetown JHU	India SA RFA	2016	Valvi C, Hesseling AC, Chandanwale A, Kulkarni R, Paradkar M, Mave V, Gupte N, Chandrasekaran P, Shivakumar SVBY, Danasekaran K, Thiruvenkadam K
12.	Pediatric TB Biomarkers for Diagnosis and Treatment Response	BJGMC NIRT JHU	NIH/NIAID: R01	2016	Karakousis P, Paradkar M, Tornheim JA, Gupta A, Chandrasekaran P, Bader J, Mave V, Gupte N, Kulkarni V, Bharadwaj R, Valvi C, Shivakumar SVBY, Hannah LE, Pandey A
13.	Biomarkers for Treatment Response and Disease Recurrence in Pulmonary and Extrapulmonary Tuberculosis Disease	IGIB BJGMC SA NIRT JHU	India SA RFA	2016	Gokhale R, Kana B, Swaminathan S, Chandrasekaran P, Mave V, Gupta A, Shivakumar SVBY
14.	Novel Blood Biomarker to Predict Progression to Active TB Disease Among Recently Exposed Adult and Pediatric Household Contacts of TB Patients in India and South Africa	BJGMC NIRT SA JHU	India SA RFA	2016	Chandrasekaran P, Scriba T, Mave V, Paradkar M, Shivakumar SVBY, Gupte N, Gupta A, Danasekaran K, Khan S, Thiruvengadam S, Tripathy S, Prasad K

GRANTS & SUBSTUDIES | NOT AWARDED					
	Title	**Partners**	**Grant Source**	**Start Date/ Duration**	**Investigators**
15.	Memory-like NK Cells and Household Contacts of TB Patients.	BMMRC UT	NIH: 1R21AI127177-01		Vankayalapati K, Valluri V and others
16.	Annual Screening of Healthcare Personnel Using TST & QGFT and Identification of Bio-markers & the Role of Pet Scan	CMC	RePORT India Supplemental Funding	2016	Christopher DJ, Balamugesh T
17.	Radiological Treatment Response in Pulmonary Tuberculosis	CMC	RePORT India Supplemental Funding	2016	Balamugesh T, Christopher DJ

GRANTS & SUBSTUDIES | PENDING					
	Title	**Partners**	**Grant Source**	**Start Date/ Duration**	**Investigators**
1.	Effect of Helminths on Tuberculosis Severity	JIPMER BMC Rutgers NIRT NIH	NIH R21	2018	**Hochberg NS,** Salgame P, Babu S, Ellner JJ, Johnson WE, Joseph NM, Mahalakshmy T, Nutman T, Rajkumari N, Parija S
2.	Characterization of Genomics and Metabolomics among Individuals	Emory JHU BJGMC NIRT PHRU McGill	NIH R01	2018	**Gandhi N,** Shah S, Brust J, Gupta A, Mave V, Bharadwaj R, Chandrasekaran P, Hanna LE, Martinson N, Sun Y, Gwinn M, Schurr E, Jones D
3.	Innate Immune Responses in Household Contacts	BMMRC/LEPRA BJMC NIRT JHU UT	NIH/NIAID: R01	2017	**Vankayalapati K**, Valluri V, Gupta A, Mave V, Kadam D, Bharadwaj R, Hanna LE, Shivakumar SVBY, Prudhula, Chandrasekaran P, Gupte N
4.	Progression of Tuberculosis Infection to Disease Among HIV-Infected and HIV Seronegative Individuals – A Prospective Cohort Study in South India and South Africa	CMC BMMRC/LEPRA JIPMER NIRT PHRU UWITS	Indo-South Africa	2016	**Valluri VL**, Martinson N, Christopher DJ, Variava E, Sarkar S, Priyadarsini P, Bhavna G, Ziyaad W, Melissa C, Prudhula DK, Sanjeev NV

Agenda

RePORT India

7TH ANNUAL JOINT LEADERSHIP MEETING

CATALYZING DISCOVERIES TOWARD TB ELIMINATION

NEW DELHI | 15–17 FEB 2018

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RePORT India

New Delhi, India
15–17 Feb 2018

7th ANNUAL JOINT LEADERSHIP MEETING

CATALYZING DISCOVERIES TOWARD TB ELIMINATION

DAY 1: THURSDAY, FEBRUARY 15 | STATE OF THE CONSORTIUM

POSTER SETUP & REGISTRATION | 8:30–9:00 AM

SESSION 1: WELCOME | *Jyoti Logani, Moderator*

9:00–9:10 am Lighting Ceremony | *DBT/ICMR/NIH*

9:10–9:55 am Sponsor Welcome
- *Alka Sharma, Adviser (DBT)*
- *Sudha Srinivasan, Program Officer / Roxana Rustomjee, Senior Scientist (NIH/DAIDS)*
- *Sanjay Mehendale, ADG (ICMR) / R.R. Gangakhedkar, Scientist G (ICMR)*

Remarks by Director ICGEB
- *Dinakar M Salunke, Director (ICGEB)*

Remarks by RePORT International Advisory Board Member
- *Gagandeep Kang, Executive Director (THSTI)*

9:55–10:10 am State of TB in India
- *DJ Christopher, RePORT India Chair (CMC)*

10:10–10:25 am Update on ITRC
- *Sanjay Mehendale, ADG (ICMR)*

10:25–10:55 am State of the RePORT India Consortium & Central Biorepository
- *Amita Gupta, RePORT India Chair (JHU) & Luke Elizabeth Hanna, Biorepository Head (NIRT)*

TEA BREAK | 10:55–11:10 AM

SESSION 2: SITE PRESENTATIONS | *Vidya Mave & Padma Chandrasekaran, Moderators*

11:10–11:15 Meeting Objectives, Agenda Overview | *Samyra Cox*

11:15–11:45 Site108: Hinduja Hospital | *Zarir Udwadia*

11:45–12:15 pm Site 104/107: BMMRC/Texas | *Vijaya Valluri & Krishna Vankayalapati*

12:15–12:45 pm Site 103: MVDRC/UMass | *Vijay Viswanathan & Hardy Kornfeld*

GROUP PHOTO | 12:45–1:00 PM

LUNCH BREAK | 1:00–2:00 PM
YOUNG INVESTIGATOR POSTER SESSION
SPONSOR MEETING | DBT/ICMR/NIH (Closed Meeting)
PI MEETING (Closed Meeting)

SESSION 2: SITE PRESENTATIONS | *Vijay Viswanathan & Krishna Vankayalapati, Moderators*

2:00–2:30 pm Site 102: JIPMER/BMC/Rutgers | *Gautam Roy, Sonali Sarkar, Padmini Salgame, & Jerry Ellner*

2:30–3:00 pm Site 106: BJGMC/JHU | *Vidya Mave & Amita Gupta*

3:00–3:30 pm Site 105: NIRT | *Padma Chandrasekaran*

3:30–4:00 pm Site 101: CMC Vellore | *DJ Christopher*

TEA BREAK | 4:00–4:15 PM

SESSION 3: PI & WORKING GROUP BREAKOUT SESSIONS

4:15–5:30 pm PI Meeting with Sponsors (closed meeting)

4:15–5:30 pm Clinical Epi Working Group | *Balamugesh Thangakunam*

4:15–5:30 pm Behavioral Science Working Group | *Nishi Suryavanshi*

4:15–5:30 pm Operations Working Group | *Shri Vijay Bala Yogendra Shivakumar*

4:15–5:30 pm Data Management Working Group | *Jane Pleskunas, Nikhil Gupte, SAS CHRD*

4:15–5:30 pm Lab Quality Assurance & Basic Science Working Group (Lab Staff & Basic Science WG Members) | *Luke Elizabeth Hanna & Vandana Kulkarni*

RePORT India

New Delhi, India
15–17 Feb 2018

7th ANNUAL JOINT LEADERSHIP MEETING
CATALYZING DISCOVERIES TOWARD TB ELIMINATION

DAY 2: FRIDAY, FEBRUARY 16 | COLLABORATIONS & OPERATIONS

SESSION 1: SUB-STUDIES & COLLABORATIONS | ***Sudha Srinivasan & DJ Christopher, Moderators***

9:00–9:15 am — Welcome & Day 2 Objectives
- *Jyoti Logani & Sudha Srinivasan*

9:15–9:55 am — BJGMC/JHU Fogarty Program
- Introductory Remarks | *Bob Bollinger & Andrea Deluca*
- *Aarti Kinikar*
- *Anita Basavaraj*
- *Geeta Pardeshi*
- *Gauri Dhumal*

9:55–11:10 am — Review of RePORT India-related Studies (5-7 min Presentations Each)
- MDR Pilot & PREEMPT | *Bob Horsburgh*
- Validation of Transcriptional Signature to Predict Active TB Disease among Advanced HIV Patients | *Padmini Salgame & Vandana Kulkarni*
- Comparison of Available PPD TST Antigen Solutions in Detecting Latent TB Infection in India I *DJ Christopher*
- Extra Cranial Involvement as Detected By Positron Emission Tomography Scan In Patients With Tubercular Meningitis | *Balamugesh Thangakunam*
- PRACHITi | *Jyoti Mathad*
- TH17 Cell Subsets as Potential Risk Markers of Latency and Active TB Infection in Household Contacts | *Prudhula Kamakshi*
- Biomarkers for Tuberculosis Diagnosis and Treatment Response | *Jyothi Rengarajan*
- Q&A

TEA BREAK | 11:10 – 11:25 am

11:25–12:45 pm — Review of RePORT India-related Studies (cont'd) (5-7 min Presentations Each)
- VPM | *Vidya Mave*
- Impact of HIV and Diabetes Mellitus on TB Drug Resistance and Recurrence | *Vidya Mave*
- Molecular Signatures of TB-Diabetes Interaction (MSTDI) | *Hardy Kornfeld*
- Characterization of Monocyte Responses in Pulmonary TB Patients with or without Type 2 Diabetes | *Pavan Kumar*
- Effect of Malnutrition and Parasites on Latent TB Progression | *Natasha Hochberg*
- Determining Barriers to TB Care | *Sonali Sarkar & Natasha Hochberg*
- The Association of Tobacco and Biomass Fuel with Pulmonary Tuberculosis | *Divya Reddy*
- Q&A

LUNCH BREAK | 12:45–1:45 PM
YOUNG INVESTIGATOR POSTER SESSION

SESSION 2: OPERATIONS DISCUSSIONS

1:45–2:00 pm Summary: Operations Progress, Challenges, & Next Steps
- *Shri Vijay Bala Yogendra Shivakumar*

2:00–2:15 pm Discussion, Questions, & Action Items | *Shruthi BS, Moderator*

2:15–2:45 pm Summary: Data Management Progress, Challenges, & Next Steps
- *Jane Pleskunas | Nikhil Gupte | SAS CHRD*

2:45–3:00 pm Discussion, Questions, & Action Items | *Kannan Thiruvengadam, Moderator*

3:00–3:15 pm Summary: Lab Quality Assurance Progress, Challenges, & Next Steps
- *Vandana Kulkarni & Saranathan Rajagopal*

3:15–3:30 pm Discussion, Questions, & Action Items | *S Amsaveni, Moderator*

TEA BREAK | 3:30–4:00 pm

SESSION 3: COMMON PROTOCOL IMPLEMENTATION & POLICIES |
Sonali Sarkar & Amita Gupta, Moderators

4:00–4:30 pm Lessons Learned from Parent Protocols – Study Coordinator Panel and Q&A

4:30–4:45 pm Review of Common Protocol Clarifications & FAQs
- *Vidya Mave*

4:45–5:00 pm Protocol Deviations
- *Vaishali Adkar*

5:00–5:30pm Facilitated Discussion, Questions, & Action Items

SPONSORED DINNER FOR ALL PARTICIPANTS

RePORT India

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DAY 3: SATURDAY, FEBRUARY 17 | SCIENTIFIC TALKS

WELCOME & SCIENTIFIC PRIORITIES

9:00–9:05 am	Welcome & Day 3 Objectives | *Samyra Cox*
9:05–9:55 am	RePORT India Overview & Scientific Priorities | *EC Chairs, Nishi Suryavanshi, Balamugesh Thangakunam/Sonali Sarkar, Padmini Salgame/Krishna Vankayalapati*

SESSION 1: EXTENDING BEYOND ULTRA: WILL NEXT GENERATION SEQUENCING & HOST BIOMARKERS TRANSFORM TB DIAGNOSTICS? | *Jerry Ellner & Bala Thangakunam, Moderators*

9:55–10:00 am	Xpert EXTEND & XPERT ULTRA | *Jerry Ellner*
10:00–10:05 am	What is Still Needed in TB Diagnostics? | *Bala Thangakunam*
10:05–10:20 am	Systems Immunology Analysis of Mtb Infection for Prediction & Diagnosis of Tuberculosis | *Purvesh Khatri*
10:20–10:35 am	Next Generation Sequencing from Sputum | *Vedam Ramprasad*
10:35–10:50 am	Transcriptional Signatures for Discriminating Active TB from Latent Infection in Individuals from South India | *Evan Johnson*
10:50–11:00 am	Biomarkers Predicting Risk of Progression to TB Disease | *Padmini Salgame*
11:00–11:10 am	The Devil is in the Details - Standardizing Methods for RNAseq as a Biomarker for Pediatric Tuberculosis | *Jeff Tornheim*
11:10–11:30 am	Panel Discussion/Q&A

TEA BREAK | 11:30–11:45 AM

SESSION 2: HUMAN IMMUNITY TO TB | *Hardy Kornfeld & Vijaya Valluri, Moderators*

11:45–12:00 pm	Understanding the Host-Mycobacterium Tuberculosis Crosstalk by Global Phosphoproteome Analysis of Macrophage Proteins | *Nisheeth Agarwal*
12:00–12:15 pm	Building Capacity for Human Immunology in India | *Anmol Chandele*
12:15–12:30 pm	Lysosomal Control of Intracellular Mtb | *Varadha Sundaramurthy*
12:30–12:45 pm	Alcohol Enhances Type I Interferon-α Production and Mortality of Young Mice Infected with MtB | *Buka Samten*
12:45–1:00 pm	Longitudinal Cytokine Studies in TB/Diabetes Comorbidity | *Subash Babu*
1:00–1:15 pm	Panel Discussion/Q&A

LUNCH BREAK | 1:15–2:15 PM
YOUNG INVESTIGATOR POSTER SESSION

SESSION 3: DESIGNING STUDIES & INTERVENTIONS AIMED AT UNDERSTANDING AND BLOCKING TB TRANSMISSION | *Roxana Rustomjee, Moderator*
Padmini Salgame, Palwasha Khan, & Neel Gandhi, Co-Chairs

2:15–2:30 pm Zero TB Cities Chennai | *Srikanth Tripathy*

2:30–2:45 pm Introductory Remarks
- Microbiology & Immunology | *Bavesh Kana*
- Epidemiology, Spatial Mapping & Measurement | *Neel Gandhi*
- Interventions | *Palwasha Khan/Sriram Selvaraju*

2:45–3:15 pm Panel Discussion 1: Microbiology & Immunology | *Bavesh Kana & Padmini Salgame, facilitators*
- *Rajesh Gokhale*
- *Urvashi Singh*
- *Purvesh Khatri*
- *Evan Johnson*
- *Kalpana Sriraman*

3:15–3:45 pm Panel Disucssion II: Epidemiology, Spatial Mapping & Measurement | *Neel Gandhi & Vidya Mave, Facilitators*
- *Aarti Kinikar*
- *Chitra Iravatham*
- *Bob Horsburgh*
- *Anirvan Chatterjee*

3:45–4:15 pm Interventions | *Palwasha Khan, Sriram Selvaraju, Thuli Mthinaye, Facilitators*
- *Dina Nair*
- *Amita Gupta*
- *Banurekha Velayutham*
- *Natasha Hochberg*
- *Purvesh Khatri*

TEA BREAK | 4:15–4:30 PM

4:30–4:45 pm TB Transmission Summary & Next Steps I *Roxana Rustomjee*

4:45–5:00 pm Meeting Action Items | *Samyra Cox & Vaishali Adkar*

5:00–5:30 pm Closing Remarks | *Sponsors & EC Chairs*

ADJOURN | 5:30 PM

Speaker Biographies

RePORT India

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NEW DELHI | 15–17 FEB 2018

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Vaishali Adkar, MS, MBA

Sr. Project Manager, Government and Public Health Services, PPD

Ms. Adkar has 11 years of clinical research management & coordination experience within CRO &pharmaceutical industries. She has worked as a Clinical Project Manager, Clinical Research Manager / Clinical Research Data Manager / Sr. Clinical Research Specialist and Clinical Research Associate (monitor/auditor) with clinical research management/coordination, data management, monitoring, regulatory, drug safety and quality management/audit experience in the area of oncology, endocrinology, medical device, infectious disease, vaccine, immunology, alternative and complementary medicine.

Nisheeth Agarwal, PhD

Associate Professor, Vaccine and Infectious Disease Research Center, Translational Health Science and Technology Institute (THSTI)

Dr. Agarwal currently works at the Vaccine and Infectious Disease Research Center (VIDRC), Translational Health Science and Technology Institute. Identifying and characterizing new drug targets, understanding the mechanisms of drug-induced phenotypic tolerance and genetic resistance in M. tuberculosis, and the host response to M. tuberculosis infection.

Subash Babu, PhD, MBBS

National Institutes of Health-National Institute for Research in Tuberculosis, International Center for Excellence in Research (NIH-NIRT-ICER)

Dr. Babu currently works at the NIH-NIRT-ICER, National Institutes of Health. His lab is involved in three major areas of research: (1) Host response to helminth infection and pathogenesis of helminthic disease; (2) Immune responses in pulmonary and extrapulmonary tuberculosis and (3) Modulation of immune responses in tuberculosis by coinfections and comorbidities such as helminth infections and type 2 diabetes mellitus. Our larger group comprising of our center at Chennai and the Helminth Immunology Section in the Laboratory Parasitic Diseases, NIAID, NIH is the world's leading authority on basic and clinical research on filarial infections. We have also contributed to most of the mechanistic understanding of the immunological convergence of helminth infections and tuberculosis as well as more recent data on the interaction between diabetes and tuberculosis.

VV Banurekha, PGDPH

Scientist D, National Institute for Research in Tuberculosis.

D. Banurekha is working as Scientist in the Department of Clinical Research at the ICMR -National Institute for Research in TB, Chennai since 2007. She completed her medical under-graduation at the Madras Medical College and Masters in Public Health at the National Institute of Epidemiology, ICMR School of Public Health, Chennai. She has a Post Graduate Diploma in Bioethics. At the National Institute for Research in TB she is involved in Clinical trials and Operational research studies focusing on the diagnosis, treatment and prevention of TB.

Anita Basavaraj, MD.

Associate Professor, Department of Medicine, BJGMC

Dr. Basavaraj has done her MBBS from Nagpur University with Honors in Surgery (1987). Thereafter she did her MD in Medicine (1990) and her Diplomat of National Board (D.N.B.) in 1992.She has done her post graduate Diploma in geriatric Medicine (P.G.D.G.M.) winning the university Gold Medal by virtue of standing first in the country (2012), which is a distant education venture run by Indira Gandhi National Open University (IGNOU). Dr. Basavaraj is at present working as Associate Professor in The Department Of Medicine and Unit In charge at B.J.Medical College and Sassoon General Hospital, Pune ,India. She has special interest in HIV medicine which she learned and practiced in Grant Medical Government Medical college and J.J.Hospital, Mumbai, before coming to Pune. She was pioneer in starting HAART in PLHIV at SGH in 1998 and was given the responsibility of starting and nurturing the first HIV OPD at SGH on 9th April 1999 which later in 2004 merged into NACO's ART center which today caters to care and follow up of over 30,000 PLHIV. She was awarded and underwent Fellowship for HIV studies at the New York Presbyterian hospital and Weill Cornell Medical center in New York City, USA(2004).she was awarded and felicitated by the first President of Zambia, Mr. Kenneth Kaunda for outstanding work for care and treatment of patients with HIV and AIDS. She has participated in BJGMC-JHU,CTU, projects since last 12 years, monitoring PEP, toxicities and adverse events. She manages BJGMC-JHU undergraduate students activities and monthly HIV videoconferencing. She has as a research guide studied lyphadenopathy in PLHIV, fever in PLHIV,TB-HIV co-infection, Pulmonary manifestations of PLHIV, Cardiac toxicities, ART toxicities, psychosocial aspects and CD4 as surrogate marker in PLHIV. She heads the Gastroenterology services at BJ and performs and overviews upper and lower GI therapeutic and diagnostic video endoscopies. She also heads the Geriatric services at B.J. and is the Programme In-Charge for PGDGM since last 8 years. She has designed a syllabus for geriatric curriculum for MUHS.

Basavaradhya S. Shruthi, MDS

Study Manager, Prof M Viswanathan Diabetes Research Centre

Bob Bollinger, MD, MPH

Professor of Medicine and Public Health, Johns Hopkins University

Dr. Bollinger is Professor of Medicine and Public Health at Johns Hopkins University. He is Founding Director of the JH Center for Clinical Global Health Education, Associate Director for Medicine of the JH Center for Global Health, Director of the JHU Fogarty India Program, and course instructor for the Global Health Intersession Course for JH medical students. Dr. Bollinger has more than 35 years of experience in international public health, clinical research, and education. His research interests include identifying biological and behavioral risk factors for HIV transmission; characterizing the clinical progression and treatment of HIV and related infections; and implementing science research projects to optimize healthcare capacity and delivery in resource-limited settings. He served as a member of the US Presidential Advisory Council for HIV/AIDS (PACHA), and a member of the PACHA International Sub-committee, and is a current member of the Institute of Medicine Forum on Public-Private Partnerships for Global Health and Safety. He established and has sustained programs in countries throughout Africa, South and Central America, Southeast Asia, and the Middle East. In 1991, he initiated an ongoing, NIH-funded Indo-US HIV research program in Pune, India, involving the National AIDS Research Institute/ICMR and the BJ Medical College. He has served as Principal Investigator for many NIH-supported studies and clinical trials in Pune, including the SWEN study, which changed World Health Organization (WHO) guidelines for treatment of infants born to HIV/positive mothers to prevent mother-to-child transmission. Under his leadership of the Hopkins Fogarty International Program, short-term and degree training has been provided to more than 100 visiting scientists at JHU, and in-country training has been provided to more than 2000 Indian scientists. His commitment to clinician education has been honored with the Johns Hopkins Department of

Medicine David M. Levine Excellence in Mentoring Award. He is author of more than 180 peer-reviewed research publications and 15 book chapters, including the first and largest studies of risk factors for HIV transmission in India, the cloning and sequencing of the first HIV viruses from India, the only studies characterizing the primary immune response to HIV in India, and the demonstration of increased risk of HIV acquisition with recent HSV infection and lack of circumcision.

Anmol Chandele, PhD

Assistant Professor, ICGEB-Emory Vaccine Center

Dr. Chandele is Assistant Professor at the ICGEB-Emory Vaccine Center, International Center for Genetic Engineering & Biotechnology, New Delhi. Her lab is a unique partnership between Emory Vaccine Center, Atlanta and ICGEB, New Delhi. As an immunologist, for the past few years she has worked extensively to build capacity for human immunology research in India by mentoring graduate students, research scholars and senior research scientists. She has also collaborating with clinicians, epidemiologists and basic researchers from several institutions in India and USA for capacity building, technology transfer and basic research, with special emphasis on immunology of dengue virus infections in India. In the RePORT meeting, she will share my experiences in my talk titled 'Capacity building for human immunology research in India.'

Padmapriyadarsini Chandrasekaran MBBS, DNB, MS (CR)

Deputy Director, Department of Clinical Research, National Institute for Research in Tuberculosis
Executive Committee Member, RePORT India

Dr. Chandrasekaran is a clinician by training and is currently Deputy Director (medical) in the Department of Clinical Research at the National Institute for Research in Tuberculosis (NIRT) (formerly known as the Tuberculosis Research Centre), Chennai. She has a Short-term Fellowship in HIV epidemiology from University of California, Los Angeles and a Masters Degree in Clinical and Translational Research from Tufts University Boston, USA. Over the last 16 years, she is involved in multiple clinical studies involving HIV and TB coinfected adults and children at NIRT. She is the Principle investigator of multiple collaborative, multicentric projects, both at national and international level. She has more than 45 publications in peer reviewed national and International journals and 3 book chapters to her credit. Her current research interests include Treatment and prevention strategies for TB, Nutritional supplement for TB, Pediatric HIV-TB and Management of Non-tuberculous Mycobacteria in lungs.

Anirvan Chatterjee, PhD

Postdoctoral Fellow, IIT Bombay; Consultant, The Foundation for Medical Research

During his PhD studies, (under the mentorship of Dr. Nerges Mistry, FMR) Dr. Chatterjee focused on the genetic variability of MDR TB strains in Mumbai, and explored transmission patterns. They undertook the largest molecular epidemiology study of MDR-TB in India. Following that he moved over to WGS of M.tb strains from Mumbai (this during his PDF at Oxford University), and observed that even hyper-endemic locales like Mumbai can have clonal outbreaks of TB. Detecting such outbreaks has far reaching implications in public health. Currently his is at IIT Bombay discovering new viruses from the environment using genomics and metagenomics. He is actively involved with efforts to mobilize a WGS-based TB diagnostic system in Mumbai. He began his research career working exclusively in the wet lab, and now works to develop a computational framework for microbial analysis. He is hoping to contribute to efforts to translate basic research for public health.

Andrea DeLuca, MHS

Research Associate; Johns Hopkins University

Ms. DeLuca is a Senior Research Associate faculty member in the Department of International Health at the Johns Hopkins Bloomberg School of Public Health and the Project Director for the CCGHE-directed Byramjee Jeejeebhoy Government Medical College (BJGMC)-JHU Fogarty Training Program in Pune, India. Ms. DeLuca's research focuses on capacity building and advocacy for HIV-TB policy change. She has more than 10 years of managing multi-country projects, with an emphasis on ethics and quality of program and research implementation. Ms. DeLuca received undergraduate degrees in biology and creative writing from Pacific Lutheran University and a master of health science in international health, disease prevention and control from Johns Hopkins Bloomberg School of Public Health.

Devasahayam (DJ) Christopher, DNB, FRCP

Chief Pulmonary Physician, Professor of Pulmonary Medicine & Associate Director (HR), Christian Medical College, Vellore
India Chair, RePORT India

Dr. Christopher heads the department of pulmonary medicine at the Christian Medical College, Vellore; a well-known referral hospital in Southern India. His basic medical training was from India and he has had advanced training in United Kingdom and Australia. He holds the clinical title of 'professor of pulmonary medicine'. He is a recipient of prestigious training fellowships; the Raj-Nanda and the British thoracic society fellowship for training in interventional pulmonology, in the UK, International fellowship of the American association of respiratory care awarded by the American Association of Respiratory Care and the Senior training fellowship for training in Interventional Pulmonology in Marsielle. He is a Fellow of the Indian Chest Society, Royal college of Physicians & Surgeons, Glasgow and the American College of Chest Physicians and the Asia Pacific Society of Respirology. He is the Zonal Chairman of the Indian Chest Society and past president of the Indian Association of Respiratory care. Dr Christopher's research awards include; 'the rising star of global healthcare' by the Grand challenges, Canada to work on a point of care test for extra-pulmonary TB and the First place in the CMC research day award. He is the chair of the RePORT India. His major research interest is in the area of 'TB point of care diagnostics' & 'TB risk in healthcare workers' and his group has performed the largest study in 'healthcare workers TB infection risk', in India. Apart from Tuberculosis, his research interests include; Interventional pulmonology, Asthma, COPD and Pleural diseases. He is in the advisory boards of journals and reviews articles for National and International journals. He authored 10 chapters in books and has more than 110 publications in various National and International journals. He has been an invited speaker at numerous National and International conferences, CMEs and Workshops.

Kamakshi Prudhula Devalraju (M.Tech)

Research Coordinator, Bhagwan Mahavir Medical Research Centre
Common Protocol Co-Chair, RePORT India

Ms. Devalraju is the site coordinator for BMMRC and a co-chair for the common protocol, which involves establishment of cohorts, She is responsible for collection and shipment of samples across various sites in India for future TB research. Ms. Devalraju is an M.tech in Biotechnology who is pursuing a PhD in the biotechnology at Jawaharlal Nehru Technological University Hyderabad (JNTU) as an external candidate. She is the Research Coordinator at Bhagwan Mahavir Medical Research Centre- BMMRC. She has more than 7 years of experience in various immunological and molecular biological techniques. Her research interests include development of biomarkers for early detection of TB in house hold contacts of TB patients. For her PhD, she is studying the immune factors responsible for activation

of latent TB in HIV+ individuals. At Dr. Vijaya Lakshmi's lab, she handles screening of study subjects, enrolment into research, PBMC cultures, immuno-phenotyping. she also have an USD 50000 grant by NIH-NIAID for one year to study the role of "TH17 cells as potential risk markers for latency and active tb infection in household contacts". She has co-authored manuscripts on TB and Leprosy and have 3 manuscripts under review on HIV.

Samyra Cox, MPH

Research Program Manager, Johns Hopkins Center for Clinical Global Health Education
US Secretariat, RePORT India

Ms. Cox is responsible for managing Indo-JHU research projects under Dr. Amita Gupta at the Johns Hopkins Center for Clinical Global Health Education. She serves as the Executive Committee Secretariat of the RePORT India consortium and is a collaborator on the CTRIUMPh and Common Protocol studies. She also plays a project management, data analysis, and writing role on a number of other BJGMC-JHU collaborative studies related to CDC Shepherd (neonatal sepsis), the AIDS Clinical Trials Group (ACTG), and the International epidemiology Database to Evaluate AIDS (IeDEA). Ms. Cox is a public health professional with over seven years of project management and grant writing experience at international development non-profits. She has been supporting complex TB research and implementation projects since 2013 and has worked extensively on multi-million dollar grants from institutional donors. Prior to CCGHE, Ms. Cox worked for Partners In Health in collaboration with Harvard Medical School and Brigham and Women's Hospital writing grants for global health programs in Haiti, Russia, Navajo Nation, and Rwanda. She received a Bachelor of Arts (BA) in International Relations from New York University (NYU) and a Master of Public Health (MPH) with a Certificate in Epidemiology for Public Health Professionals from the Johns Hopkins Bloomberg School of Public Health.

Gauri Dhumal, MSc

Program Manager, BJGMC-JHU Fogarty HIV-TB Training Program

Ms. Dhumal is Program Manager for the BJGMC-JHU Fogarty HIV-TB Training Program. The Fogarty Program is a five-year partnership with the Byramjee Jeejeebhoy Medical College in Puna, India, designed to establish a cadre of highly trained faculty to build institutional capacity for, and lead, HIV and tuberculosis research. Ms. Dhumal is an anthropologist with a public health background and more than 9 years of expertise in research, project management, clinical trial, epidemiology and teaching. She is author of 6 national and international publications, and has presented research findings at national and international conferences. She serves on the editorial board of the anthropological journal *An Asian Man*. She has contributed in the book "Maharshtratil Adivasi" which is in Marathi. She also contributed anthropological expertise for Marathi Vishwa kosh. Her key competencies are anthropology, epidemiology, research, project management, budget development and proposal writing, monitoring and control, qualitative and quantitative data analysis and report writing. Ms. Dhumal attended the University of Pune, Pune, Maharashtra, India, where she completed her BSc in zoology, her MSc in anthropology and she is rank holder of University of Pune, and currently pursuing a PhD in anthropology.

Jerrold J. Ellner, MD

Professor, Boston University School of Medicine
Executive Committee Member, RePORT India

Dr. Ellner is Professor at Boston University School of Medicine. He has studied the immunopathogenesis of TB and TB in HIV through research collaborations in Uganda and Brazil. His research group was the first to show that TB accelerated the course of HIV

infection by activating viral replication in latently infected cells. He was one of the principal architects of the Uganda-Case Western Reserve University Research Collaboration, a founding member of the Academic Alliance for AIDS Prevention and Care in Africa which developed the Infectious Diseases Institute at Makerere University, and the founding director of the TB Research Unit at Case Western Reserve University. He currently is PI of the TB Research Unit on Paucibacillary TB (South Africa, Brazil), RePORT India Collaboration with JIPMER in Pondicherry and RePORT South Africa. Dr. Ellner has authored more than 300 research publications on TB and has trained a number of current academic leaders in infectious diseases.

Neel Gandhi, MD

Assistant Professor, Department of Medicine, Department of Epidemiology & Population Health, Emory University

Dr. Gandhi is Associate Professor in the Departments of Epidemiology, Global Health and Infectious Diseases at Emory University's Rollins School of Public Health and Emory School of Medicine. He has been in clinical research in Tuberculosis and HIV co-infection since 1998. Since 2002, Dr. Gandhi has led a research team focused on epidemiology and clinical research studies to improve care for TB patients co-infected with HIV. In 2006, Dr Gandhi was the lead author on a study describing high rates of mortality in patients with extensively drug-resistant tuberculosis (XDR TB) and HIV co-infection in the rural town of Tugela Ferry. This study has been credited for uncovering a rapidly expanding multidrug-resistant (MDR) TB and XDR TB epidemic in South Africa. Since the discovery of the drug-resistant TB epidemic in South Africa, Dr. Gandhi's research group has focused on characterizing the epidemiology, and improving diagnosis and treatment of MDR and XDR TB. His research group has demonstrated that transmission of drug-resistant TB strains, in healthcare and community settings, is major factor in driving the rapid expansion of the epidemic. They have also shown that MDR TB treatment outcomes, among HIV co-infected individuals, can be improved to rates similar to those without HIV, if antiretroviral therapy is given concurrently. His research group is now investigating the risk of developing resistance to bedaquiline, as well as drug-drug interactions with antiretroviral therapy, among pre-XDR and XDR TB patients. In addition to NIH funding for the South African studies, Dr. Gandhi is also collaborating with colleagues at Emory and in TB Research Unit (TBRU) ASTRa, to understand adaptive and innate immune responses and their relationship to outcomes following Mtb exposure, including active TB disease, prolonged latent TB infection, and clearance or resistance to infection. Dr. Gandhi's group has collaborated with the US CDC and Kenya Medical Research Institute to establish a study site in Kisumu, Kenya, and with the DeKalb County Board of Health for a study site in Atlanta for these studies.

Raman R. Gangakhedkar

Scientist G, ICMR

Rajesh S. Gokhale, PhD

Staff Scientist at National Institute of Immunology

Dr. Gokhale is presently a Staff Scientist at National Institute of Immunology (NII). He was the Director of CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB) for more than seven years. During his tenure he established the IGIB's South Delhi Campus and also led interdisciplinary initiatives in translational genomics research towards resolving complex diseases. He is trained as a chemical biologist from Indian Institute of Science (IISc), Bangalore and Stanford University, USA and was a Wellcome Trust Senior Research Fellow, UK and also the International HHMI Fellow, USA. The thematic focus of his laboratory is to elucidate complex interplay between metabolic reprogramming and immunity in the context a pathogenic disease Tuberculosis and autoimmune skin disorder Vitiligo. These studies should define how metabolic imbalances drive disease pathogenesis and through this develop novel therapeutic strategies that will tackle the underlying causes, rather than just the symptoms. He is recipient of several awards including Infosys Prize, Shanti Swaroop Bhatnagar Prize and IIT Bombay Distinguished Almuni Award. He is on the editorial board of Journal of Biological Chemistry, Section Editor of Tuberculosis and the Advisory Board of Natural Product Reports. He has Co-founded Vyome Biosciences (VYOME), a biopharmaceutical company developing best in class drugs for dermatology care utilizing genomics knowledge.

Amita Gupta, MD, MHS

Associate Professor of Medicine and Public Health, Johns Hopkins University; US Chair, RePORT India

Dr. Amita Gupta, MD, MHS is Associate Professor of Medicine in the Division of Infectious Diseases with a joint appointment in International Health at the Johns Hopkins Bloomberg School of Public Health. She is also Deputy Director of the Center for Global Health Education, mission of which is to train healthcare workers in low-income countries evidence based clinical prevention and management of infectious diseases. Dr. Gupta has 20 years of experience in international public health and clinical research and 15 years of working in HIV, TB, and other infectious diseases in India. She is a clinical trialist and epidemiologist who focuses on the prevention and treatment of pediatric and adult HIV/AIDS, TB and malnutrition with special interest in HIV and TB in pregnant women. She actively mentors post- doctoral investigators in this field some of whom have now become independent investigators. Additionally, she has been instrumental in raising more than $6.5 million dollars in philanthropic support for Indo-US research and educational capacity.

Nikhil Gupte, PhD

Research Associate, Johns Hopkins School of Medicine; Deputy Director, BJGMC-JHU Clinical Research Site
Data Management Working Group Co-Chair, RePORT India

Dr. Gupte has a PhD (2003) in Biostatistics from Johns Hopkins University with more than 20 years of experience in public health and clinical research in developing countries. For the last 20 years I have been involved in clinical, behavioral, and laboratory research related to HIV/AIDS and TB prevention and treatment in the capacity of a Biostatistician. In addition, he has more than 15 years of experience in clinical data management. He a lead statistician for several clinical trials on HIV/TB epidemiological studies and clinical trails in India and South Africa, and he has published extensively in peer-reviewed journals. I have spearheaded several analysis from the AIDS Clinical Trial Group. Currently, he is Data Management Director and Deputy Director for the Johns Hopkins/BJ Medical College Clinical Trials Unit in Pune, India where several AIDS Clinical Trial Group (ACTG) and International Maternal, Pediatric, Adolescent AIDS Clinical Trials

(IMPAACT) studies are being conducted. He is an active member of the RePORT India consortium and currently serve as the consortium's Data Management Co-Chair.

Luke Elizabeth Hanna, PhD

Scientist E, Department of Clinical Research, National Institute for Research in Tuberculosis, Indian Council of Medical Research
Central Biorepository Head, RePORT India

Dr. Hanna is Scientist E, Department of Clinical Research, National Institute for Research in Tuberculosis, Indian Council of Medical Research. She has a background in Immunology with 20 years of working experience in the broad area of immunology of infectious diseases including tuberculosis, HIV and lymphatic filariasis. She is trained in several immunological, molecular and virological techniques including flow cytometry, neutralization antibody assays, virus culture, real-time PCR, multiplex PCR, molecular cloning, sequencing, drug resistance genotyping, etc. She has undertaken a number of research studies on HIV pathogenesis and immune response to HIV/TB co-infection, and has published more than 50 articles in peer reviewed journals. She is actively involved in several TB and HIV-TB clinical trials and is a resource person and trainer in Good Clinical and Good Laboratory Practices.

Natasha Hochberg, MD, MPH

Assistant Professor of Medicine and Public Health, Boston University

Dr. Hochberg is an Assistant Professor of Medicine (Section of Infectious Diseases) and Assistant Professor of Epidemiology at Boston University Schools of Medicine and Public Health. She is also the co-director of the Travel Clinic at Boston Medical Center. She is PI for the TB LION study (TB Learning the Impact of Nutrition), and co-investigator for RePORT India (JIPMER site) and an R01 for TB in pregnancy.

C. Robert Horsburgh, Jr., MD, MUS

Professor of Medicine and Public Health, Boston University

Dr. Horsburgh's career has been dedicated to understanding and preventing mycobacterial diseases, particularly drug-resistant tuberculosis and tuberculosis in HIV-infected persons. He is an experienced TB clinician and his research has focused on TB clinical and epidemiologic research and clinical trials. He served as Chairman of the infectious Diseases Society of America's TB Committee, Chairman of the Steering Committee of the U.S. Tuberculosis Trials Consortium (TBTC), Chairman of the Steering Committee of the U.S. Tuberculosis Epidemiologic Studies Consortium (TBESC) and Co-Chair of the "Access and Appropriate Use Work Group" of the Gates Foundation's Critical Path to TB Drug Regimens Initiative. He is a member of the U.S. Advisory Committee for the Elimination of Tuberculosis (ACET), which advises CDC on tuberculosis control and elimination strategy. In addition, he is Co-Chairman of the Drug-Resistance Working Group of the IUATLD, Chair of the MDR/XDR-TB Working Group of the TBTC, and Chairman of the Steering Committee of *Research Excellence to Stop TB Resistance* (RESIST-TB), an international organization that advocates for clinical trials of Drug-resistant TB (http://www.resisttb.org/). He recently became President-Elect of the North American Region of the International Union Against Tuberculosis and Lung Disease.

Chitra Iravatham

Director - Dr. Iravatham's Clinical Laboratory (referral lab for TB) since 2000.

Trained in Mycobacterial techniques from TRC, NTI and JALMA. Headed TB lab in State TB Center under RNTCP. Gold member, European Respiratory society; Member, IUATLD, IPAQT & Indian TB association. Dr. OA Sarma oration award at Natcon 2017. Three Gold medals for best paper in State TB conferences. International presentations in ERS and IUATLD. Pilot study on identifying TB HOT spot and Transmission pattern. Pilot study on strain pattern in local urban setting. Pilot study on geniturinary TB and its association with infertility in women. Molecular identification of Non tuberculous mycobacteria. Pilot study on response to second line drugs in MDR patients.
Area of interest is TB epidemiology and diagnostics

W. Evan Johnson, PhD

Associate Professor of Medicine, Biostatistics, and Bioinformation

Dr. Johnson is Associate Professor of Medicine and Biostatistics at Boston University. His research interests include applications in precision genomic medicine, metagenomics, infectious disease diagnostics, batch effects, genomic data analysis, tumor heterogeneity and cancer research.

Bavesh Kana PhD

Professor, University of the Witwatersrand

Professor Bavesh Kana is the head of the University of the Witwatersrand (Wits) node of the DST/NRF Centre of Excellence for Biomedical TB Research, Johannesburg, South Africa, where he studies tuberculosis with a focus on identifying new drug targets and biomarkers to monitor treatment response and risk of disease recurrence. He obtained his PhD at Wits and has worked in several US institutions including the University of Pennsylvania, Texas A&M University, the Public Health Research Institute and Harvard Medical School. Prof. Kana was also appointed as an Early Career Scientist of the Howard Hughes Medical Institute (2012-2016) and was selected as one of the 200 top young South Africans by the Mail and Guardian newspaper. His current work attempts to address fundamental questions regarding pathogenesis and clinical manifestation of TB disease, with a specific focus on identification and characterization of differentially culturable tubercle bacteria in the sputum of TB infected individuals. In addition, he studies remodelling of the mycobacterial cell wall to identify new drug targets. He is also involved in the development of next-generation diagnostic verification reagents for quality assurance and verification of tuberculosis molecular diagnostics. Some of the reagents developed in his laboratory are now being deployed in over 20 countries.

Gagandeep Kang, MD, PhD

Executive Director, Translational Health Science and Technology Institute, Department of Biotechnology, Government of India

Prof. Kang is Executive Director of the Translational Health Science and Technology Institute, Department of Biotechnology, Government of India. She also is Professor of Microbiology and Head of the Wellcome Trust Research Laboratory (WTRL), and Division

of Gastrointestinal Sciences at Christian Medical College (CMC), Vellore. Over the past 20 years, Prof. Kang has built a strong inter-disciplinary research and training program, where young faculty and graduate students are mentored before embarking on independent research careers. She leads a multi-disciplinary research team that conducts comprehensive and complementary studies in the description, prevention and control of diarrheal disease using state-of-the-art tools in the laboratory, hospital and the field. Prof. Kang is an Associate Editor for PLoS Neglected Tropical Diseases and Tropical Medicine and International Health, and serves on the editorial board of Nature Scientific Reports as well. She is a Council Member of the International Society for Infectious Diseases and an Independent Director of the Biotechnology Industry Research Assistance Council. Her expertise in vaccines is underlined by her membership of the National Technical Advisory Group on Immunization, the WHO's Global Advisory Committee on Vaccine Safety, and the WHO's Immunization and Vaccine Implementation Research Advisory Committee, as well as chairing the WHO SEAR's Immunization Technical Advisory Group.

Palwasha Y Khan

Epidemiologist

Pasha Khan is a clinical epidemiologist and completed clinical training as specialist in HIV medicine and Sexual Health in the UK in 2017 with a period of research training in Malawi investigating Mycobaceterium tuberculosis transmission funded by the Wellcome Trust with LSHTM (2012-2015). She is leading the baseline transmission survey, which is part of the impact evaluation of Zero TB Karachi with IRD.

Purvesh Khatri, PhD

Assistant Professor, Stanford University

Dr. Khatri is an electronics and communications engineer turned software developer turned computational systems immunologist. He is an assistant professor in Institute for Immunity, Transplantation and Infection and Division of Biomedical Informatics Research in Department of Medicine at Stanford University. His research focuses on developing methods for reusing and repurposing public data for translational medicine inexpensively and faster than traditional translational approaches. His lab leverages heterogeneity present across independent cohorts to better understand human immune system to develop novel diagnostics and therapies for inflammatory diseases including autoimmune and infectious diseases, organ transplant, vaccination, and cancer.

Aarti Avinash Kinikar MD, MRCP

Professor of Paediatrics and Neonatology

Dr Kinikar is Professor of Paediatrics and Neonatology at BJ Government Medical College, Pune , India. She completed her MD at Grant Medical College Mumbai in 1988 and then trained in UK for 5 years. She completed her MRCP (UK) -Paediatrics in 1995 and Diplomat National Board - Paediatrics in 2005. Recipient of the prestigious Dr Dahanukar – Best Medical Teacher Award in 2013 from Maharashtra University of Health Sciences, Nashik. Has been awarded provisional patent for developing low cost indigenous Bubble CPAP during H1N1 pandemic in Pune, India.She has been a Fogarty Scholar for HIV (2007) and TB (2014) Research at John Hopkins University, Baltimore, USA. She has been the subject Principal Investigator (PI) for various Indo- US (NIH) clinical research trials in Paediatric TB and HIV since 2000 in collaboration with John Hopkins University, Baltimore USA (IMPAACT Network). She has several national and international research publications to her credit and presented research papers at various National and International Conferences. She is a member on various State

level Expert Committee's on pediatric infectious diseases and also a National Master Trainer for various National Health Programms. She has been an undergraduate and postgraduate teacher in Paediatrics and guided several MD students for the past 20 years .She has mentored undergraduate students doing short term research projects under ICMR,MUHS and also mentored students coming from Hopkins since 2000 at BJGMC, Pune. Her area of research interest has been Paediatric Infectious Diseases – HIV,TB, Measles, Polio. She is also heading the Thalassemia center and the Nutrition Rehabilitation center at BJ Government Medical College and Sassoon Hospital, Pune.At Sassoon General Hospital, Pune she has been instrumental in establishing Pediatric and Neonatal ICU, Thalassemia Unit, Nutritional Rehabilitation unit for Malnourished children, Human Milk Bank, Early Intervention and Nutrition Clinic , dedicated HIV and TB OPD's, etc over the past 17 years through government funds and generous contributions from voluntary donors. This work was appreciated by the Hospital and the Government , especially patient care during the H1N1 pandemic in Pune. Recently (2017) she was awarded "BMJ South Asia Award for Best Maternal & Child Team of the Year" for pionieering work in Human Milk banking.

Hardy Kornfeld, MD

Professor of Medicine at the University of Massachusetts Medical School
US Co-Chair, RePORT INdia

Dr. Kornfeld is Professor of Medicine at the University of Massachusetts Medical School. A graduate of Boston University School of Medicine, he completed internal medicine residencies at University Hospital (Boston) and St. Luke's Hospital (New York) followed by subspecialty training in infectious diseases (St. Luke's), pulmonary medicine (Boston University) and a postdoctoral fellowship in molecular virology at the Harvard School of Public Health. Dr. Kornfeld is a physician-scientist, practicing pulmonary and critical care medicine alongside research projects. His laboratory studies macrophage cell death in TB and mechanisms of TB susceptibility in mouse models of diabetes. Clinical projects include the Effects of Diabetes on Tuberculosis Severity study in Chennai (collaboration with Dr. Vijay Viswanathan), an observational study of lung function in HIV/TB patients with IRIS (collaboration with the Aurum Institute, South Africa) and he is developing a clinical trial proposal to test metformin as adjunctive therapy in HIV/TB.

Vandana Kulkarni, MSc

Laboratory Manager, BJGMC Clinical Research Site

Ms. Kulkarni has a master's degree in microbiology and has completed the Professional Development Program for Quality Assurance and Regulatory Affairs in Biopharmaceutical Industry. She is Laboratory Manager at Byramjee Jeejeebhoy Government Medical College Clinical Research Site (BJMC-CRS) in collaboration with Johns Hopkins University, Baltimore, USA, where she has worked since September of 2004. During the last 14 years, she has worked in the research laboratory providing lab support to NIH-funded ACTG and IMPAACT trials as well other studies. She is responsible for the overall lab operations of the research which includes evaluates personnel competency and proficiency as well as waste management, vendor development, and maintenance contracts. her work profile also includes writing and revising all laboratory standard operating procedures (SOPs), for training staff in new methodologies as required, and for ensuring that laboratory and staff operate under Good Clinical Laboratory Practices. Additionally, my responsibilities include method/instrument validations, periodic EQA evaluations and methodology improvements to ensure that quality control and quality assessment programs are established and maintained, overseeing the specimen repository, coordination of international shipping and documentation, responsible for lab readiness for annual audit to the Division of AIDS, NIAID, NIH. Her prior experience includes quality control, microbiological testing, antibiotic and vitamin assays, and toxicity and sterility testing in the pharmaceutical industry.

N. Pavan Kumar, PhD

Post-doctoral Fellow, National Institutes of Health-National Institute for Research in Tuberculosis, International Center for Excellence in Research (NIH-NIRT-ICER)

Dr. Pavan received his Bachelor's Degree from the University of Madras in 2005 and Master's degree from Loyola College in 2007. Soon thereafter he began working at the National Institute of Allergy and Infectious Diseases (NIAID) / National Institute for Research in Tuberculosis (NIRT) International Center for Excellence in Research (ICER) program and formally he began his doctoral studies in 2010, he got awarded PhD in Immunology at the National Institute for Research in Tuberculosis (University of Madras affiliate) in 2015. Between 2007 and 2010, Pavan's research was related to elucidating the immune responses in both lymphatic filariasis and in tuberculosis. During his doctoral program (PhD granted in 2015) his work focused exclusively on characterizing the T cell responses in pulmonary and extra-pulmonary tuberculosis and how these responses are influenced by other co-morbidities (e.g. helminth infection, diabetes mellitus). For the past 3 years, as a post-doctoral fellow, Pavan has been extending his work on the immunology of tuberculosis with particular emphasis on the role played by Type 2 diabetes in altering the responses to M. tuberculosis. He is on reviewer in various international reputed journals. He is the author or coauthor of over 50 papers almost all of his publications have been in internationally recognized journals, some of which include PLoS Pathogens, Nature, J Immun, J Infect Dis, Infect Immun, Immunology and PLoS NTD and Pavan has received Bill and Melinda Gates Foundation Global Health Travel Award in 2011, 2013 and 2017 for attending Keystone Symposia held in United States and Canada. He was also awarded with National Post-doctoral Fellowship from Science and Engineering Research Board, Department of Science and Technology, Government of India.

Jyoti Logani, MSc, PhD

Scientist E, DBT
Executive Committee Member, RePORT India

Dr. Logani working as Scientist E, in the Department of Biotechnology (DBT), Ministry of Science & Technology, GOI. She has been working with the Medical Biotechnology Division of DBT since her joining in 2010. She is the Programme officer for the Vaccine Development and TB R& D programmes of the Department. She has been coordinating research activities in the area of Vaccine Research & Development through- Vaccine Grand Challenge Programme (VGCP) & Indo-US Vaccine Action Programme (VAP). She is also involved in the implementation of activities for the National BioPharma Mission: Industry-Academia Collaborative Mission for Accelerating Discovery Research to Early Development for Biopharmaceuticals - "Innovate in India (I3) Empowering biotech entrepreneurs &accelerating inclusive innovation" Mission being implemented by Biotechnology Industry Research Assistance Council (BIRAC) - a Public Sector Undertaking of Department of Biotechnology and Wold Bank. She obtained her M.Sc. from Post Graduate Institute of Medical Education & Research (PGIMER) Chandigarh and Ph.D. degree from Department of Pediatrics AIIMS, New Delhi, India. Before joining the department she has worked on 'Evaluation of immune responses during Rotavirus infection' and published research articles in national and international journals.

Jyoti Mathad, MD, MSc

Instructor of Medicine, Weill Cornell Medical College

Dr. Mathad is an Assistant Professor of Medicine and Obstetrics & Gynecology in the the Center for Global Health at Weill Cornell Medical College. She is also a faculty member at the Johns Hopkins Center for Clinical Global Health Education. Her primary research interests include the immune changes of pregnancy and how they affect the development of tuberculosis (TB) in TB-endemic countries, such as India. Since 2010, she has been conducting research in Pune, India, on the performance of immune-based latent TB diagnostics in pregnant women with and without HIV. She

is now leading the PRACHITi study there, which is investigating the impact of pregnancy and HIV on the immune response to M. tuberculosis. She is an investigator in the International Maternal, Pediatric, and Adolescent AIDS Clinical Trials network (IMPAACT), and she is also the principal investigator on a study of the immune changes of pregnancy and TB in Port-au-Prince, Haiti. Dr. Mathad completed her undergraduate studies in biology at Cornell University and received her medical degree from Albany Medical College. She completed her internal medicine residency at the University of Maryland, where she was chief resident. She returned to New York to complete her fellowship in infectious diseases at Weill Cornell, where she also completed her masters in clinical epidemiology.

Vidya Mave, MD, MPH

Assistant Professor of Medicine, Johns Hopkins University
Executive Committee Member & Common Protocol Co-Chair, RePORT India

Dr. Mave is Director and Clinical Research Site (CRS) Leader of the Baltimore-Washington-India Clinical Trials Unit (BWI-CTU) and Assistant Professor at the Johns Hopkins School of Medicine. Based in Pune, India, at BJGMC, Dr. Mave directs operations for the Indo-JHU clinical research enterprise. She runs the Pune-based Clinical Trials Unit that is a part of the NIH-funded UM1 Baltimore-Washington India Clinical Trials Unit (BWI-CTU). The CTU is a collaborative research partnership among BJGMC in Pune, India, Johns Hopkins School of Medicine in Baltimore, Maryland, and Whitman Walker Health in Washington, DC, that conducts phase I, II, and III clinical trials of therapeutic drug interventions for HIV and co-morbid infections, including TB and hepatitis, in adults (including pregnant women) and children. The BWI-CTU is part of the world's largest HIV therapeutic trial networks (the AIDS Clinical Trials Group [ACTG] and the International Maternal Pediatric and Adolescent AIDS Clinical Trial Network [IMPAACT]). She also leads several investigator initiated infectious disease studies funded by the NIH, CDC, the British MRC, the Indian government, and private foundations. Dr. Mave's research interests includes comorbidities (diabetes, HIV) and the use of novel tools (Hair PK, whole genome sequencing, host biomarkers) to study TB treatment outcomes. She also has initiated cohorts of antimicrobial resistance in India. In addition, Dr. Mave has mentored more than 16 pre- and postdoctoral trainees from Hopkins and trainees participating in the BJGMC-JHU HIV-TB Fogarty Research Training Program in India. Dr. Mave has more than 12 years of combined experience in clinical practice, education, and research in infectious diseases and has published more than 40 peer-reviewed research articles. Dr. Mave received an MD in medicine from Karnatak University, Dharwad, India, and an MPH from Tulane University. She completed her internal medicine training at St. Barnabas Hospital in New York, followed by a post-doctoral fellowship in infectious diseases at Tulane University and Long Island Jewish Medical Center. Dr. Mave is board certified in internal medicine and infectious diseases by the American Board of Internal Medicine.

Sanjay Mehendale, MBBS, MD, MPH

Director and Scientist G, Indian Council of Medical Research, Government of India

Dr. Mehendale is Director (and Scientist G) of the Indian Council of Medical Research, Department of Health Research, Govt. of India, New Delhi. He served as Director of the National Institute of Epidemiology, Indian Council of Medical Research, Chennai from 2010 to 2015. His research career started began with a tenure of six years in the Division of Epidemiology at the National Institute of Virology, ICMR in Pune, where he conducted field-based studies related to dengue fever, Japanese encephalitis, hepatitis, measles, and hemorrhagic fevers. In 1992, he headed the Division of Epidemiology and Biostatistics in the newly formed National AIDS Research Institute, ICMR at Pune, India, and conducted pioneering cohort studies in high-risk populations that provided initial estimates of HIV incidence, prevalence and an understanding about associated risk factors. He then led several clinical trials on female-controlled HIV prevention options such as vaginal microbicides and female condoms. He was the Principal Investigator of two pioneering HIV vaccine trials in India. Under his leadership, Clinical Trials Unit grant

(NIH Grant No. 5U01AI069417) was awarded to National AIDS Research Institute. He is a recipient of many national and international research grants, and was the Principal Investigator for the NIH-funded online bioethics training program (NIH Grant No. 5R25TW007093-09) at NIE, Chennai. He is a member of many national and international committees and joint working groups, and has served as Chairperson as well as Member of several scientific committees, expert committees and ethics committees. Dr. Mehendale has published more than 180 papers in national and international journals.

Thuli Mthinaye, MPH

Scientist & Project Manager, South African Medical Research Council, Pretoria, South Africa

Ms. Mthinaye has been involved in the conduct of clinical trials since 1994. She has grown with the Medical Research council and presently is the unit manager supervising 50+ staff, the Principal investigator of two projects, and co-investigator of 4 projects. She excels in clinical trial management and has been involved in pharmacokinetic studies, early bacterial activity studies, and also operational research.

Dina Nair, MBBS, PGDPh, MHscPH

Scientist C (Medical), Department of Clinical Research, National Institute for Research in Tuberculosis

Dr. Dina Nair is currently working as Scientist in the Department of Clinical Research at the ICMR -National Institute for Research in TB, Chennai since 2007. She is a graduate from the Government Medical College, Thiruvananthapuram and has completed her Masters in health sciences in public health from Annamalai University. At the National Institute for Research in TB she is involved in Clinical trials and Operational research studies focusing on the diagnosis, treatment and prevention of TB. Her priority research areas are in the field of drug-resistant TB and pediatric TB. She has over 30 scientific publications in National and International journals.

Geeta Shrikar Pardeshi, MD

Professor, Department of Community Medicine, Vardhman Mahavir Medical College and Safdarjung Hospital

Dr. Pardeshi is Professor of Community Medicine at Vardhman Mahavir Medical College and Safdarjung Hospital. She has led research projects related to Reproductive and Child Health, Sanitation and Infectious diseases. Her research interests include TB epidemiology, and the association of co-morbidities with clinical presentation and treatment outcomes in tuberculosis.

Jane Pleskunas, MPH

Senior Research Study Coordinator, Boston Medical Center
Data Management Working Group Co-Chair, RePORT India

Ms. Pleskunas is a Senior Research Study Coordinator at Boston Medical Center (BMC). In her role since 2015, she is the lead data manager and coordinates clinical, laboratory and operational procedures on protocols based at JIPMER Hospital in Pondicherry, India. Jane is also the Data Management Working Group Co-Chair of the RePORT India Consortium. Prior to her role at BMC, Jane worked at Novartis Vaccines in Global Medical Affairs.

Vedam L Ramprasad, PhD

Chief Operating Officer, Medgenome

Dr. Ramprasad is COO of Medgenome. He holds a master's degree and a PhD from BITS, PILANI. After his post doctoral training be worked for 6 years as a Scientist (molecular genetics) at Vision Research Foundation, Sankara Nethralaya, Chennai, India and then went on to work for 4 years at Spinco Biotech, India, handling Affymetrix and Illumina technologies. He also worked as Principal Scientist at SciGenom Labs, Cochin, for a year. He has 17 peer reviewed publications to his credit.

Divya Reddy, MD, MPH

Assistant Professor, Albert Einstein College of Medicine/Montefiore Medical Center

Dr. Reddy is Assistant Professor at Albert Einstein College of Medicine/Montefiore Medical Center. She received her medical degree from Padmashree Dr. DY Patil Medical College in Mumbai, India. Her interest in tuberculosis research and its global impact lead her to pursue a master's degree in public health, which strengthened her background in study design, data analysis and interpretation. During her fellowship in pulmonary and critical care medicine at Boston University, she actively sought TB-related epidemiological projects under the mentorship of Drs. Saukkonen, Ellner, Hochberg and Horsburgh. In collaboration with the Centers for Disease Control and Prevention (CDC), she is studying the utility of Alanine transaminase Kinetics as a biomarker for TB treatment related Hepatotoxicity. She has been working very closely with Drs. Ellner and Hochberg in the Infectious diseases Division at Boston University to establish the Regional Prospective Observational Research in Tuberculosis (RePORT) cohort (4000 Pulmonary TB cases and 8820 household contacts in 4 yrs) in Pondicherry, India, in collaboration with Jawarharlal Institute of Postgraduate Medical Education and Research (JIPMER). She is particularly interested in looking at the association of air pollution and tobacco use with Tuberculosis within this cohort. She plans to use her experience thus far to develop translational research projects looking at transcriptomic biomarkers with diagnostic, therapeutic and prognostic utility for TB infection and disease under the mentorship of Drs. Jacqueline Achkar and Simon Spivack at Albert Einstein College of Medicine.

Jyothi Rengarajan, PhD

Associate Professor, Emory University

Dr. Rengarajan is an Associate Professor of Infectious Diseases at the Emory Vaccine Center at Emory University in Atlanta where her laboratory focuses on the pathogenesis and immune response to tuberculosis (TB) in animal models and humans. Her research interests include understanding the mechanisms by which Mycobacterium tuberculosis evades and modulates host immunity with the goal of identifying new targets for immune therapeutics and vaccines. She conducts patient-based research studying human immunity to latent and active TB in Atlanta as well as through international collaborations, to identify correlates of protection and biomarkers of infection and disease. Jyothi is also involved in a Tuberculosis Research Unit (TBRU) grant which seeks to identify antigen-specific T cell signatures associated with clearance or persistence of Mtb in humans and nonhuman primates.

Dr. Gautam Roy

Professor and Head, Department of Preventive and Social Medicine, JIPMER
Executive Committee Member, RePORT India

Roxana Rustomjee, MbChB, MMed, FCPhM, FRCP, PhD

Senior Scientist, Tuberculosis Clinical Research Branch Therapeutics Research Program, DAIDS/NIAID/NIH/DHHS
Executive Committee Member, RePORT India

Dr. Rustomjee is currently a senior scientist at the Tuberculosis Clinical Research Branch Therapeutics Research Program Division of AIDS/NIAID/NIH/DHHS and previously chief specialist scientist, Office of TB and HIV Research Strategic Health Innovation Partnerships South African Medical Research Council prior to being Senior Director of Clinical Strategy, in the BioSciences Division of Emergent Biosolutions. Qualified as a medical doctor, she has been the recipient of a Medical Research Council, Ford Foundation and Fogarty International Foundation scholarships and holds a PhD in Epidemiology (Columbia University NY) and additionally a Fellowship in Public Health Medicine; Master of Medicine in Public Health and Diploma in Health Service Management from the Nelson R Mandela School of Medicine in KwaZulu Natal, SA. She is a fellow of the Royal College of Physicians, Edinburgh University UK. She has played a leadership role in TB and HIV research and programme management with special expertise in public health interventions and product development strategy of TB and/or HIV vaccines diagnostics and treatment. She has extensive experience in research management including laboratories. As principal investigator of multicenter research networks and as the South African lead in a global vaccine development initiative she has accrued an impressive national and international network.

Padmini Salgame, PhD

Professor of Medicine, Rutgers-New Jersey Medical School
Basic Science Working Group Co-Chair, RePORT India

Dr. Salgame is tenured Professor in the Department of Medicine, Division of Infectious Diseases and the Centre for Emerging Pathogens at Rutgers-New Jersey Medical School. Dr. Salgame is the Director of the MD/PhD Program and the Graduate Medical Research Program at NJMS. She is also Program Director on a recently awarded T32 training grant. Dr. Salgame's research program has been continually funded by the National Institutes of Health. The core interests of her laboratory are investigations of the host immune response to tuberculosis and in identifying biomarkers for risk of progression to tuberculosis disease and treatment failure. She has several international collaborators and conducts research studies in Brazil, India, South Africa and Uganda. Dr. Salgame has published extensively in leading scientific journals and has presented her research work at several National and International meetings. She has served on several NIH study section panels. She is on the Editorial Board of Infection and Immunity and is Associate editor for PLOS Pathogens. Dr. Salgame has mentored masters, graduate and MD/PhD students, as well as Postdoctoral researchers.

Dinakar M. Salunke, MSc, PhD

Director, International Centre for Genetic Engineering and Biotechnology

Dr. Slunke is Director of International Centre for Genetic Engineering and Biotechnology. He is an eminent immunologist and a structural biologist. He is the recipient of Shanti Swarup Bhatnagar Prize for Science and Technology in the category of biological sciences (year 2000) and Fellow of all major science academies in India. Salunke joined National Institute of Immunology (NII), Delhi in year 1988 as staff scientist and worked until 2015[4] at (NII), Delhi.[5] Since Nov 2015 Dr. Salunke is nurturing International Centre for Genetic Engineering and Biotechnology as its Director. Previously he headed the newly established Regional Centre for Biotechnology, an institution of education, training and research as its first Executive Director (year 2010-2015). He has also served as Executive Director (additional charge) of Translational Health Science and Technology Institute (THSTI), Delhi (year 2010-2011). For more than 3 decades, he has extensively worked in the field of

immunology involving structural biology of immune recognition, molecular mimicry and allergy. Dr. Salunke has received several medals, awards and fellowships both in India and overseas. He has been awarded coveted Shanti Swarup Bhatnagar Prize for Science and Technology (Category –Biological Sciences,[6] Year 2000) from Council of Scientific and Industrial Research (CSIR). He is fellow[7] of all the 3 major science academies in India e.g. Indian Academy of Sciences (IAS), Bangalore; Indian National Science Academy (INSA), Delhi; National Academy of Sciences, India (NASI), Allahabad. He was recently elected as Fellow of The World Academy of Sciences (TWAS).

Buka Samten, MD, MS

Associate Professor, University of Texas Health Science Center at Tyler

Dr. Samten currently holds an Associate Professor of Microbiology and Immunology position at the University of Texas Health Science Center at Tyler, Texas. His research has focused on understanding T cell immune responses against tuberculosis infection using human primary immune cells isolated from the peripheral blood samples of tuberculosis patients. He has shown that defects in cellular proteins contributes to the compromised T cell immune responses against tuberculosis infection. Recently, he has shown that early secreted antigenic target of 6 kD (ESAT-6) of Mycobacterium tuberculosis has the potential to suppress Th1 immune responses. His current research focuses on dissecting the molecular mechanisms of interaction between immune cells and virulence factors of Mycobacterium tuberculosis during tuberculosis infection.

Rajagopal Saranathan, PhD

Lab Manager, Central Biorepository, National Institute for Research in Tuberculosis

Dr. Saranathan is Lab Manager at the Central Biorepository at the National Institute for Research in Tuberculosis. His research interests include medical microbiology and molecular epidemiology, genomics and virulence mechanisms in nosocomial pathogens. His doctoral research was focused on exploring antibiotic resistance mechanisms in a nosocomial pathogen, Acinetobacter baumannii. He is currently working on TB biomarker research.

Amsaveni S, MVSc, PG Diploma

Project Coordinator, JIPMER

Sonali Sarkar, MD

Additional Professor, Department of Preventive and Social Medicine, JIPMER
Executive Committee Member, RePORT India

Dr. Sarkar is an Additional Professor in the Dept. of Preventive and Social Medicine in JIPMER, which is a Institute of National Importance in India. She is a co-investigator in JIPMER for the site and common protocols under RePORT India consortium. She is also the site principal investigator for RO1 grants by NIH, USA for projects titled 'Impact of pregnancy on Tuberculosis' and Predictors of Resistance Emergence Evaluation in Multidrug Resistant-Tuberculosis Patients on Treatment "PREEMPT" and other studies under the RePORT supplemental funding. She is a member of the India TB Research Consortium constituted by ICMR, spearheading TB research in the country. She is an active academician as undergraduate and postgraduate teacher, guide and mentor and also the Chief Editor of International Journal of Medicine Public Health and Editor of Internal Journal of Advanced Medical and Health Research.

Dr. Sriram Selvaraju, MBBS, MPH

Scientist C, National Institute for Research in Tuberculosis

Dr. Selvaraju is working in the Epidemiology unit of National Institute for Research in Tuberculosis. He is involved in the conduct of TB prevalence surveys, monitoring and evaluation of the TB control program and involved in teaching research methodology to medical college faculty. He is also interested in understanding the transmission dynamics of TB and design interventions for preventing the spread of TB.

Dr. Alka Sharma

Adviser, DBT

Shri Vijay Bala Yogendra Shivakumar, MD

Project Coordinator, JHU-India
Interim Coordinator, RePORT India

Dr. Shivakumar is a clinician and project coordinator for C-TRIUMPH at Johns Hopkins University, India office. He recently joined the CCGHE team as an overall project coordinator for C-TRIUMPH for both Chennai and Pune. His research interests are TB infection transmission and its progression to disease. Dr. Shivakumar joined National Institute for Research in TB in Chennai as a clinician and study coordinator for C-TRUIMPH, an epidemiological study recruiting a cohort of TB patients and their household contacts and following their health over a period of 2 years. This study includes multiple sample collection and storage for creating a TB repository in developing multiple sub studies looking at bio-markers and factors influencing TB infection and disease outcomes. After graduating medicine from Armenia, he underwent his clinical trainings in India to obtain his medical license for the country. He worked as junior doctor and medical officer in department of medicine both in urban and rural setting hospitals of the country.

Manjula Singh

Scientist E, Indian Council of Medical Research
Executive Committee Member, RePORT India
Dr. Singh works at the Division of Epidemiology and Communicable Diseases (ICMR), Indian Council of Medical Research. She does research in Dermatology, Gynaecology and Infectious Diseases.

Urvashi Singh, MBBS, MD, PhD

Professor and Chief of Tuberculosis Detection, Department of Microbiology, All India Institute of Medical Sciences

Dr. Singh currently works at the Department of Microbiology, All India Institute of Medical Sciences. Her research interests include Obstetrics, Gynaecology and Infectious Diseases. She works on understanding the epidemiology and pathogenesis of tuberculosis in India, molecular insights into spread of multidrug resistant tuberculosis in India, designing novel

rapid detection methods for multidrug resistant tuberculosis, and rapid detection of rifampicin resistance and spoligotypes from stained sputum smears. Her clinical work includes TB co-infections and co-morbidities & other mycobacterial diseases, paediatric tuberculosis, and molecular diagnostics to aid clinical diagnosis and treatment.

Sudha Srinivasan PhD, MPH

Tuberculosis Clinical Research Branch, Therapeutics Research Program, Division of AIDS/NIAID/NIH/DHHS
Executive Committee Member, RePORT India

Dr. Sudha Srinivasan is a program officer at the TB clinical research branch at the Division of AIDS at the National Institutes of Allergy and Infectious Diseases at the National Institutes of Health. She manages a portfolio of grants and cooperative agreements in the HIV/TB area. She is also the project officer for RePORT International and RePORT India, for the RePORT consortium. She also serves as the project officer for projects for the H3 Africa Consortium, an Africa centered genomics capacity building initiative. Dr. Srinivasan is a geneticist by training, but with over a couple decades of professional experience in managing international projects and programs in public health (both private and public sector).

Kalpana Sriraman PhD

Research Officer, The Foundation for Medical Research

Dr. Sriraman is a Research Officer at The Foundation for Medical Research, Mumbai. Kalpana has a diverse research experience in the fields of molecular biology, biotechnology and mammalian biology. She completed her PhD from Indian Institute of Technology-Madras and has more than 6 years of research experience in molecular biology post her PhD. Her recent work focuses on understanding molecular changes associated with rapid acquisition of multi-drug resistance in Mycobacterium tuberculosis and how that may be used to predict patient's response to tuberculosis treatment. She is also currently engaged in a Tata Trusts-India Health Fund sponsored study on understanding mechanisms underlying infectiousness and hence transmission of tuberculosis bacteria. The study primarily focus on understanding effect of early phase treatment with an aim to get insights into infectiousness mechanisms.

Varadharajan Sundaramurthy, PhD

Assistant Professor, National Center for Biological Sciences, Tata Institute of Fundamental Research

Dr. Sundaramurthy is Assistant Professor, National Center for Biological Sciences, Tata Institute of Fundamental Research. His research is looking at the host-pathogen interface and forces that have shaped the contours of pathogenesis. The broad goal of his lab is to understand the contours of these interactions at multiple levels by studying the modulation of critical host pathways by pathogens and exploiting the potential of this knowledge for drug discovery. In particular, he's interested in understanding the modulation of host trafficking pathways by two very different pathogens, namely Mycobacterium and Plasmodium, the causative agents of the deadly diseases tuberculosis (TB) and malaria. Towards this, he is applying a combination of chemical genetics, quantitative image analysis and high content screening tools together with conventional cell and molecular biological approaches.

Nishi Suryavanshi, PhD

Clinical Research Site Coordinator, JHU-Pune
Behavioral Science Working Group Co-Chair, RePORT India

Dr. Suryavanshi is Clinical Research Site Coordinator aor the BJGMC-CRS in Pune, India, and a member of the faculty at the Johns Hopkins Center for Clinical Global Health Education. Dr. Suryavanshi is a behavioral scientists whose research involves women's empowerment, reproductive health, and HIV and tuberculosis research in clinical settings as well in urban and rural community settings. Dr. Suryavanshi has established extensive networks with regional nongovernmental organizations (NGOs) and has developed and co-developed various behavioral projects addressing health topics including stigma and tuberculosis, disclosure of HIV among children, infant feeding patterns among HIV positive mothers, empowerment of women in low resource settings, and gender based violence. During the past 12 years, she has overseen the clinical research studies related to HIV/AIDS in India. As a clinical research site study coordinator her role includes developing patient education materials, informed consent agreements, and treatment adherence and retention strategies. Dr. Suryavanshi was recently awarded a CDC grant to enhance the capacity of outreach workers catering to HIV-infected pregnant women for the uptake of PMTCT services using mHealth platform. She has presented her work at national and international conferences, and has published study findings in peer reviewed journals. Dr. Suryavanshi attended the University of Pune, Pune, Maharashtra, India, where she earned her BSc in zoology, her MSc in medical anthropology, and her PhD in anthropology. Additionally, she is a graduate of the Johns Hopkins University Summer Institute of Epidemiology and Biostatistics, where she studied the ethical issues related to human subjects research in developing countries.

Sunita Taneja, MBBS, PhD

Deputy Director, CHRD, SAS

Dr. Taneja is a community health researcher with vast experience in field and clinical trials. Her research interests are vaccines, diarrheal diseases, child nutrition and micronutrient deficiencies. Her skills include protocol development, coordinating field, laboratory and data management activities and data analysis. In addition to being a Principal Investigator or Coinvestigator on several trials, she also coordinates all activities of the data management centre at CHRD, SAS.

Balamugesh Thangakunam, MD

Professor, Department of Pulmonary Medicine, Academic Officer, Principal's Office, Christian Medical College, Vellore
Clinical Epi & Chex Xray Working Group Co-Chair, RePORT India

Dr. Thangakunam is currently works at the Department of Pulmonary Medicine, Christian Medical College Vellore. His research interests include Pulmonology, Respiratory Medicine, and Infectious Diseases. He is author of more than 70 articles, and is a recipient of ICMR's Smt. Kamal Satbir Award for significant contributions in bio-medical research 2006. He has worked in UK and trained in Cardiopulmonary Exercise testing & Endobronchial ultrasound. He received training in interventional pulmonology in University of Heidelberg, Germany.

Kannan Thiruvengadam

Biostatistician, National Institute for Research in Tuberculosis (NIRT)

Jeff Tornheim, MD, MPH

Assistant Professor, Johns Hopkins School of Medicine

Dr. Tornheim, is Assistant Professor in the Division of Infectious Diseases here at Johns Hopkins University School of Medicine. His research explores the application of new diagnostic technologies to improved health outcomes in the treatment of drug resistant tuberculosis among both adult and pediatric patients in India. Dr. Tornheim recently completed his infectious diseases fellowship at Johns Hopkins, during which he worked with Drs. Amita Gupta, Vidya Mave, Bob Bollinger of Johns Hopkins, and with Dr. Zarir Udwadia at the Hinduja Hospital in Mumbai. His interest in clinical outcomes for underserved populations led him to practice in physician training environments in Bolivia, Peru, South Sudan, Kenya, Uganda, Rwanda, South Africa, and the United States. Dr. Tornheim completed a clinical fellowship in infectious diseases in June 2017. Prior to that he completed residencies at Yale University in both internal medicine and pediatrics. He received an MD/MPH from Mount Sinai School of Medicine, with his thesis evaluating the impact of water policy on rates of pediatric diarrhea in Bolivia. After completing undergraduate studies in International Development and Economics at Brandeis University he moved to East Africa where he engaged in health system strengthening for returning refugees to South Sudan and worked with the Centers for Disease Control and Prevention (CDC) on the epidemiology of pneumonia and diarrhea in Western Kenya. At the same time he worked at the Bureau of TB Control for the Department of Health and Mental Hygiene and was actively engaged in the operations of an East Harlem free clinic. As a Fogarty International Clinical Scholar, he spent 2 years in rural Bolivia establishing and managing operations for a Chagas Disease treatment program.

Srikanth Tripathy, MBBS, MD

Scientist G & Director in Charge, National Institute for Research in Tuberculosis (NIRT)

Dr. Tripathy has been a physician working for the Indian Council of Medical Research (ICMR) since 1986 involved with research on TB in HIV infected individuals in the Pune region. He has also been involved in research related to leprosy, TB, and HIV in the Agra region in north India. Prior to becoming NIRT Director, Dr. Tripathy worked as the Head of the HIV Laboratory.

Zarir Udwadia, MBBS, MD, MRCP, DNB

Consultant Chest Physician, Hinduja Hospital
Executive Committee Member, RePORT India

Dr. Udwadia is a consultant chest physician at the Hinduja Hospital, Mumbai with a special interest and expertise in drug-resistant tuberculosis. About 8000 patients pass through his busy clinics annually, including difficult MDR cases referred by colleagues from across India. He has been invited to give guest orations before the BTS, ERS, ATS, IUATLD, ACCP, Harvard School of Public Health and the Royal Society of Medicine, London. He has over 140 PubMed publications and 7000 citations to his credit and is co-author of "Principles of Respiratory medicine" published by Oxford International. He was the sectional-editor for Tuberculosis for the journal Thorax. His publication of the first Indian patients with Totally Drug Resistant TB attracted intense media and medical interest from across the globe, and featured on the front pages of the WSJ, NY Times, Time, BBC and CNN, and served to galvanize great change in the community. This lead to an invitation to give a TED talk on MDR-TB in 2016, which has been viewed over 100,000 times.

Vijaya Valluri, PhD

Scientist, Bhagawan Mahavir Medical Research Centre
India Co-Chair, RePORT India

Dr. Valluri is a Scientist at Bhagawan Mahavir Medical Research Centre (BMMRC) in Hyderabad, India focused on immunologic and genetic aspects of mycobacterial diseases, leprosy, and tuberculosis (TB). Her work has involved evaluating the efficacy of BCG vaccine and investigating in vitro correlates of protection in the context of these diseases. Dr. Valluri is the RePORT India Principal Investigator for BMMRC and serves as a co-chair for the consortium's Executive Committee. Over the past six years, Dr. Valluri has collaborated with University of Texas scientist, Dr. Ramakrishna Vankayalapati, to study the role of NK (natural killer) cells, monocytes and T regulatory cells in conferring protection to TB. Earlier in her career, she received the Young Scientist award from the Ministry of Science and Technology and completed fellowships both within India and abroad. Dr. Valluri has an MSc in Genetics and a PhD in Immunogenetics from Osmania University in Telangana, India.

Krishna Vankayalapati, PhD

Chair, Pulmonary Immunology and Margaret E. Byers Cain Chair for Tuberculosis Research, University of Texas Health Science Center at Tyler
Executive Committee Member & Basic Science Working Group Co-Chair, RePORT India, RePORT India

Dr. Vankayalapati received his PhD degree from Osmania University, India. He joined the University of Texas Health Science Center at Tyler in 1999 after completion of his first postdoctoral fellowship at the Toronto General Hospital, University of Toronto. He was promoted to Instructor in 2001, Assistant Professor in 2004, Associate Professor in 2007, and Professor in 2013. He is currently serving as Chair, Department of Pulmonary Immunology and Margaret E. Byers Cain Chair for Tuberculosis Research.

Vijay Viswanathan, MD, PhD, FRCP

Head & Chief Diabetologist, MV Hospital for Diabetes; Prof M Viswanathan Diabetes Research Centre, WHO Collaborating Centre for Research Education and Training in Diabetes
Executive Committee Member, RePORT India

Dr. Vijay Viswanathan is a Diabetologist, General Physician and Internal Medicine in Adyar, Chennai and has an experience of 28 years in these fields. He practices at MV Hospital for Diabetes in Adyar, Chennai, MV Centre For Diabetes in Velachery, Chennai, and MV Hospital for Diabetes & Diabetes Research Centre in Royapuram, Chennai. He completed MBBS from Stanley Medical College & Hospital , Chennai in 1988,MD - Internal Medicine from Kasturba Medical College in 1991 and FRCP from Royal College Of Physician, London in 2010. He is a member of Indian Medical Association (IMA).

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Conference Manual

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RePORT India study coordinators and data managers provided valuable contributions to the presentations and conference manual.

RePORT India investigators and external speakers delivered excellent presentations during the event.

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