



Centre for Strategic Health Information and Operational Research

Quarterly Report: Quarter 4, 2013 (October 1st to December 31st)

Introduction:

The centre commenced operations on January 1st, 2009, and has now completed five years of activities.

This is the fourth quarter report for 2013, and contains a narrative report of activities and achievements (some cumulative) of the 3-month period from October 1st to December 31st, 2013. It is accompanied by i) the Quarterly Reporting Template detailing achievements against objectives and activities, and ii) the Budget expenditures. This report also summarises the annual and cumulative outputs from the Centre for Operational Research (COR) and provides below an executive summary of outputs for 2013 and for the five year period 2009- 2013. .

Executive Summary:

The executive summary highlights the achievements for the year 2013 and cumulative achievements for the five years since COR started.

Activity	The year 2013	Cumulative 2009 - 2013
<u>New</u> Diabetes and/or Hypertensive patients monitored in DOTS registry framework	3,409	9,083
<u>New</u> HIV/AIDS, including TB, patients monitored in DOTS registry framework	105,656	417,721
<u>New</u> Diabetes, TB, HIV patients monitored using a DOTS- electronic platform	94,638	257,851
OR Papers / documents published from the Centre for Operational Research	118	345
OR training courses started	6	18

Narrative Report against Objectives:

1. Use of DOTS Framework to track different diseases.

The Centre adapted the TB “DOTS” Framework to help track different infectious and non-infectious diseases, and has been pioneering this approach in HIV-infected patients on antiretroviral therapy (ART) and in patients with diabetes mellitus in Malawi.

ART in Malawi:

With HIV-infected patients on ART, on-going collaboration is maintained with the HIV Unit of the Ministry of Health in Malawi in terms of indirect technical assistance. National supervision and monitoring and evaluation took place between October and December 2013 to report on national data in both the public and private sector up to the end of September 2013. **By September 30th, 2013**, a total of **641,158** patients had ever been initiated on ART in both public and private sectors and had known treatment outcomes: of these, 459,261 patients were alive and on ART at their original registration clinic, and can be stratified by ART regimen. Full reports are available on request.

Managing Diabetes and Hypertension in Malawi:

The DOTS Model is being used to manage diabetes mellitus in three central hospitals in the country. **By September 30th, 2013**, there were **9,083** DM patients (3699 male and 5384 female) registered in Queen Elizabeth Central Hospital, Blantyre, Zomba Central Hospital and Kamuzu Central Hospital, Lilongwe. Quarterly cohort reporting is working well, and 6143 (68%) of these patients were alive and in care by 30th September. Additional support for this activity has been obtained from the World Diabetes Foundation to set up “Chronic-Disease-Care” Clinics to manage DM, hypertension, cardiovascular disease, asthma and epilepsy. Funds have arrived and activities are taking place. The pilot is being started in Kamuzu Central Hospital, Lilongwe, and in Area 25 Health Centre in Lilongwe. In Area 25 HC, there has had to be infrastructure development, human resource training and the development of the software for using the cohort approach to chronic care. Patient recruitment and cohort analysis is due to start at the beginning of 2014. .

By September 30th, 2013, a cumulative total of 650,241 patients in Malawi with HIV/AIDS, tuberculosis and diabetes had ever been initiated on treatment, including ART, under the DOTS model.

2. Develop and Expand Electronic data systems for tracking diseases

A Memorandum of Understanding [MOU] continues with Baobab Health Trust in Malawi to expand on-going systems for ART and non-communicable diseases. **By September 30th, 2013**, a total of **280,768 ART patients** had been registered at 29 government clinics through the electronic medical record systems (EMR), and 129,808 were alive and retained on ART. An EMR tracks diabetes patients in three central hospitals in Blantyre, Zomba and Lilongwe: **By September 30th, 2013**, **there were 9,083 DM patients** entered to the system.

By September 30th, 2013, a cumulative total of 289,851 patients with HIV/AIDS or DM were monitored under EMR.

3. Enhance operational research:

Collaborations for operational research (OR):

MOUs are currently active with MSF-Belgium for OR and OR capacity building.

Research activities:

Many research activities are underway, including the writing and submission of review and opinion articles.

Operational research marketing:

Two full-day operational research skills workshops were run: a) the first for about 120 delegates at the Third Kenya International Conference for Lung Health in October and b) the second for about 170 registered delegates at the 44th Union World Lung Conference in Paris.

Operational Research Courses:

Details about completed and on-going courses are provided in **Annex 1**. Cumulatively, 212 participants from 60 different countries have been enrolled to 18 courses, of which 5 are on-going and 13 have been completed. Of the 13 completed operational research courses, these were attended by 153 participants, of whom 134 (88%) completed all milestones. A total of 160 papers were submitted to peer-review journals, of which 123 (77%) were in press or published by December 31st, 2013.

Operational Research Fellows:

Operational research fellows are being supported directly in Vietnam, Malawi, India (2), South Africa, Zimbabwe and Benin (through DFID). There have also been a number of other research fellows appointed through MOUs with the DTTC in Cape Town (4) and AMPATH (2) – these fellowships have now run their course. DFID also supports OR fellowships in India, Benin and through MSF (5 fellows), and these are included in the reporting. Since the start of the fellowship programme, there have been **472 research projects** that include those with fellows facilitating and being involved in the OR courses: **341** projects have been completed with

papers written and submitted for publication in peer review journals of which 268 were published or in press by December 31st, 2013. The fellows have matured and we also now report on their other activities: i) they have cumulatively facilitated on 100 operational research training courses; ii) they have reviewed 77 papers for peer-reviewed journals; iii) they have presented at 129 national / international conferences; and iv) they have sourced 14 aliquots of funding. The outputs from OR fellows are detailed in **Annex 2**.

Operational research and opinion/review projects:

Between January 1st and December 31st, 2013, there were **118 publications** from the Centre, specified in **Annex 3**: 96 research papers, 16 opinion/review papers and 6 documents / chapters.

4. Enhance and strengthen vital registration systems:

We are implementing a pilot project using electronic village registers (in a rural district in Malawi. This was approved at the highest level (Ministry of Health – principal secretary and director of preventive services – and National Registration Bureau – principal secretary and director of operations). The implementation is moving to link the village based register system with the health centre system and with the district commissioner system using electronic technology of either mobile phones, touch screen computer screens or both. This initiative is being supported through the Bloomberg grant. Chilasa village in an area of Lilongwe with no power was operational with an electronic village register as of December 2013. The first quarterly report was produced in December: 790 people registered in the village, with 6 new births and zero deaths in the fourth quarter of 2013. A paper is currently being written to document the setting up of this electronic village register.

5. Track the role of Operational Research to change policy and practice:

We have set up a system of tracking research to policy and practice of all participants coming through the OR Courses. We also track important changes to policy and practice as a result of our own work and that of our operational research fellows. **Annex 4** provides some highlighted information about how some of the publications from the Centre in the last 12 -15 months have influenced policy and practice. 93 participants who enrolled in eight OR courses were contacted between June and November 2013 to find out whether their OR projects had had any subsequent influence on policy and practice – 78 (83%) responded to the structured questionnaire and their data will be analysed in 2014.

6. To collaborate with WHO and other International Organizations:

World Health Organization (WHO):

ADH currently sits on the Expert Advisory Panel on Tuberculosis. He has finished chairing the HIV Strategic and Technical Advisory Committee (STAC) and the Core Coordinating Group (CCG) for the WHO 2013 Consolidated ART Guidelines which were launched on 30th June 2013. ADH contributed with Malawi colleagues to the 2013 WHO Global Progress report on HIV treatment, and this was launched on 30th June 2013 in Kuala Lumpur at the International AIDS Conference. MSF and The Union through RZ and ADH also wrote Chapter 3 of the 2013 World Health Report "Research for Universal Health Coverage" which was launched in mid-August 2013 in China.

WHO-Special Programme for Tropical Diseases and Research- TDR:

The Union and MSF joined a coalition with WHO-TDR in January 2013 under the name of "SORT-IT". Under this umbrella, operational research courses will be run along the guiding principles of Union-MSF courses. In May, a first SORT-IT course was run in Estonia on the subject of MDR-TB. All OR courses completing this year have been given the "SORT IT" brand.

World Diabetes Foundation (WDF):

Good collaboration exists between The Union and WDF and WHO. The current work on bi-directional screening was completed in January 2013. A writing workshop for 9 outstanding site specific projects on DM-TB in India was undertaken late April in Delhi, and all papers were submitted and accepted for publication in a Public Health Action Supplement which was published on line in November and in hard copy in December. The Union and Baobab Health Trust are also supported by WDF in setting up chronic care clinics for Non-Communicable Diseases in Lilongwe, Malawi. Finally, the Union on behalf of an advocacy organization submitted a proposal to the WDF to support a global advocacy document for Diabetes-Tuberculosis; the proposal was accepted and approved in September and work is expected to start in 2014.

International AIDS Society and other AIDS organizations:

A good collaboration exists with the International AIDS Society. No specific activities have taken place in last three months.

European Union:

A proposal from MSF, TDR and the Union was made to the Scientific Research Department of the European Union and Parliament in November 2013, and it has been agreed that a half-day symposium will be held in the EU in Brussels in March 2014 to brief and educate parliamentarians about the value of operational research.

7. Support the Centre for Strategic Health Information and Operational Research:

The Centre's administrative structure is as follows:- Director (AD Harries), Deputy Director (Karen Bissell), Project Administrator (Selma Dar Berger) and Part-time Administrative Assistant (Nathalie Guillerm). Ever since the initiation of the Centre in 2009, skype conference calls take place every 4 weeks both internally and between partners and the Centre as a means of agreeing to the way forward and tracking progress in the annual plan. Quarterly reports are submitted within 2 weeks after the end of each quarter.

During this 3 months (July to September 2013), the UK Department for International Development (DFID) has been supporting activities and quarterly reports against objectives, and budgets are submitted to DFID three monthly. DFID also granted additional funds to support OR Fellows, to support additional skills building for the OR fellows and to support the follow-up of participants who have been trained on our courses.

Report compiled by: AD Harries and Selma dar Berger

3rd January 2014

Annex 1: Operational Research Training Courses (results by 31st Dec, 2013)

Year/Month- start and finish	Location	Participants enrolled	Participants completing all milestones	Papers submitted	Papers accepted/ published
August 2009 to March 2010	Paris, France (Paris OR1)	12	11 (92%)	14	14
June 2010 to March 2011	Hyderabad, India (PHFI OR1)	10	8 (80%)	8	5
August 2010 to May 2011	Paris, France (Paris OR 2)	12	12 (100%)	13	13
July 2011 to June 2012	Paris, France (Paris OR 3)	11	10 (91%)	13	13
August 2011 to June 2012	Luxembourg (Luxembourg OR 1)	12	11 (92%)	11	11
September 2011 to August 2012	Fiji, Suva (Fiji OR1)	12	9 (75%)	10	8
February 2012 to October 2012	Kathmandu, Nepal (Asia OR 1)	12	11 (92%)	14	13
March 2012 to November 2012	Nairobi, Kenya (Africa OR1)	12	11 (92%)	13	12
September 2012 to June 2013	Chennai, India (Chennai OR1)	12	10 (83%)	12	10
July 2012 to July 2013	Luxembourg (Luxembourg OR 2)	12	11 (92%)	11	6
July 2012 to July 2013	Paris, France (Paris OR 4)	12	11 (92%)	15	12
September 2012 to August 2013	South Pacific, Fiji (SP OR 1)	12	8 (67%)	12	5
Feb 2013 to Nov 2013	Kathmandu, Nepal (Asia OR 2)	12	11 (92%)	14	1
Mar 2013 to Dec 2013	Addis Ababa, Ethiopia (Africa OR 2)	12	Completion date 7th Jan 2014		
May 2013 to April 2014	Fiji, Suva (Fiji OR 2)	12	Completion date 10 th Mar 2014		
May 2013 to April 2014	Tallinn, Estonia (Europe OR 1)	11	Completion date 1 st May 2014		
July 2013 to June 2014	Luxembourg (Luxembourg OR 3)	12	Completion date 7 th June 2014		
September 2013 to Sep 2014	Chennai, India (Chennai OR 2)	12	Completion date 5 th Sep 2014		
TOTAL COMPLETED COURSES	13	153	134 (88%)	160	123 (77%)

These are courses are run by The Union and MSF and funded in total or in part through the Centre for Operational Research, with either anonymous donor support or support from the Department for International Development, UK. Since 2012 these courses are recognised and accredited by WHO and the Special Programme for Tropical Disease and Research (TDR) and are called “SORT IT” courses – structured operational research training initiative courses.

*Courses in yellow highlight are the completed courses.
All other courses are currently being implemented and have not yet finished*

Annex 2: Operational Research Fellowship Programme

Research Fellow outputs are outlined below:-

Nguyen Binh Hoa – Vietnam

Year 1: Junior Fellow - Milestones reached:

Paper 1: Completeness and consistency in recording information in the tuberculosis case register, Cambodia, China, and Viet Nam: IJTL D 2010, 14, 1303-1309.

Paper 2: Human resource-requirements for quality assured electronic data capture in the TB case register: Progress = BMC Research Notes 2012; 5: 75.

Year 2: Junior Fellow - Milestones reached:

Paper 1: Characteristics of TB patients at intake in Cambodia, two provinces in China and Vietnam: BMC Public Health 2011, 11: 367

Paper 2: Time to unsuccessful TB treatment outcomes in Cambodia, China and Vietnam: Progress = Public Health Action 2012, 2, 15-20.

Year 3: Senior Fellow - Started April 1st 2011:

Paper 1: Adequacy of anti-tuberculosis drug dosages prescriptions in Vietnam: Progress = Public Health Action 2012; 2: 5-9.

Paper 2: Descriptive study of TB cases finding practices in the three largest general hospitals in Vietnam: BMC Public Health 2012; 12: 808

Year 4: Senior Fellow - Started April 1st 2012:

Project 1: Changes in body weight and tuberculosis treatment outcomes in Vietnam: Progress= International Journal of TB and Lung Disease 2013, 17: 61-66

Project 2: Free TB diagnosis and treatment are not enough: patient costs from three continents: Progress= International Journal of TB and Lung Disease 2013; 17: 381 - 387

Project 3: First national tuberculin survey in Vietnam – characteristics and association with TB prevalence: Progress= International Journal of TB and Lung Disease 2013; 17: 738 – 744.

Year 5: Senior Fellow - Started April 1st 2013:

Project 1: Prescription patterns and treatment outcomes of MDR TB patients treated within and outside the NTP in Viet Nam. Progress: Work completed and submitted to Int J Tuberc Lung Dis

Project 2: Adverse drug reactions related to multidrug-resistance tuberculosis treated within and outside the NTP in Vietnam. Manuscript nearly completed

Project 3: Fourth National tuberculosis drugs resistance survey in Vietnam. Progress=Finish data collection and entering to the computer, paper writing in progress.

Project 4: Reasons for default among MDR-TB patients treated outside programmatic management of drug resistance TB/National TB Control Programme. Study completed and data analysis in progress

Project 5: Characteristics of tuberculosis patients in Vietnam: Age and sex differences in notification and treatment outcome. Progress = Study completed and data analysis taking place.

Other outputs since becoming a fellow

Facilitated at a total of 8 operational research courses

Reviewed a total of 15 papers for peer-reviewed journals

Made 7 oral presentations at national or international conferences

Received 4 aliquots of funding: USD\$10,564 from Vietnam WHO in 2011 for a descriptive study on case finding and USD\$10,578 from Vietnam WHO in 2012 for MDR-TB prescription habits; and USD\$ 12,499 in 2013 from Vietnam WHO for study: Reasons for default among MDR-TB patients treated outside programmatic management of drug resistance TB/National TB Control Programme; and USD\$ 6,602 from WHO Vietnam for study: Characteristics of tuberculosis patients in Vietnam.

Hannock Tweya – Malawi

Year 1: Junior Fellow - Milestones reached:

Paper 1: To determine the proportion of and factors associated with returning to antiretroviral treatment (ART) among patients who have been traced in a resource-limited setting: Published - Tropical Medicine and International Health, 2010, 15, supplement 1, 82 – 89.

Paper 2: Characteristics and treatment management of patients registered with tuberculosis as “Other” at a district hospital in Malawi: PLOS One 2011; 6: e28034

Year 2: Junior Fellow - Milestones reached:

Paper 1: To determine the incidence of pregnancy among women on ART in urban Malawi: a retrospective cohort study: AIDS and Behaviour 2013; 17: 471-478

Paper 2: To determine if pharmacy stock records provide a reliable estimate of the number of patients retained on ART in resource-limited settings: BMC Health Services 2012; 12: 210

Year 3: Senior Fellow - Started April 1st 2011:

Paper 1: To assess the treatment outcomes of new smear-positive pulmonary TB patients by their HIV status. PLoS One 2013; 8: e56248

Paper 2: To determine the incidence of TB among HIV positive people accessing ART at Lighthouse: Submitted to TMIH

Year 4: Senior Fellow - Started April 1st 2012:

Project 1: Timing of antiretroviral therapy and regimen for HIV-infected patients with tuberculosis: Submitted BMC Public Health

Project 2: Are they really lost? “True status of HIV-infected patients on antiretroviral therapy presumed lost to follow up and reasons for treatment discontinuation in urban Malawi: PLoS One 2013; 8: e75761.

Project 3: Factors associated with timely initiation of ART in two ART Clinics. Int J STD AIDS 2013; 24: 42-49.

Year 5: Senior Fellow - Started April 1st 2013:

Project 1: Roll-out of Universal Antiretroviral Therapy for HIV Infected Pregnant and Breastfeeding Women (“Option B+”) in Malawi: Factors Influencing Retention in Care – Journal of the Acquired Immune Deficiency Syndrome In Press

Project 2: Tracing patients lost to follow-up from antiretroviral therapy programmes to prevent HIV transmission in Malawi: Mathematical modelling study: Journal of the Acquired Immune Deficiency Syndrome In Press

Project 3: The nuts and bolts of developing a point-of-care electronic medical records system for managing TB/HIV co-infected patient at Lighthouse Trust, Malawi: study completed and manuscript being written

Project 4: To assess rates and potential predictors of ART retention after introduction of the PMTCT option B+ among women starting ART while pregnant or breastfeeding in Malawi: study implemented and completed – papers being written

Project 5: Cost effectiveness of PMTCT Option B+ strategy for mothers and babies to decrease vertical HIV transmission in Malawi: Mathematical modelling study: study underway.

Other outputs since becoming a fellow

Facilitated at a total of 2 operational research courses

Reviewed a total of 5 papers for peer-reviewed journals

Made 4 oral presentations at national or international conferences

Received 2 aliquots of funding: USD\$3,100 from WHO for ART pharmacy project; USDD\$329,029 from NIH for TB/ART and OR.

Dr. Srinath – India

Year 1: Junior Fellow - Milestones reached:

Paper 1: Risk factors for treatment default among retreatment TB patients in India, 2006: Published - PLoS One, 2010, 5: e8873.

Paper 2: Profile and treatment outcome of TB patients aged less than 15 years in Delhi: Progress = PLoS One 2010, 5: e13338

Paper 3: Profile and treatment outcome of Retreatment - Others in the state of Andhra Pradesh: International Journal of Tuberculosis and Lung Disease 2011, 15: 105 – 109.

Paper 4: Informed consent: Published Int J Tuberc Lung Dis 2010; 14: 938.

Paper 5: Is there an obligation to ensure treatment for individuals identified with MDR-TB? Int J Tuberc Lung Dis 2010; 14: 1094 – 1096.

Year 2: Junior Fellow - Milestones reached:

Paper 1: A rapid assessment and response approach to review and enhance Advocacy, Communication and Social Mobilisation for Tuberculosis control in Odisha state, India. BMC Public Health 2011, 11:463

Paper 2: Source of previous treatment for retreatment TB patients under RNTCP: PLoS One 2011; 6: e22061.

Paper 3: New vision of the Indian RNTCP: Universal access – reaching the un-reached. Indian Journal of Medical Research 2012 135: 690-694

Paper 4: From where are TB patients accessing treatment in India? Results of a community based study: PLoS One 2011; 6: e24160.

Paper 5: Challenges in identifying MDR-TB suspects in India: Lessons from TB Control Programmes - Public Health Action 2011; 1: 27-29.

Paper 6: Tuberculosis contact screening and isoniazid preventive therapy in a south Indian district: operational issues for programmatic consideration. PLoS One 2011;6: e22500.

Paper 7: Will adoption of the 2010 WHO ART Guidelines for HIV-infected TB patients increase demand for ART services in India? PLoS ONE 2011; 6: e24297.

Paper 8: The looming epidemic of diabetes-associated tuberculosis: learning lessons from HIV-associated tuberculosis. Int J Tuberc Lung Dis 2011; 15: 1436- 1444.

Paper 9: Did successfully treated pulmonary tuberculosis patients undergo all follow-up sputum smear examinations? Public Health Action 2011; 1: 27-29.

Year 3: Senior Fellow - Started June 1st 2011

Paper 1: How Do Patients Who Fail First-Line TB Treatment but Who Are Not Placed on an MDR-TB Regimen Fare in South India? PLoS ONE 2011; 6: e25698.

Paper 2: Operational Challenges in Diagnosing Multi-Drug Resistant TB and Initiating Treatment in Andhra Pradesh, India. PLoS ONE 2011; 6: e26659.

Paper 3: The timing of death in patients with tuberculosis who die during anti-tuberculosis treatment in Andhra Pradesh, South India. BMC Public Health 2011; 11: 921.

Paper 4: Are tuberculosis patients in a tertiary care hospital in Hyderabad, India being managed according to national guidelines? PLoS One 2011; 7: e30281.

Paper 5: HIV prevalence among persons suspected of tuberculosis: Policy implications for India. J Acquir Immune Defic Syndr, 2012, 59: e72-e76.

Paper 6: Addressing poverty through disease control programmes: examples from Tuberculosis control in India. International Journal for Equity in Health 2012, 11, 17

Paper 7: Factors associated with delays in treatment initiation after tuberculosis diagnosis in two districts of India. PLoS One 2012; 7: e39040.

Paper 8: Building leadership capacity and future leaders in operational research in low-income countries: why and how? Int J Tuberc Lung Dis 2011; 15: 1426 – 1436.

Paper 9: Treatment outcomes of new adult tuberculosis patients in relation to HIV status in Zimbabwe. Public Health Action 2011; 1: 34 – 39.

Paper 10: Treatment outcomes of adult patients with recurrent tuberculosis in relation to HIV status in Zimbabwe. BMC Public Health 2012; 12: 124.

Paper 11: Important research, but did the patients consent? Int J Tuberc Lung Dis 2012; 16: 427.

Paper 12: Why ethics is indispensable for good quality operational research. Public Health Action 2012; 2: 21-22.

Paper 13: Global Guidelines for treatment of tuberculosis among persons living with HIV: unresolved issues. *Int J Tuberc Lung Dis* 2012; 16: 573-578.

Paper 14: The need for building design professionals in operational research in low-income countries. *Int J Tuberc Lung Dis* 2012; 16: 565-566.

Paper 15: Language in tuberculosis services: can we change to patient-centred terminology and stop the paradigm of blaming patients? *Int J Tuberc Lung Dis* 2012; 16: 714-717.

Paper 16: Are all patients diagnosed with tuberculosis in Indian medical colleges referred to RNTCP? *Int J Tuberc Lung Dis* 2012; 16: 1083 – 1085.

Paper 17: New vision for RNTCP: Universal access – reaching the unreached. *Indian J med Res* 2012; 135: 690- 694.

Paper 18: Sputum smear microscopy at two months into continuation-phase: should it be done in all patients with sputum smear positive tuberculosis? *PLoS ONE* 2012; 7: e39296.

Paper 19: Feasibility and effectiveness of provider initiated HIV testing and counselling of TB suspects in Vizianagaram district, South India. *PLoS ONE* 2012; 7: e41378.

Year 4: Senior Fellow - Started June 1st 2012

Paper 1: How Did the TB Patients Reach DOTS Services in Delhi? A Study of Patient Treatment Seeking Behaviour. *PLoS ONE* 2012; 7: e42458.

Paper 2: Operational research training: the course and beyond. *Public Health Action* 2012; 2: 92-97.

Paper 3: Is one sputum specimen as good as two during follow-up cultures for monitoring multidrug resistant tuberculosis patients in India? *PLoS ONE* 2012; 7: e45554.

Paper 4: High diabetes prevalence among tuberculosis cases in Kerala, India. *PLoS ONE* 2012; 7: e46502.

Paper 5: Should Sputum Smear Examination Be Carried Out at the End of the Intensive Phase and End of Treatment in Sputum Smear Negative Pulmonary TB Patients? *PLoS ONE* 2012; 7: e49238.

Paper 6: Does a nutrition education programme change the knowledge and practice of healthy diets among high school adolescents in Chennai, India? *Health Education Journal* 2012, October 22.

Paper 7: HIV testing in people with presumptive tuberculosis: time for implementation. *Lancet respire Dis* 2013; 1: 7 – 9.

Paper 8: Does the 65 cm height cut-off as age proxy exclude children eligible for nutritional assessment in Bangladesh? *Public Health Action* 2012; 2: 103-106.

Paper 9: Can the follow-up of tuberculosis patients be simplified? A study in Chattisgarh, India. *PLoS ONE* 2012; 7: e51038.

Paper 10: Severe malnutrition in children presenting to health facilities in an urban slum in Bangladesh. *Public Health Action* 2012; 2: 107-111.

Paper 11: Health care seeking among people with cough of 2 weeks or more in India: Is passive TB case finding sufficient? *PHA* 2012, 2, 157-161)

Paper 12: Fast-track writing of a scientific paper with 30 authors: how to do it. *PHA* 2012; 2: 186-187.

Paper 13: Pre-treatment loss to follow-up among smear-positive pulmonary TB cases: a 10 year audit of national data from Fiji. *Public Health Action* 2012; 2: 138 – 141.

Paper 14: Is bleach sediment smear microscopy an alternative to direct microscopy under programme conditions in India? *Public Health Action* 2013; 3: 23-25.

Paper 15: Contribution of medical colleges to tuberculosis control in India under RNTCP: lessons learnt and challenges ahead. *Indian J Med Res* 2013; 137: 283 – 294.

Paper 16: What are the reasons for poor uptake of HIV testing among patients with TB in an Eastern India District? *PLoS ONE* 2013; 8: e 55229.

Paper 17: Universal health coverage in a regional Nepali Hospital: who is exempted from payment? *Public Health Action* 2013; 3: 90-92.

Paper 18: Linkage of presumptive MDR-TB patients to diagnostic and treatment services in Cambodia. *PLOS ONE* 2013; 8: e59903.

Paper 19: Screening patients with TB for diabetes mellitus in India. *TMIH* 2013; 18: 636 – 645.

Paper 20: Screening patients with diabetes mellitus for TB in India. *TMIH* 2013; 18: 646 – 654

Paper 21: Taking on the diabetes-TB epidemic in India: paving the way through operational research. *Public Health Action*, 2013, in press.

Paper 22: Diabetes mellitus and smoking among TB patients in a tertiary care centre in Karnataka, India. *Public Health Action*, 2013, in press.

Paper 23: Non-adherence to standard treatment guidelines in a rural paediatric hospital in Sierra Leone. *Public Health Action* 2013; 3: 118-124.

Paper 24: Operational research capacity building in Asia: innovations, successes and challenges of a training course. *Public Health Action* 2013; 3: 186-188.

Paper 25: Uptake of HIV testing and HIV status in presumptive TB patients in Puducherry, South India. *Public Health Action* 2013; 3 : 220-223.

Paper 26: Is physical access an impediment to TB diagnosis and treatment? *Public Health Action* 2013 ; 3 : 235-239.

Paper 27: Is screening for diabetes among tuberculosis patients feasible at the field level? *Public Health Action* 2013 ; 3(S1) : S34-S37.

Paper 28: LED Fluorescent Microscopy increases detection of smear positive pulmonary tuberculosis in medical colleges of India: *Public Health Action* 2013; 3: 240 – 242.

Paper 29: Quit rates among smokers with TB in Bangladesh. *Public Health Action* 2013; 3: 243 – 246.

Paper 30: Referencing for scientific journals: should we have one global style? *Public Health Action* 2013; 3: 255- 257.

Paper 31: Assessing compliance with smoke-free legislation: results of a sub-national survey in Himachal Pradesh, India. *WHO South east Asia Journal of Public Health* 2013: doi: 10.4103/2224-3152.115843.

Year 5: Senior Fellow - Started June 1st, 2013:

Project 1: LED-Fluorescence Microscopy for Diagnosis of Pulmonary Tuberculosis under Programmatic Conditions in India. *PLoS ONE* 8(10): e75566.

Project 2: Comparing Same Day Sputum Microscopy with Conventional Sputum Microscopy for the Diagnosis of Tuberculosis – Chhattisgarh, India. *PLoS ONE* 8(9): e74964.

Project 3: Modeling the Impact of Alternative Strategies for Rapid Molecular Diagnosis of Tuberculosis in Southeast Asia. *American Journal of Epidemiology Advance Access published October 7, 2013*. DOI: 10.1093/aje/kwt210

Project 4: Profile and treatment outcomes of elderly patients with tuberculosis in Delhi, India: implications for their management. *Trans R Soc Trop Med Hyg* 2013; 107:763-8.

Project 5: Delays in diagnosis and treatment of pulmonary tuberculosis in India: a systematic review. *International Journal of TB and Lung Diseases- In Press*

Project 6: Improving quality of tuberculosis care in India. *Indian Journal of Tuberculosis- In Press*

Project 7: Intensified tuberculosis case finding among malnourished children in nutritional rehabilitation centres of Karnataka, India: missed opportunities. *Plos ONE – In Press*.

Project 8: How effective is integration of facility and community based management of severe acute malnutrition in India? *Public Health Action – In Press*

Other outputs since becoming a fellow

Facilitated at a total of **11** operational research courses

Reviewed a total of **18** papers for peer-reviewed journals

Made **11** presentations at national or international conferences

Received **5** aliquots of funding: i) TB-REACH which contained USD\$30,000 for OR during the period 2012-2013; ii) USAID-India which contained USD\$150,000 for 2 OR courses and a National OR Dissemination Workshop for the period 2012-2014; iii) WHO for USD\$30,000 for OR Courses held in collaboration with Indian NTP, WHO, NTI-Bangalore and CDC-Atlanta for the period 2011-2013; iv) McGill University for USD 34000 during the period 2012-2013. v) Global Fund Phase 2 project which contains USD\$400,000 for operational research for the period 2013-2015

(74 projects implemented and completed – 72 in press or published)

Mweete Nglazi – South Africa

Year 1: Junior Fellow - Milestones reached:

Paper 1: Identification of losses to follow-up in a community-based ART clinic in South Africa using a computerised pharmacy tracking system: BMC Infectious Diseases 2010; 10: 329

Paper 2: Changes in programmatic outcomes during 7 years of scale up at a community-based ART service in South Africa: Progress – Journal of the Acquired Immune Deficiency Syndrome 2011; 56 (1): e1-8.

Year 2: Junior Fellow - Milestones reached:

Paper 1: Treatment outcomes in HIV-infected adolescents attending a community-based antiretroviral treatment service in South Africa: BMC Infectious Diseases 2012; 12: 21

Paper 2: An incentivised HIV testing programme targeting hard-to-reach unemployed men in Cape Town, South Africa: Journal Acquired Immune Deficiency Syndrome 2012, 59: e28-34.

Year 3: Senior Fellow - Started June 1st 2011:

Project 1: Increasing transfer-outs from an ART programme in South Africa: patient characteristics and rates of viral non-suppression. PloS One 2013; 8: e57907.

Project 2: Uptake of ART in patients with HIV-associated tuberculosis attending co-located HIV and TB services in Cape Town: South African Medical Journal 2012, 102, 936-939.

Year 4: Senior Fellow - Started June 1st 2012

Project 1: Mobile phone text messaging for promoting adherence to anti-tuberculosis treatment in patients with tuberculosis: a systematic review. Systematic Reviews Journal 2013; 2: 6

Project 2: Mobile phone text messaging for promoting adherence to anti-tuberculosis treatment in patients with tuberculosis: a systematic review –BMC Infectious Diseases 2013; 13: 566

Year 5: Senior Fellow - Started June 1st 2013

Project 1: Do TB treatment outcomes of new TB patients vary by HIV status and ART status in a co-located TB and ART service? – Paper in preparation

Project 2: The impact of mass media interventions on tuberculosis awareness, health seeking behavior and health service utilization: a systematic review protocol – BMJ Open In Press

Other outputs since becoming a fellow

*Facilitated at a total of **Zero** operational research courses*

*Reviewed a total of **3** papers for peer-reviewed journals*

*Made **1** oral presentation at national or international conferences*

*Received **Zero** sources of funding*

Kudakwashe Takarinda – Zimbabwe

Year 1: Junior Fellow - Milestones reached

Paper 1: Treatment outcomes of adult patients with New tuberculosis in relation to known and unknown HIV-serostatus in Zimbabwe. Public Health Action 2011; 1: 34-39.

Paper 2: Treatment outcomes of adult patients with Recurrent tuberculosis in relation to known and unknown HIV-serostatus in Zimbabwe. BMC Public Health 2012; 12: 124.

Year 2: Junior Fellow - Started June 1st 2011

Project 1: Characteristics and treatment outcomes of Tuberculosis patients who transfer-in to health facilities in Harare, Zimbabwe: BMC Public Health 2012; 12: 981

Project 2: Timing of start of ART and TB treatment in co-infected patients who a) start ART before TB treatment, and b) start ART after TB treatment, and relationship to treatment outcomes. Public Health Action 2012; 2: 50-55.

Year 3: Senior Fellow - Started June 1st 2012

Project 1 – What is the extent of TB treatment delay and the associated patient and health system factors under the Zimbabwe National TB programme?: Submitted BMC Public Health

Project 2 – Gender-related differences in ART outcomes and associated factors among HIV-positive patients: a cohort study in the Zimbabwe National ART program: Submitted AIDS and Behaviour

Year 4: Senior Fellow - Started June 1st 2013

Project 1 - What are the linkages to paediatric ART among HIV-exposed infants within the Zimbabwe public health system? project under development

Project 2: Factors associated with HIV testing uptake in Zimbabwe: an extended analysis of Zimbabwe Demographic Health Survey 2010 – 2011 data: paper being prepared.

Other outputs since becoming a fellow

Facilitated at a total of 3 operational research courses

*Reviewed **zero** papers for peer-reviewed journals*

Made 9 presentations at national or international conferences

Received 3 aliquots of funding: i) Expanded programme support for HIV/AIDS –USD\$16,825; ii)PEPFAR through CDC to support four OR studies; iii) TB Care Zimbabwe –USD\$26,140.

Mauro Sanchez – Brazil

Year 1: Junior Fellow - started June 1st 2010 – first year completed June 2011 and left to take up academic appointment

Paper 1: Association between HIV testing status and TB treatment outcomes among new TB patients in selected States in Brazil between 2003 and 2008 as recorded in the national TB reporting system. PLoS One 2012, 7: e33129

Paper 2: Validation of a clinical score for the diagnosis of pulmonary tuberculosis in Rio de Janeiro, Brazil: Paper being prepared

Serge Ade – Benin (Supported by DFID)

Year 2: Junior Fellow - started January 1st 2012

4 projects implemented: 1 paper submitted and 3 papers published

*Facilitated at **zero** operational research courses*

*Reviewed **two** papers for peer-reviewed journals*

Made 10 presentations at national or international conferences

*Received **zero** aliquots of funding*

Ajay Kumar – India (Supported by DFID)**Year 2: Fellow / Coordinator - started February 1st 2012***103 projects: 60 completed: 50 papers published / in press**Facilitated at a total of 35 operational research courses**Reviewed 6 papers for peer-reviewed journals**Made 34 presentations at national or international conferences**Received zero aliquots of funding***MSF–OR Fellows (Five supported by DFID)****Year 2: Junior and Senior Fellows (5) - started September 2012***223 projects implemented: 148 completed and 93 in press or published**Facilitated at a total of 41 operational research courses**Reviewed 28 papers for peer-reviewed journals**Made 53 presentations at national or international conferences**Received zero aliquots of funding*

Operational Research Fellows were appointed under MOUs: through the Desmond Tutu Tuberculosis Centre in South Africa, through AMPATH in Kenya. They have also carried out research studies: outputs shown below.

Desmond Tutu Tuberculosis Centre: Start July 1st 2009**Susan Van Wyk****Year 1: Milestones reached***Paper 1: Recording of Isoniazid Preventive Therapy delivery in children, operational challenges: International Journal of Tuberculosis and Lung Disease, 2010, 14: 650-653**Paper 2: Consulting Private Health Care Providers aggravates treatment delay in urban South African tuberculosis patients: International Journal of Tuberculosis and Lung Disease, 2011; 15: 1069 – 1076***Year 2 (July 1st 2010 and completed June 2011):***Paper 1: Use of LED fluorescence to diagnose mycobacterial lymphadenitis in fine needle aspirates from children: Int J Tuberc and Lung Disease, 2011, 15: 56-60**Paper 2: Operational challenges in managing Isoniazid Preventive Therapy in child contacts: A high burden setting perspective: BMC Public Health 2011; 11: 544**Paper 3: Tuberculosis contact investigation in a high burden setting: house or household: Progress – International Journal of Tuberculosis and Lung Disease, 2012; 16: 157-62***Karen Du Preez****Year 1: Milestones reached***Paper 1: Environmental tobacco smoke exposure increases Mycobacterium tuberculosis infection risk in children. International Journal of Tuberculosis and Lung Disease 2011; 15: 1490-1496**Paper 2: Missed opportunities for preventive therapy in children with culture-confirmed tuberculosis. Annals of Tropical Paediatrics 2011; 31: 301-310***Year 2 (July 1st 2010 and completed December 2011):***Paper 1: Incomplete registration and reporting of culture-confirmed childhood tuberculosis diagnosed in hospital. Public Health Action 2011; 1: 19-24**Project 2: Management of low birth weight neonates with TB exposure in a setting of high TB and HIV prevalence: Int J Tuberc Lung Disease 2012; 16: 1040 – 1046.*

Nelda van Soelen**Year 1 (July 1st 2011)**

Project 1: Effect of Ascaris lumbricoides on TB infection in children – a cross-sectional study: BMC Infectious Diseases 2012; 12: 211

Project 2: Does the introduction of a Isoniazid Prophylaxis Register change TB contact management in children under 5 years of age? PLoS One in press

Penny Rose**Year 1 (September 1st 2011)**

Project 1: Linezolid use in drug-resistant paediatric tuberculosis: International Journal of Tuberculosis and Lung Disease 2012; 16: 1588 – 1593.

Project 2: Completeness and accuracy of paediatric electronic drug-resistant tuberculosis registration in Cape Town, South Africa: Public Health Action, 2013, 3: 214-219.

AMPATH, Kenya: Start July 1st, 2010**Rose Kosgei**

Paper 1: Screening For Tuberculosis among HIV-infected Pregnant Women In Western Kenya: The Role Of Symptom Screening. Public Health Action 2011; 1: 30-33.

Paper 2: Impact of family planning and HIV care services on reproductive health: a retrospective cohort study. Journal Acquir Immune Defic Syndr 2011; 58: 121-126

Paper 3: Characteristics and treatment outcomes of tuberculosis retreatment cases in three regional hospitals, Uganda. Public Health Action 2013; 3: 149-155

Project 4: Cough monitor screening for Tuberculosis in Antenatal Clinics within the USAID- AMPATH Care Program: Public Health Action in Press.

Nicholas Kirui

Project 1: Important co-morbidity in patients with diabetes mellitus in three clinics in Western Kenya. Public Health Action 2012; 2: 148-151

Project 2: TB intensified case finding in diabetes clinics in Western Kenya: study completed and paper being written

Project 3: Screening TB patients for diabetes: proposal developed and cleared for ethics – study about to start.

SUMMARY: as of December 31st, 2013:- updated as we go along and includes Bloomberg and DFID supported OR Fellows:

- 472 research projects undertaken
- 341 completed and submitted to peer review journals
- 268 in press or published

- 100 operational courses facilitated at
- 77 scientific papers reviewed for peer review journals
- 129 presentations at national / international conferences
- 14 aliquots of funding acquired for research

Annex 3: Papers published and/or on PubMed in 2013

[The papers and documents cited below are attributable to support from the Centre for Operational Research and these papers have The Union stated as institutional affiliation]

Research papers [96]

Hoa NB, Lauritsen JM, Rieder HL. Changes in body weight and tuberculosis treatment outcome in Vietnam.

International Journal of Tuberculosis and Lung Disease 2013; 17: 61-66.

Orrell C, Dipenaar R, Killa N, Tassie JM, Harries AD, Wood R. Simplifying HIV cohort monitoring – pharmacy stock records minimize resources necessary to determine retention in care.

Journal of Acquired Immune Deficiency Syndrome 2013; 62: e106-e108.

Singh S, Bingwor F, Tayler-Smith K, Manzi M, Marks GB. Congenital Rubella syndrome in Fiji, 1995 – 2010

Journal of Tropical Medicine 2013; Article ID 956234

Phe T, Vlieghe E, Reid T, Harries AD, Lim K, Thai S, De Smet B, Veng C, Kham C, Leng S, van Gienssven J, Jacobs J. Does HIV status affect the aetiology, bacterial resistance patterns and recommended empiric antibiotic treatment in adult patients with bloodstream infection in Cambodia?

Tropical Medicine and International Health 2013; 18: 485 – 494

Bishnu B, Bhaduri S, Kumar AMV, Click ES, Chadha VK, Srinath S, Nair SA, Gupta D, Ahmed QT, Sarkar S, Paul D, Dewan P. What are the reasons for poor uptake of HIV testing among patients with TB in an Eastern India District?

PLoS ONE 2013; 8: e 55229.

Khogali M, Tayler-Smith K, Zachariah R, Gbane M, Zimble S, Weyeyso T, Harries AD. Diagnosis of pulmonary tuberculosis in a pastoralist population in Ethiopia: are three sputum specimens necessary?

Tropical Medicine and International Health 2013; 18: 632 – 635

Parry CM, Thomas S, Aspinall EJ, Cooke RP, Rogerson SJ, Harries AD, Beeching NJ. A retrospective study of secondary bacteraemia in hospitalised adults with community acquired non-typhoidal Salmonella gastroenteritis

BMC Infectious Diseases 2013; 13: 107

Nglazi MD, Kaplan R, Orrell C, Myer L, Wood R, Bekker LG, Lawn SD. Increasing transfers-out from an antiretroviral treatment service in South Africa: patient characteristics and rates of virological non-suppression.

PLoS ONE 2013; 8: e 57907

Mauch V, Bonsu F, Gyapong M, Awini E, Suarez P, Marcelino B, Melgen RE, Lonnroth K, Nhung NV, Hoa NB, Klinkenberg E. Free tuberculosis diagnosis and treatment are not enough: patient cost evidence from three continents.

International Journal of Tuberculosis and Lung Disease 2013; 17: 381-387.

India Tuberculosis – Diabetes Study Group. Screening of patients with tuberculosis for diabetes mellitus in India

Tropical Medicine and International Health 2013; 18: 636 - 645

India Diabetes Mellitus – Tuberculosis Study Group. Screening of patients with diabetes mellitus for tuberculosis in India

Tropical Medicine and International Health 2013; 18: 646-654

Ali E, Zachariah R, Shams Z, Vernaev L, Alders P, Salio F, Manzi M, Allaouna M, Draguez B, Delchevaklerie P, Harries AD. Is mid upper arm circumference alone sufficient for deciding admission to a nutritional programme for childhood severe acute malnutrition in Bangladesh? **Transactions Royal Society Tropical Medicine & Hygiene** 2013; **107**: 319 – 323.

Nglazi MD, Bekker LG, Wood R, Hussey GD, Wiysonge CS. Mobile phone text messaging for promoting adherence to anti-tuberculosis treatment: a systematic review protocol. **Systematic Reviews** 2013; **2**: 6.

Swati S, Malhotra S, Harries AD, Lal P, Arora M. Correlates of tobacco quit attempts and cessation in the adult population of India: secondary analysis of the Global Adult Tobacco Survey, 2009 – 10. **BMC Public Health** 2013; **13**: 263

Dendup T, Dorji T, Edginton ME, Kumar AMV, Wangchuk D, Dophu U, Jamtsho T, Rinzin C. Childhood tuberculosis in Bhutan : profile and treatment outcomes. **Public Health Action** 2013; **3**: 11-14.

Ade S, Harries AD, Trebucq A, Hinderaker SG, Ade G, Agodokpessi G, Affolabi D, Koumakpai S, Anagonou S, Gninafon M. The burden and outcomes of childhood tuberculosis in Cotonou, Benin. **Public Health Action** 2013; **3**: 15-19.

Shah SK, Kumar AMV, Dogar OF, Khna MA, Qadeer E, Tahseen S, Masood F, Chandio AK, Edginton ME. Xpert MTB/RIF under routine conditions in diagnosing pulmonary tuberculosis: a study in two hospitals in Pakistan. **Public Health Action** 2013; **3**: 20-22.

Vishnu PH, Bhat P, Bansal A, Satyanarayana S, Alavadi U, Ohri BS, Shrinivas MSR, Desikan P, Jaju J, Rao VG, Moonan PK. Is bleach-sedimented smear microscopy an alternative to direct microscopy under programme conditions in India? **Public Health Action** 2013; **3**: 23-25.

Jayakody W, Harries AD, Malhotra S, de Alwis S, Samaraweera S, Pallewatta N. Characteristics and outcomes of tuberculosis patients who fail to smear convert at two months in Sri Lanka. **Public Health Action** 2013; **3**: 26-30.

Jamtsho T, Harries AD, Malhotra S, Wangchuk D, Dophu U, Dorji T, Dendup T. The burden and treatment outcomes of extra-pulmonary tuberculosis in Bhutan. **Public Health Action** 2013; **3**: 38-42.

Dalwai MK, Tayler-Smith K, Trelles M, Jemmy JP, Maikere J, Twomey M, Wakeel M, Iqbal M, Zachariah R. Implementation of a triage score system in an emergency room in Timergara, Pakistan. **Public Health Action** 2013; **3**: 43-45.

Kumar AMV, Naik B, Guddemane DK, Bhat P, Wilson N, Sreenivas AN, Lauritsen JM, Rieder HL. Efficient, quality-assured data capture in operational research through innovative use of open-access technology. **Public Health Action** 2013; **3**: 60-62.

Aiyub S, Linh NN, Tayler-Smith K, Khogali M, Bissell K. Nurses graduating in Fiji between 2001 and 2010: sufficient supply for Fiji's health service demands? **Public Health Action** 2013; **3**: 63-67.

Vodonaivalu L, Bullen C. Trends in cervical cancer in Fiji, 2000-2010. **Public Health Action** 2013; **3**: 68-71.

Tuinakelo LR, Tayler-Smith K, Khogali M, Marks GB. Prevalence of anaemia, syphilis and hepatitis B in pregnant women in Nausori, Fiji.

Public Health Action 2013; 3: 72-75.

Varman S, Bullen C, Tayler-Smith K, Van den Bergh R, Khogali M. Primary school compliance with school canteen guidelines in Fiji and its association with student obesity.

Public Health Action 2013; 3:81-84.

Basnet R, Shrestha BR, Nagaraja SB, Basnet B, Satyanarayana S, Zachariah R. Universal health coverage in a regional Nepali hospital: who is exempted from payment?

Public Health Action 2013; 3: 90-92.

Tweya H, Feldacker C, Breeze E, Jahn A, Haddad LB, Ben-Smith A, Chaweza T, Phiri S. Incidence of pregnancy among women accessing antiretroviral therapy in urban Malawi: a retrospective cohort study.

AIDS Behaviour 2013; 17: 471-478.

Tweya H, Feldacker C, Phiri S, Ben-Smith A, Fenner L, Jahn A, Kalulu M, Weigel R, Kamba C, Banda R, Egger M, Keiser O. Comparison of treatment outcomes of new smear-positive pulmonary tuberculosis patients by HIV and Antiretroviral status in a TB/HIV Clinic, Malawi.

PLoS ONE 2013; 8: e56348.

Johnson DC, Feldacker C, Tweya H, Phiri S, Hosseinipour MC. Factors associated with timely initiation of antiretroviral therapy in two HIV clinics in Lilongwe, Malawi.

International Journal of STD and AIDS 2013; 24: 42-49.

Schouten EJ, Jahn A, Chimbwandira F, Harries AD, van Damme W. Is Option B+ the best choice?

Lancet 2013; 381: 1272 – 1273 (correspondence with data).

Khann S, Tan Mao E, Rajendra YP, Satyanarayana S, Nagaraja BN, Kumar AMV. Linkage of presumptive multidrug resistant tuberculosis (MDR-TB) patients to diagnostic and treatment services in Cambodia

PLoS ONE 2013; 8: e59903.

Shakti Gounder, Katherine Tayler-Smith, Mohammed Khogali, Maopa Raikabula; Anthony D. Harries. Audit of the practice of sputum smear examination for patients with suspected pulmonary tuberculosis in Fiji.

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Ali E, Zachariah R, Shams Z, Manzi M, Akter T, Alders P, Allaouna M, Delchevalerie P, Harries AD. Peanut-based ready-to-use therapeutic food: how acceptable and tolerated is it among malnourished pregnant and lactating women in Bangladesh?

Matern Child Nutr 2013, May 6: doi: 10.1111/mcn.12050.

Hoa NB, Cobelens FGJ, Sy DN, Nhung NV, Borgdorff MW, Tiemersma EW. First national tuberculin survey in Vietnam: characteristics and association with tuberculosis prevalence.

International Journal of Tuberculosis and Lung Disease 2013; 17: 738 – 744.

Tayler-Smith K, Zachariah R, Manzi M, Van den Boogaard W, Nyandwi G, Reid T, De Plecker E, Lambert V, Nicolai M, Goetghhebuer S, Christiaens B, Ndelema B, Kabangu A, Manirampa J, Harries AD. An ambulance referral network improves access to emergency obstetric and neonatal care in a district of rural Burundi with high maternal mortality

Tropical Medicine and International Health 2013; 18: 993 - 1001.

Njuguna C, Orrell C, Kaplan R, Bekker LG, Wood R, Lawn SD. Rate of switching antiretroviral drugs in a primary care service in South Africa before and after introduction of tenofovir.

PLoS ONE 2013; 8: e63596.

Singogo E, Kanike E, van Lettow M, Cataldo F, Zachariah R, Bissell K, Harries AD. Village registers for vital registration in rural Malawi.

Tropical Medicine and International Health 2013; 18: 1021 – 1024

Shayla Islam, Anthony D Harries, Sumit Malhotra, K Zaman, Ashaque Husain, Akramul Islam and Faruque Ahmed. Training of community healthcare providers and TB case detection in Bangladesh.

International Health 2013: 5: 223 – 227.

Sharma SK, Mohan A, Chauhan LS, Narain JP, Kumar P, Behera D, Sachdeva KS, Kumar A, Agarwal P, Awadh NT, Bansal A, Baruah S, Baruwa P, Balasangameshwara VH, Balasubramanian R, Bhardwaj AK, Bhargav S, Chadha S, Chaddha VK, Chhatwal M, Da Costa AL, Dash DP, Dep J, Dhingra S, Dhooria Harmeet S, Frieden TR, Garg A, Granich R, Gulati V, Gupta D, Gupta D, Gupta KB, Gupta KN, Jaikishan, Janmeja AK, Jawahar MS, Jethani SL, Jindal SK, John KR, Kalra OP, Kalra VP, Kannan AT, Kayshap S, Keshav Chander G, Khushwa SS, Kushwaha RS, Kumar V, Laskar B, Leela Itty Amma KR, Leuva AT, Maitra Malay K, Mesquita AM, Mathew T, Mundade Y, Munje R, Nagpal S, Nagaraja C, Nair S, Narayanan OR, Paramasivan CN, Parmar M, Prasad R, Phukan AC, Prasanna R, Purty A, Ramachandran R, Ramachandran R, Ravindran C, Reddy Raveendra HR, Sahu S, Santosha, Sarin R, Sarkar S, Sarma KC, Saxena P, Sehgal S, Sharath N, Sharma G, Sharma N, Shridhar PK, Shukla RS, Singh O, Singh NT, Singh V, Singla R, Sinha N, Sinha P, Sinha S, Solanki R, Sreenivas A, Srinath S, Subhakar K, Suri JC, Talukdar P, Tonsing J, Tripathy SP, Vaidyanathan P, Vashist RP, Venu K. Contribution of medical colleges to tuberculosis control in India under the Revised National Tuberculosis Control Programme (RNTCP): Lessons learnt & challenges ahead.

Indian J Med Res. 2013; 137: 283-94

Buard V, Van den Bergh R, Tayler-Smith K, Godia P, Sobry A, Kosgei RJ, Szumilin E, Harries AD, Pujades-Rodriguez M. Characteristics, medical management and outcomes of survivors of sexual gender-based violence, Nairobi, Kenya.

Public Health Action 2013; 3: 109- 112

Bishinga A, Zachariah R, Hinderaker S, Tayler-Smith K, Khogali M, van Griensven J, van den Boogaard W, Tamura M, Christiaens B, Sinabajije G. High loss to follow-up following obstetric fistula repair surgery in rural Burundi: is there a way forward?

Public Health Action 2013 ; 3 : 113 - 117

De Bruycker M, Van den Bergh R, Dahmane A, Khogali M, Schiavetti B, Nzomukunda Y, Alders P, Allaouna M, Cloquet C, Enarson DA, Satyanarayana S, Magbity E, Zachariah R. Non-adherence to standard treatment guidelines in a rural paediatric hospital in Sierra Leone.

Public Health Action 2013; 3: 118-124.

Ngoy BB, Zachariah R, Hinderaker SG, Khogali M, Manzi M, van Griensven J, Ayada L, Jemmy JP, Maalim A, Amin H. Paediatric in-patient care in a conflict-torn region of Somalia: are hospital outcomes of acceptable quality?

Public Health Action 2013; 3: 125-127

Ali E, Zachariah R, Dahmane A, Van den Boogaard W, Shams Z, Akter T, Alders P, Manzi M, Allaouna M, Draguez B, Delchevalerie P, Harries AD. Peanut-based ready-to-use therapeutic food: acceptability among malnourished children and community workers in Bangladesh.

Public Health Action 2013; 3: 128-135.

Mlilo N, Sandy C, Harries AD, Kumar AMV, Masuka N, Nyathi B, Edginton M, Isaakidis P, Manzi M, Siziba N. Does the type of treatment supporter influence tuberculosis treatment outcomes in Zimbabwe?

Public Health Action 2013; 3: 146-148.

Nakanwagi-Mukwaya A, Reid AJ, Fujiwara PI, Mugabe F, Kosgei RJ, Tayler-Smith K, Kizito W, Joloba M. Characteristics and treatment outcomes of tuberculosis retreatment cases in three regional hospitals, Uganda.

Public Health Action 2013; 3: 149-155

Kilale AM, Ngowi BJ, Mfinanga GS, Egwaga S, Doulla B, Kumar AMV, Khogali M, van Griensven J, Harries AD, Zachariah R, Hinderaker SG. Are sputum samples of retreatment tuberculosis reaching the reference laboratories? A 9-year audit in Tanzania.

Public Health Action 2013; 3: 156-159.

Ade S, Trebucq A, Harries AD, Affolabi D, Ade G, Agodokpessi G, Wachinou P, Anagonou S, Gninafon M. MDR-TB treatment needs in patients previously treated for TB in Cotonou, Benin.

Public Health Action 2013; 3: 160-165.

Agarwal M, Bourgeois J, Sodhi S, Matengeni A, Bezanson K, van Schoor V, van Lettow M. Updating a patient-level ART database covering remote health facilities in Zomba district, Malawi: lessons learnt.

Public Health Action 2013; 3: 175-179.

Mwinjiwa E, Isaakidis P, Van den Bergh R, Harries AD, Bezanson KD, Beyene T, Thompson C, Joshua M, Akello H, van Lettow M. Burden, characteristics, management and outcomes of HIV-infected patients with Kaposi's Sarcoma in Zomba, Malawi

Public Health Action 2013; 3: 180-185.

Kumar AMV, Satyanarayana S, Wilson N, Zachariah R, Harries AD. Operational research capacity building in Asia: innovations, successes and challenges of a training course.

Public Health Action 2013; 3: 186-188.

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Journal of the International AIDS Society 2013; 16: 18518

Ananthakrishnan R, Kumar K, Ganesh M, Kumar AMV, Krishnan N, Swaminathan S, Edginton M, Arunagiri K, Gupta D. The profile and treatment outcomes of the older (aged 60 years and above) tuberculosis patients in Tamilnadu, South India.

PLoS ONE 2013; 8: e67288

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PLoS ONE 2013; 8: e72188.

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PLoS ONE 2013; 8: e71119.

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Journal of Acquired Immune Deficiency Syndrome 2013; 64: 134-137.

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Eastern Mediterranean Health Journal 2013; 19: 694 – 697.

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Public Health Action 2013; 3: 220 - 223.

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Public Health Action 2013; 3: 235 – 239. .

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Public Health Action 2013; 3: 240-242.

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Public Health Action 2013; 3: 243 – 246.

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PLoS ONE 2013; 8: e74964.

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Tropical Medicine and International Health 2013; 18: 1379-1385.

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PLoS ONE 2013; 8: e75761.

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American Journal of Epidemiology 2013; 178: 1740 - 1749.

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PLoS ONE 2013; 8: e75566.

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PLoS ONE 2013; 8: e76275.

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PLoS ONE 2013; 8: e76189.

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Health Research Policy and Systems 2013; 11: 40

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Transactions Royal Society Tropical Medicine and Hygiene 2013; 107: 763 - 768.

Prakash BC, Ravish KS, Prabhakar B, Ranganath TS, Naik B, Satyanarayana S, Isakidis P, Kumar AMV. Tuberculosis-diabetes mellitus bidirectional screening at a tertiary care centre, South India.
Public Health Action 2013; 3 (Suppl 1): S18 – S22.

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Annex 4: **Examples of research / viewpoints leading to Policy and Practice**

Collaborative activities to reduce the joint burden of TB and DM:

- Six published papers on this subject over the last 2 years (the last of which was published in IJTLD in November 2011) paved the way for a WHO/UNION Collaborative Framework for care and control of diabetes and tuberculosis. This “policy document”, which was launched in August 2011, serves as a template for activities on the ground – the first of which is the bi-directional screening of TB and Diabetes in health facilities in India and China, activities for which are funded by the World Diabetes Foundation.
- Screening started in 11 facilities in China in September 2011 and the results were published in July 2012 (two papers in TMIH). Similar work on bi-directional screening was undertaken in a number of different facilities in India from December 2011 and the results were published in January 2013 (two papers in TMIH). This has led to a policy decision to screen all TB patients in India (2.5 million registered cases a year) for diabetes: as a result of this policy decision, a training manual has been developed for health care workers and both the Treatment cards and the Registers have been adapted to accommodate data on numbers screened for diabetes and numbers diagnosed with diabetes.

Cohort monitoring for non-communicable diseases:

- Work was done in Jordan to assess the quarterly cohort monitoring approach for patients with diabetes and hypertension, with the work resulting in two publications in TMIH. This has led to implementation of cohort monitoring in Jordan, and in the last three months in Lebanon and the West Bank. This also paves the way for the concept of “chronic care clinics” for managing a range of different non-communicable diseases: the first such clinic at the primary health care level is currently being pilot tested in Malawi.

“Test and Treat Approach-Option B+” in Malawi:

- Through COR we have provided technical assistance to Malawi to assist with the “test and treat” approach for pregnant women – the so-called Option B+. This was implemented nationwide in July 2011: results by March 31st, 2013 show that 69,340 women started ART under Option B+ (about two thirds in pregnancy and one third while breast feeding). Retention in care at 6 months is 83% and at 12 month is 78%. The WHO has now incorporated guidance for Option B+ in their 2013 Consolidated ART Guidelines, and several other countries in the region are considering implementation.