MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

MSF Scientific Days 18-20 May 2021

Abstracts and Speaker Biographies

Lebanon - COVID-19 Vaccination

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Conference Welcome

Javid Abdelmoneim

President, MSF UK Board of Trustees

Javid is an Emergency Medicine registrar working at Imperial College Healthcare NHS Trust in London. He is a Fellow of the Royal College of Physicians and has a Diploma in Tropical Medicine & Hygiene. He joined MSF in 2010 as a doctor and has worked in seven MSF projects in the Middle East, Africa, Haiti, and as part of MSF's Mediterranean Search and Rescue work. He also works in broadcast media, being a British Academy Film Awards, Grierson and Emmy nominated television presenter on health and science factual documentaries. Javid is currently Chair of the MSF UK Board of Trustees, a position he was appointed to in 2017.

Introduction & Welcome, Day 1

Vickie Hawkins

MSF UK Executive Director

Vickie Hawkins is the Executive Director of MSF UK. She started in her current role as Executive Director of MSF UK in 2014 and has now worked for MSF for nearly 23 years. After starting her career with Oxfam she applied to join MSF and was accepted as a Financial Coordinator for China with MSF. She went on to take a variety of roles, such as Project Coordinator, and Head of Mission in countries such as Pakistan, Afghanistan, and Zimbabwe. She became Head of the Programmes Unit at MSF UK in 2005, leaving for the field again in 2011 as Deputy Head of Mission in Myanmar, before returning to the UK once again to take on her current role.

Session 1, Day 1

Kamalini Lokuge

Lead, Humanitarian Health Research Initiative, Australian National University

Associate Professor Kamalini Lokuge leads the Humanitarian Health Research Initiative at the Australian National University. She is a public health physician and epidemiologist and has worked for MSF, the World Health Organisation and the International Committee of the Red Cross over the past 25 years in a range of humanitarian emergencies. Dr Lokuge and her team conduct operational research in partnership with communities and service providers to inform effective health service delivery and prevention. She is a member of Australia's National COVID-19 Health and Research Advisory Committee. Kamalini has been awarded the Medal of the Order of Australia and the Humanitarian Overseas Service Medal.

Session 2, Day 1

Tom Ellman

Director Southern Africa Medical Unit, MSF

Tom Ellman is director of the Southern Africa Medical Unit of MSF, based in Cape Town. The unit is responsible for medical support, training, and research in MSF's HIV and tuberculosis (TB) projects globally. Since first working for MSF in Rwanda in 1995, he has over 20 years of experience in humanitarian medical work, mostly with MSF. His main focus has been on HIV, TB, and malaria in Africa and south-east Asia, as well as a few years working on Chagas disease in Bolivia. Tom received his medical training in Edinburgh, and has a Masters in Communicable Disease Epidemiology from the School of Tropical Medicine and Hygiene, London. He is a retired beekeeper.

Animesh Sinha

HIV, TB & Hepatitis Advisor, MSF UK

Animesh is working as a HIV/TB/Hepatitis Advisor with the Manson Unit at MSF UK. He started his medical career in 2004 as a physician and emergency healthcare provider in remote areas of India with limited access to healthcare. He joined MSF in 2011 and worked in South Sudan, Uzbekistan, Chechnya, and Belarus. Animesh holds a medical degree from Armed Forces Medical College, India, and a Master's in Infectious Diseases from the London School of Hygiene and Tropical Medicine, UK. He is also an advocate for access to new drugs and regimens for drug-resistant tuberculosis patients.

Jerome Singh

Adjunct Professor in the division of Clinical Public Health, Dalla Lana School of Public Health, University of Toronto, Canada and Honorary Research Fellow at Howard College School of Law, University of KwaZulu-Natal, Durban, South Africa

Jerome Amir Singh is Adjunct Professor in the division of Clinical Public Health, Dalla Lana School of Public Health, University of Toronto, Toronto, Canada, and Honorary Research Fellow at Howard College School of Law, University of KwaZulu-Natal, Durban, South Africa. He serves as the Director of the Ethical, Legal, Social Issues (ELSI) Advisory Services for Global Health Research and Development. He currently serves as the Co-Chair of the Ethics Working Group of the HIV Prevention Trial Network (HPTN), and on several oversight bodies, including the International Ethics Review Board of Médecins Sans Frontières (MSF), WHO's Ad Hoc Research Ethics Review Committee for COVID-19, and WHO's Technical Advisory Group for COVID-19 vaccines.

Zipporah Ali

Executive Director, Kenya Hospices and Palliative Care Association

Dr Zipporah Ali is the Executive Director of Kenya Hospices and Palliative Care Association (KEHPCA). She is a board member of several organizations, including Alzheimer/Dementia Kenya, Kenya Network of Cancer Organizations, City Cancer Challenge, and Public Health Palliative Care International. She is a strong advocate for pain relief and palliative care across all ages. In her leadership role as the Executive Director for KEHPCA, she has been instrumental in fostering strong relationships with the Ministry of Health, Kenya to integrate palliative care into government hospitals. She has also been instrumental in advocating for palliative care to be integrated in undergraduate medical and nursing schools in Kenya and aims to foster the development of research on palliative care in Kenya. She is a recipient of several global awards including the British Council Alumni Award for Social Impact for the Sub-Saharan Africa Region (2018), International Humanitarian Award; Women For Africa (2018), Honorary Degree of Doctor of Laws-University of Dundee-2018, Individual Advocacy Award for commitment to palliative provision care in Africa (awarded by African Palliative Care Association and Open Society Foundations, 2013), Honorary Doctor of University, Oxford Brookes University, UK. in recognition of internationally acclaimed contribution to palliative care in Africa, and APCA award for contribution and commitment to palliative care in Africa (2007).

Session 2, Day 1

Sohana Sadique

Epidemiologist and study co-ordinator, MSF Bangladesh

Sohana is an Epidemiologist who has worked for the last two years as the Study Coordinator in Kamrangirchar, an MSF primary health care project based in one of the biggest slums in Bangladesh. She is involved in various studies including occupational health and safety intervention, community engagement modeling and Sexual and Gender Based Violence. She has diverse experience as a leader, manager and evaluator of public health and development programmes. Prior to her work with MSF, Sohana was actively involved in studies on non-communicable diseases, focused on Type 2 Diabetes. She received her bachelor training at the University of Dhaka and has a Master's degree in Public Health, majoring in Epidemiology from the North South University Bangladesh.

Vidya Raghaven

Director of Communications, New Concept Information Systems

With close to three decades of experience in the social sector, Vidya Raghavan works primarily on social and behaviour change communication (SBCC) in public health, nutrition, WASH and livelihood, with gender and rights as cross-cutting areas. She has led large multi-state SBCC projects involving implementation of outreach activities in remote rural and tribal areas. In the area of public health, she has been associated with several national level programmes such as the National Vector Borne Disease Control Programme, National TB Elimination Programme and the National AIDS Control Programme. As part of UKAID's support to visceral leishmaniasis (VL) elimination in India she led one of the largest communication outreach programmes covering 48 VL affected districts of Bihar, Jharkhand, West Bengal and Uttar Pradesh under the leadership of the KalaCORE Consortium.

She has been leading the Communication team of New Concept Information Systems for the last two decades and is the CEO cum Director of its not-for-profit arm - New Concept Centre for Development Communication.

Marion Stevens

Founding Director, Sexual and Reproductive Justice Coalition, South Africa

Marion Stevens has an academic background as a midwife, in medical anthropology and in public and development management. She has worked in the area of sexual and reproductive justice for over 30 years. Her work has included conducting participatory research, policy analysis and development and advocacy. She has worked with a range of stakeholders both locally and internationally. She is the outgoing founding director of the Sexual and Reproductive Justice Coalition in South Africa and PhD candidate SARChI Chair in Gender Politics, Department of Political Science, Stellenbosch University

Session 3, Day 1

Yap Boum

Epicentre representative for Africa

Prof. Boum is the current Epicentre representative for Africa, the research arm of MSF. Boum has an engineering degree in quality management, a Master's in microbiology, a Master's in public health, and a PhD in biology. For the last ten years, he has led several research activities into diseases affecting Africa such as malaria, tuberculosis, HIV, Ebola virus disease, and COVID-19. Prof Boum has co-founded Kmerpad, a social innovation that produces reusable sanitary pads for women and iDocta that provides quality healthcare by relying on technology to connect patients and health professionals.

Closing, Day 1

Dr Farhat Mantoo

General Director, MSF India

Farhat Mantoo, Chair Scientific Days Asia, joined Doctors Without Borders/Médecins Sans Frontières in 2003 as a member of field staff, and since then has been working in different capacities nationally as well as internationally. During the last 17 years she has worked in Asia (India, Afghanistan, Sri Lanka, Nepal, and Bangladesh), Europe, and East Africa (South Sudan, Somalia, and Kenya) with MSF and other organisations in management and leadership roles. She has a specialisation in medical anthropology, communication, hospital management and human resources, as well as being trained in humanitarian assistance linked to international humanitarian affairs. She serves on various international committees both within MSF and externally, and has co-authored publications under her title. She is currently the General Director of MSF India, a position held since March 2019. Her primary research interests are in the application and relevance of low-cost quality medical innovations and implementation of them in humanitarian medicine. This includes the implementation of technologies for measuring and motivating health-related behaviours, in order to deliver wider impact.

Introduction, Day 2

Petros Isaakidis

Senior Operational Research Advisor, Southern Africa Medical Unit, MSF

Petros Isaakidis is a medical doctor and holds a doctoral degree in epidemiology. He first joined MSF in 1997 as a field doctor. After several years studying, and doing clinical and epidemiological work he re-joined MSF in 2005. He coordinated medical programmes, especially large-scale HIV and tuberculosis (TB) projects, and supported evidence generation through field-based operational research. In 2012 he was appointed Senior Operational Research Fellow at the MSF Luxembourg Operational Research Unit and has mentored several participants at Structured Operational Research Training Initiative courses in Europe, Africa and South Asia. Since 2017 he has been working with the MSF Southern Africa Medical Unit in Cape Town as Senior Operational Research (OR) Advisor and OR Coordinator, supporting a large HIV and TB OR portfolio. He has contributed to more than 120 peer-reviewed publications, which have received more than 3000 citations.

Session 1, Day 2

Alexandra Rutishauser-Perera

Head of Nutrition, Action Against Hunger UK

Alexandra Rutishauser-Perera is the Head of Nutrition for Action Against Hunger, based in the UK. She has been working in the humanitarian field for the past 15 years with a focus on the field of public health nutrition in diverse settings, including emergency and development contexts, within more than 20 countries across Africa and Asia. She has worked with various non-governmental organizations, such as MSF, International Medical Corps, and Save the Children before she joined Action Against Hunger-UK. She is a guest lecturer at five UK universities. She manages a team of nutrition assessment and research specialists and is, amongst others, a member of the strategic advisory groups of the Global Nutrition Cluster and co-chairs the Global Nutrition Cluster Technical Working Group on Nutrition Information Systems.

Session 2, Day 2

Nathan Ford

Scientist, Department of HIV, World Health Organisation

Dr Nathan Ford, MPH, PhD, FRCPE is a scientific officer with the Department of HIV/AIDS, Viral Hepatitis, and Sexually Transmitted Infections at the World Health Organization (WHO) in Geneva, and Chair of WHO's Guidelines Review Committee. Prior to joining WHO in 2012 he worked with MSF for 14 years, supporting HIV programmes in a number of countries in southern Africa and southeast Asia. He holds a degree in Microbiology and Virology, a Master's in Public Health and Epidemiology, and a PhD in Clinical Epidemiology, and is a Fellow of the Royal College of Physicians of Edinburgh. He has published over 450 peer-reviewed publications and is an editorial adviser for Clinical Infections Diseases, The Cochrane Infectious Diseases Group, Conflict and Health, JAIDS, JIAS, Public Health Action, Tropical Medicine and International Health, and the WHO Bulletin.

Session 3, Day 2

Valentina Buj de Lauwerier

Global Malaria and Health Partnerships Advisor, UNICEF

Valentina Buj de Lauwerier is global malaria and health partnership advisor at UNICEF. Since 2008, she has worked to assist countries to continue scaling up integrated malaria interventions and works to foster greater harmonization among global malaria initiatives. Mrs. Buj de Lauwerier spends much of her time working in malaria-endemic countries, such as the Democratic Republic of Congo, Angola, Kenya, Madagascar, Cameroon, and Mozambique, where she supports countries in the development and implementation of UNICEF's Global Fund grants for malaria as well as with the coordination and distribution of long-lasting insecticidal nets, anti-malarials, malaria diagnostics, intermittent preventive treatment during pregnancy, seasonal malaria chemoprophylaxis, integrated community case management, and the development of supportive community and health systems.Prior to joining UNICEF, Mrs Buj de Lauwerier worked for the World Health Organization's Global Malaria Programme, the International Rescue Committee, the International Organization for Migration and the United Nations Development Programme. She earned a master's degree in Public Health, focused on malaria control in refugee populations, as well as a master's degree in International Affairs, focused on Economic and Political Development and Refugee Law, both from Columbia University. She is working toward a Doctor of Philosophy in Epidemiology at the Swiss Tropical and Public Health Institute (University of Basel) focused on improved delivery of malaria interventions in difficult contexts.

Closing, Day 2

Kiran Jobanputra

Head of the Manson Unit, MSF UK, and Deputy Medical Director, MSF Operational Centre Amsterdam

Kiran Jobanputra is a medical doctor specialising in Family Medicine and Public Health. He has worked as a field doctor and medical coordinator for MSF since 2007, with a focus on HIV and chronic disease. He is currently Head of the Manson Unit, MSF UK, and Deputy Medical Director of MSF's Operational Centre Amsterdam.

High levels of mortality above the emergency threshold, Central African Republic: population-based mortality survey, 2020

*Eve Robinson[1], Lawrence Lee[1], Leslie Roberts[2], Aurelie Poelhekke[3], Xavier Charles[1], Nell Gray[4], Adelaide Ouabo[1], Jorieke Vyncke[4], Cono Ariti[5], Mariette Claudia Adame Gbanzi[6], Martial Tanguy Ouakouma[7], Maura Daly[3], Kate White[3], Sam Templeman[3], Mia Hejdenberg[8], Maaike Hersevoort[1], Sibyl Jade Pena[8], Monique Pereboom[3], Anna Kuehne[4,8]

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Introduction

The Central African Republic (CAR) has the second-lowest human development index globally and has long been described as being in a state of "silent crisis". We planned a nationwide study to obtain reliable and comparable mortality data for CAR. Due to the COVID-19 pandemic, only the survey in Ouaka Prefecture proceeded.

Methods

We conducted a two-stage cluster mortality survey between 9 March and 9 April 2020. We aimed to include 64 clusters of 12 households each, for a target sample size of 3,636 persons. We assigned clusters to communes proportional to population size and used systematic random sampling to identify cluster starting points from a dataset of buildings in each commune. We used a novel approach by: focusing on mortality only; adding an opening question about challenges experienced in the last year to build rapport and document general difficulties; and, for females aged 10-49 years, we included specific pregnancy-related questions to improve detection of neonatal and maternal deaths, and to estimate birth rate. The recall period ran from 26 May 2019 to the interview day (range 289-320 days). We coded reported challenges using a content analysis approach.

Ethics

This study was approved by the MSF Ethics Review Board (ERB) and the national ERB of CAR.

Results

We reached 50 clusters, including 591 participating households with a total of 4,272 individuals. We identified 160 deaths. Crude and under-five mortality rates (CMR, U5MR) were 1.33 (95% confidence interval, CI, 1.09-1.61) and 1.87 (95%CI 1.37-2.54) deaths/10,000 persons/day, respectively. The most common specified causes of death (COD) for individuals aged >5 years were violence (16.7%; n=20; 95%CI 7.7-32.5) and malaria/fever (9.9%; n=11; 95%CI 5.9-16.2). Amongst children aged <5 years, the most common causes were malaria/fever (30.5%; n=15; 95%CI 17.8-47.1), diarrhoea/vomiting (24.0%; n=11; 95%CI 11.9-42.7), neonatal deaths (11.9%; n=6; 95%CI 5.3-24.7), and respiratory infections (6.8%; n=3; 95%CI 2.1-20.1). Amongst females aged 10-49 years, 29.1% (95%CI 26.4-31.9%) were pregnant during the recall period. The birth rate was 59/1,000 population (95%CI 51.7-67.4), and the maternal mortality ratio was 2,525/100,000 live births (95%CI 825-5,794). Reported challenges included concerns about specific illnesses, access to healthcare, bereavement, lack of safe drinking water, insufficient means of subsistence, food insecurity, and violence.

Conclusion

Mortality indicators seen here exceed previous estimates, and the CMR is above the humanitarian emergency threshold. New methods used in this study may have improved data completeness and quality. Violence is a leading COD, while other causes highlight poor living conditions and difficulties accessing healthcare and preventive measures; these findings are consistent with reported challenges. The high MMR, despite its lack of precision, alongside the high neonatal death rate and birth rate, call for accessible reproductive healthcare. If our results are generalisable to other regions of CAR, national mortality rates would be among the highest globally. The planned nationwide study should proceed as soon as feasible.

Conflicts of interest

None declared.

Eve Robinson

Eve is a public health physician and epidemiologist from Ireland. She worked as a field epidemiologist for MSF's Operational Centre Amsterdam in the Central African Republic for 15 months in 2019 and 2020.

Knowledge, attitudes, practices and behaviour of maternity ward staff in relation to comprehensive abortion care in a conflict-affected setting, Bangui, Central African Republic: cross-sectional survey

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Introduction

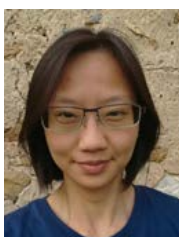
Abortion-related complications remain a major cause of maternal mortality worldwide. The Castor Maternity Unit (CMU) in Bangui, CAR, serves nearly 500,000 people affected by chronic armed conflict. The country's maternal mortality ratio (890/100,000 live births) is among the world's highest. Abortion-related complications are a major cause of maternal death in the country and a substantial contributor to CMU admissions. To understand factors contributing to the magnitude and severity of abortion complications in this setting, we carried out a knowledge, attitudes, practices, and behavior (KAPB) survey among CMU health professionals.

Methods

A cross-sectional quantitative survey was done using a self-administered questionnaire to all physicians, midwives, and nurses providing post-abortion care (PAC) in CMU, asking questions about PAC, contraception, and safe abortion care (SAC). We used descriptive analysis to present frequencies and proportions.

Ethics

This study was approved by the CAR Ethics Committee, the Institutional Review Board of the Guttmacher Institute, and the MSF Ethics Review Board.



Hui-Wu Chen

Hui-Wu Chen is the multi-site research coordinator for the AMoCo study (abortion-related morbidity and mortality in conflict-affected or fragile settings). Taking an unusual path from Taiwan to France, Hui-Wu joined Epicentre in 2019. Trained as a medical doctor and epidemiologist, she has also crossed into roles as an amateur anthropologist and solo backpacker.

Results

The provider response rate was 94% (84/89). Personal experience with unsafe abortion was common: 89% (n=75) of respondents knew someone personally who had died from an unsafe abortion. Almost 70% (n=56) considered access to SAC to be every woman's right. Correct knowledge of the legality of abortion in CAR varied between 48-80% (n=40-67). Most of the respondents (n=47; 56%) reported having referred at least one woman for SAC. A question about providers' conscientious objections to providing SAC found that 76% (n=59) noted strong agreement with the statement that health professionals should refer patients to another provider if they had objections to SAC provision. More than 90% (n=75) considered PAC to be every woman's right. Despite a significant caseload of severe complications linked with abortion, only 21% of respondents (n=18) correctly identified the WHO near-miss criteria, which diagnose very severe abortion complications. Additionally, while dilatation and curettage is currently not recommended by clinical guidelines, 44% of respondents providing PAC (n=27) stated they were still using this method, at least some of the time. Contraception was provided by 85% of respondents (n=71) without issue but a smaller proportion (n=49; 59%) stated overt support when asked if they would provide contraception to minors without parental consent. While 76% (n=64) of respondents were trained in implant insertion, only 30% (n=26) were trained in inserting intrauterine devices.

Conclusion

CMU healthcare professionals were generally supportive of PAC, contraception and SAC. Nevertheless, we still found shortcomings in their knowledge and practices. Although limited by small sample size, the high response rate does permit drawing recommendations for this maternity unit. Innovative approaches for continuing education and capacity-building are needed, which could include workshops exploring values and attitudes about abortion, alongside efforts to simplify near-miss approaches, and training on all contraception methods to provide for women's personal preferences. These could improve the facility towards provision of the full range of comprehensive abortion care.

Conflicts of interest

None declared.

Engaging men in preventing sexual violence in South Sudan and the Central African Republic: a qualitative study

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Introduction

Sexual violence remains commonplace in conflict settings and has a devastating impact on the physical and mental health of survivors. We built on previous research by the ICRC, examining local norms and values surrounding violence, by focussing on how young men and their communities perceive sexual violence and its prevention. The ICRC seeks to protect and assist people affected by armed conflict and other situations of violence, and has been present in South Sudan since 1980 and CAR since 1983.

Methods

We carried out a qualitative study, including 79 interviews and 16 focus group discussions. Participants included purposively selected young men and women (aged 15-33 years); community leaders (such as chiefs, cattle herders, traditional court members and health-care providers), and key informants with expertise in the field of sexual violence. Sites in South Sudan (Unity and Lakes States) and CAR (Bangui) were chosen because of the ICRC's ongoing presence and the availability of referral services if required. Interviews and focus groups were conducted in French, English, Sango, Arabic, Nuer, and Dinka, transcribed and translated before being coded and thematically analysed using NVivo. Informed consent/assent was obtained from all participants.

Ethics

This study was approved by the ICRC Ethics Review Board, the Comité Ethique et Scientifique of the University of Bangui, CAR, and by the Institutional Review Board of the Ministry of Health, South Sudan.

Results

Findings from both countries linked male perpetration of sexual violence with prolonged conflict and insecurity; the presence of weapons; a weak justice system and impunity; revenge and punishment, and strong gendered norms and ideas around masculinity. Some men believed that women were to blame because of their behaviour or clothing. Participants saw the need to engage young men and their communities in prevention activities, but few were able to reflect upon their potential individual role in this. Strong community values and a sense of male responsibility were present in all study sites, and involving male leaders was believed to be essential for prevention activities. Interviewees in both countries suggested that providing information about HIV could be an entry point to talking about sexual violence with potential perpetrators.

Conclusion

Studies on sexual violence often understandably focus on survivors, and this is the first time the ICRC has conducted qualitative research of this kind with young men. Results, including discussions around local norms of masculinity, will contribute to and serve to strengthen existing sensitisation sessions and dialogue on the prevention of sexual violence. Strengthening existing partnerships with other actors is also essential. Whilst we found that participants were willing to discuss sexual violence, some may have been uncomfortable sharing their thoughts with the research team.

Conflicts of interest

None declared.

Emilie Venables

Dr Emilie Venables is an anthropologist with over 15 years of research experience. She has worked in contexts including Liberia, South Africa, Lebanon, DRC, Italy, Greece, Mozambique, Cambodia, and Kenya on issues such as Ebola, HIV/AIDS, tuberculosis, migration, torture and malaria. Emilie holds a PhD and MSc in African Studies from the University of Edinburgh, an MSc in Development Studies from the School of Oriental and African Studies, and a BA in Social Anthropology from the University of Cambridge.Emilie worked for MSF as an anthropologist and qualitative researcher with the South African Medical Unit and MSF's Luxembourg Operational Research Unit between 2012-2019. She then joined the International Committee of the Red Cross (ICRC) as an operational researcher in the Centre for Operational Research and Experience and is currently based in Geneva. She is a member of the ICRC Ethics Review Board.

Community perceptions of COVID-19 prevention and control measures in Nigeria and Sierra Leone: multi-site, community-led qualitative study

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Introduction

In April 2020, "shielding" (separate living spaces with enhanced infection control support for groups at high risk of severe COVID-19 disease), was proposed for COVID-19 prevention in settings where lockdown is not feasible (i.e. displaced persons camps). MSF used qualitative methods to explore community perceptions of shielding and other potential COVID-19 prevention measures applicable in settings where it works. Nigeria and Sierra Leone served as initial pilot sites for this multi-site study that ultimately included 13 countries.

Methods

We carried out qualitative assessments between April and August 2020 within 9 MSF-supported sites in Nigeria and Sierra Leone, with the aim of exploring community perceptions of potential COVID-19 prevention measures. Sites in Nigeria included internally displaced camps in two states, and in Sierra Leone, an open village setting. We conducted multiple rounds of participant-led individual in-depth qualitative interviews in the study sites between April-August 2020. We recruited participants purposively, ensuring participants recruited were representative of underlying demographic and ethnic diversity. Data were coded by hand on paper copies of transcripts and in NVivo12 and analyzed for key themes. Findings were built on through iteration with participants.

Ethics

This study was approved by the MSF Ethics Review Board and by the Ethical Review Boards of Benue State, Nigeria, Zamfara State, Nigeria, and the District Health Management team, Tonkolilli, Sierra Leone.

Results

Participants reported that access to both COVID-19 and non-COVID-19 care was challenging due to fear of infection and practical difficulties attending care facilities. Key priorities noted by participants included obtaining food, masks and handwashing, and continuing to get access to non-COVID-19 healthcare. In Nigeria, shielding (providing separate dwellings for high-risk people) was described as a challenge. Reasons for this included close living conditions affecting practicality, its impact on mental health, and the community's inter-generational reliance. Shielding was only seen as feasible with sustained provision of resources for shielded persons including COVID testing, food from the family, mobile phones, and socially distanced visitation. For Sierra Leone, previous experiences (e.g. war, Ebola) influenced fears of separation and the possibility of infection from contact with strangers and health workers or health facilities. Lockdowns and school closures have a negative effect on support networks and local economies, and in Sierra Leone increased the perceived risk of sexual and gender-based violence and exploitation. Participants reported the desire for self-management of contact tracing and transmission prevention activities within their communities. Context-specific activities to address these priorities were implemented in response.

Conclusion

The community-based feedback provided a better understanding of attitudes towards and feasibility of COVID-19 control measures. Commonalities were reported across sites, while differences in findings across sites highlighted the importance of context-specific engagement. Early and continued community engagement allowed context-specific activities to address these priorities to be implemented in partnership with communities in response. Implemented activities included enhancement of handwashing points, subsidizing locally-produced cloth masks, and reinforcement of prevention and control for non-COVID diseases such as malaria.

Conflicts of interest

None declared.

Emily Briskin

Emily Briskin is currently an MSF Operational Research Advisor where she coordinates and conducts research with a focus on paediatric health and surgical interventions. She was previously the Flying Epidemiology Activity Manager for some of MSF's Nigeria field projects. Prior to working for MSF, Emily worked as a malaria research epidemiologist for the Clinton Health Access Initiative in Kampala, Uganda. Emily completed a Master's in Public Health focusing on epidemiology of infectious diseases and global health at Yale University in the United States.

Aminu Mohammed Anka

Aminu Mohammed Anka worked with the World Health Organization (WHO) as a local government area (LGA) facilitator in Nigeria from 2012-2015 before joining MSF in 2015-2016 as a Nutrition Assistant Supervisor. After further study whilst working for the African Field Epidemiology Network (AFENET) he rejoined MSF again in 2019 as the Health Promotion Manager in the Zamfara Secondary Healthcare Project, Nigeria, which is his current position.

Estimation of SARS-CoV-2 infections and deaths among Rohingya refugees, Kutupalong-Balukhali camps, Bangladesh

Shaun Truelove[1*], Sonia Hedge[1], Natalya Kostandova[1], Laurie Niehaus[1], *Bhargavi Rao[2], Julianna Smith[3], Philipp du Cros[4], Chiara Altare[1], Andrew Azman[1, 5], Paul Spiegel[1]

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Introduction

Since the emergence of the COVID-19 pandemic, concerns have arisen regarding the potential impact of outbreaks affecting Rohingya refugees living in the Kutupalong-Balukhali refugee camps in Bangladesh. Early modeling work projected substantial outbreaks of SARS-CoV-2 virus were likely within the camps. However only 435 laboratory-confirmed cases and 10 deaths were reported from 14 May 2020 through 19 March 2021. While these official numbers imply spread of SARS-CoV-2 has been controlled, other data are contradictory, highlighting a population unwilling to seek care or be tested. Surveys from slums in India and Bangladesh suggest seroprevalence rates of 45% and 75%. Here we use multiple data sources to evaluate whether SARS-CoV-2 outbreaks may in fact have been larger than previously thought among Rohingya refugees in the Kutupalong-Balukhali camps.

Methods

We used a mixed-methods approach to analyze SARS-CoV-2 transmission in the Kutupalong-Balukhali refugee camps using multiple datasets. We developed a probabilistic inference framework to assess support for three hypotheses of how variability in care seeking and testing might alter the interpretation of official case and testing data. We estimated weekly numbers of infections among the Rohingya refugees using official reported case and testing data, data on acute respiratory infections (ARI) from WHO's Emergency Warning and Response System, probability of SARS-CoV-2 PCR test among ARI cases at MSF health centres, and data from a serological survey conducted in Dhaka. Separately, we assessed compatibility with suspected COVID-19 among deaths identified through an International Organization for Migration (IOM) mortality survey among the Rohingya during April–July 2020. We compare these deaths to the inference model results to identify consistency between sources and methods.

Ethics

This study fulfilled the exemption criteria set by the MSF Ethics Review Board (ERB) for a posteriori analyses of routinely collected clinical data and thus did not require MSF ERB review. It was conducted with permission from Dr Kiran Jobanputra, Operational Centre Amsterdam, MSF.

Results

Under our probability framework, each hypothesis suggests a substantial outbreak occurred, though size and timing vary substantially. Under hypotheses accounting for declines in willingness to seek care, the data suggest a large outbreak occurred in spring 2020, with up to 400,000 infections, or 47% of the population, and 390 deaths occurring during April-December 2020. These findings were consistent in both timing and magnitude of the outbreak estimated separately from deaths identified by the IOM survey, including 47 unreported deaths consistent with suspected COVID-19 and up to 370 suspected COVID-19 deaths after adjusting for sampling. These deaths coincided temporally with spikes in reported cases and test-positivity rates during June 2020 and with increased contact during Ramadan.

Conclusions

Despite the low numbers of reported cases and deaths, we suggest an early large-scale outbreak is consistent with the reported data, with the outbreak remaining unobserved because of reduced care-seeking behavior and low infection severity among this population. Current data do not permit precise estimation of incidence, but results do suggest substantial unrecognized transmission of SARS-CoV-2 within the camps. However, confirmation will await more conclusive evidence from serological testing.

Conflicts of interest

None declared.

Shaun Truelove

Shaun Truelove is an Assistant Scientist at the Johns Hopkins Bloomberg School of Public Health, in the Departments of International Health and Epidemiology. Dr. Truelove's work mainly focuses on the impact of vaccination and understanding the potential for outbreaks in various settings. His research specifically focuses on SARS-CoV-2, measles, rubella, and diphtheria and involves infectious disease dynamics, modeling, and methods development. His work is done as part of the Johns Hopkins University International Vaccine Access Center, Infectious Disease Dynamics group, and Center for Humanitarian Health. A large part of his work focuses on understanding infectious disease risk in vulnerable populations, including refugees and displaced populations. During the COVID-19 pandemic he has been engaged with the United Nations High Commissioner for Refugees, United Nations Office for the Coordination of Humanitarian Affairs, and MSF, to better understand pandemic risk in various camp settings. He holds a PhD in epidemiology from the Johns Hopkins Bloomberg School of Public Health.

Optimising malnutrition treatment in children 6-59 months: primary outcome of a randomized trial, Democratic Republic of Congo

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Introduction

The Optimising MAlnutrition treatment (OptiMA) strategy aims to simplify current malnutrition treatment protocols for children with mid-upper arm circumference (MUAC)<125mm or oedema, by supplementing with one product—ready-to-use therapeutic food (RUTF), using gradually reducing doses as a child's weight and MUAC increases.

Methods

This non-inferiority, randomized controlled trial was conducted in Kasai province, Democratic Republic of Congo (DRC). It compared the OptiMA strategy with the effective standard DRC protocol, using increasing weight doses of RUTF for treating severe acute malnutrition (SAM) and ready to use supplementary food (RUSF) at fixed dose for moderate acute malnutrition. Children aged 6–59 months with MUAC<125mm or weight-for-height Z score<–3 or oedema, and without medical complications, were randomized to either OptiMA or the standard protocol, and followed up for six months. Primary outcome was a composite indicator at 6 months' follow-up: child alive, not acutely malnourished per the study definition, and without any additional episode of acute malnutrition throughout the observation period. Non-inferiority was determined if the upper boundary of the 95% confidence interval (CI) for the difference between randomized arms in the proportion of children with favourable outcome was less than 10%, for both intention-to-treat (ITT) and per-protocol (PP) analyses. Superiority was determined if the upper boundary of the 95% CI for this difference was lower than 0%.

Ethics

This study was approved by the National Congolese Health Ethics Committee and by the Ethics Evaluation Committee of Inserm, the French National Institute for Health and Medical Research. ClinicalTrials.gov number, NCT03751475.

Results

Between July 2019 and July 2020, 981 children were enrolled. 896 children were included in ITT analysis, with 450 in the OptiMA arm and 446 standard; 792 were included in PP analysis. Over the entire follow-up, 450 (100%) children under OptiMA received RUTF treatment while under the standard protocol, 315 (71%) received RUTF or RUSF or both. ITT analysis found that 325 (72.2%) children had favourable outcome under OptiMA versus 282 (63.2%) in the standard arm (difference: -9.2%, 95%CI -15.9% to -2.0%). Under OptiMA, weight gain was greater (median weight gain, 1700g versus 1600g, p= 0.003), the nutritional treatment consumption lower (median of 64 of RUTF versus 102 sachets of RUTF/RUSF under standard; p= 0.018). Median time to recovery (ie, MUAC>124mm without oedema for two consecutive visits) was lower under OptiMA than under standard: 5 weeks (95%CI 5–5) versus 9 weeks (95%CI 8–10), p<0.001. We did not observe a difference in hospitalization rates (10% OptiMA, 7% standard, p=0.228) or mortality rates (0.2% in both arms).

Conclusion

OptiMA led to better anthropometric status over a six-month period and expanded access to treatment, whilst the standard protocol partially addressed global acute malnutrition with higher consumption of nutritional products used in the trial. Our findings suggest it may be beneficial to address global acute malnutrition in one program using one product at a gradually adjusted dose.

Conflicts of interest

None declared.

Cécile Cazes

Cécile Cazes is the scientific project leader of the OptiMA-DRC trial, based at the University of Bordeaux, France. She joined the Clinical & Operational Research Alliance, a partnership between the Alliance for International Medical Action and INSERM, France's national medical research institute, three years ago. She is currently conducting a PhD on OptiMA, a simplified and optimized approach for treatment of malnutrition in children. Previously, Cécile worked as a project coordinator and medical coordinator with MSF and other non-governmental organizations, mainly in West and Central African settings, and as nurse in French Guyana.

Optimal mid-upper arm circumference-based discharge criteria for community-based-management of severe acute malnutrition in India: a randomized controlled non-inferiority trial

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Introduction

Most interventions for community-based management of severe acute malnutrition (CM-SAM) worldwide utilise mid-upper arm circumference (MUAC) <115mm for eligibility and ≥125mm for discharge. However, this discharge criterion is based on very limited evidence, with no data from the Indian subcontinent. India, home to over one-third of malnourished children globally, provides facility-based care based on weight-for-height with no guidelines for CM-SAM. Previous observational data suggests relapse in children reaching ≥120mm is similar to that for ≥125mm, whilst duration of treatment required to achieve ≥125mm is nearly doubled, with higher default rates. This trial in the state of Jharkhand, India investigated whether discharge with MUAC ≥120mm is non-inferior to MUAC ≥125mm for risk of relapse to SAM or death.

Methods

We conducted a multicentre randomized controlled non-inferiority trial for SAM children aged between six and 59 months across 46 centres in Jharkhand, India. Over 12 months, children with MUAC<115mm and without oedema at admission were randomly allocated to be discharged either at MUAC ≥120 mm or MUAC ≥125mm. Endpoints were status at three months (primary) and six months (secondary) after reaching their allocated discharge MUAC. Non-inferiority was concluded if the upper bound (UB) of a one-sided 95% confidence interval was within a pre-defined 13% margin, based on pragmatic operational indicators.

Ethics

This study was approved by the MSF Ethics Review Board and by the Ethical Review Boards of the Rajendra Institute of Medical Sciences, Ranchi and Jawaharlal Nehru University, New Delhi, India, and London School of Hygiene & Tropical Medicine, UK. Clinical Trials Registry – India number, CTRI/2017/12/010743.

Results

Of 633 children enrolled, 316 were allocated to the standard of care arm (discharge at ≥125mm) and 317 to the ≥120mm arm. No significant clinical-epidemiological differences were detected between cohorts not reaching their allocated discharge MUAC, however there was a higher proportion of treatment non-response (17.5% vs 9%) in the 125mm arm. Of 194 and 236 children reaching discharge criteria in each arm respectively, 176 and 216 were eligible for intention-to-treat analysis. For the standard of care arm, 42% of children were male, with a mean age of 12.6 months (standard deviation, SD; 7.9); for the ≥120mm arm, 41% were male, with a mean age of 12.1 months (SD; 7.1). Overall, non-inferiority was observed within three months; unadjusted risk difference (RD) 6.4%, 95% UB=11.6%, ≥125mm: n=14 (8.0%; 14 relapse, 0 death), ≥120mm: n=31 (14.4%; 30 relapse, 1 death). In pre-specified stratified analyses, non-inferiority was observed in children with MUAC 110-114mm at enrolment (N=285, RD 2.0%, 95% UB 7.5%); however, inferiority was observed with MUAC<110mm (N=107, RD 17.5%, 95% UB 29.0%). In stratified secondary outcome analyses at six months, conclusions were similar.

Conclusion

Using a non-inferiority margin of 13%, results support ≥120mm as a discharge criterion in children admitted with MUAC 110-114mm, but not in those with MUAC<110mm. This margin in children discharged earlier needs to be balanced against greater capacity for programmatic coverage. Considering over two-thirds of children are admitted with MUAC 110-114mm, defining discharge criteria by admission MUAC may have important implications on increasing capacity and cost-effectiveness of CM-SAM programming in India.

Conflicts of interest

None declared.

Elisa Marino

Elisa Marion is a Public Health Nutritionist, specialising in the field of emergency nutrition and child undernutrition. She held several positions with MSF and other organisations focusing on the management and implementation of programmes, surveys and operational research studies in the field of nutrition. In her last role she was the nutrition advisor for MSF OCG. Ms Marino holds a MPH in nutrition from the London School of Hygiene and Tropical Medicine and a BA in Dietetics and Human Nutrition from McGill University, Montreal.

Evolution of nutritional status in children aged 6-59 months with moderate acute malnutrition in India: a prospective longitudinal cohort study

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Introduction

Limited data exist to inform community management of children with moderate acute malnutrition (MAM), who are normally excluded from severe acute malnutrition (SAM) treatment programmes. This study was conducted to generate evidence of longitudinal outcomes in children aged 6-59 months with MAM (defined as mid-upper arm circumference, MUAC, 115-124mm), without interventional supplementary feeding. In this study, children in India with MAM were followed up for six months to better understand their long-term nutritional outcomes.

Methods

We carried out a multicentre prospective longitudinal observational study, nested within a randomized trial, in Jharkhand, India. Children with MAM were enrolled over a 12-month period in 46 centres in Jharkhand state, and followed up for six months while attending government integrated child development services. Anthropometric, clinical and socio-demographic characteristics were recorded at enrolment. The primary outcome was deterioration to SAM (MUAC <115 or bilateral pitting oedema) or death within six months. Risk factors for this outcome were investigated.

Ethics

This study was approved by the MSF Ethical Review Board and by the ethics review boards of the Rajendra Institute of Medical Sciences, Ranchi and Jawaharlal Nehru University, New Delhi, India, and London School of Hygiene & Tropical Medicine, UK. Clinical Trial Registry-India number, CTRI/2017/12/010743.

Results

Of 971 children enrolled, 98 (10.0%) were lost to follow-up, mainly linked with seasonal migration; 12 were seen outside of the six-month window (three before day 168 and nine after day 210). Of 861 children included in the analysis, 595 (61.3%) were female, with a mean age of 16.0 months (standard deviation 9.7). At enrolment 333 (34.3%) had MUAC 115-119mm, 430 (44.3%) had weight-for-height z-score (WHZ) <-3 and 431 (44%) had a WHZ of -2 to-3. Within six months, 133 (15.5%) deteriorated to SAM or died (95% confidence interval, CI: 13.1-18.0%; five deaths), of whom 97 children deteriorated to poor outcome (SAM or death) by three months (11.3%, with one death; representing over two thirds of those deteriorating to poor outcome by six months). In an adjusted logistic regression model, with an interaction between MUAC at enrolment (115-119, 120-124mm) and age (6-11, 12-23, ≥24 months), significantly increased odds of deterioration to SAM or death were seen amongst those with MUAC 115-119mm in all age groups (p≤0.02) and in those under one year with MUAC<125mm. After adjustment, there was no evidence of associations with socio-demographic factors, breastfeeding or WHZ<-3.

Conclusions

Children aged under 1 year and children with MUAC 115-119mm should be closely monitored, considering high MAM burdens in India. Increasing the MUAC admission criterion and/or targeted interventions for MAM children at higher risk could be considered. WHZ<-3 not already MUAC<115mm does not appear to be a risk factor for deterioration.

Conflicts of interest

None declared.

Raman Mahajan

Raman Mahajan is an epidemiologist with over 10 years of research experience. He has completed his Master's in Public Health with a specialization in Epidemiology, and is currently pursuing a Ph.D. at Maastricht University, the Netherlands. He has been involved in several operational research projects and clinical trials in the fields of visceral leishmaniasis (a neglected tropical disease), malnutrition, Covid-19, HIV, tuberculosis, and other infectious diseases. He has contributed to multiple research publications in national and international peer-reviewed scientific journals. He is currently working with MSF's Operational Centre Barcelona projects in India, as an operational research coordinator.

Prevalence of asymptomatic *Leishmania* infection in HIV-positive people and progression to symptomatic visceral leishmaniasis in Bihar, India

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Introduction

People coinfected with visceral leishmaniasis and HIV (VL-HIV) typically present with advanced HIV disease and in poor clinical condition. The reasons for this are complex, but one major challenge relates to difficulties in ensuring early diagnosis of VL, a stage IV opportunistic infection, in the context of HIV. In VL-endemic areas, it is recognised that between 2 and 20% of the general population may harbour asymptomatic *Leishmania* infection (ALI), the vast majority of whom will not progress to symptomatic disease. However, similar data are absent for people living with HIV (PLHIV) in South Asia. Being able to diagnose ALI may provide a screen-and-treat opportunity to prevent progression to the fatal symptomatic form. We investigated the prevalence and determinants of ALI in PLHIV living in VL-endemic areas, and the risk of progression to symptomatic VL.

Methods

We conducted a cross-sectional survey, enrolling PLHIV aged ≥18 with no diagnosis of or history of leishmaniasis symptoms, at three antiretroviral therapy centres within VL-endemic regions of Bihar, India. ALI was defined as a positive rK39 enzyme-linked immunosorbent assay (ELISA), rK39 rapid diagnostic test (RDT), and/or quantitative polymerase chain reaction (qPCR) result on blood. In addition, we tested for the *Leishmania* antigen in urine using ELISA as a novel non-invasive alternative. Participants were followed up at three-monthly intervals over 18 months to assess status and progression to symptomatic infection.

Ethics

This study was approved by the ethics boards of the Rajendra Memorial Research Institute of Medical Sciences, Patna, India, and Liverpool School of Tropical Medicine, UK, and the MSF Ethics Review Board. Clinical Trial Registry-India number, CTRI/2017/03/008120.

Results

1,296 PLHIV were included in the analysis. The baseline prevalence of ALI was 7.4% (n=96). All were found positive using rK39 ELISA, while 0.5% (n=6) and 0.4% (n=5) were positive using qPCR and rK39 RDT, respectively. 2.2% (n=28) patients were positive using urinary *Leishmania* antigen ELISA testing. Independent risk factors ($p<0.05$) for ALI were CD4 count <100 cells/mm^3 (adjusted odds ratio, aOR, 3.1; 95%CI 1.2-7.6), and CD4 count between 100-199 cells/mm^3 (aOR=2.1; 95%CI 1.1-4.0), as compared to CD4 ≥300 cells/mm^3 and living in a household size ≥5 (aOR=1.8; 95%CI 1.1-3.2). Concordance between diagnostic tests was poor. A total of 109 asymptomatic patients were followed up prospectively, including 13 additional patients who were identified during pilot testing. Overall, 3.7% (n=4) patients converted from asymptomatic to symptomatic infection over the study period. Conversion rates of participants identified as positive using rK39 ELISA, rK39 RDT, qPCR, and urinary *Leishmania* antigen ELISA, were 3.7% (4/109), 40% (2/5), 57% (4/7), and 14% (4/29), respectively. Risk of all-cause mortality in those with ALI over 18 months' follow-up was 6.4% (n=7), compared with 2.5% (n=30) in those without (risk ratio, 2.6, 95%CI 1.2-5.7, p=0.018).

Conclusion

PLHIV living in highly VL-endemic areas have a relatively high prevalence of ALI. Although progression rates to symptomatic infection appear low, all-cause mortality rates are higher and may reflect the impact of sub-clinical infection on HIV outcomes. The results may justify further studies investigating early treatment of ALI in PLHIV.

Conflicts of interest

None declared.

Sakib Burza

Sakib is a practicing clinician who first started working with MSF in 2003. He completed a MSc in public health in developing countries at the London School of Hygiene and Tropical Medicine (LSHTM), and returned to work on diagnostic algorithms for neglected tropical diseases (NTD's). Sakib completed his PhD on the clinical management of visceral leishmaniasis at the Institute of Tropical Medicine, University of Antwerp under the late, great Prof Marleen Boelaert. Since February 2016 Sakib has been working as Medical Advisor, Asia for MSF Spain, and holds an honorary position at the LSHTM as an Associate Professor. He has long-standing interests in the clinical aspects of leishmaniasis, and also NTD's in general. He has also conducted research in severe acute malnutrition, dengue, and advanced HIV. More recently, Sakib has been working on prognostic biomarkers in sepsis and COVID-19. He is also interested in melioidosis too, and is perpetually trying to get MSF interested in it.

Diagnostic performance of lateral flow point-of-care HIV-Combo testing for detection of acute HIV infection in Eswatini

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Introduction

Acute HIV infection (AHI) is rarely diagnosed in resource-limited settings. Barriers to diagnosis include the high costs of viral load (VL)-based diagnostic testing algorithms and lack of availability of reliable point-of-care (POC) tests. We assessed the performance of a new POC test for the detection of AHI in Eswatini, Alere™ HIV-Combo.

Methods

Adult outpatients testing HIV-negative on Alere™ Determine through finger-prick testing by lay counsellors, or with discordant result (Alere™ Determine-positive and Uni-Gold™-negative) were enrolled at the Nhlangano Health Centre, between March 2019 and March 2020. Participants were then tested with the quantitative Xpert HIV-1 VL assay, used as the gold standard test for AHI. AHI was defined as a VL result ≥40 copies/mL. Leftover paired venous whole blood and plasma specimens were tested with the lateral flow fourth-generation antibody/p24 POC Alere™ HIV-Combo. Both Xpert and HIV-Combo tests were performed in the laboratory by a laboratory technician. A positive result for AHI using the HIV-Combo test was defined as reactivity on the p24 antigen and/or antibody bars. Diagnostic test characteristics were evaluated for plasma (HIV-Combo-plasma) and whole blood (HIV-Combo-wb), as compared with the results of Xpert testing.

Ethics

This study was approved by the MSF Ethics Review Board and the Eswatini Ethics Committee.

Results

A total of 745 (HIV-Combo-plasma/Xpert) and 429 (HIV-Combo-wb/Xpert) paired test results were available. 29/745 (3.9%) and 19/429 (4.4%) were AHI-positive based on the results of Xpert testing. 26/745 (3.5%) were reactive on HIV-Combo-plasma and 16 (3.7%) on HIV-Combo-wb. Most positive test results with HIV-Combo showed reactivity to antibodies only (76.9% HIV-Combo-plasma; 75.0% HIV-Combo-wb), and the remainder to p24 antigen (15.4%, 18.8%) only, or both p24 antigen and antibodies (7.7%, 6.3%). The area under the receiver operating characteristic curve was 0.93 for HIV-Combo-plasma and 0.89 for HIV-Combo-wb. Test sensitivity tended to be slightly higher for HIV-Combo-plasma (86.2%) as compared to HIV-Combo-wb (78.9%), and specificity was high for both tests (≥99.8%). The negative predictive value was above 99.0% for both tests, and positive predictive values were 93.8% for HIV-Combo-wb and 96.2% for HIV-Combo-plasma.

Conclusion

Lateral flow POC HIV-Combo testing in this setting was able to diagnose most cases of AHI, in comparison to the gold standard. This test therefore has potential for use in routine settings due to low cost and ease of use. However, further studies are needed to evaluate its performance when used in routine outpatient care settings by lay counsellors on finger-prick samples.

Conflicts of interest

None declared.

Bernhard Kerschberger

Bernhard is a medical doctor, who has worked as a public health practitioner in different positions within MSF since 2009. In recent years his focus has been on HIV and tuberculosis research, with a specific focus on expanding access to HIV treatment and earlier HIV diagnosis.

Challenging experiences of children, adolescents, and their caregivers during the treatment journey for drug-resistant tuberculosis: qualitative study, Mumbai, India

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Introduction

Drug-resistant TB (DR-TB) still affects around 25,000 children every year worldwide. Although treatment success rates for DR-TB in children are higher than in adults, children and adolescents face unique hurdles during DR-TB treatment. We aimed to understand the perspectives of patients, guardians, and healthcare providers in relation to the DR-TB treatment journey for children, adolescents, and their caregivers.

Methods

We did a qualitative study involving in-depth interviews of purposively selected adolescents (n=6; who had received more than one year of DR-TB treatment or were cured at the time of interview), patients' guardians (for children and adolescents, n=5) and healthcare providers (n=8) for patients attending a MSF clinic in Mumbai, India. The adolescents and guardians were identified by the patient support (counsellor) team. In-depth face-to-face interviews were conducted in English or Hindi, using interview guides during September-November 2019, and audio was recorded following informed consent. Assent was obtained from adolescents (aged under 18 years), in addition to their guardians' consent. Thematic network analysis was used to summarize textual data. ATLAS.ti, version 7, was used for analysis.

Ethics

This study was approved by the MSF Ethics Review Board and by the Institutional Review Board, Tata Institute of Social Sciences, Mumbai, India.

Results

Adolescents interviewed were aged 15-19 years, and four of them were female. Five guardians (of three child and two adolescent patients) and eight healthcare providers were interviewed, including two clinicians, two directly observed treatment providers, two counsellors, and two programme managers. Our analysis fell under the overarching theme of "challenging DR-TB treatment journey", with four sub-themes identified. The four sub-themes covered physical trauma; emotional trauma; unavailability of social support; and poorly adapted healthcare services. Family and peer support was identified as the cornerstone for successful treatment completion. Adherence issues and treatment interruptions were more commonly reported in adolescents than children. It was also noted that treatment decisions (eg relating to regimen or provider) for children and adolescents relied heavily on the input of patients' families and/or caregivers. Though the challenging experiences of patients and caregivers during DR-TB treatment varied within and between age categories, most patients and caregivers reported the experience of treatment fatigue and burnout. Participants offered recommendations for developing child/adolescent-friendly care during DR-TB treatment. These included providing injectable-free regimens, palatable medications, meaningful interaction and information sharing with healthcare providers, peer-support platforms, patient-friendly counselling/adherence tools, and improved TB awareness in families, schools and communities.

Conclusions

TB programmes for adolescents and children must consider the patient and family as one unit when designing packages of care. Development of child- and adolescent-friendly services, such as paediatric formulations, age-specific counselling tools, and regular interaction with patients and caregivers, will help minimise burnout in patients and caregivers.

Conflicts of interest

None declared.

Mrinalini Das

Dr Mrinalini Das is an epidemiologist and operational researcher. She has completed her PhD in Public Health. Her area of interest is paediatric and adolescent drug-resistant tuberculosis. She has been involved in operational research activities for more than eight years in the fields of HIV, malaria and tuberculosis, including a focus on new drugs for treatment of tuberculosis. She has presented her work in various national (India) and international conferences. She has also contributed in multiple research publications for international peer-reviewed scientific journals.She is currently working with Médecins Sans Frontières / Doctors Without Borders India as a Deputy Medical Coordinator (Epidemiologist).

Early termination of randomisation into TB-PRACTECAL, a study examining novel six month, all-oral regimens for treatment of drug-resistant tuberculosis

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Introduction

Almost 500,000 people worldwide develop multidrug-resistant tuberculosis (MDR-TB) annually, with a treatment success rate of around 60%. Current treatment consists of up to 20 pills per day taken for a duration of between nine and 24 months. TB-PRACTECAL is a multi-arm multi-stage, randomised controlled, open-label phase II/III clinical trial, evaluating the safety and efficacy of regimens containing bedaquiline, pretomanid, and linezolid for the treatment of MDR-TB. On 18th March, 2021, randomisation into the trial was terminated early following recommendations from the trial's Data and Safety Monitoring Board (DSMB). We present the trial design, rationale for this decision and the planned next steps.

Methods

Adults and children aged from 15 years were enrolled into the trial's six sites based in Uzbekistan, Belarus, and South Africa. An adaptive phase IIB/III design was chosen to accelerate the trial. Stage 1, corresponding to the phase IIB component of the trial, comprised three investigational arms compared to a locally-approved standard of care (SoC). The best performing arm in this phase was then selected for stage 2. In Stage 2 of the trial, corresponding to a phase III trial, patients were randomised to either the SoC, or the PRACTECAL-1 arm, in which patients would receive bedaquiline 400mg daily for 2 weeks followed by 200mg three times a week for 22 weeks, pretomanid 200mg daily for 24 weeks, tapered dose linezolid 600mg daily for 16 weeks then 300mg for 8 weeks, and moxifloxacin 400mg daily for 24 weeks (B-Pa-Lzd-Mfx). The primary outcome measure was the proportion of patients with an unfavourable outcome (treatment failure, death, treatment discontinuation, recurrence, or loss to follow-up) at 72 weeks post-randomisation. The target sample size was 201 per arm.

Ethics

This study was approved by the London School of Hygiene and Tropical Medicine Ethics Review Board (ERB) and the MSF Ethics Review Board, as well as national or regional ERB's at each trial site. Clinicaltrials.gov registry number, NCT02589782.

Results

The decision to terminate recruitment was made based on 120 patients having been randomised to the PRACTECAL-1 arm, and 120 to the SoC arm. 31 patients in the PRACTECAL-1 arm and 33 patients in the SoC arm could have reached 108 weeks of follow-up. Data from another 229 patients in PRACTECAL arms 2 and 3 were also available. For the interim analysis on the primary outcome measure (percentage of study participants with an unfavourable outcome), there was a difference of at least three standard deviations favouring PRACTECAL-1 when compared to the SoC. The difference in the proportion of unfavourable outcomes was primarily driven by a higher rate of treatment discontinuations in the SoC arm. For both arms, there were no TB treatment failure or recurrence events. There were five deaths in the SoC arm, versus none in the PRACTECAL-1 arm. The final number of patients randomised into the trial at termination of randomsation was 552.

Conclusion

The results of the interim analyses convinced the DSMB and the trial steering committee that equipoise between the two arms no longer existed, with further recruitment unlikely to change the conclusion. Accumulated data from all 552 patients will be analysed and submitted to answer specific questions for the World Health Organization's guidelines development process for management of rifampicin-resistant TB. A manuscript for publication in a peer reviewed journal will be prepared and results will be communicated to communities that participated in the trial by the end of the year. All patients in the trial will be followed up to at least 72 weeks post-randomisation. Given the positive findings, MSF is currently developing guidance and collaborations to scale up the regimen.

Conflicts of interest

None declared.

Catherine Berry

Catherine Berry is a medical monitor for TB-PRACTECAL. She is an infectious diseases physician and conjoint lecturer with the University of Newcastle, UK, with a special interest in multi-drug resistant tuberculosis and antimicrobial resistance. She joined MSF in 2014, working on projects in Uzbekistan, Belarus, South Africa, and Jordan. Twitter: @catherineeberry

Revision of the epidemiological situation of malaria in Burundi and the potential implications for future control

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Introduction

In Burundi, malaria continues to be a major public health issue as the leading cause of health facility attendance, high levels of mortality and devastating malaria epidemics in highland areas. Since 2004, Burundi's National Malaria Control Programme (PNILP) has developed an integrated malaria control strategy. Since 2016, Médecins Sans Frontières (MSF), in collaboration with the PNILP, has implemented integrated malaria control interventions within two malaria endemic health districts located in the central highlands and eastern border regions.

Methods

We re-assessed epidemiological trends for malaria in Burundi to: (1) evaluate spatial heterogeneity and seasonality; (2) longitudinally describe trends in disease incidence for three epidemiological strata; and (3) assess the association between long-lasting insecticidal net (LLIN) mass distribution campaigns (MDC) and disease incidence. Analysis used malaria case data, routinely collected and reported weekly by PNILP from 2011-2019. Malaria cases were converted into incidence rates, using existing population data, and expressed per 1000 population at-risk. Health districts (n=47) were categorized into three different strata based upon geographic elevation and endemic channels, using the quartile method. A generalized additive mixed model (GAMM) was implemented in R to analyze time-series data.

Ethics

This work met the requirements for exemption from MSF Ethics Review Board review, and was conducted with permission from Sebastian Spencer, Medical Director, Operational Centre Brussels, MSF.

Results

From 2011-2016, seasonality and intensity of malaria transmission was heterogeneous across the three epidemiological strata. The median incidence (cases/1000 population) for health districts <1200m elevation was 6.0 (interquartile range, IQR, 4.3-8.5); for those 1200-1850m, incidence was 12.3 (IQR 8.0-17.6); and for those >1850m, incidence was 2.1 (IQR 1.1-6.3). In contrast to the observed incidence rates for health districts within the endemic channels at <1200m and >1850m, health districts within the endemic channel at 1200-1850m showed marked seasonality, with a bimodal distribution. Health districts in these endemic channels, had peaks in median incidence of 17.6 cases/1000 and 15.1 cases/1000 population in weeks 26 and 52, respectively. GAMM analysis suggested an increasing trend in malaria incidence over the period 2011—2019. The analysis further revealed that LLIN-MDC campaigns were associated with a rapid reduction in malaria incidence, but the epidemiological impact was attenuated after one year. Specifically, comparing malaria incidence in three health districts adjacent to MSF's intervention area (1200-1850m channel), the 2017 LLIN-MCD was associated with a 44% reduction in clinical incidence one year post-distribution (RR 0.56, 95%CI 0.556-0.56), but no evidence for a reduction two years post-distribution was observed RR 1.10 (95%CI 1.092-1.099).

Conclusion

These findings highlight the effectiveness of LLIN as a malaria control intervention across different epidemiological strata in Burundi. However, the duration of functional effectiveness of LLIN is most definitely less than 3 years and may be shorter than one year in Burundi. The reasons underlying these finding are legion. Further operational research is needed to disentangle the dynamic interplay between operational, human behavioural, sociological, and entomological factors.

Conflicts of interest

None declared.

Jean Marie Mafuko

A medical doctor since 2005, Jean Marie Mafuko worked in the Democratic Republic of Congo for 3 years before moving to Burundi where he now lives with his family. Since joining the MSF Burundi mission in 2017, he has held the Deputy Medical Coordinator position. He is interested and actively involved in research on various tropical and emerging infectious diseases. He has co-authored two articles describing Bartonella spp. and Simian herpes B virus and participated in several research projects as part of the MSF Burundi Mission.

Mass drug administration of long-acting antimalarials among children in Bossangoa health district, Central African Republic: programme description and evaluation

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Introduction

Protracted conflict in CAR has led to widespread political unrest and fragile health systems. Hyperendemic malaria is the main cause of morbidity. Alongside global calls to prioritise malaria prevention during the COVID-19 pandemic, MSF initiated mass drug administration (MDA) for children aged between three months and 15 years within three communes of the Bossangoa health district between 17 August and 24 November 2020. The MDA comprised three cycles of dihydroartemisin-piperaquine (DHA-PQ), given at four-week intervals. We evaluated coverage and clinical impact of the MDA, and describe community perspectives.

Methods

We conducted a two-stage cluster household survey between 22 November and 9 December 2020. We undertook structured interviews with the heads of households and with eligible children, focusing on participation in the MDA. Participation was verified against the MDA card, if available. Using routine MSF surveillance data, we compared the following indicators during the MDA intervention to the same periods of time during 2018 and 2019: consultations, confirmed malaria cases, and positivity rates of malaria rapid diagnostic tests (mRDT's) in MSF facilities in the intervention area, overall and by age group (≥5; <5 years); hospital admissions and in-hospital deaths with a primary diagnosis of severe malaria among children <15 years from the MDA intervention area. Following each cycle we conducted nine focus groups discussions (FGD's) with caregivers, community leaders, and community health workers (CHW's) Participants were selected using purposive sampling. The topic guide included the key themes of reasons for participation, difficulties encountered, satisfaction, and experiences throughout the MDA.

Ethics

This study was approved by the MSF Ethics Review Board (ERB) and by the national ERB of CAR.

Results

In total, we distributed 134,117 DHA-PQ courses. Among eligible children, 93.1% (95% confidence interval, CI, 85.6-96.8) received all three cycles. We estimated significant reductions only for confirmed outpatient malaria cases overall (9.2%; 95% CI 5.6-12.8), and among those aged <5 years (20.5%; 95% CI 15.3-25.8). Following the first MDA cycle, FGD participants described positive perceptions and high adherence with regard to MDA, linked with the involvement of community leaders. Participants reported reductions in childhood malaria, as well as reduced household expenditure on healthcare. Rumours about 'drug trials' and concerns about side effects were initial reasons for refusal, however these concerns were overcome after seeing the positive impact on participating children. Participants' recommendations included continuing the programme and expanding eligibility.

Conclusion

This is one of the first such MDA's in CAR; our experience demonstrates MDA is feasible in complex emergencies. Although preliminary analysis of routine surveillance data suggested a limited impact on malaria diagnoses, community acceptance was high. Of note, outpatient surveillance data was limited to three structures in only one commune, and not available for the specific target ages of the MDA. Participants noted positive perceptions of impact, with a desire for repeated MDA's. Further analysis will help to further elucidate the potential impact, and inform recommendations.

Conflicts of interest

None declared.

Eve Robinson

Eve is a public health physician and epidemiologist from Ireland. She worked as a field epidemiologist for MSF's Operational Centre Amsterdam in the Central African Republic for 15 months in 2019 and 2020.

Feasibility of large-scale mass drug administration for malaria in Angumu health zone, Ituri, Democratic Republic of Congo

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Introduction

Conflict in DRC's northeast, has led to large-scale displacement. MSF has supported around 50,000 internally displaced people, together with the host community, in Angumu health zone, within the region, since 2019. Work there has focussed on supporting health facilities, community treatment sites, and distribution of long-lasting insecticidally-treated nets. WHO's recommendations for malaria in extreme complex emergencies include provision of mass drug administration (MDA). Angumu is a highly malaria-endemic area, with displaced people having relocated from an area with lower exposure to malaria. In Angumu, there are high levels of mortality linked with malaria, and crude and under-5 mortality rates have been shown to be above the emergency threshold in 2020 population survey data. In addition, healthcare systems are over-burdened due to population displacement, together with deterioration in access to healthcare caused by the COVID-19 pandemic. DRC's Ministry of Health, together with MSF, have implemented MDA with the goal of rapidly reducing malaria morbidity and mortality. We describe the intervention's feasibility, data on pharmacovigilance, and associations with reported malaria morbidity.

Methods

We implemented 3 MDA rounds spaced at least 28 days apart, for adults and children aged over 2 months, living in four health areas, covering a total population of 56,353. MDA involved delivery of two rounds of amodiaquine-artesunate and one round of artesunate-pyronaridine (Pyramax). Door-to-door distribution was chosen to reduce risk of COVID-19 transmission, with teams using COVID-19 protection measures. First doses were directly observed, and notification of adverse events (AE's) was implemented. We calculated administrative coverage, and estimated the number and reduction in weekly confirmed malaria cases reported from MSF-supported health facilities before (weeks 1-40/2020) and after (weeks 41-53/2020) MDA delivery, as well as comparing the difference between targetted (6 facilities) and non-targetted health areas (14 facilities).

Ethics

This abstract describes the evaluation of an implementation of an MSF programme. It was conducted with oversight from Monica Rull, Medical Director, Operational Centre Geneva, MSF.

Results

227 teams, involving two community health workers each, carried out MDA. The first MDA round, carried out between 24 September and 13 October 2020, reached 74,847 people (133%), and the second was executed between 9 and 27 November 2020, reaching 75,487 people (134%). The third MDA round ran between 17 December 2020 and 7 January 2021, reaching 78,227 people (139%). There were 679 mild and three severe (0.9%, of all those receiving MDA) AE's reported during the first round, and 425 mild and three severe (0.57%) AE's during the second round. None of the severe AE's reported were causally linked with MDA, after investigation. The average weekly number of malaria cases decreased by 81% (151 vs. 29) in MDA-targetted areas, as compared with a drop of 33% (139 vs 93) in non-targetted areas.

Conclusion

This was the first large-scale MDA of which we are aware, delivered in a highly malaria-endemic rural area, and the first MDA delivered using Pyramax. We faced delays with approvals and provision of antimalarials; MDA rounds took longer to implement than planned, with delays between rounds. We successfully provided three rounds of MDA using two different antimalarials, in a complex emergency setting. Implementation was during the COVID-19 pandemic yet reached high levels of coverage, and was linked with a reduction in reported malaria cases in MDA-targetted areas. Currently, the analysis of morbidity data and a retrospective mortality survey are ongoing.

Conflicts of interest

None declared.

Trish Newport

Trish Newport is the Deputy Program Manager for the MSF Operational Centre Geneva Emergency Desk. She has worked with MSF since 2008, in a wide range of contexts, doing a variety of positions including, nurse, medical team leader, project coordinator, medical coordinator, head of mission, emergency coordinator and intersectional representative.

Medical Research Posters

Poster authors are available for live chat during the breaks in the exhibition hall

Evaluation of an outcome measure for patients in humanitarian settings after trauma: the Activity Independence Measure-Trauma (AIM-T)

B. Gohy[1,2], N. Brodin[2], I. Mulombwe Musambi[3], J.-M. Mafuko[4], E. Ndiramiye[4], J.-P. Mouamba Namekong[5], A.H.M. Mohamed[6], J. Van Hulse[7], V. Lambert[8], I. Ciglenecki[9], A. Calmejane[7], K. Ahmedana[10], S. Sieber[8], R. Van den Berghe[8]

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Patient characteristics and treatment outcomes from MSF's cutaneous leishmaniasis programme in Pakistan: retrospective cohort

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Development of a predictor risk score for identifying patients at risk of acute HIV infection

B. Kerschberger[1], Q. Mpala[1], A. Aung[1], N. Ntshalintshali[1], C. Mamba[1], G. Maphalala[2], D. Sibandze[2], L. Dube[3], R. Kashangura[4], A. Telnov[5], R. de la Tour[5], B. Rusch[5], A. Gonzalez[5], A. Calmy[6], I. Ciglenecki[5]

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Using mid-upper arm circumference as the sole anthropometric criterion for admission and discharge during outpatient treatment for severe acute malnutrition: operational experience from Niger

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Outcomes and effectiveness of antivenom treatments in snakebite patients in north-west Ethiopia: retrospective cohort

I.M. Steegemans[1,2], K. Sisay[3], E. Nshimiyimana[3], G. Gebrewold[4], T. Piening[3], E. Menberu Tessema[3], B. Sahelie[3], G. Alcoba[5], F. Seife[6], D. Essink[2], E. Lucero[1], K. Ritmeijer[1]

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Evaluation of MSF's telemedicine pilot project in Madaoua, Niger: qualitative study

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A common agenda: experiences of involving patients and carers in setting research agendas for tuberculosis care

K. Abramenko[1], K. Shchenina[2], B. Stringer[3], C. Tan[1], R. Vishneuski[4], B. Kholikulov[1], M. Yakubova[1], N. Sitali[5], A. Sinha[3]

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Secular trends in hepatitis C incidence in people living with HIV: analysis from a MSF cohort in Manipur, India

H. Mohan Kumar[1], W. Lin Oo[1], P. Gurung[1], H. Spencer[2], J. Shougrakpam[1], S. Sang[3]

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Acceptability and feasibility of HPV vaccination among adolescent girls and young women living with HIV in rural Zimbabwe: prospective cohort

W. Ngwa[1], P. Manangazira[2], D. Some[1], R. Ortuno[1], Y. Ronoh[1], K. Kuwenyi[1], T. Mupepe[1], S. Kuchicha[1], A. Mafumo[1], M. T. Mandizvo[1], D. Garone[3], P. Isaakidis[4], I. Panunzi[3]

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Case-area targeted interventions for cholera control: experience from the tail of a cholera outbreak, Kribi, Cameroon

J.P. Ouamba[1], N. Peyraud[2], M. Ousman[2], Y. Boum II[3], F. Ale[2], I. Ciglenecki[2], F. Finger[4], M. Tamakloe[1], N. Fouda Mbarga[1], G.M. Etoundi[5], A. Amani[5], L. Essoh[5], I. Mounchili[1], T. Boyom[1]

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Evaluation of the Optimising MAlnutrition treatment (OptiMA) strategy amongst severely wasted children aged 6-59 months: randomized trial, Democratic Republic of Congo

C. Cazes[1], K. Phelan[2], V. Hubert[3], H. Boubacar[4], G. Tshibangu[5], L.I. Bozama[6], N. Baya[6], T. Tusuku[6], C. Yao[7], A. Kouamé[7], D. Gabillard[1], R. Alitanou[8], M. Kinda[9], A. Augier[2], X. Anglaret[1], S. Shepherd[9], R. Becquet[1]

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Provision of safe abortion care: a multicentre descriptive mixed-methods analysis, MSF OCB 2018-2020

A. Van Haver[1], D. Lagrou[1], M. Lynen[2], M. Vaquero[3], A. Sidahmed[1], M. Biot[1], C. Van Overloop[1], K. Whitehouse[1]

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Respiratory health in the Syrian conflict: findings from a scoping review and analysis of routinely collected data from Syrian American Medical Society facilities

L. Basha[1], A. Socarras[2], W. Akhtar[2], M. Hamze[3], A. Albaik[3], I. Hussein[3], A. Tarakji[2], M. Hamadeh[2], M. Azzouz[2], M. Kewara[3], R. Loutfi[2], A. Abbara[2]

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Evaluating the direct and indirect effects of Covid-19 on morbidity and mortality in MSF projects: time-series analysis using routine health facility data

A. Spina[1], A. Lenglet[1], P. Keating[2], M. Pereboom[1], E. van Boetzelaer[1], E. Bermudez Aza[1], J.L. Alvarez[2], A.I. Carrion Martin[2]

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Preventing injury risks and improving work safety amongst factory workers in urban Bangladesh: participatory before-and-after intervention study

S. Sadique[1], D. Beversluis[2], G. Caleo[3], W. Carter[1], S.M. Chowdhury[4], N. Gray[3], M.E. Hossain[1], M.S. Islam[1], M.M. Kaiser[1], N.A. Liza[1], R.M. Mahfuzullah[1], D. Mushnad[1], M.S. Rahman[1], M.B. Rukhsana[1], A. Sharman[1], R. Simiyu[1], M.I. Talukder[1], K.B. Uddin[4], K. Velivela[1]

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Impact Poster

What happened next? Impact analysis of presentations from MSF Scientific Days 2020

J. Pearlman[1], H. Baker[1]

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Innovation

The growing impact of the conflict in Cabo Delgado, Mozambique

Innovation Speakers and Chairs

Introduction, Day 3

Tammam Aloudat

Senior Strategic Advisor, MSF Access Campaign

Tammam Aloudat is a Syrian physician and public health specialist. He has worked over the past two decades for the International Red Cross Red Crescent Movement and MSF. His work has ranged from treating patients in humanitarian settings to policy, advocacy, and research. He has researched and written on access to medicines, migrant health, palliative care in humanitarian settings, epidemics, humanitarian ethics, and health equity. He organises, writes, and teaches, under the banner of decolonising humanitarian aid and global health, to tackle the power asymmetry and discrimination affecting patients and their communities. Tammam is also a co-founder of Action to Decolonise Global Health ActDGH.

Session 1, Day 3

Nan Buzard

Head of Innovation, International Committee of the Red Cross (ICRC)

As ICRC's Head of Innovation, Nan Buzard works with 18,000 staff across 80 countries on some of the most interesting initiatives in humanitarian action. She served in Bosnia with the International Rescue Committee in 1996, led the Sphere Project, and worked for the United Nations High Commissioner for Refugees and the American Red Cross. She was also the Executive Director of International Council of Voluntary Agencies. Nan received the Global Leadership in Emergency Public Health award from the World Association for Disaster and Emergency Medicine in 2009. She was one of the Obama administration's Champions of Change and served five years as the Steering Committee Chair of the Active Learning Network for Accountability and Performance (ALNAP). In 2019 Nan joined the Grand Challenges Canada Scientific Advisory Board. Her Master's in Public Administration is from Harvard University.

Bart Janssens

Director, MSF Academy for Healthcare

Bart Janssens is a medical doctor with an interest and experience in tropical diseases and internal medicine who holds a MSc in Public Health. He has worked for the ICRC as a medical coordinator, and for MSF as a clinician, medical coordinator and, from 2011 to 2018, as director of operations. As director of operations, he saw the strategic importance of professionalising the learning and training of medical professionals in MSF. This motivated him to take up the role of Director of the MSF Academy for Healthcare.

Caroline King

Project Manager, Leadership Education Academic Partnership (LEAP)

Caroline started working for MSF UK in 2008 in Fundraising then worked in the field in HR/Finance and for the operational desk in Berlin.

Prior to working on LEAP she worked for Save the Children setting up and managing the Francophone Humanitarian Operations Programme, a capacity building programme focused on local staff working in humanitarian response for numerous NGOs in West and Central Africa.

Parvati Nair

Global Health and Humanitarian Medicine Course

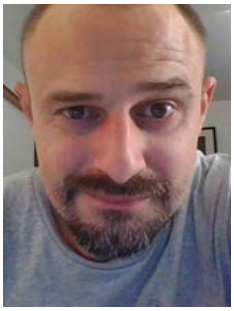
Parvati is a physician who has been working with MSF in HIV, TB and Hepatitis C since 2014. She has worked in projects in India and the Former Soviet Union and her last position was as Medical Team Leader in Nukus, Uzbekistan. She is currently pursuing a Master of Science in Tropical Medicine at the Institute of Tropical Medicine, Antwerp.

Roger Teck

Director Global Health and Humanitarian Medicine (GHHM) Course Medical Learning and Workforce Development Lead

Dr. Roger Teck has been working with MSF for many years in various field programmes as well as in the Headquarters. He did his medical training at the University of Leuven in Belgium, obtained a diploma in Tropical Medicine at the Tropical Institute of Antwerp and did a Postgraduate Masters Degree in “Public Health in Developing Countries” at the London School of Hygiene & Tropical Medicine. In the late eighties and throughout the nineties, he worked as medical doctor and as coordinator in various humanitarian medical programmes and interventions (Ethiopia, Kenya, Somalia, South and North Sudan, Rwanda and Burundi); was district medical officer in Chad and coordinated on promotion of adolescent health care in the poor urban settings of Lima in Peru. As of 2001 he coordinated the MSF support to HIV programmes in Malawi, Cameroon and Swaziland. He was Director of Operations for the MSF Operational Centre Barcelona-Athens (OCBA) from 2007 till 2009. Afterwards he worked as Operational Regional Adviser for HIV in Southern Africa on behalf of the MSF Operational Centre Geneva (OCG) and as member of the MSF Southern African Medical Unit. Since 2017 he has lead the “Global Health and Humanitarian Medicine” (GHHM) Course and supports, as content adviser, the MSF UK Leadership Education Academic Partnership (LEAP) programme in humanitarian practice, delivered in partnership with the Liverpool School of Tropical Medicine and the Manchester University.

Session 2, Day 3



Pete Masters

Head of Community, Humanitarian OpenStreetMap Team

Pete leads the community team at MSF's Humanitarian OpenStreetMap Team, with a focus on supporting the evolution of local community power and problem solving through open geographical data and participatory mapping. He has a long history with MSF, beginning with writing MSF UK's first website and digital strategy and, more recently, launching the Missing Maps project and leading the Research and Innovation team in the Manson Unit.

Session 3, Day 3

Massimo Ravasini

Head of Innovation and Project Management, MSF Japan

Massimo is Head of MSF's Japan Innovation Unit. He possesses a particular combination of academic training and significant MSF field experience that give him special insight into both organizational/systems design, logistics and procurement innovations. He is a qualified architect and engineer with more than twelve years' experience with MSF. This includes several senior coordination positions in the field and time as Operations Advisor at the MSF office in Berlin. Furthermore, Massimo is a certified, highly skilled project manager who has just finished his Master's in Business Administration at the University of Bradford, UK, with a strong focus on sustainable innovation.

Closing, Day 3

Kiran Jobanputra

Head of the Manson Unit, MSF UK, and Deputy Medical Director, MSF Operational Centre Amsterdam

Kiran Jobanputra is a medical doctor specialising in Family Medicine and Public Health. He has worked as a field doctor and medical coordinator for MSF since 2007, with a focus on HIV and chronic disease. He is currently Head of the Manson Unit, MSF UK, and Deputy Medical Director of MSF's Operational Centre Amsterdam.

The Environmental Impact Toolkit: futureproofing MSF through measurement and mitigation

Carol Devine[1,2], **Sandra Smiley[1,3]**, Brian Willett[4], Art Blundell[5], W. Tyler Christie[6], Veronica Odriozola[7], Maria Sol Aliano[7]

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What challenge or opportunity did you try to address? Were existing solutions not available or not good enough?

The environmental impacts of MSF operations risk unintentionally undermining the organisation's social mission. Although MSF has taken measures to reduce its environmental footprint, these have been largely *ad hoc*. To systematise these efforts, MSF developed the Environmental Impact (EI) Toolkit, which expanded into a wider 'Climate Smart MSF' initiative.

Why does this challenge or opportunity matter – why should MSF address it?

The negative health consequences of environmental degradation and climate change are acute. Recognising this, MSF has committed to mitigating its environmental impacts. Futureproofing the organisation requires adoption of more environmentally responsible practices.

Describe your innovation and what makes it innovative

The EI Toolkit, a first-of-its-kind initiative within MSF, allows offices and projects to assess their carbon emissions and waste production and decide on mitigation measures.

We reviewed existing tools and explored ways in which they may be customised to measure MSF's common carbon emissions such as freight, passenger flights, fuel use by generators and vehicles, electricity purchased from public utilities, and commuting.

The resulting tool categorises emission sources into three scopes including direct emissions from sources owned and controlled by MSF (scope 1 and 2) and in-direct emissions resulting from the production of purchased materials (scope 3). Scope 3 is the most challenging to evaluate due to the complexity of mapping emissions from the life-cycle of supply chains, and includes business travel and the movement of freight. The tool is intended to be agile and flexible and is in excel sheet format with an embedded data visualisation chart.

Who will benefit (whose life / work will it improve?) and were they involved in the design?

Beneficiary communities and MSF staff will directly benefit from the EI Toolkit through improved environmental conditions and health, while MSF offices and projects will benefit from reduced spending and inefficiencies. It will also facilitate the mitigation of global climate change through reduced greenhouse gas emissions.

What objectives did you set for the project – what did you want to achieve and how did you define and measure success (improved service, lower cost, better efficiency, better user experience, etc.)?

The objectives of the EI Toolkit were to provide MSF teams with a method of assessing the environmental impact of their offices and projects, and to establish a baseline to enable teams to measure mitigation and monitor improvements.

What data did you collect to measure the innovation against these indicators and how did you collect it? Include if you decided to change the indicators and why

In 2019, the EI Toolkit was developed and piloted in five countries. It was later rolled out in MSF offices in USA, Germany, and Sweden, and the MSF International office. It was also launched in projects in Bangladesh, Pakistan, Papua New Guinea, Cambodia, and Indonesia. By the end of 2020, 14 MSF sites had used the EI Toolkit, and its use is planned by over 40 more in 2021. Data on emission-producing activities and user feedback were collected. A tool to assist household/office and project waste reduction was added in 2020.

How did you analyse this data to understand to what extent the innovation achieved its objectives? Did this include a comparison to the status quo or an existing solution?

The EI Toolkit quantified carbon emissions for 14 projects and offices and provided guidance on mitigation. Emissions and their sources, and mitigation measures, were compared across MSF sites.

Were there any limitations to the data you collected, how you collected it or how you analysed it, or were there any unforeseen factors that may have interfered with your results?

In cases where exact emission measures were not available, data on emissions-producing activities (e.g. monthly fuel use, electricity use, and transportation) were collected, and emissions were estimated using conversion factors.

What results did you get?

Sources of emissions and emission levels varied significantly across the 14 sites. Air freight and air travel (business flights) were identified as major sources of emissions. Commonalities in mitigation opportunities were identified, including limiting non-essential travel, finding substitutes to air freight and diesel use, and scaling up solar energy. Our findings suggest the need for rationalisation of emergency shipment use across the organisation. There is considerable scope to make MSF more efficient and environmentally responsible by reducing its carbon footprint.

Comparing the results from your data analysis to your objectives, explain why you consider your innovation a success or failure?

The EI Toolkit has provided projects and offices with quantitative insight into their environmental footprint. The steady adoption of the Toolkit and positive user feedback suggests that this innovation is a success. It provides a supportive framework through which MSF teams can take positive action for beneficiaries and the environment.

To what extent did the innovation benefit people's lives / work?

Users report that the tool has aided in both identifying sources of highest carbon emissions and prompting discussions on policy changes required to improve low-carbon and sustainable working. The Bangladesh project, for example, identified that electricity consumption was a more significant source of emissions than international shipping. As a result of Toolkit use, the MSF hospital was connected to the electricity grid, monitoring of electricity use was enhanced to inform action, and reducing air freight in favour of sea freight became a central focus.

Is there anything that you would do differently if you were to do the work again?

We would begin outreach earlier to improve acceptance and uptake across the organisation.

What are the next steps for the innovation itself (scale up, implementation, further development, discontinued)?

The scale-up of Toolkit use should continue at an accelerated pace. Courageous leadership and behavioural change will be important to making environmentally responsible practices "business as usual".

Is the innovation transferable or adaptable to other settings or domains?

The EI Toolkit can be used by all MSF offices and projects.

What broader implications are there from the innovation for MSF and / or others (change in practice, change in policy, change in guidelines, paradigm shift)?

What one measures, one can mitigate. Providing projects and offices with their baseline environmental impact can drive decision-making and adoption of more environmentally responsible practices. The enormous health and humanitarian implications of climate change and environmental degradation are well reported; environmental considerations must be mainstreamed into all aspects of MSF's action.

What other learnings from your work are important to share?

We recognise the importance of early buy-in for behavioural change interventions. By reducing its environmental impact, MSF has an opportunity to positively contribute to planetary and human health.

Ethics

This innovation project did not involve human participants or their data; the MSF Ethics Framework for Innovation was used to help identify and mitigate potential harms.

Sandra Smiley

Sandra has worked with MSF since 2011 in Canada, the UK, Pakistan, Central African Republic, and Democratic Republic of Congo. She joined Climate Smart MSF in December 2020, and is also a current MPH candidate and Sommer Scholar at the Johns Hopkins School of Public Health.

FriGo: an actively cooled, portable cold chain solution for resource limited settings

Alan de Lima Pereira[1], **Eric Saldanha[2]**, Mohit Nair[3], Louis Potter[4], Lindsay Bryson[4]

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What challenge or opportunity did you try to address? Were existing solutions not available or not good enough?

An estimated 1.5 million children die each year from vaccine-preventable diseases. Besides vaccines, other life-saving drugs such as oxytocin, rectal artesunate, snake antivenom, insulin, and diazepam are unavailable at peripheral health centres due to a lack of cold chain facilities. Existing solutions are inadequate as they rely heavily on passive cold chain especially for the last mile, necessitating centralised models of healthcare delivery and leading to increased patient costs and limited access.

Why does this challenge or opportunity matter – why should MSF address it?

Desk research has shown that there is no single product that can address this gap. A solution would have a positive impact at scale in most complex medical emergencies and could be a ubiquitous tool for decreasing mortality in neglected populations.

Describe your innovation and what makes it innovative

We are rethinking the passive vaccine day carrier by developing FriGO, a long-term, portable, active cool box that uses off-grid sources of energy. FriGo utilises solar power, thermoelectric cooling, phase-change material, battery back-up and a unique construction to provide continuous portable off-grid cooling for prolonged periods of time. FriGo benefits from accurate condition logging and monitoring and preventive action warning system.

The technology that is utilised in FriGo has been individually proven in several other industries from international food shipping to outdoor camping. However, resource-limited healthcare settings require appropriately customised solutions. Although a handful of organisations are looking at this problem, a successful scalable solution is yet to be reached. The Covid-19 pandemic has brought a renewed focus on the vaccine cold chain industry and could act as a catalyst in bringing about this much needed change.

Who will benefit (whose life / work will it improve?) and were they involved in the design?

FriGo has the potential to decrease mortality and morbidity in most contexts where MSF works by increasing our reach and decreasing wastage.

What objectives did you set for the project – what did you want to achieve and how did you define and measure success (improved service, lower cost, better efficiency, better user experience, etc.)?

In October 2019, we conducted a user preference study involving field workers and technical specialists to define and design the project. The primary objective and measure of success was to prove that a portable chamber could maintain a temperature of 2-8°C for a minimum of 28 days without an external energy source.

What data did you collect to measure the innovation against these indicators and how did you collect it? Include if you decided to change the indicators and why

Three assessments (desk research, technical study, and user preference study) were conducted to assess available products, feasibility, minimum requirements, cost comparison, and unmet needs. A proof-of-concept is underway.

How did you analyse this data to understand to what extent the innovation achieved its objectives? Did this include a comparison to the status quo or an existing solution?

Phase 1 aimed at validating the use-cases and reviewing the available products in the market. The data was collected through interviews and correspondence with experts and analysed by the team. The objectives for phase 2 were to validate the specific design and features, through an in-depth interview-based user preference study and a desk research technology analysis.

Phase 3 objectives focus on validating the feasibility of the concept by building a proof-of-concept to demonstrate the proposed features of the product. The experimentation and testing are ongoing and will be assessed based on milestones established at the outset of the phase. The final milestone will be the ability to maintain a cold-life of 2-8°C for seven days with the possibility of continuous repeatability, without user-intervention or grid resources.

Were there any limitations to the data you collected, how you collected it or how you analysed it, or were there any unforeseen factors that may have interfered with your results?

Data collection was comprehensive, but non-exhaustive. Prototype data collection is underway but will need to be done in a range of field locations to ensure it works under various field conditions.

What results did you get?

Phase 1 revealed that existing solutions, while some of them innovative, did not address all the current problems highlighted by some of the use-cases, and did not greatly change the current possibilities.

The outcome of the user-preference study and technology analysis (phase 2) highlighted specific requirements such as being durable, easily carried on the back, suitable for all modes of transport, plug and play operation, and preferably around 2.5L in capacity. From a service perspective, the product needs to have prolonged cold life, minimal expertise and intervention, no grid dependency, non-circular route possibilities, fail-safe responses and decentralised operation.

FriGo is being designed, prototyped and tested based on these findings. Some of the results achieved include the ability to cool a 1L payload chamber to 2-8°C, with an ambient temperature of +30°C, in under 4 hours solely using solar power, a thermoelectric heat pump, and a phase-change material thermal battery; with a current cold-life retention of 28h through an insulating structure.

Comparing the results from your data analysis to your objectives, explain why you consider your innovation a success or failure?

These conclusions can only be drawn after field testing is completed.

To what extent did the innovation benefit people's lives / work?

This will be determined during the next phase of development, when FriGo is scaled-up and piloted.

Is there anything that you would do differently if you were to do the work again?

Framing the product lifecycle to anticipate partnerships and legal processes, and consider alternative pathways, would reduce negative impacts on progress and timeline.

What are the next steps for the innovation itself (scale up, implementation, further development, discontinued)?

Following a successful proof-of-concept, we will build and distribute prototypes for field testing, ideally in collaboration with a commercialisation partner.

Is the innovation transferable or adaptable to other settings or domains?

Besides humanitarian settings, FriGo can be used in other medical contexts (including developed countries), farming and other cold chain dependent industries, and in end-consumer applications such as food and beverage storage.

What broader implications are there from the innovation for MSF and / or others (change in practice, change in policy, change in guidelines, paradigm shift)?

If successful and cost efficient, FriGo could change the way MSF works by expanding reach for vaccination campaigns, allowing for decentralised healthcare delivery, and enabling home-based care in remote or conflict settings.

What other learnings from your work are important to share?

MSF would benefit from an innovation culture backed by standard operating procedures for product development aspects such as partnerships, intellectual property, commercialisation, and mentorship.

Ethics

This innovation project did not involve human participants or their data; the MSF Ethics Framework for Innovation was used to help identify and mitigate potential harms.

Eric Saldanha

Eric Saldanha is a curious thinker, problem-solver, and designer from India, recognised for the thoughtful user-centric products he creates. He is currently based in London, and is a graduate from the Royal College of Art, UK, with a background in mechanical engineering, and over four years of experience as a design consultant. Thriving in environments that constantly challenge and inspire him, he has created and collaborated on multiple award-winning projects in the sustainable and humanitarian space. His most recent collaborative project won an MSF Sapling Nursery Grant to research and develop a game-changing concept in cold-chain delivery. Instinctively drawn to unaddressed problems and neglected communities, he is a strong proponent of the role that innovators have, to create solutions that contribute towards a more equitable world.

Photovoice: addressing stigma among people living with drug-resistant tuberculosis in India

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What challenge or opportunity did you try to address?

Were existing solutions not available or not good enough?: Individuals with multidrug resistant tuberculosis (MDR-TB) undergo one to three years of treatment and face intense stigma.

Why does this challenge or opportunity matter – why should MSF address it?

We used a Photovoice intervention among patients with MDR-TB to explore their lived experiences of stigma and to gauge the efficacy of Photovoice as a tool to engage individuals to speak about it.

Describe your innovation and what makes it innovative:

Photovoice is a visual method requiring participants to use photography to voice, identify, represent, and reflect on their lived experiences. Compared to other interventions, Photovoice provides an innovative & interesting platform for sharing experiences and adds an extra aid for describing experiences.

Who will benefit (whose life / work will it improve?) and were they involved in the design?

This innovation is aimed at helping patients and healthcare providers understand the stigma around MDR-TB. The participants provided input during the study implementation process.

What objectives did you set for the project – what did you want to achieve and how did you define and measure success (improved service, lower cost, better efficiency, better user experience, etc.)?

This study utilised participatory methods to understand and address stigmatisation associated with MDR-TB at a specialised TB clinic in Mumbai, India.

What data did you collect to measure the innovation against these indicators and how did you collect it? Include if you decided to change the indicators and why.:

Nine female patients were recruited from the MSF clinic in Govandi, Mumbai, between September and October 2020. Males were unwilling to join. Following orientation, we met with participants to understand their motivation and commitment to the project. Consent was taken and camera training was provided.

Participants were asked to take four photos of moments, issues, subjects, artifacts, stills, people (unidentifiable), or anything else that represented a form of stigma that they had personally experienced over two weeks. In addition, each participant attended three focus groups facilitated by the MSF clinic, during which 37 non-identifying images and 15 hours of narratives were collected. Participants were also required to attend one dissemination session.

How did you analyse this data to understand to what extent the innovation achieved its objectives?

Did this include a comparison to the status quo or an existing solution?: The photos were analysed thematically during the focus group discussions with the participants. The focus group transcripts were coded and analysed thematically.

Were there any limitations to the data you collected, how you collected it or how you analysed it, or were there any unforeseen factors that may have interfered with your results?

There was no male representation in this Photovoice project. Reasons provided by males for non-participation were primarily around the time commitment, however we suspect that it may also have been due to discomfort when discussing topics such as stigma.

What results did you get?

Results revealed that patients with MDR-TB face life altering stigma. Loss (of self, voice, mobility) was the predominant theme, in addition to abuse (mental and social), which caused distress such as shame, isolation, suffocation, and feelings of peril. Education (general or disease-related) did not correlate with non-stigmatising and compassionate behaviour from stakeholders. Married women reported stigmatisation from family members exacerbated by pre-existing power dynamics. Coping mechanisms, which started at diagnosis, included peer/family support, self-motivation, and resilience.

Comparing the results from your data analysis to your objectives, explain why you consider your innovation a success or failure?

Focus groups provided a safe space for participants to voice their feelings. Each and every photo gave the participants a chance to reflect on their own situation and that of others in the group.

To what extent did the innovation benefit people's lives / work?

Photo-sharing often led to in-depth conversations about shared experiences of stigma among the participants.

Is there anything that you would do differently if you were to do the work again?

Gender-specific orientation and focus group sessions may improve male participation. The study will need to be flexible with the time commitment required from the participants. Topics other than stigma can be explored using the Photovoice intervention, for example social difficulties related to TB treatment.

What are the next steps for the innovation itself (scale up, implementation, further development, discontinued)?

The results of this innovation have been used to improve the MSF counselling package including tools for routine implementation.

Is the innovation transferable or adaptable to other settings or domains?

The Photovoice intervention can be used in other settings to better understand patient perceptions.

What broader implications are there from the innovation for MSF and / or others (change in practice, change in policy, change in guidelines, paradigm shift)?

Photovoice helped participants connect and gave them focus and motivation to be part of a larger cause. Photovoice can be a vehicle for instances of joy, ownership, and creativity to strengthen patient voices for advocacy.

What other learnings from your work are important to share?

Improved support and attitude changes from family members and health care workers are needed to curb stigma. Patients were encouraged to provide suggestions and recommendations to reduce stigma and were included content planning.

Ethics

This study was approved by the MSF Ethics Review Board (ERB) and the Ethics committee of the Foundation for Medical Research, Mumbai, India.

Taanya Mathur

Taanya Mathur is a qualified psychologist and psychotherapist, with over seven years of rich experience in counseling patients of varying age groups and backgrounds, and providing them with therapeutic relief. She has completed a MSc in Clinical Psychology from Christ University, Bangalore and is trained in Rational Emotive Behavior Therapy and Gestalt therapy. Taanya joined MSF in July 2017 as Activity Manager- Patient Support for MSF's drug-resistant tuberculosis (DRTB)/HIV project in Mumbai. She provides technical support to the patient support team, working with counsellors and social workers, for strengthening treatment outcomes of patients infected with DRTB and HIV by identifying the barriers in treatment and addressing their psychosocial needs. The project aims to develop and implement patient centered approaches which would eventually contribute towards policy and practices within the national TB program.Taanya is also engaged in different operational research projects to explore TB patients' emotional and mental health needs and to push for efforts to improve the care for them. As a part of this, she also presented in the Union Conference in 2018 to highlight the needs and the importance of patient centered care for TB patients. Along with the patient support team in Mumbai, she aspires to continue improving access of care for the vulnerable TB and HIV patients in Mumbai.

CommunityFirst Solutions: supporting community-driven responses to COVID-19

Jessica Farber[1], Rachel Kiddell-Monroe[1], Peter Saranchuk[1], Javier Martínez[2], Samuel Bumicho[3]

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What challenge or opportunity did you try to address? Were existing solutions not available or not good enough?

Isolated and vulnerable communities, such as indigenous and migrant communities, face increased risk of mortality during the COVID-19 pandemic. They lack access to health services, testing, and personal protective equipment (PPE). They may not have the tools to find clear and adapted information, and to distinguish facts from rumours.

Why does this challenge or opportunity matter – why should MSF address it?

MSF is committed to developing people-centred approaches to emergency medical interventions. If communities are well-equipped and informed on COVID-19, and feel a sense of dignity, ownership, and agency in managing their response, MSF interventions will be more effective and sustainable.

Describe your innovation and what makes it innovative

CommunityFirst is an approach that recognises the role that communities play in organising, preparing, and responding to COVID-19. CommunityFirst Solutions for COVID-19 involves the Roadmap, a step-by-step guide to emergency response, resources, and an action plan template; the Accompaniment, trainings, workshops, and mentorship; and the Solidarity Network, through which virtual communities of practice are established with community leaders ("Activators") using the Roadmap to share resources and challenges.

Who will benefit (whose life / work will it improve?) and were they involved in the design?

Community organisations and leaders (indigenous, migrants, women and youth) are adopting this tool as a methodology to support the health of their communities. This initiative was co-created with the Inuit of Clyde River, Nunavut, Canada and continues to evolve based on the input and participation of community Activators worldwide.

What objectives did you set for the project – what did you want to achieve and how did you define and measure success (improved service, lower cost, better efficiency, better user experience, etc.)?

Our objectives were to support communities to: increase resilience to COVID-19 and future health emergencies; identify their needs and set the terms of their relationships with humanitarian actors and local authorities; improve mental health and reduce anxiety by providing a step-by-step guide to managing COVID-19; and access and disseminate accurate information. We measured success by assessing uptake of the Roadmap; feedback from Activators; adaptability of the methodology to distinct contexts; community partnerships formed; and number of community leaders trained.

What data did you collect to measure the innovation against these indicators and how did you collect it? Include if you decided to change the indicators and why

We collected Roadmap website analytics and completed COVID-19 community plans. We conducted interviews with Activators.

How did you analyse this data to understand to what extent the innovation achieved its objectives? Did this include a comparison to the status quo or an existing solution?

We asked Activators to compare this initiative to the support that communities received from governments and humanitarian actors.

Were there any limitations to the data you collected, how you collected it or how you analysed it, or were there any unforeseen factors that may have interfered with your results?

Due to the pandemic and the timeframe, the qualitative data is mainly anecdotal. While we have gathered quantitative data, we will carry out more scientific data collection in 2021.

What results did you get?

The Roadmap website was accessed by users in 96 countries. Community readiness plans were completed by ten communities in Canada, Mexico, Guatemala, Honduras, Peru, Colombia, and Kenya. Training on the Roadmap was provided for 284 community leaders, and we partnered with 12 community organisations.

Through Activator interviews, we found that many communities received little relevant support from governments. For example, small Indigenous communities reported receiving generic plans meant for large cities or 40-page documents that were not written in the local language. Activators expressed that having the support to create a plan adapted to their own environment made them feel calm and gave them the confidence to develop their locally relevant response.

Comparing the results from your data analysis to your objectives, explain why you consider your innovation a success or failure?

The widespread uptake of the website, training, and accompaniment indicates a demand from communities around the world for accessible support and tools to respond to COVID-19. Activators reported reduced anxiety about COVID-19 since having access to accurate health information to share with their communities. Many Activators were women and reported that the Roadmap strengthened their leadership skills.

To what extent did the innovation benefit people's lives / work?

Community members gained skills in emergency preparedness and created mechanisms for community wellbeing that will increase their resilience to future health emergencies.

Is there anything that you would do differently if you were to do the work again?

After several months, we recognised that women and youths were the main implementers of the Roadmap. If we were to repeat the process, we would target our outreach to these groups.

What are the next steps for the innovation itself (scale up, implementation, further development, discontinued)?

We intend to scale up the Accompaniment programme to support additional communities and expand our geographic scope. We aim to provide more training opportunities and workshops, create more original resources, transition to a more sophisticated website, and continue to conduct rigorous data analysis, monitoring and evaluation, and research. We also aim to develop CommunityFirst Solutions for mental health and climate resilience.

Is the innovation transferable or adaptable to other settings or domains?

A Honduran community adapted the Roadmap in response to natural disasters in pandemic times. It has also been adapted for children, migrants, and other groups.

What broader implications are there from the innovation for MSF and / or others (change in practice, change in policy, change in guidelines, paradigm shift)?

Given the move to decolonise humanitarian assistance and empower communities, this practical methodology will support MSF as it changes practices around engaging with vulnerable groups facing intersecting crises. The involvement of the MSF Latin America Association as a partner already demonstrates this.

What other learnings from your work are important to share?

Humanitarian action needs to transform to put communities at the heart of the response. The CommunityFirst approach requires connection and engagement with communities, leveraging community assets, and reflecting together on results. Another learning is that communities need direct financial support to implement CommunityFirst activities on the ground.

Ethics

This innovation project did not involve human participants or their data; the MSF Ethics Framework for Innovation was used to help identify and mitigate potential harms.

Jessica Farber

Jessica Farber is the Community Readiness Coordinator at SeeChange Initiative, a Canadian non-profit organization dedicated to supporting vulnerable communities to create their own solutions to health crises. She works with community leaders to organize, prepare and respond to COVID-19 using the CommunityFirst COVID-19 Roadmap. Working in partnership with MSF Urban Spaces, Jessica also founded and serves as an Advisory Board member of an initiative to welcome newly arrived asylum seekers to Montreal. Prior to SeeChange, Jessica was a Program Manager at the Samuel Centre for Social Connectedness, where she directed research, outreach and advocacy related to forced migration on the North American continent. Jessica holds a B.A. in International Development from McGill University.

Overcoming lockdown restrictions by digitising health promotion

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What challenge or opportunity did you try to address? Were existing solutions not available or not good enough?

During the COVID-19 pandemic, MSF field health promotion (HP) teams in many countries have been faced with limitations caused by lockdown restrictions. To protect populations, in-person meetings were banned, and disseminating information to communities about COVID-19 protection measures and symptoms became complicated. Traditional HP tools, such as health talks or outreach events, were impossible.

Why does this challenge or opportunity matter – why should MSF address it?

Until the pandemic is over, communities worldwide will be faced with varying degrees of restrictions on movement and gatherings. The same is true for MSF teams. While meeting people physically remains restricted, the organisation will need alternative methods of interacting with communities, both on an individual level and in groups.

Describe your innovation and what makes it innovative

Use of social media by MSF has been limited to communications teams. By changing the paradigm and approaching these platforms as tools to disseminate HP information, we are uncovering massive potential. We implemented digital HP through social media platforms (Facebook, Instagram, WhatsApp) in 11 countries.

Who will benefit (whose life / work will it improve?) and were they involved in the design?

Communities served by MSF received relevant and accurate information about COVID-19 prevention and related health information. The communities we targeted were also involved in designing the campaigns, in line with community engagement principles.

What objectives did you set for the project – what did you want to achieve and how did you define and measure success (improved service, lower cost, better efficiency, better user experience, etc.)?

We aimed to disseminate relevant information as widely as possible. Where possible, we engaged in one-to-one conversations with community members via messenger applications.

What data did you collect to measure the innovation against these indicators and how did you collect it? Include if you decided to change the indicators and why

The 'reach' of a social media post is defined as the number of individuals who are exposed to that post through their own social media account. We collected information on the number of people reached, total number of views, frequency of views per person, number of comments, number of conversations, and topical breakdown of conversations between June and December 2020.

How did you analyse this data to understand to what extent the innovation achieved its objectives? Did this include a comparison to the status quo or an existing solution?

We reviewed the data globally and by country.

Were there any limitations to the data you collected, how you collected it or how you analysed it, or were there any unforeseen factors that may have interfered with your results?

All data were pertaining to online activities only; we could not reach people in areas of limited data coverage (for example most of South Sudan outside Juba, or the Central African Republic) or people without access to social media. In some cases, our objectives were to promote in-person services, and we struggled to match online data to offline results (number of people accessing services or changing behaviour).

What results did you get?

We reached over 21 000 000 people through 14 social media campaigns. We recorded over 106 000 000 views of HP messages, 15 000 one-to-one conversations, and 6 600 comments.

Comparing the results from your data analysis to your objectives, explain why you consider your innovation a success or failure?

This is the first example of social media being used for rapid digital HP at this scale and in response to a global emergency. We leveraged pre-existing tools to disseminate critical health-related information in lockdown scenarios. We reached 21 000 000 people in 6 months and therefore consider this pilot a success.

To what extent did the innovation benefit people's lives / work?

Those who engaged with our campaigns had the opportunity to interact with MSF staff without risking exposure to COVID-19.

Is there anything that you would do differently if you were to do the work again?

We would develop an improved system for measuring whether online results accurately reflect population health outcomes.

What are the next steps for the innovation itself (scale up, implementation, further development, discontinued)?

Development of indicators and measurable connections to health outcomes are required. Creating referral pathways to different modes of communication will also be important, allowing for more detailed HP support through platforms that are better equipped for two-way communication.

Is the innovation transferable or adaptable to other settings or domains?

Social media is used globally, in contexts with mobile data coverage.

What broader implications are there from the innovation for MSF and / or others (change in practice, change in policy, change in guidelines, paradigm shift)?

We hope to demonstrate that the use of digital tools and social media are not only for communication teams but can directly contribute to the improvement of health-seeking behaviour. Additionally, this approach should be considered for HP in hard-to-reach populations.

What other learnings from your work are important to share?

Other digital HP projects from Lebanon and Zimbabwe have been presented at previous MSF Scientific Days. We have shown that this approach can also be used on a global scale.

Ethics

This innovation project did not involve human participants or their data; the MSF Ethics Framework for Innovation was used to help identify and mitigate potential harms.

Jakub Hein

Jakub Hein has been working with MSF in various digital positions for the last five years. Initially focusing on digital communications, he has branched out into the use of digital tools for health promotion (HP) in MSF missions. He has piloted several digital HP campaigns in South Africa and Zimbabwe, growing the digital HP concept from a pilot into a regional approach, and integrating digital HP into medical activities within MSF projects in Southern Africa. In 2020, he led the creation of a Digital Health Promotion Unit under the COVID-19 Task Force. Later, the unit was fully integrated into the medical department, and continues to support around 20 countries where MSF implements a digital health promotion approach.

Video/Virtually Observed Therapy for patients with drug-resistant tuberculosis in Eswatini: a rapid response to COVID-19 lockdown measures

*Aung Aung[1], **Michelle Daka**[1], Abiy Tamrat[2], Takudzwanashe Gwitima[1], Tendai Chidhuro[1], Marie Luce Tombo[1], Debrah Vambe[3], Barbara Rusch[2], Alex Telnov[2], Iza Ciglenecki[2], Bernhard Kerschberger[1]

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What challenge or opportunity did you try to address? Were existing solutions not available or not good enough?

The COVID-19 pandemic has prompted lockdown measures in many places, but patients continued to travel for essential health services. Since COVID-19 has potentially adverse health outcomes among patients with drug-resistant tuberculosis (DR-TB), innovative strategies for medication adherence that minimise travel and the chance of exposure are needed.

Why does this challenge or opportunity matter – why should MSF address it?

Historically, directly observed therapy (DOT) has been provided in health facilities, requiring patient travel, or by community treatment supporters (CTS), who travel to patients. The World Health Organisation (WHO) recommends the use of digital methods to support treatment adherence. In response to the COVID-19 pandemic and in collaboration with the National Tuberculosis Control Program (NTCP), we implemented video/virtually observed therapy (VOT) in Shiselweni, Eswatini in May 2020. This allowed the daily observation of patients taking their medication to be done using video messages rather than in-person.

Describe your innovation and what makes it innovative

The aim of VOT is to support patients with drug adherence using a secured smartphone application. Patients were provided with a sim-implanted, application-installed smartphone with monthly internet subscription and shown how to take and share videos. Nurses reviewed the videos through a web-based dashboard, assessed adherence, and provided feedback. Videos could not be recovered from the smartphone and were retained for a maximum of 45 days on the server.

Who will benefit (whose life / work will it improve?) and were they involved in the design?

Patients who were eligible for VOT (living in network coverage area, smartphone literate, and consented to share videos of themselves) were registered on the web-based platform, which generated login details for the application called SureAdhere©. Those that did not meet the eligibility criteria continued with DOT, provided by community treatment supporters or family treatment supporters.

What objectives did you set for the project – what did you want to achieve and how did you define and measure success (improved service, lower cost, better efficiency, better user experience, etc.)?

We reviewed patient adherence every month and followed the user experience to understand future scale up. Medical teams and patients also benefitted from instant communication using the application.

What data did you collect to measure the innovation against these indicators and how did you collect it? Include if you decided to change the indicators and why

The number of patients using VOT for adherence support was collected routinely in the monthly TB register. Individual adherence levels were shown in adherence calendars on the web-based dashboard and nurses produced monthly adherence levels for the VOT cohort.

How did you analyse this data to understand to what extent the innovation achieved its objectives? Did this include a comparison to the status quo or an existing solution?

We retrospectively analysed data to assess VOT uptake among the total DR-TB treatment cohort. Adherence was classified into levels: excellent (100%), good (>90%), or moderate (<90%).

Were there any limitations to the data you collected, how you collected it or how you analysed it, or were there any unforeseen factors that may have interfered with your results?

We were unable to compare our results with the adherence levels of patients using conventional DOT since routine DOT data was not collected electronically. Some delays in video transmission were experienced due to connectivity issues.

What results did you get?

In May 2020, 18 (43%) of 42 patients fulfilled the eligibility criteria and started VOT, increasing to 25 (61%) of 41 patients in November 2020. Two patients using VOT completed treatment with successful outcomes. An adherence level of perfect was observed in all patients undergoing VOT during May and June 2020. Adherence decreased monthly until October 2020 at which 20 (77%) of 26 patients had excellent adherence, four (15%) had good adherence, and two (8%) had moderate adherence. In November 2020, 20 (80%) of 25 patients had perfect adherence and five (20%) had good adherence.

Comparing the results from your data analysis to your objectives, explain why you consider your innovation a success or failure?

We were able to provide adherence support despite the pandemic outbreak. Although average adherence levels did not remain excellent for all patients, the majority of patients achieved favourable adherence, and we were able to quantify adherence using this method.

To what extent did the innovation benefit people's lives / work?

We implemented VOT relatively swiftly after lockdown measures began in Eswatini, thereby providing timely adherence support to patients with DR-TB.

What are the next steps for the innovation itself (scale up, implementation, further development, discontinued)?

Uptake of VOT among patients with DR-TB was improving although maintaining perfect adherence was difficult. VOT will be included as an adherence support method for all eligible patients in upcoming research on oral short-course treatment for DR-TB.

Is the innovation transferable or adaptable to other settings or domains?

The application is straightforward, and the dashboard can be used to easily identify adherence problems to allow for prompt patient support. It gives a clear overview of adherence levels and has enabled direct communication between the patients and healthcare workers.

What broader implications are there from the innovation for MSF and / or others (change in practice, change in policy, change in guidelines, paradigm shift)?

In this context, VOT was used to minimise the possibility of physical exposure to SARS-CoV-2 and to overcome COVID-19 travel restrictions. However, the NTCP are interested in using VOT as the standard of care adherence monitoring method for eligible patients in DR-TB programmes.

What other learnings from your work are important to share?

VOT was well-received by patients and healthcare workers, although a proportion of patients still preferred in-person DOT. Controlling monthly internet usage and restricting the use of other smartphone applications were required. Data protection advice was sought at headquarters level. Access to the VOT application is password-protected and we are confident that privacy and confidentiality have been respected according to ethics guidelines.

Ethics

This description and evaluation of an innovation project fulfilled the exemption criteria set by the MSF Ethics Review Board. It was conducted with permission from Monica Rull, Medical Director, Operational Centre Geneva, MSF.

Michelle Daka

Michelle is a nurse by profession; she studied in Zimbabwe and graduated as a registered nurse in 2005 at Mpilo School of Nursing. She has recently completed her Master's in Public Health at the University of Roehampton, UK. She has a vast professional working experience of almost 16 years in the medical field, acquired since 2005 with her work in Zimbabwe. Since 2011, Michelle has been working as a tuberculosis ward nurse in a drug-resistant tuberculosis ward in the Kingdom of Eswatini, working with MSF and in collaboration with the country's Ministry of Health. Since 2012, Michelle has then become a tuberculosis zone supervisor, health zone supervisor, and head of clinical activities, all as part of her recent years' experience working with MSF. She is currently working as a nursing activity manager in MSF's tuberculosis/HIV project, in the Shiselweni region of the Kingdom of Eswatini. She likes exploring and learning new things.

Antibiogo: smartphone-based application to tackle antibiotic resistance challenges in low-to-middle income countries.

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Introduction

Timely and accurate identification of microorganisms and assessment of antimicrobial susceptibility in clinical specimens help clinicians in selecting the most appropriate treatment for their patients. In low-to-middle income countries (LMIC), bacteriological testing is generally not performed routinely due to technological challenges. This contributes treatment delays and consequent clinical complications, extended hospital stays, and the global spread of multidrug resistance (MDR). The MSF Foundation has developed Antibiogo, an offline smartphone-based application that allows non-microbiologists to carry out antimicrobial susceptibility testing (AST) and interpret the results. We are presenting the preliminary results of the Antibiogo performance evaluation.

Methods

Antibiogo comprises several components: the Image Analysis Program (IAP) that detects and measures inhibition zone diameters (IZDs); the Expert System (ES) that adjusts AST results based on the application of expert rules and identifies resistance mechanisms; and the Selective Reporting Program. For the evaluation of the IAP, we used collection isolates (n=8) and compared the automatic measurement of IZDs using Antibiogo with the readings made by eight laboratory technicians who inspected the plates manually. For evaluation of the ES, we used Antibiogo to assess 60 pathogens isolated from bone and tissues from patients admitted to MSF's Reconstructive Surgical Project in Amman, Jordan, between February and September 2020. In parallel, pictures of AST were shared with an external clinical microbiologist who performed an independent and blinded interpretation. Results of the two parallel interpretations were compared and the discordances categorised (minor, major, very major).

Results

Evaluation of the IAP showed good concordance of measurements between technicians and Antibiogo (Krippendorff's alpha value of 0.957, 95% confidence interval [CI] 0.94-0.97; p<0.001). These results indicate excellent inter-rater agreement between human raters and the Antibiogo platform for these pathogen-antibiotic pairs. For evaluation of the ES, 509 paired samples were read in parallel, and agreement of the measured diameters was excellent (R2=0.95). The ES correctly classified 474 (95.2%) of 498 interpretable samples (95% CI 92.9- 97.4), corresponding to a Krippendorff's alpha value of 90.6% (95% CI 87%-94%). This indicates excellent to near-perfect agreement. Further investigation of the samples showing non-agreement is underway.

Conclusions

Preliminary results suggest that Antibiogo is a very promising tool that can be used for the interpretation of antibiograms. This could improve access to microbiology diagnostic tests and the rational use of antibiotics in LMIC. The application currently undergoing further evaluation using a diverse set of pathogens isolated from multiple sites.

Ethics

This study was approved by the MSF Ethics Review Board and the Hospital Director of Al Mowasah Hospital, Amman, Jordan.

Nada Malou

Nada Malou holds a PhD in Microbiology. After several years spent in the field implementing microbiology laboratories in Mali, Jordan, and Yemen, she joined MSF's Operational Centre Paris medical department as a laboratory advisor and then as bacteriology and antibiotic resistance advisor. She has supervised the implementation of bacteriology laboratories in the Central African Republic, Liberia, Gaza, Yemen, Iraq, and Lebanon. She has collaborated with the antibiotic resistance task force where she led the microbiology intersectional group.In 2016, she joined the MSF Foundation in order to create Antibiogo, an open access, free, and offline smartphone-based application that enables reading and interpretation of antibiograms by non-expert laboratory technicians. She has continued her involvement in the development of Antibiogo with the MSF Foundation, while also joining the antimicrobial resistance team of Foundation for Innovative New Diagnostics in October 2020.

A digital portable tablet audiometry monitoring tool for patients with drug-resistant tuberculosis

Miriam Arago[1], Mario Mangue[1], ***Nuria Cumbi**[1], Ana G. Zamudio[1], Anne Loarec[1], Barbara Rusch[2], Lucas Molfino[2], Abiy Tamrat[2], Claudia Mutaquilha[3]

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What challenge or opportunity did you try to address? Were existing solutions not available or not good enough?

Ototoxicity is an unfortunate side-effect of second-line injectable drugs for drug-resistant tuberculosis (DRTB), including aminoglycosides and peptides. Worldwide, up to 15% of patients on treatment regimens containing these drugs develop a degree of ototoxicity. Patients who experience ototoxicity are generally switched to an oral treatment regimen. Although regular audiological evaluations are recommended for patients receiving these drugs, there is limited access to these services, and few patients with noticeable hearing problems are referred for confirmation and follow-up.

Why does this challenge or opportunity matter – why should MSF address it?

Before the introduction of this digital tool, the MSF DRTB project in Mozambique had to refer patients to the Central Hospital in Maputo. This limited the number of patients screened and referred for testing, curtailing the potential to switch treatment early for those showing mild-to-moderate hearing loss.

Describe your innovation and what makes it innovative

In 2018, the team piloted a way to simplify monitoring of hearing using a clinically approved mobile tablet-based tool that has been found to be comparable with traditional audiometry measurements in children and adults. MSF acquired three kits of CE-marked and FDA-certified iOS-based audiometry kits from SHOEBOX® Audiometry systems. The units were comprised of calibrated headphones and tablet-based software that have acceptable accuracy (±10dB) with 90% sensitivity and specificity. The portable units were deployed in rotation in six health centres over two years; a total of 673 audiometry tests were performed in MSF-supported public health centres in Maputo.

Patients were tested at baseline during their first consultation and then monthly while on treatment regimens that included injectable drugs.

Who will benefit (whose life / work will it improve?) and were they involved in the design?

The 2018 Mozambique National TB Committee approved treatment without injectable drugs in patients who had any degree of hearing impairment before the initiation of treatment. Patients screened using the digital tool directly benefitted from switching to oral DRTB treatment if they exhibited any hearing loss, without requiring hospital referral.

What objectives did you set for the project – what did you want to achieve and how did you define and measure success (improved service, lower cost, better efficiency, better user experience, etc.)?

We describe the implementation and use of a mobile audiometry system for patients with treatment-related ototoxicity in the MSF DRTB project in Mozambique, and consider its potential for easily assessing hearing deterioration in this cohort.

What data did you collect to measure the innovation against these indicators and how did you collect it? Include if you decided to change the indicators and why

Routinely collected data were evaluated.

Were there any limitations to the data you collected, how you collected it or how you analysed it, or were there any unforeseen factors that may have interfered with your results?

Data were analysed retrospectively from routine records and may not be exhaustive. Separate analysis of baseline and follow-up was not possible.

What results did you get?

Of the 673 audiometry tests conducted using the digital tool, 480 (71%) showed normal hearing, 65 (10%) mild hearing loss, 81 (12%) moderate hearing loss, and 47 (7%) severe-to-profound hearing loss.

Comparing the results from your data analysis to your objectives, explain why you consider your innovation a success or failure?

This decentralised approach does not need specialised setup, which may lead to increased screening, proper follow-up, and more potential for early switching of drug regimens.

To what extent did the innovation benefit people's lives / work?

Decreasing the need for hospital referrals improved time and transport costs for patients.

Is there anything that you would do differently if you were to do the work again?:

A cost-benefit analysis to compare the mobile audiometry system to referrals would be beneficial for programmatic decisions.

What are the next steps for the innovation itself (scale up, implementation, further development, discontinued)?

In December 2019, the project was phased out as there was a protocol change in which injectable drugs were replaced with more potent and fully oral regimens that made monitoring for ototoxicity unnecessary for most patients.

Is the innovation transferable or adaptable to other settings or domains?

The tools adapted are clinically approved for screening activities for any programmes that deal with hearing loss.

What broader implications are there from the innovation for MSF and / or others (change in practice, change in policy, change in guidelines, paradigm shift)?

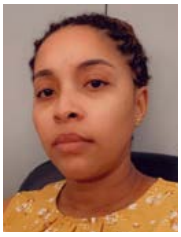
The project demonstrates the potential to improve follow-up and detect complications early for patients who take ototoxic medications.

What other learnings from your work are important to share?

User-friendly and automated audiometry systems that are mobile and do not require audiologists or sound-insulated booths could be extremely useful to various medical projects using potentially ototoxic drugs such as aminoglycosides. They may also be beneficial for environmental projects with noise and toxic pollutions. The high cost of the license could present a limitation necessitating a cost-benefit analysis before contemplating scale-up.

Ethics

This description and evaluation of an innovation project involved human participants or their data, and has had ethics oversight from Monica Rull, Medical Director, Operational Centre Geneva, MSF.



Núria Cumbi

Núria Cumbi has been working as a general practitioner in different medical structures in Maputo, Mozambique, for the last six years. Since 2018, Núria has worked with MSF in the drug-resistant tuberculosis project, supporting six health facilities in screening, treatment and care of drug-resistant tuberculosis patients. Interested in global approaches to public health, Núria is completing a Master's in Public Health with the Eduardo Mondlane University, Maputo.

Innovation Demonstrations

Demo presenters are available for live chat during the breaks in the exhibition hall

Telemedicine enabled by smart glasses: creating access to affordable, quality healthcare in underserved areas in Democratic Republic of the Congo

S. Serneels[1], W. Vandamme[2], F. Sere[3]

[1]Iristick, Antwerp, Belgium; [2]Institute of Tropical Medicine, Antwerp, Belgium; [3]Memisa, Belgium, Brussels

MSF Field Project Simulator: plan, communicate, train, and engage

M. Moktar[1]
[1]Médecins Sans Frontières (MSF), Vancouver, Canada

The MSF Telehealth Toolkit: a standardised system to plan, implement, and evaluate call centres and hotlines

H. Phelan[1], A. Tamrat[2], F. Schneider[3], L. Bryson[1], M. Tanaka[1]

[1]Médecins Sans Frontières (MSF), Stockholm, Sweden; [2]MSF, Geneva, Switzerland; [3]Canada Telemedicine Unit, Toronto, Canada

Simple solutions for sustainable procurement and performance: presenting a supply chain risk categorisation framework

M. Lombardini[1]

[1]Médecins Sans Frontières (MSF), Cox's Bazar, Bangladesh

A solar air conditioning (AC) modelling tool - is solar AC right for your project?

M. Tanaka[1], B. Frydman[2], A. Gonzalez[3], P.E. Eriksson[1]

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MSFCalc – medical forecasting in new programmes

P. Ghergu[1], Y. Vogiazou[2], F. Galban Horcajo[3], A. Reddy[4], M. Tanaka[3], L. Bryson[3], D. Beversluis[5]

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Nyss: a community-based surveillance reporting and alert tool

J. Jung[1], C. Haskew[2], A.H. Beledi[3], G. Krøyer[2], N. Riedel[2], A. Baidjoe[2], M.S. Mohamed[3], J.A. Osman[3]

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The MSF Science Portal: a "one-stop shop" for public research content

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MSF pharmacists hand out medication to patients at a primary health clinic in Ethiopia


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