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# Small Research Grants Scheme

## Results & Resources 2014 - 2020

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# Welcome



## Resources & Results: implementation research on tropical diseases.

The TDR Small Research Grants Scheme supported **research in 47 WHO partner countries**.

Since 2014 these research teams delivered 203 projects, with some still in progress, studying many aspects of tropical disease prevention and control.

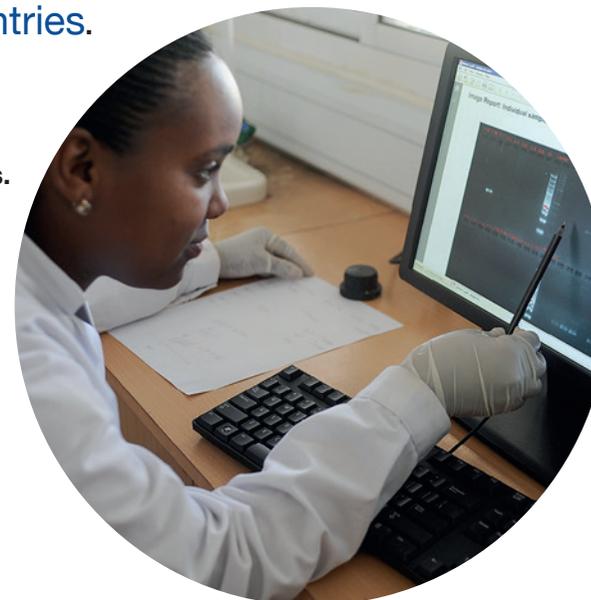
This report presents the **research results and resources** produced by the project teams.

It shows **different views** of the research:

By topic; publications; findings that have scaling or transfer potential; and useful approaches to share – tools, capacity building materials or input to national policies.

We hope you find the resources useful, and **encourage their wider use**.

For the global community of tropical disease researchers;  
to connect more public health professionals concerned with tropical diseases.



*The WHO-TDR Small Research Grants Team*

### Authors & Acknowledgements

*This report presents the results of the consultancy assignment by Science for Development aisbl for WHO-TDR, to review outputs and results of the Small Research Grants Scheme 2014-2020.*

*Thanks to TDR Regional Office managers for providing background information and advice, and facilitating contact with Principal Investigators; and for Principal Investigators who provided valuable insights about their projects' results and potential for wider use.*

Science for Development,  
Brussels (Sci4D) aisbl  
[www.Sci4d.org](http://www.Sci4d.org)



Prepared by Michael Devlin and Olivier Hulin  
Design: Isabel Correia, Azur Artworks, Brussels.





# 1. Overview

## Review & synthesis of research project results 2014 – 2020

*This report presents the results of the WHO-TDR Small Research Grants Scheme between 2014 and 2020. It synthesizes the **outputs of 203 research grants awarded to national researchers, teams and institutes in 47 WHO partner countries worldwide, investigating neglected tropical diseases and conditions affecting these populations such as malaria, TB and others.***

The TDR Small Research Grants Scheme funds implementation research that aims to generate evidence on the prevention and control of tropical diseases and infectious diseases of poverty in developing countries. The goal is to drive health improvements in partner countries, strengthen the research capacity of the people and institutions involved and encourage cooperation between the research teams with national and international partners.

The small research grants projects were completed by researchers in developing countries. The process was managed by the WHO regional offices for Europe, Western Pacific, South-east Asia, Eastern Mediterranean and Americas.

This report presents several views of the Scheme's results:

1. Overview
2. Facts & Figures
3. Outputs: Publications, Capacity Building, Partner Engagement
4. Themes: Common research topics across regions
5. Policy & learning materials
6. Tools & practices with transfer potential
7. Knowledge products
8. All Small Research Grants 2014-2020





## Sources of information for this review

- Grant proposals and technical and final reports submitted by projects.
- Principal investigators' responses to survey questions, about: about outputs, learning, unique know-how in their projects.
- Desk research by reviewers; interactions with WHO regional managers and some principal investigators.

Full project data behind this report is provided to TDR for its future use.

## Limitations

- 89 responses were received to the web-survey, of the 162 project leaders contacted. The nature of these small grants – small amounts of funding and the fact that some were completed five years ago and project teams have moved on – meaning that some information was lost.
- Some of the current WHO regional managers were not involved in past Grant Scheme activities, as they are new in their roles, so did not have institutional memory, links to past grantees of the program or what has happened in previous years.
- Some project information is incomplete, due to a lack of reporting by principal investigators to regional offices, resulting in an incomplete body of final reports. Reviewers were able to fill some of these information gaps in the desk research.
- This is not a systematic or peer review, but rather a scoping of results, followed by compiling and synthesis. Its purpose is to highlight the 'information and knowledge assets' produced by the Scheme's research from 2014-2020, so they are more visible and useful. And to attempt to extract useful learning points to inform the future progress of the Scheme.



## 2. Facts & Figures



### Method & approach

*This review of the Small Research Grants Scheme was compiled based on a desk study of grant proposals, technical and final reports submitted by research projects; from interactions with WHO regional managers and some of the projects' principal investigators; and from responses to a web survey, where responses were received from 89 principal investigators.*

*The figures in this section reflect information synthesized from completed research projects.*

*A total of 203 projects is listed. This includes 32 projects awarded in 2020 and currently in progress.*

#### Research covered common themes across WHO regions

- Maternal & Child Health
- Using GeneXpert – TB Molecular Diagnostic tool
- Household burden of TB – catastrophic costs
- Malaria treatment/control strategies
- Leishmaniasis & vector control
- Snakebite
- Hepatitis C Virus economic analysis
- Anti-microbial/multi-drug resistance



## 2.1 Key Figures – Small Grants Scheme 2014-2020



	Supported research in <b>47</b> WHO partner countries worldwide
	Awarded <b>203</b> research grants to national researchers, teams and institutes
	\$ <b>1.6 million</b> in funding awarded
	Did implementation research on <b>20</b> Tropical diseases
	Research grant funding from \$ <b>2,000</b> to \$ <b>30,000</b> Average: \$ <b>15,000</b>

	<b>105</b> Research publications
	<b>52</b> Capacity building activities
	<b>39</b> Engagement points – local/national/international partners
	<b>20</b> Policy & learning materials
	<b>33</b> Tools & practices with transfer potential identified



## 2.2 Key outputs (TDR priorities)



REGION	GRANTS	PUBLICATIONS	CAPACITY BUILDING ACTIVITIES	ENGAGEMENT NATIONAL/ INT'L ORGS
 <b>AFRO – African Regional Office</b>	36	7	10	7
 <b>EMRO – Eastern Mediterranean Regional Office</b>	49	18	14	9
 <b>EURO – European Regional Office</b>	16	32	6	3
 <b>PAHO – Pan-American Health Organization</b>	29	30	3	6
 <b>SEARO – South-East Asian Regional Office</b>	24	4	3	2
 <b>WPRO – Western Pacific Regional</b>	49	14	18	12
<b>TOTAL</b>	<b>203</b>	<b>105</b>	<b>54</b>	<b>39</b>





## 3. Outputs 2014-2020

3.1 Publications

3.2 Capacity building activities

3.3 Engagement with national & international partners



## 3.1 Publications

Includes peer reviewed papers, conference papers, policy and technical reports, articles in specialized media.

### AFRO – African Regional Office

- 1 **Specification and Description Language of Medical Activities**, *Proceedings of EFMI Special Topic Conference 2018*, Eustache Muteba A. IOS Press. Vol. 255, Pp 237 - 241, 2018
- 2 **Modeling an Automatic Diagnosis of Malaria based on Digital Holographic Microscopy**, Eustache Muteba A. *Poster, III International Clinical Engineering and Health Technology Management Congress, 2019*

### EMRO – Eastern Mediterranean Regional Office

- 3 **Prevalence of glucose-6-phosphate dehydrogenase (G6PD) deficiency in the malaria-endemic region of Iran (Sistan and Baluchistan Province): epidemiological profile and trends over time**, published in the *Asian Pacific Journal of Tropical Disease*
- 4 **Raised levels of IFN-gamma and IL-13 are associated with pre-diabetes amongst newly diagnosed patients with Tuberculosis**, Zahra Hasan, Muhammad Irfan, Qamar Masood, Owais Ahmed, Umme Salama Moosajee, Shoaib Rao, Naseem Salahuddin, *JPMA* 69: 468 2019
- 5 **Development and Assessment of Leishmania major- and Leishmania tropica-Specific Loop-Mediated Isothermal Amplification Assays for Diagnosis of Cutaneous Leishmaniasis in Tunisia**, *doi:10.4269/ajtmh.19-0097*
- 6 **Access to and use of long-lasting insecticidal nets and factors associated with non-use among communities in malaria-endemic areas of Al Hudaydah governorate in Tihama region, west of Yemen**, published in *Malaria Journal*

- 7 **Glucose-6-phosphate dehydrogenase deficiency among Yemeni children residing in malaria-endemic areas of Hodeidah governorate and evaluation of a rapid diagnostic test for its detection (Yemen)**, published in *Malaria Journal*
- 8 **Transmission cycle analysis in a Leishmania infantum focus: Infection rates and blood meal origins in sand flies (Diptera: Psychodidae)**. Chargui N, Slama D, Haouas N, Rmadi L, Babba H. *J Vector Ecol.* 2018 c;43(2):321-327. doi: 10.1111/jvec.12316.
- 9 **The vector competence of Phlebotomus perniciosus for Leishmania infantum zymodemes of Tunisia**. Remadi L, Jiménez M, Chargui N, Haouas N, Babba H, Molina R. *Parasitol Res.* 2018 Aug;117(8):2499-2506. doi: 10.1007/s00436-018-5939-y. Epub 2018 May 26.
- 10 **Clinical Presentation of Cutaneous Leishmaniasis caused by Leishmania major**. Remadi L, Haouas N, haara D, Slama D, Chargui N, Dabghi R, Jbeniani H, Mezhoud H, Babba H. *Dermatology.* 2016;232(6):752-759. doi: 10.1159/000456543. Epub 2017 Mar 3.
- 11 **Molecular detection and identification of Leishmania DNA and blood meal analysis in Phlebotomus (Larrousius) species** (accepted for publication in the PLOS Neglected Tropical Diseases)
- 12 **Morphological and molecular identification of atypical Phlebotomus perniciosus in Tunisia (article under redaction)**. Meetings: ICMM international course for health support in Saharan environment Tozeur, South of Tunisia (2016-2017-2019) <http://www.cimmicmm.org/page/anglais/9emeCoursDesertTunisie2019ANG/9emecourstunisieProgramme2019ANG.php>
- 13 **Risks and Challenges for Arboviral Diseases in Sudan: The Urgent Need for Actions**, Viruses on MDPI, January 2020, <https://www.mdpi.com/1999-4915/12/1/81>

- 14 **Effectiveness of a health education intervention on the use of long-lasting insecticidal nets for the prevention of malaria in pregnant women in Pakistan: a quasi-experimental study**, *Malaria Journal, BMC BioMedCentral*, June 2020, <https://malariajournal.biomedcentral.com/articles/10.1186/s12936-020-03298-2>
- 15 **Publication “Is Tuberculosis treatment truly free? A study to identify key factors contributing to the catastrophic cost of TB care in Pakistan”**, *Journal of Tuberculosis Research, Scientific Research Publishing*, November 2020, <https://www.scirp.org/journal/paperinformation.aspx?paperid=103933>

### EURO – European Regional Office

- 16 **Comparison of Clinical and Laboratory Manifestations of Enteroviral Meningitis in Adults and Children**, O.V. Riabokon, O.V. Usachova, D.A. Zadyraka, O.M. Kamyshnyi, *International Journal of Medical Science and Dental Research, Volume 02, Issue 03 (May-June 2019), PP 01-07*
- 17 **Laboratory features of Enteroviral Meningitis in adults and children**, Zaporozhye Medical Journal Zadiraka D.A., Ryabokon O.V., Usachova O.V., Kamishnyi O.M., *Zaporizhzhya Medical Journal* (Задирака Д.А., Рябоконт О.В., Усачова О.В., Камішний О.М., ‘КЛІНІКО-ЛАБОРАТОРНІ ОСОБЛИВОСТІ ПЕРЕБІГУ ЕНТЕРОВІРУСНИХ МЕНІНГІТІВ У ДОРΟΣЛИХ ТА ДІТЕЙ’, Запорожский медицинский журнал)
- 18 **Energy aspects of the pathogenicity and antibiotic resistance of typhoid causative agent** Paper presented at *World Congress on CBRNe Applied Science & Consequence Management Tbilisi (Georgia, 2016)*



### 3.1 Publications

- 19 **Role of Science Academies in Sustainable Development in conjunction with the 2016 Climate Conference on Addressing Climate Risk for Sustainable Development.** Report presented at AASSA-NAST PHL workshop (Philippines, 2016)
- 20 **The radiation factors defining incidences by a typhoid in Mayлуу-Suu and Nookensky district of the Zhalal-Abadsky region of the Kyrgyz Republic,** *Scientific Magazine of Infektologiya*
- 21 **Approaches to develop skills to contain antimicrobial resistance among the population.** Summary report submitted to Kazakhstan Ministry of Health. **Additions to undergraduate Medical University curriculum** in consultation with methodological University council, *elective discipline on use of a with methodological council KSMU (Karaganda State Medical University).*
- 22 **Assessment of level of knowledge of parents of antibiotic treatment: access and application,** World of science and youth: new ways of development, KGMU, pp. 172-174, 2016
- 23 **Assessment of parents' awareness level about antibiotic resistance,** *Abstracts of the 6th Congress of the European Academy of Paediatric Societies, Geneva, 2016*
- 24 **Analysis of level of knowledge of parents of sick children of an antibiotic resistance,** World Day of Science, KGMU, 2016
- 25 **Paper in Pediatrics and Pediatric Surgery and Scientific and Practical Journal (Педиатрия и детская хирургия, Научно-практический журнал), 2018.-№1.**
- 26 **Paper in journal 'Preventive Medecine',** of Institute of Epidemiology and Infectious Disease
- 27 **Shifting from an inpatient to outpatient centered model through transforming the TB financing in ex-Soviet countries** (<https://jdc.org/index.php/journal/article/view/10928>), DOI: <https://doi.org/10.3855/jdc.10928>
- 28 **Recommendations for decision-makers approaches to improve treatment adherence among tuberculosis patients in Georgia**
- PAHO**
- 29 **Socio-demographic profile of mothers of babies with SCZ,** submitted to *Revista Panamericana de Saúde Pública*
- 30 **Reporting on mothers,** to be submitted in the magazine *Science Social, Brazil*
- 31 **Vivencias de mujeres con Virus del ZIKV (ZIKV) frente a la prestación de servicios de salud en dos ciudades de Colombia,** *qualitative study to be submitted to PLOS Neglected Tropical Diseases*
- 32 **Health System Preparedness and Response to the Emergence of Zika in Iquitos and Piura, Peru: A qualitative comparative case-study.** Abstract sent to the *International Conference on Emerging Infectious Diseases (ICEID 2018).* Reference 0174\_0255\_000448
- 33 **Cutaneous Leishmaniasis control in Alta Verapaz (Guatemala): evaluating current efforts through stakeholders' experiences** (submitted to PLOS Neglected Tropical Diseases)
- 34 **Increased incidence of Guillain-Barré Syndrome following the Zika virus epidemic in Rio de Janeiro, 2015-2016.** Proceedings of the *International Conference on Emerging Infectious Diseases, Atlanta, 2018*
- 35 **Spatial pattern and incidence of Flaviviruses and Guillain-Barré Syndrome 2015-2016** [in Portuguese]. *Proceedings of the Brazilian Congress on Collective Health, Brazil, 2018.*
- 36 **Patient characteristics and pregnancy outcomes among Zika-infected pregnant women: Epidemiologic surveillance data from two cities in Colombia, 2015–2016;** *International Journal of Gynecology and Obstetrics (IJGO)*
- 37 **A qualitative study of the experiences of pregnant women in accessing healthcare services during the Zika virus epidemic in Villavicencio, Colombia, 2015–2016**
- 38 **Women's reluctance to pregnancy – the experiences and perceptions of Zika virus in Medellin, Colombia,** special supplement of the *International Journal of Gynecology Obstetrics on Zika virus*
- 39 **Special issue (Zika)- International Journal of Obstetrics and Gynecology supplement** (several publications): <https://obgyn.onlinelibrary.wiley.com/toc/18793479/2020/148/S2>
- 40 **Serological tests reveal significant cross-reactive human antibody responses to Zika and Dengue viruses in the Mexican population.** Zaidi MB, Cedillo-Barron L, González Y Almeida ME, Garcia-Cordero J, Campos FD, Namorado-Tonix K, Perez F. *Acta Trop.* 2019:105201
- 41 **Congenital Zika syndrome: sociodemographic profile of mothers.** Freitas PSS, Soares GB, Mocelin HJS, Lacerda LCX, do Prado TN, Sales CMM, Perez F, Bussinger ECA, Maciel ELN. *Rev Panam Salud Publica.* 2019;43:e24
- 42 **Variação na detecção da síndrome congênita do Zika em função de alterações em protocolos [Variations in the detection of congenital Zika syndrome associated with changes in protocols. Variación de la detección del síndrome congénito por el virus del Zika en función de los cambios de los protocolos** Mocelin HJS, do Prado TN, Freitas PSS, Bertolde AI, Perez F, Riley LW, Noia Maciel EL.]. *Rev Panam Salud Publica.* 2019;43:e79.
- 43 **Presentation:** International Conference on Emerging Infectious Diseases, Atlanta, Cali, 2018
- 44 **Presentation:** XXVIII Simposio Internacional de Estadística, Bucaramanga (Colombia), 2018
- 45 **Zika y su relación con la salud sexual y reproductiva de las mujeres en Colombia. ¿Qué aprendimos?,** *Policy Brief, 2018*



### 3.1 Publications

- 46 Report of preliminary results and recommendations *DIRESA Piura, Policy Brief*
- 47 Infographics for obstetricians and nurses in Piura, Piura *DIRESA*
- 48 Conocimientos, actitudes y decisiones de las mujeres peruanas en la era del Zika, *technical report, 2018*. Duarte A.O; Oliveira J.V; Carvalho T.C.X., et al.
- 49 Maternal and congenital infections arising from Zika, dengue and Chikungunya arboviruses in Salvador, Brazil. Transactions of The Royal Society of Tropical Medicine and Hygiene, trz098, <https://doi.org/10.1093/trstmh/trz098>. Oliveira J.V, Carvalho, T.C.X, Giovantti, M. et al.
- 50 Neonatal surveillance for congenital Zika infection during the 2016 microcephaly outbreak in Salvador, Brazil: Zika virus detection in asymptomatic newborns. International journal of Gynecology and Obstetrics. DOI: 10.1002/ijgo.13042
- 51 Zika y su relación con la salud sexual y reproductiva de las mujeres en Colombia. ¿Que aprendimos? (Policy Brief)
- 52 Oportunidades para fortalecer el control de la tuberculosis en población indígena del Cauca-Colombia (Policy Brief)
- 53 Strengthening Cutaneous Leishmaniasis control in Guatemala: policy recommendations (Policy Brief)
- 54 Evaluación de las funciones del primer nivel de atención en el marco del programa para el control la tuberculosis en la Ciudad Autónoma de Buenos Aires (submitted to Rev Panam Salud Publica) Mariani J, Ferrante D, Battistella G, Langsam M, Perez F Macchia A

- 55 Cascada de atención en Tuberculosis para población indígena en Colombia: una investigación operativa. Polanco-Pasaje JE, Rodríguez-Márquez I, Tello-Hoyos KY, Torres-Pereda P, Guzmán-Salazar BL, Pérez F. (submitted to Rev Panam Salud Publica).
- 56 Indicadores de tamización para Tuberculosis pulmonar en población indígena de Colombia: una investigación de métodos mixtos (submitted to Rev Panam Salud Publica).Rodríguez-Márquez I, Tello-Hoyos KY, Torres-Pereda P, Guzmán-Salazar BL, Pérez F, Polanco-Pasaje JE.
- 57 Relación entre capacitación de personal de salud y éxito del tratamiento de Tuberculosis Multidrogorresistente (submitted to Rev Panam Salud Publica).Puerto Castro GM, Fernando, Montes Zuluaga N, Alcalde Rabanal J, Pérez F.
- 58 Health System Preparedness and Response to the Emergence of Zika in Iquitos and Piura, Peru: A qualitative comparative case-study. Abstract sent to the International Conference on Emerging Infectious Diseases (ICEID 2018). Reference 0174\_0255\_000448

#### SEARO – South-East Asian Regional Office

- 59 First national tuberculosis patient cost survey in Lao People's Democratic Republic: Assessment of the financial burden faced by TB-affected households and the comparisons by drug-resistance and HIV status
- 60 Publication in PLOS ONE, November 2020 <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0241862>
- 61 Perceived stigma of leprosy among community members and health care providers in Lalitpur district of Nepal: A qualitative study. PLoS ONE 13(12): e0209676 - <https://doi.org/10.1371/journal.pone.0209676>

#### WPRO – Western Pacific Regional Office

- 62 Tuberculosis in Selected Drug Abuse Treatment and Rehabilitation Centers (DATRCs) in Luzon, Philippines, *Acta Medica Philippina*, October 2020, <https://actamedicaphilippina.upm.edu.ph/index.php/acta/article/view/2221>
- 63 Identification of suspected paragonimiasis-endemic foci using a questionnaire and detection of Paragonimus ova using the Ziehl-Neelsen technique in Zamboanga Region, the Philippines, *Pathogens and Global Health*, May 2020, <https://pubmed.ncbi.nlm.nih.gov/32191613>
- 64 Adapting the local response for malaria elimination through evaluation of the 1-3-7 system performance in the China-Myanmar border region'
- 65 The change in blood glucose levels in tuberculosis patients before and during anti-tuberculosis treatment in China, Lin Y, Yuan Y, Zhao X et al., *Global Health Action*, 2017; 10 (1): doi: org/10.1080/16549716.2017.1289737
- 66 Paper in 'The Journal of Pacific Research'; 'Pacific Health Dialog'
- 67 Paper in 'Western Pacific Surveillance and Response Journal'
- 68 Multi-center evaluation of GenoType MTBDRsl line probe assay for rapid detection of pre-XDR and XDR Mycobacterium tuberculosis in China. Gao Y, Zhang Z, Deng J, et al., *JOL*, 2018(12):1-7.
- 69 First national tuberculosis patient cost survey in Lao People's Democratic Republic: Assessment of the financial burden faced by TB-affected households and the comparisons by drug-resistance and HIV status, *PLOS ONE*, November 2020, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0241862>



### 3.1 Publications

- 70 Identification of suspected paragonimiasis-endemic foci using a questionnaire and detection of Paragonimus ova using the Ziehl-Neelsen technique in Zamboanga Region, the Philippines”, Pathogens and Global Health, May 2020, <https://pubmed.ncbi.nlm.nih.gov/32191613>
- 71 Tuberculosis in Selected Drug Abuse Treatment and Rehabilitation Centers (DATRCs) in Luzon, Philippines, Acta Medica Philippina, October 2020, <https://actamedicaphilippina.upm.edu.ph/index.php/acta/article/view/2221>

#### Publications in preparation

##### AFRO – African Regional Office

- 72 Community-directed Implementation of Intermittent Preventive Therapy for Malaria in Pregnancy, Nigeria.
- 73 Community Participatory Monitoring & Evaluation of Insecticide Treated Net Interventions, Rural Ebonyi State, Nigeria..
- 74 Improved access to skilled attendance at delivery in PhC: Perspectives of key stakeholders in Nigeria.
- 75 Implementation of National Policy on malaria diagnosis and treatment of children among health workers.
- 76 Active screening of tuberculosis in women for prevention of mother to child transmission in Conakry.

##### EMRO – Eastern Mediterranean Regional Office

- 77 Validation of Arabic version of Verbal and Social Autopsy research results, spatial distribution of under-five mortality rates using ARC GIS, Egypt.
- 78 Cost of Hepatitis C Virus interfamilial screening in HCV seropositive injection drug abusers, Iran.
- 79 Controlling sand fly density in rural areas by fogging hyrax dens by Pyrethroid derivatives, Occupied Palestine Territories.

##### EURO – European Regional Office

- 80 Features of BT of carriers in uranium biogeochemical zone.
- 81 Antibiotic-resistivity of BT sticks at the sick BT living in uranium biogeochemical zones.
- 82 Conditions of an intestinal biocenosis at sick BT, living in uranium biogeochemical zone Mayluu-Suu.
- 83 Features treatment of sick BT (lechenny BT patients with biological products).
- 84 Influences of the broken intestinal biocenosis on BT a carriage among BT living in uranium biogeochemical zone.
- 85 Treatment of BT of carriers (biological products, bile-expelling, tincture gold root, phage). Features of prevention of BT of a carriage.

##### SEARO – South-East Asian Regional Office

- 86 Exploring natural breeding sites of sand flies in Bangladesh. *Publication in process.*
- 87 Assessment and optimization of first-time implementation of GeneXpert to improve the diagnosis and management of drug-resistant TB in Bhutan. *To be submitted in Royal Society of Tropical Society and Hygiene journal.*

##### WPRO – Western Pacific Regional Office

- 88 Opportunities for Schistosomiasis control in preschool-age children in the Philippines.
- 89 Improving tuberculosis diagnosis among children.
- 90 Community-based leprosy detection, diagnosis, treatment and management, Papua New Guinea.
- 91 Imported malaria cases in former endemic and non-malaria endemic areas in China: are there differences in case profile and time to response, Shaosen ZHANG, Infectious Diseases of Poverty, BMC BioMed Central, 2019 (<https://rdcu.be/bUFUF>)
- 92 Improved treatment outcome of multi-drug-resistant tuberculosis with the use of a rapid molecular test to detect drug resistance in China, Shi W, Davies Forsman L, Hu Y, et al., submitted to IJID.



## 3.2 Capacity building activities



### AFRO – African Regional Office

- 1. Nigeria (evaluation, treated bednet interventions):** How to obtain information on the three priority indicators stipulated by the Nigeria Malaria Elimination Program (NMEP) including (i). “the proportion of households with at least one ITN”; (ii). “the proportion of children under five years who slept under an ITN the night before the survey”; and (iii). “the proportion of pregnant women who slept under an ITN the night before the survey”. The NMEP M&E data collection tool (<http://allianceformalariaprevention.com/wp-content/uploads/2015/10/LLIN-Campaign-Implementation-Guidelines-120614-Final.pdf>)
- 2. DR Congo (virtual health care):** Virtual community health care system supplies malaria dictionary and ontology (MalOnto) component and an eLearning component that revolves around the medical topics of public health, parasitology, laboratory, clinical practice and pharmacology
- 3. DR Congo (virtual health care):** Set of articles linked series of multiple-choice questions (article-quiz pairs).
- 4. Guinea (TB screening mother child transmission):** Training of agents in charge of the follow-up of pregnant women followed for PMTCT of HIV on the detection of tuberculosis, sampling of sputum samples and their conditioning.
- 5. Guinea (TB screening mother-child transmission):** Stimulants used in this project only involved against tuberculosis, project can lead to their involvement in the management of HIV (in particular in the follow-up of patients and the transport of samples for viral load, which is not accessible everywhere)
- 6. Kenya (snake bite):** training to sensitize top and middle level management, training of health care workers on management of snakebites, training of Community Health Volunteers
- 7. Nigeria (malaria diagnosis/pregnancy):** Training of community volunteers, capacity building of community health workers

- 8. Nigeria (preventive therapy malaria/pregnancy):** Training health workers and community-directed distributors
- 9. Nigeria (evaluation, treated bed net interventions):** Training of supervisors and monitors/evaluators: all 5 supervisors and 20 monitors/evaluators trained at workshop. How to conduct situation analysis, household survey, M&E of ITN ownership/use, ITN hang-up strategy, how to provide social support on adoption of ITN use behaviors i.e., community-based social behavior change communication (SBCC) using SBCC implementation kit (available at: <https://sbccimplementationkits.org>)
- 10. Uganda (Missed child TB /HIV detection):** Training of staff and community health workers (and others)

### EMRO – Eastern Mediterranean Regional Office

- 11. Egypt (Schistosomiasis hotspots):** Training of stakeholders, teachers and students to deal safely with water canals
- 12. Afghanistan (increased TB detection):** Public meetings, community participation, training volunteers and hospital staff
- 13. Egypt (Hepatitis C economic analysis):** Workshop on writing policy briefs
- 14. Egypt (private practitioners in TB control):** Chosen physicians received one-day orientation session. Total number divided over about 24 orientation sessions, each for about 30 physicians. Orientation includes: aim of the study and orientation ; general information about TB and its problem magnitude; how to suspect and diagnose a case with Pulmonary TB ; how TB is treated and the regimens used concerning constituents medicines, doses, duration of treatment, follow-up and adverse effects of medicines.
- 15. Egypt (private practitioners in TB control):** Orientation meetings with private sector physicians in collaboration with NTP.
- 16. Iran (Screening Hepatitis C/Seropositive drug users):** Carrying out workshops about consult and interview, reporting of results to center of communicable diseases control of the Ministry of Health, contact with international consultants for implementation of diagnostic testing, training sessions with medical staff and physicians of health centers of the Prisons of Guilan Province, strengthening networks among the research community at the national level.
- 17. Iran (Training of data collectors G6PD):** deficiency in malaria endemic region
- 18. Pakistan (HIV screening):** Meeting with provincial TB control, community home-based care teams, training field officers
- 19. Sudan (Dengue socio-economic determinants):** Health-Awareness campaign in local media, training workshops for research teams, training planned for future health workers
- 20. Sudan (Dengue):** Community-awareness action, health workers trained, media campaigns, school campaigns
- 21. Sudan (HIV testing private health care):** Training of data collectors on quantitative and qualitative data on research topic
- 22. Tunisia (Leishmaniasis diagnosis):** Training dermatologists & medical technicians in regional health care centers
- 23. Tunisia (Leishmaniasis diagnosis):** Meeting animations (conferences and workshops): ICMM International course for health support in Saharan environment Tozeur, South of Tunisia (2016-2017-2019) <http://www.cimmicmm.org/page/anglais/9emeCoursDesertTunisie2019ANG/9emecourstunisieProgramme2019ANG.php>
- 24. Yemen (malaria vector control housewife involvement):** Training housewives in removing breeding sites of mosquitoes



## 3.2 Capacity building activities

### EURO – European Regional Office

25. **Georgia (TB treatment adherence):** Training activities
26. **Kazakhstan (anti-microbial resistance):** Elective discipline created for students on rational use of antibacterial drugs, problems of resistance of microorganisms to antibiotics. Informing public about need to contain antibiotic resistance in the framework of activities of schools of family planning, schooling young mothers, healthy lifestyle *Cabinet*, healthy child *Cabinet* in clinics of Karagandy. Active work with parents for prudent use of antimicrobial drugs and dangers of their independent use, need to comply with antibiotic treatment compliance. Advocacy for the rational use of antibiotics in healthcare organizations
27. **Kazakhstan (anti-microbial resistance):** Training seminar planned for Kyrgyzstan: (Typhoid prevention) Specialists trained, bacteriologists, prophylactic exam seminar trainings, with population (school, pre-school children, NGO members, local government representatives)
28. **Kyrgyzstan (Typhoid prevention):** Clinicians trained by doctors, population workshops, public health information for medical staff, pharmacists on antibiotics awareness; information sessions for medical staff of secondary and pre-schools and parents
29. **Ukraine: (immunization awareness):** Training modules for nurses and doctors at Public Health Centers
30. **Ukraine: (immunization awareness):** Training of specialists on information for immuno-prevention

### PAHO – Pan-American Health Organization

31. **Colombia (Zika diagnosis, pregnant women):** training of research team, students in qualitative methodology, educating participants about Zika infections, training technical team of Health secretaries in Zika research
32. **Colombia (family planning/Zika):** Information on modes of transmission, clinical aspects and prevention measures of Zika provided to women who participated in the study. Conference given to parents and teachers of the Ximena Rico Llano Foundation, which provides educational services to children with low economic resources
33. **Colombia (Zika prevention policies):** Knowledge sharing activities at community level

### SEARO – South-East Asian Regional Office

34. **Nepal (Leprosy):** capacity development of community and health workers
35. **Bhutan (first-time use of GeneXpert for TB):** Users trained for machine use and data entry on online surveillance system
36. **India (health literacy):** Training courses organized

### WPRO – Western Pacific Regional Office

37. **Papua New Guinea (Community based Leprosy management) Capacity building at 3 levels:** research team (national level), front-line healthcare workers (district level), community-based volunteers.
38. **China: (Malaria case detection)** Training local health staff for cases screening
39. **China (Malaria elimination):** Training of data collectors
40. **China (Malaria eDOTS):** On-line system educates patients everyday through the platform

41. **China (TB MTB test):** MTBDRsl test implementation devised according to WHO framework of six health system components, relating to: (1) leadership and governance, (2) service delivery, (3) supplies and products, (4) health workforce, (5) health information system, and (6) health system financing. Experts from WHO were invited to give training course to implement the molecular test in TB diagnosis and treatment
42. **Fiji (Dengue mortality factors):** Training of public health staff on data collection using online software
43. **Malaysia (Dengue):** Master student involved in study
44. **Malaysia (TB detection):** PhD graduate **Papua New Guinea (community-based leprosy diagnosis/treatment):** Capacity building at 3 levels: research team (national level), frontline healthcare workers (district level), community-based volunteers.
45. **Philippines (STH detection):** Information about parasitism, transmission, complications, prevention and control was given to school nurses, teachers, parents and students in orientation sessions
46. **Philippines (Schistosomiasis control, pre-school children):** Orientation of health workers before project implementation: lectures on SCH, transmission, diagnosis, treatment, prevention, control
47. **Philippines (Leprosy):** training of health workers. International, regional, and local data presented. Clinical manifestation and treatment of leprosy from earliest manifestation to most severe. Personal experiences of patients shared, covering physical and emotional trauma. Issuance of Certificate of participation of BHW's
48. **Philippines (Schistosomiasis control):** Universities capacitated to practice methodologies in lab, administering KAP surveys, deworming skills and community engagement and IEC development



49. **Philippines (Paragonimiasis):** Training of medical technologists to diagnose paragonimiasis using Ziehl-Neelsen technique and the NaOH concentration technique
50. **Philippines (TB financial costs):** capacity building for research nurses and interviewers
51. **Mongolia (Gene Xpert for TB diagnosis):** Training among clinicians and surgery doctors
52. **Solomon Islands (Malaria):** Citizen scientists training, civil society engagement, workshops, interviews with participants, potential in less-developed setting, problem with permanent electricity access, cost-effective and relevant for rural surveillance.
53. **VietNam (short regimen TB treatment):** Training for district, commune health staffs to do research at their level. Training on regimen, adverse events follow-up also provided for medical doctors. During data collection, health staff trained on data management, skills to support patients during treatment.
54. **VietNam (short regimen TB treatment):** Training for district, commune health staffs to do research at their level. Training on regimen, adverse events follow-up also provided for medical doctors. During data collection, health staff trained on data management, skills to support patients during treatment
55. **Iran (blood-borne diseases)**  
Engaging local & national stakeholders. prevention programs for blood-borne diseases in prisons, the drop-in center responsible for high-risk behaviors consultation, Iran Hepatitis Network, Center of Communicable diseases.



### 3.3 Engagement with local, national, & international organizations



#### AFRO – African Regional Office

- 1. Nigeria (evaluation, treated bed net interventions):** Policy brief being developed for use in multi-stakeholder engagement event involving policy makers and other key stakeholders
- 2. Nigeria (malaria diagnosis/pregnancy):** State malaria eradication program coordinator, staff and brief liaison TIPTOP (Malaria prevention in pregnancy program)
- 3. DR Congo (virtual health care):** Scientific collaborations with European university and a reference hospital in DR Congo
- 4. Guinea (TB screening mother child transmission):** National Tuberculosis Program, National HIV and Hepatitis Program and Maternal and Child Health Directorate
- 5. Ghana (Malaria and Hepatitis B):** working with health workers within the Ghana Health Service. Christian Children Fund of Canada implemented a 4-year maternal and child health project
- 6. Kenya (snake bite):** engagement with Kenya Research Intervention Centre, Institute of Primate, Ministry of Health (NTD unit), Baringo County Government
- 7. Uganda (Missed child TB /HIV detection):** Stakeholder meetings held

#### EMRO – Eastern Mediterranean Regional Office

- 8. Sudan: (mycetoma):** Local community involvement, MRC-WHO collaborating center engaged with WHO
- 9. Tunisia (Leishmaniasis detection):** Ministry of Health and Healthcare Centers; health awareness campaign planned

- 10. Tunisia (Leishmaniasis detection):** National and international liaison activities. Consultation with the Tunisian ministry of Public Health and the Ministry of Agriculture. International collaborations with 'Centre National de Référence des leishmanioses, Montpellier France' & 'Laboratory of Medical Entomology', National Center for Microbiology, Instituto de Salud Carlos III, Majadahonda, Madrid, Spain
- 11. Afghanistan (increased TB detection):** Public media campaign, engagement activities with hospital-community board
- 12. Egypt (Hepatitis C economic analysis):** Ministry of Health and American University of Cairo
- 13. Egypt (private practitioners in TB control):** National Tuberculosis Program (NTP) Egypt
- 14. Iran (Screening Hepatitis C/Seropositive drug users):** Prevention programs for blood-borne diseases in prisons, the drop-in center (DIC) responsible for high-risk behaviors consultation, Iran Hepatitis Network, Center of Communicable Palestine (sand fly control): Results shared with Ministry of Health in Palestine diseases
- 15. Pakistan (TB-diabetes):** Collaboration with Indus hospital Karachi and Aga Khan University Hospital Karachi
- 16. Pakistan (catastrophic cost of TB for households):** National TB Control Program, assisted by TB DOTS representatives from 4 government hospitals in Rawalpindi and Islamabad for data collection

#### EURO – European Regional Office

- 17. Ukraine: (immunization awareness):** Memorandum of cooperation UNICEF Ukraine; analytical review: content analysis social networks with Ministry of Health  
Recommendations for a draft national immunization strategy developed

Recommendations for local level communication, socially disadvantaged groups  
Roundtable with Ministry of Health and medical universities, information strategy for responsible attitudes of parents to vaccinating children

- 18. Armenia, Tajikistan, Ukraine:** (financial reforms for TB programs) Collaboration from researchers from partner countries
- 19. Georgia (TB treatment adherence):** Roundtables on vaccination issues

#### PAHO – Pan-American Health Organization

- 20. Brazil (Zika):** Municipal, local, national and international agencies
- 21. Colombia (Zika diagnosis, pregnant women):** Health, Welfare and Society Research Network
- 22. Colombia (family planning/Zika):** Karolinska Institute, Sweden, Welfare and Society Research Network
- 23. Colombia (Zika prevention policies):** Promotion of inter-sectoral cooperation between sexual health and reproduction organizations.
- 24.** Media campaign planned
- 25. Guatemala (Leishmaniasis/community health workers):** Coordination with Ministry of Health, Universidad del Valle de Guatemala, technical support from Brighton and Sussex Medical School, United Kingdom

#### SEARO – South-East Asian Regional Office

- 26. Bhutan (first time use of GeneXpert for TB):** Collaboration with London School of Hygiene and Tropical Medicine, UK
- 27. Nepal (Leprosy):** other health institution and government



### 3.3 Engagement with local, national, & international organizations

#### WPRO – Western Pacific Regional Office

28. **China (Malaria case detection):** Integrated with National Malaria Elimination Program
29. **China (malaria foci mapping):** Technical guidance from professors at University of Montpellier (France), project supported by National Institute of Parasitic Diseases for Coordination of field work
30. **Malaysia (TB detection):** National level, analyzing the national tuberculosis secondary data i.e. surveillance data
31. **Mongolia (Gene Xpert for TB diagnosis):** Research Institute of Tuberculosis (RIT), Japan
32. **Papua New Guinea (community-based leprosy diagnosis/treatment):** Leprosy Mission PNG, WHO and provincial health authorities
33. **Philippines (STH detection):** Strengthened collaboration with National Institutions and local stakeholders, regional and provincial offices from the Department of Health, from Department of Education and local government units
34. **China (malaria elimination):** Local Center for Disease Control is a partner
35. **Philippines (Schisto control, pre-school children):** Collaboration with department of health center development XII and local health units of study sites
36. **Philippines (Leprosy):** guidance from Dr Cho and Dr Kim of South Korea. Administrative support provided by Skin Research Foundation of the Philippines Inc.
37. **Philippines (Paragonimiasis):** Collaboration with Food and Waterborne Diseases Prevention and Control Program, National Tuberculosis Control Program
38. **Philippines (TB financial costs):** Project nested in a cohort study conducted in collaboration with Nagasaki University
39. **Solomon Islands (malaria):** engage with other programs within the provincial health services in Western Province





## 4. Themes: Common research topics across regions

This section presents *areas of common work by research teams across countries* and WHO regions. These are opportunities to connect research teams and expand knowledge in these areas to inform a larger body of work.

- 4.1 Advocacy & awareness to increase use uptake and adherence to treatments
- 4.2 Virtual/Mobile Health
- 4.3 Maternal & Child Health
- 4.4 Tuberculosis
- 4.5 Experience with GeneXpert Molecular Diagnostic tool for TB
- 4.6 Household burden of TB – catastrophic costs
- 4.7 Malaria – treatment/control strategies
- 4.8 Leishmaniasis & vector control
- 4.9 Snakebite
- 4.10 Hepatitis C Virus economic analysis
- 4.11 Anti-microbial/multi-drug resistance



## 4.1 Advocacy & awareness to increase use uptake and adherence to treatments

*A range of studies looked at advocacy and communication interventions, and actions at public health, community and family level.*

**Cambodia:** Studying the effectiveness of behaviour change communication, information education communication, with Communication for Behavioural Impact (COMBI), to control and prevent S. mekongi, STH, Opishorchiasis and strongyloides

**Georgia:** Approaches to improve long term treatment adherence among tuberculosis patients in Georgia: looking through health systems lens.

**Kazakhstan:** Population health communication on antibiotic resistance, awareness and use. Assessing awareness levels among parents on rational antibiotic use for sick children, to prevent drug resistance.

**Philippines:** Developing an advocacy, communication and social mobilization plan for schistosomiasis control and elimination.

**Philippines:** Establishing a university-based surveillance system for animal schistosomiasis control in the Philippines.

**Philippines:** Local factors affecting prevention and control of schistosomiasis in preschool-age children: opportunities for control.

**Philippines:** Developing an advocacy, communication and social mobilization plan for schistosomiasis control and elimination.

**Tanzania:** Factors associated with uptake of measles-rubella vaccine second dose among children aged 24–48 months in slums in Dar es Salaam.

**Ukraine:** Analysis of tools that improve parent's commitment to immunization of children under the age of 7, such as immunization against polio.

**Viet-Nam:** A social mobilization and communication intervention for dengue vector control in industrial zones.

## 4.2 Virtual/Mobile Health

*Virtual medicine, information sharing platforms, smartphone apps.*

**DR Congo:** Virtual Community of Healthcare Facilities, piloting of health solutions for malaria treatment. Bringing easier access to quality resources for healthcare professionals in remote locations.

**Malaysia:** Economic evaluation of gamified mobile apps (on-line training games) to improve treatment adherence of TB patients.

**Nigeria:** Evaluating the effect of a mobile health technology on knowledge and adherence to Isoniazid Preventive Therapy in HIV clinics in Ebonyi State.

**Philippines:** Evaluating the feasibility of a mobile smart phone application for private physicians, to improve reporting to the Directly Observed Treatment TB control strategy (TB DOTS).

**Philippines:** TelerPOID Project - Evaluating the feasibility of using telehealth to train health care workers and people with disabilities on integrated rehabilitation and prevention of impairments and disabilities of leprosy, lymphatic filariasis, diabetes, pressure ulcers, and other chronic wounds.

**Viet-Nam:** Application of mobile phone app to alert users to the risk of dengue fever.



## 4.3 Maternal & Child Health

**Brazil:** Prevalence study in pregnant women and neonates investigating the role of Zika virus infection in the epidemic of newborns with microcephaly in Salvador-Bahia.

**Colombia:** Response of health services in the clinical approach of pregnant women with Zika in two municipalities 2015-2017.

**Colombia:** Assessing knowledge and perceptions to family planning, concerns of the adverse pregnancy outcomes related to Zika virus, and health-seeking behaviour of services among women.

**Ghana:** Community-based Case Identification, Management and Defaulter Tracing of Malaria and Hepatitis B Among Pregnant Women, Newborns and Children.

**Guinea Conakry:** Establishing Active Screening of Tuberculosis in Women Followed to prevent mother to child transmission in Conakry.

**Mexico:** Cross-sectional study of pregnant women to determine prevalence of two pathogens in mothers and newborns; generate epidemiological information, guide disease prevention and control.

**Nigeria:** Implementing of Inclusive Community Action in the Diagnosis and Treatment of Malaria in Pregnancy and Childhood in Ebonyi State.

**Nigeria:** Study of community-Directed Implementation of Intermittent Preventive Therapy for Malaria in Pregnancy in Ebonyi State.

**Pakistan:** Effects of vector-control interventions on changes in risk of malaria among pregnant women through community participation in Tharparkar district, Sindh province.

**Philippines:** Factors affecting the control of soil-transmitted helminth infections in pregnant and lactating women in selected areas in the Philippines in the time of COVID-19 and the new normal.

## 4.4 Tuberculosis

*TB projects had the highest funding levels in the Grants Scheme – nearly 30%. Under this topic, studies were done on several common themes of TB treatment control and care strategies.*

### Decentralization of financing and care in national health systems

**Armenia, Tajikistan, Ukraine:** Assessing options for decentralizing financing of TB treatment from in- to out-patient care: tracking progress of public health reforms in Armenia, Tajikistan and Ukraine.

### TB-Diabetes co-morbidity

**China:** Determining the optimal time to take blood sugar measurements when screening tuberculosis patients for diabetes.

**Gabon:** Tuberculosis and Diabetes mellitus co-morbidity.

**Pakistan:** Assessing diabetes in patients with tuberculosis at a tertiary care facility





## 4.5 Experience with GeneXpert for molecular diagnostic for tool for TB

*GeneXpert is an automated molecular test that delivers rapid detection of Mycobacterium tuberculosis complex (MTBC) and resistance to the rifampin antibiotic (RIF), in less than two hours. WHO endorsed the Xpert MTB/RIF device in 2010 for use in TB endemic countries and is promoting a global rollout. The test may enable diagnosis of TB in patients likely to be missed by traditional tests.<sup>1</sup>*

**Bangladesh:** Exploring the efficacy of filter paper-based Gene Xpert MTB/RIF in diagnosing smear negative pulmonary tuberculosis cases.

**Buthan:** Assessment and optimization of first-time implementation of GeneXpert to improve the diagnosis and management of drug-resistant TB in Bhutan.

**Egypt:** Cost effectiveness analysis of adopting Gene Xpert in different regimens for the diagnosis of multi-drug resistant tuberculosis in Egypt.

**Mongolia:** Study on using Xpert to improve tuberculosis diagnosis among children.

## 4.6 Household burden of TB – catastrophic costs

*The average expenditure incurred by patients in low- and middle-income countries for diagnosis and treatment of TB ranges from \$55 to \$8198,<sup>2</sup> an out-of-pocket cost that leads to the impoverishment of households. One of the three main targets of the WHO End TB Strategy (2016–2035) is that no TB-affected household suffers catastrophic costs due to TB.*

**Armenia:** Review of reforms related to recommendations to improve tuberculosis financial mechanisms.

**Egypt:** Survey estimating direct and indirect costs due to tuberculosis and proportion of tuberculosis-affected households experiencing catastrophic costs due to TB in Alexandria.

**Egypt:** Assessing household catastrophic total cost of tuberculosis and their determinants in Egypt: A cohort prospective study.

**Iran/Afghanistan:** Measuring the catastrophic cost of diagnosis, treatment, care and support on people and families affected by tuberculosis in Iran and Afghanistan.

**Moldova:** Assessing catastrophic expenses in family households, related to multi-drug resistant TB treatment.

**Mongolia:** Assessing the financial burden of tuberculosis for patients in Mongolia.

**Pakistan:** Is tuberculosis treatment truly free? A study to identify key factors contributing to the catastrophic cost of TB care.

**Pakistan:** Financial burden of multi-drug resistant tuberculosis on patients attending the PMDT sites in Pakistan.

**Philippines:** Assessing TB patient costs and treatment adherence in the Philippines by longitudinal data collection.

**Viet-Nam:** Determining direct and indirect costs due to TB to estimate the proportion of TB-affected households that experience catastrophic costs.

**Yemen:** Multi-center estimation of the catastrophic costs associated with tuberculosis diagnosis and treatment in Yemen in the context of conflict.

1 Small, P. M., Pai, M. (2010) «Tuberculosis diagnosis - time for a game change» N. Engl. J. Med. 363: 1070-1071; Van Rie, A., Page-Shipp, L., Scott, L., Sanne, I., Stevens, W. (2010) «Xpert® MTB/RIF for point-of-care diagnosis of TB in high-HIV burden, resource-limited countries: hype or hope?» Expert Rev. Mol. Diagn. 10: 937-946

2 Tanimura T, Jaramillo E, Weil D, et al. Financial burden for tuberculosis patients in low- and middle-income countries: a systematic review. Eur Respir J. 2014;43(6):1763–9. Small, P. M., Pai, M. (2010)



## 4.7 Malaria – treatment/control strategies

**Cambodia:** Identifying factors contributing to anti-malarial medicine stock-out.

**China:** Assessment of malaria foci mapping after zero local transmission cases report.

**China/Myanmar:** Operations research to refine malaria elimination strategies in China-Myanmar border area.

**Guyana:** Operationalizing the National Malaria Strategy: Pilot Project in Potaro-Siparuni region and progressive scale-up to all malaria-endemic regions.

**Indonesia:** Strategic, operational and costing plan for collaborative implementation of a Malaria Control program in a decentralized setting: participatory action research in three districts in Indonesia.

**Iran:** Remote, migrant and mobile populations and their related factors affecting malaria control and elimination in South-East Iran.

**Malaysia:** Environmental management as an ecological intervention in reducing *Anopheles balabacensis* population, vector of monkey malaria in Sabah.

**Philippines:** Preventing malaria reintroduction - assessment of malaria microscopy competency of peripheral-level microscopists in malaria-free provinces.

**Solomon Islands:** Detecting and targeting residual malaria with enhanced geospatial surveillance tools.

**Sudan:** Study of reasons that lead to infection with malaria and repeated infections among pregnant women, Elfaitih Elnour Clinic, El-Obeid City, North Kordofan State.

**Sudan:** Investigating the role of the newly-introduced invasive Asian malaria vector *Anopheles stephensi* in malaria transmission in eastern Sudan.

**Yemen:** Knowledge of and adherence to the National Guidelines for Malaria Case Management: A survey among physicians in Sanaa & Aden private hospitals.

### Malaria/bednets

**Nigeria:** Community participatory monitoring and evaluation of insecticide treated net interventions, Ebonyi State.

**Yemen:** Access and use of long-lasting insecticidal nets and factors associated with non-use in malaria-endemic areas of western Yemen.

### Malaria/Glucose-6-phosphate dehydrogenase (G6PD) deficiency

*Glucose-6-phosphate dehydrogenase deficiency (G6PD) can cause problems in malaria treatment. Dapsone, in combination therapy to treat Plasmodium falciparum and primaquine can induce serious hemolytic events<sup>3</sup>. Treatment with one of these drugs should be preceded by screening for G6PD deficiency to prevent hemolytic anemia. An inexpensive test should be made available in countries where malaria is endemic to determine the deficiency reliably, including its heterozygous form.*

**Iran:** Prevalence of glucose-6-phosphate dehydrogenase deficiency in the malaria-endemic region of Iran (Sistan and Baluchistan Province): epidemiological profile and trends over time.

**Yemen:** Evaluation of a rapid diagnostic test to detect Glucose 6 phosphate dehydrogenase deficiency among Yemeni children.

### Malaria/Dengue

**China:** Assessing malaria and dengue surveillance and health service use among African migrants in Guangzhou.

**Sudan:** Studying the occurrence of malaria and dengue co-infection and their vector surveys.

**Yemen:** Assessing the burden of concurrent infections with malaria and dengue among febrile patients.

<sup>3</sup> World Health Organization (2006) Guidelines for the Treatment of Malaria. Geneva, WHO Press. World Health Organization (2008) Antimalarial chlorproguanil-dapsone (LapDap™) withdrawn following demonstration of post-treatment haemolytic anaemia in G6PD deficient patients in a Phase III trial of chlorproguanil-dapsone-artesunate (Dacart™) versus artemether-lumefantrine (CoartemR) and confirmation of findings in a comparative trial of LapDap™ versus Dacart™. QSM/MC/IEA 117. World Health Organisation. www.who.int (accessed February 16, 2009). High risk of severe anaemia after chlorproguanil-dapsone+artesunate antimalarial treatment in patients with G6PD (A-) deficiency. Fanello CI, Karema C, Avellino P, Bancone G, Uwimana A, Lee SJ, d'Alessandro U, Modiano D PLoS One. 2008; 3(12):e4031.





## 4.8 Leishmaniasis & vector control

**Bangladesh:** Exploring natural breeding sites of sand flies (Diptera: Phlebotominae) in visceral leishmaniasis endemic areas. Intervention Packages for Early Visceral Leishmaniasis case detection and sandfly control.

**Guatemala:** Management of cutaneous leishmaniasis: limitations to the access to treatment and role of community health workers in Alta Verapaz-Guatemala.

**Morocco:** Comparative assessment of thermotherapy and minidose intra lesional Meglumine antimonials to improve access, safety, cost-effectiveness, and scarring outcome of Cutaneous Leishmaniasis treatment.

**Palestine:** Fogging of hyrax dens by Pyrethroid derivatives to control sand fly density in rural areas.

**Pakistan:** Comparative assessment of Sodium Stibogluconate Intralesional Therapy versus combination of thermal therapy with Sodium Stibogluconate Interlesional therapy for skin lesions in Cutaneous Leishmaniasis.

**Somalia:** Active Search of Visceral Leishmaniasis (VL) Endemic Focuses.

**Sudan:** Studying sandfly vector composition in urban and peri-urban areas of Khartoum State, a region of cutaneous leishmaniasis transmission.

**Sudan:** Determining risk factors for severity and death from visceral leishmaniasis (VL) among seasonal migrant and resident agricultural workers in Gallabat.

**Tunisia:** Evaluation of rodent bait treated with fipronil for control of Phlebotomus papatasi as preventive measures against zoonotic cutaneous leishmaniasis.

**Tunisia:** Development and evaluation of a Loop Mediated Isothermal Amplification method for the diagnosis of Old World Leishmania in Tunisia.

## 4.9 Snakebite

*Snakebites kill up to 138,000 people yearly and cause long-lasting disabilities in a further 400,000. This disease burden is likely underestimated as many snakebites and deaths go unrecorded. WHO estimates that some 5.4 million people are bitten each year, with up to 2.7 million envenomings. Globally, the burden of snakebite death and disability is equal to that of prostate or cervical cancer, and is greater than any other neglected tropical disease. Yet investment in snakebite control and prevention has been just \$37 million from 2008-2017, with limited research, stagnating development of treatments, and declining access to antivenoms in many countries<sup>4</sup>.*

**Sudan:** Geographic mapping and testing of mycetoma program expansion strategy in Sudan determining prevalence of mycetoma incidence.

**Kenya:** Community-based strategies to improve identification and treatment outcomes for snakebite victims.

## 4.10 Hepatitis C Virus economic analysis

**Egypt:** Economic analysis of Hepatitis C Virus different screening algorithms

Estimating economic burden of Hepatitis C Virus treatment strategies in Egypt, 2018–2025.

**Iran:** Cost of Hepatitis C Virus interfamilial screening in HCV seropositive injection drug abusers.

<sup>4</sup> The Lancet Editorial Snakebite—emerging from the shadows of neglect VOLUME 393, ISSUE 10187, P2175, JUNE 01, 2019  
DOI: [https://doi.org/10.1016/S0140-6736\(19\)31232-2](https://doi.org/10.1016/S0140-6736(19)31232-2)





## 4.11 Anti-microbial/multi-drug resistance

**Armenia:** Assessing prevalence of antimicrobial resistance to specific drugs in specific diseases, and potential risk factors contributing to resistance.

**China:** Implementing the MTBDRsl rapid DNA-based test for detecting of second-line drug resistance; validation of its effectiveness on the clinical treatment of Multi-drug Resistant Tuberculosis.

**Colombia:** Measurement of social inequalities in antimicrobial resistance against *Neisseria Gonorrhoeae* in Colombia: a mixed research approach.

**Colombia:** Program for optimizing the use of antibiotics in service-providing institutions in the district of Barranquilla, Colombia.

**Ecuador:** Study of antimicrobial resistance to fosfomycin and genes fos plasmids in isolates of *E. coli* resistant to third-generation cephalosporins in the chain production of broilers and humans in the Metropolitan District of Quito, Ecuador

**Ghana:** Proposal for the development of an evidence-based antibiotics protocol for the Cape Coast Teaching Hospital using repeated point prevalence surveys and cumulative antibiogram data.

**Kazakhstan:** Developing skills to contain antimicrobial resistance among the population.

**Kazakhstan:** Study of antimicrobial resistance in a clinical hospital.

**Lebanon:** Nationwide PAR-MTB study of antimicrobial resistance of *Mycobacterium Tuberculosis* among non-national residents and refugees.

**Myanmar:** Antimicrobial resistance: Exploring challenges to inform policy for evidence-based actions.

**Nepal:** Antimicrobial resistance patterns in poultry production system in Nepal: A pilot study.

**Nepal:** A multisectoral approach to investigate a burden of antimicrobial resistance in a sub-urban area of Nepal - A feasibility study.

**Nepal:** Operational One Health research to identify opportunities and barriers for implementing antimicrobial stewardship in dairy farming.

**Northern Macedonia:** Developing a national surveillance system for antimicrobial resistance in *Campilobacter* spp.

**Sierra Leone:** Surveillance of health care-associated infections and antibiotic resistance in urban and rural secondary hospitals.

**Sudan:** Estimating risk factors associated with multi-drug resistance TB.

**Uganda:** Antibiotic resistance: Knowledge of people and AMR profile in *Staphylococcus aureus* population at the livestock-human-wildlife interface in Lake Mburo National Park.

**Uganda:** One Health approach to identify local drivers of antimicrobial drug resistance in peri-urban Kampala.

**Uganda:** Bacteriophage-based control of transmission and emergency of carbapenem resistant pathotypes of *Escherichia coli* and *Klebsiella pneumoniae*.

**Uzbekistan:** Identifying awareness levels on antimicrobial resistance issues and awareness-raising practices among general practitioners, patients, farmers and smallholder farm communities.





## 5. Policy & Learning Materials Produced

This section presents practical approaches and materials that project teams have used to inform and educate policy makers, public health officials, students, health care professionals, and local health advocacy groups. These materials were used to inform national public health programs, build partners' capacity and *share research results* with decision makers.

### 5.1 Policy processes, guidelines & recommendations

### 5.2 Learning & training materials





## 5.1 Policy processes, guidelines & recommendations

### Analyzing tools that improve parents' commitment to immunization of children under the age of 7 (such as immunization against polio in Ukraine)

- **Memorandum of cooperation** with UNICEF Ukraine; analytical review: content analysis of social networks discussed with Ministry of Health
- **Recommendation: draft national strategy** for immunization
- **Recommendation: local level communication** to socially-disadvantaged groups
- **Information strategy for responsible attitudes to vaccination** by parents. Results of roundtable with Ministry of Health and medical universities.

**CONTACT:** Irina DEMCHENKO, Ukraine [ir\\_demchenko@ukr.net](mailto:ir_demchenko@ukr.net)

### Economic analysis of HCV different screening algorithms in Egypt

- **Policy brief** on the cost cost-effective HCV screening strategy; using Markov modeling for the different treatment algorithms for economic analysis of Hepatitis C virus.

**CONTACT:** Dr Amal MOAWAD, Ministry of Health, Egypt  
[amal\\_newlife82@yahoo.com](mailto:amal_newlife82@yahoo.com) [amalnewlife82@gmail.com](mailto:amalnewlife82@gmail.com)

### Analysis of financial reforms as they relate to recommendations made to improve tuberculosis financial mechanisms - Armenia, Tajikistan and Ukraine.

- **Tracking decentralization progress** in these countries.

**CONTACT:** Karapet DAVTYAN [davkaro@gmail.com](mailto:davkaro@gmail.com)

### Improving treatment adherence among tuberculosis patients in Georgia Recommendations for decision-makers: approaches to improve treatment adherence among tuberculosis

- **Policy roundtables** on vaccination issues

**CONTACT:** Natiya RUKHADZE, Curatio Foundation, Georgia  
[n.rukhadze@curatio.com](mailto:n.rukhadze@curatio.com)

### Identifying characterization and local adaptation of policies for Zika virus prevention, detection and care, and relation with the National Policy on Sexuality, Sexual Rights and Reproductive Rights

- **Policy Brief** - Zika y su relación con la salud sexual y reproductiva de las mujeres en Colombia. ¿Qué aprendimos?
- **National Zika strategy**

**CONTACT:** Luz Janeth Forero MARTÍNEZ, Asociación Probienestar de la Familia Colombiana – Profamilia Colombia  
[luzjaneth.forero@profamilia.org.co](mailto:luzjaneth.forero@profamilia.org.co)

### Implementing inclusive community action in the diagnosis and treatment of malaria in pregnancy and childhood in Ebonyi State

- **Development of a National Policy** on malaria diagnosis and treatment of children among health workers.
- **Policy briefs, information materials, training manuals** for community volunteers and community based organisations,

**CONTACT:** Adaoha Agul African Institute of Health Policy and Health Systems, Ebonyi State University Abakaliki, Ebonyi State, Nigeria  
[pearlagu@yahoo.co.uk](mailto:pearlagu@yahoo.co.uk)

### Exploring reproductive health decisions under Zika's threat in Piura-Peru, Peru

- **Input to Peru national Zika strategy:** Documents on understanding health decisions on Zika, identifying gaps in Zika strategy, suggesting interventions to address Zika epidemic
- **Policy Brief** - Report of preliminary results and recommendations to DIRESA Piura
- **Infographics for obstetricians and nurses** in Piura.

**CONTACT:** Ruth Iguñiz ROMERO Universidad Peruana Cayetano Heredia - Facultad de Salud Pública y Administración, Peru  
[lozanok@junior.te.edu.co](mailto:lozanok@junior.te.edu.co)





## 5.2 Learning & training materials

**New approaches to the diagnosis of the main clinical forms of enteroviral infections among adults and children.**

- **Scientific manual** 'Interview Infection in Children and Adults: Modern Data On Etiopathogenesis, The Main Forms Of Disease, Approaches To Therapy'.

**CONTACT:** Yelena USACHEVA, Zaporizhzhia State Medical University, Ukraine; [kdib\[AT\]mail.ru](mailto:kdib@mail.ru)

**Awareness and development of activities aimed to develop skills to contain antimicrobial resistance among the population.**

Course material on rational use of antibacterial drugs, advocacy for rational use of antibiotics in healthcare organizations, created for students.

**CONTACT:** Almagul KUZGIBEKOVA, Expert Panel for Institutional Accreditation of WKSMU Karaganda State Medical University [alma\\_aks\[AT\]mail.ru](mailto:alma_aks@mail.ru)

**Analyzing feasibility of transmission interruption of soil-transmitted helminthiases**

- **Methodology to analyze feasibility of transmission interruption of soil-transmitted helminthiasis.**

**CONTACT:** Men Bao QIAN, National Institute of Parasitic Diseases China CDC, [ylin\[AT\]theunion.org](mailto:ylin@theunion.org) [linyanconsultant\[AT\]163.com](mailto:linyanconsultant@163.com)

**Factors contributing to dengue mortality in Malaysian government hospitals: nursing perspectives.**

- **Nursing protocol** for managing patients with dengue

**CONTACT:** Kim Lam SOH, Universiti Putra, Malaysia [sohkimlam\[AT\]gmail.com](mailto:sohkimlam@gmail.com) [sklam\[AT\]upm.edu.my](mailto:sklam@upm.edu.my)

**Evaluating the feasibility of short regimen in latent tuberculosis infection treatment**

- **Educational materials for health professionals and patients**
- **Fact sheet** on latent tuberculosis information for patients

**CONTACT:** Ngoc Anh LE THI, Viet-Nam

**Detecting and targeting residual malaria with enhanced geospatial surveillance tools in Western Province, Solomon Islands**

- **Maps of malaria cases by village**

**CONTACT:** Leonard BOAZ, Vector Borne Disease Control Programme, Ministry of Health [gonzalesg\[AT\]who.int](mailto:gonzalesg@who.int)

**Studying stigma towards leprosy among adults living close to leprosy hospital; capacity building of health workers to do stigma reduction program**

- **Training manual**

**CONTACT:** Sujan B. MARAHATTA, Manmohan Memorial Medical College and Teaching Hospital, Nepal [azimt\[AT\]who.int](mailto:azimt@who.int)

**Response of health services in the clinical approach of pregnant women with Zika in two municipalities of Colombia 2015-2017**

- **Guide to Peer Education in Women** for sexual and reproductive rights education
- **Student guide to gender-focused interviews** in public health research

**CONTACT:** Jovana Alexandra, Universidad de los Andes, Colombia [ja.ocampo\[AT\]uniandes.edu.co](mailto:ja.ocampo@uniandes.edu.co)

**Analyzing tools to improve commitment of parents to immunization of children under the age of 7 (such as immunization against polio in Ukraine**

- **Training modules on immunization awareness** for nurses and doctors at Public Health Centers.

**CONTACT:** Irina DEMCHENKO, Ukraine [ir\\_demchenko\[AT\]ukr.net](mailto:ir_demchenko@ukr.net)





## 5.2 Learning & training materials

**Studying knowledge and perceptions to family planning: adverse pregnancy outcomes related to Zika virus, and health-seeking behaviour of services among women in Colombia.**

- **Health advocacy materials for health care professionals and the public**

**CONTACT:** Berta RESTREPO, Universidad CES Medellin Colombia, [brestrepo@ces.edu.co](mailto:brestrepo@ces.edu.co)

**Impact of private medical practitioners' involvement in tuberculosis case notification to National Tuberculosis Control Program**

- **Materials for orientation meetings with private sector physicians** in collaboration with national tuberculosis plan.
- **Documentation, orientation material** (detection, diagnosis, and treatment of TB cases with a brief introduction on TB disease).
- **Referral form** for private practitioners to refer cases to national TB control program, with mapping of geographical distribution and contact information of TB care centers.

**CONTACT:** Essam EL MOGHAZY, Cairo Association against Smoking, Tuberculosis and Lung Diseases Egypt [elmoghazy@yahoo.com](mailto:elmoghazy@yahoo.com)

**Investigating epidemiological aspects and experimental infectivity of viscerotropic and dermatropic strains of cutaneous and visceral leishmaniasis, due to *L. infantum* in Tunisia:**

This study developed novel methods that are applicable to other countries with similar leishmaniasis public health problems.

- This team developed a range of tools used in the research:
- Estimation of parasite load in infected sand flies using quantitative polymerase chain reaction (qPCR)
- A Nested ITS1 PCR technique showing a high performance for parasite typing – recovering 36.30%
- Practice for in vitro isolation of *Leishmania* from alive wild caught sandflies

### RELATED PUBLICATIONS

– Transmission cycle analysis in a *Leishmania infantum* focus: Infection rates and blood meal origins in sand flies (Diptera: Psychodidae).

Chargui N, Slama D, Haouas N, Rmadi L, Babba H. J Vector Ecol. 2018 c;43(2):321-327. doi: 10.1111/jvec.12316.

– The vector competence of *Phlebotomus perniciosus* for *Leishmania infantum* zymodemes of Tunisia.

Remadi L, Jiménez M, Chargui N, Haouas N, Babba H, Molina R. Parasitol Res. 2018 Aug;117(8):2499-2506. doi: 10.1007/s00436-018-5939-y. Epub 2018 May 26.

– Clinical Presentation of Cutaneous Leishmaniasis caused by *Leishmania major*.

Remadi L, Haouas N, haara D, Slama D, Chargui N, Dabghi R, Jbeniani H, Mezhoud H, Babba H. Dermatology. 2016;232(6):752-759. doi: 10.1159/000456543. Epub 2017 Mar 3.

– Molecular detection and identification of *Leishmania* DNA and blood meal analysis in *Phlebotomus* (Larroussius) species (accepted for publication in the PLOS Neglected Tropical Diseases)

– Morphological and molecular identification of atypical *Phlebotomus perniciosus* in Tunisia (article in process).

**CONTACT:** Hamouda BABBA Faculté de Pharmacie de Monastir Tunisia [hamouda.babba@rns.tn](mailto:hamouda.babba@rns.tn)

**Community-based Case Identification, Management and Defaulter Tracing of Malaria and Hepatitis B Among Pregnant Women, Newborns and Children.**

This research studied approaches to Antenatal Care initiation and cultural beliefs, the availability and access of routine essential medicines for pregnant women and functionality of the referral system in deprived communities.

- A maternal and child health record book - a practical way to trace Malaria and Hepatitis B among pregnant women; useful for all African countries. It makes the mother's medical history easily available to health workers, for use during future pregnancies – pinpointing patient warning signs and pregnancy/labour complications.

**CONTACT:** Martin Nyaaba ADOKIYA Department of Public Health, School of Allied Health Sciences, University for Development Studies, Tamale, Northern Region, Ghana [mnyaaba11@ajud.edu.gh](mailto:mnyaaba11@ajud.edu.gh)

**Cost-effectiveness and acceptability of a rapid diagnostic test for cutaneous leishmaniasis in Morocco**

A training video on how to perform the CL Detect Rapid Diagnostic Test for Cutaneous Leishmaniasis. <https://youtu.be/MAfvfQD41x8>

**CONTACT:** Dr. Issam Bennis, École Nationale de Santé Publique (ENSP), Ministry of Health [issambennis@gmail.com](mailto:issambennis@gmail.com)



## 6. Tools & practices with transfer potential



*In their own words... Small grants Principal Investigators suggest results, tools and practices from their project that they feel are worth sharing. This section presents a list of **outputs with potential for transfer** for use by other public health and research professionals to address neglected tropical diseases.*

1. Assessing diabetes in patients with tuberculosis at a tertiary care facility, Pakistan.
2. Determining the optimal time for blood sugar measurements - screening TB patients for diabetes.
3. Assessing first-time implementation of GeneXpert to improve diagnosis and management of drug-resistant TB in Bhutan.
4. Study for improving TB diagnosis in children using Xpert MTB/RIF in Ulaanbaatar.
5. New approaches to diagnosing clinical enteroviral infections in adults and children, Ukraine.
6. Opportunities to control Schistosomiasis in preschool-age children, Philippines.
7. Establishing a university-based surveillance system for animal schistosome control, Philippines.
8. Financial reforms related to recommendations to improve TB financial mechanisms.
9. Is TB treatment truly free? A study to identify key factors for catastrophic cost of TB care, Pakistan .
10. Assessing TB patient costs and treatment adherence in the Philippines.
11. Response of health services in clinical approach of pregnant women with Zika in two municipalities, Colombia.
12. Knowledge and perceptions to family planning, adverse pregnancy outcomes.  
related to Zika virus; health-seeking behaviour of services among women in Colombia.
13. Exploring reproductive health decisions under Zika's threat in Piura-Peru.
14. Field evaluation of a non-commercial ELISA test for detection of anti-Zika virus IgM in the Yucatan Peninsula.
15. Cost of Hepatitis C Virus for interfamilial screening in HCV seropositive injection drug abusers.
16. Developing and evaluation of Loop Mediated Isothermal Amplification for diagnosing of Old-world cutaneous Leishmaniasis in Tunisia.
17. Managing cutaneous leishmaniasis: limitations to access to treatment; role of community health workers, Alta Verapaz-Guatemala.
18. Improved Identification and Treatment Outcomes for Snakebite Victims – Community-Based Strategies, Baringo County, Kenya.
19. Application of CLIP-PCR to identify malaria sub microscopic infections to optimize a strategy for active case detection and support elimination, China-Myanmar border region.
20. Operations research: refining the strategies for malaria elimination, China-Myanmar border area.
21. Assessing malaria foci mapping in China after zero local transmission cases report.
22. Virtual Community of Healthcare Facilities: Optimizing Malaria Treatment, DR Congo.
23. Assessing the FLOTAC technique as an alternative to Kato-Katz for accurate detection of Helminthiasis (STH) infections in low-endemic provinces, Philippines.
24. Analyzing feasibility of transmission interruption of soil-transmitted helminthiasis (STH) in China.
25. Assessing the burden of concurrent infections with malaria and dengue among febrile patients in Hodeidah governorate, Yemen.
26. MTBDRsl test to detect second-line drug resistance and validation of its effectiveness on clinical treatment of multidrug resistant tuberculosis, China.
27. Prevalence and Antimicrobial Resistance of Mycobacterium tuberculosis in non-national citizens.
28. Assessing feasibility of provider-initiated HIV testing and counselling in private healthcare sectors, Sudan.
29. Comparison of Seroprevalence to the PGL-I Antigen between areas with low and high incidence of Leprosy.
30. Stigma towards leprosy among adults living close to the leprosy hospital and capacity building of health workers in a stigma-reduction program in Lalitpur, Nepal.
31. Pilot project: community-based leprosy detection, diagnosis, treatment and management in two highly endemic leprosy areas, Papua New Guinea.
32. Causes and Distributions of Under-5 Mortality Using Verbal Autopsy and Social Autopsy Studies Interview, Alexandria Governorate.
33. Economic analysis of HCV different screening algorithms, Egypt.
34. Determinants of Schistosoma mansoni transmission in hotspots at late-stage of elimination, Kafr El Sheikh governorate.
35. Cost of Hepatitis C Virus interfamilial screening in HCV seropositive injection drug abusers.





### 1. Assessment for diabetes in patients with tuberculosis presenting at a tertiary care facility in Pakistan. Collaboration with Indus hospital Karachi and Aga Khan University Hospital Karachi

This project highlighted the difficulty of treating and managing TB patients who have diabetes. Many patients with diabetes are not aware of it. Strong counselling and education are needed at TB treatment centers to allow patients to recognise they must also treat their diabetes. Pre-diabetic people should also be encouraged to monitor their glycemic levels.

#### RELATED PUBLICATIONS

'Raised levels of IFN-gamma and IL-13 are associated with pre-diabetes amongst newly diagnosed patients with Tuberculosis', Zahra Hasan, Muhammad Irfan, Qamar Masood, Owais Ahmed, Umme Salama Moosajee, Shoaib Rao, Naseem Salahuddin, JPMA 69: 468 2019

**CONTACT:** Kawasji KHESWALLA & Zahra HASSAN, Aga Khan University [kamran.pirwani@aku.edu](mailto:kamran.pirwani@aku.edu)

### 2. Determination of the optimal time to take blood sugar measurements when screening tuberculosis patients for diabetes

As recommended by WHO, bi-directional screening for TB and diabetes should be done as a routine in low- and middle-income countries. Many operational issues need to be addressed. This study focused on operational issues that can be useful for other countries, for screening TB patients for diabetes and filled knowledge gaps. For example, the majority of TB patients who started anti-TB treatment with a normal fasting blood glucose level maintained a normal level or demonstrated impaired glucose tolerance and no patient developed diabetes.

These results suggest that in resource-constrained environments, a patient with a Fasting Blood Glucose less than 7.0mmol/L baseline does not need to be closely followed. As early detection and treatment for diabetes can improve treatment outcomes, findings suggest that taking one blood sample for Fasting Blood Glucose immediately after TB diagnosis is good practice for most TB patients. Baseline characteristics such as HIV-positivity and smoking are associated with unstable blood glucose levels during anti-TB treatment; these patients need closer attention. These findings have useful programmatic lessons to share.

#### RELATED PUBLICATIONS

Lin Y, Yuan Y, Zhao X et al. 'The change in blood glucose levels in tuberculosis patients before and during anti-tuberculosis treatment in China', Global Health Action, 2017; 10 (1): doi: org/10.1080/16549716.2017.1289737

**CONTACT:** Prof. Yan LIN International Union Against Tuberculosis and Lung Disease [ylin@theunion.org](mailto:ylin@theunion.org) [linyanconsultant@163.com](mailto:linyanconsultant@163.com)

### 3. Assessing and optimization of first-time implementation of GeneXpert to improve the diagnosis and management of drug-resistant TB in Bhutan

**First-time use of GeneXpert for TB diagnosis:** These project results can be useful for improving TB diagnosis in similar situations, for healthcare teams to understand barriers to first-time set-up and application of the Gene Xpert molecular diagnosis system.

#### RELATED PUBLICATIONS

Assessment and optimization of first-time implementation of GeneXpert to improve the diagnosis and management of drug-resistant TB in Bhutan. Manuscript in preparation, to be submitted in Royal Society of Tropical Society and Hygiene journal.

**CONTACT:** Ms. Lila ADHIKARI Royal Center for Disease Control, Thimphu, Bhutan [lila09phl@gmail.com](mailto:lila09phl@gmail.com) [ladhikari@massey.ac.nz](mailto:ladhikari@massey.ac.nz)

### 4. Study for improvement of tuberculosis diagnosis among children using Xpert MTB/RIF in Ulaanbaatar

This project developed a standard operating procedure for Gene Xpert diagnostics ultra and a new algorithm, to diagnose M. tuberculosis and extrapulmonary TB. This is especially useful when clinicians have to make decisions in cases with no bacteriological evidence.

**CONTACT:** Buyanshishig Burneebaatar, National Center for Communicable Diseases, Mongolia [bb\\_buyankhishig@yahoo.com](mailto:bb_buyankhishig@yahoo.com) [toyuntuya\\_4@yahoo.com](mailto:toyuntuya_4@yahoo.com)

### 5. New approaches to the diagnosis of the main clinical forms of enteroviral infections among adults and children with this condition.

**Diagnosis of enteroviral infections:** It will be useful to do a comparative analysis of these results with similar studies in other regions. This will allow mapping of the circulation of enteroviruses and the spread of dominant clinical forms of the disease.



## RELATED PUBLICATIONS

O.V. Riabokon, O.V. Usachova, D.A. Zadyraka, O.M. Kamyshnyi. 'Comparison of Clinical and Laboratory Manifestations of Enteroviral Meningitis in Adults and Children', International Journal of Medical Science and Dental Research, Volume 02, Issue 03 (May-June 2019), PP 01-07

Zadiraka D.A., Ryabokon O.V., Usachova O.V., Kamishnyi O.M., 'Clinical-laboratory features of enterovirus meningitis in adults and children', Zaporizhzhya Medical Journal Задирака Д.А., Рябоконе О.В., Усачова О.В., Камишний О.М., 'КЛІНІКО-ЛАБОРАТОРНІ ОСОБЛИВОСТІ ПЕРЕБІГУ ЕНТЕРОВІРУСНИХ МЕНІНГІТІВ У ДОРОСЛИХ ТА ДІТЕЙ', Запорозький медичинський журнал

**CONTACT:** Yelena USACHEVA Zaporizhzhia State Medical University, Ukraine, [kdib\[at\]mail.ru](mailto:kdib[at]mail.ru)

### 6. Opportunities to control Schistosomiasis in preschool-age children in the Philippines.

These results look into local factors affecting prevention and control of schistosomiasis and can be adopted by other countries for schistosomiasis control in school children. This approach is useful to identify good practices and challenges that are unique to a specific location, that will inform implementation plans. Particular challenges identified in interviews relate to the administration of Praziquantel (PZQ), the drug used to treat various types of parasitic worm infections in small children, primarily due to their size, smell and taste. A useful approach to share with other countries is to mix the medicine with food such as banana, or with a drink. Respondents also recommended developing a liquid formula for PZQ.

## RELATED PUBLICATIONS

Publication in process: Opportunities for Schistosomiasis control in preschool-age children in the Philippines.

**CONTACT:** Chiqui DE VEYRA College of Public Health, University of the Philippines, Manila [deveyrachiqui\[at\]yahoo.com](mailto:deveyrachiqui[at]yahoo.com)

### 7. Establishing a university-based surveillance system for animal schistosomiasis control in the Philippines

**Surveillance system for Schistosomiasis control:** This research may be of use to other countries. The specific activity highlighted is in rats, where they are considered to transmit schistosomiasis as they move from one rice field to another. The perfusion method was used to quantify the infection and learn about factors related to the distribution and behaviour of schistosomiasis infection in the environment and its host.

Next steps: A Knowledge, Attitudes and Practices study of a community will help identify topic areas for information, education and communication materials and awareness programs to encourage a better response from communities. Engaging with the community at the project design stage is a good practice to engage the community and stakeholders.

**CONTACT:** Ronnie DOMINGO Bureau of Animal Industry [domingoronnied\[at\]yahoo.com](mailto:domingoronnied[at]yahoo.com) [ivescacho\[at\]yahoo.com](mailto:ivescacho[at]yahoo.com)

### 8. Financial reforms as they relate to recommendations made to improve tuberculosis financial mechanisms

This project's results recommend ways to improve financial mechanisms for TB in post-Soviet countries, which can be of use to other countries with similar profiles.

'Shifting from an inpatient to outpatient centered model through transforming the TB financing in ex-Soviet countries' (<https://jdc.org/index.php/journal/article/view/10928>), DOI: <https://doi.org/10.3855/jdc.10928>

**CONTACT:** Karapet DAVTYAN [davkaro\[at\]gmail.com](mailto:davkaro[at]gmail.com)

### 9. Is tuberculosis treatment truly free? A study to identify key factors contributing towards the catastrophic cost of TB care in Pakistan

Pakistan (catastrophic cost of TB for households): National TB Control Program, assisted by TB DOTS representatives from 4 government hospitals in Rawalpindi and Islamabad for data collection. Based on these results, tools can be developed for other countries to assess the factors contributing to catastrophic cost of TB care, based on the experience of Pakistan; the findings are useful learning material.

**CONTACT:** Dr Aamer IKRAM, Establishment of Environmental Health, National Institute of Health Islamabad, Pakistan [maahin1\[at\]gmail.com](mailto:maahin1[at]gmail.com) [maahin1\[at\]yahoo.com](mailto:maahin1[at]yahoo.com)

### 10. Assessing TB patient costs and treatment adherence in the Philippines by longitudinal data collection

These results, particularly the longitudinal use of the WHO catastrophic cost tool, can benefit to other countries after validation with by WHO.

**CONTACT:** Mary Christine Castro, Nutrition Center of the Philippines [mccastro\[at\]ncp.org.ph](mailto:mccastro[at]ncp.org.ph)





- 11. Response of health services in the clinical approach of pregnant women with Zika in two municipalities of Colombia 2015-2017**  
**Zika diagnosis, pregnant women:** This research method explores women's experiences with health service provision and how to integrate students in research. As teachers, research allowed us to develop new scenarios for working with students in an approach of ethics and respect. It also allowed us to create processes that have a gender perspective.

#### RELATED PUBLICATIONS

International Journal of Gynecology and Obstetrics (IJGO) ( 1) 'Patient characteristics and pregnancy outcomes among Zika-infected pregnant women: Epidemiologic surveillance data from two cities in Colombia, 2015–2016 ; (2) 'A qualitative study of the experiences of pregnant women in accessing healthcare services during the Zika virus epidemic in Villavicencio, Colombia, 2015–2016 ; (3) 'Vivencias de mujeres con Virus del ZIKV (ZIKV) frente a la prestación de servicios de salud en dos ciudades de Colombia, qualitative study to be submitted to PLOS Neglected Tropical Diseases

**CONTACT:** Joava Alexandra Ocampo CAÑAS, Universidad de los Andes, Colombia [ja.ocampo@uniandes.edu.co](mailto:ja.ocampo@uniandes.edu.co)

- 12. Knowledge and perceptions to family planning, concerns of the adverse pregnancy outcomes related to Zika virus, and health-seeking behaviour of services among women in Colombia**  
**Family planning for Zika:** This project studied modes of transmission, clinical aspects and prevention measures of Zika provided to women who participated in the study. The project's qualitative component for addressing family planning perceptions and concerns on the adverse pregnancy outcomes related to Zika virus will be of use to others. Useful videos and information materials were produced – aimed at the general population and others aimed at health care professionals.

#### RELATED PUBLICATIONS

Manuscript "Women's reluctance to pregnancy – the experiences and perceptions of Zika virus in Medellin, Colombia" accepted as special supplement of the International Journal of Gynecology Obstetrics on Zika virus.

**CONTACT:** Dr Berta RESTREPO, CES University Medellin, Colombia (in partnership with Karolinska Institute, Sweden) [brestrepo@ces.edu.co](mailto:brestrepo@ces.edu.co)

- 13. Exploring reproductive health decisions under Zika's threat in Piura-Peru, Peru**  
Understanding health decisions on Zika, identifying gaps in Zika strategy, suggesting interventions to decision makers address Zika epidemic.

#### RELATED PUBLICATIONS

Health System Preparedness and Response to the Emergence of Zika in Iquitos and Piura, Peru: A qualitative comparative case-study

**CONTACT:** Ruth Iguíñiz ROMERO Universidad Peruana Cayetano Heredia - Facultad de Salud Pública y Administración [lozanok@junior.te.edu.co](mailto:lozanok@junior.te.edu.co)

- 14. Field evaluation of a non-commercial ELISA test for detecting anti-Zika virus IgM in the Yucatan Peninsula**  
**Differentiating dengue from Zika:** Evaluating candidate antigens for Zika with the ELISA test (Enzyme-linked immunosorbent assay for cross-reactivity in commercial ELISA assays. These results can inform public health officials in countries with a high incidence of dengue infections and co-circulation of Zika virus, as they face similar problems differentiating Dengue from Zika infection.

**CONTACT:** Zadia Bando Mussaret, Fundacion Mexicana para la salud, Capitulo Peninsular A.C., Mexico [zaidimus@jmsu.edu](mailto:zaidimus@jmsu.edu)

- 15. Cost of Hepatitis C Virus for interfamilial screening in HCV seropositive injection drug abusers**  
**Scening Hepatitis C in Seropositive drug users:** The project offers lessons for other prevention programs for blood-borne diseases in prisons, the drop-in center responsible for high-risk behaviors consultation, Iran Hepatitis Network, Center of Communicable diseases
- CONTACT:** Dr Zahra MOHTASHAM, Guilan University of Medical Sciences Trauma Research Center, Medical Faculty Rasht, Iran [mohsengadallah@gmail.com](mailto:mohsengadallah@gmail.com)

- 16. Developing and evaluation of a Loop Mediated Isothermal Amplification method for the diagnosis of Old-world cutaneous Leishmaniasis in Tunisia**  
**Training dermatologists & medical technicians in regional healthcare centres:** The loop Mediated Isothermal Amplification diagnostic technique developed in this project can be useful to leishmaniasis endemic countries, especially those with limited resources. Based in these findings, guidelines and documentation on applying the LAMP technique can be developed.

#### RELATED PUBLICATIONS

Development & Assessment of Leishmania major– and Leishmania tropica–specific Loop-Mediated Isothermal Amplification Assays for Diagnosis of Cutaneous Leishmaniasis in Tunisia, /doi:10.4269/ajtmh.19-0097





**CONTACT:** Souha BEN ABDERRAZAK Institut Pasteur de Tunis Ministry of Health and Healthcare

[souha.benabderrazak\[AT\]yahoo.fr](mailto:souha.benabderrazak@yahoo.fr) [souha.benabderrazak\[AT\]pasteur.rns.tn](mailto:souha.benabderrazak@pasteur.rns.tn)

### 17. Management of cutaneous leishmaniasis: limitations to the access to treatment and role of community health workers in Alta Verapaz-Guatemala

**Socio-cultural aspects of leishmaniasis control in a culturally diverse setting:** These aspects were identified in indigenous populations affected by the leishmaniasis, and how health service providers can effectively address them. This may apply to other contexts with culturally diverse communities. An important finding is that populations in endemic areas do not know the disease or its transmission pathways, so culturally-relevant information materials are needed.

**CONTACT:** Lic. Renata Mendizábal de Cabrera, University del Valle de Guatemala and Ministry of Health of Guatemala [rmendizabal\[AT\]ces.uvg.edu.gt](mailto:rmendizabal@ces.uvg.edu.gt)

### 18. Improved Identification and Treatment Outcomes for Snakebite Victims Through Community-Based Strategies in Baringo County

The results from this project are useful for informing policies on managing snakebite, and for putting in place community interventions that can change the way snakebite is handled in other countries with similar problems as Baringo. Tools such as data capturing forms are very key. These are lacking in most primary care facilities; the process developed in this research can be used to create a database for snakebite victims and help refine data in affected areas.

**CONTACT:** Winnie BORE Snakebite Rescue Rehabilitation and Research Centre (SNABIRC), Kenya [winnie.borey\[AT\]snabirc-kenya.org](mailto:winnie.borey@snabirc-kenya.org)

### 19. Application of CLIP-PCR to identify malaria sub-microscopic infections to optimize the strategy for active case detection and support elimination in the China-Myanmar border region

Experience with the innovative Capture and Ligation Probe-PCR molecular screening technique (CLIP-PCR) used in this project can help promote malaria elimination efforts in locations with a similar profile.

#### RELATED PUBLICATIONS

Adapting the local response for malaria elimination through evaluation of the 1-3-7 system performance in the China-Myanmar border region 2017 Jan 31;16(1):54. doi: 10.1186/s12936-017-1707-1.

**CONTACT:** Prof. Wang DUOQUAN National Malaria Elimination Program

[wdq730609\[AT\]126.com](mailto:wdq730609@126.com) [duoquan2006\[AT\]hotmail.com](mailto:duoquan2006@hotmail.com)

### 20. Operations research on refinement of the strategies for malaria elimination in China-Myanmar border area

This project's work to increase the precision of strategy planning and small-scale stratification for malaria control in border areas, can be useful in other locations to help them improve the most difficult last-mile interventions for malaria elimination

#### RELATED PUBLICATIONS

Preliminary work of study published as: Jun Feng, Juan Liu, Xinyu Feng, Li Zhang, Huihui Xiao, Zhigui Xia, 'Towards Malaria Elimination: Monitoring and Evaluation of the "1-3-7" Approach at the China-Myanmar Border', American Society of Tropical Medicine and Hygiene, 2016, 95(4): 806-810

'Adapting the local response for malaria elimination through evaluation of the 1-3-7 system performance in the China-Myanmar border region' 2017 Jan 31;16(1):54. doi: 10.1186/s12936-017-1707-1.

**CONTACT:** Mr Zhi-Gui XIA National Institute for Parasitic Diseases, Shanghai, China [jhlacuna\[AT\]gmail.com](mailto:jhlacuna@gmail.com)

### 21. Assessment of malaria foci mapping in China after zero local transmission cases report

Indicators developed in this project may be useful for foci-mapping for malaria elimination or surveillance in other countries.

#### RELATED PUBLICATIONS

Imported malaria cases in former endemic and non-malaria endemic areas in China: are there differences in case profile and time to response, Shaosen ZHANG, Infectious Diseases of Poverty, BMC BioMed Central, 2019 (<https://rdcu.be/bUFUF>)

**CONTACT:** Shaosen ZHANG National Institute of Parasitic Diseases – China CDC Shanghai [zhangss\[AT\]nipd.chinacdc.cn](mailto:zhangss@nipd.chinacdc.cn) [shaosen413\[AT\]163.com](mailto:shaosen413@163.com)

### 22. Virtual Community of Healthcare Facilities: Optimization of Malaria Treatment

**Virtual health care:** The virtual health solutions piloted in this project provide healthcare professionals in multiple and remote locations with easier access to better quality resources. This virtual community health care system has created a malaria dictionary and ontology (MalOnto) component and an eLearning component, centered on topics of public health, parasitology, laboratory, clinical practice and pharmacology.



#### RELATED PUBLICATIONS

Eustache Muteba A., Specification and Description Language of Medical Activities, Proceedings of EFMI Special Topic Conference 2018', IOS Press. Vol. 255, Pp 237 - 241, 2018

Eustache Muteba A., 'Modeling an Automatic Diagnosis of Malaria based on Digital Holographic Microscopy', Poster, III International Clinical Engineering and Health Technology Management Congress, 2019

**CONTACT:** Eustache Muteba AYUMBA Universitaire et de la Recherche Scientifique, Ministère de l'Enseignement Supérieur, Kinshasa, DR Congo  
[emuteba\[AT\]hotmail.fr](mailto:emuteba[AT]hotmail.fr)

#### 23. Assessing the FLOTAC technique as an alternative to Kato-Katz for accurate detection of Helminthiasis (STH) infections in low-endemic provinces in the Philippines

These study findings can guide public health managers and professionals to make guidelines and recommendations for using FLOTAC and Kato Katz for STH detection and mass-drug administration.

**CONTACT:** Dave TANGCALAGAN, Research Institute for Tropical Medicine, Philippines [davetangcalagan\[AT\]yahoo.com](mailto:davetangcalagan[AT]yahoo.com)

#### 24. Analyzing feasibility of transmission interruption of soil-transmitted helminthiases (STH) in China

After further improvement this method has potential for wider use analyze the feasibility of transmission interruption of soil-transmitted helminthiasis.

**CONTACT:** Men Bao QIAN, National Institute of Parasitic Diseases China CDC, ylin[AT]theunion.org [linyanconsultant\[AT\]163.com](mailto:linyanconsultant[AT]163.com)

#### 25. Assessing the burden of concurrent infections with malaria and dengue among febrile patients in Hodeidah governorate, Yemen

A questionnaire developed for this project questionnaire can inform other epidemiological studies in analyzing dengue and malaria in areas where these diseases co-exist

**CONTACT:** Dr Rashad ABDUL-GHANI, University of Science and Technology, Sana'a [ramyghazy\[AT\]yahoo.com](mailto:ramyghazy[AT]yahoo.com) [ramyghazy1986\[AT\]gmail.com](mailto:ramyghazy1986[AT]gmail.com)

#### 26. Implementing the MTBDRsl test to detect second-line drug resistance and validation of its effectiveness on the clinical treatment of multidrug resistant tuberculosis in China

The MTBDRsl test is designed for use close to point-of-treatment in endemic disease settings. It is the first of a new generation of diagnostic

tests with potential to bring highly-sensitive nucleic acid amplification testing to peripheral sections of the health system. Our study validated the test's improved diagnostic performance, and established it in local settings in China.

The robustness of the data obtained from this research suggests that this approach can benefit health researchers in various resource-poor settings – for case detection and rapid decentralized screening of the susceptibility to second-line multidrug-resistant tuberculosis. The study will produce a well-characterized repository of MDR-TB isolates that will address a range of clinical, laboratory and epidemiologic questions.

#### RELATED PUBLICATIONS

Multi-center evaluation of GenoType MTBDRsl line probe assay for rapid detection of pre-XDR and XDR Mycobacterium tuberculosis in China. Gao Y, Zhang Z, Deng J, et al., JOI, 2018(12):1-7.

Improved treatment outcome of multi-drug resistant tuberculosis with the use of a rapid molecular test to detect drug resistance in China Shi W, Davies Forsman L, Hu Y, et al., submitted to IJID.

**CONTACT:** Professor Yi HU, School of Public Health, Fudan University  
[yhu\[AT\]fudan.edu.cn](mailto:yhu[AT]fudan.edu.cn) [aaron\\_huyij\[AT\]hotmail.com](mailto:aaron_huyij[AT]hotmail.com)

#### 27. Prevalence and Antimicrobial Resistance of Mycobacterium tuberculosis among non-national citizens Residents and refugees in Lebanon: a nationwide study (PAR-MTB)

The study results present a comprehensive overview of TB in Lebanon

#### RELATED PUBLICATIONS

Drug-Resistant Tuberculosis, Lebanon, 2016 – 2017

El Achkar S, Demanche C, Osman M, Rafei R, Ismail M, Yaacoub H, et al. Drug-Resistant Tuberculosis, Lebanon, 2016 – 2017. Emerg Infect Dis. 2019;25(3):564-568. <https://dx.doi.org/10.3201/eid2503.181375>

**CONTACT:** Monzer Hamze Laboratoire Microbiologie Santé et Environnement (LMSE), Doctoral School of Science Technology and Faculty of Public Health, Lebanese University, Tripoli, Lebanon [mhamze\[AT\]ul.edu.lb](mailto:mhamze[AT]ul.edu.lb)  
[mhamze\[AT\]monzerhamze.com](mailto:mhamze[AT]monzerhamze.com)

#### 28. Assessing feasibility of provider-initiated HIV testing and counselling in private healthcare sectors in Sudan

The project team says that private and public health care actors can learn from the results of this research. Private health sector engagement in national HIV testing policy is a universal problem, with weak engagement





of private actors for HIV prevention and control. Public sector activities will also benefit from project findings, which cover all aspects of problems of Provider-initiated HIV testing and counselling in private healthcare sectors. The project has produced a framework for private health sector provider-initiated HIV testing. As issues relevant to private and public sector testing are different, the team designed a framework suitable for both – with a model for training private health sector specialists and for government decision makers.

**CONTACT:** Dr Sarah MOHAMMED FMOH International Health, National Training Activities, Ministry of Health [sarakareem05\[AT\]gmail.com](mailto:sarakareem05[AT]gmail.com)

### 29. Comparison of Seroprevalence to the PGL-I Antigen between areas with low and high incidence of Leprosy

We are interested to complete the application of the rapid test kit ML-ICA and the availability of confirmatory test laboratory PGL-I ELISA for leprosy. Consent/assent form materials to share and IEC materials available. Involvement of treated patients in projects, making themselves reliant and empowered could help in eliminating stigma associated to the disease. Our Hope and Dignity Club Philippines makes leprosy care a lot easier. Today, most educated lepers do not come out despite efforts to eradicate stigma. Of the few who are willing to work for the eradication of leprosy, they must be employed and supported by organizations like WHO. We can create employment for them, such as the free-range chicken farming initiative that the club has started.

Another study done was a survey on situation of people affected by Leprosy under MDT: Survival, Disabilities, Stigma, and access to services affecting social participation and quality of life. Cured patients did the legwork by seeking out the participants in the study. The questionnaires can be shared.

This study showed the importance of a follow-through approach after care and multi-drug therapy. Because of the lepra reaction occurrence, even after stopping treatment after a year or two, surveillance is important. Giving some form of medication like supplements or vitamins makes surveillance more efficient and complete

**CONTACT:** Dr Ma Luisa ABAD-VENIDA, Skin Research Foundation of the Philippines [ja.ocampo\[AT\]uniandes.edu.co](mailto:ja.ocampo[AT]uniandes.edu.co)

### 30. Stigma towards leprosy among adults living close to the leprosy hospital and capacity building of health workers in a stigma-reduction program in Lalitpur, Nepal

This project can share the experience of putting in place a platform for improving contact and learning between the community and people living with leprosy. It includes capacity development of the community and health workers, and approaches for the community to engage with other health institutions and the government.

Leprosy was still perceived to be feared and concealed because of potential discrimination, even within the communities that were close to a long established leprosy hospital. Various aspects such as marriage, job, and food sharing were still affected and the stigma was strongly associated with visible deformities. Community engagement can enhance ongoing stigma reduction strategies such as health education, rehabilitation, public contact and rights based-counselling interventions. This approach also brings together community members and people living with leprosy on a joint platform. This is an effective channel that delivers community-based health education and increases social participation and interaction.

#### RELATED PUBLICATIONS

Perceived stigma of leprosy among community members and health care providers in Lalitpur district of Nepal: A qualitative study. PLoS ONE 13(12): e0209676 <https://doi.org/10.1371/journal.pone.0209676>

**CONTACT:** Dr Sujan B. MARAHATTA, Manmohan Memorial Medical College and Teaching Hospital, Kathmandu, Lalitpur, Nepal [azimt\[AT\]who.int](mailto:azimt[AT]who.int)

### 31. Pilot project of community-based leprosy detection, diagnosis, treatment and management in two highly-endemic leprosy areas of Papua New Guinea

When this project is completed, the team will provide feedback on the potential for transfer of its experience with community-based leprosy detection. This effort mobilizes capacity building at three levels: research team (national level), frontline healthcare workers (district level) and with community-based volunteers.

#### RELATED PUBLICATIONS

Community-based leprosy detection, diagnosis, treatment and management, Papua New Guinea. Publication planned for 2020.

**CONTACT:** Abel MAROME, Department of Health (National Health Services Standards Division), Leprosy Mission PNG [abel\\_marome\[AT\]health.gov.pg](mailto:abel_marome[AT]health.gov.pg) [marome.abel\[AT\]gmail.com](mailto:marome.abel[AT]gmail.com)





### 32. Causes and Distributions of Under-Five Mortality in Alexandria Governorate Using the Verbal Autopsy and Social Autopsy Studies Interview.

This research looks at the Verbal Autopsy and Social Autopsy (VA and SA) research methods, that are used to assign medical causes of death and understand the influence of social contexts on outcomes. They have been developed for use in settings where information systems are incomplete or absent, and where many deaths go unrecorded.

The research team feels that the approaches used in this project will help countries like Afghanistan, that have with high levels of mortality among under-five children. The team is adding recommendations to modify the VASA tool.

#### RELATED PUBLICATIONS

Validation of Arabic version of Verbal and Social Autopsy research results, spatial distribution of under-five mortality rates using ARC GIS, Egypt.

**CONTACT:** Ramy GHAZY, High Institute of Public Health, Egypt  
[ramyghazy1986@gmail.com](mailto:ramyghazy1986@gmail.com)  
[ramyghazy@yahoo.com](mailto:ramyghazy@yahoo.com) [ramysarah@alexu.edu.eg](mailto:ramysarah@alexu.edu.eg)

### 33. Economic analysis of HCV different screening algorithms in Egypt Policy

This project looks at cost cost-effective HCV screening strategy. The research says that their application of Markov modeling for different treatment algorithms for economic analysis of Hepatitis C virus will be useful for others doing similar HCV analyses.

**CONTACT:** Dr Amal MOAWAD, Ministry of Health, Egypt  
[amal\\_newlife82@yahoo.com](mailto:amal_newlife82@yahoo.com) [amalnewlife82@gmail.com](mailto:amalnewlife82@gmail.com)

### 34. Determinants of Schistosoma mansoni transmission in hotspots at late stage of elimination, Kafr El Sheikh governorate.

Study aims to identify ecological factors for sustained transmission of disease: adaptation to high salinity, high salinity correlates to high infection rate, snail abundance.

**CONTACT:** Ramy GHAZY, High Institute of Public Health, Egypt  
[ramyghazy1986@gmail.com](mailto:ramyghazy1986@gmail.com) [ramyghazy@yahoo.com](mailto:ramyghazy@yahoo.com)  
[ramysarah@alexu.edu.eg](mailto:ramysarah@alexu.edu.eg)

### 35. Cost of Hepatitis C Virus interfamilial screening in HCV seropositive injection drug abusers.

This project developed screening tests for Hepatitis C virus and other blood-borne diseases can be a part of pre-marriage obligatory tests for high-risk groups.

**CONTACT:** Trauma Research Center, Medical Faculty, Guilan University of Medical Sciences, Rasht/Iran Dr Zahra MOHTASHAM  
[mohtasham@tjgums.ac.ir](mailto:mohtasham@tjgums.ac.ir)



## 7. Complete list: Small Research Grants - 2014-2020



Project	Country	Institute	Year
Assess and compare cost effectiveness of two types of preventive measurements for cutaneous leishmaniasis in Kabul city	Afghanistan	National Malaria and Leishmaniasis Control Program	2018
Increasing the overall detection rate of TB cases in Nangarhar Regional Hospital	Afghanistan	Afghanistan Community of Evaluators Organization	2014
Enhance prevention and control of congenital syphilis, HIV and Chagas disease in adolescent mothers; describe the frequency and distribution of HIV, T.cruzi and syphilis among adolescents, identify ways to improve case detection, expand access to information about prevention of HIV, syphilis and Chagas disease in schools	Argentina	Faculty of Chemical and Natural Sciences in the National University of Misiones	2014
Diagnosis and treatment of TB in Buenos Aires using CHWs	Argentina	Fundación GESICA, Health & Planning, Ministry of Health	2018
Collaborative research between Armenia, Tajikistan and Ukraine on analysis of financial reforms as they relate to recommendations made to improve tuberculosis financial mechanisms.	Armenia		2015
Assessment of prevalence of Antimicrobial resistance towards specific drugs and in specific diseases in Armenia and potential risk factors contributing to Antimicrobial resistance	Armenia		2019
Introduction of rapid strep test to pediatric practices in Armenia	Armenia		2019
Studying antimicrobial drugs dispensing in pharmacies in Yerevan city - Armenia, 2019	Armenia		2019
Exploring natural breeding sites of sand flies (Diptera: Phlebotominae) in visceral leishmaniasis endemic areas of Bangladesh	Bangladesh	International Centre for Diarrhoeal Disease Research	2016
Exploring the efficacy of filter paper based Gene Xpert MTB/RIF in diagnosing smear negative pulmonary tuberculosis cases	Bangladesh	International Centre for Diarrheal Disease Research	2014
A multi-component intervention to reduce infectious disease and improve hygiene and well-being among primary school children in Bangladesh: a randomized controlled trial	Bangladesh	Department of Population Science and Human Resource Development, University of Rajshahi	2016
Assessment and optimization of first time implementation of GeneXpert to improve the diagnosis and management of drug-resistant TB in Bhutan	Bhutan	Royal Center for Disease Control	2016
Prescribing patterns of antibiotic prescription among pediatricians in primary health care in Republic of Srpska; knowledge, attitude and practice of the pediatricians and parents regarding antibiotic use	Bosnia and Herzegovina	Bosnia and Herzegovina	2019
Investigação do papel da infecção pelo vírus Zika na epidemia de recém-nascido com microcefalia em Salvador-Ba, Brasil: um estudo de prevalência em gestantes neonatos	Brazil	Instituto Gonçalo Moniz-Fiocruz	2017
Investigation of the role of Zika virus infection in the epidemic of newborn with microcephaly in Salvador-Ba, Brazil: a prevalence study in pregnant women and neonates			





Project	Country	Institute	Year
Práticas contraceptivas e preferências reprodutivas de mulheres em serviços de atenção primária: houve mudanças após o início do surto do vírus Zika no Brasil?  Contraceptive practices and reproductive preferences of women in primary care: were there changes after the onset of the Zika virus outbreak in Brazil?	Brazil	Escola de Enfermagem da Universidade de São Paulo	2017
Data mining of social indicators and health databases to detect risk factors of severe forms of Zika virus in Brazil	Brazil	Fundação Para o Desenvolvimento Científico e Tecnológico em Saúde	2017
Public health policies in emergency situations: the outbreak of Zika virus	Brazil	Universidade Federal do Espírito Santo	2017
Avaliação da infecção aguda pelos vírus ZIKV, DENV e CHIKV em travestis de 12 capitais brasileiras através de multiteste na plataforma qPCR  Evaluation of acute ZIKV, DENV and CHIKV infection in transvestites from 12 Brazilian capitals through of multitest on the qPCR platform	Brazil	Instituto de Biologia Molecular do Paraná (IBMP)	2017
Identifying factors contributing to anti-malarial medicine stock-out in Pursat and Stung Treng: Implementation research	Cambodia	National Center for Parasitology, Entomology and Malaria Control	2016
Effectiveness of the intensified BCC/IEC application integrated with communication for behavioural impact (COMBI) for controlling and preventing against S. mekongi, STH, Opisthorchiasis and strongyloides	Cambodia	National Center for Parasitology, Entomology and Malaria Control	2015
Epidemiology of food-borne trematodes, especially opisthorchiasis, in risk populations of Chhaeb District, Preah Vihear Province, Northern Cambodia	Cambodia	National Center for Parasitology, Entomology and Malaria Control	2016
A small Scale Study to Test Housing Improvement as Supplemental Malaria Vector Control Strategy in Forested Area	Cameroon		2018
Field assessment of a recombinant Cs1 rapid dipstick for serodiagnosis of clonorchiasis in two main epidemic zones in China	China	National Institute for Parasitic Diseases, Shanghai	2015
Analysis on the feasibility of transmission interruption of soil-transmitted helminthiases by provinces in China	China	National Institute of Parasitic Diseases, China CDC	2016
Assess and improve economic burden of disease, depressive status and quality of life of leprosy patients in Guangdong province, China	China	Guangdong Provincial Center for Skin Diseases and STI control	2015
The effect of leprosy syndromic surveillance programme to improve early diagnosis of leprosy and decrease the economic burden of leprosy patients	China	Dermatology Hospital of Southern Medical University	2019
Application of CLIP-PCR to identify malaria submicroscopic infections to optimize the strategy for active case detection and support elimination in the China-Myanmar border region	China	National Institute for Parasitic Diseases, Shanghai	2015
Operations research on refinement of the strategies for malaria elimination in China-Myanmar border area	China	National Institute for Parasitic Diseases, Shanghai	2015
Assessment of malaria foci mapping in China after zero local transmission cases report	China	National Institute of Parasitic Diseases – China CDC Shanghai	2019





Project	Country	Institute	Year
Determination of the optimal time to take blood sugar measurements when screening tuberculosis patients for diabetes	China	International Union Against Tuberculosis and Lung Disease	2015
Using a network based eDOTS system to increase TB chemotherapeutical efficacy	China	Clinical Medical Research Institute, First Affiliated Hospital of Xinjiang Medical University	2015
Adapting the local “7” response package to consolidate the malaria elimination efforts through evaluation of the “1-3-7” system performance in the China–Myanmar border region	China	National Institute for Parasitic Diseases, Chinese Center for Disease Control and Prevention	2020
Assess malaria and dengue surveillance and health service utilization among African migrants in Guangzhou	China	Dermatology Hospital of Southern Medical University, Guangdong Provincial Center for Skin Disease and Sexually-transmitted Infection Control	2020
Survey of health care workers concerning their knowledge of syphilis and their diagnostic testing approach to the sexually-transmitted disease	Colombia	International Training and Research Center (CIDEIM), Cali	2014
Evaluation of the treatment and care TB cascade model among the indigenous population in Cauca-Colombia	Colombia	Department of Health of Cauca	2018
National Program for the Prevention and Control of Tuberculosis Facilitators Barriers for success or failure of MDR TB treatment	Colombia	National Institute of Health	2018
Contraceptive Use, Prenatal Counseling, and Abortion in the Context of Zika	Colombia	Red de Salud Ladera ESSE	2017
Response of health services in the clinical approach of pregnant women with Zika in two municipalities of Colombia 2015-2017	Colombia	Universidad de los Andes	2017
Knowledge and perceptions to family planning, concerns of the adverse pregnancy outcomes related to Zika virus, and health-seeking behaviour of services among women in Colombia	Colombia	Universidad CES Medellin	2017
Spatial distribution and temporal variation of risk of Zika virus infection in regions of Colombia during the 2015-2016 epidemic	Colombia	Universidad del Norte	2017
Identifying, characterizing and local policy adaptations for prevention, detection and care of Zika virus in 3 municipalities; its relation with the National Policy on Sexuality, Sexual Rights and Reproductive Rights	Colombia	Asociación Probienestar de la Familia Colombiana – Profamilia	2017
Medición de desigualdades sociales en la resistencia antimicrobiana de la Neisseria Gonorrhoeae en Colombia: un enfoque de investigación mixta	Colombia	Asociacion Profamilia	2020
Measurement of social inequalities in antimicrobial resistance against Neisseria Gonorrhoeae in Colombia: a mixed research approach			
Programa para la optimization del uso de antibioticos en instituciones prestadoras de servicios de salud del distrito de Barranquilla, Colombia	Colombia	Universidad Simón Bolívar	2020
Program for optimizing the use of antibiotics in service-providing institutions in the district of Barranquilla, Colombia			





Project	Country	Institute	Year
Preparatory investigation on reasonable mass deworming method by Albendazole for soil transmitted helminthiasis among the school-aged children	DPR Korea	Institute of Parasitology, Academy of Medical Science	2014
Study on molecular characterization of malaria vector species and their role in malaria transmission in DPR Korea	DPR Korea	Institute of Parasitology, Academy of Medical Science	2014
Assessing TB patient costs among TB/HIV patients and MDR-TB patients in Lao PDR	DPR Laos	National Tuberculosis Centre	2019
Virtual Community of Healthcare Facilities (VCHF): Optimization of Malaria Treatment (OMAT)	DR Congo	Ministère de l'Enseignement Supérieur, Universitaire et de la Recherche Scientifique, Kinshasa, DR Congo	2018
Estudio de la resistencia a fosfomicina y genes plasmídicos fos en aislados de E. coli resistentes a cefalosporinas de tercera generación en la cadena productiva de pollos de engorde y humanos en el Distrito Metropolitano de Quito, Ecuador  Study of antimicrobial resistance to fosfomycin and genes fos plasmids in isolates of E. coli resistant to third-generation cephalosporins in the chain production of broilers and humans in the Metropolitan District of Quito, Ecuador	Ecuador	Facultad de Medicina Veterinaria y Zootecnia, Universidad Central del Ecuador	2020
Causes and Distributions of Under-Five Mortality in Alexandria Governorate Using the Verbal Autopsy and Social Autopsy Studies Interview	Egypt	High Institute of Public Health	??
Estimating economic burden of HCV treatment strategies in Egypt, 2018–2025	Egypt	National Liver Institute, Menoufia University	2018
Economic analysis of HCV different screening algorithms in Egypt	Egypt	Ministry of Health	2018
Evaluation of PCR assay for detection of Schistosoma mansoni DNA in human stoolsamples	Egypt	High Institute of Public Health, Alexandria University	2017
Determinants of Schistosoma mansoni transmission in hotspots at late stage of elimination, Kafr El Sheikh governorate	Egypt	High Institute of Public Health (Educational Services)	2018
Cost effectiveness analysis of adopting Gene-Xpert (GX) in different regimens for the diagnosis of multi-drug resistant tuberculosis in Egypt	Egypt	National TB control Programme, MOHP, Egypt	2017
Assessing household catastrophic total cost of tuberculosis and their determinants in Egypt: A cohort prospective study	Egypt	Faculty of Medicine, Ain Shams University, Ministry of Health and Population of the Government of Egypt	2018
Impact of private medical practitioners' involvement on tuberculosis case notification to the National Tuberculosis Control Program in Gharbia governorate, Egypt	Egypt	Cairo Association against Smoking, Tuberculosis and Lung Diseases (CASTLE)	2018
A survey to estimate direct and indirect costs due to tuberculosis and proportion of tuberculosis-affected households experiencing catastrophic costs due to TB in Alexandria, Egypt	Egypt	High Institute of Public Health, University of Alexandria	2020
Acute Diarrhea: Major Bacterial causes and its Management Practices in Patients Attending Primary Health Care Facilities in Addis Ababa	Ethiopia		2018
Delay in Diagnosis of Smear Positive Pulmonary Tuberculosis and its Effect on Patient Treatment Outcome and Household Contact Transmission	Ethiopia	Department of Medical Laboratory Science, College of Health Sciences, Debre Tabor University, Debre Tabor, Ethiopia	2018





Project	Country	Institute	Year
Evaluation of Contact Investigation as a Strategy to Improve Tuberculosis Case Detection Among University Students	Ethiopia	Mycobacteriology Research Center, Jimma University, Jimma, Ethiopia	2018
Assessment of factors contributing to dengue mortality in Fiji, 2014	Fiji	Fiji National University	2016
Pathogènes Associés aux Diarrhées Chez L'enfant en Milieu Urbain Versus Rural Pathogens Associated with Diarrhea in Children in Urban Settings Versus Rural	Gabon		2018
Tuberculosis and Diabetes mellitus Co-morbidity in Gabon (TbDia)	Gabon	Bayode Romeo Adegbite currently works at the clinical operation, Cermel. Romeo does research in Clinical Immunology and Infectious Diseases.	2018
What can be done to improve treatment adherence among tuberculosis patients in Georgia: Looking through health systems lens	Georgia	Curatio Foundation, Georgia	2015
Community-based Case Identification, Management and Defaulter Tracing of Malaria and Hepatitis B Among Pregnant Women, Newborns and Children	Ghana	Department of Public Health, School of Allied Health Sciences, University for Development Studies, Tamale, Northern Region, Ghana	2018
Proposal for the development of an evidence-based antibiotics protocol for the Cape Coast Teaching Hospital using repeated point prevalence surveys and cumulative antibiogram data	Ghana	Cape Coast Teaching Hospital	2020
Management of cutaneous leishmaniasis: limitations to the access to treatment and role of community health workers in Alta Verapaz-Guatemala	Guatemala	University del Valle de Guatemala and Ministry of Health of Guatemala	2018
Mise en Place du Dépistage Actif de la Tuberculose Chez les Femmes Suivi pour PTME à Conakry Establishment of the Active Screening of Tuberculosis in Women Followed for Prevention of mother-to-child transmission in Conakry	Guinea	Comité National d'Ethique pour la recherche en Santé (CNERS), sise au quartier Almamyia près de l'Etat Major de l'Armée de Mer	2018
Implantação e Avaliação de Software para a Gestão de dados individuais de Pacientes de Tuberculose Software Deployment and Evaluation for Individual Data Management of Tuberculosis Patients	Guinea-Bissau		2018
Operationalization of the National Malaria Strategy in Guyana: A Pilot Project in Region 8 (Potaro-Siparuni) and its progressive scale-up to all malaria-endemic regions	Guyana	Vector Control Services - Ministry of Public Health of Guyana	2018
Treatment outcome of visceral leishmaniasis patients under single dose Ambisome treatment and factors affecting outcome in a highly endemic district of Bihar, India: A pharmaco-epidemiological study	India	Rajendra Memorial Research Institute of Medical Sciences (ICMR), Patna, India	2016
Tropical fevers: evaluation of efficacy of a protocol based management in pediatric emergency department	India	Department of Pediatrics, Postgraduate Institute of Medical Education and Research (PGIMER)	2014
Interface between community and the health system: A case study of Kyasanur forest disease - An emerging tropical disease in India	India	Indian Institute of Public Health, Hyderabad, India	2016
'Health Promoting School' model in prevention of vector borne diseases in India: an intervention study	India	Indian Institute of Public Health-Bhubaneswar	2014
Project Rupantar - transforming women's lives through health literacy and building provider competencies	India	Solidarity and Action Against The HIV Infection in India (SAATHII), Chennai, India	2016





Project	Country	Institute	Year
Strategic, operational and costing plan for collaborative implementation of a Malaria Control programme in a decentralized setting: participatory action research in 3 districts in Indonesia	Indonesia	Center For Tropical Medicine, Faculty of Medicine, Gadjah Mada University, Yogyakarta, Indonesia	2016
Cost of Hepatitis C Virus interfamilial screening in HCV seropositive injection drug abusers	Iran	Trauma Research Center, Medical Faculty, Guilan University of Medical Sciences, Rasht/Iran	2018
Prevalence of Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency in malaria endemic region of Iran (Sistan & Baluchestan Province): Epidemiological profile and trends over time	Iran	Health Promotion Research Center	2014
Remote, migrant and mobile populations and their related factors affecting malaria control and elimination in South-East of Iran	Iran	Health Promotion Research Center, Zahedan University of Medical Sciences	2017
Measuring the catastrophic cost of diagnosis, treatment, care and support on people and families affected by tuberculosis in Iran and Afghanistan	Iran	Social Determinants of Health Research Center, Guilan University of Medical Sciences, Rasht	2020
Maternal Perception and Behaviour related to Reproductive Health in the context of Zika in Jamaica	Jamaica	University of the West Indies, Mona	2017
Awareness and development of activities aimed to develop skills to contain antimicrobial resistance among the population	Kazakhstan	Karaganda State Medical University	2015
Antimicrobial resistance in a clinical hospital of a healthcare system of Almaty city	Kazakhstan		2019
Modified Assisted Partner Services (aPS) Model to Augment Screening, Diagnosis, Linkage and Retention to Care for HIV and Hypertensive Patients	Kenya		2018
Task Shifting HIV Testing Services to Resident and Non-resident Community Health Volunteers and People Living with HIV Among Slum Dwellers in Maina Village and Majengo in Laikipia County	Kenya		2018
Improved Identification and Treatment Outcomes for Snakebite Victims Through Community-Based Strategies in Baringo County	Kenya	Snakebite Rescue Rehabilitation and Research Centre, Snabirc, Kenya	2018
Study of the prevention and treatment of typhoid fever among residents of Kyrgyzstan uranium biogeochemical zones	Kyrgyzstan		2015
Prevalence and Antimicrobial Resistance of Mycobacterium tuberculosis among non-national citizens Residents and refugees in Lebanon: a nationwide study (PAR-MTB)	Lebanon	Laboratoire Microbiologie Santé et Environnement (LMSE), Doctoral School of Science Technology and Faculty of Public Health, Lebanese University, Tripoli, Lebanon	2017
Diagnostic Communautaire : Lutte Contre le Paludisme, la Diarrhee, la Tuberculose dans les Districts de Toamasina Ii et Mananjary	Madagascar		2018
Community Diagnosis: Fight Against Malaria, Diarrhea, Tuberculosis in Toamasina Ii and Mananjary Districts			
Factors contributing to dengue mortality in Malaysian government hospitals: nursing perspectives	Malaysia	Universiti Putra Malaysia	2015
An economic evaluation of tuberculosis diagnosis algorithms in Malaysia: an approach using dynamic transmission model	Malaysia	Monash University	2015





Project	Country	Institute	Year
Implementation and economic evaluation of Gamified mobile apps tool for improved treatment adherence among working-aged TB patients in Malaysia	Malaysia	Universiti Teknologi MARA (Department of Public Health Medicine, Faculty of Medicine)	2019
Environmental management as an ecological intervention in reducing Anopheles balabacensis population, vector of monkey malaria in Sabah	Malaysia	Department of Pathobiology and Medical Diagnostics, University Malaysia, Sabah	2020
Knowledge, attitude and practices of dengue among people in high prevalent island communities of Maldives	Maldives	Health Protection Agency	2014
Determining economic burden of dengue case management in the Maldives	Maldives	Aasandha, Pvt Ltd	2014
Outil D'évaluation de la Chimio-prévention du Paludisme Saisonnier Chez les Enfants Agés de 3-59 Mois au Mali: Clairance Parasitaire  Assessment Tool for Seasonal Malaria Chemoprevention in Children Aged 3-59 Months in Mali: Parasitic Clearance	Mali		2018
Cross-sectional study of pregnant women to determine the prevalence of the two pathogens in mothers and newborns and to generate epidemiological information capable of guiding disease prevention and control	Mexico	Autonomous University of Yucatan	2014
Field evaluation of a non-commercial ELISA test for the detection of anti-Zika virus IgM in the Yucatan Peninsula	Mexico	Fundacion Mexicana para la salud, Capitulo Peninsular A.C.	2017
Assessment of catastrophic expenses of families / households associated with treatment resistant TB (MDR-TB) in the Republic of Moldova	Moldova	National TB Control Programme Republic of Moldova	2015
The status of cystic and alveolar echinococcosis in Khovd Province of Mongolia	Mongolia	Mongolian National University of Medical Sciences	2015
Assessing the financial burden of tuberculosis for patients in Mongolia	Mongolia	National Center for Communicable Diseases	2015
Study for improvement of tuberculosis diagnosis among children using Xpert MTB/RIF in Ulaanbaatar	Mongolia	National Center for Communicable Diseases	2016
Cost-effectiveness and acceptability of a rapid diagnostic test for cutaneous leishmaniasis in Morocco	Morocco	École Nationale de Santé Publique (ENSP), Ministry of Health	2018
Comparative assessment of thermotherapy and minidose intra lesional Meglumine antimonials to improve access, safety, cost-effectiveness, and scarring outcome of Cutaneous Leishmaniasis treatment in Morocco	Morocco	Regional Directorate of Ministry of Health, El Ghessani Regional Hospital, Dhar Al Mehratz, Fez	2020
Avaliação da Morbilidade Associada À Schistosomiose em Indivíduos com Idade Igual ou Superior a 15 Anos, No Distrito de Chókwè  Evaluation of Schistosomiasis-Associated Morbidity in Individuals Aged 15 and Over, in Chókwè District	Mozambique		2018
Análise de Políticas de Controlo da Tuberculose e Perfil Epidemiológico da Infecção em Moçambique (2004-2016)  Analysis of Tuberculosis Control Policies and Epidemiological Profile of Infection in Mozambique (2004-2016)	Mozambique		2018





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Exploration of helminthic diversities including zoonotic helminthes with their associated risk factors in Shwe Kyin township, Myanmar	Myanmar	Department of Medical Research, Ministry of Health and Sports, Nay Pyi Daw, Myanmar	2016
Antimicrobial resistance: Exploring challenges to inform policy for evidence-based actions in Myanmar	Myanmar	Department of Medical Research, Ministry of Health and Sports Myanmar	2020
Diagnosis in rural Nepal community by stool sample of the soil transmitted helminthiasis Entamoeba histolytica, E dispar and E moshkovskii	Nepal	Kathmandu Center for Genomics and Research Laboratory (KCGRL)	2014
Implementation of Active Case Detection of visceral leishmaniasis/post Kala-azar dermal leishmaniasis along with leprosy through female community health volunteers in Sarlahi District, Nepal	Nepal	Public Health and Infectious Disease Research Center (PHIDReC), Kathmandu	2014
Stigma towards leprosy among adult living close to leprosy hospital and capacity building of health workers to implement stigma reduction program in Lalitpur, Nepal	Nepal	Manmohan Memorial Medical College and Teaching Hospital, Kathmandu, Lalitpur, Nepal	2016
Antimicrobial resistance patterns in poultry production system in Nepal: A pilot study	Nepal	Agriculture and Forestry University	2020
A multisectoral approach to investigate a burden of antimicrobial resistance in a sub-urban area of Nepal - A feasibility study	Nepal	Dhulikhel Hospital, Kathmandu University	2014
Operational One Health research to identify opportunities and barriers for implementing antimicrobial stewardship in dairy farming of Nepal	Nepal	Center for Health and Disease Studies, Nepal	2020
Effect of Training Community Members in the Detection and Referral of Buruli Ulcer Cases to Hospital in Ebonyi State	Nigeria		2018
Effect of M-Health Technology on Knowledge and Adherence to Isoniazid Preventive Therapy in HIV Clinics in Ebonyi State	Nigeria		2018
Community-Directed Implementation of Intermittent Preventive Therapy for Malaria in Pregnancy in Ebonyi State	Nigeria	African Institute for Health Policy and Health Systems, Ebonyi State University (EBSU), Abakaliki, Nigeria Department of Community Medicine, Federal Teaching, Hospital Abakaliki (FETHA), Ebonyi State, Abakaliki, Nigeria	2018
Implementation of Inclusive Community Action in the Diagnosis and Treatment of Malaria in Pregnancy and Childhood in Ebonyi State	Nigeria	Department of Community Medicine, Ebonyi State University Abakaliki, Ebonyi State, Nigeria African Institute of Health Policy and Health Systems, Ebonyi State University Abakaliki, Ebonyi State, Nigeria	2018
Generating Political Commitment for Onchocerciasis Control in Endemic Local Government Areas in Oyo State	Nigeria		2018
Communal Sustainability for the Administration of Medicines for Schistosomiasis and Soil Transmitted Helminthiasis Control	Nigeria		2018





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Improving TB Case Finding Using Community Involvement to Increase Uptake of Services in Akwa Ibom State	Nigeria		2018
Implementation of Community Participatory Monitoring & Evaluation of Insecticide Treated Net Interventions in 7 Rural Ebonyi State	Nigeria	African Institute for Health Policy & Health, Ebonyi State University, Abakaliki, Nigeria Department of Medical Microbiology/Parasitology, Faculty of Clinical Medicine, Ebonyi State University, Abakaliki, Nigeria	2018
Assessing importance of healthcare-setting adaptation of clinical guidelines for adherence and prudent antibiotic prescribing in hospitals with pilot interventions for sepsis, bronchopneumonia and urinary infections in children	North Macedonia		2019
Development of national surveillance system for antimicrobial resistance in <i>Campylobacter</i> spp.	North Macedonia		2019
HIV screening among tuberculosis patients in Sindh, Pakistan	Pakistan	Bridge Consultants Foundation	2017
Effects of vector-control interventions on changes in risk of malaria among pregnant women through community participation in Tharparkar district, Sindh province, Pakistan	Pakistan	District Development Association Tharparkar (DDAT), Ministry of Health, National Health Services Regulation & Coordination, Government of Pakistan	2018
Integrating smoking cessation interventions into Directly-Observed Treatment Short course (DOTS) under Provincial Tuberculosis control Program (PTP) to improve tuberculosis treatment outcome; an implementation research protocol	Pakistan	School of Public Health, Ojha Campus, Dow University of Health Sciences, SUPARCO road, Gulzar-e-Hijri, Karachi	2017
Is tuberculosis treatment truly free? A study to identify key factors contributing towards the catastrophic cost of TB care in Pakistan	Pakistan	Establishment of Environmental Health, National Institute of Health Islamabad, Pakistan	2018
Assessment for diabetes in patients with tuberculosis presenting at a tertiary care facility in Pakistan	Pakistan	Aga Khan University	2014
Comparative assessment of Sodium Stibogluconate Intralesional Therapy versus combination of thermal therapy with Sodium Stibogluconate Interlesional therapy for skin lesions in Cutaneous Leishmaniasis in Pakistan	Pakistan	National University of Medical Sciences, Rawalpindi	2020
Financial burden of Multi drug resistant tuberculosis on patients attending the PMDT sites in Pakistan	Pakistan	The Solution Pakistan (pvt)	2020
Fogging of <i>hyrax dens</i> by Pyrethroid derivatives: an attempt to control sand fly density in rural areas in the Occupied Palestinian Territories	Palestine (OT)	Leishmaniasis Research Unit, Jericho-Palestine	2018
Pilot project of community-based leprosy detection, diagnosis, treatment and management in two highly-endemic leprosy areas of Papua New Guinea	Papua New Guinea	Department of Health (National Health Services Standards Division)	2019
A novel program quality indicator Bundle to measure the tuberculosis (TB) care cascade during pilot and scale-up of the programmatic management of drug-resistant TB (PMDT) in Papua New Guinea	Papua New Guinea	The Macfarlane Burnet Institute for Medical Research and Public Health (Burnet Institute)	2015
Exploring reproductive health decisions under Zika's threat in Piura-Peru	Peru	Universidad Peruana Cayetano Heredia - Facultad de Salud Pública y Administración	2017





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Reproductive concerns and decisions of adolescent girls and adult women in the time of Zika: The role of long-term contraception	Peru	Universidad Peruana Cayetano Heredia	2017
FLOTAC technique as an alternative to Kato-Katz for the accurate detection of STH infections in low-endemic provinces in the Philippines	Philippines	Research Institute for Tropical Medicine	2015
Ending the parasite transmission cycle: Experiences in using community-led total sanitation (CLTS) as an approach in reducing soil-transmitted helminthiasis and schistosomiasis prevalence in rural community, the Philippines	Philippines	Research Institute for Tropical Medicine	2019
Comparison of Seroprevalence to the PGL-I 4Antigen between Areas with Low and High Incidence of Leprosy	Philippines	Skin Research Foundation of the Philippines, Inc	2015
Preventing malaria reintroduction towards complete malaria elimination - assessment of malaria microscopy competency of peripheral level microscopists in malaria-free provinces in the Philippines	Philippines	Research Institute for Tropical Medicine	2015
Optimization and testing of a questionnaire and the Ziehl-Neelsen technique for rapid identification of paragonimiasis foci in Zamboanga Region	Philippines	College of Public Health, University of the Philippines Manila	2016
Schistosomiasis in preschool-age children in the Philippines: opportunities for control	Philippines	College of Public Health, University of the Philippines Manila	2016
Establishment of a university-based surveillance system for animal schistosomiasis control in the Philippines	Philippines	Bureau of Animal Industry	2016
Development of an advocacy, communication and social mobilization plan for schistosomiasis control and elimination project	Philippines	University of the East Ramon Magsaysay Memorial Medical Center	2016
Evaluation of the feasibility and acceptability of an electronic mobile device-based application among private physicians in improving the reporting system to the TB DOTS program	Philippines	Research Institute for Tropical Medicine	2015
Tuberculosis case finding and case holding in selected public treatment and rehabilitation centers in the Philippines: a descriptive mixed methods study to inform national and institutional policy, program and practice	Philippines	College of Public Health, University of the Philippines Manila	2016
Assessing TB patient costs and treatment adherence in the Philippines by longitudinal data collection	Philippines	Nutrition Center of the Philippines	2019
Identifying facilitators and barriers to implementation of local tuberculosis control programmes: A multiple case study research in selected local government units of the Province of Laguna	Philippines	University of the Philippines Manila (College of Public Health)	2019
An integrative diagnostic approach in detecting human and animal schistosomiasis in situations of varying levels of prevalence in the Philippines	Philippines	Institute of Biology, College of Science, University of the Philippines, Diliman	2020
Performance evaluation of recombinant antigen ELISA for the detection of human schistosomiasis in endemic areas near elimination	Philippines	Department of Parasitology, College of Public Health, University of the Philippines, Manila	2020
The feasibility of using telehealth for training health care workers and persons with disability on integrated rehabilitation and prevention of impairments and disabilities of leprosy, lymphatic filariasis, diabetes, pressure ulcers, and other chronic wounds (TeleRPOID Project)	Philippines	Philippines Leprosy Mission	2020
Factors affecting the control of soiltransmitted helminth infections in pregnant and lactating women in selected areas in the Philippines in the time of COVID-19 and the new normal	Philippines	Department of Parasitology, College of Public Health, University of the Philippines, Manila	2020



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Assessment of Knowledge, Attitude and Practices Toward Podoconiosis	Rwanda		2018
Surveillance of health care-associated infections and antibiotic resistance in urban and rural secondary hospitals in Sierra Leone	Sierra Leone	College of Medicine and Allied Health Sciences, University of Sierra Leone	2020
Detecting and targeting residual malaria with enhanced geospatial surveillance tools in Western Province, Solomon Islands	Solomon Islands	Vector Borne Disease Control Programme, MOH	2015
Citizen Science for Mosquito Vector Surveillance in Solomon Islands	Solomon Islands	Solomon Islands National University	2019
Active Search of Visceral Leishmaniasis (VL) Endemic Focuses	Somalia	East Africa University	2020
The changing pattern of the dengue vector and the virus in a high risk area	Sri Lanka	Sirimao Bandaranaike Specialized Children's Hospital, Peradeniya	2014
Feasibility of adopting a protocol on tuberculosis contact screening for Kurunegala district tuberculosis control programme: implementation research	Sri Lanka	Provincial Department of Health Services, North Western Province, Kurunegala, Sri Lanka	2016
Entomological and socioeconomic determinants affecting Dengue prevalence in Kassala area, Sudan	Sudan	University of Khartoum	2014
Dengue and yellow fever viruses transmission risk factors assessment: vector surveillance study in Darfur/Sudan	Sudan	University of Khartoum	2014
Feasibility of provider-initiated HIV testing and counselling (PITC) in private healthcare sectors, Sudan 2018–2019	Sudan	FMOH International Health, National Training Activities, Ministry of Health	2018
Sand fly vectors composition in urban and peri-urban areas of Khartoum State in a region of cutaneous leishmaniasis transmission	Sudan	University of Khartoum	2014
Strengthening of visceral leishmaniasis (VL) control in Eastern Sudan	Sudan	Institute of Endemic Diseases, Sudanese National Academy of Sciences, University of Khartoum	2018
Assessing the burden of co-infection of malaria and Aedes-borne arboviral diseases in the Khartoum State, Sudan	Sudan	Institute of Endemic Diseases, University of Khartoum	2018
Geographic mapping and testing of mycetoma program expansion strategy in Sudan	Sudan	Mycetoma Research Centre, WHO Collaborating Centre on Mycetoma, University of Khartoum, Khartoum, Sudan	2017
Estimation of the risk factors associated with multi-drug resistance TB in Sudan	Sudan	National Public Health Laboratory, Federal Ministry of Health	2018
Determination of risk factors for severity and death from visceral leishmaniasis (VL) among seasonal migrant and resident agricultural workers in Gallabat	Sudan	Institute of Endemic Diseases, University of Khartoum	2020
Investigating the role of the newly introduced invasive Asian malaria vector Anopheles stephensi in malaria transmission in eastern Sudan	Sudan	Institute of Endemic Diseases, University of Khartoum	2020
Study of reasons that lead to infection with malaria and repeated infection with malaria among pregnant women, Elfaith Elnour Clinic, El-Obeid City, North Kordofan State, Sudan	Sudan	Faculty of Public and Environmental Health, University of Kordofan, El-Obeid, North Kordofan State	2020



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Occurrence of Malaria and Dengue co-infection and their vectors surveys in Kassala city, Sudan	Sudan	Medical Entomology Department, National Public Health Laboratory, Federal Ministry of Health, University of Khartoum	2018
Characterization of Moderate and Severe Anemia by Peripheral Blood Smear in HIV Infected Patients in the Kilombero and Ulanga Antiretroviral Cohort	Tanzania		2018
Factors Associated with Uptake of Measles-Rubella Vaccine Second Dose Among Children Aged 24–48 Months in Slums of Kinondoni Municipal Council, Dar es Salaam	Tanzania		2018
Evaluation of rodent bait treated with fipronil for feed through and systemic control of <i>Phlebotomus papatasi</i> as preventive measures against zoonotic cutaneous leishmaniasis	Tunisia	Institut Pasteur de Tunis	2014
Development and evaluation of a Loop Mediated Isothermal Amplification method for the diagnosis of Old world Leishmanian Tunisia	Tunisia	Institut Pasteur de Tunis	2014
Cutaneous and visceral leishmaniasis due to <i>L. infantum</i> in Tunisia: epidemiological investigation and experimental infectivity of viscerotropic and dermatropic strains	Tunisia	Faculté de Pharmacie de Monastir	2014
Development of a Behavioural Intervention to Foster Active Tuberculosis Case Finding and Retention in Care Among Migrants in Urban Slums in Kampala	Uganda		2018
Improved Performance of Community Health Extension Workers in Child Tuberculosis and Missed HIV Detection and Linkage to Care in Slum Settlements of Kawempe North in Kampala City	Uganda	Child and Family Foundation Uganda (CFU)	2018
Antibiotic resistance: Knowledge of people and AMR profile in <i>Staphylococcus aureus</i> population at the livestock-human-wildlife interface in Lake Mburo National Park, Uganda	Uganda	Makerere University, College of Veterinary Medicine, Animal Resources and Biosecurity	2020
One Health approach to identify local drivers of antimicrobial drug resistance in peri-urban Kampala, Uganda	Uganda	Joint Clinical Research Centre	2020
Antimicrobial consumption by ATC/DDD methodology for human and veterinary antimicrobials for the year 2018/2019 using medicine imports and local manufacture data at the Uganda National Drug Authority	Uganda	Makerere University Pharmacy Department, Makerere University College of Health Science	2020
Bacteriophage-based control of transmission and emergency of carbapenem resistant pathotypes of <i>Escherichia coli</i> and <i>Klebsiella pneumoniae</i> in Uganda	Uganda	Makerere University	2020
Analysis of tools that improve commitment of parents to immunization of children under the age of 7 (such as immunization against polio in Ukraine)	Ukraine		2015
New approaches to the diagnosis of the main clinical forms of enteroviral infections among adults and children	Ukraine	Zaporizhzhia State Medical University	2015
Analysis of the reasons for over-the-counter consumption of antimicrobials with the aim of further resolving the issue of their rational use	Ukraine		2019
Identifying awareness, practice and awareness raising among general practitioners, patients, farmers and dehkans about antimicrobial resistance issues	Uzbekistan		2019



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Ruta critica de las mujeres afectadas por el Zika y el ejercicio de los derechos sexuales y reproductivos en Venezuela Critical route of women affected by Zika and the exercise of sexual and reproductive rights in Venezuela	Venezuela	Asociación Civil de Planificación Familiar PLAFAM	2017
Social mobilization and communication-based intervention for dengue vector control in industrial zones of a southern province of Vietnam	Vietnam	Institute of Public Health, Ho Chi Minh City	2016
Survey the presence of schistosome <i>Schistosoma mekongi</i> and disease transmission intermediation in some residential communities in the basin of the Mekong River in the South of Vietnam	Vietnam	Institute for Malariology, Parasitology and Entomology (Ho Chi Minh City)	2015
Determine direct and indirect costs due to tuberculosis and to estimate proportion of TB-affected households experiencing catastrophic costs in Vietnam	Vietnam	Vietnam National Tuberculosis Program, National Lung Hospital	2016
Evaluate the feasibility of short regimen in latent tuberculosis infection treatment Evaluation of private sector outreach programs to improve TB case detection and reporting in Viet Nam	Vietnam	Viet Nam National Lung Hospital	2019
Application of mobile app to alert users to the risk of dengue fever	Vietnam	National Institute for Malariology, Parasitology and Entomology, Ministry of Health	2020
Assessment of a women-delivered, housewives-centred educational intervention for household control of <i>Aedes</i> mosquitoes in dengue-endemic areas in Hodeidah City, Yemen: A cluster-randomized controlled trial	Yemen	University of Science and Technology, Sana'a	??
Predictors of low use of Long-Lasting Insecticide Nets among communities within Malaria endemic areas in Yemen	Yemen	Sana'a University	2014
Prevalence of Glucose-6-Phosphate Dehydrogenase (G6PD) deficiency among school children and evaluation of a rapid diagnostic test for its detection in malaria endemic areas of Yemen	Yemen	Sana'a University	2014
Assessment of the burden of concurrent infections with malaria and dengue among febrile patients in Hodeidah governorate, Yemen	Yemen	University of Science and Technology, Sana'a	2018
Screening for <i>Onchocerca volvulus</i> antiOv16 IgG4 response among rural communities receiving community-directed treatment with ivermectin in endemic foci of onchocerciasis in Yemen to assess the interruption of transmission by detecting recent exposure	Yemen	University of Science and Technology, Sana'a, Yemen	2017
Knowledge of and adherence to the National Guidelines for Malaria Case Management: A survey among physicians in Sanaa & Aden private hospitals, Yemen	Yemen	Community Medicine and Public Health Department, Faculty of Medicine and Health Sciences, Aden University	2020
Multi-center estimation of the catastrophic costs associated with tuberculosis (TB) diagnosis and treatment in Yemen in the context of conflict	Yemen	University of Science and Technology	2020



