



REPORT OF THE 2nd PAEDIATRIC DAYS

DAKAR, SENEGAL
2017 – DEC 15TH-16TH



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- The Session Chairs, speakers and our two moderators – **Nadia Lafferty** and **Kirrily de Polnay** – who volunteered to make these two days vibrant, appealing and interactive;
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- **Dr Ayesha Kadir**, who efficiently succeeded in capturing and summarising in this report the substance and spirit of the exchanges that took place during these days.

Antoine Foucher

Head of Dakar Unit (MSF OC Barcelona)

ACRONYMS

CEA-SAMEF	Centre d'Excellence Africain pour la Santé de la Mère et l'Enfant
CHW	Community Health Workers
CPAP	Continuous Positive Airway Pressure
DRC	Democratic Republic of the Congo
ECG	Electrocardiogram
FEAST	Fluid Expansion As Supportive Therapy
Hb	Haemoglobin
HBB	Help Baby Breathe
HIE	Hypoxic Ischemic Encephalopathy
HIV	Human Immunodeficiency Virus
HR	Human Resources
ICU	Intensive Care Unit
ILCOR	International Liaison Committee on Resuscitation
ITFC	In-patient Therapeutic Feeding Centre
LP	Lumbar Puncture
LRS	Low-Resource Settings
MSF	Médecins Sans Frontières
MUAC	Mid-upper Arm Circumference
NGO	Non-Governmental Organisation
NICU	Neonatal Intensive Care Unit
NIDCAP	New-born Individualized Developmental Care and Assessment Program
OC	Operational Center
PaEDTalk	Paediatric Talk
PEEP	Positive End Expiratory Pressure
PICU	Paediatric Intensive Care Unit
POC	Point-Of-Care
RDT	Rapid Diagnostic Test
R&D	Research & Development
RUTF	Ready To Use Therapeutic Food
SAM	Severe Acute Malnutrition
SCD	Sickle Cell Disease
TB	Tuberculosis
U5	Under 5 years of age
WHO	World Health Organisation

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Executive Summary and Key Messages

MSF Paediatric Days is an annual meeting aimed at improving the quality of paediatric care in humanitarian settings. To our knowledge it is the only humanitarian paediatric meeting in existence. The conference took place 15-16 December 2017, and brought together 210 participants from 53 countries, including MSF field and headquarters staff, academic experts, and non-MSF colleagues working in humanitarian settings.

The main topics included perinatal asphyxia, paediatric neurocritical care, pain management, and supportive care. These topics were selected from a longer list of priorities based on their relevance to paediatric care in MSF settings and because they are areas in which great improvement is both needed and feasible. Additionally, there were four free paper sessions, including one focused on malnutrition, and two workshops.

With the goal of maximising transfer of knowledge from the meeting into practice in the field, an impact framework was used to plan the Paediatric Days and a panel of MSF medical operations

experts wrapped up the meeting. The wrap up discussion considered the practicalities and competing priorities for choosing, planning and implementing activities, and explored how knowledge from

the meeting could be operationalised to improve paediatric care in MSF programmes. The format harnessed the collective expertise of the presenters and participants, encouraging critical examination of internal factors within MSF that create challenges in providing paediatric care, external conditions and restraints, and potential solutions to overcome these. Technological innovations, task sharing, collaboration across sectors, collaboration with communities, and the need for advocacy both internally and externally were central themes that emerged as participants explored ways to improve access to informed paediatric care in the settings where MSF works.

The key messages and recommendations from the meeting relate to MSF operations, MSF field activities, topics urgently requiring advocacy, and research needs, to improve quality and facilitate the delivery of paediatric care and outcomes in humanitarian settings.

Videos from the paediatric days sessions are available on : <https://paediatrics.msf.org/>



KEY MESSAGES - MSF Paediatric Days

15-16th of December 2017 || DAKAR

<https://paediatrics.msf.org>



MAIN MESSAGES*

RECOMMENDATIONS



1.

An **integrated approach** to maternal and child health care during the perinatal period is critical for improving neonatal outcomes

- Scale-up of trainings and implementation of the golden minute algorithm at project levels.
- MSF to endorse a policy of continuum of care between obstetric and neonatal care, establishing minimum standards for the integration of maternal and neonatal care.



2.

Early recognition and halt of status epilepticus in children is essential in the care of neurocritically ill children

- Research is urgently needed to develop therapeutic options beyond antimalarials for cerebral malaria in children in humanitarian settings.
- Improve access to safer treatment options such as Levetiracetam by advocating for lower pricing for humanitarian settings.



3.

Pain is **poorly recognised and undertreated** in children in humanitarian settings despite evidence of its implications on outcome and child development

- Train staff in the assessment and treatment methods of pain in children and neonates.
- Improve access to strong pain medications (eg. morphine).



4.

Supportive care is critical to **providing care with dignity**, regardless of whether we can save the child's life

- Integration of supportive care into MSF child health programmes with clear guidelines, training of personnel, and deliberate focus.



5.

Play is an essential tool in the **treatment for sick children** with measurable and cost-effective impact

- Space and adapted means for play to be part of all paediatric MSF programmes.
- Guiding tools and Training to be developed for integrating play in programmes.



6.

Innovation can push the limits for providing **low cost, high quality paediatric care** adapted to humanitarian settings

- Stronger collaboration between Paediatrics and Innovation Units.
- Reduce cost of technology needed to provide high quality paediatric care.



7.

Adolescents (ages 10-19 years) are a **neglected paediatric population** in humanitarian settings

- Improved documentation of the health needs and risks among adolescents in MSF projects.
- Development of youth-friendly clinics for adolescents.



8.

Task sharing is an important way to **expand the reach and quality** of neonatal and paediatric care

- Include parents and communities in paediatric programme development.
- Support and expand the use of Telemedicine and eCARE.
- Scale-up trainings and for doctors/clinical officers/nurses.

*A detailed account of the meeting will be presented in a separate report.

Background and Conference Objectives

Children are among the most vulnerable group in humanitarian situations. They have specific health risks and needs that differ based on their cognitive, language, motor and social development as they progress from birth to late adolescence and into adulthood. These health needs and risks become compounded and nuanced in situations of armed conflict, forced displacement, political insecurity, natural disasters, and poor economic conditions. In humanitarian contexts, the needs of children also become more urgent, and failure to identify and address them can have lifelong consequences.

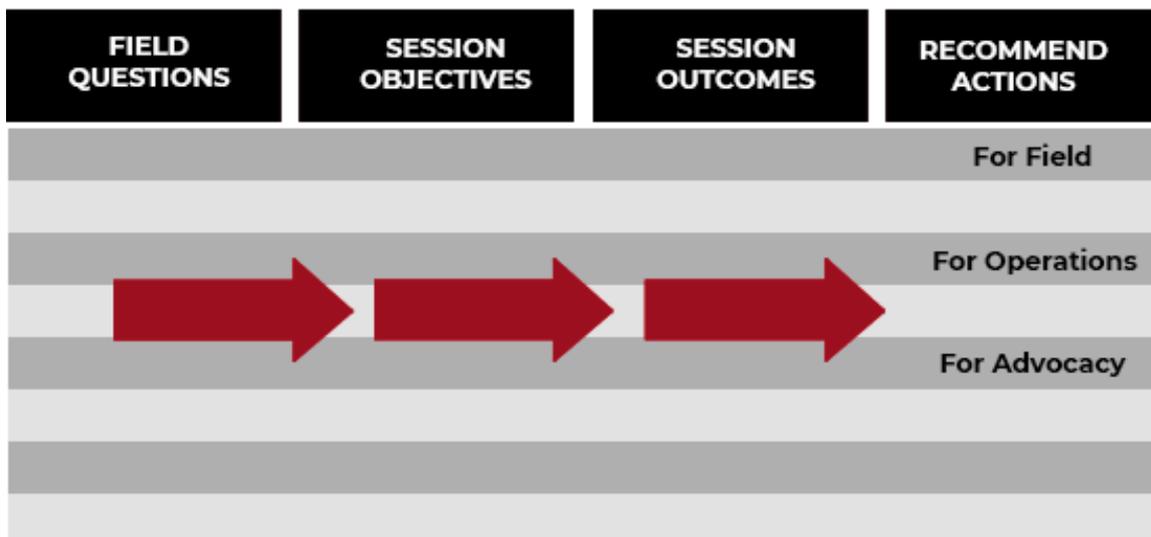
Children under 15 years account for more than 60% of all inpatient admissions in Médecins Sans Frontières (MSF) programmes. Yet, tools and guidelines for the care of children in humanitarian operations are lacking due to resource limitations and poor transferability of high income setting best practices to the humanitarian context. MSF Paediatric Days is an annual conference aimed at addressing this gap. To our knowledge, it is the

only event of its kind, which brings together MSF field and headquarters staff, academic experts and other non-governmental organizations to discuss challenges and identify solutions to improve the care of children in humanitarian settings.

The second MSF Paediatric Days took place in Dakar, Senegal on the 15th-16th December 2017 and was broadcast live on the internet. There were 210 participants from 53 countries as well as nearly 1800 streaming online and participating interactively through Twitter.

The format of the conference was developed using an impact framework designed to maximise transferability of knowledge gained during the conference to field activities. The main topics of MSF Paediatric Days 2017 were neonatal asphyxia, paediatric neurocriticalcare, pain management, and supportive care. These topics were chosen from a long list of priorities because of their relevance and because they are areas in which great improvement is both needed and feasible.

IMPACT FRAMEWORK



Conference objectives

- Examine how MSF is improving the quality of paediatric care
- Identify child health issues that must be urgently addressed in MSF programmes and advocacy work
- Identify solutions to ensure that children in humanitarian settings have access to a minimum standard of informed paediatric health care
- Explore ways to put the individual child at the centre of all MSF Paediatric activities



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Day 1

Welcome and Opening Remarks

The conference was opened by welcome and introductory speeches from Professor Ousmane Ndiaye, neonatologist, Chair of Paediatrics at Université Cheikh Anta Diop (UCAD) de Dakar and Albert Royer National Hospital, Dakar, Chair of WHO-AFRO Reproductive maternal neonatal child and adolescent health (RMNCH) task force, and Deputy Centre Leader of Mother and Child Health African Centre (CEA-SAMEF) of UCAD.; Antoine Foucher, Head of the MSF West Africa Regional Unit; and Dr Sebastian Spencer, Medical Director of MSF-Belgium and the Medical Director associated with the MSF Paediatric Working Group and MSF Nutrition Working Group.

Professor Ousmane Ndiaye opened the conference, welcoming the participants to Dakar and expressing appreciation for on-going and close collaboration with MSF and several partners in Senegal to improve maternal and child health. Professor Ndiaye reflected on the importance of holding paediatric scientific days regularly and with a diverse group of colleagues in order to identify the most relevant and practical solutions to improve child health in resource-limited settings.

He wished the participants a successful conference and encouraged them to find ways to translate the knowledge from the conference to their work in the field.

Antoine Foucher gave a brief history of the MSF Dakar Unit, which was developed in order to bring MSF decision-making centres closer to the field during the Ebola epidemic and to improve research and collaboration with the regional partners working in epidemic response and maternal and child health. He highlighted the

importance of convening the MSF Paediatric Days in Dakar, which was done in order to include voices and priorities from the region in the discussions, in order to identify urgent child health issues and to explore political, technical and operational solutions to them.

Mr Foucher finished by offering the Paediatric Days as a humble opportunity to provide a new focus on the realities of the field.

Dr Sebastian Spencer reflected on how to improve the care of children in the field, calling to attention the importance of the patient-health worker relationship for a successful outcome of any kind, whether it is cure, pain management or supportive care. He spoke about the ingredients needed to improve paediatric care, including guidelines, up to date protocols, scientific meetings, mentoring and the presence of clinical leaders in field settings.

He discussed the challenges of providing care to a diverse population, which spans from birth through adolescence, and which is characterised by significant variation in health needs and access to care.

Remarking on the diversity in background and affiliations of the meeting participants, he acknowledged a rich collective knowledge and experience that can serve as a source of inspiration and innovation, and allow us to push the limits of paediatric care in humanitarian settings. He encouraged the participants to identify ways to improve knowledge transfer to narrow the gap in the technology and paediatric care between high income and field settings, citing investment in human resources and optimising project management as important components.

Dr Spencer concluded by expressing interest in the paths that brought the participants to the Paediatric Days and by reflecting on the obligation of participants to ensure the messages from the Paediatric Days are conveyed to the field.

Plenary session 1: Neonatal Asphyxia and Hypoxic Ischaemic Encephalopathy – Helping Babies Survive vs. Helping Babies Breathe

SESSION PARTICIPANTS	KEY MESSAGES
<p>Chairs:</p> <ul style="list-style-type: none"> • David Southall, Professor of Paediatrics; Maternal and Child Health Advocacy International 	<ul style="list-style-type: none"> • <i>The care of newborns is a continuum from prenatal and maternity care.</i>
<ul style="list-style-type: none"> • Ousmane Ndiaye, Chair of Pediatrics Department of Medicine Faculty- Cheikh Anta Diop University of Dakar, Chair of WHO/AFRO Reproductive maternal neonatal child and adolescent health Task Force. 	<ul style="list-style-type: none"> • <i>Close collaboration between paediatricians and obstetricians is critical to prevent complications, intervene early when they occur, and treat newborns with birth asphyxia effectively.</i>
<p>Speakers:</p> <ul style="list-style-type: none"> • Obed Dolo, Medical Director, Charles Burgess Dunbar Maternity Hospital, Liberia 	<ul style="list-style-type: none"> • <i>New ways of thinking about how to deliver neonatal care are needed to overcome the lack of human resources and equipment.</i>
<ul style="list-style-type: none"> • O. D. Saugstad, Professor of Paediatrics, University of Oslo; Director, Department of Paediatric Research, National Hospital, Norway 	<ul style="list-style-type: none"> • <i>Task sharing is an important way to expand the reach and quality of neonatal and maternity care.</i>
<ul style="list-style-type: none"> • Angela Okolo, Professor of Paediatrics, Federal Medical Center, Asaba, Nigeria 	<ul style="list-style-type: none"> • <i>Involving families and communities in perinatal and newborn care can improve outcomes for both mother and child.</i>
	<ul style="list-style-type: none"> • <i>Studies are underway to identify new treatments for babies with HIE in humanitarian settings.</i>

Professor David Southall introduced the session with an overview of the importance of obstetric care on neonatal outcomes. He discussed a number of common neonatal conditions that are related to obstetric problems such as neonatal tetanus, respiratory failure, neonatal sepsis and hypoxic ischemic encephalopathy (HIE). These conditions relate to obstetric factors, including poor antenatal care, hypertension and pre-eclampsia during pregnancy, preterm labour, preterm pre-labour rupture of membranes, prolonged rupture

of membranes and placental insufficiency during labour. These conditions illustrate the magnitude of neonatal morbidity that is related to obstetric problems, and reinforce the importance of early obstetric intervention during childbirth to reduce neonatal morbidity and mortality. The take home message was clear: obstetricians and neonatologists must work closely together in order to provide effective care and improve neonatal outcomes in resource-limited settings.

The first presentation of the morning was given by **Dr Obed Dolo** on “The importance of integrating obstetric with neonatal management in preventing neonatal asphyxia and ischaemic encephalopathy in resource-limited settings”. He reviewed the major factors that lead to birth complications in resource-limited settings and causes for delayed obstetric care, including failure to recognise problems and subsequent delayed care-seeking, structural barriers to care such as distance, roads and transport, delayed intervention upon arrival to health facilities and lack of equipment and skills for obstetric care and neonatal resuscitation.

Dr Dolo then described a project at Charles Burgess Dunbar Hospital in rural central Liberia which uses maternal-assisted monitoring of foetal heart rate during labour. In a study of the use of battery-operated Doppler US probes by mothers to monitor foetal heart rate after each contraction, mothers recorded the information in a bedside chart and notified health staff when there was an abnormality or change. Midwives continued with

routine monitoring practices as well as review of the mothers’ foetal monitoring charts. Of 72 mothers who completed the study, three cases with complications were detected by the probe, resulting in altered care. One mother underwent caesarean section and two women had vacuum-assisted deliveries.

One infant required bag-mask ventilation and had a quick recovery. The other 69 women had uncomplicated deliveries. The use of the monitor improved cooperation of patients with health staff. Feedback from the mothers indicated that the monitoring helped them to cope with labour pains and to connect with their babies, however they found it difficult to perform the monitoring while experiencing labour pains. Dr Dolo concluded that more active involvement of mothers at all stages of pregnancy and delivery is an essential part of obstetric and neonatal care in resource-limited settings. The maternal-assisted Doppler may be one way to include mothers and improve the early detection of complications, thus facilitating early intervention to improve birth outcomes.

Discussions on maternal-assisted monitoring

The audience asked about involvement of fathers or other family members as a means to support the mothers and ensure improved acceptability and use of the Doppler. This is challenging in overcrowded maternity wards, but is an idea to consider. In further discussions about the possibility of implementing maternal- or family-assisted monitoring for home-based deliveries in community settings, concerns were raised about structural barriers in access to care, which continue to pose a barrier to early intervention. It may be relevant for high income

settings where there is easier access to care, however the conditions of roads, transport barriers and long distances hamper early intervention in cases where complications do occur. It was further noted, that there is a massive lack of health workers, which hampers adequate monitoring in hospital settings. As such, it is recommended that the further study of maternal-assisted monitoring be undertaken in large hospitals in resource-limited settings to further evaluate feasibility and effect.

In his talk, “Early recognition and management in resource poor settings: Delivery Room Handling to Prevent HIE”, **Professor Ola. S.** reviewed the updated International Liaison Committee on Resuscitation (ILCOR) and WHO recommendations, recent evidence on neonatal resuscitation, and the implications for humanitarian settings.

In order to improve the identification of infants in need of resuscitation within the first minute of life, the so-called “golden minute”, three indicators guide decision-making during resuscitation: gestational age, respiratory effort and tone. The main updates and evidence include:

- **Suctioning:** Suctioning has been found to reduce oxygenation for several minutes after it is performed. **Recommendation: Routine suctioning of infants with clear or meconium-stained amniotic fluid is not recommended. The decision to suction should be based on the infant's clinical status.**

- **Heart rate:** Auscultation is the gold standard for assessing heart rate, as it allows for faster and more accurate measurement when performed properly, compared with pulse oximetry and ECG. In spite of this, auscultation remains a challenging skill that takes time to perform. Palpation of the cord is no longer recommended as it is not reliable. **Recommendation: Auscultation of the heart is the preferred method to assess heart rate.**

- **Ventilation:** Bag and mask ventilation remains the cornerstone of neonatal resuscitation, with heart rate as the most sensitive indicator of response to resuscitation. CPAP has been shown to be possible in resource-limited and conflict settings and is recommended for preterm infants with respiratory distress. However, CPAP should not be used in settings where oxygen saturation and cardiorespiratory distress cannot be monitored.

- **Oxygenation:** Studies found a 30% reduction in mortality when beginning resuscitation with room air in term and near-term infants. After sta-

bilisation, maintaining oxygen balance is critical: higher arterial oxygen levels are associated with increased incidence of moderate and severe HIE. **Recommendation: Term and near-term infants requiring rescue breaths or ventilation should be resuscitated in room air. In settings where oxygen blenders are not available, resuscitation should be started with room air for all infants regardless of gestational age.**

- **Cord clamping:** 2/3 of placental blood reaches the infant within 1 minute. Studies show that clamping the cord before the infant takes the first breath is associated with haemodynamic instability. A systematic review and meta-analysis of delayed cord clamping (≥ 30 seconds) reduced mortality by 32% and also reduced the number of blood transfusions given, however it increased the incidence of polycythaemia and jaundice.

Recommendation: For infants not requiring positive pressure ventilation, cord clamping should be delayed by 1 minute.

- **Thermal control: Recommendation: Premature infants should be wrapped in plastic, and infants weighing < 2 kg should be warmed using the kangaroo method.**

Discussions on neonatal resuscitation

While prevention is important, there remains a heavy burden of HIE in resource-limited settings and there are few tools to treat babies who suffer from birth asphyxia. Treatment with induced hypothermia has had some success in high income settings. ILCOR has recommended cooling in middle income settings provided there is good infection control and respiratory support. A study in Uganda, however, showed increased mortality in infants treated with cooling. There are ongoing studies using melatonin, erythropoietin and neurotensin for medically-induced

hypothermia, which may be potential tools for use in humanitarian settings.

A trial is underway in Vietnam, China and Uganda assessing the use of Laryngeal Mask Airway as a primary device, which may provide evidence on safety, effectiveness, and feasibility for use in newborn resuscitation. The use of PEEP is widely regarded as beneficial, particularly in preterm neonates, however there is no high quality evidence demonstrating any advantage of using PEEP during neonatal resuscitation with T-pieces or bag and mask ventilators equipped with PEEP valves.

In the third presentation, “Nursing care of newborns with birth asphyxia: does it matter?” **Professor Angela Okolo** reviewed the care of the infant with birth asphyxia and the central role that nursing care plays to prevent further complications, promote healing, and achieve the best possible outcome for the infant. Treatments for birth asphyxia with demonstrable effect in resource-limited settings include non-invasive ventilatory support with bubble nasal CPAP as well as a variety of medications and care practices. All interventions require monitoring, and for effective monitoring, there must be adequate skilled nursing support. Nurses monitor vital signs, clinical status, and seizures. They administer intravenous fluids and medications, monitor blood sugar, stool and urine output, stool occult blood, administer and supervise gavage feeds, ensure appropriate infection control practices, and even perform investigations such as bleeding time.

Having established the critical role that nurses play in reducing perinatal morbidity and mortality for infants with HIE, Professor Okolo turned to the issue of lack of skilled health workers in neonatal nursing care, which has been associated with higher mortality rates for babies in hospital than in the general population. She cited an example of neonatal nurses she had met who have never seen a bag and mask.

Professor Okolo identified task shifting and training of nurses as solutions to improve the quality of care for infants suffering birth asphyxia, in order to move beyond helping babies breathe to helping babies survive and thrive. There is an urgent need for nurses with adequate skills in neonatal nursing to attend deliveries, and upon admission to neonatal care units, to monitor and treat the newborn with birth asphyxia.

Discussions on nursing care in newborns with birth asphyxia

Following the session, discussions examined practical issues in the care of the neonate with birth asphyxia, such as the use, dosing and safety of magnesium sulphate prophylaxis in infants with severe birth asphyxia. Experience in Nigeria suggests that a regimen of 250 mg/kg daily infusion over 30 minutes for 3 days may be safe. Additionally, Professor Okolo’s hospital has had success using diazepam to stop acute protracted seizures, with careful respiratory monitoring and support with bubble nasal CPAP as needed, and phenobarbital prophylaxis in infants with known HIE or seizures. However, these practices remain controversial and there is limited evidence to support them. Further research is needed in this area. While midazolam has a better safety profile and can

be administered in buccal form, it is more expensive and less available.

Continuous kangaroo care was another subject of discussion, which has anecdotal protective effect, but for which objective evidence is lacking.

While there is no evidence on safety and efficacy of gavage feeding of expressed breast milk in infants with HIE, there is also no known evidence of harm. Experience suggests that it is helpful when done together with monitoring of stools for occult blood and other signs of necrotizing enterocolitis. The forthcoming MSF guidelines on neonatal care include minimal enteral feeding. The guidelines are anticipated to be published in early 2018.

Cross-cutting discussions on neonatal asphyxia and hypoxic ischaemic encephalopathy

Recurring themes in the presentations and discussions focused on the need to view neonatal care and obstetric care in a continuum, and to establish strong collaboration between obstetricians and paediatricians, coupled with task sharing and training of health personnel to improve access to skilled neonatal care in resource-limited settings. Task sharing is necessary along all points of the

continuum, especially in settings with structural and economic barriers in access to care, where transfer of mothers with complicated labour, and later, of infants with birth asphyxia, is not possible. Task sharing begins with involvement of families and communities through means such as education regarding the warning signs of pregnancy complications and encouraging early care seeking when these occur. Other possibilities include maternal-assisted monitoring, and training middle level health workers in advanced obstetric care, neonatal resuscitation, and the care of the newborn.



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Participants examined ways to ensure that task sharing is safe and effective. Experience with conducting trainings has had mixed results and often does not include apprenticeships or follow up. Safe and effective task sharing requires ensuring that skills and knowledge are transferred to the field staff, and evaluation to ensure improved practice and outcomes. Different methods were aired, such as in-person trainings, apprenticeships, and distance learning. Adequate investment in training helps to improve sustainability.

Discussions arose on access to care during the plenary session, as well as during the oral abstract presentation that immediately followed. Potential solutions to improve access to facility care were shared, including engagement of the community and allied health workers in developing and implementing context-adapted monitoring systems, and establishing 'waiting homes' nearby the faci-

lity where women with limited access to care can stay during the later stages of their pregnancy. The importance of context was emphasized, including cultural beliefs and practices, reasons for existing care-seeking practices, expectations, the roles of different actors in making decisions about how, where and when to seek care, and barriers to care perceived by community. The importance of collaboration with traditional birth attendants was identified as an important component of obstetric and neonatal programmes.

The care of newborns is one of the biggest aspects of many MSF programmes, and in spite of prevention efforts, birth asphyxia remains a common problem, for which we must identify treatment options. Stepping outside of neonatology to work across disciplines with obstetrics will be beneficial for both maternity and neonatal care.

Terminology in the spotlight: “Task sharing” versus “Task shifting”

“Task sharing” refers to the sharing of responsibilities and tasks between doctors, nurses, midwives, other allied health workers, patients, and communities using a team-based approach, in order to provide clinical services and procedures that would otherwise be restricted to higher cadres or specialised centres. It is different from “task shifting”, which refers to taking tasks or responsibilities from one group and giving to another. Task-sharing expands the number of individuals who are able to perform certain skills, in order to share the workload among collaborative partners, and ultimately improve access to care in settings with limited resources. Task sharing is a way to improve access to safe and effective care when the specific tasks to be shared are clearly identified; adequate training, support and supervision are

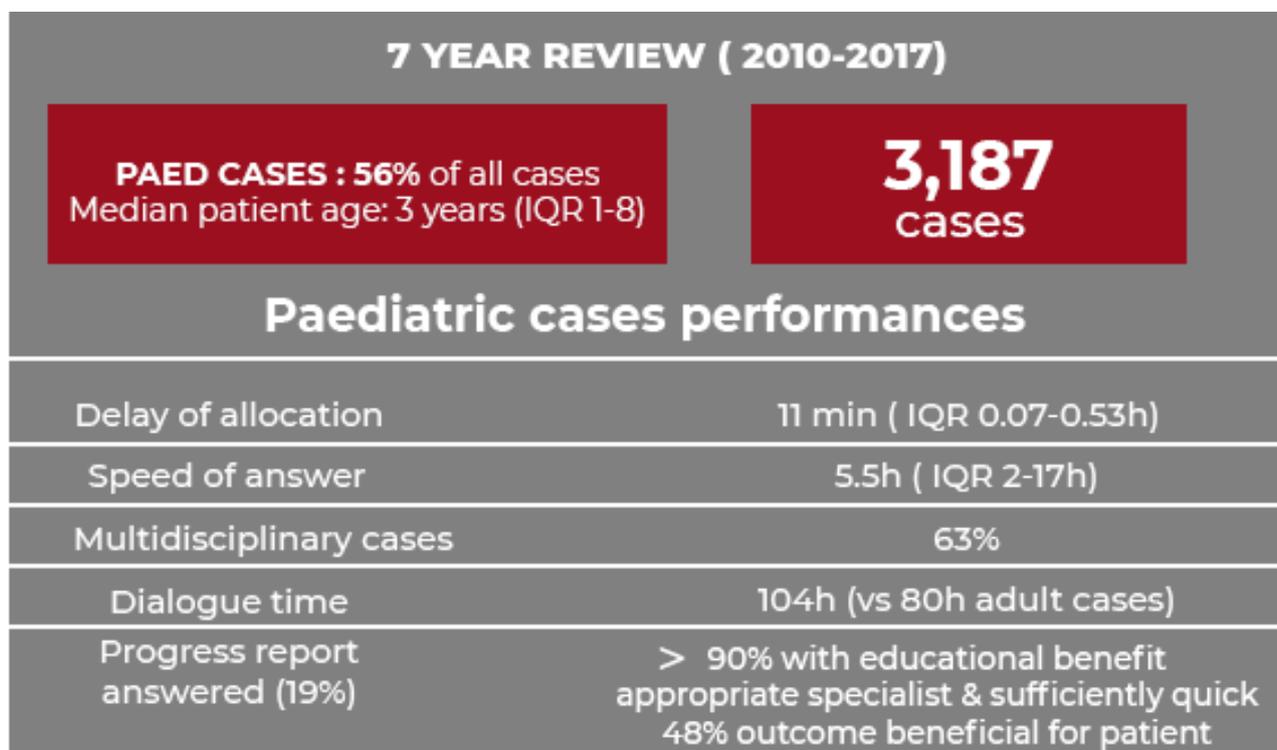
provided; and on-going technical support is put in place. Tasks are shared based on the needs in the patient population. Once the new team member has achieved the knowledge and skills needed to perform the service or procedure, the other team members are available as mentors and supervisors and can provide ongoing in-person support. Task sharing requires less time and fewer resources than task shifting, because it is done for specific “tasks”, and because it does not remove responsibility from one group and place it on another. It is not hierarchical, in that it does not remove the expertise or responsibility from a particular cadre. Rather, it enables each health worker to improve care by sharing the workload in a safe, logical and effective manner.

PaED Talk: of 7 years of Tele-paediatrics advances & new perspectives

Dr Daniel Martinez Garcia (Paediatric & Vaccination Advisor and core member of MSF International Paediatric Working Group) told the story of 7 years of Tele-paediatrics –Advances & new perspectives. Reflecting on his own experiences as a young paediatrician in the field, he told the story of one of his patients, a boy named Prince who had a heart condition. Prince died without even knowing if his condition was treatable because the tools needed for this were not available. The experience left Daniel feeling lonely and questioning the purpose of sending paediatricians to work in humanitarian settings. This situation is unfortunately common in the humanitarian context, where standardised tools do not always allow for individualised patient care, and subspecialists are often not available when we need advice.

In 2010, MSF developed a platform to address this challenge, linking more than 500 specialists with field experience to all 600 field sites through a simple, secure and organised electronic referral

site for support and technical expertise. With the help of 11 clinical coordinators across the globe, the MSF Telemedicine platform has provided service around the clock for more than 7 years, supporting field teams in over 6900 cases. Response times are fast, with advice reaching the field within 5 hours. The cases range from simple things like a newborn with an inverted eyelid resembling a tumour, or fracture care in an infant, to severe rashes and even intensive care support. The cases are often complex, requiring multidisciplinary support. While they do not all have beneficial outcomes, and although we are unable to provide state of the art subspecialty care in the field, we are closing the gap. The platform has also shed light on the needs across programmes – 1/4 of cases are dermatology patients, and over half are children, with a median age of just 3 years. The platform allows us to follow up, so we can improve our care and address the needs that we discover. Daniel finished with a reflection that the technology works because of the humans at every step of the process. “When technology brings us closer, we can do things better. It’s about time we stop being alone.”



Oral Presentations

[Implementation of strap-on automatic foetal Doppler improves quality of midwifery practices in Temeke, Tanzania: an observational study](#)

Benjamin A. Kamala.

This pre- and post-observational study evaluated the effect of introducing of a strap on automatic Doppler, “Moyo”, to improve foetal monitoring, obstetric care, and neonatal outcomes. 1640 mothers (pre-intervention) were monitored using the Pinard foetoscope, and 2442 mothers (post- intervention) were monitored using the Doppler. Doppler use resulted in significant improvement in the prevalence of foetal heart rate monitoring, with only 2% of women not monitored at all compared with 46% of women in the Pinard arm. The Doppler also increased the frequency of monitoring and documentation.

Mothers monitored with the Doppler had twice the rate of caesarean section and vacuum-assisted delivery, shorter length of stay in the labour ward, and the use of Doppler resulted in a significant reduction in the number of babies requiring resuscitation. The authors concluded that the use of Moyo led to improved midwifery practices in a resource-limited setting and has the potential to contribute to the reduction of adverse perinatal outcomes if used together with other interventions.

[Helping Babies Breathe, Second Edition: strengthening the program to increase global newborn survival.](#)

George Little.

This presentation reported on the Second Edition of Helping Babies Breathe. The new edition adopts the following formula: medical science x educational efficiency x local implementation = neonatal survival. The updates are based on ILCOR 2015 scientific updates, published literature, user feedback, surveys, and an equipment reprocessing guideline. The major updates include: 1. Recommendation of limited suctioning of meconium-stained amniotic fluid; 2. Focus on effective and continuous bag and mask ventilation until spontaneous breathing; 3. Recommendation of delayed cord clamping for 1-3 minutes in babies not requiring resuscitation; and 4. Materials to assist facilities in undertaking quality improvement. The Second Edition of Helping Babies Breathe is based on current science, reinforces learning through practice, fosters facilitator mentoring, and promotes quality improvement. The materials are freely accessible online at hbs.aap.org.

[Challenges and perspectives related to the implementation of a pilot project on basic neonatal resuscitation in rural Burkina Faso.](#)

Souleymane Tassemedo.

In a pilot project in 7 health facilities in rural Burkina Faso, health workers were trained in the Helping Babies Breathe curriculum, facilities were equipped with basic newborn resuscitation tools, and a documentation form was introduced for evaluation of resuscitation outcomes. 2 HBB experts, 5 Regional Master Trainers and 19 health care workers were trained in HBB. At one year follow up, written knowledge was good, but participants were perceived to have ‘average’ skills during simulation. Two refresher trainings had been held at the regional hospital, and none at the other 6 facilities. 32% of trainees had moved from their initial sites, the simulator was broken, and the suction equipment and masks were damaged. Documentation of resuscitation was done in <15% of births, precluding evaluation of the programme. The study authors concluded that significant challenges in implementation of the programme included poor buy-in, high mobility of health workers, lack of refresher trainings, poor maintenance of materials, and a low survey response rate. There is an urgent need to identify solutions to overcome these challenges for successful implementation of HBB in this setting.

[NeoTapLS: an mHealth tool for assessing heart rate during neonatal resuscitation in low resource settings.](#)

Nicolas J. Pejovic.

Heart rate is the most important clinical indicator of response to ventilation during neonatal resuscitation; however 98% of the world’s population does not have access to ECG. Auscultation and counting the heart rate is unreliable, resulting in inappropriate clinical decisions for 30% of cases. NeoTapLS is a mobile phone application developed to assist health workers in resource-limited settings to accurately assess newborn heart rate during neonatal resuscitation. The app calculates the heart rate based on the frequency of tapping on the phone for 3 taps. It keeps track of the golden minute, tells the user when to start mechanical ventilation and vibrates to the appropriate pace of ventilation. The app is designed for use with the phone inside a white surgical glove. In a proof of concept observational study in Stockholm, 30 first time users of the app acquired heart rate within 5 beats of the true value. In field testing, 99 paired assessments by advanced users of NeoTapLS were done using Doppler and pulse oximeter for comparison. Mean acquisition time of heart rate was 6 seconds, compared with 62 seconds for the pulse oximeter. NeoTapLS overestimated HR by an average 3.6 beats per minute compared to pulse oximeter. The tool is now undergoing testing against ECG.

Plenary Session 2: Neurocritical conditions in resource-limited settings

SESSION PARTICIPANTS	KEY MESSAGES
<p>Chairs:</p> <ul style="list-style-type: none">• <i>Michael Levin, Professor of Paediatrics, Imperial College</i>	<ul style="list-style-type: none">• <i>Early recognition and interruption of status epilepticus is essential in the care of neurocritically ill children.</i>
<ul style="list-style-type: none">• <i>Myrto Schaefer, Deputy Medical Director, MSF OCP</i>	<ul style="list-style-type: none">• <i>Supportive care, including diagnosis and treatment of hypoglycaemia, anaemia, aspiration pneumonia and seizures, plays an important role in neurocritical paediatric care.</i>
<p>Speakers:</p> <ul style="list-style-type: none">• <i>Charles Newton, Professor of Psychiatry, Oxford University, Head of Neurosciences, KEMRI-Wellcome Collaborative Programme, Kilifi Kenya</i>	<ul style="list-style-type: none">• <i>Research is in progress for the development of new treatments for children with cerebral malaria.</i>
<ul style="list-style-type: none">• <i>Yamikani Chimalizeni, Consultant Paediatrician and Senior Lecturer, University of Malawi, Blantyre Malaria Project, Malawi-Liverpool-Wellcome Trust Clinical Research Programme</i>	<ul style="list-style-type: none">• <i>There are significant gaps in the standard of care for children with critical neurological illness in resource-limited settings.</i>
<ul style="list-style-type: none">• <i>Robert Tasker, Professor of Neurology & Anaesthesia, Harvard Medical School, Boston Children's Hospital</i>	<ul style="list-style-type: none">• <i>Advocacy is needed to improve access to diagnostic investigations and treatment for children with neurocritical conditions in humanitarian settings.</i>

Professor Michael Levin began the session with an introduction to the issues involved in the diagnosis and care of the neurocritically ill child. The actions taken during the first few hours of care have a large impact on patient outcomes because the treatable conditions require early intervention. Health workers in humanitarian settings face significant challenges in diagnosing and treating these conditions. The long term consequences of acute neurological illness in children are becoming increasingly apparent, with a large proportion of surviving patients suffering from disability. The goal of this session was to explore the ways in which we can improve the diagnosis and management of children with an acute brain syndrome in resource-limited settings.

In the first lecture of the session, **Professor Charles Newton** gave a review of the latest evidence on the [“Approach to the febrile child with impaired consciousness.”](#) The aetiology of acute encephalopathy is diverse, and varies based on age and geographical location. Diagnosis and management can be divided into 7 steps: 1. Rapid assessment and stabilisation; 2. Clinical evaluation; 3. Investigations; 4. Empirical treatment; 5. Supportive care and treatment; 6. Prevention and treatment of complications; and 7. Rehabilitation. The neurological exam should focus on identifying diagnostic features of treatable conditions and complications, including infections, raised intracranial pressure (ICP) and seizures. It is recommended to treat fever in patients with raised ICP, as fever in these patients may provoke seizures. For evaluation of the child’s level of consciousness, AVPU (Alert, Voice, Pain, Unresponsive) is the most widely used scale.

Investigations in a setting with unlimited resources would include a broad range of blood and urine tests, throat and nasopharyngeal cultures, lumbar puncture, electroencephalography (EEG), chest x-ray, and neuroimaging with Magnetic Resonance Imaging (MRI) or Computerised Tomography (CT). Many of these diagnostics are not available in resource-limited settings. Wherever possible, inflammatory markers, electrolyte disturbances, kidney and liver function, and infectious causes should be investigated utilising the resources available. In settings where malaria, HIV and TB are prevalent, these conditions should be investigated as potential causes of the current presentation.

Lumbar puncture (LP) is one of the most definitive diagnostic investigations in children with fever and impaired consciousness.

In the absence of other brainstem signs or focal deficits, Professor Newton recommended doing an LP up to 72 hours after starting empirical

antimicrobial treatment. However, if spinal needles are not available, LP is not recommended because samples contaminated with blood, are difficult to interpret. In such cases, empirical therapy should be given. LP should be delayed in children with suspicion of raised intra cranial pressure, severe respiratory distress, coagulopathy, spinal cord trauma, or a skin infection near the LP site.

Supportive care and early empirical treatment are the mainstays of therapy. Antimicrobials should be started within the first hour after arrival in the health facility, and ongoing assessment and treatment of symptoms and complications such as hypoglycaemia, fever, dehydration, raised intra cranial pressure and seizures should be administered. During the inpatient stay, attention should be given to prevent bedsores, corneal irritation, and aspiration pneumonia and treat these if/when they occur. Physiotherapy should be started early to optimise the patient's outcome.

Discussions on the approach to the child with fever and impaired consciousness

A lively discussion was held on the feasibility and practicality of providing the standard of care given in high-income settings to children in resource-limited settings. For empirical antibiotic therapy in settings where ceftriaxone and chloramphenicol are not possible, benzylpenicillin and/or ampicillin with gentamicin are viable treatment options. As it is not possible to differentiate clinically between cerebral and non-cerebral malaria, anti-malarial treatment is recommended for children with impaired consciousness and positive RDT or blood film. Steroids are not recommended for cerebral malaria, but are recommended for TB meningitis.

The safety of performing a lumbar puncture in settings where CT or MRI is not available was discussed at

length. Fundoscopic changes such as papilloedema occur late, after raised ICP has been present for some time. In children with impaired consciousness and normal respiration, who do not have retinal signs of raised ICP, localising signs suggesting space-occupying lesion, or brainstem signs (abnormal pupil findings), LP is recommended.

The importance of supportive care was emphasized, including simple measures such as monitoring and treating blood sugar, maintaining an adequate blood pressure, temperature control, treating anaemia, and treating seizures. Aspiration pneumonia often goes unnoticed for a period and requires vigilance and treatment, when it occurs. If there is suspicion of raised ICP, mild head tilt and diuretics may have a beneficial effect. Mannitol is not recommended because of rebound increased ICP, with subsequent 'seesaw' effect after each dose.

Professor Yamikani Chimalizeni presented three studies aimed at improving the supportive care of children with cerebral malaria in his talk, [“Cerebral Malaria in 2017 – Beyond anti-malarials – How can management reduce mortality in resource-limited settings?”](#)

Risk factors for death in these children include increased brain volume, low Blantyre coma scale, elevated white blood cell count, pre-treatment hypoglycaemia, severe lactic acidosis and the

presence of malaria retinopathy. A previous study has shown increased brain volume in children who died of cerebral malaria compared with survivors, suggesting that increased intra cranial pressure plays a role in mortality.

Maximum temperature and seizures are independent risk factors for adverse neurological outcomes in these children and fever is a risk factor for later development of epilepsy and disruptive behaviour.

The first study is a forthcoming randomised controlled trial evaluating the effect of interventions to reduce brain swelling, on survival in children with cerebral malaria. The usual care for children with cerebral malaria in this setting is anti-malarial medication and elevation of the head of the bed by 30 degrees. The study will have three arms: usual care plus immediate mechanical ventilatory support until brain volume score ≤ 6 and Blantyre Coma Score > 3 , usual care plus treatment with hypertonic saline until brain volume score ≤ 6 and Blantyre Coma Score > 3 , or only the usual care.

The second study evaluated the treatment of seizures in children with malaria using enteral levetiracetam compared with intravenous phenobarbital. Seizures in children with cerebral malaria are often prolonged and repetitive, are often complex, and 19% are subclinical. The current mainstay of treatment includes benzodiazepines and phenobarbital, both of which carry a risk of respiratory depression. The enteral preparation of levetiracetam was used

due to the high cost of intravenous levetiracetam. The study found that enteral levetiracetam had a superior respiratory safety profile compared to phenobarbital in children with cerebral malaria.

The third study is a forthcoming proof of concept study on the potential neuroprotective efficacy of aggressive antipyretic therapy in children with cerebral malaria. The trial, due to start in February 2018, will be a randomised, double-blinded placebo controlled trial on aggressive fever treatment to reduce maximum temperature in paediatric cerebral malaria using prophylactic paracetamol.

Professor Chimalizeni concluded his talk with recommendations for supportive treatment of children with cerebral malaria, including treatment of hypoglycaemia, aggressive seizure control, vigilance for non-convulsive seizures, aggressive treatment of fever, and using available measures to reduce brain swelling.

Discussions on the care of children with cerebral malaria

The safety of hypertonic saline was identified as an issue in settings where measurement of electrolytes is not possible. The FEAST trial showed that both isotonic saline and albumin caused hyperchloremic metabolic acidosis. Hypertonic saline may cause both hyponatremia and hyperchloremia, and is therefore not

recommended without careful monitoring of electrolytes.

Point-of-care fundoscopic examination is most useful to exclude papilloedema, which is a late finding in patients with raised intra cranial pressure. While it can also assist in the diagnosis of cerebral malaria, the absence of malaria retinopathy, does not exclude cerebral malaria.

Building upon the previous presentations, Professor **Robert Tasker** gave a talk entitled [“Status epilepticus: A practical approach”](#), during which he focused on the technical management of seizures.

He began by laying the foundations for how to approach seizure management, summarising this with the acronym STAT SEIZURE.

- ST** **ST**op the seizure
- A** **A**ttend to the **A**irway
- T** **T**hink about other **T**reatments

- SE** **SE**arch the cause
- I** **I**nvestigations
- Z** forget **Z**ebras
- U** **U**se the local setting
- RE** **RE**commendations & **RE**search

Professor Tasker then reviewed the current definition of status epilepticus, which is based on the characteristics of the seizure (motor and level of consciousness), aetiology (known vs. unknown), EEG correlates, and the age of the patient. The two important points in time to consider in status epilepticus include the point at which the seizure has become abnormally prolonged – where treatment should be considered and the point at which long term damage to the brain occurs – determining how aggressive the treatment should be in order to prevent long term consequences. Most seizures in children do not require anticonvulsants and last 1 minute or less. Animal studies have shown that metabolic and cerebrovascular injury occurs after 25 minutes of a seizure.

For treatment of seizures, there are two phases. In Phase 1, diazepam should be given within 3-5 minutes either 0.5 mg/kg rectally or 0.3 mg/kg via slow intravenous bolus. If the seizure has not stopped at 10 minutes, IV glucose should be given regardless of blood sugar measurement, due to increased metabolic demand. A second dose of diazepam should be given 5 minutes after the first

dose if the seizure persists. Phase 2 begins at 20 minutes of seizure activity. Phenobarbital is recommended 20 mg/kg IV over 20 minutes. If the seizure continues to 35 minutes, a second dose of phenobarbital 10 mg/kg IV should be given over 15 minutes. While this protocol is very clear about time frames and when to intervene, studies have shown that it is very difficult to follow the protocol on time even in highly specialised centres in high-income settings.

Professor Tasker concluded his talk with a discussion of the pros and cons of different anticonvulsants. Diazepam and phenobarbital cause respiratory depression and in some centres, ketamine is used instead of phenobarbital. However, access to ketamine can be challenging because it is a controlled substance. In his summary, he appealed to the audience to review these recommendations and consider questions for research, in order to move the field forward and improve seizure management for children in humanitarian settings.

Discussions on the management of seizures and status epilepticus

Discussions with the audience reflected the technical aspect of the lecture, and focused particularly on the choice of medication for first and second line treatment of status epilepticus. While phenytoin is a useful medication in status epilepticus, it requires a slower infusion over 20-30 minutes and may cause bradycardia and hypotension. Alternatively, fosphenytoin has fewer side effects, but is also recommended to be given under ECG control. Levetiracetam has become the standard of care in most highly specialised facilities in high-income settings because of its superior cardiorespiratory safety profile. If available, ketamine is another option for settings where mechanical ventilation is not possible. The side effect profile of ketamine

includes nightmares and salivation, and therefore benzodiazepines, atropine and glycopyrrolate should be available if ketamine is used. For the choice of benzodiazepines, diazepam is less expensive and more widely available. However, midazolam is the first choice in high-income settings, as it is shorter acting and can be administered buccally or intranasally. In the end, the choice of medications used should be based on what is available in the facility.

Nutritional therapy for comatose patients was also discussed, with the recommendation for early enteral nutrition via a naso-gastric tube, or if this is not tolerated, to consider enteral feeding via the jejunum, if feasible. Parenteral nutrition is not recommended even in high-income settings.

Cross-cutting discussions

The main over-arching theme in the session, was the need for advocacy to increase access to diagnostic investigations and medications for the evaluation and management of children with acute neurologic illness. While lumbar puncture is possible in most settings, the ability to evaluate the cerebrospinal fluid may be extremely limited.

In settings where gram stains, cell count, glucose and protein measurements are possible; LP is of great help to determine the choice of medication and length of therapy, even when the LP is done 2-3 days after initiation of empirical antimicrobial therapy. In areas with improved coverage of vaccination against pneumococcus and haemophilus, there has been a marked decrease in disease from these two pathogens. However, other treatable viral, bacterial, parasitic organisms continue to be major causes of meningitis, encephalitis, coma and seizures in children in these settings.

Diagnostic tools for herpes simplex virus (HSV) are not available in most humanitarian settings. Furthermore, acyclovir to treat HSV is expensive and has significant side effects. The decision to initiate acyclovir therapy and the ability to stop

therapy continue to pose a challenge in settings with limited resources. In addition to the more common infectious causes of neurocritical illness in children, it is important to be aware of toxicity from counterfeit medications and traditional therapies, which occurs with notable frequency.

Conclusions

Myrto Schaeffer summarised the session with a call for advocacy for improved access to diagnostic investigations and treatments. It is of limited use to do a lumbar puncture where there is no means to evaluate the cerebrospinal fluid. Increased availability of safer seizure medications such as levetiracetam would greatly improve care in resource-limited settings, particularly as it does not have a risk of respiratory depression. There are ongoing studies to improve our treatment of cerebral malaria in children. While we work on increasing access to diagnostics and treatment for children with acute neurological illness, there are important additional measures we can take to improve the care of children with neurocritical illness, such as being reactive and treating early, being vigilant for hypoglycaemia and treating it when we find it.

PaED Talk: Introducing eCARE

In her talk, [Introducing eCARE](#), **Dr Clotilde Rambaud (MSF)** described an MSF decision-making support tool for middle-level health workers during outpatient consultations of children. Other more commonly used support tools, such as posters and guidelines, can be complex, confusing and are often designed for use by physicians. These tools fail to address the challenges faced by allied health workers and are often simply not used. This issue is of great importance, because limited paediatric knowledge combined with a lack of user-friendly support tools, results in inappropriate clinical decisions, including the irrational use of antibiotics - a major driver for antibiotic resistance.

An electronic application-based algorithm was developed to make child health information more accessible and relevant to allied health profes-

sionals during the consultation process. It is a tablet-based offline system that uses step-by-step procedures to help health workers assess, classify and treat children aged 2 months to 5 years presenting with an acute illness in an outpatient setting.

In 2016, MSF eCARE was implemented in the Central African Republic by 24 nurses in 3 MSF-supported government health centres. Over a 9 month period, the nurses performed more than 10,000 independent consultations of children under 5 years using eCARE. The nurses reported that the programme was easy to understand and use and that it made them feel more confident in making decisions. eCARE was also found to improve knowledge retention and has helped the nurses apply their paediatric knowledge to the care of patients even when not using the tablet. MSF eCARE is an example of the potential for technology to improve the scope and quality of health care for children.

Oral Presentations

Universal versus conditional follow up for fever of unknown origin Tobias Alfvén

With the declining malaria prevalence and widespread use of rapid diagnostic tests, community health workers (CHWs) are seeing an increasing proportion of children under 5 years with unclassified fever. The World Health Organization recommends universal follow up with a CHW after 2 days in children with non-severe unclassified fever, but the rationale for this is unclear. In contrast, the Ethiopian national guidelines recommend follow up only if illness persists or the child's condition deteriorates.

A community-based, cluster randomised controlled non-inferiority trial was undertaken to assess the safety of conditional versus universal follow up for children aged 2-59 months with unclassified fever in southern Ethiopia. 282 CHWs were randomised to universal or conditional follow up.

They enrolled children aged 2-59 months with fever and without malaria, pneumonia, diarrhoea, or signs of serious illness. Clinical outcomes were assessed at day 7, 14 and if the child was still ill, at day 28. All children were followed up by phone or visit at day 28 to determine final outcome. Over a period of 1.5 years, 4626 children were included, 50% in each arm. At day 7, 2.7% of children had treatment failure, defined as hospitalisation, danger signs, or persistent fever IN WHICH ARM?. There were no deaths. The study authors concluded that it is safe to recommend conditional follow up of children aged 2-59 months with non-severe unclassified fever in a setting with low malaria prevalence in Ethiopia.

The authors also noted that it was important for CHWs to have a name for unclassified fever, and that having a name for the condition prevented them for repeating investigations or giving

unnecessary treatments for the sake of being able to do something for the child.

Neonatal tetanus cases in Central African Republic: a neglected tragedy Valentina Papadimitriou

In Berberati, Central African Republic, low rates of maternal tetanus vaccination, limited access to maternity care, high rates of home birth and a low level of awareness of neonatal tetanus, contribute to a high prevalence of neonatal tetanus. A retrospective chart review of neonatal tetanus admissions in infants 0-2 months of age was undertaken at Berberati Hospital between March 2014- Aug 2017.

Tetanus was diagnosed based on the presence of clinical symptoms including irritability, poor sucking, rigidity, spasms, and Dakar scoring. Infants diagnosed with neonatal tetanus were treated with antibiotics, anti-tetanus immunoglobulin, diazepam, morphine, and if needed, phenobarbital. 106 patient charts were reviewed in the study, of which 75% of cases were 5-8 days old. Mortality was 58.5% and was highest during the first 5 days of hospitalisation. There was a strong association between higher Dakar scores and mortality. Children who were cured had longer hospital stays, ranging from 11-43 days. The number of admissions increased during the study period, with a marked increase during 2016-2017.

In order to address the increasing prevalence of neonatal tetanus, MSF conducted a series of vaccination campaigns. The authors concluded that neonatal tetanus is a preventable disease, which continues to affect infants living in resource-limited and conflict-affected areas. Discussion of the study focused on the need for repeated vaccination campaigns, increased access to clean deliveries, and advocacy to raise awareness about this preventable disease.



PaED Talk: What happens when we listen to adolescents?

Young people aged 15-24 are known to be at increased risk for contracting HIV, and at present, 2 million adolescents (10-19 years) are living with the virus. These youth are less likely to be on treatment and less likely to be virally suppressed. In South Africa, 28% of the adolescents on ART are not achieving control, compared with 19% in adults. With up to two thirds of MSF patients under 15 years, these figures illustrate an important point for paediatric care: there are critically important health risks for adolescents that differ from those of children under 5 years.

With her talk, *What happens when we listen to adolescents?*, **Joanne Cyr** (Clinical Health Psychologist, MSF) issued a call to attention to the particular needs of and risks for adolescents and the gap in our understanding of what is actually happening with them. She described a qualitative study with a cohort of HIV+ children who have now become adolescents and who receive services in an MSF project in Myanmar. The programme has been successful in disclosing HIV status before the age of 10. But these youth had few opportunities to speak about their condition outside of the clinic and when it came to disclosing to peers

and new sexual partners, they had few skills to draw upon. Taboos in society present a challenge to talking about sexuality to young people, but the reality is that adolescents are thinking about sexuality, experiencing changes in their body and are interested in others and in understanding what is happening to their bodies. The study also found that gradual increases in responsibility and finding a way to link being on treatment to the young peoples' futures and life goals, were important factors in promoting adherence. The creation of youth-friendly spaces outside of the clinic where they feel welcome, see others who are like them, and have a space to spend time with other adolescents, has been beneficial to identifying and addressing the needs of and risks for this neglected group. If you create the right space, provide the confidentiality they need and you listen, they will talk. Why is this important? Investing in adolescents promotes healthy youth today, health adults in the future, and healthy future generations.

PaED Talk: Perspectives from a Paediatric Nurse

Marie Clarisse shared Perspectives from a Paediatric Nurse working in humanitarian settings, where paediatric skills are not always a focus of care. Having cared for children in all of her missions, she identified a particular need for informed paediatric health care in resource-limited settings. This is especially important for crises, when there is a need to rapidly scale up the number of staff. The MSF training unit in Geneva is working in multidisciplinary teams to train health workers in neonatal care and malnutrition. A 3-day Training of Trainers seminar was conducted for the project in Niger, which experiences nutrition crises every year. These trainers then held 7 trainings for nurses and 6 for nutritional assistants – who have

no prior medical training - to prepare them for the crisis response. A qualitative study of the training by the University of Geneva found that some skills had been acquired, while others had not. Workers who had undergone training felt more efficient, had a better understanding of their roles and responsibilities at work and were motivated to improve the quality of their work. Trainees also identified with MSF and its mission. She concluded that, with children in care across all MSF projects, it is important to expand our focus and move beyond training only doctors and specialists. We must improve the paediatric knowledge of allied health staff working with children.



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Plenary Session 3: Pain management in resource-limited settings

SESSION PARTICIPANTS

Chairs:

- **Professor Julia Downing**, Chief Executive, International Children's Palliative Care Network

- *Isabel Zuniga, Paediatric Advisor, MSF*

Speakers:

- **Claire Dorin**, Head Neonatal Nurse, Myriam David Centre Unit of Perinatal Psychopathology; Pédiadol collaborator

- **Mohamed Fattah**, Intern, Paediatric Oncology, CHU Le Dantec Hospital

KEY MESSAGES

- *Pain is poorly recognised and undertreated in children in humanitarian settings.*

- *Myths about pain in children and barriers in access to pain medication must be challenged.*

- *Advocacy is needed at all levels – from health workers to ministries to pharmaceutical companies – to improve access to pain medicines for children.*

- *Simple and low cost measures such as NIDCAP, non-nutritive sucking and sucrose, are effective in treating pain in neonates.*

- *Task sharing can be a safe and effective way to improve access to pain care for children in resource-limited settings.*

The session began with an [introduction and advocacy](#) by **Professor Julia Downing** on the global burden of pain in children and the marked disparities in access to analgesia. Children experience pain due to a variety of reasons, including diseases, investigations and medical treatment. The Lancet Commission on Global Access to Palliative Care and Pain Relief, recently published a report which exposes the extraordinary disparity in access to pain management across the globe¹.

Every year, more than 5.3 million children <15 years-old, experience serious health-related suffering. At least 2.5 million children die each year in serious health-related suffering, over 90% of whom are in low and middle income countries. Providing adequate analgesia to these children would not be expensive – an estimated 63 cents per child, or 1 million US Dollars/year.

The major barriers for children in access to pain management include a lack of recognition by health workers of the need to treat pain in children, restrictive policies regarding the use of analgesic medications, lack of knowledge amongst health workers about pain in children, reluctance to use opioid analgesics, lack of health workers who are authorised to prescribe pain medication, lack of resources, and the number of myths about pain in children.

Throughout her talk, Professor Downing shared stories of patients she had met, bringing forth the human element in paediatric care and conveying the profound effect that effective pain management has on the quality of life for suffering children. She finished with a call to evaluate pain as a vital sign, and evaluate it as routinely as heart rate, respiratory rate, blood pressure and temperature.

¹ Knaul et al. Alleviating the access abyss in palliative care and pain relief—an imperative of universal

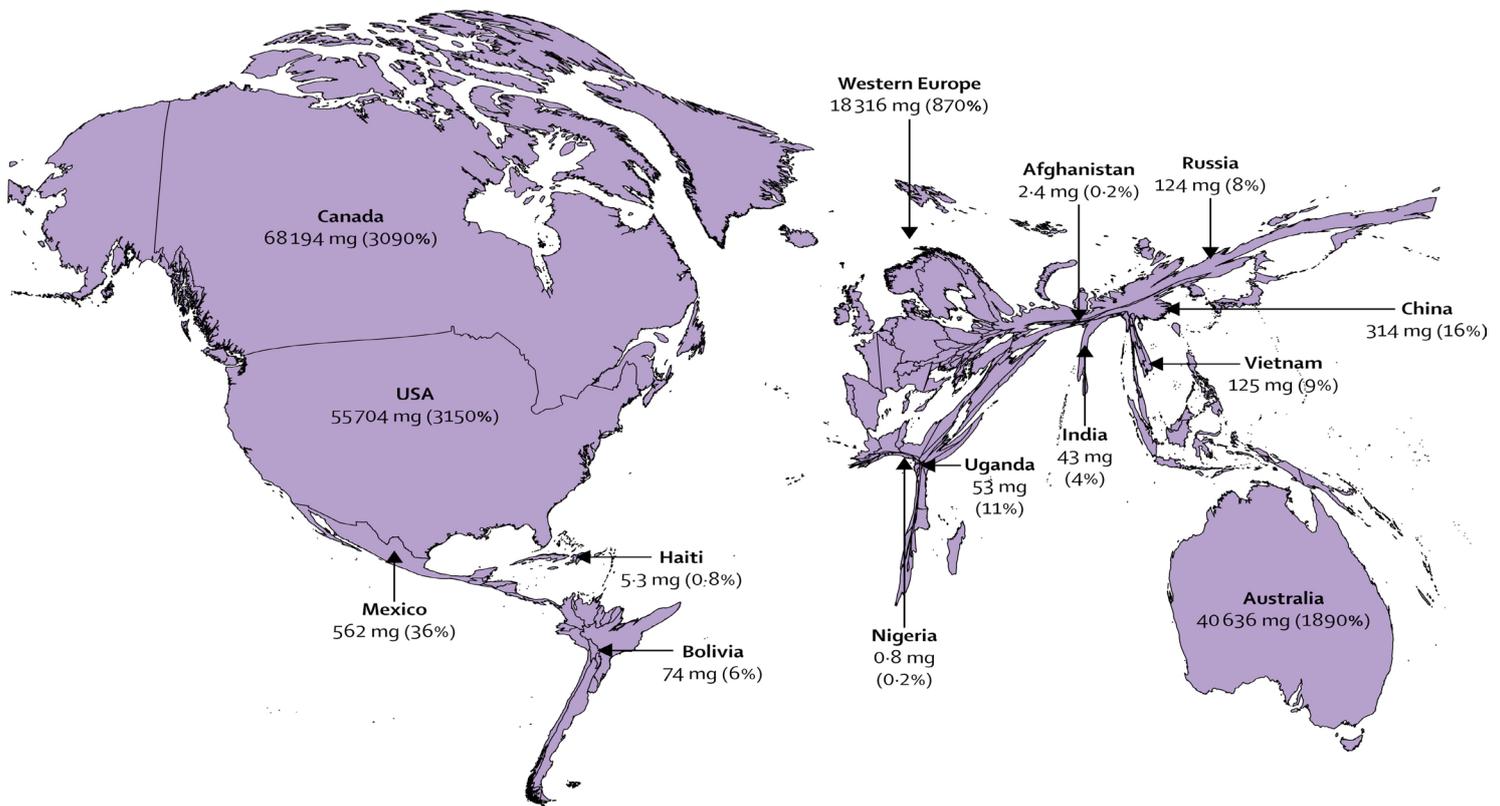


Figure: Distributed opioid morphine-equivalent (morphine in mg/patient in need of palliative care, average 2010–13), and estimated percentage of need that is met for the health conditions most associated with serious health-related suffering.

Source : *International Narcotics Control Board and WHO Global Health Estimates, 2015.*

In her talk, [“Simple proposals for the treatment of pain in newborns”](#), **Claire Dorin** deconstructed the myths around pain in newborns and described state-of-the-art care practices to reduce and treat pain that can be practically implemented at low cost in humanitarian settings. Myths about pain in newborns include beliefs that they don’t feel pain, that they will forget the pain, that experiencing pain makes them stronger, and that pain is needed for accurate clinical evaluation. Further barriers to treatment relate to feelings of guilt or disempowerment in health workers upon witnessing infants suffering, which can lead to ignoring the suffering as a coping strategy. Anand and colleagues definitively proved that newborns feel pain in 1987, when their trial of fentanyl versus no analgesia in premature infants operated on for patent ductus arteriosus was stopped early due to significantly elevated mortality and morbidity in the group not receiving analgesia.

Since then, studies have also shown that neonates also have memory of pain. The management of pain should therefore include attention to both the emotional and sensory components of pain. Validated scales to assess pain in newborns include

the [EVENDOL](#) scale and [Douleur Aigue du Nouveau Née](#).

Ms. Dorin went on to describe a variety of simple measures used in high-income settings to treat and prevent pain in neonates. [NIDCAP](#), the Newborn Individualized Developmental Care and Assessment Programme, includes observations of the infant’s response to the environment and taking measures to minimise stressors. NIDCAP has been proven to shorten hospital stay and reduce crying associated with routine medical care. The components include measures such as positioning the newborn comfortably, dimming the lights to recreate a day/night cycle, speaking with hushed voices, placing a piece of cloth near the baby with the mother’s smell, maintaining the presence of the parents on the ward and grouping medical acts and procedures to minimise the number of disturbances. The presence of parents improves recovery after invasive procedures, helps parents to cope with the situation, facilitates using the kangaroo method, and fosters child-parent attachment. Sucrose is effective in providing analgesia and can be used from birth to 6 months.

Studies in Turkey have also had success with higher concentration sucrose in babies over 6 months. The analgesic effect of sucrose is enhanced when used in combination with non-nutritive sucking.

This is given by having the parent wash their hands, dip their little finger in sucrose, and allow the infant to suck on it. There are no contraindications, and small quantities of sucrose can even be used in infants with necrotising enterocolitis. Breastfeeding is also effective, providing a similar effect as with non-nutritive sucking with sucrose. Topical anaesthetic creams, although expensive, are effective for pain management during percutaneous procedures such as lumbar puncture and venipuncture. The use of cling film to secure the cream avoids causing further pain due to adhesive

bandages. The principal source of pain in neonates is related to routine medical care, and not invasive procedures. As such, pain can be treated by altering the way we provide routine care. To do this well takes time and requires adequate numbers of trained personnel.

However, by creating a care environment that is calm, quiet, minimises medical acts and combines them as much as possible, as well as involving the parents; are all low cost but high yield measures to reduce neonatal pain. [Pédiadol](#) offers French language protocols, videos and educational materials on its website that are freely available.



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Discussions on pain management in neonates .

The feasibility of implementing the measures described in the talk in humanitarian settings was the primary focus of discussion. Ms. Dorin and several audience members gave examples of successful implementation of adapted components of NIDCAP in several African countries at low cost. Successful implementation has included dimming the lights and closing the curtains, having the mother present on the ward, speaking softly, wrapping the infants in a cloth with the mother's scent, positioning the

infants in purpose-made cocoons sewn from local fabric, avoiding startling the baby during medical care and clinical examinations, minimal invasive therapy and grouping of medical acts and using the kangaroo method. The biggest challenge has been to change the "culture" among health workers with respect to expectations for how the ward should be organised and how the care for newborns should be provided. Implementing the measures requires a shift in thinking for health workers to consider the perspective of the baby and adjust the environment accordingly in order to minimise stressors, trauma, and pain.

Dr Mohamed Fattah continued the discussion on the feasibility and effectiveness of providing analgesia to children in pain in resource-limited settings with his talk, [The place of morphine in pain management in children with cancer: 48 cases at the Paediatric Oncology Unit at CHU Le Dantec](#)". He described a prospective study undertaken in Dakar, Senegal that evaluated the effect of scheduled oral morphine with breakthrough analgesia on pain in children admitted to the paediatric oncology ward.

They used age-appropriate validated pain scales to evaluate pain. 48 patients were included in the study, with an average age of 7.5 years (range: 5 months - 18 years). The children had a variety of diagnoses, the most common of which were acute lymphoblastic leukemia, nephroblastoma and Burkitt's lymphoma. One quarter of patients had advanced metastatic disease at the time of enrolment. Seventy percent of patients had pain at enrolment in the study, with an average duration of pain of 30 days (range: 1-180 days). One third suffered moderate pain and two thirds suffered from severe pain at enrolment, most commonly in the abdomen, bone or joints. Nearly 30% of children had chronic pain.

Morphine was given to all patients and additional level 1 or 2 pain medications were given to 81%

of patients. The average dose of morphine was 1.5 mg/kg/day (range 1-5 mg/kg/day). There was marked reduction in pain by 40% during the first day of treatment, followed by a further gradual reduction in pain over the subsequent 5 days. Side effects of morphine included constipation and less commonly abdominal pain, vomiting, and pruritus. No patients developed respiratory depression or alterations of mental status. The main challenge in the study was a lack of human resources. One doctor and one nurse provided care for 10 patients, precluding continuous pain monitoring. Pain was evaluated daily and morphine was administered by the children's caregivers.

In his discussion of the findings, Dr Fattah referred to other studies which document a high prevalence of pain in hospitalised children and in children with cancer. The high prevalence of chronic pain and of metastases in the study population indicates late diagnoses, lack of access to diagnostic care and lack of access to adequate pain management. Scheduled morphine was highly effective in treating the children's pain, with a few minor side effects and no serious side effects. Dr Fattah concluded that this study and previous research demonstrate that there is much work to be done to improve the access to and quality of pain care for children.

Cross-cutting discussions

Professor Claude Moreira (Head of Paediatric Oncology, CHU Le Dantec, Dakar, Senegal) joined the panel during the discussion, which focused on the numerous barriers to treating pain in children and ways to address these. In regards to restrictions on importation of morphine, advocacy with ministries of health was identified as an important component. Professor Downing highlighted that a number of international organizations have developed advocacy tools which can be shared with MSF. One of the frequently cited reasons for restricted importation of morphine is the concern about the security of the stocks. Uganda has demonstrated that it is possible to import and securely store morphine for use in treating pain in patients. This model is particularly important, because it supports advocacy to make morphine available in both urban and also rural health facilities.

Myths about pain in children and about pain medicines are widespread. Beyond making analgesics more available, there is a need to educate health workers in recognising pain in children and treating it effectively. This can be done through a variety of care practices and by giving analgesics, including morphine.

The barriers described during the presentations resonated strongly with the audience, in particular the fear of respiratory depression from morphine. One participant pointed out that health workers are reluctant to treat adults with morphine and are even more hesitant to use it in children.

The culture of practice amongst health workers surfaced throughout the discussion. One cited reason for the reluctance to treat pain in children is that health workers struggle to cope with seeing children in pain. Educating health workers about paediatric pain management practices and making strong analgesics available are two ways to mitigate the trauma of seeing children suffer from pain. By giving health workers tools to help them manage pain, we can begin to change the culture of pain management in health facilities.

Beyond encouraging existing prescribers to treat children for pain, a need was identified to increase the number of health workers who are able to prescribe pain medications, including morphine. Task sharing by means of training and authorising mid-level health workers to treat pain in children is a model to improve access to pain medication. Professor Downing cited a recent study in Uganda, which demonstrated that nurses are competent to prescribe morphine in children. In other settings, this proposal has met resistance from authorities as well as physicians.

Participants explored the potential use of other analgesics, including nitric oxide, chloral hydrate, and ketamine, as well as non-pharmacological methods of pain control such as hypnosis. The pros and cons of these were discussed, including cost, demand for use, education of health workers, and the human resources needed to advocate for greater availability of the medications.

A question from twitter proposed an MSF international resolution to address the treatment of pain in children with concrete and practical activities in the field involving pharmacy and medical department support. Professor Downing suggested this be a recommendation from the Paediatric Days. She closed the discussion session by providing resources for pain assessment and management in children (see box).

Conclusions

Doctor Isabel Zuniga (Paediatric Advisor, MSF) concluded the session with a brief summary of the key points. There are many causes of pain in children, but children are not receiving treatment for pain for a number of reasons. Health workers at all levels must be sensitized in order to improve the recognition and treatment of pain in children. Evaluating pain as a vital sign is a possible way to incorporate pain management as a standard of care for children in MSF projects. There are simple, low cost measures for pain relief in children which are effective. Medications that are not currently used in MSF projects, such as anaesthetic creams, should be considered. Finally, advocacy to improve the access to pain medications is essential.

Resources for pain management in children

World Health Organization:

[Guidelines on the pharmacological treatment of persisting pain in children with medical illnesses](#)
[Persisting pain in children](#)

[International Children's Palliative Care Network materials:](#)

Validated pain assessment tools

e-Learning for health workers

Clinical care resources and various national guidelines

[A Really Practical Handbook of Children's Palliative Care for Doctors and Nurses Anywhere in the World](#)
[The Lancet Commission on Global Access to Palliative Care and Pain Relief](#)

French resource:

http://www.pediadol.org/viewer/viewer.php?pdf=guide_essentiel_interactif.pdf



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Plenary Session 4: Supportive care in MSF

SESSION PARTICIPANTS	KEY MESSAGES
<p><i>Chairs:</i></p> <ul style="list-style-type: none">• <i>Matthias Roth-Kleiner, Neonatologist, Associate Professor of Paediatrics, University Hospital of Lausanne</i>	<ul style="list-style-type: none">• <i>Supportive care is critical to providing care with dignity, regardless of whether we can save the child's life.</i>
<ul style="list-style-type: none">• <i>Harriet Roggeveen, Paediatrician, MSF</i>	<ul style="list-style-type: none">• <i>Play is a human right of children. It is also an essential tool in the care of sick children with measurable and cost-effective impacts</i>
<p><i>Speakers:</i></p> <ul style="list-style-type: none">• <i>Doris Burtscher, Anthropologist, MSF</i>	<ul style="list-style-type: none">• <i>Adolescents have special palliative care needs.</i>
<ul style="list-style-type: none">• <i>Julia Downing, Chief Executive, International Children's Palliative Care Network</i>	<ul style="list-style-type: none">• <i>There is always something we can do for our patients.</i>
<ul style="list-style-type: none">• <i>Megan Doherty, Consultant in Paediatric Palliative Care, World Child Cancer and Two Worlds Collaboration</i>	<ul style="list-style-type: none">• <i>Communities care about their sick and suffering members. A community-based approach to palliative care is an effective and sustainable way to provide palliative care to children in humanitarian settings.</i>



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“Play is an essential part of every child’s daily life and even the sickest child can be helped to play. Playing enables children to understand their world and to relax and forget their worries.”

WHO guidelines on Children’s Palliative Care

The session was introduced by **Professor Matthias Roth-Kleiner**, who started with a brief survey of participants’ experience and understanding of neonatal and paediatric supportive care. After establishing that a large proportion of the audience dealt with paediatric supportive care during the course of their work, he brought attention to the role of HIV/AIDS in helping the world of medicine understand its role in treating suffering and not only in attempting to cure disease. He reviewed the different terminologies for supportive care, which can also be called palliative care, symptom management or comfort care.

He then presented the WHO definition of supportive care, which “aims to improve quality of life of patients and their families facing problems associated with life-threatening, incurable diseases, through the prevention and relief of suffering by means of early identification, impeccable assessment and treatment of pain and other problems of physical, psychological, social, emotional and spiritual nature”.

He finished the introduction by emphasizing the different kinds of suffering that children may have

that are included in the WHO definition, and the importance of recognising and addressing these forms of suffering.

Dr Harriet Roggeveen followed with reflections on MSF’s focus, which is primarily geared towards saving lives.

At the same time, the movement has a goal of alleviating suffering and restoring dignity, which are two important aspects of palliative care. She gave the example of two patients she was involved with that morning via the MSF Telemedicine Platform who had severe illness with limited treatment options, and the parents wanted to take the children home. Such cases are common in the settings where MSF works, and often neither diagnosing nor curing disease is possible. These situations raise questions about how we can help our patients and their families, when and how to discharge them and what we can offer to treat their pain and protect their dignity.

She finished by challenging to the audience to consider how to use the information from the following presentations to improve care for these children in MSF programmes.

In her talk, [“An anthropological approach to paediatric palliative care and humanitarian medicine”](#),

Dr Doris Burtcher shifted the focus to what happens with severely ill children outside of the hospital setting, setting the stage for a comparative analysis of care practices in hospitals with care practices in traditional settings.

Many children do not have access to palliative care, which is usually only offered in referral centres. For these children in community settings, the need to find an explanation for the child’s condition plays an important role in how the family responds to the illness, the actions taken and the care given.

Diseases can be explained at several levels: individual, natural, social, and supernatural. When cure is not possible, communities begin to consider social and supernatural causes to explain why a child is ill. Conversely, in hospitals, the sick child is viewed as a subject and the focus of care is on technological and efficient medicine that is geared towards providing curative treatment, even when the lack of resources limits the ability to apply this model.

The culture of how treatment is given in health facilities is important, because it is usually in health facilities that families learn that the child’s illness is terminal.

Dr Burtcher then presented the case of Rose, a 6 year old girl who died after 13 months of hospitalisation for advanced acute lymphoblastic leukaemia. Early in her hospital course, Rose drew a picture of herself apart from other children because she was in pain all the time - from her disease, from procedures, and from the treatment. Rose was aware of her illness and that she was going to die, and on the day before her death, she drew a picture of her family without herself in it.

Rose’s story and her expression of her thoughts and knowledge about her illness highlighted an impor-

tant point: children are actors in their own right and they have something to say about their illness and their experience of suffering.

Using a new paradigm that considers children as actors who participate in a social process and which pays particular attention to the child’s experience of pain and suffering, will improve our ability to provide palliative care for children. Addressing the needs of the family is another important aspect of providing supportive care to children. Families face significant social, psychological and economic burdens when children have serious illness.

As Rose’s illness progressed, her parents were less present and less involved and this withdrawal was very difficult for Rose. Traditional medicine addresses the needs of the family through communication by providing an explanation as to why the child is ill, explaining what is being done in the course of treatment, and why.

Communication provides important psychological support to the family, and can be a model for MSF to learn from and incorporate into its work. In cases where the child dies, the traditional beliefs and practices serve as coping strategies to overcome the experience of loss and must be respected.

In her conclusion, Dr Burtcher considered how MSF can address palliative care needs.

The approach should involve the parents, family and community and should place particular emphasis on good communication.

There is a need to improve access to palliative care and to train health workers in this approach, including pain management and addressing the needs of the family. In cases where the family wants to allow the child to die at home, assistance should be provided to transfer care to the home setting.

Discussions on incorporating an anthropological approach to paediatric palliative care

The discussion focused on the challenges in informing caregivers about the child's diagnosis, prognosis and care plan in a culturally-sensitive manner. An example from Niger was given, where providing informed consent for palliative care was the standard of practice in the hospital. Cultural and religious beliefs in the region incorporated the will of Allah in determining the outcome, and local health workers included this in their explanations of the prognosis

to mothers, "ça depend de Allah". This was identified as a means of removing blame or responsibility for the child's illness from the mothers and should be respected. For guidance on how to provide transparent informed consent for palliative care in a culturally sensitive way, it is recommended to consult local colleagues and the community.

Professor Julia Downing followed with a talk on "[Optimizing paediatric quality of life through palliative care for children. The role of play with examples from Uganda](#)". The importance of palliative care in humanitarian settings has been recognised and it is currently being integrated into the second edition of the SPHERE Handbook. The current MSF guidelines for pain management in children include non-pharmacological therapy such as drawing and playing.

The importance of play for child development, health and wellbeing is so profound that the Convention on the Rights of the Child recognises it as a human right of children. Play is how children learn, explore, and make sense of their world. Play is also a means for children at different stages of development to express themselves and share what they are thinking about and feeling. In summary, play is the essence of a child's life.

Play is also useful as a form of therapy. Simple and low cost materials can be used during play therapy to alter the child's mood, distract from pain and painful procedures and familiarise the child with medical instruments and therapies. Creative arts and crafts are useful in treating pain, improving mood, and helping children express their thoughts and feelings. In using play as therapy, health workers must be aware that the child may express themselves through play and are equipped to respond.

Professor Downing described a couple of examples where play has been integrated into the

medical care of children. At Mildmay Uganda, an HIV centre in Kampala, a dedicated play area serves as a safe place for children, where there are no medical tools, procedures or treatments. Play is incorporated into care practices during counselling, discussion of disease status and to explore psychological and spiritual issues. In Adjumani, northern Uganda, a pilot project in 5 health centres identified that 6-10% of refugees there have palliative care needs, a large proportion of whom are children.

The project is successfully using play in the treatment of physical, psychological and spiritual suffering in these children. During interviews with children in sub-Saharan Africa to develop a Children's Palliative Outcome Scale, the children identified play as important to them. When asked about reasons they didn't play, some cited a lack of toys, books and pencils, and others told that they were afraid that it would make their condition worse.

Professor Downing concluded her talk by citing play as a right of every child and a key component of children's palliative care. As such, it has a key role in humanitarian settings. Strengthening opportunities for play within MSF programmes is a means for MSF to provide supportive care by addressing quality of life, suffering and dignity.

It can also improve the care of children when used as assessment and a therapeutic tool. Once the child's basic needs are met, play is important – not only because they love to play, but because an inability to play can be harmful.

Dr Megan Doherty completed the session with her talk ["Community-based palliative care initiatives"](#), during which she described the development and implementation a community-based palliative care project. In a "how-to" format, Dr Doherty described the main steps taken to set up the Korail Slum Project in Dhaka, Bangladesh. Based on the [WHO palliative care programme development guide](#), the three main steps include doing a needs assessment, building community awareness and providing clinical care in the community setting.

Community members in the Korail slum were hired to do a needs assessment survey. After a brief training, all households in the slum were surveyed to identify children with serious medical problems. Existing services and NGOs working in the slum were also identified. Community awareness about children's palliative care was raised through brief presentations to small groups in places where people naturally met. Through raising awareness, the project developed a group of committed volunteers who serve as advocates for palliative care, raising support for the project within the community. Trained community health workers, called "Palliative Care Assistants" (PCAs) and volunteers provided home-based care, and paid doctors, nurses, physiotherapists and psycho-social counsellors support the PCAs with weekly clinics based in the slum. Family members were also trained in basic daily care.

A critical aspect to the success of the programme was attention to the needs identified by the community. In the Korail project, patient-reported greatest needs were money (44%), medical care (44%), pain relief (21%), and food (11%). These

needs were addressed by providing a monthly food packet to each patient's family, paying for their medications, and providing the equipment needed for medical care.

In cases where other medical needs were identified, coordination with available services was done to provide the needed care. A palliative care centre was built within the slum, which has served to root the project in the community and is used as a base for trainings and advocacy.

Community engagement was critical to making the Korail project successful. Involving the community from the beginning, helped to adapt it to the local context, overcome challenges, increase ownership and ultimately make it sustainable. Working with the community has developed a child and family-centred approach to care that supplements the hospital services, reduces the burden on health facilities, improves coordination, allows for focus on the child and family's need and is generally preferred by patients and families.

In settings with limited resources such as Bangladesh, where catastrophic health expenditure is the leading cause for families to fall into extreme poverty, working within the community reduces cost to both the family and the health system and can avoid unnecessary hospitalisation. The project found that the community recognised the need for palliative care, wanted access to services and had committed individuals who were motivated to help others in their community. The programme is currently being replicated in Cox Bazaar with Rohingya refugees.

Discussions on the community-based model for paediatric palliative care

The discussion focused on challenges in engaging communities, establishing ownership within the community, meeting non-medical needs, and transferability to emergency contexts. The Korail slum project model takes 2-3 years to be fully established, owned and sustained by the community. However, it can be used for rapid assessment and scale up in emergency situations. A needs assessment in Cox Bazaar and a targeted assessment to identify existing services were completed in 10 days, and within two weeks of this, a pilot project with clinical care was commenced. The volunteers who carry out the survey are key actors in the process; they are often energetic and motivated to create positive change. Once engaged, they want to begin work, and the project can be started quickly. After approximately one year, there is sufficient community support to begin working on sustainability.

The Korail slum project has not experienced major challenges related to the selection of patients to the

programme or provision of meal packages and other support only to the families of patients. Transparency in the selection process and the recognition of need within the community are contributing factors to acceptance by the community. When a Palliative Care Assistant identifies a seriously ill child, a doctor and nurse carry out a thorough clinical assessment and the case is discussed in the weekly rounds, where a decision is taken. Criteria for enrolment are having a chronic disease, life-limiting or life-threatening illness or condition. Most patients identified by Palliative Care Assistants are enrolled into the programme. In patients not meeting enrolment criteria, when other medical needs are identified, the programme works with other services to identify a way to help the family with that issue. In terms of the food packages only being received by the patients in the programme, it has not been an issue in this well-established community. People appear to accept that the family receiving the food has greater need for it. The programme also supports the community by purchasing its food and medicines from within the slum.

Cross-cutting discussions on supportive care

The lack of attention given to the specific palliative care needs of adolescents was discussed. Issues relating to HIV, teen pregnancy, and childbirth were highlighted, in particular the pain of childbirth and high risk for complications and death. Mildmay Uganda has recognised that adolescents have particular palliative care needs, and has developed a programme for adolescents, including providing pregnancy and delivery care with focus on HIV treatment and analgesia during delivery. The programme is also educating health facilities on the healthcare needs of adolescents. The Korail slum project provides palliative care for the full age spectrum, including children, adolescents, and adults. In Senegal, there has been a recent implementation of reproductive health programmes that are including teenagers in the care process.

Palliative care during epidemics such as Ebola was also discussed, as well as how to approach mourning during epidemics.

The issues are complex and there are often cultural norms and practices which may create a challenge to providing bereavement care. Bereavement is part of palliative care and there is a need to identify ways to support grieving parents, siblings and

children who have lost a loved one. In the context of epidemics, children may lose their parents as well as brothers and sisters.

Government officials and health care administrators were identified as the major sources of resistance to implementing paediatric palliative care programmes in low-income settings. Communities are very accepting. Dr Burtscher reported on increasingly common demand from communities for palliative care services from MSF, indicating both a need and a demand. Health professionals and community health workers, while not resistant to palliative care, are often overworked and insufficiently supported, both in terms of tools to provide palliative care for children and also emotional support.

Lastly, a participant from Twitter asked the panelists about ways to make palliative care attractive enough to engage the humanitarian world to make it a priority. The approach taken by existing programmes to garner support is through engaging people using their own personal stories – identifying actors with a loved one who has needed palliative care and encouraging them to advocate for putting palliative care on the agenda.

Witnessing the suffering of loved ones is what makes palliative care a priority for individuals, including policy makers.

Conclusions

To conclude the session, Professor Roth-Kleiner asked the panellists to share their key messages for the field and for MSF operations. Ms. Burtscher emphasised the importance of understanding the ways in which families access health services and recommended considering a community-based approach to palliative care.

Professor Downing reiterated the importance of children's palliative care and recommended that MSF integrate palliative care across all programmes in order to improve the quality of life, reduce pain and suffering and protect the dignity of the children cared for by MSF. Dr Doherty

highlighted that community-based palliative care models are cost-effective, relatively simple, and there are established models that can be replicated in MSF programmes. She suggested using the community-based model to integrate palliative care into MSF programmes.

Dr Roggeveen encouraged MSF to use existing programmes for palliative care to develop its work in this area. Professor Roth-Kleiner ended the session with the observation that MSF has a strong reputation for its life-saving humanitarian work across the globe.

He challenged MSF to use this reputation to advocate for pain management and palliative care for children.



Oral Presentations

[Pain management and palliative care in neonates – notes from the field during a training in Khost, Afghanistan](#) **Anna Halden**

In the large maternity hospital in Khost, Afghanistan, up to 150 babies are admitted each month and mortality is 15%. Challenges to implementing the MSF guidelines on neonatal pain management and palliative care include lack of knowledge as well as cultural barriers. An interactive training was held for all national staff working in the neonatal unit. Trainees had a limited understanding of the pathophysiology or short- and long-term consequences of pain in neonates. In discussions on pain management, doctors focused on medication, while nurses focused on care practices. Myths about morphine and limited knowledge of minimally invasive care were common.

The concept of palliative care was abstract and poorly understood. However, nurses were aware of the importance of the closeness of mother and baby during last hours of a baby's life. In making decisions about end of life care, staff felt alone, frightened and also unsure of the legal implications. During the training, participants identified best practices including ways to include caretakers, a place to provide end of life care, and how to communicate with families about palliative care. The programme identified a need for bedside training to improve practical implementation as well as an important need for health workers to have a space to talk about these issues. Finally, clear guidelines are needed to support staff in the decision-making process. An interdisciplinary palliative care committee is currently implementing the training in other MSF projects, aimed at improving the care of severely ill neonates and families.

[Approach to delivering critical paediatric care in Zahle, Lebanon: training surveillance and ethical considerations](#) **Ryan Carroll**

Approximately one third of the 1.5 million Syrian refugees in Lebanon are not registered with UNHCR and do not have access to health services. Half are under 15 years-old. In response to a high burden of serious acute and chronic illness among patients admitted to the paediatric ward, a 2 bed Paediatric Intensive Care Unit (PICU) with ventilator capability and a 4 bed Paediatric Intermediate Care Unit (PIMU) with high flow nasal cannula

for oxygen are being established in Zahle. The presentation described the development and implementation of services, including standards and logistics for patient flow between the services, the logistics of transfer, simulation trainings, and the establishment of supply chains and cooperation with referral facilities. The paediatric ward opened in October 2017, and the PIMU opened in mid-November 2017.

Training is currently focused on increasingly complex care scenarios in preparation for the launch of PICU services. The challenges to the programme include staffing with competent paediatric intensive care nurses and physicians, high patient to nurse ratio, the need for new protocols and training programmes in paediatric critical care, and ensuring supply chains for equipment and medications. The provision of paediatric critical care services in Lebanon has raised serious ethical and legal implications regarding redirection of care when recovery is not possible. In conclusion, establishing PICU and supportive services requires a unique and multifaceted approach to recruitment, training and maintenance of care. Discussions after the presentation included the need to establish clear admission criteria, issues regarding long-term for continuity of services after closure of MSF activities, and the large need for paediatric critical care services in MSF settings. Similar programmes are being implemented in Guinea-Bissau for neonatal intensive care, and a PIMU project in Liberia is under development.

[Assessment of current situation, health habits and health care seeking behaviour for Syrian refugee children under 5 years old in the Bekaa Valley](#)

Florencia Romero

Access to health care is a major problem for the more than 350,000 Syrian refugees living in the Bekaa valley, Lebanon.

A survey was conducted among Syrian refugees in central Bekaa in order to understand the health needs, behaviours and access to care for, with particular focus on children under 5 years. After systematic stratified sampling in 7 zones, 384 interviews and 3 focus group discussions were conducted. Nearly 80% of participants were living in informal tented settlements.

The survey found an average of 7.5 people per household with 19% being under the age of 5 years, 87% were illiterate or didn't finish primary school and 50% live on less than 130 USD per month.

Half of the population perceived restriction of movement due to lack of legal documents, insecurity, and fear of arrest at military check points. 80% of survey participants had a sick child in the previous month, most commonly with diarrhoea (64%) or respiratory infection (30%). One-fifth did not seek health-care, with cost of transportation and medical care cited as the main barrier. The survey identified gaps in knowledge about signs of serious illness in children and how to measure temperature. One third of participants reported having a child hospitalized during the previous

year. Furthermore, of those referred by a Primary Health Centre, 28% did not go. 7% of children in surveyed families have never been vaccinated. Mental health was identified as a serious issue, with more than half of survey respondents exhibiting signs of depression, anxiety and evidence of aggression and violence. In conclusion, there is a need to improve access to care for this population, develop mental health services, educate about childhood illnesses, and improve the living conditions of refugees in the Bekaa Valley.

Oral Presentations

[Minors surviving sexual violence in Port Au Prince – Haiti.](#) Harriet Roggeveen

In Haiti, poverty, political instability, repeated natural disasters and a weak health system have been associated with violence and lack of health services. An estimated 25% of girls and 20% of boys in Haiti suffer sexual violence before the age of 18 years, levels above the global prevalence. This violation of human rights carries a wide range of physical, sexual, reproductive health and mental health consequences. The MSF Pran Men' clinic provides medical care and counselling to victims of sexual violence, including Sexually Transmitted Infections (STI) and HIV prophylaxis, emergency contraception, hepatitis and tetanus vaccination, and a medical certificate for support in case of legal procedures. Additionally, the clinic engages in raising community awareness about sexual violence. In order to better understand violence patterns and improve the care for children, a cross-sectional study was carried out using routinely collected data on patients treated at the Pran Men'm clinic from May 2015- October 2017. 1826 survivors of sexual violence were treated at the clinic during the study period, 55% of whom were minors. Patients primarily reached the clinic through the police, and through community outreach. Among child survivors, 97% were girls, 25% under 10 years of age, 37% 10-14 yrs, and 38% 15-17 yrs. 90% were raped, 32% were abused at home and 81% knew their perpetrator. Minors presented later for care compared with the overall population, and 6.4% had an unwanted pregnancy. 20% of cases were perpetrated by other minors, and nearly one-fifth of cases involved multiple perpetrators. The study revealed a clear need for advocacy to stop sexual violence and the culture of impunity in Haiti, and to increase access to services for children and adolescents. To this end, MSF published an [advocacy report on sexual violence](#) in 2017, and has begun working to decentralizing the services, train staff in the care of child survivors of sexual abuse, and advocating with the ministry of health and other stakeholders to respond to sexual violence.

Discussions

This shocking presentation was followed by an active debate about how to protect children, improve their access to care, and to support them to seek justice and protection. The survey showed 20% of males in Haiti have been sexually abused, however the number treated in the clinic are far lower, suggesting they are not being reached. Reports from Syria and Libya also show high rates of sexual violence, and in some areas with the proportion of violence against males is as high as for females. There is a lack of tools to respond to sexual violence in boys and men, and this gap in care puts survivors at risk for further complications.

The importance of counselling and follow up was discussed, in order to identify and treat later occurring physical and mental health consequences of sexual violence. Access to termination of pregnancy was identified as an important aspect of care. Non-medicalized abortions are one of the 5 main causes of maternal mortality worldwide. By making safe termination available, South Africa has reduced abortion-associated mortality by 95%. Advocacy should focus on the existence of a medical indication for abortion in order to increase access to safe terminations for survivors of sexual abuse. The importance of support for legal counselling and support was also discussed. Patients often do not report the assault, for a variety of reasons. In addition to receiving medical certificates, patients are given information about legal possibilities. Additionally, for people who do not want the medical certificate, it is stored at the Pran Men'm offices for 10 yrs, in order to support the survivor if they later choose to pursue legal action.

Finally, the need to include services for victims of sexual violence horizontally across MSF programmes was identified. Projects for victims of social violence are usually implemented in a vertical design in contexts that are stable or semi-stable, such as Haiti and Kenya. However sexual violence is significantly more prevalent in settings where conflict occurs. Programmes do exist, for example in Democratic Republic of Congo, but there is a need to advocate for increased attention and services for survivors of sexual violence in conflict settings.

Oral Presentations on nutrition

[Refugees from Mosul: assessing malnutrition among children under 12 months.](#) **Jihane Ben Farat**

MSF operations in six facilities around Mosul provide primary and secondary health care, nutritional rehabilitation, and mental health services. In April 2017, 75% of children treated in the intensive therapeutic feeding centre (ITC) in Qayyarah were <6 months old, and the remaining 25% were between 6-12 months. A cross-sectional study was done to estimate the prevalence of malnutrition in refugee children under 1 year of age living in camps around Mosul and to explore the factors influencing infant nutrition. 1389 children were screened in two camps, Al-Jada'a 4 and 5. Infants 1-5 months were screened using weight-for-age and oedema, and infants 6-11 months were screened using MUAC and oedema. 484 infants were 1-5 months old, and 894 were 6-11 months old. In the 1-5 months cohort, the prevalence of SAM was 25% and MAM was 18%. Overall, 29% of the 1-5 month olds required hospitalization. In the 6-11 months cohort, the prevalence of SAM and MAM were 12% and 20%, respectively, with 6% requiring hospitalization. In the severely malnourished infants 1-5 months old, the rate of exclusive breastfeeding was low (61%), and a significant proportion were exclusively breastfed ≤ 4 times a day (OR 3.6; 95%CI: 1.9-6.5). Alternative feeding practices included formula, mixed feeding, and cow's milk. Qualitative interviews identified several barriers to breastfeeding, including belief of mothers that they did not have enough milk and that starvation stops breastmilk production, high stress levels, maternal ill mental health, and lack of access to formula and food. The lack of standard tools to define infant malnutrition poses a challenge for diagnosis and treatment of these children. The authors conclude that SAM is a prevalent public health issue in this population, with particularly high rates of malnutrition in infants <6 months old. The security situation and medical practices in the region create context-specific challenges in the ability to respond to the needs of the population.

The discussion explored how MSF should respond to the situation. Knowledge and tools to identify and treat children <6 months with malnutrition are lacking. Further, the context in the refugee camps around Mosul differs from the Mosul city and also other countries in the Middle East. In

the context of a nutritional emergency, breastmilk substitute can be used simultaneously with breastfeeding promotion, in order to save lives while also addressing the underlying problems relating to infant feeding practices. MSF activities in the camps include a community-based baby-friendly spaces initiative to provide holistic care, including breastfeeding promotion and support, psychosocial support to the mothers, children and families. Pregnant mothers are included in this initiative. Simultaneously, breastmilk substitutes are used to treat the infants who are acutely malnourished.

[Effectiveness of a simplified protocol for treating acute malnutrition: "Proof of concept" study, Passoré province, Burkina Faso](#) **Susan Shepherd**

A protocol to simplify the treatment of malnutrition by expanding the distribution of ready-to-use therapeutic food (RUTF) and treating a larger number of children earlier was tested in Yako, Burkina Faso in 2017. The authors hypothesized that a gradual reduction in RUTF dosage based on MUAC could double the number of children in the nutritional programme without increasing the amount of RUTF used and without affecting the cure rate. Mothers were trained to measure MUAC to improve earlier detection of malnutrition. The protocol included children based on MUAC or the presence of oedema. Patients were grouped into three categories: MUAC <115mm, 115 - <120mm, and 120 - <125mm. Gradual reduction of RUTF was given to each category. Children with MUAC <115 were treated with 175 kcal/kg/day for 42 days, or 100 sachets/child. Children with MUAC 115 - <120mm were given 125 kcal/kg/day for 35 days, or 50 sachets/child. The children in the 120 - <125mm group were treated with 75 kcal/kg/day for 28 days, or 50 sachets/child. The expected RUTF use was an average 77 sachets/child, which is half of the current UNICEF recommendation. Complicated cases and cases with MUAC >125 and W/H < -3 were treated according to the national protocol. The study identified a larger proportion of children with MAM than expected: 16% of admissions were SAM (expected 30%), and 84% of admissions were MAM (expected 70%). Half of the expected amount of RUTF was used due to a smaller than expected number of patients, however 67 sachets/child was given, consistent with the expected amount. Compared with 2016, the year prior to the intervention, the number of children admitted to the programme increased by 65% (4635 in 2017 compared with 2813 in 2016),

but the prevalence of SAM was lower (17% in 2017, compared with 62% in 2016). The cure rate was 95%, with 0.3% mortality and 3.5% lost to follow up. The authors concluded that the protocol was feasible, promoted early recognition and management of children with acute malnutrition, simplified the patient flow and workload of health personnel, and expanded the coverage of the nutritional programme without incurring additional cost.

The discussion considered applicability of the protocol in settings with a higher prevalence of SAM and areas with higher population density. The authors hope to expand the programme in the future and test it in settings with significantly higher rates of SAM. Additionally, the issue of RUTF being shared within the family was considered. Based on the study findings, it appears the children received the RUTF, with good weight gain and increase in MUAC, and good outcomes. While “leakages” may always pose a challenge, the programme has worked and the children are doing well. Experience in other projects that gave monthly RUTF rations is similar. Finally the role of antibiotics was addressed. The children in this protocol received amoxicillin if MUAC <120mm.

DiDiMAS” Syndromic Approach to Detection of Infectious Agents in Diarrhea in Children with SAM **Susan Shepherd**

Diarrhoea is the main cause of under 5 mortality in Chad, accounting for 19% of deaths. This population also suffers a high prevalence of global acute malnutrition, at 16.3%. In the Alima-Alerte Santé malnutrition programme in N’Djamena, children admitted during the July-August peak period have the highest mortality, and more than 60% of these children present with acute diarrhoea. In order to investigate association between malnutrition and diarrhoea, a descriptive study was done Nov 2015 – August 2016. All children <3 years old living in N’Djamena and hospitalised with SAM and diarrhoea, and who produced a stool within 24 hours of admission were included in the study. Children living outside of N’Djamena or known to be HIV positive were excluded. A total of 553 children were included in the study, with an average age of 12 months. The median MUAC was 106mm. 3.1% were newly diagnosed as HIV+, and malaria prevalence was 1.5%. The children’s stools were evaluated using a qualitative multiplex PCR point

of care test, which can identify for 22 infectious disease targets including 12 bacteria, 4 parasites and 5 viruses. The study found an average of 4.2 infectious targets per child (range 0-9). More than 90% of children were infected with at least one form of E. coli, most commonly enteropathogenic E. coli. Additionally, 40% of children had shigella, however none had bloody diarrhoea. 34% of children had stools with cryptosporidium. Rotavirus prevalence was low, at 8%. Seasonal pathogens included adenovirus (April-May), cryptosporidium (July-August), and rotavirus (November-December). Children with cryptosporidium had a lower HIV prevalence than the overall cohort, but had higher mortality – 18% compared with 10% in cryptosporidium-negative children. The authors concluded that infectious causes of diarrhoea in children with SAM are under-diagnosed. Cryptosporidium merits particular attention in children under 2 years of age, and further study is needed to characterise the association between cryptosporidium diarrhoea and mortality. Finally, qualitative multiplex PCR is a promising technology that can aid in disease surveillance of infectious causes of diarrhoea in resource-limited settings. A limitation of the study was the lack of a control group. Further studies are warranted.

Widening our understanding on Kwashiorkor through an explanatory approach with key informants

Nidia Huerta Uribe

Kwashiorkor is a syndrome defined by bilateral pitting oedema. The proportion of kwashiorkor among SAM cases is variable, as high as 50% in some settings, and carries a higher mortality. A mixed methods study was undertaken to explore the aetiology and pathophysiology of kwashiorkor. In the first phase, a literature review was carried out to identify key issues and gaps in our understanding of kwashiorkor. A qualitative questionnaire was developed based on the findings of the literature review and administered to 12 key informants who are experts on kwashiorkor. The interviews were coded and analysed for themes, and these themes were then compared to the findings from the literature review.

A number of theories on the pathophysiology of kwashiorkor were identified in the literature, however there was no strong evidence for any theory. This finding was consistent with the key informant responses, which noted uncertainty about the causes of kwashiorkor, and suggested that it results from a mixture of factors, including gut

microbiota, metabolism, and environmental factors. Infection was identified by key informants as one of the most important factors.

Clinical trials support this theory. Both the literature review and the key informants noted on a remarkable geographical variation in the incidence of kwashiorkor, which occurs in pockets.

The cause of this geographical pattern is not known. Most often, children suffering from kwashiorkor have a monotonous staple-based diet which is deficient in micro- and macro-nutrients, and in particular, protein. This is thought to result in a maladaptation of the metabolism, with resulting salt and fluid imbalances, hypoglycaemia, and increased fatty acid oxidation, hormone dysregulation, immune impairment, and oxidative stress.

Recent research suggests that highly sulfated glycosaminoglycans play a role in vascular permeability, resulting in the characteristic oedema seen in kwashiorkor patients. The main target organs affected include the brain, heart, kidneys, splanchnic bed, skin and hair. Children with kwashiorkor appear to have an immature gut microbiota,

which may limit energy uptake and alter metabolic pathways, predisposing the child to diarrhoea.

The authors conclude that after more than 150 years since it was first described, kwashiorkor remains a neglected syndrome. The available evidence suggests important differences between kwashiorkor and marasmus that merit further study in order to better understand and direct treatment.

Finally, there is a need for investment in social and economic factors and to strengthen health systems in areas where malnutrition is prevalent.

Discussion with the audience examined factors that affect the gut microbe in children with kwashiorkor, and the role of infections in driving the disease. Kwashiorkor prevalence increases during epidemics, most notably with measles. However the pathophysiology for this is poorly understood. Epicentre is leading a study with other MSF partners in Niger in 2018, which will examine the role of genomics, proteomics, lipopolysaccharides, and glycocalyx breakdown studies.

PaED Talk: A medical solution from the 1 dollar shop



On behalf of Neal Russell, **Drs. Sahar Nejat and Laurent Hiffler** (both from Organizational Committee) presented **A medical solution from the 1 dollar shop** that pushes the limits of newborn care in resource-limited settings. Obtaining IV access in critically ill neonates is crucial for providing treatment, but it can be extremely challenging to obtain. Every attempt breaks the skin barrier and puts the baby at risk for infection, causes pain for the baby, anguish for the parents and health worker, and leaves fewer intact veins for the next needed cannula. Research shows that in at least 50% of cases, we need at least 2 attempts to place an IV. While transilluminators can make this procedure easier, they are expensive and often not available. One night, Neal accidentally found a solution. While putting the red LED rear light on his bicycle, he inadvertently transilluminated the veins in his finger. Realising the potential of the light for helping to placing IVs, he tried it during

his shift – and it worked!

When he and colleagues set up a randomised controlled trial to compare the red LED bicycle light with a cold light, the trial had to be stopped because the doctors used the bicycle light preferentially and just stopped using the cold light. Instead, they set up an RCT comparing photos of hands and feet of neonates with a bicycle light, a cold light, and with no light for the control. A total of 114 paediatricians completed the questionnaire, amounting to over 3000 individual and independent views of veins. With no light, more than half of responders said the veins were invisible or barely visible. With the bicycle light, more than 90 % said that the veins were moderately or easily visible. Compared with a cold light, the bicycle light was twice as good at making the veins more visible. These findings were similar for all skin colours and the light worked in children up to 3 years of age. As visibility of veins relates to the thickness of the hand, there is a potential for use in children with malnutrition. With a \$1 solution, Neal and colleagues managed to improve the ability to obtain venous access, reduce procedural pain, and likely also reduce complications such as infections. It goes to show that solutions to medical problems don't need to be far-fetched or expensive. Sometimes the solutions are right there in front of us. They are simple, cheap and can really make a difference.

Poster presentation

Clinique Sikila: Building up an outpatient clinic for children with sickle-cell disease in rural Niger.

Julia Rappenecker

Sickle cell disease (SCD) is an increasing global health problem in children and a neglected disease in sub-Saharan Africa, particularly in humanitarian settings.

It is the most common chronic disease in children in rural Niger, and accounts for 6.4% of under 5 mortality. Clinique Sikila is an MSF project in Magaria, Niger, that aims to provide outpatient treatment to children with SCD, establish systematic data collection on paediatric SCD patients, and evaluate the need for improved diagnosis and treatment. The first phase of the project was carried out in April-June 2017, with enrolment of all children presenting with clinical signs of SCD and positive Emmel test. Caregivers were educated about SCD, risk factors and how to prevent complications.

Monthly follow up was done, with evaluation of haemoglobin and malaria RDT, and children were given pneumococcal vaccination, folic acid and zinc. During phase II, in July 2017, a separate tent facility was established for these activities, called Clinique Sikila. In patients who presented faithfully for follow up, a personal file was created to document their clinical course. The project enrolled 489 patients between April – September 2017, far more than the project had anticipated. 74% had

regular follow up, in spite of long distances and lack of transportation. The project demonstrates that it is possible to provide continuous, systematic care and data collection for children with SCD in rural and resource-limited settings. There is an urgent need for improved diagnostic tools, preventive therapy and treatment options for children with SCD.

The discussion with the audience noted that the project highlights the importance of paediatric days in MSF. The project was developed and launched after the first Paediatric Days conference in Stockholm in 2016, where SCD was identified as a neglected area of work in humanitarian settings. Further discussions explored diagnostic and treatment options that are feasible in rural Niger. At present, the clinic is unable to differentiate between monozygotes and heterozygotes for SCD, and they are therefore providing treatment for children who are heterozygotes. Electrophoresis would assist with this, and the project is exploring options for collaboration with the hospital in Zinder, which is able to do electrophoresis. There are tentative plans to test the use of a Point of Care sickle cell rapid diagnostic test at Clinique Sikila. Ethical issues around diagnosing disease without providing known effective treatments such as hydroxyurea was raised. The clinic hopes to be able to treat with hydroxyurea once they are able to differentiate between monozygotes and heterozygotes. In the meantime, supportive measures and vaccination are given.

Medical Operations Panel wrap up



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Dr Cristian Casademont (Head of Medical Operational Unit, Deputy Medical Director, OC Barcelona-Athens) began the session by explaining the role of the medical operations section, which works to align the medical department and the operations department. He noted that it is often difficult to implement the ideas and practices discussed at scientific days, and cited Clinique Sikila as a wonderful exception to this trend. He then explained the purpose of the medical operations wrap up, which was to share an operational perspective on the Paediatric Days, to describe what the panel will take back with them to their respective operational sections, and to discuss with the audience how to implement the knowledge and tools discussed at the meeting in MSF projects.

The session began with summaries by the panelists of their observations and thoughts, each focusing on one of the four main sessions. The panellist wrap-ups were followed by a discussion based on specific questions, and then the floor was opened to the audience for dialogue and discussion.

Dr Florencia Romero (Polyvalent Medical Adviser, OC Geneva) started off by providing a statistic to put neonatal asphyxia and HIE into context: In 2016, MSF projects supported 250,000 deliveries. The scale of our work in maternity care underscores the importance of integrating obstetrics and newborn care. To some degree, this is already happening – the MSF obstetric guidelines include newborn care, and reproductive health projects most often incorporate child health.

Dr Romero brought attention to the lack of mention of midwives during discussions, and highlighted the scale and importance of their work in maternity care in MSF projects.

In terms of implementation of activities, there is a need to continue training in order to expand and improve the skills of allied health workers including midwives, nurses, and other less skilled birth attendants. Doctors are in such short supply that we must look to other health workers to fill this gap. Dr Romero expressed interest in technologies that have the potential to improve the MSFs work such as the Moyo strap-on foetal Doppler and NeoTapLS.

Dr Alan Gonzalez (Polyvalent Medical Adviser, OC Geneva) followed with observations from the session on paediatric neurocritical care and identifying transcendental concepts from the other sessions of the Paediatric Days. He remarked on the relevance of the discussions to his projects in the DRC, the Sahel region and around Lake Chad. He noted an emphasis on nursing care and other types of nonmedical, holistic care, including palliative care, pain management for neonates and comatose patients. In some projects, this is already a focus through training allied health workers, shifting away from doctor-directed care. Additionally, task shifting and community-based care were common themes that presented solutions to increase access to paediatric care.

In MSF Switzerland projects, task shifting to improve access to care is currently being implemented through community-based programmes in paediatrics and sexual violence, eCARE, and the use of initiatives such as “parent MUAC”. Further ways to decentralise care are being explored, particularly in contexts with irregular or limited access to patients.

He expressed interest in the potential of maternal-assisted monitoring of foetal heart rate for these settings. Dr Gonzalez remarked that the meeting revealed a divergence in the standard of practice in high income settings and clinical practices in the field. Areas for improvement include more regular evaluation of neurocritically ill children with lumbar puncture and the assessment of newborn heart rate using auscultation instead of pulse oximeter. The Paediatric Days also highlighted a need for operations to improve cooperation with medical departments, training units, and physicians, in order to implement high standard, low cost, effective assessment and care practices.

Lastly, he shared his observations on the experience of using technology such as telemedicine and eCARE, which complement each other and improve the quality of care in the projects, and expressed interest in forthcoming technologies that can further complement existing activities to improve care.

The operational perspective on the session on pain management was reviewed by

Dr Christopher Mambula (Cell Medical Manager, Operational Centre Paris). Similar to Dr Gonzalez, he noted a significant paediatric focus in the projects in West Africa, some of which have been running for 15 years. He observed that pain management has been forgotten by MSF as well as other NGOs and even ministries of health, and considered the reasons for this.

The lack of recognition of pain in children, particularly among neonates, is related to myths and lack of knowledge among health workers. Additionally, restrictive national policies have severely limited the importation of morphine. He described the situation in Nigeria, a country of 190 million people, where strict regulation of importation of morphine has resulted in very limited use.

For a period of time, two hospitals supported by MSF accounted for 80% of the morphine used in the entire country. He noted improvement since then, but MSF projects continue to account for 50-60% of morphine consumption in the country.

Another barrier to pain management in infants and children is the lack of access to education for health workers and lack of equipment to monitor children. It is not just possible to treat pain in infants; it is necessary, and it is possible through simple changes in the care environment and practices. He concluded with the key message from the session: there is a need to improve pain ma-

nagement in children, because it is either poorly done or not done at all. Movement-wide advocacy is needed for improved paediatric pain management in MSF projects.

In regards supportive care, **Maartje Hoetjes** (Medical Emergency Manager, Operational Centre Amsterdam) stated that MSF is not on the front line of palliative care, having instead directed our efforts toward saving lives. Yet children with incurable diseases are very much a reality in the field, and there is a significant need to integrate palliative care into our work. She considered the benefits of holistic palliative care, which treats not only physical illness and pain, but also recognises and attends to the psychological, social and spiritual elements of suffering.

She shared an example from Somali region, Ethiopia, where during a severe malnutrition and cholera crisis, a volunteer came to the TFC to do Quran readings. The intervention provided important psychological and spiritual support to families and also improved patient retention, as families no longer left with the child to have a Quran reading done elsewhere. A third take home message from the session was the need to work within the community. Access to care is a major issue, with the children treated in MSF programmes representing only a small proportion of children in need of care.

In regards to barriers to providing supportive care to children in MSF projects, Maartje Hoetjes cited a limited understanding by MSF about the health beliefs in communities and how people explain why their child is sick. Clinical teams often fail to explain adequately to the child and family what is going on, and the guilt that health workers feel when carrying out painful investigations and treatments may lead to denial of the child's pain in order to cope, especially if the health worker feels powerless to minimise and treat the child's pain.

Play is one tool we can use to treat pain in children, and creating a space for clinical teams to talk about palliative care has the potential to empower health workers to not just see palliative care as a withdrawal of care, but a legitimate way of providing care to these children. Maartje Hoetjes also considered a barrier that was not addressed during the Paediatric Days – the militarization of health care.

In parts of the Middle East, physicians are reluctant to provide palliative care or risk a patient dying while in their care for fear of revenge; they would rather refer the patient elsewhere, even if they know the patient will die in the ambulance, in order to avoid being held responsible for the death. This issue needs urgent action with community engagement. The Korail slum project illustrated how involvement of communities and making use of illustrated the rich resources can help our work to succeed.

What are the options to scale up low cost neonatal and paediatric interventions that we know work and could significantly reduce paediatric and neonatal mortality? What are the obstacles – both internal and external - and how can they be overcome?

The panel discussed the challenges of working with limited resources to respond to unlimited needs and the tension and overlap between a public health and individual patient approaches. Operational decision-makers must choose between a number of different good ideas, and implementing one activity results in not being able to implement another. This is important not only in terms of financial cost or human resources, but also in the way it influences the focus of the project. Priorities are set based on main mortality and morbidity drivers, humanitarian aspects of vulnerable groups, and the specific context, such as access to patients, security, and programme capacity. When making operational decisions, there is a tension between the public health approach which seeks to maximise impact using the available resources, and the individual patient approach which focuses on quality of care.

However, there are also links between public health and individual patient care, and the two approaches are not mutually exclusive. One suggestion put forth was to improve the decision making process by making it more transparent and systematic, with comparative analysis of the impact of activities. Another suggestion was to focus on the quality of care for patients by considering the continuum of care for children: if at least 25% of neonates are dying of birth asphyxia, then maternity interventions must be included in neonatal activities.

This brings forth challenges around 'what is possible?' and 'where does it stop?'. While there is a significant degree of overlap between

neonatology and obstetrics, at a certain point, the interests and focus begins to diverge. Should neonatal and paediatric interventions include caesarean sections? The question becomes one of how to balance the different needs of both neonatology and obstetrics. For this, innovation is needed to find a way to improve maternity care without taking full responsibility for it. Something experience has shown to be a significant challenge.

What would be the limits of task sharing or task shifting? Would we agree on tasking a junior nurse in a health centre close to a conflict zone in the north of Mali with the care of hospitalised and severely ill children, supported by Telemedicine and a bimonthly air delivery of supplies?

This question brought forth a call for a pragmatic attention to context. There are moments where there is no other choice but to use the people in places where we are working to carry out activities that we prioritise for the location. If we need to open a hospital in a place where there are no doctors, while we work on finding doctors, we need to work with the health workers that are available. The success of task sharing is exemplified by the many colleagues attending the Paediatric Days who are not infectious disease specialists, but who have successfully treated children with HIV in the field. MSF is also working with task shifting for the care of children with chronic diseases. How and where this is done must be based on the context. The medical operations department, in collaboration with the medical department and advisors, is tasked with identifying the most appropriate context-adapted response to the humanitarian needs.

Discussions with the audience: Task shifting, task sharing, and the role of paediatricians and expatriate physicians in humanitarian work

Lively debate followed the medical operations panel discussion. Together, the audience and panellists explored issues around the limits of task sharing and task shifting, the role of expatriate physicians and especially of paediatricians in humanitarian work, and what needs to be done to improve paediatric care in resource-limited settings.

The importance of informed health care workers, who have a minimum competency in paediatrics and neonatology, was echoed in all of the discussions. Various cadres of front line health workers, from nurses, to physician's assistants, to community health workers, are already providing paediatric inpatient care, neonatal care and outpatient consultations in areas where neither physicians nor paediatric specialists are available. And where the facilities are not accessible due to conflict. The task of providing paediatric care is being shared already and ongoing work shows that it is possible. Therefore, when considering the role of paediatricians in humanitarian work, the question becomes one of quality of care and the standards that we set for ourselves in caring for children.

The safe limits of task shifting are not clear and lack of adequate support for staff caring for ill children can be traumatic and demoralising to the patients, their families and the staff. Paediatricians are needed not only for the development of guidelines but also to assist in their practical implementation in the field. There are important ethical issues

around sending expatriate staff without paediatric skills or experience to build paediatric capacity in hospitals in humanitarian settings where the staff have significantly more experience in caring for children. Training is an important element of task sharing and should be carried out in the field by paediatric experts. Paediatricians are also needed to develop new activities and projects in child health and to evaluate the projects that have been done in order to learn from our experiences and improve our work.

A call was put forth for the development of paediatric guidelines to support field staff, which can supplement the forthcoming neonatal guidelines. In development of guidelines and protocols, the importance of collaboration with other organizations, sectors, government and the community was emphasized. Furthermore, paediatric programmes should incorporate the continuum of care from pregnancy through to delivery and in the newborn period, as well as the continuum of care from the community to the health facility. To effectively incorporate these aspects of care, engaging with communities is essential.

Dr Casademont concluded the session with a description of the different, creative ways that MSF has sought to improve paediatric capacity in the field, through; telemedicine, flying positions, task shifting and sometimes even supporting the formal education of paediatric specialty staff. He closed with a question for the audience to consider: With paediatricians being a very limited resource, how can we make the best use of them to improve our care of children?

Closing remarks

Marc Gastellu-Etchegorry (Epicentre) closed the MSF Paediatric Days with reflections on the history of MSF and the evolution of its work over time and considering the role of communication, provocation, advocacy innovation and research.

The vision of MSF is to reach out to our patients, to provide medical care to those who need it, and to break the silence of indifference. Communication includes the link between patients and health workers, referred to by Sebastian Spencer (Medical Director OC Brussels) at the start of the conference, as well as the sharing of ideas, tools and solutions with others and speaking out about the suffering we witness, as we did during the Paediatric Days.

He reflected on the question of whether paediatricians are necessary to provide care for children, altering it to ask if paediatricians are necessary to provide high quality care for children. High quality care should be our objective. An essential part of providing high quality care is communication; with our patients, with our colleagues in MSF, and with our colleagues in other organizations and sectors. These Paediatric Days built bridges and established links between specialties, disciplines, and sectors. These bridges should be constantly strengthened.

Innovation, provocation, and advocacy have been critical parts of MSFs work from the beginning, when it first began setting up facilities and providing care in areas with limited resources and crisis situations. Creativity and a willingness to take on the challenges that others dismiss as impossible are what have enabled us to continually push the limits of care for our patients. Nobody thought providing HIV care in Africa was possible. MSF didn't accept this and insisted on improving the standard of care in spite of the challenges.

By working together with other organisations, through communication and collaboration, we have succeeded in raising the standard of HIV care and made ARVs less expensive and more widely available. Through advocacy, innovation, provocation and collaboration, we have shown that it is possible. However there are areas where MSF has recognised a need but failed to create change. The discussions on pain management during the Paediatric Days are an example of this.

Dr Gastellu-Etchegorry stressed the role and duty of MSF to find ways to provide high quality care by adapting our knowledge, develop simplified and effective protocols and solutions and advocating to continually raise the standard of care. This is how we will achieve paediatric critical care services in resource-limited and conflict-affected areas.

Dr Gastellu-Etchegorry emphasised the importance of self-reflection in our field work and in research. There is a need for critical thinking, gathering data and analysing it, developing hypotheses and testing them, all with the goal of developing the tools to improving care in the field. If we are to succeed we must collaborate with colleagues in other sectors and we must be scientifically rigorous. MSFs successes, its legitimacy and its resources have placed upon us the responsibility to find solutions to the problems and injustices we encounter.

He thanked the organisers for the opportunity to share knowledge, ideas and experiences and he thanked the audience for engaging in dialogue, for their questions and critical thinking and for their rejection and outrage at the unacceptable situations that were addressed during the meeting. He concluded with an observation on the energy, determination and humanity that characterised the Paediatric Days, which strengthens our resolve and helps us to carry on with our work.

Appendices

Conference programme

Paediatric Days 2017 – Agenda

Event moderators: Nadia Lafferty and Kirrily de Polnay

FIRST DAY

- 7:45 - 8:15** Registration
- 8:15 - 8:35** Housekeeping rules / Mentimeter interactive exercise
- 8:35 - 8:55** Welcome speeches and introduction of the Paediatric Days
Ousmane Ndiaye - Antoine Foucher - Sebastian Spencer
- 08:55 - 10:30** Morning session on Neonatal Asphyxia and ischemic encephalopathy -
Help Babies Survive Vs Help Babies Breathe -
Chair: David Southall / Co-chair: Ousmane Ndiaye
- Introduction – by David Southall (chair of session)
 - Prevention: The importance of integrating obstetric with neonatal management in prevention in resource limited settings –
 - Early recognition and management in resource poor settings –
 - Nursing care of newborns with birth asphyxia: does it matter? –Discussion and wrap up
- 10:30 - 10:45** **PaEDtalk** - 7 years of Tele-Paediatrics in MSF -Lessons Learned & Perspectives -
- 10:45 - 11:15** Coffee break –Poster viewing- Resuscitation skills station
- 11:15 -12:20** **Free oral presentations**
- Introduction of strap-on automatic Doppler (Moyo) improves midwifery practices in a resource limited setting
 - Helping babies breathe, second edition: strengthening the program to increase global new-born survival
 - Mise en oeuvre de la réanimation néonatale de base (BNB) au Burkina Faso: défis et perspectives
 - NeoTapLS: a mHealth tool for assessing heart rate during neonatal resuscitation in low resource settings
- 12:20 -13:50** Lunch break -Poster viewing -Simulation skills station
- 13:50 - 15:25** Afternoon session on Neurocritical conditions in resource limited settings -
Chair: Michael Levin / co-Chair: Myrto Schaeffer
- Introduction – by Michael Levin
 - Differential diagnosis and management of febrile coma in the context of MSF
 - Cerebral malaria in 2017- beyond antimalarials: how can management reduce mortality in Resource Limited Settings? –
 - Status epilepticus: A practical approach
 - Discussion and wrap up
- 15:25 - 15 40** **PaEDtalk** - Introducing E-care -
- 15:40 - 16:10** Coffee break – Poster viewing- Simulation Skills Station
- 16:10 - 17:10** **Free oral presentations**
- Unclassified fever at the community level – how should it be handled?
Universal Versus Conditional three-day follow-up visit – A cluster randomized trial in Ethiopia
 - Neonatal tetanus cases in Central African Republic: a neglected tragedy
- 17:10 - 17:40** **PaEDtalk** - What happens when we listen to adolescents?
Wrap up of the day

SECOND DAY

8:30 – 8:45 **PaEDtalk** - Perspectives from a Paediatric Nurse -
8:45 – 10:20 First morning session on Pain management in Resource limited settings -
Chair: Julia Downing / co-Chair: Isabel Zuniga

- Introduction – by Julia Downing
- Nursing care towards pain management in neonates –
- Introducing morphine in daily paediatric oncology care: Challenges and experiences in Senegal
- Discussion and wrap up

10:20 – 10:50 Coffee break –Poster viewing-Simulation skills station

10:50 - 12:25 Second morning session on Supportive care in MSF -
Chair: Matthias Roth-Kleiner / co-chair: Harriet Roggeveen

- Introduction – by Matthias Roth-Kleiner
- An anthropological perspective of supportive/palliative care in Africa and the Middle East & Neonatal and Paediatric specificities of supportive/palliative care in Resource Limited Settings
- Optimizing paediatrics quality of life through palliative care for children. The role of play and the experience in Uganda.
- Low cost, sustainable, community based palliative care initiatives: A pilot project to provide palliative care in an informal urban settlement (slum) in Dhaka, Bangladesh.
- Discussion and wrap up

12:25 -13:15 **Free oral presentations**

- Pain management and palliative care in neonates – notes from the field during a training in Khost, Afghanistan.
- Approach to delivering critical paediatric care in Zahle, Lebanon: training surveillance and ethical considerations)
- Assessment of current situation, health habits and health care seeking behaviour for Syrian refugee children under 5 years old in the Bekaa Valley
- Minors surviving sexual violence in Port Au Prince – Haiti

13:15 - 14:40 Lunch break - Poster viewing – Simulation skills station

14:40 – 14:55 **PaEDtalk** - A medical solution from the 1dollar shop

14:55 – 15:45 Free oral presentations: Nutrition

- Refugees from Mosul: assessing malnutrition among children under 12 months
- Effectiveness of a simplified, integrated protocol for treating acute malnutrition (MUAC-ONLY): preliminary results from a non-inferiority trial in Yako, Burkina Faso
- Diagnostic des diarrhées chez les malnutris aigüe sévères (DiDiMAS): using qualitative molecular diagnostics to improve inpatient management of severely malnourished children with diarrhea in N'Djamena, Chad
- Widening our understanding on Kwashiorkor through an explanatory approach with key informants

15:45 – 16:15 Coffee break-Poster viewing - Simulation skills station 30min

16:15 – 16:25 Selected Poster Presentation

16.30 – 16.50 Operationalization Wrap up of the 2 day-sessions

17:55 Closing speech and perspectives - by Marc Gastellu-Etchegorry

POSTERS

TITLE	AUTHORS
<i>Sickle cell disease in anaemic children in a Sierra Leonean district hospital</i>	María Belén Italia Cenere, Sandy Kirolos
<i>Impact of the implementation of an observation unit in the emergency department of a district hospital in Sierra Leone</i>	María Belén Italia Cenere, Matías Ignacio Sáez, Gerald Wambua
<i>Type 1 diabetes mellitus diagnosis, treatment practice, and follow-up in patients admitted at Aweil Civil Hospital, South Sudan</i>	Manal Shams Eldin, Elisabeth Poulet, Northan Hurtado, Olukemi Ogundipe, Carrie Teicher, Lisa Umphrey
<i>Factors associated with malnutrition in the peri-urban area of Dakar</i>	Indou Dème Ly, Saliou Diouf, Idrissa Demba Ba, Aissatou Ba, Abdallah Diallo, Abou Ba, Babacar Niang, Aliou Thiongane, Fatou Ly Faye, Marie Bangoura, Yaay Joor Dieng, Dieynaba Fafa Cissé, Papa Moctar Faye, Amadou Lamine Fall, Bouba-car Camara, Ibrahima Diagne, Ousmane Ndiaye
<i>Triaging children aged 0-5 years in a resource-limited primary care facility: A pilot study in Senegal</i>	Grace Anne Turner
<i>Management and outcomes of severe malaria in a pediatric intensive care unit, Koutiala, Mali</i>	Matthew Coldiron, Joseph Sagara, Christopher Mambula, Tomas Jensen, Lisa Umphrey, Myrto Schaefer, Rebecca F Grais
<i>Hypoglycemia at presentation and mortality in a pediatric intensive care unit, Koutiala, Mali</i>	Matthew Coldiron, Joseph Sagara, Christopher Mambula, Lisa Umphrey, Myrto Schaefer, Rebecca F Grais
<i>Airway management in children with noma sequelae undergoing maxilla-facial reconstructive surgery – a case series</i>	Wesley Rajaleelan, Marloes Otterman, Reynaldo Soria
<i>Study of hospital mortality in the paediatric service of King Baudouin of Guédiawaye Hospital</i>	Jean Baptiste Diouf
<i>Outpatient treatment for severe acute malnutrition under 6 months; a descriptive case study from Senegal</i>	Tabitha D. van Immerzeel, Maty D. Camara
<i>Medical treatment with atropine for infantile hypertrophic pyloric stenosis when surgery is not an option: a case presentation and literature discussion</i>	Ana Victoria Valori, Nadia Lafferty
<i>Perception of childhood malnutrition and health seeking behaviour in rural Bihar, India: a qualitative study</i>	Doris Burtscher, Sakib Burza
<i>Retinoblastoma in Senegal: a malady that threatens the life and sight of children</i>	Dial C, Doh K, Thiam I, Senghor F, Sow A, Woto-Gaye G
<i>IG a bullous dermatosis suspected case in an 8-month-old child admitted in a paediatric intensive care unit (PICU): diagnostic and treatment challenges</i>	Beatriz Valle del Barrio, Danila Luraschi, Robert Micheletti, Laurent Hiffler, Ana Paula Arias

<i>Management of perinatal hypoxic-ischaemic encephalopathy in MSF settings: Palliative care? Or shall we seek potential pharmacological alternatives?</i>	Laurent Hiffler, Nadia Lafferty
<i>Adolescents access to MSF Spain mental health services</i>	Cristina Carreño Glaria, Néstor Rubiano Soto, Laurent Hiffler, Nadia Lafferty
<i>Malnutrition and child's cognition at 6-8 years of age in rural Burkina Faso</i>	Anselme Simeon Sanou, Abdoulaye Hama Diallo, Penny Holding, Victoria Nankabirwa, Ingunn Marie S. Engebretsen, Grace Ndeezi, James K. Tumwine, Nicolas Meda, Thorkild Tylleskär, Esperance Kashala-Abotnes
<i>High flow nasal cannula: a future device for resource-limited pediatric settings?</i>	Rebecca Anderson de la Llana, Daniel Martinez Garcia
<i>Paediatric early warning scoring systems in humanitarian settings: Where is the evidence? What are the opportunities?</i>	Stephanie Brown, Daniel Martinez Garcia
<i>DREPANOMRS, a combination of E-health and M-health for sickle cell disease in Madagascar</i>	Andriambololoniaina Faly Herizo, Randriamboavonjy Rado Lalao, Famenontsoa Sarah, Jeannot Pascale, Rapelanoro Rabenja Quintino Tomas Mendez, Mercè Rocaspana Moncayo, Danila Luraschi, Beatriz Valle del Barrio Inmaculada Carreras
<i>Neonatal care: the concept of minimally invasive approach in very low birth weight babies in MSF settings: "Doing less can be better"</i>	Hans-Joerg Lang, Oluwakemi Ogundipe, Kirrily de Polnay, Andrea Marreli, Julita Gil Cuesta, Isabel Zuniga
<i>Outbreak of extended-spectrum beta lactamase Klebsiella pneumoniae in an MSF-supported maternity in the Central African Republic</i>	Monica Thallinger, Ayse Acma, Annick Antierens, An Caluwaerts, Pascale Chaillet, Hilde De Clerck, Letizia Di Stefano, Fortunat Kolela, Vincent Lambert, Jacob Maikere, Oluwakemi Ogundipe, Nathalie Tremblay, Isabel Zuniga, Rafael Van den Bergh, Michel Van Herp, Julita Gil Cuesta
<i>Decongesting the neonatal unit: the added value of Rapid-Plasma-Reagin testing among syphilis rapid test positive mothers in an MSF-supported maternity in the Central African Republic</i>	Oluwakemi Ogundipe, Ayse Acma, Abdel Rachid Bada, Wilma van den Boogaard, Sanderson Baldrunes, Severine Caluwaerts, Pascale Chaillet, Julita Gil Cuesta, Vincent Lambert, Noela Tabeogo, Jean Blaise Yabingui, Isabel Zuniga, Rafael Van den Bergh
<i>Screening and care of hypokalemic patients in the ALIMA paediatric project, Befen de Mirriah, Niger, July 2017</i>	Antoine Maillard, Ali Ahmed Moulaye, Baweye Mayoum Barka, Fatoumata Binta Diaoune, Susan Shepherd
<i>Clinique Sikila: Building up an outpatient clinic for children with sickle cell disease in rural Niger</i>	Julia Rappenecker, Souley Harouna Abdoul Kader, Malam Oumarou Moussoubahou, Ann Moumina, Daniel Martinez Garcia

<i>Tungiasis: Neglected disease of marginalized populations. Report of cases in Nduta refugee camp ,Tanzania</i>	Montserrat Najera Villagrana, Alejandra Garcia Naranjo
<i>Factors associated with hospital admission following traumatic brain injury and infectious encephalopathy in children in four resource-limited settings</i>	Rashmi Kumar, Amelie von Saint Andrevon Arnim, Tigist Bacha, Abenezzer Tirsit Aklilu, Tsegazeab Laeke Teklemariam, Shubhada Hooli, Lisine Tuyisenge, Easmon Otupiri, Patrick Wilson, Patrick M. Kochanek, Robert C. Tasker, Ericka L. Fink,
<i>Reducing missed opportunities for vaccinations in Ansongo, Mali</i>	Nematoulaye Rally, Ali Keita Alexis, José Bafoa Ngama, Laurent Hiffler, Miriam Alia
<i>Case report: Acute respiratory failure and thiamine deficiency in Africa, Guinea Bissau</i>	Kelly Escajadillo, Merce Roscapana, Laurent Hiffler
<i>Prevalence of TB in severely malnourished children in a refugee setting</i>	Jiske Steensma
<i>Prognosis of newborns in maternal kangaroo care according to the method of breastfeeding at CHU GABRIEL TOURÉ</i>	Sylla Mariam, Traoré Isabelle, Diakité Abdoul Aziz, Coulibaly Oumar, Diall Hawa, Dicko Fatoumata, Téguété Ibrahima
<i>Follow up of children under 2 years under anti-retroviral treatment at CHU Gabriel Touré Centre of Excellence</i>	Sylla M, Coulibaly Y.A, N'diaye C, Koïta A, Koné N, Bagayoko K, Coulibaly H, Touré S, Dicko F
<i>Comparison of MUAC and WHZ in predicting the outcomes of children admitted to inpatient Therapeutic Feeding Centres in Niger and South Sudan</i>	Iris Finci, Nathalie Avril, Iza Ciglenecki
<i>The use of continuous positive airway pressure in neonates in India: a mixed-methods study</i>	Juan Emmanuel Dewez, Sushma Nangia, Harish Chellani, Katrin Metsis, Helen Smith, Sarah White, Matthews Mathai, Nynke van den Broek
<i>Malaria parasite blood smear positive neonates in Sierra Leone: When should we test for malaria in the neonatal unit</i>	Sandy Kirolos, María Belén Italia Cenere
<i>Paediatric case exchange: Can online discussion of clinical cases between high and low resource countries enhance learning in paediatrics?</i>	Caroline Crehan, Mark Lee
<i>Basic ultrasound training of national staff for telemedicine specialist image interpretation and clinical guidance in patient care Nduta refugee camp, Tanzania</i>	Colleen Kovach, Jumaa Kindo, Saschveen Singh, Sachin Desai
<i>Risk factors for death in under five children treated for visceral leishmaniasis at an MSF-supported treatment center in Gedaref State, Sudan</i>	Dagemlidet Tesfaye Worku, Laetitia Christiaens, Samoal Kamalaldin Abualgasim Abdllrahim, Gabriel Alcoba
<i>Evaluation of the nutritional status of minors in the area of Carcéral, Guinea</i>	I.S. Diallo, H.O. Khalid, M.A. Doukoure, A. Diallo, H. Bah

Development and implementation of a structured neonatal training course for MSF projects

Johanna Thomson, Clémence Castaings, Muriel Durand, Nikola Morton, Lisa Umphrey, Myrto Schaefer

Perceptions of Point-of-Care testing in a low income setting – A qualitative study from western Uganda

Reza Rasti, Deborah Nanjebe, Jonas Karlström, Charles Muchunguzi, Juliet Mwanga-Amum-paire, Jesper Gantelius, Andreas Mårtensson, Lourdes Rivas, Francesc Galban, Philippa Reuterswärd, Helene Andersson Svahn, Helle M. Alvesson, Yap Boum, Tobias Alfvén

Trainings and Workshops

Three trainings were organised a few days before the Paediatric Days.

- **Newborn Care training (an MSF training): 21 participants**
- **Help Babies Breathe Training of Trainers (HBB ToT- co-organised by MSF and Laerdal): 13 participants**
- **Urgences et Réanimation Pédiatrique (organised by CEA-SAMEF): 12 participants**

Following the Paediatric Days, 2 workshops were organised on Dec, 17th in the morning.

- **Opportunities of Point of care Ultrasound (POCUS) for children in MSF settings: presentation and demonstration session**

Point of care ultrasound (POCUS) has emerged as a valuable diagnostic tool in triage and management of patients. The introduction of affordable, portable, durable, high quality ultrasound units had lead non-radiologists performing limited ultrasound scans. In many MSF settings, access to imaging is often non-existent or of limited quality. The accuracy of ultrasound remains largely operator dependent, which coupled with limited training remains an important consideration. Ultrasound in paediatrics can be complex and detailed, but literature has shown that focused POCUS exams can be easily taught to non-radiologist physicians to guide simple management influencing decision making. This workshop presented uses for which POCUS is validated and others under evaluation and of potential interest. Real-time interactive demonstrations of ultrasound scans were conducted in small groups led by POCUS presenters with volunteer patients. The session was not intended as a training for participants, but demonstrated the feasibility of POCUS scans.

- **Decision-making in Paediatric Palliative Care**

Palliative care is part of standard practice in most high resource settings yet it is rarely done in MSF projects due to lack of knowledge, experience and decision-making capacity. This interactive workshop was designed to improve the identification of paediatric patients who might require palliative care through a series of case-based discussions, to allow participants to become more familiar with the steps involved in the decision-making process. The workshop also aimed to assist participants to develop comprehensive plans for the implementation of palliative care. The overall objective was to increase confidence and capacity in decision-making regarding paediatric palliative care so that this becomes an integrated part of paediatric case management.

REPORT OF THE 2nd PAEDIATRIC DAYS

DAKAR, SENEGAL
2017 – DEC 15TH-16TH

