



# REPORT OF THE 3RD MSF PAEDIATRIC DAYS

Stockholm, Sweden  
April 5 & 6, 2019







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On behalf of the Organizing Committee, I would like to thank all those who believed in the Paediatric Days and made it successful.

Special words of gratitude go to:

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- the session chairs, speakers and our two moderators, **Kemi Ogundipe** and **Eugene Bushayija**, who volunteered to make these two days vibrant, appealing and interactive,
- the Paediatric Days Project Coordinator, **Elise Didier**, and the Paediatric Days Project Intern, **Marja Hyvärinen**, whose dedication, creativity and hard work ensued a smooth and efficient organization, as well as our Communication Support Officer, **Hawraa Daoud**,
- **Ana Victoria Valori**, who captured and summarised in this report the substance and spirit of the exchanges that took place during the Paediatric Days,
- **Emma Veitch**, for providing editorial assistance.

**Jean-Christophe Dollé**

HR Director, MSF Sweden  
Coordinator of the Organising Committee,  
Paediatric Days 2019

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# ACRONYMS

|                |   |               |  |
|----------------|---|---------------|--|
| <b>ATFC</b>    | Ambulatory Therapeutic Feeding Centre       | <b>MH</b>     | Mental Health                              |
| <b>bCPAP</b>   | bubble Continuous Airway Positive Pressure  | <b>MoH</b>    | Ministry of Health                         |
| <b>BEmONC</b>  | Basic Emergency Obstetric and Neonatal Care | <b>MSF</b>    | Médecins Sans Frontières                   |
| <b>CMAM</b>    | Community Management of Acute Malnutrition  | <b>MUAC</b>   | Mid-Upper Arm Circumference                |
| <b>CO</b>      | Clinical Officer                            | <b>NCDs</b>   | Non-Communicable Diseases                  |
| <b>CPAP</b>    | Continuous Positive Airway Pressure         | <b>NCHS</b>   | National Centre for Health Statistics      |
| <b>C-POCUS</b> | cardiac POCUS                               | <b>nCPAP</b>  | nasal Continuous Airway Positive Pressure  |
| <b>CYP</b>     | Children and Young People                   | <b>NICU</b>   | Neonatal Intensive Care Unit               |
| <b>DAT</b>     | Diphtheria Antitoxin Treatment              | <b>NGO</b>    | Non-Governmental Organisation              |
| <b>DRC</b>     | Democratic Republic of Congo                | <b>PEEP</b>   | Positive End Expiratory Pressure           |
| <b>DKA</b>     | Diabetic Ketoacidosis                       | <b>PICU</b>   | Paediatric Intensive Care Unit             |
| <b>FGM</b>     | Female Genital Mutilation                   | <b>POCUS</b>  | Point-of-care ultrasound                   |
| <b>GA</b>      | Gestational Age                             | <b>PTSD</b>   | Post-Traumatic Stress Disorder             |
| <b>GP</b>      | General Practitioner                        | <b>RDS</b>    | Respiratory Distress Syndrome              |
| <b>HBB</b>     | Helping Babies Breathe                      | <b>RHD</b>    | Rheumatic Heart Disease                    |
| <b>HIV</b>     | Human Immunodeficiency Virus                | <b>ROP</b>    | Retinopathy of Prematurity                 |
| <b>HFNC</b>    | High-Flow Nasal Cannula                     | <b>RUTF</b>   | Ready-to-Use Therapeutic Food              |
| <b>HHHFNC</b>  | Heated Humidified High-Flow Nasal Cannula   | <b>SAM</b>    | Severe Acute Malnutrition                  |
| <b>HRS</b>     | High Resource Settings                      | <b>SIU</b>    | Sweden Innovation Unit                     |
| <b>INSURE</b>  | INTubate-SURfactant-Extubate                | <b>SGBV</b>   | Sexual and Gender-Based Violence           |
| <b>IPWG</b>    | International Paediatric Working Group      | <b>U5</b>     | Under 5 Years Old                          |
| <b>ITFC</b>    | Inpatient Therapeutic Feeding Centre        | <b>U6m</b>    | Under 6 Months                             |
| <b>KMC</b>     | Kangaroo Mother Care                        | <b>US</b>     | Ultrasound                                 |
| <b>LBW</b>     | Low Birth Weight                            | <b>W/L</b>    | Weight for Length                          |
| <b>LMIC</b>    | Low- and Middle-Income Countries            | <b>WAZ</b>    | Weight for Age Z score                     |
| <b>LRS</b>     | Low Resource Settings                       | <b>WHO</b>    | World Health Organization                  |
| <b>MAM</b>     | Moderate Acute Malnutrition                 | <b>WHO-GS</b> | World Health Organisation-Growth Standards |
| <b>MAMI</b>    | Management of At Risk Mothers and Infants   | <b>WHZ</b>    | Weight for Height Z score                  |
| <b>MIC</b>     | Middle-Income Countries                     | <b>WLZ</b>    | Weight for Length Z score                  |

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### **Hawraa Daoud**

Communication Support Officer  
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# INVITED SPEAKERS

## First day, Morning Session – Respiratory support in neonates and paediatrics – progress in MSF settings

### **Andrew Argent**

Andrew Argent has worked in paediatric critical care in Cape Town, South Africa, for the last 30 years. He is currently Head of the Department of Paediatrics and Child Health at the University of Cape Town and the Red Cross War Memorial Children's Hospital. He is a past President of the World Federation of Pediatric Intensive and Critical Care societies, and the Critical Care Society of Southern Africa. He has a particular interest in the provision of care to critically ill children in countries around the world, and has been involved in the development and implementation of training programmes for healthcare workers in paediatric critical care. He has also been involved in the development of appropriate responses to severe sepsis in children, particularly in the poorer countries of the world.

### **Elise Nolo**

Elise Nolo is a French paediatric nurse with 18 years of experience. She worked for many years in several wards, including emergency services, surgery, and neonatology, in the Children's Hospital, La Timone, Marseille, France. She has worked with MSF between 2007 and 2016, mostly in mother and child care programs, including those focussing on malnutrition in Niger, primary health care centres in Central African Republic, and the paediatric and neonatal unit in South Sudan. Her last mission was in Irbid, Jordan, in 2016 as a coach for developmental care in the neonatal intensive care unit (NICU). Currently, she works in the paediatric and maternity units at the Hospital of Manosque, France. She currently focuses on two projects: the creation of a parent and child unit helping to promote attachment and bonding, and also her work as a yoga teacher for children for the last 4 years.

### **Nicholas Evans**

After undergraduate and postgraduate training mainly in the UK, since 1991, Nicholas Evans has worked as Senior Staff specialist in Neonatal Medicine at Royal Prince Alfred Hospital and Clinical Associate Professor at University of Sydney. His clinical and research interests have been varied, including the use of ultrasound in acute care settings, the haemodynamic causes of brain injury in preterm babies, and prevention of brain injury from severe jaundice in term babies. In March 2018, Prof Evans undertook his first mission with MSF to the NICU attached to the maternity project in Irbid, Jordan.

## First Day, Afternoon Session – Challenges regarding malnourished young infants under 6 months

### **Marie McGrath**

Marie McGrath is Co-Director of the Emergency Nutrition Network (ENN), a UK based charity. She has worked on acute malnutrition in infants under six months of age since 2008 and is ENN lead on the Management of At Risk Mothers and Infants (MAMI) Special Interest Group, a global collaboration of researchers, programmers and policy makers. Marie is also ENN lead on infant and young child feeding in emergencies and has participated in several WHO guideline developments, including those focussed on HIV and infant feeding, HIV and infant feeding in emergencies, infant feeding and Ebola virus disease, and infant feeding and Zika virus disease. Marie is co-editor of ENNs publication, Field Exchange.

### **Martha Mwangome**

Martha Mwangome is currently working at KEMRI/Wellcome Trust Research Programme, as a Research Scientist in the Nutrition Assessment and Intervention research group. She is currently funded by Global Health Strategies, Africa Research Excellence Fund and the Bill and Melinda Gates Foundation. She is broadly interested in testing novel and cost-effective approaches to assessment, prevention and treatment of acute malnutrition in infants and young children in Africa. Altogether she has more than 13 years of experience in public health nutrition research in Africa. Her work has largely focused on studying undernutrition in African infants under 6 months of age (u6m) employing both qualitative and quantitative methods of data collection and analysis. She has continued to focus on evaluating the potential of using simple anthropometry such as mid-upper arm circumference (MUAC), and novel approaches in body composition, to define acute malnutrition and growth within this age group. In this meeting, Dr Mwangome will be presenting findings from analyses of large longitudinal infant cohorts from The Gambia, Kenya and Burkina Faso undertaken within the last 10 years. Analyses have focused on anthropometric identification of undernutrition among u6m infants. Currently, Dr Mwangome is funded to estimate body composition of malnourished u6m infants, in assessment of breastmilk composition consumed by malnourished u6m infants, and work on development of a post-discharge package of care for malnourished u6m infants recovering from hospital treatment. She is also working towards workforce innovation for implementation of treatment guidelines for malnourished u6m.

### **Hatty Barthorp**

Hatty Barthorp is a Global Nutrition Advisor with GOAL headquarters. She has been working on emergency, transitional and developmental nutrition programmes for over 15 years. Specific areas of interest lie in community-based support initiatives, focussing on empowering communities to be individually and collectively responsible for their own wellbeing, in conjunction with building improved multi-sectoral systems that support quality of life. The neglected and highly vulnerable demographic group of u6m infants has also been of particular interest to Hatty over the last couple of years.



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## Second Day, Morning Session – Child protection in disasters and humanitarian emergencies – the role of MSF?

### **Deborah Hodes**

Deborah Hodes has been a Consultant Community Paediatrician in London, UK since 1990, and is now employed by University College London Hospital NHS Foundation Trust (UCLH). Since 2014, she has been the Designated Doctor in Child Protection for the London Borough of Camden. She has vast clinical, teaching, strategic, and research experience in all aspects of child abuse and neglect. One particular interest is around the cultural aspects of maltreatment and communication with children and young people (CYP). In 2014 she started the only UK clinic for CYP with female genital mutilation (FGM) and in 2018 was appointed paediatric lead in the first UK service for sexually abused CYP, The Lighthouse.

### **Karen Olness**

Karen Olness is board certified in Developmental and Behavioral Pediatrics, and Professor Emerita of Pediatrics, Global Health and Diseases, at Case Western Reserve University, Ohio. She has been a volunteer relief worker in many countries and in 1996 initiated programs to train relief workers about the special needs of children in disasters. These workshops continue and have been presented in many countries. She is Strategic Advisor to the International Pediatric Association on Children in Humanitarian Emergencies, and Medical Director of Health Frontiers, an all-volunteer non-governmental organisation (NGO) that supports paediatric residency training programs in Laos, and training in disaster management.

### **Minja Peuschel**

Minja Peuschel, Senior Advisor on Child Protection in Emergencies, holds a Master's in Global Studies and International Relations. She has 20 years of experience in human rights and humanitarian work, including several years with international NGO's, and the UN, in Kosovo, Liberia, Côte d'Ivoire and Sudan. For the last 10 years she has been based at Save the Children, currently coordinating their humanitarian child protection work and representing the organisation in interagency child protection fora. Since 2010 she has co-led the interagency work on Minimum Standards for Child Protection in Humanitarian Action, companion standards to the Sphere standards, and sits on the Sphere Executive Committee.

### **Severine Courtiol-Eguiluz**

Severine is of French nationality, and has worked as an Advocacy Manager for MSF in Nigeria since November 2017. Severine has a Master's in economic development and project analysis. She started her career with humanitarian organizations in 1998, and then took on different positions including those of Project Manager, Human Resources/Finance Coordinator, Protection Manager and Head of Mission, and in various countries including Siberia, Sudan, Tajikistan, Myanmar, Central African Republic, Democratic Republic of the Congo, Niger, and Nigeria. She has worked with different organizations, including Save the Children, Danish Refugee Council, Action Contre la Faim, Handicap International, and MSF. Through her field experience and training opportunities, she has developed her skills in protection and humanitarian affairs, with a special focus on disability inclusion and child protection.

## Second Day, Afternoon Session – The changing landscape of paediatric non-communicable diseases in humanitarian settings

### **Abiola Oduwole**

Abiola is Professor of Paediatric Endocrinology at College of Medicine, University of Lagos, and an Honorary Consultant at Lagos University Teaching Hospital, Lagos, Nigeria. She has been in practice for more than 35 years. She is the coordinator of the Paediatric Endocrinology Training Centre for west Africa. The centre has trained over 35 paediatric endocrinology Fellows for west Africa's countries. She was involved in founding the Africa Society of Paediatrics and Adolescent Endocrinology, and was its President between 2012 and 2014. She also established the first country-based paediatric endocrine society in sub-Saharan Africa, the Society of Paediatric and Adolescent Endocrinology for Nigeria.



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### **Liesl Zühlke**

Liesl Zühlke is a paediatric cardiologist in the Department of Paediatric Cardiology, Red Cross War Memorial Children's Hospital, Cape Town. Previously, she worked as the clinical coordinator of several large-scale rheumatic heart disease (RHD) projects in South Africa and on the African continent. She has received a number of academic awards, locally and internationally, and is the immediate past president of the South African Heart Association, and the chairperson of the Pan-African Society of Cardiology Paediatric Cardiology and Cardiac Surgery Task Force. A previous board member of the Heart and Stroke Foundation of South Africa, she is now on the board of the Hatter Institute for Cardiovascular Research, an Associate member of the Institute of Infectious Diseases and Molecular Science, an honorary clinical fellow at Telethon Kids Institute, Perth, Australia, president of Rheumatic Heart Disease- Evidence, Advocacy, Communication and Hope, and co-founder of RHDAction. She is National Research Foundation-rated, with over 100 publications including in *Circulation*, *The Lancet* and *European Heart Journal*. She directs the Children's Heart Disease Research Unit, is a collaborator with the Institute of Health Metrics, and co-author on several Global Burden of Disease publications. She is involved in research projects spanning congenital conditions, RHD, HIV in adolescents, grown-up congenital heart disease, and cardiac disease in women of childbearing age, and recently won the prestigious Medical Research Council/UK Department for International Development African Research Leader Award.

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# EXECUTIVE SUMMARY

MSF Paediatric Days was established in order to fill the gaps around research, programming, and cost-effective strategies adapted to the low-resource and unstable settings that MSF works in. The conference brings together many actors collectively delivering paediatric health care in humanitarian settings all around the world to share experiences, projects, innovation, successes, and failures with the common objective of improving the neonatal, paediatric and adolescent care provided by MSF.

This, the third of MSF's Paediatric Days has had the highest attendance so far, with 245 participants from 47 countries gathering in Stockholm, Sweden, on 5-6 April 2019, plus approximately 735 online streaming viewers. The four main topics were addressed in expert panel sessions with invited speakers, joined by MSF medical and non-medical representatives, for further discussion from an operational perspective. The first session, on respiratory support in neonates and children, and progress in MSF settings, focused on the feasibility of continuous positive airway pressure (CPAP) and high-flow nasal cannula (HFNC) systems, and sharing different field experiences. The second session, on the challenging nature of management of malnourished infants aged under 6 months, addressed an internationally recognised problem, currently receiving attention from all MSF sections. The third session addressed the topic of child protection in disasters and humanitarian settings, and the long-debated role of MSF in this field. The fourth, and last, session focused on the broad topic of the changing landscape of paediatric non-communicable diseases in humanitarian settings. Furthermore, 17 oral presentations were presented in plenary and 61 posters were displayed at the venue.

The "PaedTalk" format provided an opportunity for MSF and non-MSF colleagues to share their work and personal experiences via 6 varied presentations, ranging from academic experts introducing a new concept in global health, such as humanitarian paediatrics, to experienced MSF workers reflecting on the evolution of the organisation and the needs of the contexts they are working in. Talks also provided insights into the challenges faced by field level health workers and policy makers within the global health cluster, and those of the highly specialised MSF telemedicine collaborators.

Two training exercises were held in the days prior to the main meeting, "Newborn Care" and "Helping Babies Breathe, Training of Trainers". Additionally, a "Paediatric Hackathon" was held, as well as four workshops the day after the conference: "Quality improvement in MSF paediatric projects", "Opportunities for point-of-care ultrasound for children in MSF settings", "Introduction to writing a case report" and "Respiratory care in low-resource settings".

The following report aims to summarise the main messages delivered during the meeting and make them accessible for those not able to attend.

**Videos from the Paediatric Days sessions are available at: [www.paediatrics.msf.org](http://www.paediatrics.msf.org)**

# KEY MESSAGES



1. The introduction of advanced respiratory support in MSF settings is feasible in specific projects under certain conditions, but should not be implemented without significant analysis and reflection.



6. Engagement in Child Protection – defined as the prevention of and response to abuse, neglect, exploitation and violence against children – is inevitable when delivering medical care in humanitarian settings and MSF should establish guidance for medical operations.



2. Both bubble Continuous Positive Airway Pressure (bCPAP) and Heated, Humidified High Flow Nasal Cannula (HHHFNC) systems have the potential to improve respiratory outcomes in MSF projects – adapted, low-cost, mechanically-simplified versions of both systems should be explored further to allow wider implementation in typical MSF settings, however the creation of ‘home-made’ circuits is not recommended.



7. During humanitarian emergencies, whether caused by armed conflict, disaster or epidemics, children face increased protection issues and lack of access to essential rights and services such as health, education and shelter – the creation of safe environments and child-friendly services is essential to reduce these barriers and to assure the physical and psychological health, and general wellbeing of children.



3. There is increasing evidence that Point-of-Care Ultrasound (POCUS) is feasible to implement and has a positive impact on patient care in MSF settings, and MSF has shown commitment and engagement to making this a standard diagnostic tool in MSF projects.



8. Chronic and Non-communicable Diseases (NCDs) – such as diabetes, rheumatic heart disease, epilepsy, asthma, sickle cell disease and thalassemia, among others – are common in children presenting to MSF structures, however access to adequate treatment in low and middle-income countries (LMIC) is limited.



4. Neither MSF nor international protocols and tools meet the needs of our fields for the assessment and management of malnourished infants less than 6 months (<6m) due to longstanding misperceptions, uncertainties and lack of adequate data on malnutrition in this age group.



9. As the burden of paediatric NCDs in most LMICs is only estimated, there is a need to improve diagnosis and reporting in MSF projects to have a clear understanding of needs and epidemiology.



5. Fundamental to the treatment of any infant <6m, but particularly for malnourished infants, is the acknowledgement that the mental, social and physical health of the mother-infant pair are inextricably linked: we must care for them as a unit.



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# FIRST DAY

## WELCOME SPEECHES AND OPENING REMARKS

**Karin Dahlman-Wright**, the vice-president of the Karolinska Institutet, warmly welcomed all the participants of the MSF Paediatric Days in Stockholm, emphasizing the importance of this collaboration for the Karolinska Institutet. She reinforced the idea of international collaboration, necessary to gather experience and create mutual international partnerships.

Acknowledging the university's long tradition of research, education and interactions with society, Karin Dahlman-Wright emphasised that the bond with MSF is strong and reflects a common interest in improving people's health in significant ways and contributing to science-based development regardless of regional and national borders. She explained the vital importance of the links between a medical university and with the practice and policy of healthcare, which may be in the immediate neighbourhood or far away; these links are bidirectional, with the need for scientific achievements to be translated efficiently into updated clinical practice; and, equally, clinical controversies should be fed back into research prioritisation and investigation.

Karin Dahlman-Wright concluded stating that it is not through the acts of a single isolated medical university, but only through wider collaboration, that we can together derive valuable new knowledge and deliver constant improvements to benefit health, medical care and society at large.

During the second opening speech, **Oliver Schulz**, General Director of MSF Sweden, thanked the Karolinska Institutet for allowing the meeting to take place in this venue and cordially welcomed all the attendees as well as those participants engaging via online streaming. Oliver Schulz underlined the nature of the event bringing together specialists, policy makers, researchers and practitioners from the field to discuss the challenges and problems faced in our projects with the goal of finding solutions and moving forward. He also described this activity as inspiring and acting as a catalyst for best practice in paediatric care, particularly in low-resource settings, as well as an opportunity to look at quality of care for MSF paediatric patients, from neonates up to adolescents. The collaboration with MSF Learning Units allowed several training exercises to take place before the Paediatric Days, and ensure MSF field staff participation during the Paediatric Days. Oliver Schulz highlighted that the objective of the event is to have evidence-based discussion and debates, and he pointed out that this year, for the first time, colleagues from Operational Departments of all MSF Operational Centres are joining the panel discussion to introduce an operational perspective to discussions.

# FIRST PLENARY SESSION

## Respiratory support in neonates and paediatrics – Progress in MSF settings

**Session Chairs:** Mats Blennow and Kristina Elfving, members of the Core Scientific Committee

**Speakers:** Andrew Argent, Elise Nolo and Nicholas Evans

**Panel:** Chairs, session speakers, Hans-Jorg Lang, Paediatric Advisor, Brussels and Ahmed Abd El Rahman, Health Advisor, Paris

| KEY MESSAGES  | WHY IT IS IMPORTANT?  | CURRENT CHALLENGES  | RECOMMENDATIONS  |
|---|---|---|--|
|  <p><b>1. The introduction of advanced respiratory support in MSF settings is feasible in specific projects under certain conditions, but should not be implemented without significant analysis and reflection.</b></p> | <ul style="list-style-type: none"> <li>- There is an increasing demand from the field for advanced respiratory support in MSF neonatal and paediatric projects.</li> <li>- There is a need for increased treatment options for respiratory failure in areas where referral options are limited.</li> <li>- Interventions in middle-income countries (MIC) countries where advanced respiratory support is the norm puts pressure on MSF to implement national standards.</li> <li>- MSF is investing in intensive care which requires the provision of advanced respiratory support, among others.</li> </ul> | <ul style="list-style-type: none"> <li>- Evaluating feasibility, operational limitations and risks of implementing advanced respiratory support in MSF fields.</li> <li>- Ensuring that the implementation of advanced respiratory support does not draw resources from other interventions that may have equal or greater impact.</li> </ul> | <p><b>FIELD:</b></p> <ol style="list-style-type: none"> <li>1. Ensure minimum standards of care – both respiratory (e.g. correct oxygen use and pulse oximetry) and non-respiratory (e.g. infection prevention and control (IPC), basic equipment and monitoring) – are in place and functioning well before escalating in complexity of care.</li> <li>2. Ensure the provision of skilled nursing care, which is imperative in paediatric and neonatal hospital care, and even more so when providing advanced respiratory support for babies and children.</li> </ol> <p><b>OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>3. Understand the operational implications of scaling up respiratory support, taking into account cost, expected impact and risks, and balance this with other potentially simpler activities that benefit a greater number of patients and may have a bigger impact on mortality.</li> </ol> <p><b>RESEARCH/HQ:</b></p> <ol style="list-style-type: none"> <li>4. Evaluate the impact of advanced respiratory support on mortality in MSF settings.</li> <li>5. Ensure the provision of country-specific protocols for implementation of advanced respiratory support and tools for collection of data to monitor success/impact.</li> </ol> |

| KEY MESSAGES   | WHY IT IS IMPORTANT?  | CURRENT CHALLENGES  | RECOMMENDATIONS   |
|--|---|---|---|
|  <p><b>2. Both bubble Continuous Positive Airway Pressure (bCPAP) and Heated, Humidified High Flow Nasal Cannula (HHHFNC) systems have the potential to improve respiratory outcomes in MSF projects – adapted, low-cost, mechanically-simplified versions of both systems should be explored further to allow wider implementation in typical MSF settings, however the creation of ‘home-made’ circuits is not recommended.</b></p> | <ul style="list-style-type: none"> <li>- The ability to provide invasive respiratory support in most MSF projects is unrealistic therefore non-invasive solutions are required.</li> <li>- Many traditional CPAP and HHHFNC systems are too complex and not adapted for field use.</li> <li>- In the absence of traditional systems, field teams are implementing ‘home-made’ bCPAP circuits following advice from WHO, without clear knowledge on the potential risks of such circuits.</li> </ul> | <ul style="list-style-type: none"> <li>- Evaluating whether to invest in bCPAP or HHHFNC systems.</li> <li>- The trend of evidence suggests that bCPAP may be more efficient than HHHFNC, but HHHFNC is simpler to implement, therefore may be more feasible and widely applicable to typical MSF settings.</li> <li>- Rationalizing the cost of the introduction of bCPAP circuits.</li> <li>- Limitations of staffing and the need to increase human resource ratios to support the needs of bCPAP or HHHFNC implementation.</li> </ul> | <p><b>FIELD:</b></p> <ol style="list-style-type: none"> <li>1. The use of locally-constructed or home-made CPAP circuits is not recommended in MSF field settings – further studies are required to evaluate their performance.</li> <li>2. Be judicious with the use of oxygen – avoid being part of a new epidemic of Retinopathy of Prematurity (ROP).</li> </ol> <p><b>OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>3. Create clear implementation plans for the introduction of bCPAP or HHHFNC within projects, to ensure that it is done in a comprehensive, high-quality and sustainable way – the provision of advanced respiratory support requires continuous monitoring and investment.</li> </ol> <p><b>RESEARCH/HQ:</b></p> <ol style="list-style-type: none"> <li>4. Explore the various low-cost bCPAP and HHHFNC circuits available using evidence to guide decisions on which circuits to invest in for use in MSF projects.</li> <li>5. Consider a formal study of the locally constructed bCPAP circuit suggested by WHO to determine the safety and efficacy of this circuit.</li> </ol> |

**Mats Blennow**, the chair of the session, introduced the session by reminding the audience that almost half (45%) of all mortality in children aged under five years (U5) is represented by neonatal mortality and that most of those deaths are related to breathing problems in the first 24 hours after birth. Afterwards, the neonatologist Frank Fuchs showed us some cases of babies and infants requiring more respiratory support than available from his experience working with MSF in the field.

**Andrew Argent** delivered the first expert presentation of the session entitled **“Implementation of high flow nasal cannula in MSF to children beyond the neonatal period: Who? When? Where?”**

Andrew Argent described the need to provide high flow systems, focussing on: 1- flows between 1-3l/kg/min (adequate supply of medical gases, both oxygen and medical air), 2- blenders (need to avoid delivering 100% oxygen), 3- humidification (effective heated humidification), and 4-

specific circuits. He went on to describe the main benefits of high flow as improving the efficiency of ventilation, because of the washout of upper airway dead space, and the counterbalance auto-PEEP (Positive End Expiratory Pressure) decreasing the work of breathing, as well as the heat and humidification decreasing the metabolic cost of breathing. The Professor stated that as a part of delivering high flow you do generate some PEEP, but it is not the same as that in a CPAP system.

Andrew Argent briefly discussed one study which showed that bCPAP worked much better than low flow. However, the study had to be stopped early, before the difference between bCPAP and high flow could be properly assessed, although the latter seemed to work well. Other studies have shown good results in older children with asthma although there are some doubts regarding infants with bronchiolitis.

He concluded with 3 main points: 1- the need to understand what is meant by “high flow”, reinforcing that it has



to relate to gas flows in particular patients and that there are no “magic” numbers; 2- there is limited evidence that high flow changes outcomes, but quite a lot of evidence showing that symptoms can be substantially alleviated in at least some patients; 3- the setup is potentially expensive, particularly regarding the high gas volumes and the delivery systems required (blenders are expensive and increase gas utilisation, humidifiers are expensive to purchase and run; and circuits cost around USD100-150 and should not be re-used unless sterilization is guaranteed). As a general conclusion he stated that HFNC is not a magic bullet, it requires resources, attention to maintenance and support, and careful nursing care although it may be very useful.

Afterwards, **Ursula Lück**, Neonatologist from MSF-Austria, shared her work in Jordan in the oral presentation entitled: **“Neonatal care in Irbid, Jordan – the experience of implementing a higher level of care in a MSF Neonatal Unit”**.

Ursula Lück described the project’s implementation as a staged approach, acknowledging that Irbid had a higher-level baseline in terms of health facilities and staff than other MSF settings. The process started in late 2013 when the intermediate level neonatal unit had 6 beds, increasing to 16 beds with both CPAP and surfactant therapy (using the INTubate-SURfactant-Extubate – INSURE – method) in 2016, being finally handed over to International Medical Corps in 2018.

**Elise Nolo**, Paediatric Nurse, and **Nicholas Evans**, Neonatologist, both having worked in Irbid Unit, shared their experiences on **“How to make CPAP sustainable in low-resource settings? Lessons from the neonatal ward in Irbid, Jordan.”**

Elise Nolo’s main goals for this NICU, which was able to receive newborns from 32 weeks of gestational age (GA), were to decrease the stress levels of preterm neonates ad-

mitted to the unit, and to protect the infant brain and create a positive environment for neurodevelopment.

After weeks of observation together with validation of adapted protocols and preparation of equipment, training was delivered for the whole nursing team within one week, along with one paediatrician, as well as daily supervision for two months afterwards. The different strategies varied from using nests for positioning and covers for incubators, to protocols for respecting sleeping times, the ability to ensure presence of family and particularly mothers, and skin-to-skin contact, even for babies receiving nasal Continuous Airway Positive Pressure (nCPAP) treatment. A kangaroo mother care (KMC) room was created, and painful procedures were reduced to the minimum; a protocol was set up to ensure provision of oral, non-nutritive glucose during invasive procedures. After specific training and the implementation of the protocol, the use of intravenous catheters was reduced from an average of 17 to five per admission, within one year.

Elise Nolo concluded by stating that even if she knows that the technology and setting in Irbid, Jordan are not the same as in many other MSF projects, the philosophy of care and the environmental and behavioural strategies, if properly adapted, could be applied and convey benefits in other settings too.

Nicholas Evans pointed out that one of the most dramatic changes in neonatology during the last 40 years has been the tendency to be less, rather than more, interventional. He explained that he worked in Irbid for two months during last year, but being aware of the fact that this particular project is not the reality for all MSF projects, he would leave it to others in the organisation to decide how these strategies should be adapted elsewhere.

The first part of his presentation focused on high-level evidence showing that high levels of oxygen cause ROP in premature babies (<37 weeks of GA), within a range of oxidative toxicities, and that 100% concentration increases mortality if used in resuscitation. Furthermore, data was presented showing that CPAP seems to reduce mortality and the need for ventilation, as well as chronic lung disease in babies as compared to ventilation, but also can increase the risk of pneumothorax if used instead of surfactant. Additionally, high flow has been shown to be similar to CPAP when used as secondary support, but is not as good when used as primary support. And lastly, replacement surfactant has been shown to speed recovery and reduce mortality from Respiratory Distress Syndrome (RDS) as well as the risk of pneumothorax; and the INSURE method has been proven to be as good as the intubate-surfactant-continue ventilating strategy.

He also noted that escalation of respiratory support needs to follow an order, since the main causes are evolving dis-

eases, and he specified that the normal escalation would be: Observation → Oxygen → CPAP → INSURE/Surfactant +/- ventilation. In Irbid, he observed that low flow oxygen, between 1-2 L/m, was delivered for neonates with RDS despite the level of oxygen saturation, which for preterms is a high concentration if not using blenders. He emphasized the growing concern about a current worldwide epidemic of ROP blindness, related mainly to the introduction of intensive care units in low-resource settings (LRS). Consequently, a flowchart for the management of respiratory distress was developed for the project.

Some of the main lessons the team learnt from this experience were that neonatal respiratory support is a package

of care, that every level needs resourcing appropriately, that escalation between levels needs clear guidelines and that it is very important to be judicious with the use of O<sub>2</sub> to prevent exacerbating the ROP epidemic. Nicholas Evans recommended to use ultra-low flow meters when oxygen is available and care for preterms is provided; to consider that high flow is probably more widely applicable because of fewer nursing skills and resources needed to provide it, though it is still complex and expensive; and that innovative solutions for compressed air supply, required for blenders, are needed, considering that CPAP and high flow as piped air are logistically difficult and expensive and medical air compressors are still expensive and many are not adapted for newborns.

## ORAL PRESENTATIONS

### Implementation of locally constructed bubble CPAP in an MSF emergency intervention in Gedeo, Ethiopia

#### **María Belén Italia Cenere, MSF Paediatrician**

This presentation described retrospectively the outcomes associated with the use of a locally adapted bCPAP circuit, following WHO and Ethiopia's Ministry of Health descriptions. Various limitations and considerations affected the conclusions that could be drawn from the results, but the main conclusion is that further studies, under more controlled settings, are needed to assess the potential benefits and risks of this low cost, simple intervention, feasible in MSF and LRS in general.

### Systems for bubble CPAP support in low-income countries: risk of deviating from original design

#### **Thomas Drevhammar, Senior Consultant, Anaesthesiology and Intensive Care, Östersund, Sweden**

Three main issues were identified when making adaptations to bCPAP systems: 1- high resistance interface, 2- increased dead space, and 3- narrow-bore expiratory tubing. The author concluded that modifications of bCPAP systems should be introduced with caution and risk-benefit analyses should be performed against the traditional bCPAP system as gold standard.

### An 8-month post-implementation review of CPAP in a Paediatric ICU in Monrovia, Liberia

#### **Nikola Morton, Paediatric Referent, MSF France**

The process of implementation took almost 12 months including developing specific protocols, training and CPAP flowchart. 15 key people were trained, including nurses and physician assistants. Pre- and post-implementation surveys were done. The conclusion is that CPAP is feasible in

this setting with a nursing-led model; it has demonstrated efficacy for lower respiratory tract infections, even though further training is needed, and patient selection needs to be improved. The most important success factor for similar projects was said to be well-trained nursing staff.

### Suction with bulb syringe during newborn resuscitation in Uganda: Too much too soon or too little too late?

#### **Nicholas Pejovic, Centre for International Health, University of Bergen, Norway**

While assessing newborn resuscitation by video filming after Helping Babies Breathe (HBB) training in Uganda, the team found that suction practices were done inappropriately in most cases, whereby staff took more time than recommended, leading to delays in the beginning of ventilation. Additionally, it was noted that while respiratory function monitoring was being used, there was a very high rate of complete airway obstruction after initial ventilation. A locally-made adapted suction device was developed for deeper rescue suctioning in these cases. Further investigation is needed to address this new problem and evaluate the prevalence of tracheal plugs and its origins in other settings. Recommendations included making efforts to avoid routine suctioning, and also to assess chest movements and heart rate after initial ventilation to identify the need for deep suctioning as a life-saving procedure.

## DISCUSSION AND WRAP UP OF THE FIRST PLENARY SESSION

- Consider that upgrades can be done at the level of primary healthcare, by introducing sustainable energy solutions, such as solar systems to provide electricity for oxygen concentrators and cold chains, which may improve considerably the care for children with respiratory infections.
- Reinforcement of the need to get the basics right before advancing complexity, considering that proper basic oxygen delivery is still a challenge in many MSF settings.
- From an operational point of view, risk-benefit analyses should be done better with regard to the implementation of non-invasive ventilation systems; it is not just about feasibility.
- Nursing care remains fundamental, including the importance of attention to detail (eg with regard to circuits, equipment, maintenance, cleanliness, etc.), to ensure that practice is safe. Teams need to understand the potential and risks of the systems they are using.
- It was queried whether MSF should invest in studying WHO's locally adapted CPAP system, or focus on high flow oxygen systems. Even though no clear recommendation was made, it was suggested that sustainability should be the focus, and that teams should be cautious when adapting systems; it is fundamental that levels of care are upgraded in an escalated way.
- Respiratory therapists are not currently featured in MSF plans for paediatric intensive care units (PICUs) or NICUs.
- The Irbid project had high levels of technical staff and equipment already in place; as a general rule, MSF does not recommend the use of incubators but rather cots with heaters in its projects. Regarding nursing care, the advancement needed to adapt implementation to other settings requires extensive planning and time.
- There is a lack of accurate data, within MSF missions, about how many Paediatric/Neonatal Units are providing basic or more complex respiratory support.
- Concern was raised from the audience about the high workload and patient to nurse/doctor ratio in most of MSF's projects, acting as a barrier to improving the level of respiratory support delivered.

### Point-of-care ultrasound (POCUS) implementation and patient examples in South Sudan and Niger

**Carla Schwanfelder (POCUS Focal Point, MSF, Switzerland), Malwall Sabino (Medical Activity Manager, MSF, Aweil, South Sudan) and Ezibon Phillip (POCUS/Telemedicine Focal Point, MSF, Agok, South Sudan)**

The methodology consisted of a field-based, four week-long training exercise targeting MSF in-country medical staff (GPs and Clinical Officers - COs), with a hands-on approach in small groups. For completion of training, each trainee has to complete 25 examinations using POCUS, with each one checked individually and verified by trainers. Telemedicine was used if further assessment was needed. Cardio-pulmonary exams are the most frequently used in the field. Focal points are being identified to carry out training of trainers, and to ensure continuous training and follow-up. The ambitious goal is to use POCUS across MSF projects.



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## PaedTalk: PAEDIATRIC CARDIOLOGY IN THE FIELD

### **Lynne Nield, Paediatric cardiologist, Toronto, Canada**

Lynne Nield has been supporting telemedicine platforms since 2015. For the cases she receives, the clinical examination described is quite short, mainly assessing vital signs, unlike the full clinical examination and diagnostic exams she gets in her everyday practice in Canada. Oxygen saturation is described in only around 50% of cases, and blood pressure and X-rays in around 20%. In some cases, where ultrasound (US) is available, a cardiac echo can be performed, even though conditions are not ideal. Cardiac consultations in telemedicine have increased eightfold in the last 3 years (with 5 paediatric cardiologists currently available). She shared the results of a descriptive study assessing the management of paediatric cardiology cases in developing countries using POCUS via a telemedicine platform. 233 cases were reviewed; cardiac

POCUS (C-POCUS) was performed in 82% of the cases, with a definitive diagnosis being possible in 83%, and a change in patient management in 59%. The prognosis was categorized as good in 36% of all patients, good with surgery in 4%, poor unless standard medical/surgical therapy was offered in 39%, and poor regardless of therapy offered in 20%.

Lynne Nield concluded by recommending dividing the resources allocated to cardiopathies, into three groups as follows: 1-prevention (treatment of group A streptococcus), 2-diagnosis (oxygen saturation monitors, blood pressure cuffs, expanding training for C-POCUS and US machines); and 3-treatment (medical therapies, high dependency care, surgical options and increased collaboration with local cardiology programmes).

| KEY MESSAGES  | WHY IT IS IMPORTANT?   | CURRENT CHALLENGES   | RECOMMENDATIONS   |
|---|--|--|---|
|  <p><b>3. There is increasing evidence that implementation of POCUS is feasible and can have a positive impact on patient care in MSF settings, and MSF has shown commitment and engagement to making this a standard diagnostic tool in MSF projects.</b></p> | <ul style="list-style-type: none"> <li>- There are few imaging modalities available in MSF settings and there is a need to improve diagnostic capacity in the field.</li> <li>- POCUS can support clinical reasoning and improve quality and safety of clinical management.</li> </ul> | <ul style="list-style-type: none"> <li>- Provision of POCUS training is lengthy and requires repeated training at specified intervals before users are autonomous.</li> <li>- Carrying out POCUS training at field level implies significant logistic and staff commitment.</li> </ul> | <p><b>FIELD:</b></p> <ol style="list-style-type: none"> <li>1. Continue to deliver standardised POCUS training at field level and development of POCUS Focal Points in each project.</li> <li>2. Minimise misdiagnosis by using POCUS alongside support networks like Telemedicine and discussion with trained colleagues.</li> </ol> <p><b>OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>3. Analyse the feasibility of POCUS implementation in all MSF projects and consider universal scale up in its use.</li> </ol> <p><b>HQ/POCUS TEAM:</b></p> <ol style="list-style-type: none"> <li>4. Ensure the availability of technical support and protocols to POCUS users.</li> </ol> |

### Paediatric Hackathon

#### **Lindsay Bryson, Medical Innovation Advisor, MSF Sweden**

The aim of a Hackathon is to bring together people from different areas of expertise (eg, medical, design, engineering) to look at different pre-identified challenges. The challenges came after the Sweden Innovation Unit (SIU) conducted over 40 interviews with different profiles of health workers from MSF and externally, all working in paediatric and humanitarian settings. While these challenges were not always the absolute priority, they were brought up by most of the respondents throughout the interviews.

The challenges selected for the hackathon were:

- Fluid management in neonatal care;
- Non-insecticidal community-based malaria prevention;
- Creative wound dressing and management;
- Child friendly spaces and interventions.

Five teams, consisting of medics, engineers, designers and content experts worked for two days to understand, brainstorm on and create solution prototypes to their challenge. At the end of that time, a jury of senior MSF and external design experts selected the front-running ideas on the basis of how innovative, viable and impactful the solutions were.

Currently, one solution, creative wound dressing and management, has been taken on as a formal project within the SIU, with the goal of gaining a deeper understanding of feasibility; one solution (child friendly spaces and interventions) has been worked on by a design consultant to create a visual prototype with the aim of sharing more widely within MSF. Finally, both teams that worked on the neonatal fluid management challenge are continuing to progress their work in their capacity as private individuals via their universities, and will remain in contact with SIU.

## SECOND PLENARY SESSION

### Challenges regarding malnourished young infants (<6 months)

**Chair:** Kirrily de Polnay, member of the Extended Scientific Committee

**Speakers:** Marie McGrath, Martha Mwangome and Hatty Barthorp

**Panel:** Chair, Speakers and Amber Alayyan, Health Advisor, Paris

| KEY MESSAGES   | WHY IT IS IMPORTANT?   | CURRENT CHALLENGES  | RECOMMENDATIONS   |
|--|--|---|---|
|  <p><b>4. Neither MSF nor international protocols and tools meet the needs of the field for the assessment and management of malnourished infants less than 6 months (&lt;6m) due to long-standing misperceptions, uncertainties and lack of adequate data on malnutrition in this age group.</b></p> | <ul style="list-style-type: none"> <li>- Traditional anthropometric measurements are not applicable to infants &lt;6m.</li> <li>- Mid-upper arm circumference (MUAC) and weight for age Z-score (WAZ) appear to better predict mortality compared to weight for height Z-score (WHZ) for infants &lt;6 months in various African studies, but cut-offs for these criteria are not yet validated</li> </ul> | <ul style="list-style-type: none"> <li>- Longstanding misperception that infants &lt;6m are protected from malnutrition by breastfeeding.</li> <li>- Uncertainty as to which anthropometric measurements most accurately identify malnourished infants &lt;6m, and which other criteria to use.</li> <li>- A likely underestimate of the magnitude of this problem as infants &lt;6m are not included in current nutritional survey tools.</li> </ul> | <p><b>OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>1. Include infants &lt;6m in nutritional surveys and rapid nutritional assessments as soon as anthropometric measures are agreed.</li> </ol> <p><b>HQ:</b></p> <ol style="list-style-type: none"> <li>2. Collaborate and share data with external partners to establish which anthropometric and non-anthropometric measures best identify nutritionally at-risk/malnourished infants &lt;6m.</li> <li>3. Update protocols for the inpatient management of malnourished infants &lt;6m with more emphasis on breastfeeding support and promotion (see below).</li> <li>4. Adapt and trial new outpatient packages of care for assessing and caring for malnourished infants &lt;6m that have been developed by a consortium of international bodies, in specific MSF contexts.</li> </ol> <p><b>RESEARCH:</b></p> <ol style="list-style-type: none"> <li>5. Consider carrying out similar research in other regions with high prevalence of malnutrition in infants &lt;6m, predominantly in Asia and the Middle East, to define anthropometric cut-offs in different settings.</li> </ol> |

| KEY MESSAGES  | WHY IT IS IMPORTANT?    | CURRENT CHALLENGES   | RECOMMENDATIONS  |
|---|-------------------------|--|--|
|  <p><b>5. Fundamental to the treatment of any infant &lt;6m, but particularly for malnourished infants, is the acknowledgement that the mental, social and physical health of the mother-infant pair are inextricably linked: we must care for them as a unit.</b></p> | <p>- Holistic care.</p> | <p>- Difficult to find breastfeeding specialists to work in the field.</p> | <p><b>FIELD/OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>1. Identify different opportunities and entry points to find and care for malnourished infants &lt;6m and their mothers – postnatal care, vaccination appointments etc. Establish integrated and comprehensive services – a one-stop clinic for maternal and child care.</li> </ol> <p><b>HQ:</b></p> <ol style="list-style-type: none"> <li>2. Ensure that the tools used to assess malnutrition amongst infants &lt;6m include guidance on assessing the mother's (or caretaker's) mental and physical health.</li> <li>3. Invest efforts in MSF to improve promotion and support of breastfeeding in all our projects, particularly in areas where malnutrition in infants &lt;6m is highly prevalent. New tools, training, guidance and awareness-raising are all urgently needed.</li> </ol> |

The chair, **Kirrily de Polnay**, started by explaining that, as the first nutrition session in MSF Paediatric Days, all the topics being addressed were unattainable; therefore, in response to views from the field, “challenges regarding malnourished young infants” was chosen because of the number of queries received regularly from all MSF sections. Sections have also realized that MSF does not yet have the answers to all the questions raised, but that the organization is trying to learn from other actors and how they are dealing with their cases.

**Vera Schmitz**, a paediatric nurse working with MSF, opened the session with a fictional story to which every humanitarian field worker could easily relate. The storyline was about a mother having trouble breastfeeding while living in a refugee camp. Focus was placed on those factors which may influence successful or unsuccessful breastfeeding practices, the obstacles which mothers may face, cultural acceptance, individuals’ personal histories, and the levels of emotional distress that are often not taken into consideration. Vera Schmitz called on all of us to focus on mothers, to give them tools and emotional support in order to allow them to develop a bond with their child despite the difficult situations they are living in. She asked actors to provide comprehensive mental health care, bearing in mind that opening an Inpatient Therapeutic Feeding Centre

(ITFC) is not enough, and to take the time necessary to invest in competencies and in people.

The first invited expert of the session was **Marie McGrath**, who discussed **“The MAMI (Management of At Risk Mother and Infants) Initiative - why do we need it?”**

Marie McGrath presented on behalf of the ENN (Emergency Nutrition Network), a large group of people and organizations/agencies working together in close collaboration since 2007, when NGOs started raising their voices about the challenges faced when trying to integrate young infants into existing nutritional programmes. The goal was to share investigations, analyses and research. The MAMI tool, version 1, was developed in 2008 as a result.

Initial investigations from the network revealed that the prevalence of wasting (weight for length, W/L score <-2Z) in U6m varied from 1.5% (National Centre for Health Statistics, NCHS) to 2-34% (World Health Organization- Growth Standards, WHO-GS) and >20% in India, Cambodia and Bangladesh. In developing countries, 15% of infants U6m had some degree of wasting and 6.8% had severe wasting. Existing guidelines were developed for inpatient care with little or no attention to community-based approaches and admission criteria varied. Supplementary suckling was the

most important intervention and overall mortality proved to be higher for U6m than for older children in nutritional programmes. Once the global burden was clear, the Global MAMI Network was the result of an attempt towards a global solution. Their vision is that every infant aged under 6 months at every community or health service contact is nutritionally assessed and appropriately supported to survive AND thrive.

Marie McGrath shared the current priorities for the ENN as: 1- definition of severe acute malnutrition (SAM) for U6m, 2- integration of U6m SAM management in other health-care programmes, 3- definition of priority components for a package of care for outpatients, 4- assessing the efficacy of providing targeted skilled support for breastfeeding in the community to caregivers of stable infants; and 5- exploring how existing tools can be adapted/linked together to better identify and manage U6m SAM. The C-MAMI (community-MAMI) tool was developed as a group effort from the network, with version 2 coming out in 2018.

However, Marie McGrath underlined that MAMI is not just about nutrition but also about infants at high risk of death, and that even though breastfeeding is critical and essential, it will not be sufficient. They know that the care of the mother is intricately associated with the health of her infant but when it comes to maternal health and nutrition, current strategies are not enough. Marie McGrath emphasized the need to integrate the identification and management of at risk infants U6m and mothers into existing services (Sexual and Reproductive Health/neonatal/paediatric) and wider health packages, besides working across different services, including psychosocial support. She noted that it is essential to simplify; that c-MAMI struggles towards integration and scale and that the network needs help getting there, where MSF can contribute with their experience, ideas and engagement.

Afterwards, **Martha Mwangome**, nutritional epidemiologist, showed us her research work on malnutrition assessment in U6m with the presentation: **“Anthropometry in the first 6 months of life: mortality risks and growth failure”**.

Martha Mwangome started by sharing the findings from a study revealing that all U6m infants discharged from a nutrition centre continued to track below the optimum ( $\leq -2$ WAZ) for a period of 12 months. One of the goals for her analyses was to identify which anthropometric measures at birth, and when childhood immunisations are given, discriminated infants at risk of subsequent mortality or wasting, and if low birth weight (LBW) infants, identified on the basis of low anthropometric values, were growing normally with low risk of poor outcomes. The general challenges were that cohorts were few and small, especially when including MUAC, and that cause of death was challenging to identify from medical files, as were clearly defined interventions received by the cohort.

The analyses done by Martha Mwangome and her team suggested that MUAC and WAZ better predicted inpatient mortality than WHZ in various cohorts. One cohort showed that there was no added discriminatory value of using varied cut-offs within the same age group. For the most recent cohort that Martha worked on, she noted, as previously described, that WHZ performed poorly, and also that a single anthropometric measure at two months of age performed better at predicting mortality risk at 12 months, than did weight gain between birth and two months. Also, the same cohort showed that mortality risk among babies with WAZ  $\leq -2$  at two months was significantly higher for LBW infants than it was for normal birth weight babies. Additionally, around 40% of wasted children at six months were LBW. However, all these studies derive from just three African countries (Gambia, Kenya, and Burkina Faso); consequently, Dr Mwangome emphasized the urgent need for further research, mainly from Asian countries with high U6m malnutrition rates, to validate the use of MUAC and WAZ for young infants.

To finish her presentation, Dr Mwangome defined three main areas for discussion; 1) the association between low anthropometric values and mortality (WAZ and MUAC more so than WHZ), 2) that LBW is an important risk factor for poor growth and mortality throughout infancy; and finally, 3) that seeing children at vaccinations provides a clear opportunity for assessment and intervention.

The last session of the panel was presented by **Hatty Barthop**, nutritional counsellor for GOAL and was entitled: **“How can we deliver quality care to these infants and their mothers; what can MSF learn from other organisations’ approaches and experiences? GOAL’s experience using c-MAMI”**.

Hatty Barthop started out by explaining that one of the reasons that GOAL’s focus is placed on the U6m group relates to the fact that pre-existing assumptions that breastfeeding is protective against malnutrition are not entirely true. It is notable that global estimates for exclusive breastfeeding 0–6m are approximately 36% (WHO 2007–2014). Moreover little epidemiological data is available regarding this age group and the majority comes from inpatient care settings, since it is only since 2013 that the WHO has updated guidance on the management of acute malnutrition in infants U6m including outpatient care for the first time, and version 1 of the C-MAMI tool was developed in 2015. She noted that a major challenge for inclusion of the U6m category is the lack of anthropometric data for this group; even WHO current guidelines use only weight for length, with no values pertaining to those under 45cm length or with oedema. Unlike for community management of acute malnutrition (CMAM), for U6m infants there is no separation between SAM and moderate acute malnutrition (MAM). Rather, distinctions are only between infants at risk with complications (considered “high risk” and requiring inpatient care), and

infants at risk without complications (considered “moderate risk”, and eligible for outpatient care using the C-MAMI tool). The version 2 (2018) package of C-MAMI includes four key sections, specifically: the C-MAMI tool itself, counselling and support activities booklet, counselling cards and C-MAMI programme management cards.

Hatty Barthop explained that GOAL is working in the area of acute malnutrition in the Mbela region of Ethiopia, and is taking steps towards developing a community-based programme. Additional interventions have been introduced into the traditional programme, including mother-to-mother support groups, family MUAC, individual counselling and C-MAMI, since 2016. The admission criteria have changed over time and now use WAZ instead of WLZ, and since 2019 have implemented MUAC with revised cut-offs based on age and growth velocity, to avoid specifying a high case load of small but healthy babies, which is possible in this refugee setting. Also, work is being done to empower mothers, taking into account their opinions regarding admission and discharge.

The biggest challenges faced were described as including: historical systematic exclusion of infants in screening and surveys; accuracy of data capturing and recording; proper supervision of the programme and staff attrition; MAMI often perceived as soft skills programming and not given the

same focus than CMAM; perception of an infant-centred issue without recognizing the critical caregiver’s role; and limited attention to psychosocial support. The team in Ethiopia expressed views that the MAMI tool is time consuming, but has been effective, and that they believe nutrition programming should be broadened out from the 6-59 month category to 0-59 months of age, encompassing surveys, assessments and therapeutic support.

Hatty Barthop underlined the need for further investigations focussing on: simple screening criteria and admission/discharge criteria; agreement on case definitions (cut-offs); identification of risk markers; development of monitoring and training aids; and improvement of family education strategies to achieve positive behaviour changes. Regarding GOAL’s priorities for 2019, she talked about testing a new monitoring and evaluation toolkit, collecting additional data, trying out the revised C-MAMI v2 admission and discharge criteria plus new MUAC cut-offs. Also, two trials will take place, one on the use of Global Health Media videos on tablets to reduce the time spent by health workers on education, and another one on applying the C-MAMI programme in a rural context, within an operational research project. The final message emphasised was that “if we do not have accurate data, we cannot tackle all challenges ahead.”

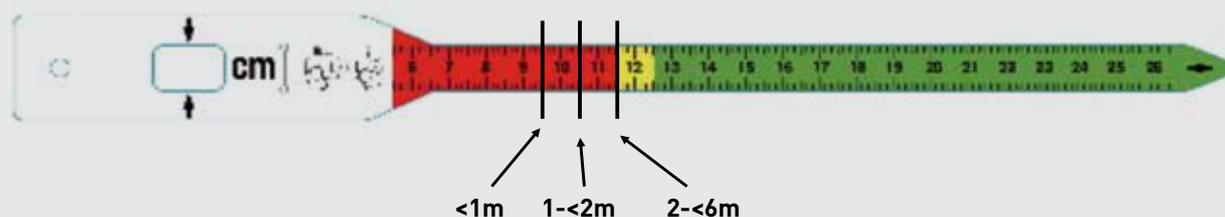
## C-MAMI Adm’-Disch’ Developments

### Change GOAL admission/discharge criteria

- Now using Weight for Age (WAZ) instead of Weight for Length (WLZ)
- Also use MUAC with revised cut offs based on age and growth velocity to avoid high case loads of small but healthy babies
- Empower and listen to mothers- admit and discharge based on their opinion (breastfeeding & illness)



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## DISCUSSION AND WRAP-UP OF THE SECOND PLENARY SESSION

- When discussing nutritional programmes, knowing the context you are working in is essential. For example, some MSF projects in the Middle East are dealing with high rates of U6m admissions, up to 70% in Iraq. Even though case definition is still a big problem, MUAC screening in the ER for all patients has been adopted in an effort to not miss the opportunity for anthropometric assessment of all infants and children presenting with other health issues. MUAC  $\leq 110$  is currently being used as a criterion for the U6m category.
- Intervening at the point of vaccinations is key and feasible in outpatient care.
- The C-MAMI tool was developed as a practical approach, based on expert opinion, but no supporting evidence exists right now. A study is now starting in Ethiopia for nine months to collect evidence-based data.
- Breastfeeding peer support (mother-to-mother) groups have been shown to have a positive impact on integrating mothers in programmes related to maternal and child health.
- Different questions and potential opportunities were raised for future exploration, including; acting before the child is malnourished, possibly in the form of maternal supplementation; long term follow up for malnourished children (not a strength currently in MSF); finding solutions for the unsolved challenge of working together across maternity and paediatric wards when midwives deal with very high workloads; clarification on the inclusion of malnourished infants when malnutrition is linked with other diseases, such as cardiopathies and, furthermore, the impact of using infant formula in chronically malnourished infants.
- After substantial discussion with WHO, chronically malnourished children are considered as “growth restricted”. There are no clear answers about their long-term outcomes after inclusion in nutritional programmes (in addition to “at risk” infants) but such issues are starting to be studied. A more interdisciplinary approach is needed to address these issues.
- MSF representatives believe the organisation needs to do more than currently is the case, by taking responsibility and promoting documentation of their interventions. A new protocol for the U6m group is under revision and will hopefully be out soon.

### PaedTalk: “STORIES FROM THE FIELD: SMALL PEOPLE, BIG STORIES...”

#### **Roberta Petrucci, Leader of the MSF International Paediatric Working Group**

By discussing different stories from the field, the leader of MSF International Paediatric Working Group (IPWG), Roberta Petrucci, reflected the enormous challenges patients and health workers are faced with on a daily basis when working in humanitarian contexts. From Syria, where surgical projects are run with few resources for paediatric care, even though half of all admissions are children; to the onset of the outbreak of Ebola virus disease in Liberia, where paediatric care was not thought to be a priority, yet one in five patients was a child under 15 years old, and mortality in children aged under one year was almost 90%. Eventually all treatment, monitoring, psychosocial support and feeding strategies were adapted to children, and the first paediatric unit in an Ebola treatment centre was opened.

Roberta Petrucci noted that keeping the ultimate aim of the Paediatric Days in mind, which is improving paediatric and neonatal care in the context where we work, we have to be aware that even if U5 mortality has decreased globally, the epidemiology has changed. Today, one in six children are directly or indirectly affected by conflict. The global burden for disease epidemiology by age group has changed in the last 30 years, with notable trends including the increasing levels of chronic diseases in children aged 5-14 years, and a decreasing trend in communicable diseases, except for the burden of paediatric HIV. As a result, she reflected on our need to change and adapt as well.

The IPWG is trying to achieve the goal of having every neonate, child and adolescent coming to an MSF project getting proper treatment; but with this challenging scope, MSF needs broader support and involvement.

The IPWG includes paediatric advisors and paediatric nurses from all MSF operational centres, who work together to support field projects in providing the best possible paediatric care. To do so, they have developed guidelines, they interact with other specialists when needed, and they do advocacy among many other things. To conclude, in a bid to do more, Roberta in-

troduced all present members to the audience and encouraged all field workers to share their ideas, experiences, challenges, and potential solutions with them. She mentioned as well that a website is in the process of being created as a tool to better communicate, share resources and create a community.

## ORAL PRESENTATIONS

### Simplified and optimized management of acute malnutrition in children aged 6 to 59 months: The optiMA pilot trial in Passore province, Burkina Faso, 2017

#### **Renaud Becquet, Clinical and Operational Research Alliance**

The pilot showed encouraging results using a simplified MUAC  $\leq$ 125mm and/or oedema only protocol and with only one ready-to-use therapeutic food (RUTF) and supply channel. Gradual reduction of RUTF according to weight and MUAC classification allowed more children to be treated with a given amount of product without decreasing recovery rate. High recovery and low mortality rates comparing to national and international standards were shown as results. Further studies are needed in children admitted with MUAC  $\leq$ 115mm or with oedema. A randomized clinical trial is starting this year with a control group in Democratic Republic of Congo (DRC).

### Electrolyte and mineral water quality and possible medical concerns for paediatric SAM patients in ITFCs

#### **Saskia van der Kam, Public Health Department, MSF Amsterdam**

In 2017, Ethiopia's emergency nutritional programme reported an unusually high mortality rate after admission and initial improvement. A theory was quickly developed based on the awareness that ten years prior, water sources in nearby Somalia were known to have extremely high levels of salt. An interdisciplinary group was formed to identify the upper limits of intake of the relevant electrolytes and minerals for SAM paediatric patients. After identifying the parameters of concern (specifically sodium, magnesium, sulphate and nitrites), an expert panel and a literature review were carried out; these identified a major knowledge gap on recommendations for the four selected elements. The main conclusion was that mineral and electrolyte concentrations in water are an under-appreciated risk factor in ITFCs.

### Substandard discharge rules in current severe acute malnutrition management protocols: a long-overlooked source of ineffectiveness for programmes?

#### **Dominique Roberfroid, Action Contre la Faim**

The level of effectiveness of many African nutrition programmes may be over-estimated due to varying discharge definitions. Many patients discharged as "cured" many continue to be MAM/SAM based on WHO criteria. There is a risk of higher relapse rate and poor health outcomes in the middle to long-term with these programmes, further, inconsistencies make it difficult to compare protocols and assess effectiveness around the world. Standardized protocols need to be defined with fewer ambiguities.

### Evaluation of a nursing and nutritional assistants training scheme prior to the annual peak of malnutrition and malaria in Niger ("Evaluation du dispositif de formation infirmier et assistants nutritionnels préparatoire au pic annuel de malnutrition et de paludisme au Niger")

#### **Véronique Guillemot, Medical Training Partner, Learning and Development Unit (MSF Switzerland)**

Two training curricula were designed for nurses and nutritional assistants in preparation for the annual malaria peak. Facilitators were recruited from the regular teams, and trained as trainers to deploy a variety of three-day training exercises for their colleagues. An evaluation of the programme was conducted, showing that it was an effective way of training a large number of participants during a short time and on a small budget. Moreover, the cascade approach to training was a driver for improving staff motivation and team spirit.



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## PaedTalk: “NEONATAL PALLIATIVE CARE IN KABUL, AFGHANISTAN. IMPLEMENTATION AND EXPERIENCE”

**Mohamad Fahim, Paediatricians’ Supervisor,  
MSF Deb Hospital, Kabul, Afghanistan**

Mohamad Fahim said it all started during a night shift when a baby was born with major neural tube defects. After reaching out for external support, he was advised to admit the baby and start palliative care in the neonatal unit. The problem was that he and his colleagues didn’t know what palliative care was. After finding a definition in MSF guidelines and discussing with the team, they understood that the aim of palliative care was to comfort the neonate without facilitating, or delaying, death once therapeutic efforts were no longer considered to be in the baby’s best interests. Many barriers were faced when implementation of neonatal palliative care started in 2016, since this was a new concept for medical staff and it was not addressed in university nor public hospitals in the country. The main challenges for the implementation in Deb’s Hospital were: the novelty of the concept, the potential legal issues with no Ministry of Health (MoH) policies in place, and the cultural and religious challenges. These last two issues were considered to be very impor-

tant, since the vast majority of the population follows Islam. A palliative care committee was created, staff meetings were held for decision-making, a step-by-step approach was taken, including a no resuscitation policy, when accepted by the team and the families. Psychosocial counselling support was also provided. Mohamad Fahim noted that after three years, palliative care is more broadly implemented but it is still a major challenge for the team. He explained that psychosocial counselling is difficult to apply when no guidelines are in place and that in an effort to better understand the team struggles, they have started collecting information about staff’s feelings regarding this practice. One of the lessons learnt is that communication within the team needs to be improved, not only for medical staff but also for paramedical staff (guards, cleaners, etc.), who need to be informed, and to understand the practice, in order for implementation to succeed. Lastly, Mohamad Fahim pointed out that we shouldn’t rush into providing palliative care; parents and staff need time to adapt and accept.



# SECOND DAY

## PaedTalk: “HUMANITARIAN PAEDIATRICS: MEETING A GROWING NEED IN GLOBAL HEALTH”

**Paul Wise, Professor of Child Health and Society and Professor of Pediatrics and Health Policy, Stanford University School of Medicine**

Paul Wise introduced the second day stating that child health workers are the ultimate inheritors of a failed social order; that destruction of the bond of social order and justice will sooner or later arrive in their clinics, their wards or in the morgue. Paul Wise said that “this reality conveys to child health workers an essential opportunity, if not responsibility, to provide high quality clinical services to children and their families in need; but it also provides an opportunity, if not a responsibility, to craft a human narrative, to give meaning to their suffering, that we witness and experience through our work.

Our suggestion here today is that the creation of a new field, that of ‘humanitarian paediatrics’, will better address the clinical goals of serving children in areas of conflict and other humanitarian needs but also in giving meaning to their suffering, morbidity and mortality. Nevertheless, the creation of a new field entails distinction from other areas such as global paediatrics and other sectors of clinical expertise; these distinct areas can fall into different or several domains, even if there will be overlapping arenas of collaboration.

Paul Wise described the direct effects of conflict and disaster, of trauma and displacement, and the profound implications of mental health needs; he spoke about the implications of the persistence, if not growth, of child soldiers; the morbidity and mortality associated with being exposed to bombs and bullets; and finally the indirect effects of the destruction of the essentials of life, such as food supplies, water and sanitation, transportation, health care infrastructure and the protective elements of community life. Paul Wise shared data from eastern DRC between 2006-7, showing that the distribution of U5 mortality remains the same as that in other LRS, but the key difference is that the excess mortality is due to the increase in the absolute

rate of all these causes, most of them being preventable, suggesting a distinct epidemiological pattern.

Another area of distinction, often forgotten by the broader child health community, is that working in insecure environments requires a deep understanding of international humanitarian law and fundamental humanitarian principles. Paul Wise showed that out of the top 20 countries with the highest U5 mortality rates globally, most are in conflict, “in fact global child health is fast becoming global child health in countries in conflict”. He pointed out as well that the trauma response by WHO in Mosul, Iraq between 2016 and 2017, putting humanitarian medical corps along with Iraqi security forces supported by a US-led coalition in the frontline was a violation of humanitarian principles affecting neutrality and independence. MSF, International Committee of the Red Cross, and other organizations declared themselves opposed.

Moreover, Paul Wise noted that most of staff acting in the Mosul trauma response lacked any background or training in humanitarian law and principles, these being critical to the goals of providing humanitarian paediatric care. Prof. Wise mentioned the burden of witness; he specified that being neutral and independent does not mean being oblivious to atrocities and violations of social justice, that the requirements of humanitarian paediatrics demand a capability to bear witness.

Paul Wise concluded by expressing that “humanitarian paediatrics can create a greater coherence, a greater collective strength in how our voice is recognized more broadly and can speak not only to discovery but coherence of discovery. Coherence implies consensus and building consensus would convey to us a greater sense of solidarity; and solidarity is never discovered, it is created.” Lastly, he added that “we can bear witness with a stronger voice and ensure that the suffering that we see, its meaning, can be described in the language of the human heart.”

## THIRD PLENARY SESSION

# Child protection in disasters and humanitarian emergencies – the role of MSF?

**Chair:** Rabia Ben Ali, Legal and Humanitarian Affairs Advisor, MSF-Spain

**Speakers First Part:** Deborah Hodes and Karen Olness  
**Speakers Second Part:** Severine Courtiol-Eguiluz and Minja Peuschel

**Panel:** Chair, Speakers, Sylvain Groulx, Head of Operational Cell 3, MSF-Spain and Tejshri Shah, MSF-Netherlands, Council Chair and member of MSF's International Board

| KEY MESSAGES  | WHY IT IS IMPORTANT?   | CURRENT CHALLENGES   | RECOMMENDATIONS  |
|---|--|--|--|
|  <p><b>6. Engagement in child protection – defined as the prevention of and response to abuse, neglect, exploitation and violence against children – is inevitable when delivering medical care in humanitarian settings and MSF should establish guidance for medical operations.</b></p> | <ul style="list-style-type: none"> <li>- As part of its medical activities, MSF supports children who have been victims of abuse, neglect or violence. After the medical component of treatment is complete, we have a responsibility to ensure that the child receives all appropriate care including those related to child protection.</li> </ul> | <ul style="list-style-type: none"> <li>- Wide differences in opinion and positions taken within MSF with regard to its role in protection.</li> <li>- Difficulties in liaison and communication with other actors leading on Child Protection, at field level.</li> <li>- Limited knowledge of actors working in protection in the field and the roles and responsibilities of each.</li> <li>- Poor understanding of child protection and safeguarding in MSF.</li> </ul> | <p><b>FIELD/OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>1. Communicate, liaise and work in synergy with child protection actors in the field to ensure holistic management of children requiring protection.</li> <li>2. Work with local communities to establish what mechanisms exist in their social infrastructure to detect and protect children at risk of abuse and work with these systems to find safe care arrangements for children when appropriate.</li> <li>3. Establish a mapping of actors providing child protection services in every project as part of setting up baseline information.</li> </ol> <p><b>HQ/OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>4. Collaborate with specialised child protection organisations (e.g. the Alliance for Child Protection in Humanitarian Action) to increase MSF's capacity and knowledge in managing child protection in the field.</li> <li>5. Clarify the minimum actions that MSF and other medical humanitarian actors should provide with regard to Child Protection based on standards developed by specialised child protection organisations</li> </ol> |

| KEY MESSAGES  | WHY IT IS IMPORTANT?  | CURRENT CHALLENGES  | RECOMMENDATIONS  |
|---|---|---|--|
|  <p><b>7. During humanitarian emergencies, whether caused by armed conflict, disaster or epidemics, children face increased protection issues and lack of access to essential rights and services such as health, education and shelter – the creation of safe environments and child-friendly services is essential to reduce these barriers and to assure the physical and psychological health, and general well-being of children.</b></p> | <ul style="list-style-type: none"> <li>- Children are at increased risk of violence, separation from their families, abandonment, physical, psychological and sexual abuse, economic exploitation and neglect during humanitarian emergencies.</li> <li>- Due to this increased vulnerability, additional measures are required to ensure the safety and general well-being of children in emergencies.</li> <li>- All MSF health structures should assure safeguarding of children in their care.</li> </ul> | <ul style="list-style-type: none"> <li>- Conflicting priorities for the provision of services, with focus on medical life-saving activities during emergencies.</li> <li>- Limited MSF internal knowledge on the creation of child friendly spaces and services.</li> <li>- Lack of safeguarding policies and procedures in MSF health structures.</li> </ul> | <p><b>FIELD:</b></p> <ol style="list-style-type: none"> <li>1. Develop child-safe and friendly spaces within MSF health facilities to reduce barriers to children's access to comprehensive healthcare and provide more adapted, holistic services.</li> <li>2. Consider the use of tools developed by other organisations such as 'comfort kits', to help children cope with emergencies.</li> <li>3. Create an open and trusting environment during consultations to allow children to speak without fear, knowing that they will be heard and believed.</li> </ol> <p><b>HQ/OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>4. Create child safeguarding policies and procedures for MSF health structures and assure child safeguarding in all MSF structures.</li> <li>5. Develop training initiatives and advice to improve the detection of occult and evident signs of physical, sexual or other types of abuse among health workers in the field.</li> </ol> |

**Rabia Ben Ali**, the chair of the session, opened by addressing the fact that there is a need for MSF to shape its role in child protection, especially if working more and more in conflict areas. She mentioned that MSF conducted a survey on protection last year with key staff in 23 missions; results suggested that most staff members wanted to do more around child protection, even though they were not sure about their or the mission's role, nor about who could help them to develop an appropriate response. They also requested more specific guidelines and information about protection, its scope and limitations.

Rabia Ben Ali explained that the session would be divided into two parts, the first addressing protection issues directly linked with the medical care received for sexual violence and mental health concerns; and the second focussed on child protection beyond the provision of medical care, discussing MSF's role more broadly.

## THIRD PLENARY SESSION (FIRST PART)

### Medical care in child protection: physical abuse and sexual violence in children

For the first part of the third session, **Angie Carrascal**, mobile implementer for sexual violence care within MSF-Spain, introduced us to case studies illustrating challenges faced in the management of sexual violence at field level, while emphasizing the fact that almost 40% of all 5000 sexual violence cases presenting to MSF-Spain during 2018 were under 18 years of age. Most of these cases were managed with the existing minimum packages for medical care and mental health. Angie Carrascal showed instances illustrating how challenging the situations faced by MSF field workers can be, such as staff being asked to perform “virginity tests” by police officers, or trying to protect children forced to marry at the age of 12 years, who subsequently attempt suicide. She noted that even though some tools have been developed, such as protocols and online training materials, child protection within MSF projects remains a priority requiring further work.

#### Spotting physical and sexual abuse in children, with specific focus on sexual violence in minors and the specificities of care in children

#### **Deborah Hodes, Child Protection Paediatrician, United Kingdom.**

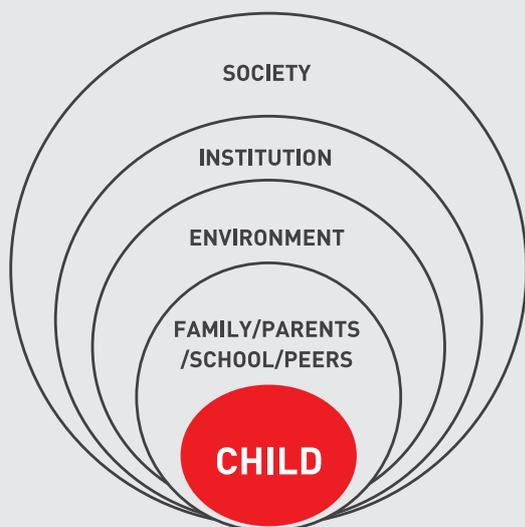
Deborah Hodes started by addressing the fact that child abuse is very complex, and it is a public health issue.

Deborah Hodes stated that recognition and positive responses are both very important for health workers, as well as being aware of the cultural aspects of practice; ie, understanding the community you are working with. She reminded us that suspicion may arise when typical physical abuse signs are found when examining the child, and the explanation and history are inconsistent with the findings, but sometimes, we need to look for other signs as well. WHO defines sexual violence as “an act in which a person intentionally sexually touches another person without that person’s consent or coerces or physically forces a person to engage in a sexual act against their will.” It includes rape, which is forced penetration – vaginal, anal, oral, and may be drug-facilitated - or torture of a person in a sexual manner. Forced masturbation, nudity, witnessing sex, cutting, and pornography are likewise also forms of sexual abuse. Vulnerability to sexual abuse in children is high in conflict areas. Deborah Hodes explained that consent is another issue of concern, because the legal age of consent varies in different countries; in some countries there may not be any possibility for consent for sexual intercourse outside marriage, making those areas more likely to have early and forced child marriages.

Regarding FGM, the 2016 definition by WHO specifies that “it comprises all procedures involving partial or total removal of the external female genitalia or other injury to the female genital organs for non-medical reasons”. Deborah Hodes stated that it constitutes violence against women and girls even though it is a cultural practice in many religious groups (Muslims, Christians, Jews, Animists and others).

Deborah Hodes concluded by synthesising a suggested approach for abuse situations in: listening to the child or young person and doing no harm, not forcing examinations; acknowledging what they are saying and believing in them; creating a proper environment with child friendly spaces using drawings, toy kits; giving back control to the child, which can make a huge difference when approaching abused children and young persons. She then encouraged the audience to look for “INSPIRE, seven strategies for ending violence against children”, a technical package with strategies based on the best available evidence developed by WHO.

#### Safeguarding competencies



University College London Hospitals  
NHS Foundation Trust



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## ORAL PRESENTATIONS

### Survivors of child and adolescent sexual abuse and the role of health care providers to identify, care and link to services

#### **Meggy Verputten, Health Advisor, MSF Amsterdam**

Meggy Verputten shared a meta-analysis from 2011, showing that global estimations for child sexual abuse were around 20% for girls and 8% for boys, and that in low- and middle-income countries, first sexual intercourse was forced in 15% of adolescents, with acute and chronic health consequences including for physical health, mental health, and social behaviour. Meggy Verputten described the role of the health care provider as firstly, to know about and recognise sexual violence, and then to create awareness in the community and links to formal and non-formal services, bearing in mind that models of care need to be adapted to the context. She then presented some MSF tools, such as the 2019 sexual violence guidelines, training materials, and a sexual violence toolkit, and finally encouraged health workers to use existing opportunities in their practice for potentially life-saving interventions. She urged attendees to break the silence and stop the feelings of isolation and suffering by supporting child and adolescent survivors of sexual abuse.

The second expert presentation for the first part of the panel, **“Identification of mental abuse in children and the vulnerabilities of unaccompanied minors”** was delivered by **Karen Olness**, Strategic Advisor for the International Paediatric Association on Children in Humanitarian Emergencies and Medical Director of Health Frontiers, an all-volunteer NGO that supports paediatric residency training programmes in Laos, and training in disaster management.

Karen Olness stated that it is likely that every child displaced by a disaster will experience some degree of neglect and/or abuse and that even though children are vulnerable, they also have resilience and strength. Karen Olness pointed out that the main event that can lead to mental trauma in children and families is parental disorganization/dysfunction, so interventions addressed to strengthen parents’ networks and wellbeing should be prioritised as strategies (e.g. daycare for young children, respite care for parents who have children with disabilities, and others).

Karen Olness mentioned the PsySTART (behavioural health triage) system, a rapid mental health triage programme based on the increasing evidence suggesting that there is a golden month to identify psychological issues and prevent

them from becoming chronic through proper management. Other strategies described include drawing as an opportunity for children to better express how they are feeling; the use of “comfort kits”, light and simple tools to help children feel happy (guidelines for preparation are available for free download in the International Paediatrics Association website); the ‘return to happiness’ programme, developed by UNICEF, involving communities, including teachers and leaders; book donations; and the Child-to-Child programme, in which a child or a group of children teach a younger child. Karen Olness reinforced that child friendly spaces are very important, providing opportunities to identify children who may need more focused attention.

Karen Olness pointed out the importance of remembering that toxic stress has been shown to change brain structure and cause damage to the hippocampus. Many studies have demonstrated the long-term negative effect of psychological trauma from war with high percentages of exposed people during childhood meeting criteria for post-traumatic stress disorder (PTSD) years later. She reminded us that unaccompanied minors are the most vulnerable of all, with severe psychological suffering and the lack of family advocacy and fulfilment of basic needs, leading to higher rates of malnutrition, increased vulnerability for infectious diseases and other factors. Karen Olness concluded her presentation by summarising the actions needed to protect all children in a humanitarian emergency as including: provision of basic survival needs immediately; use of psychological triage; ensuring that relief workers, local volunteers, rescue staff and families are aware of potential threats and risks affecting children; photographing separated children; establishment of child friendly spaces; re-establishment of school as soon as possible.

### Description of mental health symptoms among paediatric and adolescent patients in Yei, South Sudan, following the onset of armed conflict in 2016

#### **Fabrizio Carucci, MSF South Sudan**

The correlation between life events and mental health symptoms of children and adolescents presenting to MSF facilities was studied using a retrospective database of 1354 patients. The most prevalent life events were conflict-related, with a member of the family killed or missing being the most prevalent. MSF started supporting the paediatric ward in the hospital in 2018, enabling mental health teams to reach a larger number of children with supportive activities including play therapy, group, and follow up sessions.

### Working with demobilized ex-military children and teenagers: main morbidities, approach and challenges

#### **María Silvia Marquez, MSF South Sudan**

In October 2017, in South Sudan, MSF and other actors working in the area were requested to help in the disarmament process of demobilization, and reintegration of child soldiers, after a peace agreement. Out of all demobilized children/adolescents who were traced and screened by MSF, 30% presented with severe psychological symptoms, with PTSD being the most prevalent (54%) among mental health diagnoses. The lessons learnt included that active coordination and advocacy are required as a part of an integrated approach; that medical and mental health services need to be continuous to offer holistic care; that adapted data collection tools are needed; and that medical care alone is insufficient, specifically that social and child protection services, as well as collaboration with other actors, are also needed for full recovery and reintegration.



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## THIRD PLENARY SESSION (SECOND PART)

### Child protection pathways beyond medical care

For the second part of the session, **Severine Courtiol-Eguiluz**, advocacy manager for MSF-Spain in Nigeria, shared a presentation called “Child protection in conflict areas, experiences and challenges”.

As an introduction, Severine Courtiol-Eguiluz explained that the internal conflict in north-eastern Nigeria, ongoing since 2009, has resulted in more than 20,000 deaths and 2 million internally displaced people. The lack of humanitarian actors' presence in the field, added to the presence of garrison towns managed by the military, has led to an escalation of protection issues, including unaccompanied minors, detentions, forced labour, sexual and gender-based violence (SGBV), violence and other abuses. MSF's medical response in two garrison towns was comprehensive, and included both primary and secondary care, mental health activities, referrals, distribution of non-food items, screening of new arrivals, protection activities and a large advocacy component. Protection was introduced as a pilot initiative after a consultant visit in 2017 identified many issues, previously reported by mental health teams, regarding a large numbers of SGBV cases and separated families.

The protection systems set up in the mission currently includes a dedicated team composed of an advocacy manager, national humanitarian affairs officer, field social workers and protection counsellors, plus staff working on a database in the two settings. Severine Courtiol-Eguiluz shared the story of two unaccompanied minors put in prison with adults upon arrival. The team managed to get them released from detention and admitted to hospital; at the same time, the case was linked to UNICEF, who managed liaison with an identified child protection NGO. Via protection agencies, the family was relocated to another city, where the transfer of the two children was arranged by MSF.

Severine Courtiol-Eguiluz reflected on the need to look at child protection issues because “if we have no guidance and no tools, our teams are left alone to face extremely complex issues”. Her main recommendation is to integrate child protection in our interventions from the beginning with data collection and analyses. She reminded the audience of the importance of having data to report and to push other actors to act. The need to ensure safe environments for children on our premises was again reinforced. Lastly, she encouraged everyone to not be afraid of thinking that we can act in child protection; that all staff should be trained and coached, even in headquarters, to understand what child protection is and how it can be done, but also that dedicated staff are needed. To conclude, Severine

Courtiol-Eguiluz noted that tools and guidelines need to be provided (currently in process) and that the inclusion of child safeguarding in MSF projects needs to be ensured.

As the final speaker for the second part of the third session, **Minja Peuschel**, co-leader of the interagency Alliance for Child Protection in Humanitarian Action, presented on: “Different models of child protection: minimum standards in child protection for medical humanitarian actors and adapting safeguarding systems to context”.

Minja Peuschel started by explaining that child protection globally is framed on the one hand as an area for which the Global Protection Cluster has responsibility (taking charge of ensuring quality and coverage of coordinated response in humanitarian contexts); and on the other hand a responsibility of the Alliance for Child Protection in Humanitarian Action (responsible for supporting national and international actors in providing effective protection services through the development of technical norms and guidelines, evidence generation, knowledge management and advocacy). She highlighted that child protection in humanitarian action is defined as the prevention of and response to abuse, neglect, exploitation and violence against children in humanitarian settings (being a subset of fundamental rights of the child); and that child safeguarding is the responsibility that organizations have to make sure their staff, operations, and programmes do no harm to children.

Later on, Minja Peuschel described the risks that children face in emergencies, outlining eight areas framed by the Alliance for the development of its minimum standards: 1- dangers and injuries (including prevention of explosions, mines, natural disasters and how to build and strengthen resilience within children); 2- physical violence and other harmful practices (neglected in emergencies, but part of developmental work); 3- sexual violence; 4- psychosocial distress and mental health; 5- children associated with armed forces and armed groups; 6- child labour (harmful work; ensuring children only work according to their age and abilities; the right to fair salaries, etc.); 7- unaccompanied and separated children (defined as absence of both parents); and 8- justice for children. The Minimum Standards for Child Protection in Humanitarian Action handbook was developed in 2012 and is currently under revision.

Minja Peuschel recommended that every child protection actor should think about referral systems, should identify and tackle barriers that prevent children from coming to health centres, and should advocate for specialised systems and more child friendly facilities, as well as ensuring

child participation in decisions that will concern their future and which are in their best interests.

She then stated that it was clear for her that MSF is working in, or at least sees the need for, work around child protection within its projects and activities; consequently her main recommendation is for MSF to reach out to other actors who have been working in the field for a long time and have developed guidelines and tools for support. It was reinforced that in the child protection sector, there will nev-

er be enough agencies to create perfect safe environments everywhere, which is why it is critical to coordinate actions, to know who does what, to avoid repeating work and losing information, but also to ensure learning from each other. Minja Peuschel concluded by mentioning that the minimum standards for child protection are being revised, and that collaboration with humanitarian health workers was very welcome to better understand how they work and thereby improve the standards.

## DISCUSSION AND WRAP-UP OF THE THIRD PLENARY SESSION

- The new behavioural commitment for MSF workers was set up as an example of intersectional collaboration in moving towards taking responsibility in child safeguarding as an organization. Other opportunities to do so were identified in involving children in decision-making and by having a patient-centred approach as well as including a chapter on Child Protection in the upcoming paediatric guidelines. Tejshri Shah, a member of MSF's international Board Committee believes that now is the right moment in MSF history for making this concept a reality, but she also highlighted the need to recognize and manage the moral distress caused by child protection-related issues and the need for safe spaces where MSF staff could share their concerns with other fellow team members as well as directors or board members. Lastly, she emphasized that MSF has vast experience in dealing with challenging and complex issues, and this is an important factor in helping it as an organisation to move forwards in child protection.
- Sylvain Groulx, from MSF-Spain's Operations Department, acknowledged the participation of non-medical staff in the conference. He highlighted the fact that even if MSF will never be a specialised child protection organization, protection has always been and will always be a part of the issues the organization addresses, as it links with "témoignage" (testimony) which has been at the core of MSF's identity since its founding.
- To ensure that actions are responsible and sustainable within emergency interventions without causing harm in the long term, actors should work together and use validated, pre-existing tools (e.g. Syrian national health workers, who contacted the Alliance and used their guidelines), as well as doing work to reinforce pre-existing networks in the field with families, communities and national or international organizations.
- Organizations such as MSF need to be able to identify protection problems and report them to pre-existing agencies. A mapping of existing actors in the region would be very useful for field teams, bearing in mind that national actors need to be included from the beginning.
- To address MSF's own limitations and organisational capacity, it is crucial to understand what we are doing. Since many different systems coexist, efforts should be made to collaborate and share information to avoid repeating work, as well as work to improve the capacity to provide combined management and follow up for medical and social cases.
- MSF Spain has taken a step forward and has recently validated a child protection policy, not only to support individual case management but also to identify protection concerns and shape the response to global efforts. The areas of intervention addressed by this policy include displacement, violence, primary access to humanitarian services and neglect and discrimination.

## ORAL PRESENTATIONS

### Diphtheria in children within an emergency outbreak setting – A clinical-epidemiological comparative analysis with adult patients in Bangladesh

**Beatriz Valle del Barrio (MSF Cox Bazaar, Bangladesh)**

A diphtheria outbreak emerged during the emergency intervention to support the Rohingya in Bangladesh and for two months (Dec 2017-Feb 2018), a diphtheria treatment centre treated 915 patients. The majority of patients admitted were children. Diphtheria antitoxin treatment (DAT) was not available at the beginning of the intervention, when most severe cases were admitted, though overall outcomes were good with a low fatality rate. No difference in the mortality rate was found before and after DAT introduction. Overall confirmation using polymerase chain reaction was low (55% for children and 31 % for adults). Regarding the high number of severe cases at the beginning of the intervention, it is likely that diphtheria cases were over-diagnosed due to a lack of experience, and because later in the outbreak patients may have presented earlier, because of health promotion efforts and improved community awareness.

### Challenges in the implementation of neonatal palliative care in Yemen: first steps

**Mohammed Mansour (MSF Al Salam Hospital, Khamer, Yemen)**

In the intermediate level care newborn unit, Al-Salaam Hospital, Khamer, the mortality rate for neonates  $\leq 1500g$  was around 65% in 2018. In an effort to shift the focus from curative to comfort care when needed, a context-adapted palliative care implementation plan was developed. The main barriers identified were the lack of knowledge within the community and health workers, difficulties in communication, the absence of a legal framework, and religious concerns. The next steps to ensure successful implementation include continuing to train staff, setting up role-plays for communication with both nursing and medical staff, and engagement efforts with the community and religious leaders.



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## FOURTH PLENARY SESSION

# The changing landscape of paediatric non-communicable diseases in humanitarian settings

**Chair:** Philippa Boulle, chronic non-communicable diseases advisor and leader of the MSF International Non-Communicable Diseases Working Group, MSF Switzerland

**Speakers:** Karen Olness, Abiola Oduwole and Liesl Zühlke

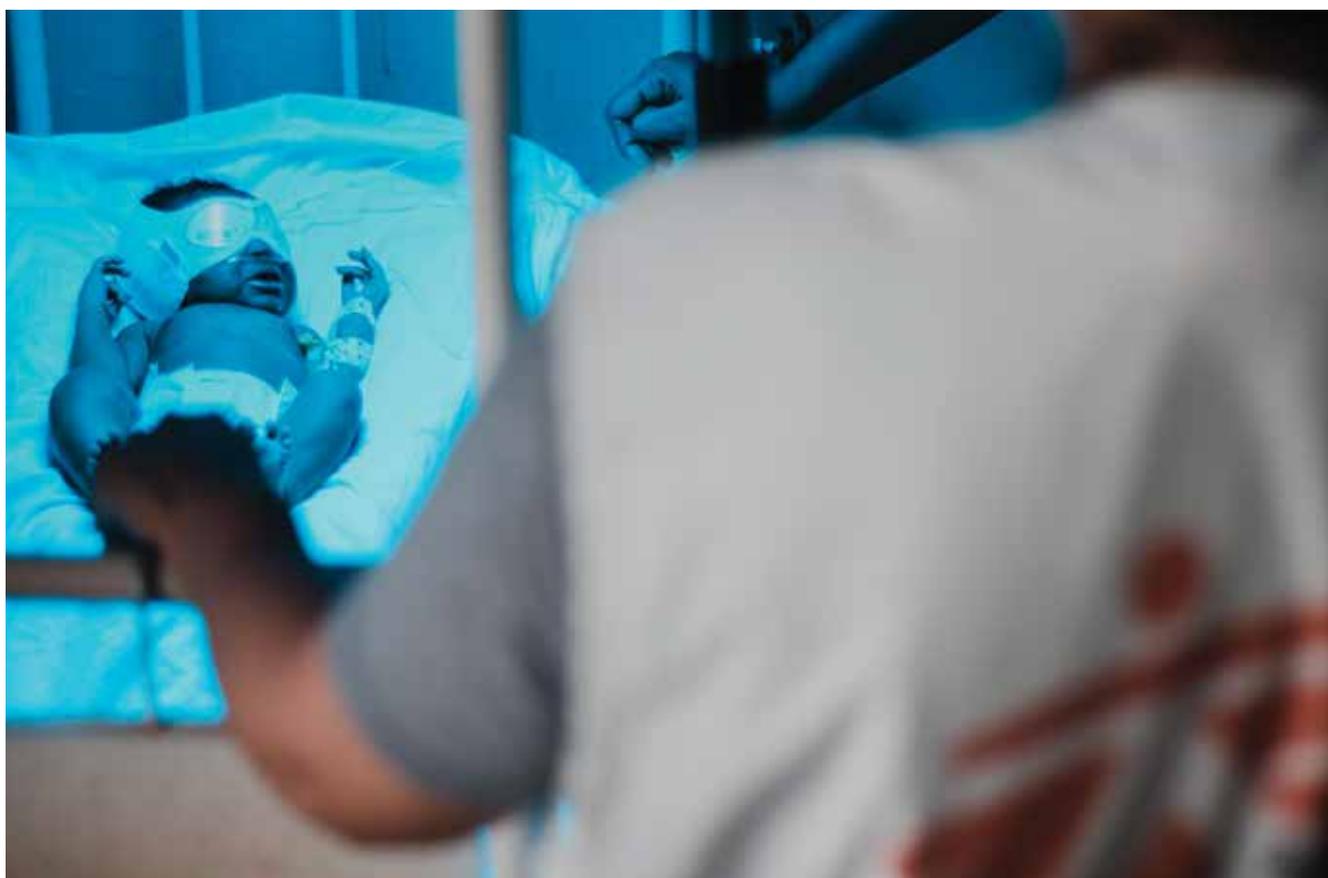
**Panel:** Chair, Speakers and Florencia Romero, Polyvalent Medical Advisor Cell 4, MSF Switzerland

| KEY MESSAGES  | WHY IT IS IMPORTANT?   | CURRENT CHALLENGES  | RECOMMENDATIONS  |
|---|--|---|--|
|  <p><b>8. Chronic and Non-Communicable Diseases (NCDs) – such as diabetes, rheumatic heart disease, epilepsy, asthma, sickle cell disease and thalassaemia, among others – are common in children presenting to MSF structures, however access to adequate treatment in low and middle-income countries (LMIC) is limited.</b></p> | <ul style="list-style-type: none"> <li>- There are unmet needs for treatment of paediatric NCDs in MSF settings, but treatment is feasible, and we are providing it in different contexts.</li> <li>- With appropriate treatment, children can live healthily with NCDs and have a good quality of life.</li> <li>- In the absence of adequate treatment for paediatric NCDs, many children will die unnecessarily.</li> </ul> | <ul style="list-style-type: none"> <li>- Competing priorities for service provision in MSF projects means that NCDs are often neglected: immediate lifesaving activities take priority.</li> <li>- Management of paediatric NCDs in specific populations such as adolescents and pregnant women.</li> <li>- Ensuring long-term access to paediatric NCD medications by other actors or ministries of health.</li> </ul> | <p><b>FIELD/OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>1. If feasible and deemed pertinent, integrate paediatric NCD prevention and management into existing MSF programmes and services.</li> <li>2. Consider the need for vertical paediatric NCD programmes in certain settings, ensuring that the specificities of paediatric NCDs and the particular needs of children are addressed appropriately.</li> </ol> <p><b>HQ:</b></p> <ol style="list-style-type: none"> <li>3. Include education on paediatric NCDs in MSF projects as paramount - create internal awareness, and integrate education of patients, families and communities into programming.</li> <li>4. MSF should play an important role in demonstrating the feasibility of care for paediatric NCDs in low resource settings.</li> </ol> <p><b>ADVOCACY/POLICY:</b></p> <ol style="list-style-type: none"> <li>5. Push to change the perception of particular chronic conditions that should be considered as emergencies, such as diabetes and the need for access to insulin. 6. Advocate for higher-level commitment from governments and agencies to overcome the challenges of delivering long-term care for chronic diseases.</li> </ol> |

| KEY MESSAGES  | WHY IT IS IMPORTANT?  | CURRENT CHALLENGES   | RECOMMENDATIONS  |
|---|---|--|--|
|  <p><b>9. As the burden of paediatric NCDs in most LMICs relies on estimates, there is a need to improve diagnosis and reporting in MSF projects in order to have a clear understanding of needs and epidemiology.</b></p> | <ul style="list-style-type: none"> <li>- Until we know the true prevalence of paediatric NCDs in our settings, we cannot develop adequate strategies to tackle them.</li> </ul> | <ul style="list-style-type: none"> <li>- Poor visibility of paediatric NCDs in outpatient departments due to misdiagnosis.</li> <li>- Lack of easy confirmatory diagnostic tests for many paediatric NCDs in LMICs.</li> </ul> | <p><b>FIELD/OPERATIONS:</b></p> <ol style="list-style-type: none"> <li>1. When feasible, integrate diagnostic tools such as Sickie Scan into existing MSF programmes to improve diagnosis of NCDs and subsequent reporting.</li> <li>2. Ensure that routine collection of data in paediatric patients with chronic disease is included in MSF programmes.</li> </ol> <p><b>HQ/RESEARCH:</b></p> <ol style="list-style-type: none"> <li>3. Investigate potential diagnostic tools for NCDs that can be used in MSF settings.</li> </ol> |

The chair, **Philippa Boule**, introduced the session by stating that seven out of ten deaths worldwide are due to NCDs, and that even though MSF has been confronting these diseases for many years, they have been managed ad hoc in different countries and settings. Only more recently, in the last five to ten years, MSF has started to think about them differently and to try to structure its approach. She pointed out that the organization has started to manage some chronic diseases, like hemoglobinopathies (such as sick-

le cell anaemia and thalassaemia), but others are still not part of its scope, such as RHD. Philippa explained that in this session diabetes and RHD will be addressed specifically but only as examples to examine the common and unique challenges around addressing NCDs in children. She mentioned that the role of MSF will be discussed regarding management of these conditions in regular and emergency projects, as well as in innovation and advocacy.



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## PaedTalk: “THE ACCESS CAMPAIGN”

**Helen Bygrave, GP, London; HIV and TB Advisor, South Africa Medical Unit (SAMU); Consultant, International AIDS Society & WHO; currently Technical Advisor, MSF Access Campaign - focussed on cardiovascular diseases and diabetes.**

Helen Bygrave introduced the MSF Access Campaign, which was set up in 1999 with the aim of advocating for better access to medicines and diagnostic tools, adapted to the settings in which MSF works. She also shared a personal story of working on HIV in Africa and how the work of the Access Campaign eventually changed the way she treats patients. Between working on her first mission, in Uganda in 2001, providing palliative care for HIV patients, and her work with MSF in Lagos, Nigeria in 2005, much had changed in the provision of care. In 2001, mothers who could afford antivirals would visit her clinic on Thursdays for the “private patient day”, and go home with bags of syrup for the next month of treatment, with a lot of work to do in terms of delivering that care; but four years later in the clinic in Nigeria, things were very different. MSF was leading the way with substantial HIV projects in South Africa, Malawi and Thailand, and international commitment to funding such activities has had an impact. Some MSF researchers published work demonstrating that children were being treated by splitting adults’ tablets, commenting that this was not good enough; they advocated for additional studies to establish which defined doses and delivery methods would be suitable for young children. The mid-2000’s was a period during which MSF called for the introduction of solid, fixed dose dispersible combinations, which would make it easier to treat children. This call was finally answered in 2007, when the first baby and child formulations for management of paediatric HIV became available. Helen explained how that change revolutionised what they could do; nurses could now treat patients, decentralisation was possible, and the supply chain was simplified. But a couple of years after this huge move forward, alarms bells went off; firstly about side effects, then about resistance. In response, WHO introduced lopinavir syrup in their 2013 guidelines, but this syrup was not palatable. Again, MSF’s Access Campaign, along with the work of other actors, raised concerns about this solution not being good enough, calling again for improvements to formulations. Helen pointed out that it took until 2019 for granules to finally become available and accessible; now work is being done towards having a four-in-one formulation.

After her experience with HIV, Helen started to hear about colleagues coming back from projects in DRC, South Sudan, and Ethiopia, where sufficient insulin was not available to treat acutely ill diabetes patients. She started to wonder about why this was happening, and what the main barriers were; whether this might be linked to the cost of insulin, the complexity of the regimen, cultural issues, or perhaps fear of chronic illnesses. Helen reminded the audience that insulin was discovered 200 years ago, with rights having been sold to the University of Toronto for USD1, but that the medium price today for a vial, with three companies dominating 99% of the market, is about USD14, increasing to three to four times as much as that for a pen, and escalating even more for newer analogues. But she says she knows it is not just about the insulin, Helen feels that the powerful examples of MSF’s work, treating type 1 diabetes in challenging contexts, illustrates that the stories we are about to hear today are the exception rather than the rule.

In an effort to learn from each other, the Access Campaign is networking with a group of type 1 diabetes patients who are adapting technology to try to improve their safety and quality of life, as well as with a Brazilian paediatrician who has been designing insulin pens with a 3D printer to be able to treat diabetic children in favelas. Moreover, she highlighted additional work in collaborating with operations in order to improve patient treatment; the Campaign has organised two workshops in Lebanon and Nairobi in the forthcoming months, with representatives from different projects in the field brought together to discuss their challenges and draft a plan for implementation and advocacy.

To conclude, Helen challenged us to think about the question: “Should MSF be part of the conversation to ensure that the type 1 diabetes child from DRC is not just treated in the emergency room but for life?”

The first expert presentation for Fourth Plenary Session was entitled: “**Children with Chronic Illnesses and Disabilities**”, by **Karen Olness**.

Karen Olness shared the existing legal framework for the protection of disabled children, from the Convention on the Rights of the Child, together with resolutions from the UN, WHO and the World Humanitarian Summit.

Karen explained that disaster situations have been shown to induce immunosuppression in children, placing them at even greater risk of acquiring chronic infectious diseases; that mental health issues are among the most enduring and long-term chronic problems after disasters, and that PsyStart, a behavioural health triage system, can be useful in early identification and management to prevent chronic, long-term consequences. She stated that even if there are no definitive predictors of resilience, interventions like the “Return to Happiness Program”, developed by UNICEF, can be very helpful in reducing chronic diseases. She described barriers to care including difficulties in ensuring access to long-term medication and device supplies, but also social barriers (including cultural views about disabled children, fears concerning chronic infectious diseases, health workers attitudes, etc.). Other barriers include concerns such as priority being placed on acute illnesses in disaster situations, disabled children being hidden, medications losing potency when not correctly stored, and others.

She underlined that models of care must consider location, local resources, cultural preferences and skills of caretak-

ers. Some practical steps include advocating for children with chronic illnesses, by identifying them, identifying adults with skills to help them (e.g. locally constructing devices), training for adults, provision of respite care for families, and initiatives to identify sources of needed medications and supplies. She also addressed the importance of helping children in pain using age- and culturally-appropriate scales, as well as non-pharmacologic pain management tools such as appropriate language, positive feedback, music therapy, massage, phone apps and comfort kits, among others. Additionally, she reminded us that children can develop long-term PTSD after painful procedures.

Janina Galler’s research was shared, showing poor scholastic and work performance as well as depression and other problems in adulthood, after 40+ years’ of follow-up, for individuals who suffered malnutrition during their first year of life. The links to many international networks available to help children with chronic diseases (International Society for Developmental Paediatrics, International Society of Nephrology, International Diabetes Federation, etc.) as well as NGOs and other organisations’ guidelines and programmes were also shared.

Lastly, Karen Olness referred to The International Paediatric Association Congress, which took place in March 2019. Emphasis was placed on the importance of the first 1000 days of human life to enhance normal development; several presentations were given on prevention of obesity and diabetes in children; and the SAFE model to promote child protection in humanitarian emergencies was reviewed.

## FOURTH PLENARY SESSION (FIRST PART)

### Diabetes in resource limited and/or humanitarian settings

To open the first part of the fourth session, **Sabino Agweng** shared with the audience a field story from their experience in caring for type 1 diabetes in MSF France's South Sudan's Aweil project.

Currently 50 children are being followed in the programme. Inpatient services include the provision of short acting insulin for diabetic ketoacidosis (DKA) in the PICU, as well as other hospitalisation services. Outpatient services include a monthly follow-up visit, intermediate acting insulin subcutaneously twice a day, education for patients and family, and supplies of BP5 (therapeutic food) when children experience symptoms of hypoglycaemia in the absence of home glucose monitoring. The services provided are still minimal, however, with high mortality rates from complications. Many challenges are faced such as general food insecurity, care coordination (children living far away, expensive public transportation, etc.), family and social challenges (very low levels of literacy among caretakers) and medical challenges (no outreach care, poor care provided by the MoH and limitations of data collection). Dr Savino finished by inviting the audience to reflect on the ongoing ethical debate in relation to different questions raised within the team, including "Should we start this type of care with few handover options?, What to do when patients are older than 15 years old, should we just stop treatment after having invested many years in one child?, How are we mobilizing our resources?, Should we prioritize few children with a poor prognosis?".

To continue with the first part of the fourth Session, **Abiola Oduwole** shared her presentation entitled "Management of diabetes in sub-Saharan Africa - models of care that extend into rural settings".

Abiola Oduwole started off by addressing the fact that without family support, the provision of good quality of care for a child or adolescent living with diabetes is not possible. She continued to point out that in sub-Saharan Africa, diabetes is believed to be a disease of the elderly, and that even among medical staff it is not a commonly-thought of differential diagnosis when clinicians have a coma case in the ward, an obese or malnourished patient, or a dehydrated and vomiting child, as well as many other disease symptoms that may resemble diabetes. Additionally, urine glucose tests are not present in most health facilities, and it can be problematic to identify a glucometer with available reagent stripes. Furthermore, many caregivers will visit alternative or traditional medicine providers before going to hospitals, and there is a general lack of knowledge about the family history for many conditions. Finally, Abio-

la pointed that even if NCDs are becoming more common, infectious diseases are still predominant in the paediatric population.

Abiola then noted that prevalence is calculated on the basis of WHO estimations, but these don't seem to match the figures that clinicians see in the field; more research needs to be done on this topic.

In 2008, the World Diabetes Foundation, alongside other actors, established two paediatric endocrinology training centres in Nairobi and Lagos, which are running 18-month long programmes for paediatricians in the sub-specialties of endocrinology, diabetes, and metabolic diseases. After the programme finishes, trained fellows are expected to train other medical staff in diabetes management in children back in their home countries, as well as adapting guidelines and protocols to their setting, as well as establishing awareness campaigns and advocacy initiatives, training nurses as diabetes educators, and creating a registry for diabetes in childhood. Abiola Oduwole underlined that even though it is difficult to have an impact because of the large number of patients requiring care, almost all sub-Saharan countries now have at least one person trained in paediatric endocrinology.

She then highlighted the fact that "not one child should die from diabetes", and that even if 60% of new diabetes cases in Africa present initially as DKA, symptoms are often mistaken for infectious or surgical illnesses. Different problems were mentioned at the management level, including misdiagnoses, poor diabetes management skills for children and adolescents, low compliance by parents and caregivers, low referral rates, and the absence of national registries for children, making it difficult to assess the real prevalence and incidence.

To close her presentation, she asked for support in the following areas: to recognise the challenge ahead, noting that we cannot expect help from countries' own governments; to support the expansion of two training centres, since there are still very few trained diabetes managers as compared to the population need; to provide grants for trained educators to reach out and train more staff, as well as to provide grants for research through the Lagos and Nairobi centres; and to provide donations of free insulin and diabetes consumables. Lastly, Abiola expressed that diabetes education is never enough to help children.

## FOURTH PLENARY SESSION (SECOND PART)

### Rheumatic heart disease

The main presentation of the second part of the fourth session was entitled: **“Symptomatic and asymptomatic rheumatic heart disease in Africa – preventing chronic disease using a multi-pronged approach”** by Liesl Zühlke.

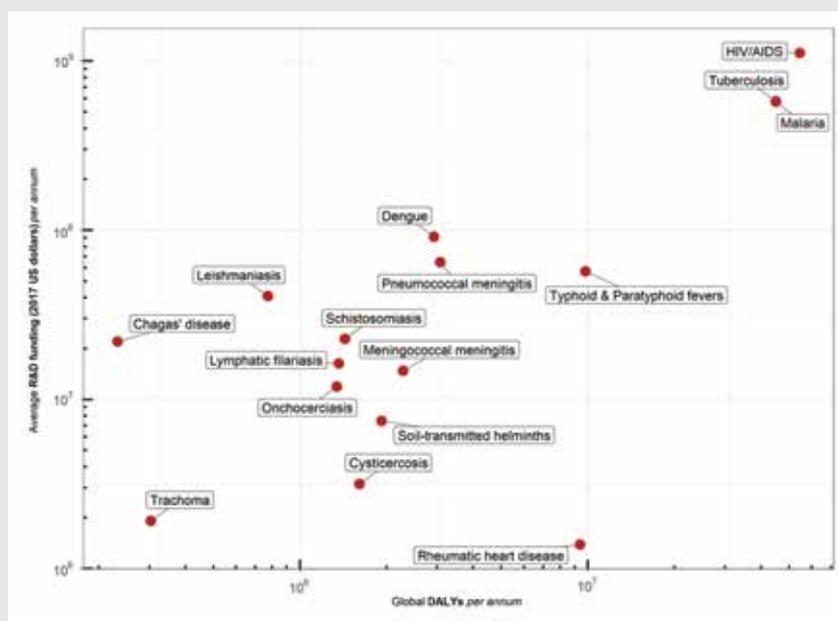
Liesl Zühlke began by asking the audience to bear in mind that for many patients living in low-income countries, RHD is not a chronic disease, but a death sentence. She reinforced the message that, for a child to die from an entirely preventable disease is totally unjust. She also pointed out that all of Africa is an endemic area for RHD, with prevalence actually having increased during the last 15 years.

Identification of three different critical periods in the disease process permits awareness of the possibility for intervention with primary, secondary and tertiary prevention routes. Specifically, a susceptible individual acquires infectious disease, which is then followed by an immune-mediated, acute illness, and finally chronic non-communicable disease develops. Regarding primary prevention, interventions are targeted around treatment of group A streptococcus pharyngitis with penicillin; this requires addressing challenges such as the existence of asymptomatic sore throat in the population, difficulties around health-seeking

behaviours, diagnostic challenges, availability of penicillin, and finally health system factors. In relation to secondary prevention, challenges include the under-recognition of acute rheumatic fever, the lack of registry-based programmes, the variable availability of penicillin and issues with the duration of therapy. In relation to asymptomatic RHD, a paper from 2016 showed that diagnostic accuracy is 10-fold greater using colour echocardiography as compared to clinical auscultation, but she also underlined that despite having more information on prevalence, we still have no clear recommendations on how to manage such patients. For symptomatic RHD, recommendations are clearer, but ongoing challenges delivering care include difficulties around access to surgery, limitations in access to cardiac catheterisation and warfarin treatment in many African countries, as well as the lack of personalised care, limited availability of echocardiography, and lack of attention for vulnerable populations (eg RHD in the obstetric population). Liesl participated in the REMEDY study, which included 46 other authors and 3500 patients from various countries (30% were children), and showed an overall 24-month mortality of 16.9% (raising up to 25% in Ethiopia and 30% in Uganda) ; <https://www.ncbi.nlm.nih.gov/pubmed/27702773>.

## Neglecting the neglected: the objective evidence of underfunding in rheumatic heart disease

Colin K. Macleoda, Philip Brightb, Andrew C. Steerc, Jerome Kimd, David Mabeya and Tom Parksa



Research and development (R&D) funding (US\$) and associated DALYs for RHD as well as 15 major tropical infectious diseases (Global Burden of Disease Study 2017, G-FINDER public research tool 2017). Data presented on a logarithmic scale.

She shared some examples of integrated health policies, such as the African Union Sustainable Development Goals and the Package of Essential Non-Communicable Disease Interventions for Primary Healthcare in Low-Resource Countries, developed by WHO, which incorporates a focus on RHD. She identified a breakthrough, with last year's global resolution against rheumatic fever and RHD adopted at the 71'st World Health Assembly. For control programmes, she noted the importance of a diagonal, integrated approach, which links with existing care and elevates RHD services; she mentioned that RHD Action created a handbook for implementing RHD control programmes. However, Liesl underlined that despite the efforts of some African countries, such as Uganda, which has carried out research and developed integrated policies, we face many challenges, namely that RHD is probably the most underfunded of all neglected diseases.

As a result, South Africa developed a "proposal for the eradication of rheumatic fever in our lifetime", taking the ASAP approach: Awareness, Surveillance, Advocacy and Prevention. The idea was to use the reconstruction of health services in the country as an opportunity, within which RHD could be integrated into existing programmes, such as WHO's Integrated Management of Childhood Illness-

es. These efforts also entailed working on multicentre and multidisciplinary research, covering capacity building, pre-conception counselling, cardio-obstetrics, ultrasound facilities, and addressing RHD in children through school health services, as well as many other chronic health conditions; overall, taking a patient-centred approach. Liesl highlighted that even if South Africa has seen an important reduction in RHD cases in the last 25 years, this is probably linked to improvements in the social determinants of health, too.

Dr Zühlke concluded by stating that:

- RHD is an entirely preventable disease, in which the more seriously ill patients include young children, pregnant women and teenagers;
- In many African countries, RHD can be a death sentence, but also a life-course disease; as such it provides opportunities to intervene in different areas such as integrated care, community-based service delivery and good models of care;
- The RHD problem is complex, since having policies does not mean having practice, and funding, research and development are still neglected; this leads to our current situation where still we have more questions than answers.

## ORAL PRESENTATIONS

### Treatment of thalassaemia among paediatric Syrian refugees in Lebanon: the MSF experience

#### **Layal Issa, Paediatric Haematologist (MSF Zahle project, Lebanon)**

Comprehensive multidisciplinary care (diagnostics, blood transfusion, psychosocial support, follow-up, iron chelation and cross-specialty consultations) was provided for refugees living with thalassaemia within an MSF paediatric project. Protocols from the International Thalassaemia Federation were adapted for this programme. The cohort included 58 patients (aged from three months to 14 years of age); all were Syrian, and most had consanguineous parents. Ferritin levels were decreased significantly after a year's treatment for 47% of patients. Events were planned for Thalassaemia Day, as well as parent support groups, educational sessions, and others. Questions were raised however with regard to scale-up, specifically regarding the high costs of iron chelation treatment.

**\*MSF's Amsterdam Paediatric Advisor contributed to the presentation, announcing that thalassaemia guidelines will be ready to share with projects soon after final medical validation.**

### A community outreach strategy for paediatric epilepsy care in Monrovia, Liberia

#### **Nikola Morton, Paediatric Referent, MSF France**

While Africa has some of the highest statistics for prevalence of epilepsy in the world, Liberia is one of the most affected countries (prevalence of 49 per 1000 population). In addition to enduring very high levels of stigma and social isolation, children with epilepsy suffer badly from the consequences of Liberia's much damaged healthcare system, specifically in relation to gaps in basic healthcare and access to specialist services. In partnership with the MoH, a programme was developed to improve the quality of care for mental health and epilepsy patients, with activities in four health centres. Free medical treatment was provided according to WHO's Mental Health Gap Action Programme. The total cohort of mental health patients was 1228, out of whom 800 also were diagnosed with epilepsy, with 252 of these aged under 15 years. All children in the cohort were successfully reintegrated into school. Remaining challenges include establishing adequate seizure control, ensuring referrals, and the need for improvements regarding child safety education, with deaths reported from drowning, and severe burns linked to epileptic episodes. This project reinforces the potential efficacy for community-based approaches that can be adapted to other stigmatised illnesses.

## DISCUSSION AND WRAP-UP OF FOURTH PLENARY SESSION

- MSF is treating and can treat chronic conditions, even if full continuity of care is not going to be provided by the organisation itself.
- The importance of providing education for patients, families and communities, is critical in achieving good management of chronic conditions.
- MSF can potentially have a role in establishing treatment guidance for these conditions, in advocating for reduction in insulin prices, and working to improve availability of cheaper devices that will make treatment more feasible in humanitarian settings. The organisation also has a role in challenging double standards in the management of diabetes, across both the high- and low-resource settings where MSF works.
- Type 1 diabetes, without access to insulin, should be regarded as an emergency impacting on short-term morbidity and mortality.
- High-level policies and commitments are needed in order to succeed in tackling the varied challenges presented by prevention and management of paediatric NCDs.
- A member of the audience reflected on the timing being right for MSF to shift its focus to primary health care, after more than 20 years building great expertise in secondary care.

### PaedTalk: “BORN INTO CRISIS. LOW COST LIFESAVING INTERVENTIONS AT ALL LEVELS, PARTICULARLY COMMUNITY AND PRIMARY LEVELS”

**Elaine Scudder, Newborn Health Director, Save the Children US.**

Elaine Scudder started out by confirming that 75% of those countries with the highest neonatal mortality rates are classified as in conflict or politically unstable. Even though in recent years, it's become recognized that newborn mortality represents almost half of all U5 mortality, access to quality newborn care remains a huge issue in humanitarian settings. The need is clear, but what can we do?

Complications due to prematurity are the leading killer of newborns. Despite this, 80% of all premature births can be classified as moderate to late preterm, for which many do not require intensive care for survival. It's been estimated that half of all deaths amongst premature births globally could be saved with the provision of cost-effective care that could be delivered in low-resource settings. But the reality is that one-third of all mothers do not receive skilled care at birth, and almost three-quarters of babies born outside of a health facility do not receive an early post-natal care visit. Home visits and community-based education campaigns have been shown to increase facility births among internally displaced women in Darfur; in addition, recent case studies from Cox's Bazaar,

Bangladesh, and Rwanda, have illustrated the role of the community in increasing facility deliveries and promoting healthy feeding practices. A pilot from South Sudan using the Newborn Health in Humanitarian Settings field guide showed that illiterate community health workers improved their knowledge by up to 40% in questions related to temperature, respiration rates, delayed bathing and key newborn messages after participating in a two-day long training programme. So better newborn care can be provided, and the necessary tools and guidelines do exist, but the reality is that it is not happening. Various barriers prevent us from meeting these needs: threats to safety and security, limited availability of skilled birth attendants, lack of access to essential commodities, particularly for premature newborns, and delayed access to comprehensive emergency obstetric and neonatal care.

To address these gaps, some essential actions include: 1- to integrate and prioritise maternal-newborn health at the onset of a crisis into our assessments and responses, to ensure adequate human resources, financial resources, equipment, etc.; 2- community engagement and interventions, potentially including clean delivery kits and follow-up visits at home; and 3- building health workers' capacity for inpatient care and ade-

quate referral. Elaine reflected that even though there is a lot of debate worldwide about community-level interventions, the reality they are seeing, mainly in the current Rohingya crisis, is that women and newborns need care and counselling provided at home, particularly for post-natal care visits, including counselling on KMC and the identification of danger signs. But with the global focus rapidly changing to response to acute crises, agencies need to ensure that they are still working in protracted settings and in fragile and host communities.

Recognizing that the work they do needs to be evidence-based, Save the Children has a research agen-

da, including focus on referral systems and inpatient care for small and sick newborns, quality of care and effective and feasible strategies for ensuring safe delivery practices at home when required. Elaine lastly noted that the global community is working towards a joint agenda and improving collaboration, with a global five-year strategy launched on June 6th at Woman Deliver 2019, emphasizing the importance of the continuum of care and the linkage with early childhood development: <https://www.healthy-newbornnetwork.org/resource/roadmap-to-accelerate-progress-for-every-newborn-in-humanitarian-settings-2020-2025/>

## CLOSING REMARKS

**Sebastian Spencer**, MSF Belgium Medical Director, highlighted “patient safety” as one of the top trends during the conference, whether related to toxicity of oxygen, and the need to assure proper monitoring before introducing oxygen into MSF projects, or to the risks linked with adaptation of original systems when providing advanced respiratory support. He recalled that provision of medical care is not easy and that it is possible to achieve a high level of complexity in our projects.

He encouraged everyone in the audience to talk more about failures and challenges, to encourage field workers to disclose incidents to patients and families and to discuss them with colleagues, so that MSF can become a learning organization.

Another one of the themes continuing throughout the presentations was that of “patient-centred care”; Sebastian noted that this concept probably means something different for each person in the audience. Consequently, he invited organisations to invest in their staff and health care providers and then let them work on patient-centred care. He called for greater investment in the environment and support for healthcare providers closer to the field. He emphasised the need to move training programmes closer to where staff are, and to ensure that whoever is treating the patient has access to education, regardless of their “national” or “international” category. “Training” was also mentioned throughout the two days, whether it was for neonatal respiratory support, for understanding preparedness in relation to malnutrition, for palliative care, for diabetes, or for POCUS, among many other subjects. Sebastian hoped that many MSF staff will be trained in how to use POCUS appropriately, minimizing risks, and emphasizing that this is a challenge MSF is willing to take on. One other remark which was made throughout all

topics was the need to ensure basics are properly in place before escalating in complexity.

Regarding the ever-growing list of activities that MSF workers want the organization to take on, Sebastian Spencer reminded the audience of the necessity of being realistic as well, and understanding that operations is about making choices, stating “I firmly believe in the fact that MSF is grounded in direct medical action, in clinical care and then, when we do that, we can do a lot of things; including going at the fringes of our mandate, including engaging in child protection”.

Sebastian Spencer expressed he was impressed by the power of storytelling; from peer-to-peer, mother-to-mother support drawing upon the existing resources in the community, to committing to do something you know nothing about, like palliative care, and continuing even though it is still difficult after three years or taking action in child protection within our projects. He appreciated the power of all these stories to make us realize that even in surgical care there is a paediatric specificity that we need to be able to address. He also explained that community engagement is at the core of what MSF does, and that all operational centres are committed to deliver a new strategy by September for the next four years. Regarding humanitarian paediatrics, it was said that in order to have collective strength you need to have solidarity and that MSF was failing there. Even if it struck him, Sebastian agreed that within MSF much more can be done to ensure smooth communication and synergy between all different partner sections and operational centres.

Sebastian concluded by thanking everybody for being active participants and most of all **Kemi Ogundipe** and **Eugene Bushayija**, the moderators of the conference, for their support.

# APPENDICES

## CONFERENCE PROGRAMME

Event moderators: Kemi Ogundipe and Eugene Bushayija

### FIRST DAY – APRIL 5, 2019

|                      |  |                      |  |
|----------------------|--|----------------------|--|
| <b>8:00 – 8:45</b>   | Registration and opening   | <b>10:45 – 11:15</b> | Coffee break and Poster exhibition   |
| <b>8:45 – 9:15</b>   | Welcome speeches (Karin Dahlman-Wright and Oliver Schulz)  | <b>11:15 – 12:00</b> | <b>Discussion and wrap-up of the session</b>   |
| <b>9:15 – 10:05</b>  | <b>MORNING SESSION - Respiratory support in neonates and paediatrics – progress in MSF settings</b> <ul style="list-style-type: none"><li>• Introduction by Chair</li><li>• <b>Field story:</b> Respiratory support in MSF, a case from the field - Frank Fuchs</li><li>• Implementation of high flow nasal cannula in MSF to children beyond the neonatal period: Who? When? Where? - Andrew Argent</li><li>• <b>Oral presentation:</b> Neonatal care in Irbid, Jordan – the experience of implementing a higher level of care in an MSF neonatal unit - Ursula Lück</li><li>• How to make CPAP sustainable in low-resource settings? Lessons from the neonatal ward in Irbid, Jordan – Elise Nolo and Nicholas Evans</li></ul> | <b>12:00 – 12:15</b> | <b>Oral presentation</b> on Point-Of-Care Ultrasound   |
|                      |  | <b>12:15 – 12:30</b> | <b>PaedTalk</b> – Lynne Nield  |
|                      |  | <b>12:30 – 12:40</b> | Paediatric Hackathon, presentation of the results  |
|                      |  | <b>12:40 – 14:00</b> | Lunch break and Poster exhibition  |
|                      |  | <b>14:00 – 15:40</b> | <b>AFTERNOON SESSION – Challenges regarding malnourished young infants (&lt;6 months)</b> <ul style="list-style-type: none"><li>• Introduction by Chair</li><li>• <b>Field story:</b> Vera Schmitz</li><li>• The MAMI (Management of At Risk Mother and Infants) Initiative - why do we need it? - Marie McGrath</li><li>• How do we categorize an infant &lt;6 months old as malnourished or nutritionally at risk? - Martha Mwangome</li><li>• How can we deliver quality care to these infants and their mothers – what can MSF learn from other organisations' approaches and experiences? - Hatty Barthorp</li><li>• <b>Discussion and wrap-up of the session</b></li></ul> |
| <b>10:05 – 10:45</b> | <b>Oral presentations</b> <ul style="list-style-type: none"><li>• Implementation of locally constructed bubble CPAP in an MSF emergency intervention in Gedeo, Ethiopia</li><li>• Systems for bubble CPAP support in low-income countries: risk of deviating from original design</li><li>• An 8-month post-implementation review of CPAP in a Paediatric ICU in Monrovia, Liberia</li><li>• Suction with bulb syringe during newborn resuscitation in Uganda: Too much too soon or too little too late?</li></ul>   | <b>15:40 – 16:10</b> | Coffee break and Poster exhibition   |
|                      |  | <b>16:10 – 16:25</b> | <b>PaedTalk</b> – Roberta Petrucci   |

**16:25 – 17:05 Oral presentations**

- Simplified and optimized management of acute malnutrition in children aged 6 to 59 months: The Optima pilot trial in Passore province, Burkina Faso, 2017
- Potential risks associated with chemical water quality in inpatient therapeutic feeding centres for paediatric severe acute malnutrition patients
- Substandard discharge rules in current severe acute malnutrition management protocols: a long-overlooked source of ineffectiveness for programs?

- Evaluation of a nursing and nutritional assistants training scheme prior to the annual peak of malnutrition and malaria in Niger (“Evaluation du dispositif de formation infirmier et assistants nutritionnels préparatoire au pic annuel de malnutrition et de paludisme au Niger”)

**17:05 – 17:20 PaedTalk** – Mohamad Fahim**17:20 – 17:50** Wrap-up of the day**18:00** End of the day**SECOND DAY – APRIL 6, 2019****8:15 – 8:30 PaedTalk** – Paul Wise**8:30 – 11:45 MORNING SESSION – Child protection in disasters and humanitarian emergencies – the role of MSF?**

- Introduction by Clair

**8:35 – 9:55 PART ONE – Medical care in child protection: physical abuse and sexual violence in children**

- **Field story:** Case studies of sexual abuse in children and challenges in management in MSF projects - Angie Carrascal
- Spotting physical and sexual abuse in children, with specific focus on sexual violence in minors and the specificities of care in children - Deborah Hodes
- **Oral presentation:** Survivors of child and adolescent sexual abuse and the role of health care providers to identify, care and link to services
- Identification of mental abuse in children and the vulnerabilities of unaccompanied minors - Karen Olness
- **Oral presentation:** Description of mental health symptoms among paediatric and adolescent patients in Yei, South Sudan, following the onset of armed conflict in 2016
- **Oral presentation:** Working with demobilized ex-military children and teenagers: main morbidities, approach and challenges

**09:55 – 10:30** Coffee break and Poster exhibition**10:30 – 11:45 PART TWO – Child protection pathways beyond medical care**

- Child protection in conflict areas, experiences and challenges - Severine Courtiol-Eguiluz
- Different models of child protection: minimum standards in child protection for medical humanitarian actors and adapting safeguarding systems to context - Minja Peuschel
- **Discussion and wrap-up of the session**

**11:45 – 11:55 Oral presentation:** Diphtheria in children within an emergency outbreak setting – a clinico-epidemiological comparative analysis with adult patients in Bangladesh**11:55 – 12:10 Oral presentation:** Challenges in the implementation of neonatal palliative care in Yemen: first steps**12:10 – 13:30** Lunch break and Poster exhibition**13:30 – 16:00 AFTERNOON SESSION – The changing landscape of paediatric noncommunicable diseases in humanitarian settings****13:30 – 13:45 PaedTalk** – Helen Bygrave

- Introduction by Chair
- Chronic Disease in humanitarian and developing settings, an overview - Karen Olness
- **PART ONE - Diabetes in resource limited and/or humanitarian settings**
- **Field story**

- Treatment of diabetes in sub-Saharan Africa - models of care that extend into rural settings - Abiola Oduwole
- **PART TWO - Rheumatic heart disease**
- Symptomatic and asymptomatic rheumatic heart disease in Africa – preventing chronic disease using a multi-pronged approach - Liesl Zühlke
- **Oral presentations**
- Treatment of thalassaemia among paediatric Syrian refugees in Lebanon: The MSF experience
- A community outreach strategy for paediatric epilepsy care in Monrovia, Liberia
- **Discussion and wrap-up of the session**

- 16:00 – 16:30** Coffee break and Poster exhibition
- 16:30 – 16:40** **PaedTalk** – Elaine Scudder
- 16:40 – 17:30** Wrap-up of the MSF Paediatric Days
- 17:30 – 17:45** Closing speech (Sebastian Spencer)
- 18:00 – 20:00** Light dinner, networking and Poster exhibition

## POSTERS

| TITLE   | AUTHORS   |
|---|---|
| <b>Early neonatal mortality and neurological outcomes of neonatal resuscitation in a resource-limited setting on the Thailand-Myanmar border: A descriptive study</b> | S Janet; V I. Carrara; J A. Simpson; N War War Thin; W Wah Say; N Ta Mlar Paw; K Chotivanich; C Turner; J Crawley; R McGready   |
| <b>Transfusion sanguine chez l'enfant à Guediawaye</b>  | JB Diouf; NM Sougou; M Kane; A Sylla; O Ndiaye  |
| <b>We can do so much with too little! Quality improvement with low-cost interventions</b>   | S Abed  |
| <b>Field evaluation of Joachim clinical score and rapid diagnostic test for pediatric bacterial pharyngitis in a refugee camp, Beirut, Lebanon</b>                    | C Lakis; S Bajis; W van den Boogaard; I Zuniga; D Karam Sarkis; R Van den Bergh   |
| <b>Improving pediatric TB diagnosis in North Kivu (DR Congo), focusing on a clinical algorithm and targeted Xpert MTB/RIF</b>   | D Van Brusselen; E Simons; T Luendo; J Ngowa; N Neema Mitutso; Z Moluh; M Steenssens; H Vochten; L Ngabo; P Isaakidis; G Ferlazzo   |
| <b>Restoring functionality and confidence: the Noma Children's Hospital model of care in Sokoto, Nigeria</b>  | A Fotso; B Oluyide; S Joseph; S Tirima; A Philip; E Allan; V Emeh; M Yakubu; V Oluwalomola; B Ategbere; J Schuurmans; R Olubiyo P; G Jerome; N Abubakar; A Murtala; M Yakubu; M Mohammad; W Silas; F Adegboyega; A Fayombo; M Bamgbose; R Abdullahi; H Andrew; F Ahmed; S.A Adeniyi; S Isah; K Bil; A Lenglet; A de yong; M Amirtharajah; S van der Kam; C Kamau; F Adegboyega; P Ndimuraro |
| <b>Sagwa poisoning in Iraq: we need to talk about it</b>  | J.M Drumond Cajazeiro; A.S Rizo Toledo; F Romero; D Martinez Garcia   |
| <b>Infectious diseases in migrant children newly-arrived in Parisian area (93) from 2017 to 2018</b>  | M Husain; B Tache; M Garba; J Goutines; E Desselas; A Gardin; M Rossi; S Le; J Lascar; E Bizot; C Poirault; J-S Yang; A Bergevin; L De Pontual; L Ly Pham   |
| <b>Pediatric triage in resource-limited primary care: A validation study in Senegal</b>   | G.A Turner  |
| <b>NOAH: supporting premature babies care with mobile phones</b>  | N Mordvanyuk  |
| <b>Triplets in resource limited settings: case report</b>   | L Ross; A Braverman-Bronstein   |

| TITLE  | AUTHORS   |
|--|---|
| <b>Lack of disclosure of HIV status and ART intake from pregnant women at delivery in Guinea may jeopardize the optimal choice of PMTCT strategy.</b>                            | G Breton; A Martin; O Hawa Diallo; S Soumaoro; M Cissé; YKoita; G Peytavin; A Montoyo; R Becquet; P Frange; C Rouzioux; R Tubiana |
| <b>The Forgotten Frontline... Transfusion Dependent Thalassaemia in a Conflict Setting</b>   | D Foley; Y Aoki; AW Mullahzada; I Carrion-Martin; M Hoetjes   |
| <b>Etiology of no malaria fever in children under ten years of age: a pilot study in peri-urban area of Dakar, Senegal</b>   | I Dieng; M.L Senghor; C Talla; A Barry Mamadou; F Diène Sarr; O Faye; A Seck; R Bercion; M Vray                                   |
| <b>Prévalence du paludisme congénital infestation a plasmodium falciparum au centre hospitalier régional de Ziguinchor, Sénégal</b>  | FN Diouf; PM Faye; ID Ba; A Ba; LC Kaimba   |
| <b>Evaluation de la Prématurité supérieure ou égale à 32 semaines d'aménorrhée à l'hôpital régional de Ziguinchor, Sénégal</b>   | FN Diouf; FB Diallo; PM Faye; ID Ba, A Ba; NR Diagne; O Ndiaye  |
| <b>From Magaria to Geneva: a bond between Médecins Sans Frontières and a university hospital</b>   | T Bapst; L Thévoz; C Salomon; P Santos Herraiz; A Galetto-Lacour; M-C Bottineau; D Martinez Garcia; N Wagner                      |
| <b>Neurodevelopmental delays in malnourished children under 5: Physiotherapy a potential resource-efficient intervention in low-resource settings</b>                            | D Dequatre  |
| <b>Paediatric health clinic attendances in Moria refugee camp: observational data</b>  | I Wilson; L Kelly; T Asghar; R Wood   |
| <b>Ethical considerations of research involving children in humanitarian settings: experiences of MSF-Spain</b>  | G-M Ku; J-F Saint-Sauveur   |
| <b>Prévalence de la drépanocytose chez les enfants symptomatiques de 6 mois à 5 ans dont le test de falciformation est positif, Madaoua, Niger</b>                               | D.S Amadou; R Kenne; J Albertí; F Maifada Mainassara; D.M Tshialala; L Flevaud; M Roscapana Moncayo; L Hiffler                    |
| <b>Annual intensive course on tropical paediatrics &amp; global child health in Germany – a 10-year experience</b>   | N Tariverdian; S Kotsias-Konopelska; J Lindert  |
| <b>Quality improvement initiatives in Barnesville Junction Hospital, Monrovia/Liberia</b>  | T Haj-Hassan; K Zagbah; R Sneh; S Mayronne; N Morton  |
| <b>Are we communicating effectively with adolescents? Innovative health promotion methods when working with this population</b>  | J Marx  |
| <b>Remember when you were young: adolescent sensitization workshop for health staff in Banten project</b>  | J Marx  |
| <b>How do we ask adolescents about their sex life? Adolescent Sexual History Taking tool (ASHTT)</b>   | J Marx; D Lagrou; L Oconnell  |
| <b>Clinique Sikila: improving sickle cell disease management through simple measures in a humanitarian setting in Magaria, Niger</b>   | A Wind; H Wally Isaka; C-G Loti; P Santos Herraiz; J Rappenecker; M-C Bottineau; D Martinez Garcia                                |
| <b>Assessing the impact of dedicated neonatal staff and room on in-patient neonatal outcome during an MSF intervention in Bafatá regional hospital, Guinea Bissau. 2015-2018</b> | L Hiffler; N Lafferty; A de la Osada; M Sagrado; M Rocaspana; J Mambi   |
| <b>Echoes: Innovative Live Long distance cardiac pediatric diagnostic tool</b>   | J.M Davaine; P Sok; R Ahmadzai; D Sidi; N Bina; A Arribat; S Chavaud; C Aguilera; A Ratinet; W Sutter; A Deloche; E Cheysson      |
| <b>A feasibility study evaluating a reservoir storage system for continuous oxygen delivery for children with hypoxemia in Kenya</b>   | A Somoskovi; M Hawkes; B Olayo; N-O Agai; S Adudans; D Otiangala; D Lieberman; C Bachman; C Hei Ng; R Calderon                    |
| <b>Discharge and follow-up practices for neonates &lt;1700 grams in Jahun hospital, Nigeria</b>  | M Lee; C Fortas; D Charo Kahindi  |

| TITLE   | AUTHORS  |
|---|--|
| <b>Levetiracetam use in humanitarian paediatrics in resource limited settings (RLS): an MSF experience</b>  | F Porcel; T Mendes; L Hiffler; J Vieira  |
| <b>Low-fidelity medical simulation in southwest Alaska: a feasibility study</b>   | E Sanseau; A Calhoun; S Kant   |
| <b>Troubles métaboliques chez les nouveau-nés au chu de la mère et de l'enfant lagune – Cotonou/Benin</b>   | G Tchabo; E Hountondji; N Tchiakpe; N Akonde; JE Adihougbande; G Denahou   |
| <b>Neonatal sepsis: causative pathogens and resistance patterns at the MSF newborn unit of the district headquarters hospital in Timergara, Pakistan</b>  | M Minaya; G Ghuttai Khalid; S Raziq; F Ullah; A Zada; Y Wailly; K Ogundipe; E Repetto; J Gil Cuesta  |
| <b>Midwives' capability, opportunity and motivation to perform evidence-based neonatal resuscitation behaviour in a low resource setting - a qualitative study</b>                                | S Myrnerets Höök; J Påfs; S Namusoko; T Tylleskär; J Byamugisha; A Bergström   |
| <b>Prevalence of and factors associated with critically low blood potassium in children hospitalized with gastroenteritis in pediatric inpatient units in Niger, Nigeria and Chad</b>             | A Maillard; A Ahmed Moulaye; S Shepherd  |
| <b>Correction of hypokalemia in children hospitalized with gastroenteritis in pediatric and nutritional inpatient units in Niger, Nigeria and Chad</b>  | A Maillard; A Ahmed Moulaye; S Shepherd  |
| <b>Exploring the role of mixed methods of telemedicine services for complex metabolic management of malnutrition and associated paediatric complications in remote and insecure field context</b> | Y Jha; F Schneider; L Hiffler; M Rocaspana; D M. Tshialala; S Kabore; E Canisius; E Ledger   |
| <b>New TB drugs for treatment of children and adolescents with drug-resistant TB: experience from Mumbai, India</b>   | M Das; F Mamnoon; H Mansoor; A C. Meneguim; P Singh; I Shah; S Kalon; G Ferlazzo; P Isaakidis  |
| <b>Paediatric palliative care challenges in the setting of Ebola</b>  | S Singh; P Vetter; A Garcia; Y Aboubacar; T Namadou; A Arcangeli; A Kibonge  |
| <b>Feasibility and acceptability of a decision-making tool for palliative care in Pediatric and Neonatal Intensive Care Units in Guinea Bissau</b>  | S. Piñeiro Pearson; J C Martinez; L Madrid Castillo; M J. Blanco; R Manarte; P Carbajal; I Gomes; S Sunfon Barbosa; O Gomes; D Gomes; J Amandime; C Domenechi; M Rocaspana; L Hiffler; A Lamrous |
| <b>A case of monkeypox in the DRC</b>   | M Guertin  |
| <b>Challenges and success in a case of non-neonatal tetanus in DRC</b>  | M Guertin  |
| <b>Pulmonary Function Changes During Initial Positive Pressure Ventilation of Apneic Newborn Infants at Birth Suggests Early Establishment of Functional Residual Capacity</b>                    | JE Linde; J Eilevstjonn; R Moshiro; J Schulz; J Perlman; HL Ersdal   |
| <b>Clinical use of cardiopulmonary ultrasound to differentiate cardiac and respiratory pathologies in an MSF pediatric hospital in Aweil, South-Sudan</b>   | J Okello Ongom; S Owens; N Wata; F Ramadan; A Nadimpalli   |
| <b>Monitoring foetal heart rate by mothers during labour in two public hospitals in Liberia. A prospective and descriptive feasibility study</b>  | K Borzie; N Jasper; DP Southall; R MacDonald; AA Kola; SD Watson; M Casement; O Dolo; A Magnus; B Dahn; W Jallah   |
| <b>Organophosphate Poisoning in a 2-year-old</b>  | N Sharma   |
| <b>Implementation of Point of Care Ultrasound (POCUS) &amp; MSF Telemedicine (TM) to improve paediatric care - a model clinical training program in a humanitarian setting.</b>                   | C Schwanfelder; M Fentress; D Martinez Garcia; K Zimmermann; A Nadimpalli; A Tamrat; E Stratta   |

| TITLE   | AUTHORS  |
|---|--|
| <b>Perceived impact of the Iraqi grandmother on maternal and child health from an anonymous cross-sectional hospital survey in Mosul, Iraq</b>  | M Monaghan; L Bested   |
| <b>Prévalence de la schistosomiase chez les enfants de moins de 15 ans à l'hôpital de Kigulube, République Démocratique du Congo</b>  | I Kumba Wembo; I Carreras; G Lukoo; R Rams; D Lukelwa; E Brekke; G Fohem; L Suárez; J Sánchez; L Palacios; L Hiffler                                       |
| <b>Where there is nothing but diazepam...case series from humanitarian paediatric settings: Mulungu, DRC</b>  | I Carreras; I Kumba Wembo; P Kapimbu Wilondja; G Fohem; E Wangachumu Muzito; E Brekke; L Suárez; J Sánchez; L Hiffler                                      |
| <b>Factors associated with 2-year survival trends among neonates admitted to MSF newborn unit at Aweil State Hospital, Northern Bahr El Ghazal, South-Sudan</b>   | S Ngai; M Akinyi Ariongo; F Onyango; S Mayronne; L Umphrey; C Lee Teicher; E Lynch; M Schaefer   |
| <b>MSFeCARE, an electronic algorithm to improve quality of paediatric primary care: lessons learned from 50'000 consultations in Nduta Refugee Camp, Tanzania</b>   | A.V Valori; J Kindo; E Favard; G Sironi; C Deglise; D Martinez; M Serafini; M-C Bottineau; C Rambaud-Althaus   |
| <b>A case of severe immunobullous disease in Damaturu Yobe State specialist hospital pediatric emergency unit, Nigeria: management challenges in resource limited setting</b>   | V Okonye; E Garsevanidze; A Knapp; M Fink; R Micheletti; I Carreras; D Murrell; M Escruela; L Hiffler; P Kasongo Kayembe; B Kundi Machina                  |
| <b>Does the determine-TB-lam test have a potential value in tuberculosis diagnosis among severely acute malnourished children?</b>  | B Schramm; P Uwiragiye; R C. Nganaboy; D Mukeba; A Abdoubara; A Yahaya; J-C Nshimiyimana; A Makimere; S Sounna; L Hiffler; C Ferreyra; L Flevaud; H Huerga |
| <b>Ambulatory weight follow-up for low birth weight babies at an MSF-supported maternity hospital Bangui, Central Africa Republic</b>   | M Nsigaye; J-B Yabingui; C Beli; C Manirakiza; E Danwesse; V Lambert; A Ngoko T; O Ogundipe  |
| <b>Bench testing of a novel bubble Non-Invasive Positive Pressure Ventilation device in an infant lung simulator</b>  | S John; P Gustafson; A John; A Moss; L Fernando-Silva; S John  |
| <b>Innovation and agile project management methods for neonatal medical device development and deployment: an engineering-neonatologist-business collaboration case study on non-electric instant infant warming blanket incubators</b> | G Hsia   |
| <b>Challenges in using long-term oxygen therapy in a resource-limited setting: pediatric emergency unit, Nigeria (Damaturu project)</b>   | O Elochukwu; E Garsevanidze; J Austine Uy; R C. Tasker; L Hiffler; P Kasongo Kayembe; B Kundi Machina  |
| <b>Gaps in accessing pregnancy/delivery care and family planning in rural and urban Kenema, Sierra Leone</b>  | N Guinko; J Dörnemann; J Gil Cuesta; S Caluwaerts; J Smith; G Mahama; O Em   |

# TRAININGS

## TWO TRAINING EXERCISES WERE ORGANISED FOR THE DAYS PRIOR TO THE PAEDIATRIC DAYS

### Neonatal Care Training

#### General objective

Improve the neonatal management in MSF projects, putting into application the inter-operational centres' new neonatal care protocol 2018.

#### Specific objectives

- Simulate neonatal resuscitation and critical care for advanced management of complications, as well as clinical examination
- Learn to manage the most common neonatal pathologies: birth asphyxia, prematurity, jaundice and anaemia, respiratory pathologies, apnoea, neonatal infections, neonatal seizures
- Be able to manage neonatal feeding, infusion, support breastfeeding and alternative feeding techniques
- Set up oxygen management, phototherapy, routine care, KMC, nursing care and parental education before discharge
- Determine, treat, and monitor the neonate at risk of sepsis, pain and positioning
- Share views and experiences on limitations of care based on the MSF-Switzerland guidance, ethical discussions

This training was done according to the Inter-OC Neonatal Care: Clinical and Therapeutic Guideline 2018. Having the Inter-OC Guideline is a real step forward for better harmonization of practices within MSF and confers stability in the protocol of care for the staff and the patients.

### Helping Babies Breathe, Training of Trainers Course

#### General objective

The overall objective of the HBB Provider course is to equip healthcare workers attending deliveries to feel confident and competent in managing newborn resuscitation, with a focus on ventilation and the Golden Minute.

#### Specific objectives

By the end of the course, participants should be able to:

- Identify the key messages of HBB and successfully carry out all exercises (preparation for birth; routine care at birth; the golden minute; bag and mask ventilation)
- Demonstrate mastery of bag and mask ventilation (skill check)
- Successfully complete the written/verbal knowledge check and Objective Structured Clinical Evaluation (OSCE) A and B
- Manage a newborn resuscitation scenario following the HBB algorithm

# WORKSHOPS

## FOLLOWING THE PAEDIATRIC DAYS, FOUR WORKSHOPS WERE ORGANISED ON APRIL 7TH

### Quality improvement in MSF's paediatric projects

At the end of 2016, the need to improve health care in MSF projects was defined as one of the main priorities for all OCs, for the forthcoming years. For MSF-Switzerland, as for the other OCs, the need to promote patient safety, effectiveness and patient centeredness as the centre of quality healthcare was emphasised, in order to see continuous improvement in MSF's health projects.

Different approaches need to be combined to ensure this, and Quality Improvement is one of them.

The workshop gave a quick overview of the approach used to improve health care in MSF-Switzerland projects, covering

the background of the programme, topic scope, and use of quality improvement. The workshop also covered how quality improvement can help to support teams in the field when they face quality challenges in healthcare. Examples from the field were used as a to show how the method works, provide reflection, and form the basis for discussions.

#### General objectives

- Know how MSF looks at quality of care inter-sectionally.
- Understand the quality improvement method, and look at how it can be used for problems and challenges found in MSF projects.

## Opportunities for using POCUS in children in MSF settings

POCUS has emerged as a valuable diagnostic tool in patient triage and management. The introduction of affordable, portable, durable, high quality ultrasound units had enabled non-radiologists to carry out limited ultrasound scans at a patient's bedside, in the emergency room, or ward setting, in order to support rapid diagnosis and to guide clinical decision making. The tool has been used within a range of medical specialties to improve patient outcomes. It uses simple algorithms based on image acquisition and analysis to answer binary yes/no questions and therefore guide bedside decision-making.

In many of the resource-constrained settings in which MSF works, access to alternative imaging modalities, such as X-ray, is often non-existent or of limited quality. Ultrasound has the advantages of not requiring installation, is easily portable, can be carried out on moving patients, and doesn't use ionising radiation, which is particularly relevant for paediatric and pregnant patients.

The accuracy of ultrasound remains largely operator-dependent, which coupled with limited training remains an important consideration. Use of ultrasound in paediatrics can be complex and detailed, but literature has shown that focused POCUS exams can be easily taught to non-radiologist physicians and thereby guide simple management, influencing decision-making.

## PAEDIATRIC HACKATHON

On the 3rd and 4th of April 2019, the MSF Sweden Innovation Unit ran a Paediatric Hackathon aiming to address challenges faced by paediatric care providers in the field.

The hackathon was a forum to bring together expertise from the field and headquarters, as well as designers, engineers and content experts from outside of MSF, to brainstorm and creatively co-create solutions to these challenges. In total, 36 people formed into six groups to address the four tabled challenges.

In order to achieve this goal, participants, were guided through the five-stage Design Thinking model. In the first stage (empathisation), participants were encouraged to observe and empathise with the challenge, leading to a deep-

## Introduction to writing a case report

Patient-centeredness and provision of the best possible care are core principles for MSF as a medical humanitarian organization. In order to keep moving in this direction, we need both to support clinicians in the field, and to build up published evidence on quality of care. The Clinical Case Reporting Project aims to do just that. In parallel to using a learning & development approach, we are launching a new publication forum with Oxford University Press for case reports and series from humanitarian and resource-limited settings.

### General objectives

- Familiarise you with the Clinical Case Reporting Project
- Understand when and why it is important to write a clinical case report from the field and submit it for publication
- Teach you the basic steps for writing a case report

## Respiratory care in low-resource settings

### General objectives

- Emphasizing the importance of "context adapted respiratory care" on different levels of a referral pathway
  - Health centre level and transfer
  - District/Regional Hospital
- A multi-disciplinary approach is required - including:
  - Health workers (nurses, doctors, clinical officers)
  - Health facility management:
    - Logistics & construction
    - Rational human resources - allocation 24/7
    - Biomedical support, pharmacy, and supply

This workshop highlighted that medical expertise and clinical case management can't be separated from project and health facility management. Clinicians and nurses need to be part of project management team and need to be consulted.

er grasp of the experiences and motivations of field staff, patients, and caregivers, who would have encountered real life instances of the challenges.

During the second stage (definition), participants leveraged and reflected on their insights gathered during empathisation in order to define the core problems at hand. Then, in the third stage of the process participants were finally encouraged to generate as many potential viable solutions to tackle the core problems for their challenge.

Once this step was completed, the group moved on to hands-on prototyping of the most promising solution within their list. These minimal viable product prototypes were then pitched amongst the group for rapid feedback

and iteration. This rapid prototyping, pitching and iteration helped the teams tease out the core constraints inherent to their products.

While the two days were dynamic and intense with some amazing creativity being presented, it was of course, only two days. Below you can see a summary of the outcomes, which remain very theoretical. Many of the teams continue to work on their ideas and the SIU will support teams with further development.

**THE MALARIA CHALLENGE: How might we develop new community level prevention tools and strategies that do not rely on mosquito nets and insecticides?**

The Outcomes: In an effort to tackle the growing resistance to artemisinin-based mosquito repellents, one group proposed sourcing regionally produced natural ingredients, such as citronella, that could be easily made into body and laundry soap. In addition to sourcing regionally grown ingredients with proven anti-malarial potential, this group suggested galvanising social business models to enable further sustainable production, and to encourage effective community engagement.

The second malaria group also championed community-based interventions, widely recognised in the literature and in global policy making as holding potential for prevention and control of malaria. This group presented a community-based intervention, wherein community champions would be engaged and supported to periodically communicate key recommendations and opportunities for communities to mitigate against malaria outbreaks.

Community hubs and champions would be empowered to disseminate educational content to their respective communities in addition to supporting the epidemiological monitoring malaria cases.

**THE WOUND CHALLENGE: How might we create a low-cost, securing system that enables complicated wound dressings to remain in place?**

The Outcome: The group focused on this challenge produced a proposal around "Do It Yourself" modular protective suit kits as a low-cost securing system that would enable wound dressings to remain in place, dry and clean. This concept adapted ideas and applications from other industries, from retail to veterinary care.

With considerations around how to address dust, insects, restless children and a painful change process, this group the group adopted the modular 'off the shelf' concept from numerous other sectors.

**THE FLUIDS CHALLENGE: How might we create a low cost and easy to use neonatal fluid monitoring system for field medics?**

The Outcomes: The first fluid management group produced a prototype solution for more accurate measurement of fluid levels to enable clinicians to maintain their current process of fluid titration and communication, while optimising accuracy, and mitigating against mis-measurement.

The second fluid management group proposed a new visual monitoring system for tracking multiple variables, allowing for streamlined clinical team communication. This group proposed a whiteboard or blackboard system, whereby key patient data points could be recorded using a standardised visual system. This would serve as a baseline for care teams, who could use mobile phone pictures to then transfer data to central monitoring and evaluation operational centres for analysis over time.

**THE CHILD-FRIENDLY INTERVENTIONS CHALLENGE: How might we create a package of tools that will support field teams in implementing child friendly spaces?**

The Outcome: The group focused on child-friendly spaces, proposing roll-out of standardised structured and unstructured play guidelines, in order to support therapeutic play for child patients. This would help to:

- Prepare children for medical procedures through calming distraction via play
- Support pediatric cases during medical interventions
- Accelerated rehabilitation and recovery through play

This proposal was centred around two core elements - a standardised framework to guide MSF field staff in integrating play into their work, and a second element focused on developing a play kit with easily sanitised and culturally transferable play tools, e.g. building blocks, in order to support implementation of the framework.

There is strong evidence that therapeutic and free play help to support patients and their caregivers throughout the patient pathway - from initiation of treatment to rehabilitation and beyond. MSF field staff have already started to implement these principles. The proposal of this team was heavily focused on empowering clinical stakeholders who are already exploring this area, to help them to more broadly operationalise the scope, and also to potentially look at recruiting community healthcare workers.



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