

DISPATCHES

‘I’m flying
8,000 feet
above South
Sudan with a
dying patient
in front of
me...’

Trauma in the air, pages 4-5

Photograph: Hugues Robert/MSF, 2015



MEDECINS SANS FRONTIERES
DOCTORS WITHOUT BORDERS

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YEMEN



A man clears debris from the roof of Haydan hospital, Yemen, after it was destroyed in October by an airstrike launched by the Saudi-led coalition, depriving 200,000 people in the area of medical care. On 3 May 2016, MSF international president Joanne Liu delivered an impassioned speech to the UN Security Council denouncing the recent surge in attacks on health facilities, often carried out with the involvement of UN member states. At the same time, MSF launched its #NotATarget campaign to say that enough is enough. Photograph © Rawan Shaif

ECUADOR

Ecuador earthquake – MSF teams respond

On 16 April, a 7.8 magnitude earthquake struck the northeast of Ecuador, killing an estimated 525 people. **Concha Fernández** is the project coordinator spearheading MSF's medical response.

'I left with the first team by road to the Esmeralda region, one of the areas most damaged.

Southern Esmeralda is a large region and in some areas, between 70 and 90 percent of buildings were damaged.

One of these places was Cabo de San Francisco, which we visited on Tuesday afternoon, and where we found 200 people living in makeshift shelters with almost nothing.

Our logistician looked into water and sanitation issues and explained to people how best to organise themselves. We treated 13 people, including a woman suffering from an infected wound.

People were very afraid and they asked to speak with our psychologist, so we began providing psychosocial support to groups of women and children. During one of the sessions, there was an aftershock, and people started running in terror.

Going door-to-door

Some of the team members who arrived in Pedernales went to the city's main hospital with enough medical supplies to assist 500 people, and they are ensuring that more will be available when needed.

MSF staff and hospital staff also went door-to-door in one of the most affected neighbourhoods to provide mental health support.'

Find out more at msf.org.uk/ecuador

ZAMBIA

A child receives an oral vaccine to protect her against cholera in Zambia's capital, Lusaka. The disease broke out in February in the overcrowded informal areas which ring the city, after heavy rain caused pit latrines to overflow and contaminated water spread through the streets. The vaccination campaign, carried out in early April by MSF teams, Zambian health staff and 1,135 community volunteers, was the largest one ever undertaken, aiming to reach more than half a million people. Photograph © Laurence Hoenig/MSF



GREECE

Violence at the border

Dr Conor Kenny is working with MSF in Idomeni, northern Greece, where more than 11,000 refugees and migrants are camped out, hoping to cross into the Former Yugoslav Republic of Macedonia. On 10 April, the MSF team responded to incidents of police violence at the closed border.

'Just before lunch we received the call to assist. As we approached the camp, I heard loud explosions and worried that this was the sound of blast bombs, rubber bullets or teargas.

Many women and children were in tears. There were a number of unaccompanied children among them – presumably separated from their parents during the violent events. People were distributing toothpaste and crafting facemasks from it in an attempt to protect themselves from the teargas. Others poured cans of Coke onto cloths and placed them over their faces. The scenes were chaotic, with people receiving treatment in tents or at the side of the road.

Screams got louder

As I reached the clinic, the MSF team was working hard to treat people affected by the teargas. It wasn't long before another attack began. I heard a number of large blasts, followed by screams. What sticks in my mind is the number of women and children in distress, attempting to find the clinic but unable to see where they were going.

We started assessing people's injuries – the majority were facial, related to the teargas, with many young children's lungs having become inflamed. Many men, women and children were carried into the clinic on blankets used as makeshift stretchers.

I found evidence of well defined, non-penetrating blunt trauma – presumably due to plastic bullets. A number of these injuries were located on the back, indicating that the person was likely walking or running away from the source. A number were also to the chest and the head. Three children were shot in the head. I remember one of them wandering around in a dazed state with the plastic



bullet in his hand. His mother said he had been unconscious for at least five minutes. He was transferred to hospital, along with a number of others who sustained fractures.

People fled their tents

We prepared ourselves for further incidents, and didn't have to wait long. More screams as people ran from the border fence. To my right I saw white smoke billowing from an object which bounced off the roof of a tent and onto a pathway, engulfing the entire area in teargas. In a panic, people started to flee their tents. Within seconds, the teargas entered the now-packed clinic, with everyone inside bending over and protecting their faces. I managed to grab a water bottle to wash my face and eyes. The air was suffocating and I struggled to continue assessing and treating patients. Again, many people were in distress and crying. A few were screaming, "We have done nothing wrong".

On 10 April the MSF team in Idomeni treated 300 people, 200 for respiratory problems as a result of teargas – including 30 children. The team also treated 40 people for injuries from rubber bullets, including three children with head injuries.

DEMOCRATIC REPUBLIC OF CONGO



A group of schoolchildren walk with their teacher to Dikuluy village, Katanga province, to be vaccinated by MSF against a raft of common childhood diseases. Photograph © Juan Carlos Tomasi/MSF

LIBYA

Medical crisis

Australian nurse **Colin Watson** recently returned from three months in Libya working in the emergency room of Al Abyar hospital, 40 miles east of Benghazi.



'The conflict in Libya has had a profound impact on the health system. Prior to 2011, Libya had a modern, functioning healthcare system. However, it depended heavily on foreign workers – particularly nurses. With the onset of armed conflict, many foreign workers left the country. This caused a severe shortage of nurses, and the health system is now in a critical state.

Medical stocks are in short supply, as are surgical and lab supplies. Hospitals such as Al Abyar have no choice but to employ nurses with inadequate training.

These are some of the challenges we face daily. I saw a constant stream of patients with a range of conditions from minor ailments to major trauma. A particular focus of my work was training the nurses in triage and trauma management.

Safe and reliable emergency care

Despite the obvious language issues, I was able to forge good working relationships with my Libyan colleagues. With patience, respect and good humour, it was possible to put in place the foundations for safe and reliable emergency care.

But with no end in sight to the conflict in Libya, people's need for healthcare will remain. I worked with a doctor from Benghazi who spoke of the tragic consequences of not having access to essential medicines.

"What should I do?" he asked me. "I know my patient will die without medicine, but all I have to give him are the tears in my eyes."

MSF is supporting a number of hospitals across Libya, often in challenging circumstances. Our work helps ensure that medical staff have the skills and resources needed to treat their patients.'

msf.org.uk/libya

Trauma at 8,000 feet



A plane is readied for take-off on the airstrip in Leer, South Sudan. When roads are non-existent or unusable, planes are often the only way to bring in medical teams and supplies, and get out patients in urgent need of specialist treatment. Photograph © Esther Janmaat/MSF

It's early in the morning, you're hundreds of miles from the nearest hospital and two patients with life-threatening gunshot wounds arrive at your door. For British nurses **Michael Shek** and **Chrissie McVeigh**, working in South Sudan, this nightmare scenario turned into a day-long battle on land and in the air to save the lives of a man and boy.

MICHAEL SHEK

I'm flying 8,000 feet above the plains of South Sudan with a dying patient in front of me. He is 10 years old and was shot last night during a cattle raid. His uncle was shot in the arm. We managed to stabilise them both with what little resources we had, but we needed to transfer them to the hospital in the capital, Juba, and the only



way to get there is by plane. I'm the only medic available to go with them.

Halfway to Juba, the boy starts suffocating in front of me. The air pressure from the plane has forced his lungs to collapse. His eyes are wide as he gasps for air. I'm facing an impossible decision. To save his life, I must insert a needle into his chest to allow the trapped air to escape. But I don't have a chest X-ray, or an ultrasound, or any of the equipment I would use in the UK. And I've never done this procedure in a plane at 8,000 feet.

'I punch the needle into his chest'

Sweat is pouring down my forehead. If I don't do this he'll die. I punch the needle into his chest and the air hisses out. He's going to be okay. I am so relieved I could cry.

The kid had been brought to our clinic in the morning with his uncle, who had also been shot. I knew that if we didn't airlift them, the uncle would die. We couldn't get any tubes into his arm to give him fluids. He was still bleeding, his blood pressure was very low and he was starting to lose consciousness. We had to give him an intraosseous infusion – where you inject fluid directly into the marrow of the bone.

Here in the UK you have a drill to do this, and it's done in 10 seconds. But in Leer, we only had a child's size intraosseous needle. Chrissie – a British nurse – and I spent half an hour taking it in turns to drill the infusion into this poor man. Eventually we managed to give him enough fluids to pump up his veins. We stabilised him and arranged for the plane.

'Snakes and scorpions in our compound'

I had arrived in Leer to help re-establish healthcare facilities after our hospital was looted and destroyed in the summer of last year. We were living in the old MSF compound, in the ruins of the old Leer hospital. We slept in tents inside tukuls [circular mud huts]. There was no electricity and no running water. There were snakes and scorpions in the compound, and eagles nesting in the trees. At breakfast and dinner time, the eagles would swoop down on us and steal our food!

We were treating a lot of people with gunshot wounds. When I heard gunshots, I tried not to panic. One time fighting broke out close to our mobile clinic. That was a bit scary. You have a 'grab sack' which contains food supplies and water for a couple of days in case you

get stuck out in the bush.

MSF is literally the only healthcare provider in Leer. We're the only lifeline for these people.'



After a four-hour walk, Nyagai Koang arrives at MSF's hospital compound in Leer with her six-month-old baby, Gatwisch, in a basket on her head, so he can be treated for malnutrition. Photograph © Petterik Wiggers

CHRISSIE MCVEIGH

I was at the MSF clinic in Leer when those two patients arrived. It was me and a South Sudanese nurse who walked for two and a half hours every day to get to work. Suddenly this young man and his nephew were brought in – bleeding heavily with extensive trauma injuries. It was totally overwhelming. The uncle was in a particularly bad way – he'd put his arms over his face to shield his head from the gunshots.



It took a good five hours of stabilising them before we could get a flight to take them to Juba. Michael was the only medic available to accompany them; I had to stay behind at the clinic. We had no inpatient department, and had been treating people who were very sick in the tukuls next door to ours – taking it in turns to check on them during the night. It really was MSF back to basics.

Leaving the swamp island

In those early weeks, when we were starting to build the project back up again, people who left the bush where they had been hiding to come and seek healthcare were taking a huge risk. I'd set up an outpatient clinic in the old burnt-out hospital grounds and one day a man and a woman came into the compound carrying their son on a stretcher. He was 21 years old and was their only surviving child. I called him the precious boy. He had been shot in the knee four months earlier and was very sick. The parents had fled with him when Leer was attacked, carrying him into the



A child in MSF's malnutrition programme in Leer clutches a packet of enriched peanut paste. Photograph © MSF/Karin Ekholm

bush. They had found a small island in a swamp and lived there. The mother had cleaned that wound, looked after and fed him, but he was very thin. For four months they did this.

And then they heard that MSF was back. They walked through the night. Every time they heard a noise, they hid. When they got through the gates of the old hospital compound and put him down, you could see the relief in their eyes. We took him into the tukul next door to ours, gave him intravenous antibiotics and cleaned his wound. We managed to refer him to Juba with his father, and in the end he was okay.

These parents were determined to fight for their son, their precious child. It was like, "We're going to seek healthcare, it's going to be a risk, but when we get there we'll be looked after". It was very moving because as soon as they got to us, they felt safe – they associated MSF with safety and care. It was incredibly humbling.

The man and boy return

On my last day in Leer, as I was saying my goodbyes, a man got off the plane on the airstrip. It was the uncle who had been shot in the arm, with his nephew beside him. That moment made my mission. The uncle had an extensive amputation of his whole right shoulder and arm. But the little boy – he was ticketyboo. It was lovely, like coming full circle. As the plane rose above Leer, I turned to the MSF medical coordinator and said, "This is true MSF".

MICHAEL SHEK

1. Whisky – because I'm Scottish and it reminds me of home and you can share it out.
2. Salami – because there's no meat to eat!
3. My iPad – it has all my medical texts on it, I can entertain the kids with all the movies on it, and I can listen to my music and chill.



Five epidemics to watch

MSF has issued an alert regarding five diseases that have the potential to become epidemics over the coming year.

Without proper attention, cholera, malaria, measles, meningitis and a group of overlooked diseases are likely to pose an ever greater threat.

“We know that thousands of lives will be at risk, although the means exist to prevent these deaths,” says **Dr Monica Rull**, MSF’s operational health advisor.

MSF’s epidemic response

MSF plays an important role in responding to epidemics. When a disease breaks out, a quick response is vital. MSF teams on the ground continuously monitor for potential outbreaks, and can rapidly scale up to mount an emergency response.

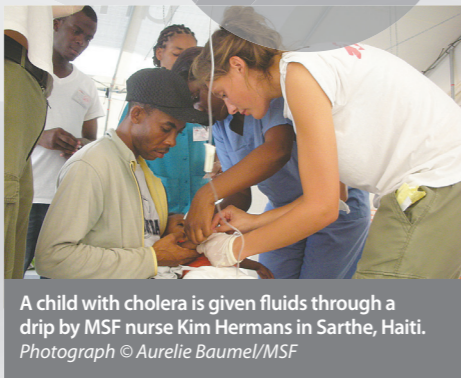
Yet more needs to be done. Rapid emergency alert systems for epidemics need to be improved and more spent on research and development. “Current outbreak response strategies are failing the very people they are designed to help,” says Dr Rull.

Find out more at msf.org.uk/msf-alert



CHOLERA

People infected with cholera can lose more than 50 litres of fluid



A child with cholera is given fluids through a drip by MSF nurse Kim Hermans in Sarthe, Haiti. Photograph © Aurelie Baumel/MSF

CHOLERA is a water-borne infection which can lead to death within hours. Treating cholera is a race against time. It is vital that people with cholera are detected and treated in a cholera treatment centre as early as possible. With prompt rehydration, more than 99 percent of cholera patients make a complete recovery.

What we’re doing

In 2014, we treated 46,900 people for cholera in 16 outbreaks.

“When you are treating cholera, the most important thing is a clean source of water,” says MSF logistician Damien Moloney. “You need beds and plastic sheeting and a lot of chlorine, oral rehydration salts, gloves, gowns and brooms. Cholera is a sickness, but it’s also a logistical problem.”

What we want

Currently, there are only two vaccines against cholera approved by the World Health Organization (WHO). We want production of these two vaccines scaled up, and more alternative vaccines validated.

msf.org.uk/cholera



MALARIA

A course of antimalarial pills for a baby costs just 25p



A boy with malaria is cooled down before having a lifesaving blood transfusion in Bentiu, South Sudan. Photograph © Brendan Bannon

MALARIA is transmitted by infected mosquitoes, with 90 percent of deaths occurring in children living in sub-Saharan Africa. The most effective treatment is artemisinin-based combination therapy.

Since 2012, MSF teams have seen significant malaria spikes in several sub-Saharan African countries, including Democratic Republic of Congo, Central African Republic, Uganda and Mali.

What we’re doing

In 2015, MSF teams treated some two million people with malaria around the world, and provided preventive treatment to more than half a million children in Niger, Mali and Chad.

“While I was in South Sudan, we had a massive malaria outbreak and every day was a struggle to keep children alive,” says Dr Andrea Atkinson, who worked in Bentiu, South Sudan. “There were few organisations providing even basic healthcare. MSF is the difference between something and nothing there.”

What we want

Free malaria treatment guaranteed during outbreaks.

msf.org.uk/malaria



MEASLES

Measles is one of the leading causes of death among young children



An MSF health worker prepares a syringe of measles vaccine during a mass vaccination campaign in Yida refugee camp, South Sudan. Photograph © Karin Ekholm/MSF

MEASLES is a highly contagious viral illness that can have serious complications. In wealthy countries, very few people die of measles, but in developing countries, the mortality rate is between 3 and 20 percent. Vaccination remains the best form of protection.

What we’re doing

In 2014, we treated 33,700 patients for measles and vaccinated 1,513,700 people against the disease.

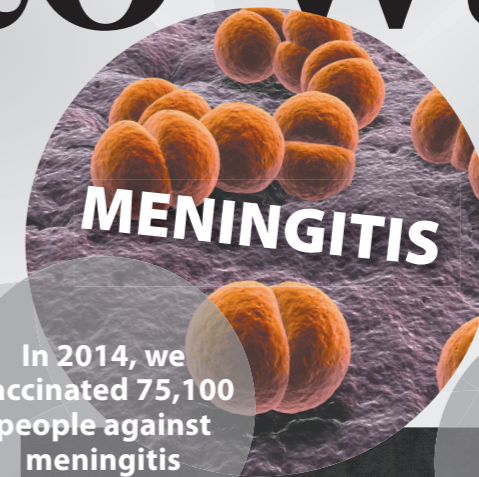
“In Europe, measles is considered a minor illness, but people forget that it’s still one of the main causes of child deaths worldwide,” says MSF’s Dr Marion Osterberger.

What we want

Free measles treatment during outbreaks.

Better surveillance and outbreaks declared earlier to enable a faster response.

msf.org.uk/measles



MENINGITIS

In 2014, we vaccinated 75,100 people against meningitis



Dr Clement Van Galen carries a child who is critically ill with meningitis in Niamey, Niger. Photograph © Sylvain Cherkaoui/Cosmos

MENINGITIS is a contagious and potentially fatal inflammation of the thin membranes surrounding the brain and the spinal cord.

Meningitis occurs throughout the world, but the majority of deaths are in Africa, particularly across the ‘meningitis belt’, a geographical strip that runs from Ethiopia in the east to Senegal in the west. Antibiotics can treat the infection, but mass vaccinations are the most effective way of stopping outbreaks.

What we’re doing

“When I arrived at the hospital in Niamey, the capital of Niger, it was chaos,” says MSF’s Dr Clément Van Galen. “Our team was admitting as many as 350 patients with meningitis every day. To free up beds, we were forced to discharge patients as soon as they started to improve.”

Bernadette Gergonne worked as an MSF epidemiologist during the outbreak. “Now that this new strain of meningitis C is present in Niger, we must be ready to respond to a new epidemic in 2016,” she says.

What we want

Manufacturers to increase production of the meningitis vaccine.

msf.org.uk/meningitis



NEGLECTED DISEASES

About 200 million people worldwide are at risk of kala azar



After being tested by MSF for Chagas disease, Asteria is relieved to discover that her daughters are clear of infection. Aiquire, Bolivia. Photograph © Vania Alves

Epidemics of **NEGLECTED DISEASES** are on the rise, with outbreaks of dengue, chikungunya, Zika, Middle East Respiratory Syndrome (MERS), Ebola and yellow fever all reported in 2015. At the same time, parasitic infections – such as kala azar – that were previously under control are increasing.

“What we have is a terrible cycle of neglect,” says Gemma Ortiz Genovese, MSF’s neglected diseases adviser. “Pharmaceutical companies don’t invest in research and development because these diseases mostly affect the poorest people in the world, who don’t represent a lucrative market. This cycle must be broken.”

What we’re doing

In 2014, we treated 4,700 Ebola patients and 1,700 patients for chikungunya, a debilitating virus transmitted by mosquitoes. Since 1988, MSF teams have treated more than 100,000 people for kala azar. We are still working on ways to treat the disease more effectively and affordably.

What we want

More research and development for diagnostics, vaccines and treatments.

msf.org.uk/neglected-diseases



In the intensive care unit of Agok hospital, an MSF nurse encourages a malnourished and dehydrated girl to drink some fluids. Photograph © Pierre-Yves Bernard/MSF

The miracle baby

Johanna Bosowski is a British nurse working in Agok, South Sudan, where MSF runs the only hospital in the region. Here she describes a first week dealing with emergencies, resuscitations, and a baby boy who refused to give up on life...



charge of the neonatal unit. It was quite a baptism of fire.

I didn't know it at the time but, by some twist of fate, I happened to arrive during a particularly bad week for the babies of Agok.

We had to perform cardiopulmonary resuscitation – or CPR – on a baby pretty much every day, and while some survived, others did not. Being an emergency nurse, I have had to deal with children dying before – but maybe one or two a year, never several in one week. It's never easy. I had more than a few moments when I asked myself what on earth I was doing here, and wondered if I'd even last six days, let alone six months!

We ran to the delivery room

In the middle of all this, my miracle baby arrived. The first I knew of his existence was when one of the midwives came running in dressed in surgical scrubs, a gown and a mask. In her arms was a bundle of cloth, and inside, I presumed, a baby.

The midwife said that she had just attended an emergency caesarean on a woman who had arrived after spending more than two days in labour.

Unsurprisingly, neither mother nor baby was doing well.

We ran together to the delivery room and, when she lay the baby under the warmer, I began to understand why the labour had lasted so long. His body was the size of a normal-term baby, but his head was misshapen and twice as big as I would have expected. But that was not the important issue at that moment – he was hardly breathing.

His oxygen levels were less than half what they should have been, and his heart rate was dangerously low – all signs of a baby who has only a short time left to live. I started trying to deliver some artificial breaths using a bag and mask – no easy feat, as the shape of his head meant it was difficult to get him in the right position – while the midwife started chest compressions to try and encourage his heart to beat fast again.

We had a fighter on our hands

We continued to resuscitate the baby for another 20 minutes. His heart rate picked up, but his breathing was still sporadic and ragged, while his head-shape and his eyes that looked like two setting suns implied that there was too much pressure in his

head. His chances of survival were slim.

We stopped the resuscitation with the aim of not prolonging his suffering, and agreed that we would start antibiotic treatment if he was still alive in an hour. I don't think any of us expected him to be. But an hour later, when I gave him his first doses of intravenous antibiotics, I recognised we had a true fighter on our hands. For him to make it this far was a miracle.

When I left that evening, I really didn't think he would survive the night. But when I arrived the next morning, he was still there – by far the biggest baby on the ward, living under our warmer as his mother was also still in a critical condition.

Little by little he established his intention to stay in this world. First he stopped requiring oxygen, then he showed a strong sucking reflex that meant he didn't need intravenous fluids anymore. Before we knew it, his week-long course of antibiotics was finished and he was feeding and breathing just as he should.

Although we were his primary carers for that first week, his grandmother was devoted to him from the beginning, visiting regularly when she wasn't caring for her daughter.

We did have one problem though – what to call him. He didn't yet have a name, so my assistants and I ended up calling

him 'Big Head Baby' to clarify who we were talking about. This was vital for communication, but it didn't feel very kind. For a while we called him 'Manam', until I found out that it just meant 'Big Head Baby' in the local language. In the end he became 'Our Baby' – a not entirely factual description, but one that went some way to expressing our attachment.

I quickly began to fall in love with this strong-willed baby and his doting grandmother.

A butterfly emerging from his chrysalis

When he was first born, 'Our Baby' had skin that had thickened and developed hard patches, almost like a crocodile, because he had spent so long in the womb and in labour. His grandmother and I spent a lot of time massaging him with vaseline. When, after a few days, the dead skin started coming off on our hands, it felt like he was a butterfly emerging from his chrysalis. His leathery exterior melted away to reveal a soft and smooth baby underneath.

The next person 'Our Baby' had to win over was his mother. Perhaps because of his unusual appearance, or because she didn't think he'd survive, or because she was traumatised by the delivery, she didn't take much interest in him.

It took almost a month to get him completely on breastmilk, partly because



One of two newborn twins is handed to a relative by midwife Crystal Bailey in the neonatal unit in Agok hospital. Photograph © Pierre-Yves Bernard/MSF

his mother always found other things to do when it was time to feed him. Grandmother was having none of it, and would march her back to feed the baby. Although I knew his grandmother adored him and would make sure he was looked after, I couldn't help but worry what his future might hold.

'Our Baby' was never going to develop normally or be like other children. He was going to need all the help he could get to thrive and be accepted by those around him. His mother would need to play a large part in that.

The turning point

The turning point came one morning when I overheard a heated discussion between 'Our Baby's' mother, grandmother and a third person. I could tell this person was speaking aggressively, so I asked a translator to tell me what was happening.

The translator told me the person was asking why they were treating 'Our Baby' as if he was normal, when anyone could tell that he wasn't. If he is normal, the person said, then why have I never seen anyone with a head so large before?

I was absolutely furious. After all the efforts we had made to help the mother accept her baby, now this person was trying to make her feel bad about it! But before I could intervene, the mother pulled herself up tall, looked her baby's detractor straight in the eye, and informed them that her baby had been made exactly the way God intended, no matter the size of his head. It was a small victory, but it felt like a big milestone.

A few days later it was time to say goodbye, and I helped them carry their things to the car that would take them home, while 'Our Baby' slept peacefully in his mother's arms.

His life will not be easy. But he is a true fighter and has some good allies, so I hope it will be a happy one.



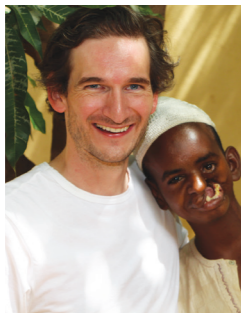
More than 100 babies are born each month in Agok hospital, with the assistance of MSF midwives. Photograph © Valérie Batselaere/MSF

Changing faces, changing lives



MSF surgeons operate on six-year-old Zayyanu Murtala to reconstruct a hole in his jaw and damage to his eye caused by noma in Sokoto, northwest Nigeria. Photograph © Advazive Baiye/MSF

Noma is a disfiguring and deadly disease that kills thousands every year, but receives little public attention. The vast majority of sufferers are children under the age of six, who endure appalling facial disfigurement as a result of the disease.



Clinical psychologist Tom Hoare spent 11 months in Sokoto, Nigeria, where MSF runs the world's only dedicated noma hospital.

'I'm a clinical psychologist and did my training with the NHS in South Wales. My last job was in the secure unit of a prison, so quite a different environment to the one I've just come back from!

In Nigeria, I led the psychosocial unit, supporting patients and family members and helping them deal with the stigma around this disease. Due to the nature of the disfigurement noma causes, patients suffer profound social and psychological effects. Many children miss out on huge periods of schooling, and because of the way they look, they often cover up, hide themselves away, or are kept hidden by their parents. Helping a young person and their family overcome the emotional impact of the disfigurement is a core part of the counselling.

It's hard to see children arrive like this. Because of the way they're isolated at home, when they come to the hospital they're really nervous. Over time, they socialise more and begin to come out of their shells, which is great to see.

We always make sure we are around for painful procedures such as dressing

changes. We make sure that the children are distracted and that the parents are reassured, as it can be very distressing for parents to see their child upset or in pain.

Many of the children are from remote villages, so the hospital is a completely alien environment. The operating theatre is a scary place with lots of masked people, beeping machines, huge lights. We tackle this by devising stories and activities to explain the procedures to both parents and children. We have some masks and hats which the children can look at and try on. We accompany children into the operating theatre, and their parents come too. And we make sure the parents are there when the child wakes up.

We spend a lot of time with families focusing on confidence building. We talk about what the child is good at. What are their strengths? Coping strategies? What do they do well? We try to get parents to reflect on that – with their children present – and build on those coping skills and the things they're interested in, to empower the children to feel more confident so they can cope in the wider environment.

We use different strategies for different people. There is one gentleman – an adult patient – who has been in the hospital for about two years, undergoing multiple rounds of surgery. We tried to think of a way to give him a role in the hospital. It turned out he really liked gardening, so we created a garden and gave him responsibility for it. Now he's growing lots of vegetables, which are being used in the kitchen, so he gets a feeling of satisfaction and he's part of the team, rather than just someone who's waiting to have surgery.

Lots of patients stick in my mind. There's a girl there of six or seven who's waiting for a set of surgeries. When she first came in, she was tremendously disfigured down one half of her face, with almost her whole cheek missing. She's from an impoverished background and her parents had been taking her out begging on the streets. She was very withdrawn and very scared about being in the hospital.

But she's had her first set of surgeries, and



Drawing and playing games can help children who are recovering from noma gain confidence to help them cope in the outside world. Photograph © Advazive Baiye/MSF

we've been able to provide her with a place where she can learn, socialise with other children, and do what other children do. It's really nice to see how much she has come on.

The kids with noma generally come from very impoverished backgrounds. The parents' focus is on 'how can we get money to survive?' This has a huge effect on the children, because they're kept at home and not encouraged to go to school or join in with any community activities. You notice that many don't meet their developmental milestones. A main focus of

our assessments is to try and understand where the child is at in terms of their learning and their development – not just their cognitive abilities, but also their social abilities. Sometimes you'll have a 10-year-old behaving like a five-year-old – perhaps they don't know how to share or how to play together – it's very new for them to be surrounded by a lot of other kids.

What difference does psychosocial support make? Some of the surgeons who worked with noma patients before we began psychosocial support say that the children now seem far better prepared, far less anxious and far happier about being in the hospital. And it's had a positive impact on their recovery too. The surgeons and the medical team are really positive about it. That said, I don't think it's always necessarily understood what we're doing, but I think that if we stopped providing the support, that's when people would notice it!

What is noma?

Noma affects up to 140,000 people every year, most of whom are children. It is prevalent in the poorest areas of Africa and some parts of Asia and South America.

Coming from the Greek word for 'to devour', noma begins as an ulcer inside the mouth, which then eats away at the cheek tissue and bones in the mouth area of the infected person. Left untreated, the disease is fatal in up to 90 percent of cases. However, if treated early, the infection can be stopped quickly with antibiotics and nutritional support.

'Noma creates deep holes in the face, which can make normal activities like eating very difficult,' says MSF surgeon Dr Hans De Bruijn. 'Noma surgery can last as long as six hours. In some cases, all that is needed is a skin graft. In others, we may have to reconstruct parts of the face.'

Listen to MSF doctors, nurses and logisticians talk about their work on the frontline in our new podcast, 'Everyday Emergency'. Visit [msf.org](https://www.msf.org), uk/podcast to start listening.

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Building hospitals for the future

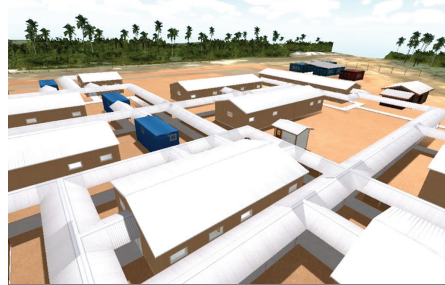
New technology is helping MSF build better and more efficient hospitals.

When MSF sets out to build a hospital, it uses a standard procedure that hasn't changed much in decades. Working from a series of two-dimensional drawings, the medical and logistical teams work together to construct a building that everyone hopes will meet the needs of patients and the community. However, this process can be cumbersome and time-consuming, and can also result in buildings that are not as site-sensitive as they could be.

Now, thanks to three-dimensional (3D) printing and virtual reality (VR), MSF's time-honoured method of designing its hospitals could be a thing of the past. A



An MSF staff member in Belgium navigates his way through Cantahay hospital in the Philippines using a virtual reality headset.
Photograph © Alex Yallop/MSF



Instead of a 2D drawing, future hospitals will be planned in 3D.

new collaboration between MSF and a technology company is revolutionising our hospital designs, with the potential to transform our medical training.

"The idea of this project was to see how we could make use of three-dimensional printing technologies and virtual reality to help MSF better design hospitals," says Elvina Motard, MSF's technical team leader.

Virtual MSF hospital

Working with expert consultants, Elvina took existing plans for a hospital built by MSF in the Philippines following the devastation wrought by Typhoon Haiyan, and digitised them. The hospital was then 3D printed and a VR experience was developed in a game engine, generating a virtual world where the user can navigate through the hospital using a VR headset and a game pad.

"Such technologies will undoubtedly make discussions more efficient, more vivid and more graphic," said Jean Pletinckx, MSF's head of logistics.

"They will allow people to really see themselves inside our future hospitals, and this will improve hospital design as well as

training and briefings. It will also allow our partners, like local ministries of health, to better understand what we can provide and give better feedback on our suggestions."

The 3D printing and VR project took only four months, from conception to final delivery. Future projects will be even faster given that all of the 3D items created during this test phase are now ready and available for use.

'This is the way we will work in the future'

While the Philippines hospital was a 'proof of concept' developed in an already built and working hospital, in the near future, 3D models will be able to be sent digitally anywhere in the world and viewed on any web browser.

Ultimately, our field staff will be able to view and evaluate the design beforehand, ensuring that the proposed structure is site-appropriate and fit for purpose.

"As the project develops further, it will be possible to create a dynamic environment, simulating patient and staff movements," says Jean.

"We are at a stage now where our staff will really be able to feel or see what they will face in the field before they leave and, indeed, even before the hospital is built. There is no doubt that this is the way we will work in the future."

Humanitarian innovation

MSF developed this project in partnership with Pyxis, a Belgian leader in the field of 3D and VR, as part of a broader goal to build partnerships with other companies, foundations or universities to assist us in humanitarian innovations.

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Dispatches is written by people working for MSF and sent out every three months to our supporters and to staff in the field. It is edited by Marcus Dunk. It costs 8.6p to produce, 2.3p to package and 31p to send, using Mailsort Three, the cheapest form of post. We send it to keep you informed about our activities and about how your money is spent. Dispatches gives our patients and staff a platform to speak out about the conflicts, emergencies and epidemics in which MSF works. We welcome your feedback. Please contact us by the methods listed, or email: dispatches.uk@london.msf.org

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