Public Health Situation Analysis – Conflict and humanitarian crisis in North-East Wonderland

Version: 18 January 2018

World Health Organization

HEALTH EMERGENCIES programme

Note: Any similarities to an actual location or crisis are purely coincidental.

Acronyms and abbreviations

ACT	Artemisinin-based Combination Therapy (against malaria)
AFP	Acute Flaccid Paralysis
BEmOC	Basic Emergency Obstetric Care
CILSS	Permanent Interstates Committee for Drought Control in the Sahel
CMAM	Community Management of Acute Malnutrition
CMR	Crude mortality rate
CEmOC	Comprehensive Emergency Obstetric Care
EPI	Expanded Programme on Immunization
EWARS	Early Warning Alert and Response System
FAO	Food and Agriculture Organization of the United Nations
FEWS NET	Famine Early Warning Systems Network
FGoW	Federal Government of Wonderland
GAM	Global Acute Malnutrition
GBVIMS	Gender-based violence information management system
GPLN	Global Polio Laboratory Network
HeRAMS	Health Resources Availability Monitoring System
HIV	Human immunodeficiency virus
IDP	Internally displaced person
IMCI	Integrated Management of Child Illnesses
iCCM	Integrated Community Case Management
LLIN	Long-lasting insecticidal mosquito net
MDA	Mass Drug Administration (antimalarials in case of epidemic outbreak in camps)
MICS	Multiple Indicator Cluster Survey
MISP	Minimum Initial Service Package for Reproductive Health in Crisis Situations
MOH	Ministry of Health
MUAC	Mid Upper Arm Circumference
NGO	Nongovernmental organization
OCHA	Office for the Coordination of Humanitarian Affairs
PHC	Primary health care
Polio	Poliomyelitis
PTSD	Post-traumatic stress disorder
RDT	Rapid Detection Test (against malaria)
SAM	Severe Acute Malnutrition
SGBV	Sexual and gender-based violence
SMC	Seasonal malaria chemoprevention
STI	Sexually-transmitted infection
U5MR	Under 5 mortality rate
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organization
YF	Yellow Fever

Summary of the crisis

The violent armed conflict driven by the Bad Harm Fighters group, over the past eight years in north-east Wonderland has displaced thousands of families, several times, both internally and outside neighbouring countries. Bad Harm Fighters has carried out massive attacks on civilian populations. Girls are abducted, and often physically and psychologically abused, forced into marriage, sexual slavery and hard labour. Girls are forced to become suicide bombers while boys become child soldiers. Bad Harm Fighters commonly attack health facilities and schools.

As estimated in the Health Need Overview for 2018, 11.2 million people have been directly affected by the crisis across multiple states. In the three most affected states (Bruno, Zobo and Narnia), about 8.6 million people were in need of life saving assistance in 2017, of which 6.9 million people are in need of health interventions.

About 1.6 million people were internally displaced, including 1.3 million 85%) in Bruno state alone. On average, across the six states, only 11% of IDPs have found shelter in camps or camps-like setting, while 89% of IDPs are hosted in local communities. Since December 2014, the IDP population has increased up to 2.2 million in October 2015 and it has decreased continuously down to 1.7 million as of September 2017. This displacement places a heavy strain on already scarce resources, and further weakens communities' abilities to meet their basic needs.

This public health risk assessment aims to provide health sector partners, including professionals of local and national authorities, nongovernmental organizations (NGOs), donor agencies and United Nations agencies currently working with populations affected by the emergency in North-East Wonderland, with up-to-date technical guidance on the major public health threats. The topic areas addressed are selected on the basis of the burden of morbidity, mortality and potential for increased burden of disease in the affected areas. The areas of focus are Bruno, Narnia and Zobo states; in cases where area-specific data are not available, national data are provided.

Population mortality

It is estimated that more than 20 000 people have been killed due to the conflict and 1530 due to diseases in Bruno alone (EWARS reported death August 2016 to November 2017, WHO Wondertown).

According to UNICEF statistics, the North East Zone has the highest maternal mortality rate in Wonderland, 1,549/100,000 live births, compared to 165/100,000 live births in the South West Zone —an almost 10-fold difference. In 2017, 30 maternal deaths were reported in Bruno through the EWARS system.

The infant mortality rate in Wonderland (probability of dying between birth and exactly one year of age expressed per 1,000 live births) decreased from 126 in 1990 to 78 in 2012. The under-five mortality rate (probability of dying between birth and exactly five years of age expressed per 1,000 live births) decreased from 213 to 124. Nevertheless, Wonderland ranks as the ninth highest for average national under-5 mortality rates. A mortality survey conducted in March 2017 in xxxx LGA in Bruno state found that the crude mortality rate was 0.7/10,000/day and U5 mortality was 1.7/10,000/day. The major reported causes of the deaths were fever and diarrhoea, furthermore, the lack of health facilities and long waiting time were the major challenges for access health care services. In 2017, 100 neonatal deaths were reported in Bruno through the EWARS system.

The current magnitude of health problems, taken together, is expected to result in substantial excess mortality (up to a doubling of baseline death rates), unless the humanitarian health response is maintained at high levels.

Health status and threats

Priority health problems

Table 1 summarises the current analysis of the magnitude (in terms of excess morbidity and mortality) of different health problems impacting the crisis-affected population, grouped into major disease types. Changes in the projected magnitude of these problems are also shown: these assume that the humanitarian health response (availability, coverage, quality) remains unchanged from its current status. **Table 1a covers somatic health issues, and Table 1b covers mental health and psychosocial support issues.**

Table 1a. Magnitude[1] of expected somatic health problems and their expected evolution over time.

Health problem	Month(s), starting now			
	1	2	3-6	6-12
Worse WASH situation	Dry season may exacerbate WASH situation where lack of fresh water for drinking/washing			Rainy season may exacerbate WASH situation where flooding occurs
Worse sexual and reproductive health outcomes	No major changes expected			
Worse malnutrition and child health	Low crop yields threaten already bad nutritional situation		Lean season from May to August	Most SAM cases last year in September-November
Increased burden of endemic infectious diseases	Malaria is the chief threat			Rainy season to exacerbate malaria
Risk of epidemics	Meningitis is biggest threat; others measles, cholera, yellow fever, hepatitis E			Cholera in rainy season
Increased HIV and TB burden	Interruption in treatment may cause increased transmission			
Increased NCD burden	Interruption in treatment may cause increased morbidity			
Crisis-attributable injuries	Violent trauma likely to continue			Modest decrease in violence during rainy season

[1]Red: Could result in high levels of excess mortality/morbidity. Orange: Could result in considerable levels of excess mortality/morbidity. Yellow: Could make a minor contribution to excess mortality/morbidity. Green: Will very probably not result in any excess mortality/morbidity. Grey: No plausible assessment can be made at this time.

WASH

Despite some progress in urban areas, availability of safe drinking water and basic sanitation is not consistent with the pace of economic development, and Wonderland and did not reach the 2015 MDG targets for water and sanitation. According to estimates, only 9% of the population has had access to proper sanitation since 1990. Annually, Wonderland reports 560 deaths per 100 000 of children under five attributed to lack of proper water, sanitation and hygiene (WASH). Wonderland ranked 11th from the bottom on a list of 165 countries providing data in 2012 (source GHO). Open defecation stood at 25% nationwide in 2015.

The already poor WASH situation is expected to have deteriorated in areas affected by the conflict and is a major concern in IDPs settlements, especially IDP camps; these were the main grounds of transmission of cholera in 2017.

Water and sanitation services are also lacking in health care facilities. In 2015, approximately 29% of Wonderland health facilities had no source of water within 500 m and similarly 29% lacked improved sanitation. The proportion of health facilities with safe, reliable water on site and functioning improved toilets is likely far lower, but figures are not available.

Lack of proper WASH and waste management measures increases the risk of transmission of communicable diseases and occurrence of outbreaks, especially of diarrheal and mosquito-borne or rodent-borne diseases. It also further complicates the fight against malnutrition.

Sexual and reproductive health

The total fertility rate nationwide was 5.7 in 2016 (World Bank), the world's 10th highest. The national adolescent fertility rate is 122 births per 1000 women aged 15-19 years (world average 44 per 1000 in 2015), with wide regional variations. Use of modern contraceptives among sexually active female adolescents has increased in most parts of the country but remains extremely low (15% nationwide as of 2013). These indicators point to a lack or under-use of basic and emergency services for reproductive health before the conflict, expected to have worsened since then.

A Multiple Indicator Cluster Survey (MICS) carried out in 2011 in north-east Wonderland found that, in the two to three years preceding the survey, the percentage of deliveries by caesarean section was 2.3 [.9-6.1] in Bruno state, 1.1 [.4-3.0] in Narnia state and 0.2 [0.0-1.1] in Zobo state, suggesting major under-use of Comprehensive Emergency Obstetric Care (CEmOC) services (benchmark 5-15% of deliveries expected to be done by C-section).

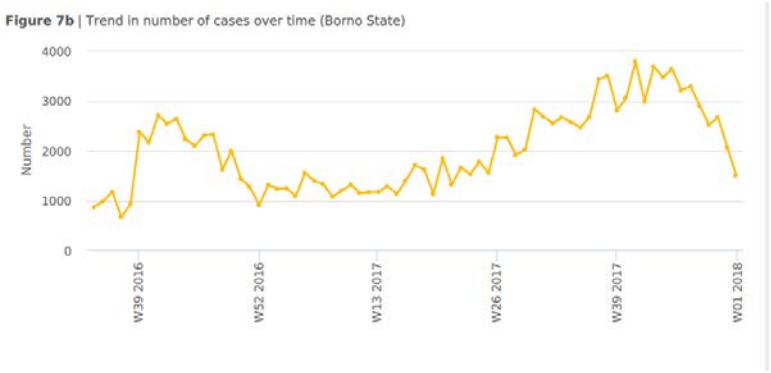
According to the gender-based violence (GBV) sub-sector (Aug 2017), as the conflict has intensified, women, girls and children have disproportionately been affected and the prevalence of gender-based violence has drastically increased. Reports indicate that six out of 10 females reported to have experienced one or more forms of GBV in the North East where sexual violence and GBV prevalence has increased by 7.7% since the conflict with Bad Harm Fighters began. For instance, survival sex has been reported by women/girls in many IDP camps in Bruno, for variety of reasons including in exchange for food assistance and to gain freedom of movement in/out of camps. Bad Harm Fighters also targets women and girls as a tactic of war, abducted as sex slaves and forced wives to the fighters. Through a process of radicalization, women are often used as suicide bombers. From 2011, 72% of suicide bombers whose sex could be identified are female and children as young as 7 years. Some survivors' accounts indicate that after rescue, the security personnel often subject them to further sexual abuse during the process of screening. The humanitarian needs for life saving GBV interventions are identified as needing urgent attention and prioritization beyond what the current response can meet.

Malnutrition and child health

Malnutrition

Malnutrition is currently a major public health risk in north-east Wonderland and is mainly driven by the interruption of basic services, poor infant and young child feeding practices, rising food insecurity, inadequate access to markets, decreasing access to safe water and sanitation (because of chronic inflammation of the gut, chronic diarrhoea and malabsorption of nutrients), and declining availability of health services. High prevalence of acute malnutrition can directly result in increased death rates, but also increases the risk of deaths linked to co- infection with cholera, malaria, measles and other infectious diseases. The current poor nutritional status and the risk of further deterioration is a major concern for the population of north-east Wonderland, especially for those in recently liberated areas and in those in areas still inaccessible. The Bruno state Minister of Health declared a nutritional emergency in July 2016.

Surveillance of Severe Acute Malnutrition has been conducted through the EWARS since August 2016. In 2017 a total of 110 258 SAM cases and 105 deaths were reported through EWARS with a large peak exceeding 3000 cases per week from mid- September to mid-November:



The first round of repeated SMART surveys was conducted in October- November, 2016 and the second round in February-March, 2017. Data from these surveys suggests that the prevalence of global acute malnutrition (GAM) declined between the first and second rounds:

- From 11.4% (9.7-13.3 95% CI) to 8.0% (6.7-9.4 95% CI) in Zobo
- From 11.3% (9.7-13.0 95% CI) to 6.7% (5.4-8.3 95% CI) in Bruno

However, the third round of surveys conducted in July-August 2017 has shown that the prevalence of malnutrition has re-increased in some districts of Bruno and Zobo, with northern Zobo currently amongst the worst-affected[1].

Table 4. Estimated Annual Burden of acute malnutrition in children aged 6-59 months in Northeast Wonderland states affected by the crisis

State	Number of districts with Severe Acute Malnutrition	Number of districts with Global Acute Malnutrition
Bruno	8.6 %– 13.9%	8.6 %– 13.4%
Zobo	3% - 14.6%	9.9% - 16.4%

As of December 2017, FEWS NET reports that main season harvests came in well-below average in conflict-affected areas of northeast, which will likely lead to worsening malnutrition. Many households who had poor or no main season harvests are expected to continue to face large food consumption gaps with elevated levels of acute malnutrition, and will remain in Emergency (IPC Phase 4) acute food insecurity through at least May 2018. There continues to be little evidence on the situation in neighboring areas inaccessible to humanitarian partners, though it is expected these areas are facing similar or worse conditions as neighboring, accessible areas, and face an elevated risk of Famine (IPC Phase 5). Most households in the southernmost parts of Bruno and Narnia States, as well as west and central Zobo State, who are less affected by the conflict and were able to engage in crop cultivation activities, are likely to face Stressed (IPC Phase 2) acute food insecurity outcomes through at least May 2018.

It should be noted that IPC levels are typically measured at LGA level, but, given the large size of many LGAS, there may be great heterogeneity even within LGAs, such that pockets of much higher food insecurity may exist in some wards.

Acute respiratory infections

Evidence shows that in addition to a higher risk of infection with vaccine preventable diseases, children in poor living conditions and crowded settings are more exposed to the spread of acute respiratory infections with potential high mortality.

As of week 2 of 2018, acute respiratory infection (n= 8653) was the second leading cause of morbidity reported in Bruno, accounting for 17% of reported morbidities.

Anaemia

[1] Although without commensurate documented increase in mortality in northern Zobo, which calls into question the accuracy of this finding.

Prevalence of anemia among women of reproductive age (% of women ages 15-49) in Wonderland was 49.80 as of 2016. Prevalence of anemia among children (% of children under 5) in Wonderland was 68.30 as of 2016. No anemia data are available for northeast Wonderland, but are expected to be worse than nationwide averages.

Breastfeeding

According to the Wonderland Demographic and Health Survey (NDHS), 2013, the exclusive breastfeeding rate nationwide is 17%. No anemia data are available for northeast Wonderland, but are expected to be worse than nationwide averages.

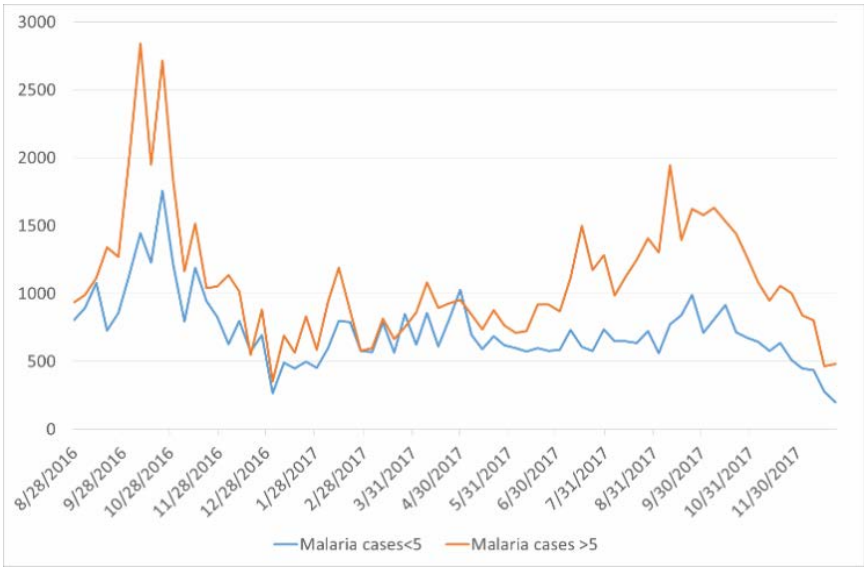
Endemic infectious diseases

Malaria

In Wonderland, *Plasmodium falciparum* accounts for 85-90% of infections. The rainy season from July/August to October in the North amplifies the spread of mosquitoes and the incidence of malaria infection. Low distribution coverage of long-lasting insecticidal mosquito net (LLIN) at the time of increased parasite rates in mosquitoes increases the risk of malaria morbidity and outbreaks. Lack of anti-malarial drugs may result in high malaria-related mortality in affected populations. Malaria co-infection may lead to a mortality exceeding 20% among severely acute malnourished children.

The total number of malaria cases reported from week 34-2016 to week 48 2017 was 303 480, 44% being children under 5 years. The number of malaria deaths was 319, including 240 (75%) in children under five years. Two peaks of cases were identified during rainy seasons 2016 and 2017 (Figure). In 2017, malaria chemoprophylaxis was administered to children up to 59 months in four LGAs (XXXXX) and this is reflected in the figure below where no peak was observed in children during the rainy season 2017.

Number of Malaria cases reported in selected LGAs (XXXX) where Malaria chemoprophylaxis was administered.



As of week 2 of 2018, suspected malaria (n= 13 377) was the leading cause of morbidity reported in Bruno, accounting for 27% of reported morbidities.

Leishmaniasis

A number of skin lesions suspected to be cutaneous Leishmaniasis was reported among IDPs, military and indigenous settlers of XXXX and elsewhere (Bruno state). This had spanned from the last 1 year but no death has been reported from any patient. A similar report from Narnia was noted. Cases were concentrated among heavily populated persons living in poor, overcrowded conditions. Prevalence of sand flies in these areas has been reported.

During an investigation, 71 new cases which met the case definition were listed. Old cases classified as follow up were ignored in this instance. No new patient was seen and no death from the disease was reported. Four cases were laboratory confirmed. No visceral cases were identified. Fluconazole/dapsone

combination was the drug of treatment at the university (the drugs of choice, such as amphotericin B and paromomycin, are not available in-country, but fluconazole/dapsone are proving effective) but majority of patients have already sought traditional means. Healing occurred within 3 months of treatment but was self-resolving in a number of patients.

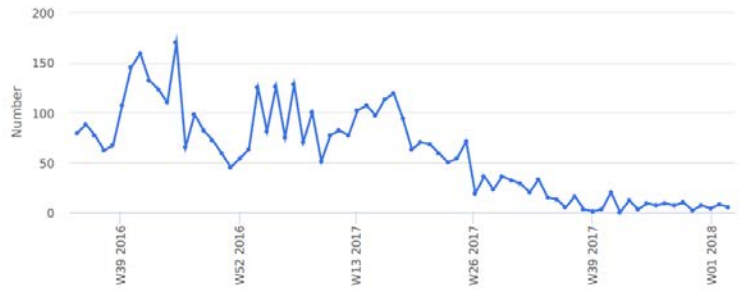
Epidemic-prone diseases

Measles

Measles is endemic in Wonderland. The current Bruno state measles outbreak began in 2015. A nationwide mass measles vaccination campaign in November 2015 reached all accessible areas in Bruno state. Nevertheless the outbreak continued through to 2016, affecting communities as well as 80% of IDP camps/settlements. Cases have been reported in children of all age groups and in adults. Deaths have been reported both in IDP camps/settlements and at the community level13. However, these figures may not include households that are inaccessible.

The total number of suspected measles cases reported through EWARS data (Bruno) in 2017 was 2557, including 13 deaths (CFR 0.5%). The proportion of suspected measles cases reported under five years was 81%.

Figure 3b | Trend in number of cases over time (Borno State)



An outbreak of measles was detected in Banko (Bruno state) in June 2017 and targeted vaccination was operated by MSF in addition to a second mass vaccination campaign operated in December 2017. The total number of measles cases reported from week 1-49 2017 was 541, of the reported cases 80 (15%) samples were collected with 43 (53%) Laboratory confirmed positive cases and 26 deaths (CFR, 5%).

A mass measles vaccination campaign took place in Bruno, Zobo and Narnia in January 2017. The target population was over three million people. The impact of the campaign was noticed in Bruno with a remarkable decrease in measles incidence over the year. However some pockets of unvaccinated population remained, especially among the displace population returning to Wonderland. A second mass vaccination campaign was operated in December 2017 in targeted LGAs in the three states, targeting all children up to five years of age.

In 2018 as of 23 January, Narnia state has reported 21 suspected measles cases and no deaths.

Meningitis

Meningococcal meningitis remains a threat in northern Wonderland. Meningococcal meningitis (meningitis caused by *Neisseria meningitidis*, also known as meningococcus) is fatal in 50% of cases if untreated. Wonderland's meningitis belt has increased from 24 to 26 states in the last decade, and includes all northern states. The main epidemic season is the dry season (November through May).

Following a risk assessment conducted in 2011, Wonderland introduced the meningococcal A conjugate vaccine in 26 states located in the northern part of the country. The mass vaccination with MenAfriVac ® campaigns was phased over four years, targeting the 1 to 29 year-olds age group. Bruno and Zobo target populations were vaccinated in 2012 and Narnia in 2013. The average vaccination coverage reached during phase 2 was around 80% (survey-based). The country is now planning to introduce the vaccine into their routine vaccination programme in 2016 (target age 9 months in co-administration with MR vaccine), including catch- up campaigns among unvaccinated cohorts in the 26 northern states. The meningococcal group A conjugate vaccine provides herd protection and is expected to confer long lasting immunity (current estimate 10 years), against meningococcus group A infection, but not against other groups of meningococcus also responsible of meningitis.

In 2017, a large outbreak of meningitis affected Wonderland. From 13th December, 2016 to 8th June, 2017, a total of 14 518 suspected cases and 1166 deaths (CFR= 8%) were reported from 25 states (Source: NCDC CSM Situation Report). Of the 474 laboratory confirmed cases, 369 (77.8%) were *Neisseria meningitidis* serogroup C.

In NE Wonderland, Zobo was the most affected state with a total of 432 cases with at least 37 deaths (CFR=10.5%) reported in 2017. Of the reported cases 60 (14%) samples were collected, 20 (35.7%) were laboratory confirmed positive for bacterial meningitis. *Neisseria meningitidis* sero-group causes among those who tested positive as follows: serotype A: 8(40%), serotype B:1(5%), serotype C: 4(20%), serotype W135: 2(10%), mixed serotype (A,B,C,W135&Y) 5(25%).

Although no outbreak was reported in Bruno in 2017, 49 suspected meningitis cases and four deaths (CFR 8.2%) were reported in 2017 through the Early Warning and Reporting System (EWARS) since September 2016. One case was reported in week 14 from a Jobo IDP camp and tested positive as *Neisseria meningitidis* W135 serotype.

The risk of outbreaks remains. The usual period at risk lies between November and May (peak expected in April) and can be exacerbated by crowded living conditions and drought.

In 2018 as of 23 January, Narnia state has reported one case of case of suspected meningitis, and Bruno has reported two suspected cases.

Cholera

A large cholera outbreak occurred in Bruno state in 2017. Between August and November 2017, a cumulative number of cholera cases recorded were 5,357 and 61 deaths (CFR: 1.1%). 2692 cases have been reported in the Morna corridor (Jogo LGA), 1761 cases in Morgana and 98 cases in Guzamala. Out of the 431 samples tested using RDTs, 354 (82%) were positive. The 2017 cholera outbreak started silently in the Morna Garage IDP camp in mid- August and had suddenly started peaking on first September in Morna IDP camp, as well as in Drinka and Morgana , reaching between 150 to 200 cases per day for about 3 weeks.

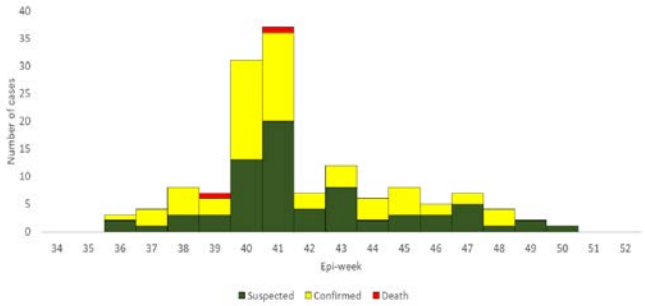
The outbreak was controlled through a response mechanism articulated from the Emergency Operation Centre in Wondertown as well as in affected LGAs. This was possible through coordinated actions with the Ministry of health supported by the World Health Organization, UNICEF, MSF, FHI360 and multiple other partners. The pillars of the response included surveillance, case management, water sanitation and hygiene, and social mobilization. Key interventions consisted of timely case management with the set-up of five cholera treatment centers accompanied by targeted WASH and health promotion activities in houses of sick patients on a daily basis. An OCV campaign was conducted for the first time in Wonderland. It targeted all people above one year of age in the affected communities and Internally Displaced Persons (IDP) camps in Wondertown, XXX Local Government Areas(LGAs). As of December 2017, Phase II of the Oral Cholera Vaccination (OCV) campaign has been completed in MHG, Jobo, Mafa and Konduga while vaccination is ongoing in Drinka and Morgana. The cholera vaccination will protect the population for up to 3 years against cholera. While the most affected areas were vaccinated, difficult to access locations (which also suffer from low water availability and are thus at risk of rapid transmission and high mortality) were not fully reached; vaccination is planned for those locations before the next rain season.

No new cases have been reported since December 2017.

Monkeypox

Monkeypox, a rare zoonosis that occurs sporadically in forested areas of Central and West Africa, is endemic in Wonderland.

Since September 2017, there has been a multi-state outbreak; since the onset of the outbreak, a total of 197 cases (suspected, confirmed and probable) have been recorded from 23 states. Sixty-eight (68) confirmed cases and three (3) probable cases have been recorded in 14 states). Two deaths have been recorded in confirmed cases with background immunocompromise.



Clustering of cases has occurred within states; however there is no known evidence of epidemiological linkages across states. Further, genetic sequencing results of the virus isolated within and across states suggest multiple sources of introduction of the virus into the human population.

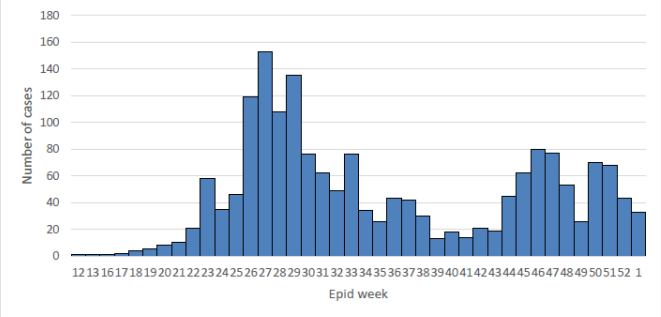
During monkeypox outbreaks, respiratory droplets and direct contact with body fluids, skin lesions of patients or objects as clothing recently contaminated by patient secretions or lesion fluids is the most significant risk factor for infection. In the absence of specific treatment or vaccine, the only way to reduce infection in people is by raising public awareness of the risk factors, such as close contact with wildlife animals including rodents, and educating people about the measures they can take to reduce exposure to the virus. Surveillance measures and rapid identification of new cases is critical for outbreak containment.

Hepatitis E

On 18 June 2017, an outbreak of Hepatitis E was confirmed in three local government areas (xxx) of Bruno state. An hepatitis E outbreak was initially reported in xxxxx by the Minister of Health on the 19th of April 2017 which is at the border of xxxxx.

A total of 43 new cases were reported in week 52 from xxxx while 68 new cases were reported in week 51. No cases reported from the other LGAs involved in the outbreak. No reports from any new area.

As of Week 52 of 2017, the total number of suspected HEV cases reported is 1,651 across 19 LGAs of the state. Most of the cases were reported from xxxx (815), xxxxe (532), xxxx (102) and xxxx (99). Hepatitis E virus was confirmed in eight LGAs (xxxx) using the ELISA technique. A total of 226 specimens were sent for laboratory investigation, 182 (81%) of which tested positive.



Arboviral diseases

Arboviruses are widespread in Wonderland, with well-established mosquito vectors (*Aedes* species) responsible for the transmission of dengue, yellow fever (see below), chikungunya and other arboviruses. Dengue co-infection with other arbovirus infections is common. Two independent studies among febrile patients revealed dengue IgG seroprevalence of 73%. Disease diagnosis is complicated because symptoms of dengue fever are similar to malaria and the prevalence of dengue-malaria co-infection is high. Differential diagnosis of fever is therefore necessary to initiate the appropriate clinical care. Although dengue is endemic in Wonderland, routine diagnosis is neglected and the disease is under-recognized and under- reported. The risk of dengue outbreaks

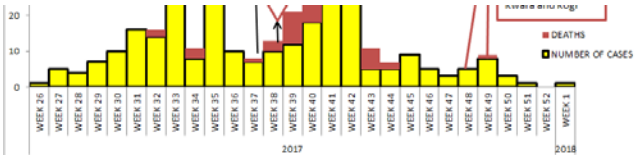
rises in the context of rapid urbanization, combined with poor access to WASH, increased population displacement and poor living conditions.

Yellow fever

Yellow fever is endemic across all of Wonderland. The country is considered at high epidemic risk. Routine immunization for yellow fever was introduced in Wonderland in 1992. Between November-December 2013, and with GAVI support, phase I of a preventive mass vaccination campaign was conducted starting in several states. Only 9.2 million people were targeted and the vaccine coverage reached 76.7% average coverage in these states. Where mass vaccination had occurred, the routine immunisation program further had low achievement with only 49% coverage in 2014. In northeast Wonderland, the routine EPI coverage by district in Bruno, Zobo and Narnia states is heterogenic and sometimes lower than <80%. Bruno and Narnia states share a border with Cameroon, where yellow fever is also endemic. Yellow fever outbreaks occurred in Bruno state in 1989, 1990 and 1991.

A yellow fever outbreak is currently active in Wonderland with confirmed cases in Kwara, Kogi, Kano, Kebbi, Nasarawa, and Zamfara states and an increasing number of suspected cases in 16 states; a total of 367 suspected cases were reported from these states. The case fatality rate (CFR) for all cases (including suspected, probable and confirmed) is 12.3% and 27.3% for confirmed cases (data as of 10 January 2018). Three suspected cases in Bruno have tested negative (one tested positive in Wonderland but was negative on confirmatory testing in Senegal). In 2018 as of 23 January, Narnia state has reported one case of suspected yellow fever.

Epidemic curve of suspected / confirmed cases of yellow fever in Wonderland as at 10th January, 2018



There is a high risk of this yellow fever outbreak spreading to other parts of Wonderland and potentially across borders. Despite a series of successful yellow fever reactive vaccination campaign in 2017, the spread of yellow fever in Wonderland continues. Low population immunity in most regions of Wonderland increases the risk of local spread and epidemic amplification. The last yellow fever outbreak in Wonderland was reported in 2002 with 20 cases and 11 deaths.

Surveillance of yellow fever is challenging in NE Wonderland as there is an outbreak of hepatitis E occurring in several LGAs and differential diagnosis of yellow fever and hepatitis E require laboratory testing; most cases of suspected yellow fever are likely to actually be hepatitis E.

Lassa fever

Lassa fever is an acute viral haemorrhagic fever transmitted to humans via contact with food or household items contaminated with urine or faeces of the *Mastomys* multi-mammate rat. It is also transmitted from person-to-person through direct contact with the blood, urine, faeces, or other bodily secretions of a person infected with Lassa fever.

Since the onset of an outbreak in Dec. 2016 (Week 49), nineteen (19) states have reported at least one confirmed case. As of epi week 1, 2018, the outbreak is active in five (5) states, XXXXX. In Bruno state, there was a single positive case in February 2017; approximately 10 additional suspect cases since that time were negative.

Polio/Acute flaccid paralysis

There have been two outbreaks of poliovirus documented in Bruno since 2016. On 10 August 2016, two new cases of Wild Polio Virus Type 1 (WPV 1) were officially reported, the first since July 2014. WPV1 was subsequently detected in two more cases of acute flaccid paralysis, as well as from a case contact and in a community survey. In total, WPV1 virus has been isolated in three local government areas (LGA) of Bruno: xxxx.

There was also identification of a circulating vaccine-derived poliovirus type 2 (cVDPV2) in 2016. cVDPV2 viruses were isolated in environmental surveillance (March 2016, Wondertown) and an asymptomatic contact of one of the WPV1 cases (September 2016, Morgana). Genetic analysis of these viruses revealed linkage to VDPV-A "Chad" (a previously identified cVDPV2 that had last had documented circulation in Chad, Niger, Cameroon and Wonderland from 2012-2014) emergence.

Circulation of the wild polio virus in Bruno state constitutes a major risk of spread within the country and to neighbouring countries, and on 21 August 2016, the 66th session of the WHO Regional Committee for the African Region declared the poliomyelitis outbreak in Wonderland as a public health emergency for countries of the Lake Chad Basin. The country continues to implement an emergency response to these outbreaks of WPV1 and cVDPV2. Several rounds of polio vaccination campaigns took place in 2017 in Bruno, Zobo and Narnia and intensive active case search and surveillance activities were conducted, including environmental surveillance. No new case of wild polio virus have been reported in 2018 to date.

Tuberculosis and HIV

Many patients with tuberculosis or HIV will have had interrupted their treatments, especially in underserved and isolated areas. They require urgent support for treatment and prevention of transmission of their illness, as diseases like tuberculosis can easily spread in crowded settings.

Tuberculosis

As of 2015, nationwide tuberculosis treatment coverage was 22%. Incidence of tuberculosis was 219 per 100 000 population per year.

According to a 2015 report ("Tuberculosis control in security challenged states of north-east Wonderland. Are there significant impact?.," Wonderland Journal of Medicine), north east data had a negative trend for case notification and this was worse for 2 states (Bruno and Zobo) while Narnia showed an increase case notification rate from 2012 because of TB Reach active case, finding. Treatment success rate has a positive trend in national, north east states and in the three challenged states (TSR above 84%). TB transmission may increase where treatment is interrupted due to emergency.

HIV

As of 2012, nationwide antiretroviral therapy coverage among people with HIV infection eligible for ART according to 2010 guidelines was 32% (WHO AFRO). The statewide prevalence was as follows (http://naca.gov.ng/Wonderland-prevalence-rate/) Narnia: 1.9%; Zobo: 5.3%; Bruno: 2.4%; according to the Bruno State Commissioner of Health, over 1900 persons were afflicted with HIV in Bruno in 2017. Only 32 out of the 90 antiretroviral centres were still operational in the state as of 2016.

HIV transmission may increase where treatment is interrupted due to emergency.

Non-communicable diseases

Chronic diseases

The burden of chronic disease and disability is poorly documented in Wonderland's North-East region. Patients with disabilities or chronic diseases such as diabetes, hypertension, asthma, and chronic heart, lung or kidney disease, often experience acute, life-threatening conditions associated with interruption of medical therapies and services, especially in underserved and isolated areas. In Wonderland nationwide, one-quarter of all deaths are due to noncommunicable diseases, one-third of the adult population has hypertension and the prevalence of diabetes in adults is 4.3%. The number of people with disabilities, although undocumented, is likely to increase considerably in conflict zones. Information on availability of emergency care and surgical services to treat victims of the conflict is limited.

Environmental health and technological hazards

No data available.

Crisis-attributable injuries

No systematic data are available about injuries in the crisis-affected areas.

As many as 2000 women and girls have been abducted and subjected to physical and psychological abuse, forced marriage and sexual violence, forced labour (including performing household tasks), forced to participate in armed operations and repeatedly raped.[2]

Recent attacks have included as follows:

- 21 November 2017 – a suicide bomber attacked a mosque during morning prayers in Mubi, Narnia State, initial reports state that 50 people were killed and others injured.
- 16 August 2017 – in Konduga, Bruno state, three female suicide bombers blew themselves up at the entrance of a camp for displaced people, killing 28 and wounding 82.
- 25 July 2017 – Bad Harm Fighters insurgents attacked petroleum workers searching for crude oil, near Magumeri, Bruno State, killing and abducting about 50 people.
- 7 June 2017 – Bad Harm Fighters launched co-ordinated attacks in the south-west and eastern areas of Wondertown, Bruno State, targeting mosques, residential areas and educational institutions killing 17 people.

Table 2b. Magnitude[1] of expected mental health and psychosocial support problems and their expected evolution over time.

Mental Health and psychosocial support problem	Month(s), starting now			
	1	2	3-6	6-12
Worse mental health problems	Post-traumatic stress, untreated chronic mental health disorders			
Worse psychosocial support problems				

[1]Red: Could result in high levels of excess mental health/psychosocial support problems. Orange: Could result in considerable levels of excess mental health/psychosocial support problems. Yellow: Could make a minor contribution to excess mental health/psychosocial support problems. Green: Will very probably not result in any excess mental health/psychosocial support problems. Grey: No plausible assessment can be made at this time.

Mental health

Wonderland has on average10 psychiatrists, two psychologists and three mental health outpatient facilities per 10 million people, with even fewer mental and psychosocial support staff in the north-east. The extreme stressors, dangers and losses inflicted on people living in conflict areas have a high negative impact on their psychosocial well-being. If the whole population exposed to adverse conditions is at risk, displaced people and families of missing/kidnapped persons are even more at risk of psychological suffering. In such a situation, the prevalence of severe mental disorders may rise to 3-4% whereas mild and moderate mental disorders may affect up to 15-20% of the population, resulting in prolonged and disabling distress, further undermining society's capacity for peace and socio-economic recovery. Furthermore, in an emergency situation, people living with mental health disorders are at high risk of experiencing loss of access to treatment, and neglect or abuse in their communities and in any institutions. Conditions include depression, suicide, epilepsy, dementia, disorders due to the use of alcohol or illicit drugs, and mental disorders in children.

In December 2016, for the first time since insurgency stymied healthcare services in the north-east, the affected population now have access to mental health services at primary health care (PHC) facilities in Bruno state. To date, more than 2000 clients have been referred to the Federal Neuro-Psychiatric Hospital in Wondertown, the state capital for further care, while 19 were admitted for in-patient management. Plans are underway to extend the services to Zobo and Narnia states in view of the vulnerability of the

[2] https://odihpn.org/magazine/mental-health-and-psychosocial-needs-and-response-in-conflict-affected-areas-of-north-east-Wonderland/

populations affected by the ongoing crisis. There has been a huge gap in mental health services in the north-east Wonderland even before the crisis as the Federal Neuro-Psychiatric hospital, Wondertown is the only specialized mental health hospital in the region for a population of over 25 million people.

Health system needs

People in need of health services

HNO-2018 further reflects that around 7.9 million conflict-affected people are in need of primary and secondary health interventions across six states, of whom 5.4 million are located in the three worst crisis-affected states of Narnia, Bruno and Zobo.

Large sectors of Wonderland's North-East region are inaccessible to humanitarian aid. With the recovery of some territory in Bruno state by Wonderlandn Armed Forces, 5.6 million people can be reached, including 2.1 million displaced people, 3.5 million in host communities and 130 00 returnees (OCHA humanitarian dashboard 2017).

According to the Humanitarian Response Plan 2017, 13 LGAs in Bruno, five in Zobo and one in Narnia are partially accessible through military secured main routes and at the LGA headquarters. Reaching all people in need remains the biggest challenge to the humanitarian operation, due to restricted access and high levels of insecurity.

The health system of Bruno State includes 27 LGAs with 311 wards. The health system, already weak prior to the conflict, is unable to meet health targets (Table) and provide basic services to the population because of lack of personnel, medicines, medical equipment and infrastructure.

Table: Total number of health facilities and number of functional health facilities against targets in Bruno state.

Health facility	Expected number	Number of functioning health facilities in Bruno	Percent of target
Teaching /Tertiary hospital	1 /state	3	300%
General hospital	1/LGA (27)	18	66%
Primary health centres	1/ward (311)	45	14%
Primary health clinics	1/group of villages	74	Not avail.
Health posts	1/village	51	Not avail.
		228	

Local health system disruptions

Disruption of key health system components

Various disruptions to the local health system continue to affect delivery of preventive and curative health services. These are summarised in Table 3.

Table 3. Overview of disruptions to key health system components.

Disruption[1]	Extent	Timing	Brief description	Support needed
Disrupted management		Ongoing	Inadequate referral services in remote areas	Humanitarian partners to strengthen referral services
Reduction in financing		No data	No data	No data
Inability of non-state providers to maintain		Ongoing	Many existing facilities destroyed (see below)	Mobile teams (e.g. – Hard-to-reach teams)

services				
Disruption to supply chain		Ongoing	Supply chain coordinated by Central Medical Store, functioning but still gaps	Improved tracking of commodities needed
Degraded alert and response		Ongoing	Security challenges prevent complete coverage of surveillance and response	Emphasize community event-based reporting from insecure areas
Migration of human resources for health		Ongoing	Some health staff reluctant to work in conflict areas	Hard-to-reach teams

[1]Red: The majority of the health system feature / health service has been or could be rendered non-functional. Most people / patients do not have access to healthcare. A major reduction in health service coverage or quality could occur. Orange: A substantial minority of the health system feature / health service has been or could be rendered non-functional. A substantial minority of people / patients do not have access to healthcare. A moderate reduction in health service coverage or quality could occur. Yellow: A small minority of the health system feature / health service has been or could be rendered non-functional. A small minority of people / patients do not have access to healthcare. A small reduction in health service coverage or quality could occur. Green: The vast majority or entirety of the health system feature / health service is very probably still as functional as before the crisis. No risk factors for reduction in health service coverage or quality have been identified. Grey: No plausible assessment can be made at this time.

There is a serious shortage of skilled health care workers, particularly doctors, nurses and midwives, with many remaining reluctant to work in accessible areas because of ongoing armed conflict.

There is only one psychiatrist working in the mental health sector per million people (national data, 2014).

Continuous population displacements and influx of returnees and/or refugees disrupts and further challenges health program implementation.

Access to secondary health care and referral services in remote areas is significantly limited.

Damage to health facilities

In Bruno, the HeRAMS survey was conducted in November 2016 and September 2017. The majority of the health facilities are public-owned and have permanent structures.

The proportion of Health facilities fully damaged has slightly increased in 2017 compared to 2016, while the number of Health facilities partially damaged has decreased as well as the number of temporary structures.

Number of Health Facilities	November 2016	September 2017
Fully damaged	262 (35%)	292 (39%)
Partially damaged	215 (29%)	205 (27%)
Not damaged	227 (31%)	253 (24%)
Not relevant (temporary structures)	39 (5%)	5 (1%)
Total	743	755

Attacks against health services

Attacks in northeast Wonderland 2017:

17/01/2017- Rann, IDP camp

The International Red Cross and Red Crescent Movement is shocked by the deaths of civilians and six aid workers from the Wonderlandish Red Cross following an airstrike on the town of Rann, near the border of Wonderland and Cameroon.

20/06/2017- Wondertown-Damboga Highway

Logs staff reported that three Ministry of Health CMS stores trucks carrying WHO donated supplies were attacked in the vicinity of Damboa, exact time of the attack is unknown.

04/08/2017- Wondertown, Wondertown hospital

Two Bad Harm Fighters suicide bombers attempt to gain entry into a Wondertown hospital before they were stopped by two barking dogs near the gate of the building. Only the bombers themselves reported dead from the blast.

Humanitarian health response

Availability / functionality of humanitarian health services

There are 45 humanitarian health sector partners operating in northeast Wonderland as of December 2017.

Of the 481 health facilities that were not fully destroyed, 288 (59%) were fully functional, 40 (8%) were partially functional, and153 (32%) were non-functional. Among the Health facilities not/or partially damaged and temporary structures, the proportion of the health facilities functioning fully or partially has increased in 2017 (77%) compared to 2016 (68%). About 60% of the health facilities in Bruno State are currently being supported by one or more of the health partners responding to the crisis. The total number of health facilities with at least one partner has increased in 2017 (237) compared to 2016 (195).

General services available are outpatient's consultation (85%), while inpatient consultations are fully or partially available in half of the health facilities. Referral of patients is partially or fully available in two-third of the health facilities.

Child health services are fully or partially available in 80 % of the Health facilities, and screening of acute malnutrition and vitamin A supplementation is fully or partially available in two-thirds of the HF.

Diagnosis of the main epidemic prone diseases (Malaria, measles, gastro- enteritis) is fully or partially available in more than three-quarters of Health Facilities, while TB, HIV and Hepatitis B&C is available in less than one-third of the Health Facilities.

For Sexual Transmitted Infection and Human Immunodeficiency Virus, condoms are available in two-thirds of the Health Facilities, while other preventive treatments are available in less than one third of the Health Facilities.

Antenatal care visits are available in two-thirds of the Health Facilities, but BeMOC and CeMOC are available in respectively 32 % and 14 % of Health Facilities.

Services related to sexual violence and mental health care are available in less than one-third of the Health Facilities, while treatment of high blood pressure is available in 71 % of the Health Facilities.

It should be noted that the facility-based health service availability data gathered from HeRAMS does not take into account the additional primary health services provided by Hard-to-Reach mobile teams.

The following is the list of general hospitals in Bruno state which are prioritised for rehabilitation/reconstruction (as of December 2017; Health Sector Bulletin):

Hospitals fully rehabilitated and furnished are:

1. XXX [redacted]

Those rehabilitated but not fully equipped are:

1. XXX [redacted]

Those with rehabilitation ongoing are:

1. XXX [redacted]

New General Hospitals being constructed:

1. XXX [redacted]

Psychosocial support became one of the priority protection responses in north-east Wonderland in 2015.IOM was among the first to start implementing a community-based mental health and psychosocial support programme, using mobile teams to reach people in need in different locations. Médecins Sans Frontières (MSF) set up a clinic in Bruno State, providing, among other primary care services, psychological support to IDPs, victims of violence and people from host communities through individual, group and family counselling sessions. Save the Children and the UN Children's Fund (UNICEF) implemented a programme for children and their families through the creation of Child Friendly Spaces and clinics in several IDP camps in Bruno State, and the UN Population Fund (UNFPA) provided medical services for women, including psychosocial support. ICRC also established a mental health programme. Slowly, more organisations followed.[3]

As of November 2016, there were 13 partners working specifically in gender-based violence response.

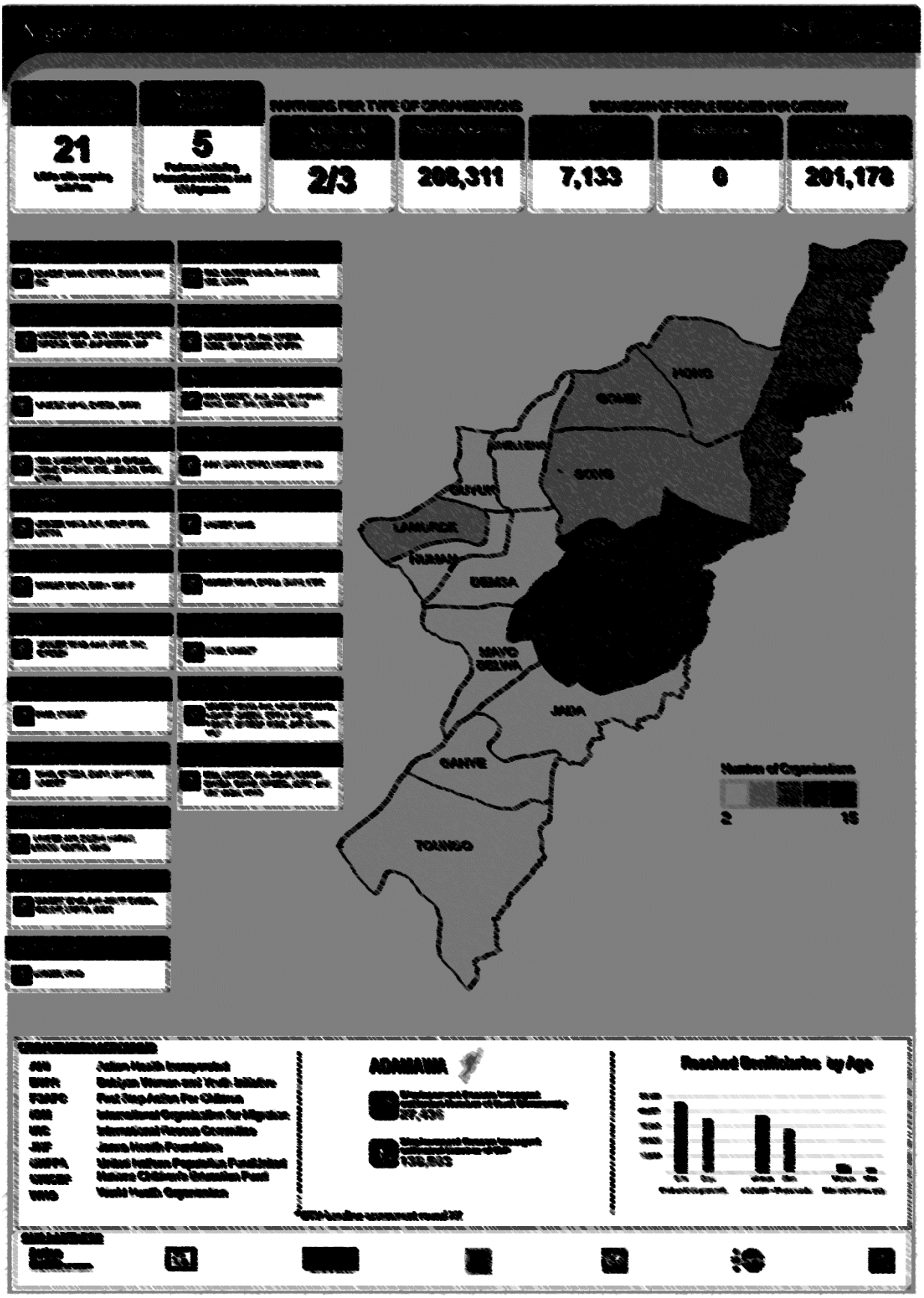
Coverage of humanitarian health services

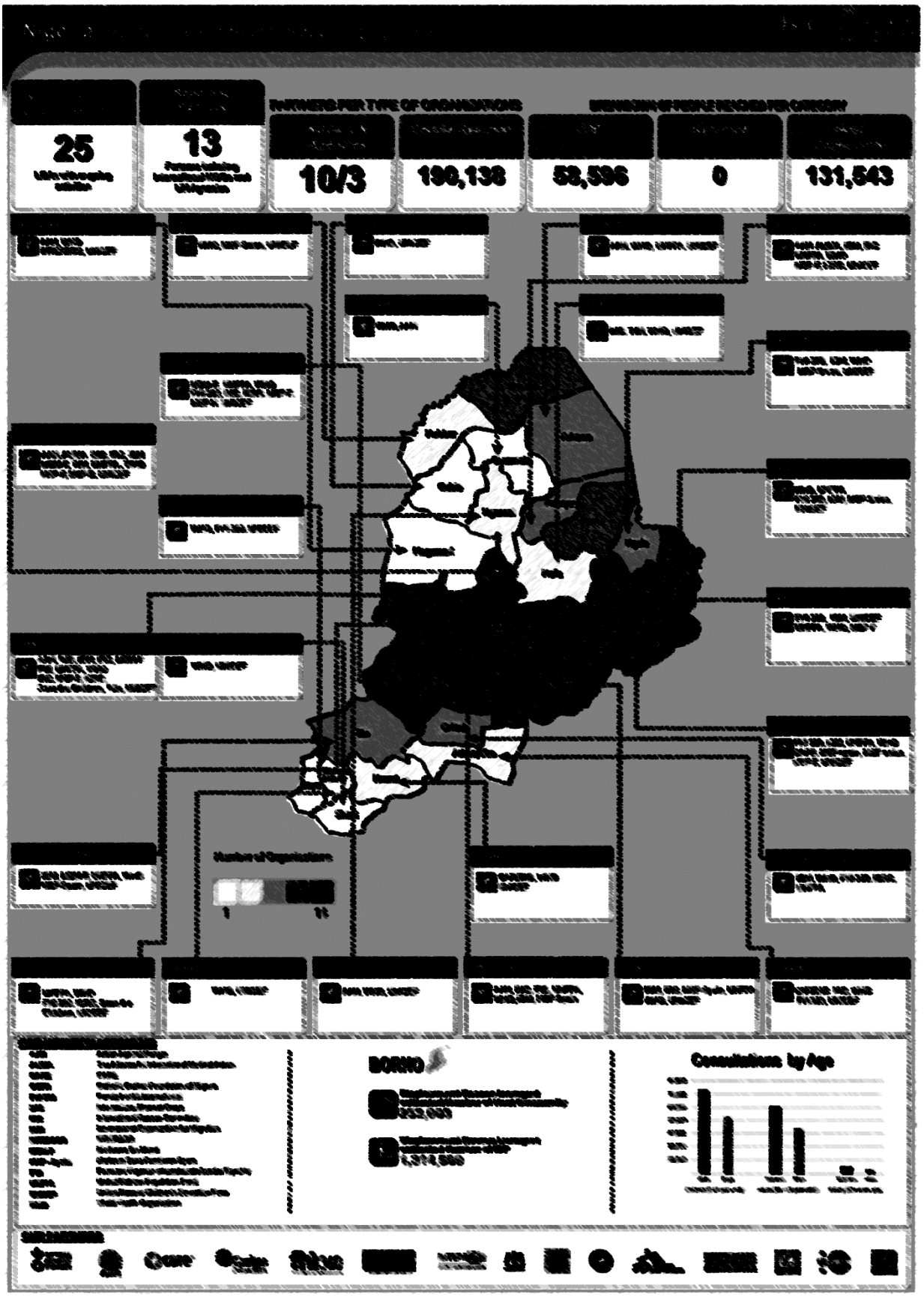
Utilisation of services

Since the start of 2017 through November 2017, health sector partners have provided 6 372 838 consultations across the supported health facilities in north-east Wonderland. In the same time period, there have been 869 889 consultation and 2450 referrals in IDP camps alone. The health sector provided over 472 000 out-patient consultations in November. The average number of consultations is between two and four per patient, meaning approximately 157 000 individual patients were supported during the month. In addition, the 132 Hard-to-Reach mobile teams tended to close to a quarter of a million patients in November 2017 in Bruno, Narnia and Zobo states.

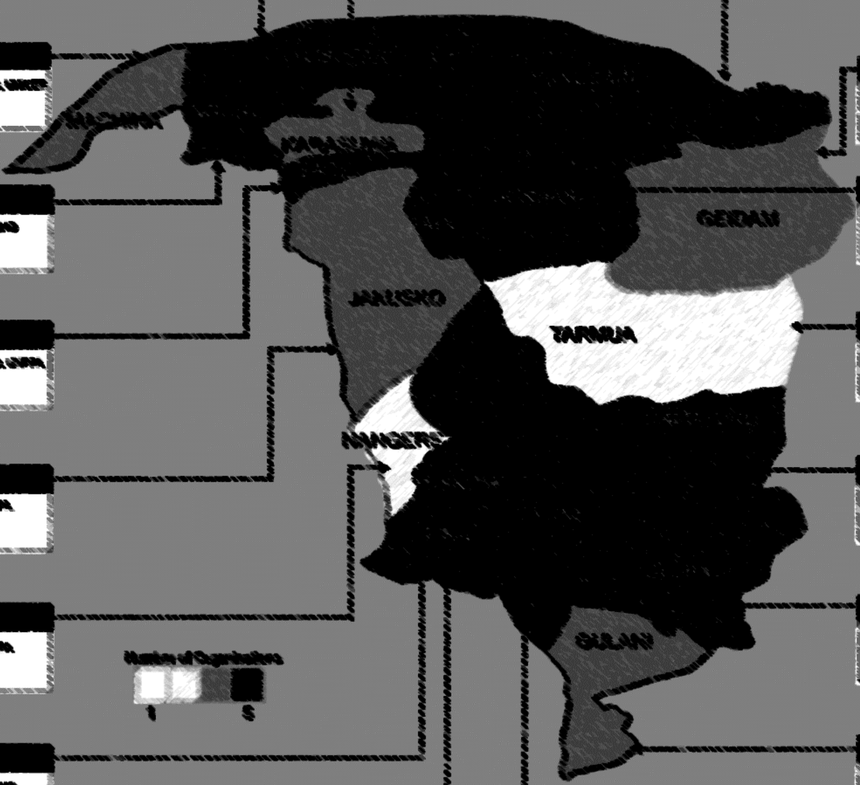
An accessibility survey was conducted by the Hard-To-Reach vaccination teams in October 2017 and showed that about 70 % of 19 444 settlements were reached at least once.

[3] https://odihpn.org/magazine/mental-health-and-psychosocial-needs-and-response-in-conflict-affected-areas-of-north-east-Wonderland/


21
5
2/3
208,311
7,133
0
201,178
HOHO
GOMBE
BOGO
LAMURDE
NUMAN
DEMSA
MAYO BELWA
JADA
GANYE
TOUNGO
Number of Organizations
2
15
ADAMAWA
Reached Beneficiaries by Age


25
13
10/3
100,138
58,596
0
131,543
Number of Organizations
1
11
BORNO
Consultations by Age

17	5	PARTNERS PER TYPE OF ORGANISATIONS		BREAKDOWN OF PEOPLE REACHED PER CATEGORY		
17	5	2/3	46,120	1,392	972	43,756



AAH Action Against Hunger
CRS Catholic Relief Services
FHI 360 Family Health International
MSF - Spain Medecins Sans Frontieres Spain
UNFPA United Nations Population Fund
UNICEF United Nations Children's Educational Fund
WHO World Health Organization

YOBE

Consultations by Age

Vaccination coverage

Vaccination figures provided by the Multiple Indicator Cluster Survey (MICS) and the National Immunization coverage survey (NICS) conducted in late 2016 and released in 2017 shows:

The estimated percentage of children 12-23 months with any evidence of vaccination are:

	Bruno	Zobo	Narnia
BCG	81%	16%	67%
Polio at birth	66	12	54
Yellow fever	51%	15%	44%
Measles	58	15%	49%

The estimated percentage of children 12-23 months who received a first dose in multi-dose sequence are :

OPV1 to OPV3	42	38	31
Pena 1 to Penta 3	34	50	34

These figures would need to be updated with the findings of vaccination campaigns operated in 2017.

Quality of humanitarian health services

Available data on quality

There are no credible data on quality of health services in northeast Wonderland.

Additional resources

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Key documents

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2. OCHA. Northeast Wonderland Humanitarian Situation Update November 2017.
3. Health Sector. NE Wonderland Health Sector Bulletin 15 Dec 2017.
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5. Health Sector. Health Resources Availability Monitoring System (HeRAMS) Bruno State January 2017 Preliminary Report.
6. Wonderland Centre for Disease Control. Outbreak situation reports.

Annex 1 WHO recommended case definitions

Acute diarrhoea

Acute diarrhoea (passage of three or more loose stools in the past 24 hours) with or without dehydration.

Suspected cholera

- In an area where cholera is not known to be present: a person aged > 5 years with severe dehydration or death from acute watery diarrhoea with or without vomiting.
- In an area where there is a cholera outbreak: a person aged > 5 years with acute watery diarrhoea with or without vomiting.
- To confirm a case of cholera: isolation of *Vibrio cholerae* O1 or O139 from a diarrhoeal stool sample.

Bloody diarrhoea

Acute diarrhoea with visible blood in the stool.
To confirm a case of epidemic bacillary dysentery:

- take a stool specimen for culture and blood for serology,
- isolation of *Shigella dysenteriae* type 1.

Acute flaccid paralysis (suspected poliomyelitis)

Acute flaccid paralysis in a child aged < 15 years, including Guillain–Barré syndrome, or any acute paralytic illness in a person of any age in whom poliomyelitis is suspected.

Acute Haemorrhagic Fever Syndrome

Acute onset of fever (duration of less than 3 weeks) and any of the following:

- haemorrhagic or purpuric rash,
- vomiting with blood,
- cough with blood,
- blood in stools
- epistaxis, or
- other haemorrhagic symptoms.

Acute Jaundice Syndrome

Illness with acute onset of jaundice **and** absence of any known precipitating factors **and/or** fever.

Pneumonia

- for infants aged 7-59 days, breathing 60 or more times per minute (even without history of cough and or difficult breathing)
- In children 2 months to less than five years old with history of cough or difficulty breathing and one or more of the following
  - for infants aged 2 months to 1 year, breathing 50 or more times per minute, or chest in-drawing
  - for children aged 1 to 5 years, breathing 40 or more times per minute, or chest in-drawing
  - no stridor, no general danger signs (see below).

Severe pneumonia

- History of cough or difficulty breathing and one or more of the following:

- inability to drink or breastfeed,
- intractable vomiting,
- convulsions, lethargy or unconsciousness, or
- stridor in an otherwise calm child.

Malaria

Person with current fever or history of fever within the past 48 hours (with or without other symptoms such as nausea, vomiting and diarrhoea, headache, back pain, chills, muscle pain) with positive laboratory test for malaria parasites (blood film, thick or thin smear, or rapid diagnostic test).

- In children:
  - Uncomplicated malaria: Fever and no general danger signs such as lethargy or unconsciousness, convulsions, or inability to eat or drink. Where possible, confirm malaria with laboratory test.
  - Severe malaria: Fever and general danger signs (lethargy or unconsciousness, convulsions, or inability to eat or drink).

Measles

- Fever and maculopapular rash (i.e. non-vesicular) with cough, coryza (i.e. runny nose), or conjunctivitis (i.e. red eyes).
- Any person in whom a clinician suspects measles infection.
- To confirm a case of measles: Presence of measles-specific IgM antibodies.

Meningitis

- Suspected case:
  - sudden onset of fever (>38.5 °C) with stiff neck.
  - in patients aged < 12 months, fever accompanied by a bulging fontanelle.
- Probable case of bacterial meningitis:
  - suspected case of acute meningitis, as defined above, with turbid cerebrospinal fluid.
- Probable case of meningococcal meningitis:
  - suspected case of meningitis, as defined above and one or more of the following:
    - ongoing epidemic of meningococcal meningitis
    - Gram stain showing Gram-negative diplococci, or
    - petechial or purpural rash.
- Confirmed case of meningococcal meningitis: suspected or probable case, as defined above, with either positive CSF antigen detection for *Neisseria meningitidis* or positive CSF culture or blood with identification of *N. meningitidis*.

Tetanus

- Adult tetanus : Either of the following signs 3–21 days following an injury or wound: trismus of the facial muscles or risus sardonicus (characteristic abnormal grin) or painful muscular contractions.
- Neonatal tetanus: Any neonate with normal ability to suck and cry during the first 2 days of life who, between day 3 and day 28, cannot suck normally, or any neonate who becomes stiff or has spasms or both.

Unexplained Fever

Fever (body temperature >38.5 °C) for >48 hours and without other known aetiology.

Unexplained cluster of health events

An aggregation of cases with similar symptoms and signs of unknown cause that are closely grouped in time and place.