



**World Health
Organization**

WHO's response to the 2018–2019 Ebola outbreak in North Kivu and Ituri, the Democratic Republic of the Congo

Report to donors for the period
August 2018 – June 2019

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Contents

About this report **4**

Response at a glance **6**

Part 1: August 2018 – June 2019: the story so far

Introduction 7

Strategic response plan 1: Rapid response 8

Conflict and context 11

Strategic response plan 2: geographical containment 14

The centrality of community 15

Strategic response plan 3: building trust, breaking the vicious cycle 16

Part 2: Response in focus

Disease surveillance 22

Clinical care and innovation 25

Vaccination 28

Infection prevention and control, and safe and dignified burials 30

Risk communication and community engagement 32

Coordination and operational support 35

Preparedness in adjacent countries and provinces 39

Financial summary **43**

Next steps **45**

About this report

In support of the Government of the Democratic Republic of the Congo (DRC), the World Health Organization (WHO) is leading the international public health response to the 2018–2019 outbreak of Ebola virus disease in the DRC provinces of North Kivu and Ituri. WHO is also working closely with the governments of countries that neighbour DRC to strengthen their operational readiness to detect and respond to an imported case or cases.

Since August 2018, when the outbreak was first declared, WHO has played a crucial role in the strategic planning of the response, and in the leadership, coordination, and implementation of that plan. But the response has been a true and broad partnership. Over 70 different organizations and institutions are now part of the coalition working to end the outbreak, from government ministries and UN agencies to national health institutes, international non-governmental organizations and local civil society groups.

This work has been made possible, and more effective, by the generosity and engagement of our donors. Together, we have achieved a great deal in some of the most challenging circumstances faced during any outbreak. But there is still a long way to go before we achieve our collective goal and bring the outbreak to an end.

Now, as the outbreak enters its second year, and the response enters a new phase, this report summarizes the response between August 2018 and the end of June 2019, and looks forward to the challenges ahead that we will face in solidarity with affected communities. How fast and how effectively we are able to meet these challenges will depend, in large part, on the continued support and engagement of our donor partners in the response.



Response at a glance

More than 1500 people died from Ebola between August 2018 and 30 June 2019, but over the same period...

More than
2 THOUSAND
confirmed and probable cases
of Ebola virus disease reported
between August 2018 and
30 June 2019

>740 people survived the disease. Many are helping to educate others about the response.

>140K people have been protected from the disease with a safe and effective vaccine.

2 experimental drugs have been shown in a clinical trial to improve the chances of survival of patients who are diagnosed and treated early.

More than **SEVENTY** partner organizations have come together under the umbrella of the response, from national government ministries to United Nations agencies, and international to local non-governmental organizations. Together they have helped to slow and contain the outbreak between August 2018 and 30 June 2019.

Seven field laboratories tested almost 57 000 samples between August 2018 and June 2019

More than 19 000 units of personal protective equipment and 250 000 pairs of gloves have been delivered to help keep health workers and patients safe

Six specialist treatment centres and six specialist transit centres ensure patients receive excellent quality care

More than 8000 members of local communities are taking part in the response, including as contact tracers and community liaison officers

More than 5000 metric tons and 19 000 passengers have been airlifted to affected areas by UN Humanitarian Air Service flights

PART 1

August 2018 to June 2019: the story so far



WHO Director General Tedros Adhanom Ghebreyesus visits staff at an Ebola treatment centre in Butembo, in June 2019. Despite a number of high-profile security incidents in and around Butembo between April and June 2019, frontline responders worked closely with communities to reduce the incidence of new cases.

Introduction

Ebola is not new to the Democratic Republic of the Congo (DRC) – the vast country has had nine recorded outbreaks of Ebola virus disease (EVD) since the virus was first discovered in 1976 (figure 1). The past three years alone have seen three separate outbreaks. But the 2018-2019 outbreak in North Kivu and Ituri is unprecedented in the country's history: an order of magnitude bigger than any of DRC's previous outbreaks.

By the end of June 2019, almost a year since the outbreak was first declared, the toll stood at over 2000 confirmed and probable cases, and more than 1500 deaths. Now second only in size and severity to the 2013–2016 West African epidemic, the outbreak has been a tragedy for affected communities. But the story of the outbreak is also one of hope, resilience, and courage in the face of

hardship and adversity. Ebola is, primarily, a disease of deprivation. Of poverty, shattered health systems, and insecurity. Even so, the insecurity and deprivation faced by affected communities in North Kivu and Ituri are greater, in depth and in breadth, than those seen during almost any previous outbreak of EVD.

As the response to the outbreak enters its second year, this report looks back on the successes, challenges and lessons of the period covered by the first three strategic response plans (SRPs 1-3): August 2018 to June 2019. And, equally importantly, this report looks ahead to the next phase of the response that will be revitalized by a new whole-of-UN leadership structure, and guided by a new strategic approach to better coordinate and leverage the strengths of the more than 70 different organizations and institutions that are helping the people of North Kivu and Ituri bring this outbreak to an end.

Strategic response plan 1: Rapid response

On 1 August 2018, just days after the end of the DRC's ninth outbreak in the northern Equateur province, a cluster of cases was reported from six health zones (administrative areas) in the east of the country: the cities of Beni and Butembo, and the more rural areas of Oicha, Musienene and Mabalako in North Kivu province, and Mandima in the neighbouring province of Ituri. The distribution of cases suggested that the outbreak may have been spreading undetected for some time, and investigations now indicate that the outbreak probably began in May 2018. The delay in raising the alarm was likely caused by a failure of the disease surveillance system, brought about in part by a strike by health workers in the area.

The response in the first weeks of August 2018 – by the government of DRC, WHO, donors and partners – was one of the fastest and best equipped in the history of EVD outbreak response. Many of the response assets from the country's most recent previous outbreak, in Equateur province, were still in place, having only been stood down days earlier. These included mobile laboratories (run by DRC's Institut National de Recherche Biomédicale: INRB); stockpiles of the safe and effective rVSV-ZEBOV experimental vaccine; cold chain equipment and vaccination teams; an MoH emergency operations and coordination structure; and many of WHO's incident management team.

WHO's contingency fund for emergencies was able to disburse rapid bridge financing to set up a new Incident Management Structure within 48 hours of the confirmation of the first cases, whilst approximately US\$13 million residual funding from the Equateur outbreak was reprogrammed. The DRC government, WHO and partners rapidly drafted the first Strategic Response Plan (SRP1) to set out the concept of operations up to the end of October 2018, and additional full funding was secured against SRP1. Every relevant response

standard in the WHO Emergency Response Framework – the publication that guides the response activities of WHO and health partners – were met (figure 2).

Most of the fundamentals of an effective EVD response (panel 1; figure 3) were put in place within days of the declaration of the outbreak. The design of the response follows the template from previous EVD outbreaks, with the notable addition of vaccination – an intervention available in North Kivu and Ituri within two weeks of the declaration of the outbreak. The primary response structure consists of eight pillars (figure 2) – surveillance (including contact tracing, points of entry, and vaccination), laboratories, case management, communication and community engagement, psychosocial support, infection prevention and control (including safe and dignified burials), logistics, and security. At the coordination and leadership level, the WHO incident manager and field coordinators provide expert technical advice, operational analysis, and executive decision-making support to their Ministry of Health counterparts.

By the end of September 2018 the response was showing good signs of progress, although with 150 confirmed and probable cases, the outbreak was already twice the size of the May–August outbreak in Equateur. Transmission was concentrated in the city of Beni, and the health zones of Mabalako and Mandima, with a handful of cases in six other health zones. Four ebola treatment centres had already been established through a collaboration between the Ministry of Health, WHO, the International Medical Corps (ICM), The Alliance for International Medical Action (ALIMA), and Médecins Sans Frontières (MSF). Not only were the centres able to provide patients with high standards of supportive care, but for the first time in an EVD outbreak, physicians had access to potentially lifesaving experimental therapeutics through the Monitored Emergency use of Unregistered and Experimental Interventions (MEURI) protocol, developed by WHO and approved for use by the DRC government. Almost 12 000 people, including health workers, had been vaccinated.

For the first strategic response plan see: https://www.who.int/docs/default-source/documents/spr-ebola-2019/srp1-drc-ebola-disease-outbreak-response-plan.pdf?sfvrsn=40799796_4

For WHO's Emergency Response Framework see: <https://www.who.int/hac/about/erf.pdf>

For more on the origin of the outbreak see Relief Web: <https://reliefweb.int/report/democratic-republic-congo/drc-2018-ebola-outbreaks-crisis-update-march-2019>

Figure 1 | **Past and present Ebola virus disease outbreaks in Democratic Republic of the Congo**

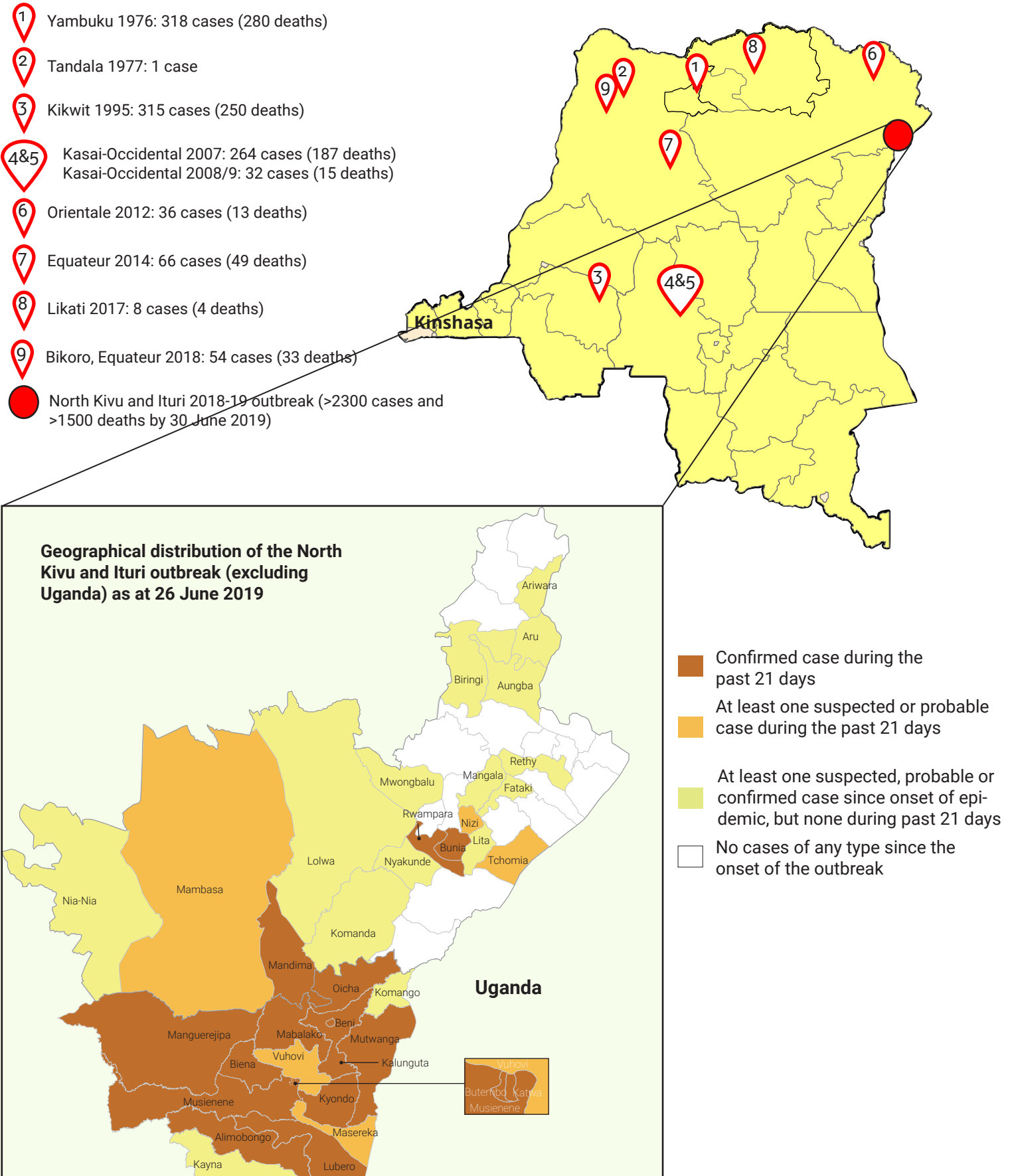


Figure 2 | **WHO performance against Emergency Response Framework**





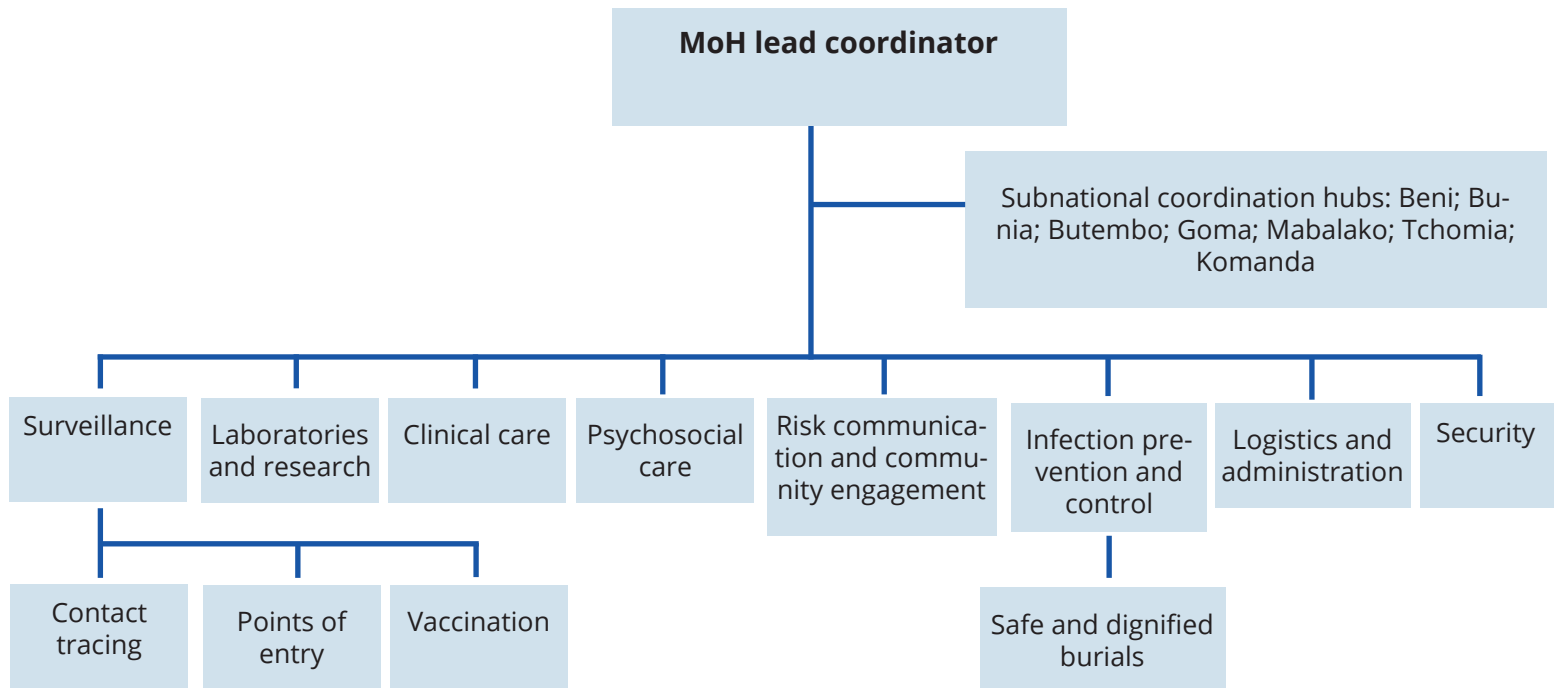
Performance standard		Target timeframe: 24 hours	Achieved
Ensure safety and security of all staff; activate cascade of calls with all WHO personnel, their dependents, and visitors to ensure their safety and whereabouts, and liaise with UN Department of Safety and Security (UNDSS) locally			<24 h
Appoint national Incident Manager			<24 h
Activate national Incident Management Team (IMT) and assign critical functions by repurposing WHO country office			24 h
Activate rosters; initiate surge			24 h
		Target timeframe: 24–72 hours	
Convene first health sector / Health Cluster meeting			24 h
Issue initial response strategy, objectives and action plan			<24 h
Issue initial internal situation report			24 h
Review CFE request and, if appropriate, clear it			24 h
Issue global donor alert			48 h
		Target timeframe: 3–10 days	
Agree with Ministry of Health and partners on priority interventions			<3 days
		Target timeframe: 10–30 days	
Establish monitoring framework for response, including key performance indicators (KPIs)			<10 days
Finalize and issue the strategic response plan and joint operations plan			<10 days
Develop Operations Support and Logistics and procurement plan			<10 days

Figure 3 | **Response structure (August 2018 to June 2019)**

Why, then, despite the most rapid, well-resourced, and technologically sophisticated response to an outbreak of EVD in history, has the outbreak not yet been brought to an end? To begin to answer that question, it is important to first understand the context that the outbreak arose in.

Conflict and context

DRC is a vast country, almost the size of Western Europe. At over 1500 km, the distance between the capital, Kinshasa, and Goma, the capital of North Kivu province, is greater than the distance between London and Algiers. But much more than distance separates the western capital and the eastern provinces. Eastern DRC has seen continuous, horrifying conflict since the mid-1990s, fueled by ethnic violence, political grievances, and regional geopolitics. Civilians have not just been caught in the middle of these conflicts, they have been deliberately targeted.

A patchwork of homegrown and foreign

rebel groups operate in Ituri and North and South Kivu, hostile to each other, the Congolese government, and the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO). Adding to the volatility are a multitude of local, ethnically and politically aligned armed militias, known as Mai Mai, whose activities and interests intersect, often opaquely, with local economies and politics.

The country is in the grip of a protracted humanitarian crisis, with the vast majority of the 9 million people targeted for humanitarian assistance concentrated in the east of the country. This assistance, however, is often not forthcoming — the current humanitarian appeal for the entire country stands at US\$1.65 billion, of which only 16% is funded.

Communities in the east of the country have been forced to fend for themselves, with little support as they see it from the national government, the UN or other humanitarian actors. With this independ-

For more on the MEURI protocol see: <https://www.who.int/ebola/drc-2018/notes-for-the-record-meuri-ebola.pdf>

For more information on MONUSCO see: <https://monusco.unmissions.org/en>

For more on humanitarian needs see the UN OCHA appeal portal for DRC: <https://www.unocha.org/drc>

ence, born of necessity and neglect, comes a degree of understandable suspicion of outside intervention.

To complicate matters further, although DRC had dealt with nine previous outbreaks of Ebola, the populations of North Kivu and Ituri have no experience of the disease. The healthcare system in the provinces is fragmented and largely unregulated. There are many hundreds of private and publicly run health facilities throughout the affected areas, ranging from small one-bed and two-bed facilities to clinics for up to 40 patients, dispensing care based on an amalgamation of traditional and modern practices. Standards of training and infection prevention and control are very poor, and the majority of facilities have no record-keeping systems that would facilitate the tracing of patients who might have been exposed to Ebola.

By the beginning of October 2018 it was starting to become apparent that the profound challenges posed by the operating context of North Kivu and Ituri were having an impact on the effectiveness of the response.

Of the several factors that have hampered effectiveness of the response, the most important has been the often limited access to affected communities for the core activities of contact tracing, alert investigation, safe burial, and vaccination to gain traction. The two primary barriers that have limited access to affected communities are first, insecurity, and in particular attacks on communities and the response by unidentified armed groups, and second, resistance to the response from communities themselves. Both of these barriers have different drivers, and their relative impacts on the response have changed over time.

Between August and December 2018, a series of horrific armed attacks on civilians and government and UN security forces resulted in a number of enforced shut downs of the response (figure 4). The first attacks came towards the end of September 2018, when an armed attack on civilians in the Ebola-affected city of Beni left 21 people dead. In the immediate aftermath, security concerns and a period of community mourning resulted in a temporary halt to response activities. Health workers were unable to reach and monitor contacts – the proportion of contacts who had

Panel 1 | Ebola: a primer

Ebola virus disease (EVD) is a severe, often fatal illness in humans. Outbreaks almost always start when the virus jumps from wild animals to humans, and spreads from human to human through direct contact with infected bodily fluids. It is often difficult to trace the exact source of each outbreak, but direct contact with uncooked infected bush meat is often cited as the most likely culprit. Since the first outbreak in 1976, outbreak control has relied on applying a standard package of interventions:

- Rapid diagnosis, treatment and isolation of infected patients (often called “case management”);
- Strict adherence to infection prevention and control practices in health facilities;
- Disease surveillance, and the tracing and monitoring of any people who may have had contact with an infected person;
- An accurate and rapid laboratory service (a confirmed diagnosis relies on laboratory testing);
- Ensuring that communities are informed and equipped to conduct safe and dignified funeral rites (people are at their most infectious – that is their bodily fluids contain the heaviest load of viral particles – shortly after death);
- Social mobilization – making sure people are aware of the risk posed by the virus, and know the steps they can take to protect themselves.
- Since the large outbreak in West Africa from 2013 to 2016, an effective vaccine for the most common form of the virus – often called the Zaire strain – has also been available, and has been used from the beginning of the outbreak in North Kivu and Ituri in the DRC.

As is probably already clear from the above list, these interventions are intrusive in the sense that they touch on many aspects of daily life in affected communities, some of which, such as the burial of the dead, are of profound personal and cultural significance to those involved. The degree to which affected communities accept these interventions can vary widely, both within and between different communities, and is often cited as the single most important factor that determines the effectiveness of the response to the outbreak. To be effective, a response has to first be able to elicit the views and concerns of affected communities, and second, use this intelligence to adapt interventions to community needs. The shorthand used for this process, which can be done in a variety of ways, is “community engagement”.

No drug or therapy is licensed to treat Ebola. Until very recently treatment has relied solely on supportive care – keeping patients hydrated and as comfortable as possible while their immune system tries to fight off the virus. For patients who are diagnosed quickly and receive supportive care in a purpose-built EVD treatment facility, the rate of survival is around 50%. However, in the North Kivu and Ituri outbreak, for the first time, investigative therapeutics have been available to use by clinicians from early on in the outbreak, either through a monitored compassionate use protocol or as part of a clinical trial.

Figure 4 | Increase in security incidents over time (August 2018 to end April 2019)

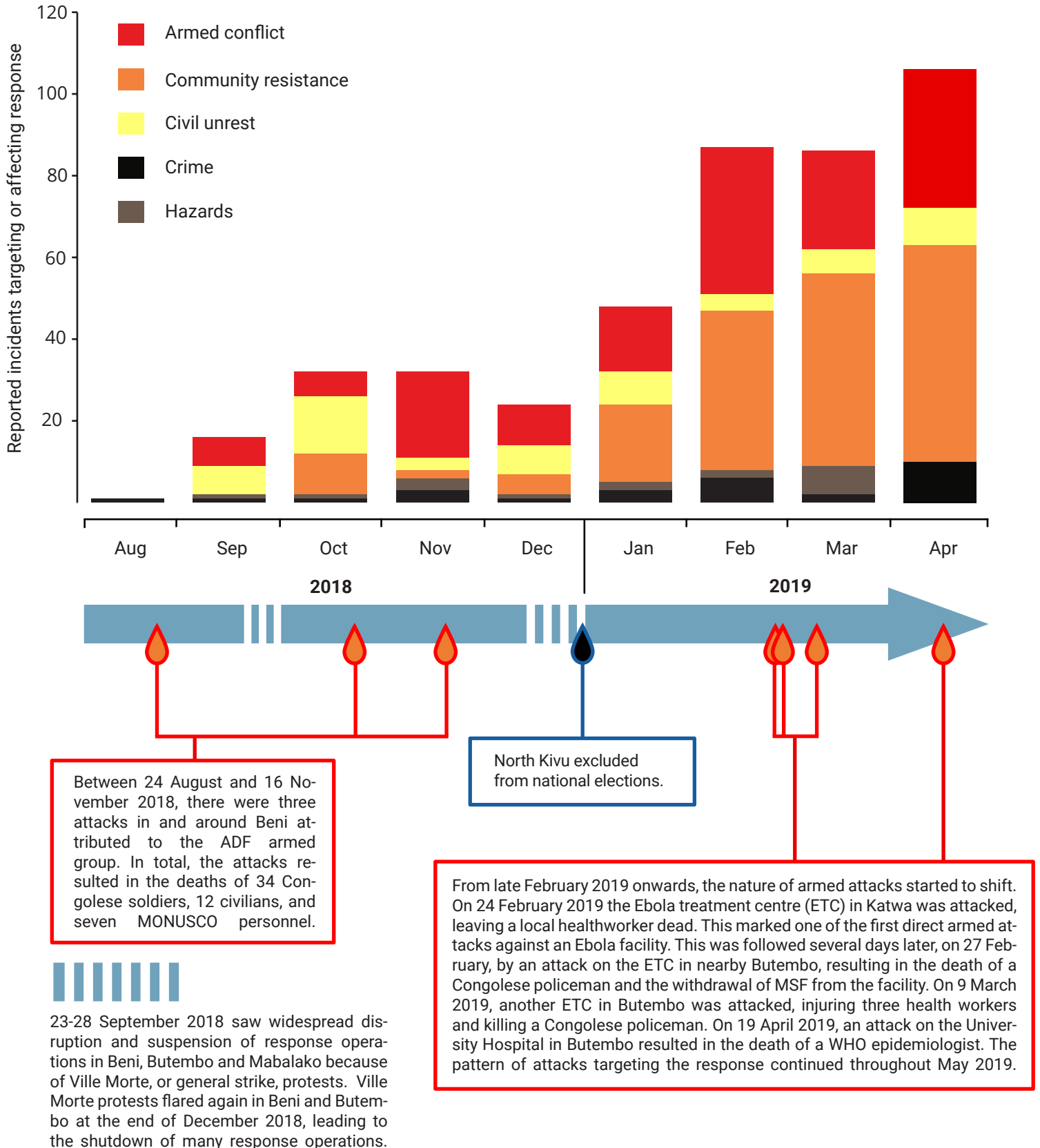
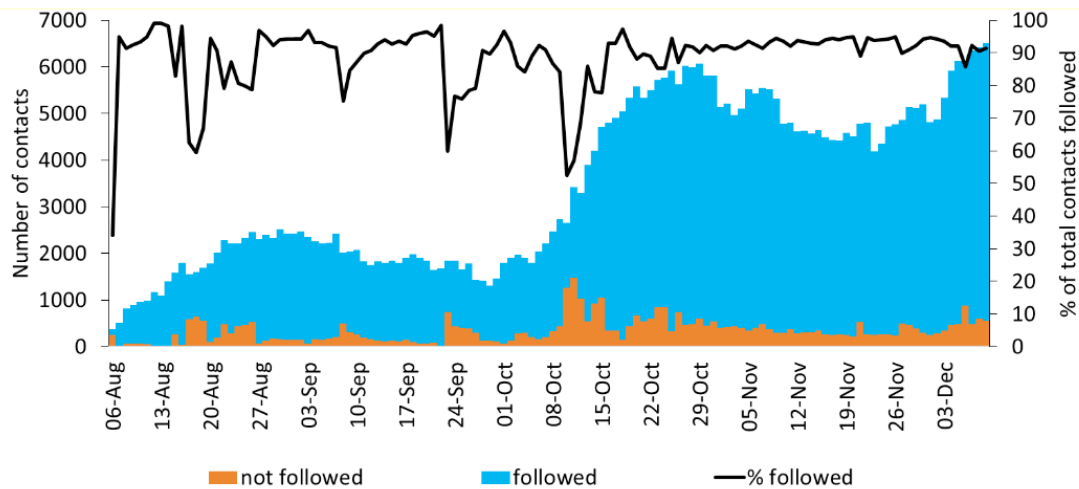


Figure 5 | Impact of security incidents on proportion of contacts followed per day



The impact of security incidents on the response is apparent, with marked reductions in the proportion of contacts followed (black line) in August, September and October 2018, coinciding with attacks on affected communities and associated civil unrest.

been checked on within the last 24 hours dropped from over 95% before the attack to under 35% in the aftermath (figure 5). The ability of teams to investigate and validate alerts of suspected cases, and carry out safe and dignified burials, was curtailed. The effectiveness of the ring vaccination strategy, which depends on the rapid identification and vaccination of contacts, and contacts of contacts, around each case, was also compromised. This pattern has been repeated many times since.

Shortly after the September 2018 attack, EVD cases started to appear in new areas, sometimes as a result of the movement of contacts, often over 100s of kilometres, who had been lost to follow up during the enforced hiatus in the response. In other instances, cases arose as a result of hidden chains of transmission that were often eventually traced back to local health facilities, where poor standards of infection prevention and control were amplifying the outbreak. Each time the response was forced to react to a new location or security incident, the effectiveness of contact tracing, case finding, and ring vaccination was negatively affected. More cases went un-reported or undetected. The local health system, despite intensive efforts to improve standards of infection

prevention and control, was amplifying transmission. Community resistance to the response continued to pose a problem despite efforts by the Ministry of Health, WHO, UNICEF and the IFRC to engage local community groups and leaders.

Strategic response plan 2: geographical containment

The second strategic response plan (SRP2, covering the period November 2018 to end of January 2019) sought to tackle these problems by increasing the capacity of the response to operate at full strength over a wider geographical area. In addition to maintaining the response in Beni, Mangina, Mabalako, Butembo and Katwa, Tchomia and Komanda, SRP2 requested resources for active response teams in 10 additional Health Zones. SRP2 also noted the need for greater involvement by humanitarian actors in affected and at-risk communities, both to alleviate pressing humanitarian needs and, as a corollary, to improve the acceptance of the response in affected communities.

Funding for SRP2 ensured that the response was able to increase its footprint to rapidly encompass newly affected areas, but

For more on the second strategic response plan see: <https://www.who.int/emergencies/crisis/cod/drc-srp-revised-v22december2018-EN-vF.pdf?ua=1>

in the context of North Kivu and Ituri this brought its own set of problems. Every new area affected increased the exposure of the response to the risk of a security incident, and increased the visibility of the response to communities, some of whom were suspicious of the sudden influx.

As security incidents began to occur more regularly from late September 2018 onwards, each unavoidable temporary shutdown of the response was akin to hitting the reset button on crucial interventions in the field, giving the outbreak opportunity to spread under the radar.

This vicious cycle was exacerbated in December 2018, with the postponement of national elections in the provinces of North Kivu and Ituri due to the outbreak. Since then, threats and sporadic attacks against the response and affected communities have increased in frequency and severity. The motives that underlie these attacks are often opaque, but several independent investigations have cited political disenfranchisement. At the time of writing in August 2019, seven health workers directly involved in the response have lost their lives to violence. The death toll among civilians, UN peacekeepers, Congolese security forces and their assailants is higher. Each attack is a tragedy for those directly affected, and a tragedy for those who will come to be affected by the outbreak as a result.

The centrality of community

From December 2018 onwards, increased suspicion of the response and anger towards the government following the postponement of the election in North Kivu and Ituri fed into a growing undercurrent of resistance to the response in some, though not all, affected communities.

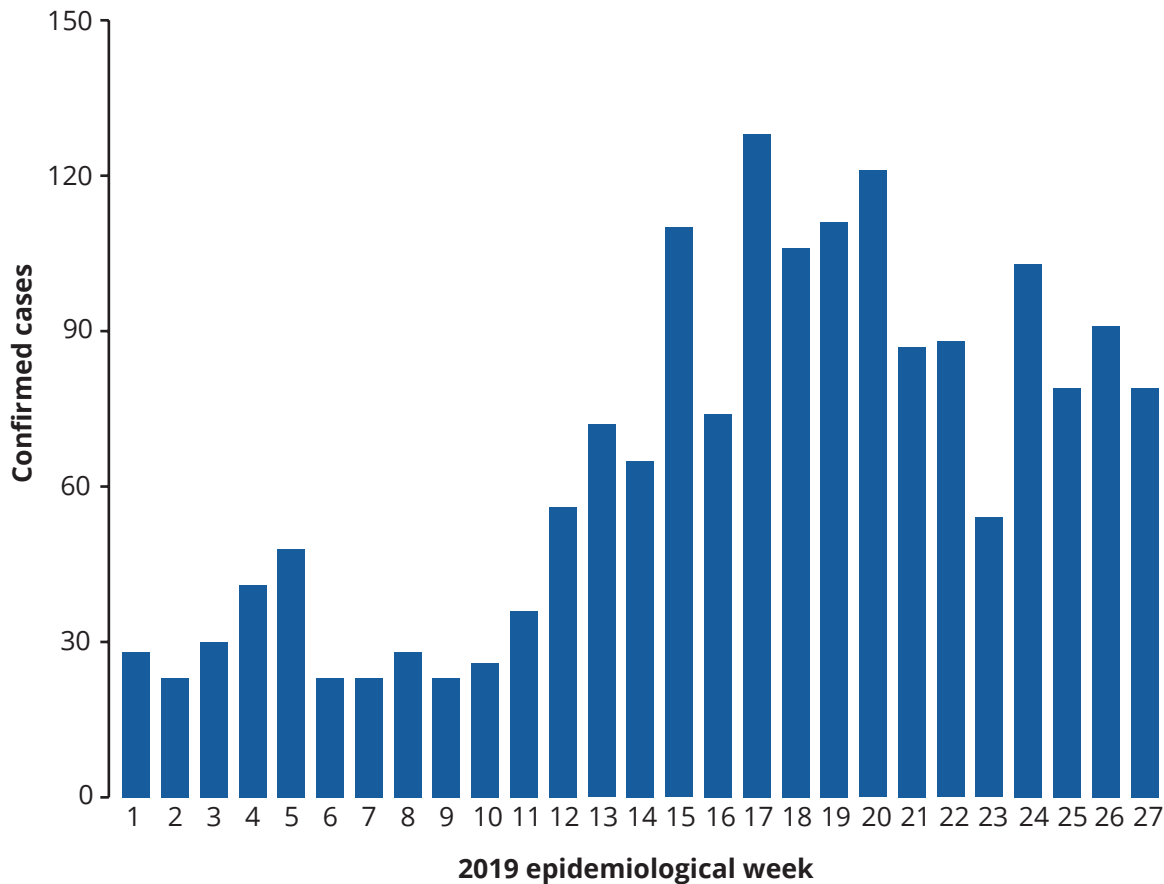
By their nature, the interventions that form the backbone of an effective response – contact tracing, safe and dignified burials, identification and treatment of the sick – go to the very heart of community life. In this outbreak, we can also add vaccination to the list of interventions available to the response,

requiring the informed consent of individuals and the tacit consent and understanding of affected communities. In West Africa, the initial concept of community engagement as a process of “educating and informing” communities was gradually forced to give way to a more nuanced understanding that engagement means listening, learning, and adapting the response on a case-by-case basis to take complex social and political relationships into account. This is easy to say, but hard to do, and in the febrile environment of North Kivu and Ituri it has proved especially difficult.

Although the scale of the outbreak in North Kivu and Ituri is still smaller than that in West Africa, the dynamic relationship between the response, affected communities, national and local politics, and politically and ethnically aligned armed groups is much more complex. This is the first ever response to an Ebola outbreak in an active conflict zone.

The deployment of over 20 anthropologists through the Ministry of Health, WHO, and UNICEF, has helped to identify currents of opinion and concerns about the response within affected communities. However, the nature of these concerns has varied markedly from place to place. In some areas, specific adaptations to the response have been able to address anxieties, for example, about the referral process for suspected cases. Isolating patients with suspected cases in transit centres, nearer to their homes, has improved acceptance of the response. But suspicions about the political motivation of the response, often stoked by local political figures, or anger about the lack of assistance for broader humanitarian and public health needs, has been more difficult to tackle.

Local politics has played to perceptions that the Ebola response is a sophisticated form of financial exploitation at the cost of local populations. The huge disparity between the highly visible Ebola response, and the lack of resources allocated to other areas of pressing humanitarian need such as hygiene and sanitation, food, and security, has increased suspicions that the response is a mechanism for personal enrichment rather than public health and wellbeing.

Figure 6 | **Weekly confirmed case count 2019 (January to end June)**

Strategic response plan 3: building trust, breaking the vicious cycle

The third strategic response plan (SRP3; for the period covering February 2019 to 30 June 2019) put a heavy emphasis on strengthening community engagement at the same time as increasing the footprint of the response to get ahead of the geographical spread of the outbreak. Perhaps one of the most important operational lessons from this period is that, of all the essential aspects of the response, effective community engagement is the most difficult to bring to scale rapidly, in step with other pillars of the response.

By April 2019, the increase in security incidents and resistance to the response in affected

communities was clearly having a marked negative impact on the trajectory of the outbreak (figure 6). The geographic distribution of the outbreak was expanding (figure 7, 8) as case incidence increased in the primary hotspots of Butembo, Katwa, Mabalako and Beni (figure 8). The proportion of new cases who had been previously listed as contacts, a key indicator of the effectiveness of contact tracing, fell to under 30% (figure 9) throughout April 2019. And despite the vaccination of health workers and intensive efforts to improve standards of infection prevention and control in the hundreds of health facilities throughout the affected health zones, health workers were still being infected at a low but steady rate (figure 10).

For more on the third strategic response plan see: <https://www.who.int/emergencies/crises/cod/drc-ebola-srp-v20190219-en.pdf>

Figure 7 | **Geographical distribution in North Kivu and Ituri: epidemiological week 2 (6 January 2019)**

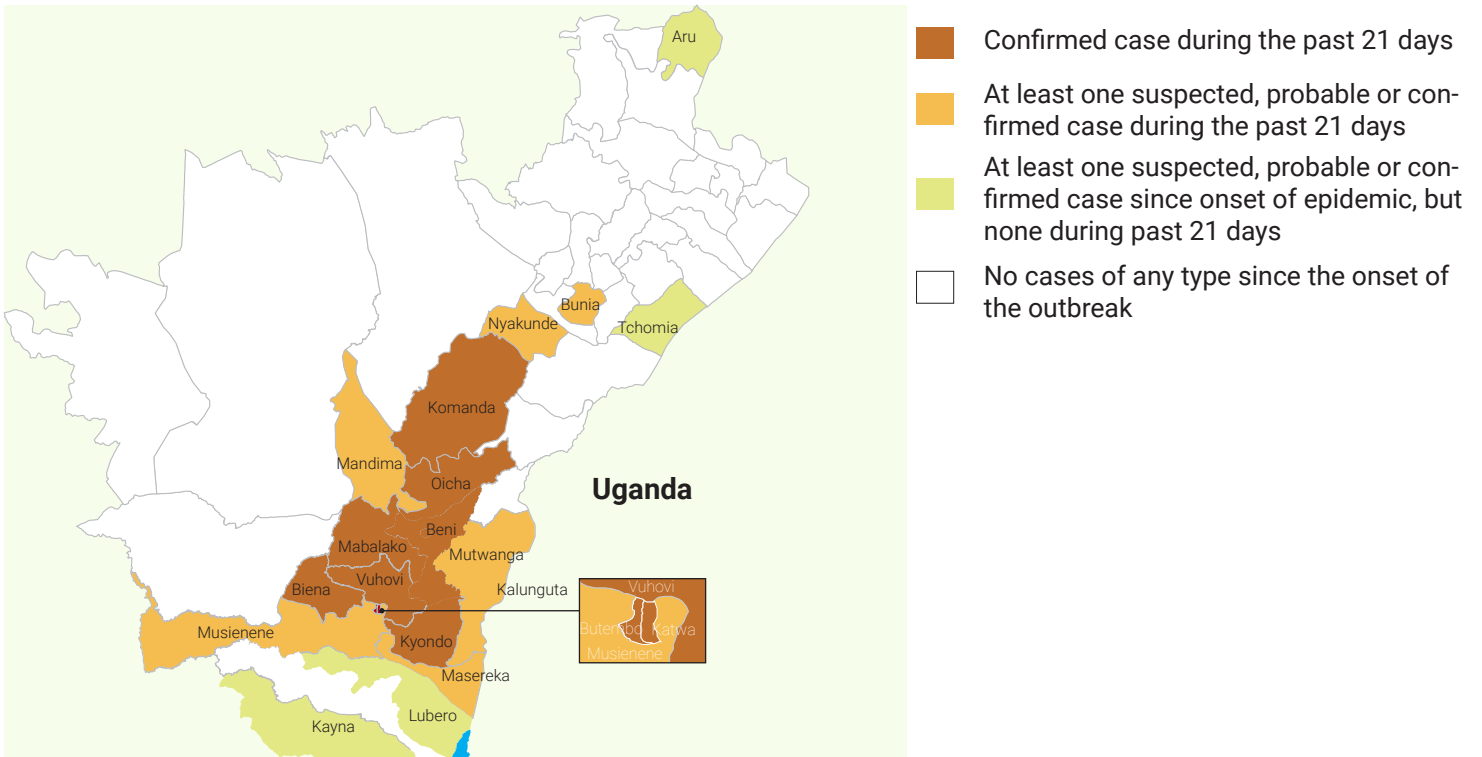


Figure 8 | **Geographical distribution in North Kivu and Ituri: epidemiological week 14 (1 April 2019)**

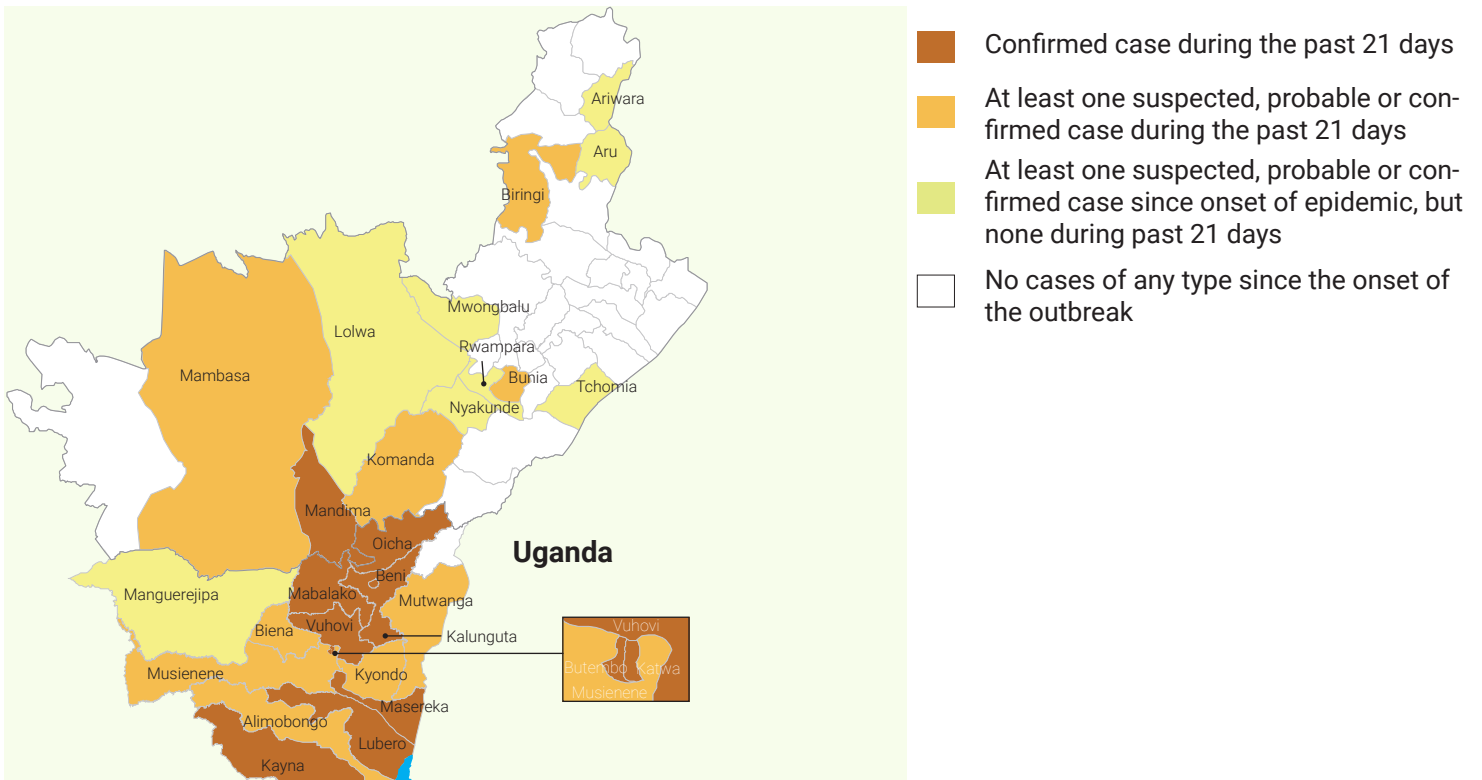
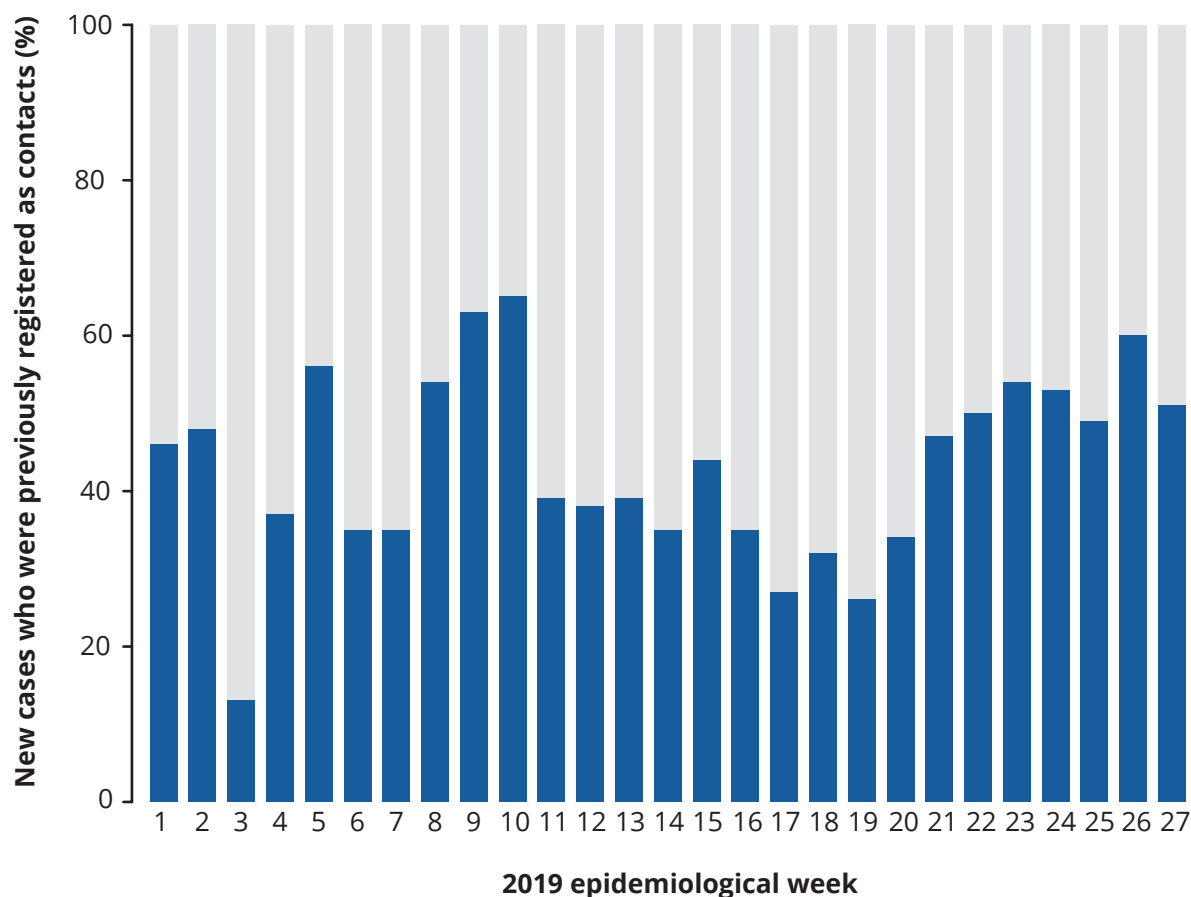


Figure 9 | **Weekly proportion of confirmed cases previously registered as contacts**

The murder of Dr Richard Valery Mouzoko Kiboung, a WHO epidemiologist, on 19 April 2019, marked a low point for the response. Dr Mouzoko died from a gunshot wound sustained during an attack by an armed group at Butembo University Hospital, where he was chairing a meeting with Congolese front-line health workers involved in the response. But the tragedy also marked a turning point.

By June 2019, many of the operational changes set out in SRP3 were starting to bear fruit, particularly in Butembo and Katwa, which were at the centre of the outbreak during its peak in April. The decision taken in April to decentralise response coordination to the health zone level meant that coordinators at the front line were able to more rapidly

adapt to local challenges. In particular, new resources to establish dialogue with affected communities within 48 hours of a case confirmation, and an expanded network of contact investigators and tracers had a marked impact. The effectiveness of contact identification and tracing began to improve. The number of contacts under follow-up each day peaked at over 20 000 individuals, but despite that enormous number, the proportion lost to follow-up remained below 10%, on average. Crucially, the proportion of new cases who had previously been registered as contacts started to rise (figure 9). That important indicator of the effectiveness of contact tracing stayed steady through May 2019 at over 50%: much room for improvement, but a substantial and operationally significant increase compared with March and April.

Together with intensified surveillance, with almost 1500 alerts to potential suspected cases investigated each day, confidence increased that less transmission was going undetected than was the case earlier in the outbreak. Adaptations to the way suspected cases are referred to ETCs, and to the way ring vaccination is carried out, compounded the positive effect on community acceptance brought about by more frequent open dialogue forums between members of the response and affected communities.

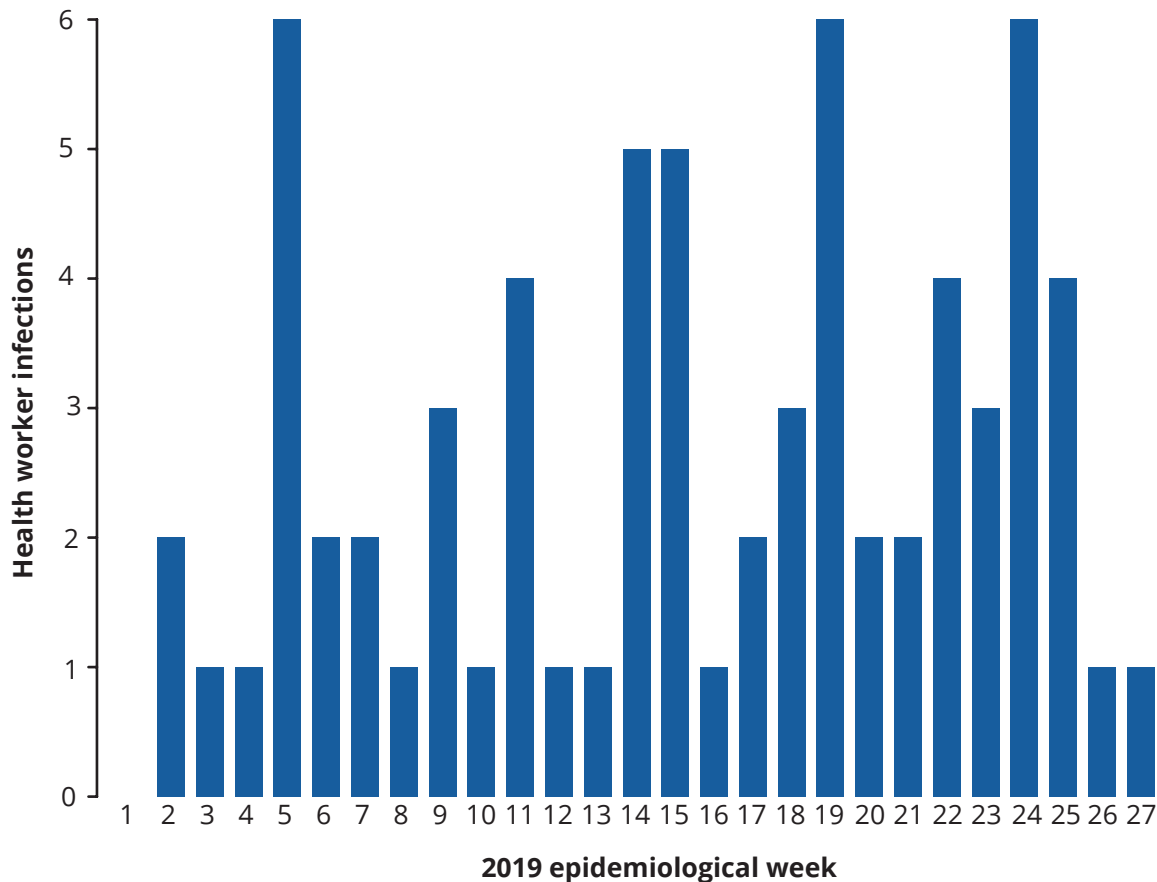
There are, however, still many formidable challenges. More than one-fifth of cases seek healthcare in health zones far from where they live, complicating the task of investigating transmission chains, increasing the risk of geographic spread, and increasing the risk of transmission within health centres. Health worker infections continue to be reported regularly.

The importation of three cases to Uganda in June demonstrates the risks posed by such a highly mobile population. Investments in operational readiness and preparedness in neighbouring countries and provinces paid off, with the rapid detection and isolation of all three cases, and so far no transmission within Uganda has been detected.

There has been good progress on community engagement, with many more communities welcoming the response after being given the chance to sit down and talk with senior incident managers and coordinators. However, the threat of violence from armed groups remains unchanged.

The hard work, determination and sacrifice of affected communities and frontline responders, the vast majority of whom are Congolese nationals, has laid strong foundations to build on in the coming weeks and

Figure 10 | **Health worker infections during 2019**



months. A strengthened response, guided by a renewed strategy, can secure the gains made in recent months, rapidly suppress any further spread, and press on towards the end of the outbreak, but only with the funding in place to intensify core response activities. As ever, the support and engagement of donors will be the decisive factor in ending this outbreak.

PART 2

Response in focus



WHO/L.Mackenzie

WHO Ebola response staff arrive in Komanda in Ituri province, Democratic Republic of the Congo, on 01 January 2019. The area affected by the outbreak includes several urban areas as well as more remote rural communities, presenting a number of logistical challenges. Regular flights by the UN Humanitarian Air Service (UNHAS) have been crucial in getting equipment and teams to where they are needed. Between August 2018 and June 2019, UNHAS delivered over 5000 metric tons of essential supplies and equipment for the response, and transported 19 000 passengers between Kinshasa, the coordination hub in Goma, and forward operating bases in Ebola-affected areas.

Disease surveillance



A WHO epidemiologist checks in on a registered contact of a patient with Ebola virus disease. Over 140 000 contacts were registered between August 2018 and June 2019. Effective contact tracing is the backbone of any Ebola response, and plays a crucial role in identifying candidates for vaccination. However, security incidents have periodically prevented contact tracing teams from carrying out their daily investigations and checks.

The response to the Ebola outbreak in North Kivu and Ituri can draw on more technologically advanced tools than has been the case for any previous Ebola response: a safe and effective vaccine, rapid RNA-based diagnostic testing, social media channels to connect with affected populations, and for the very first time, effective therapeutics for patients with Ebola, to name just four. But these advances shouldn't obscure the central fact that stopping the outbreak still depends largely on the success of the same core epidemiological techniques of contact tracing and follow-up, active case finding, alert investigation, and rapid diagnostic testing

that have always formed the backbone of outbreak of response.

Disease surveillance in North Kivu and Ituri is complicated by many factors, but as has already been described in Part 1, the two biggest obstacles to effective surveillance have been 1) the outbreaks of sporadic violence against the response and affected communities, and 2) suspicion of the response in parts of some affected communities. As a result, and despite the enormous and courageous efforts of contact tracers and community outreach workers, most of whom are members of

local communities, several key indicators of the effectiveness of surveillance efforts have struggled to reach targets.

Between August 2018 and June 2019, the number of new confirmed cases that had previously been listed as contacts sometimes fell below 40% for several weeks in the aftermath of security incidents (figure 5). Poor record keeping by local health facilities also made it difficult or impossible to identify and trace contacts that might have been exposed to the disease while they were undergoing treatment for other illnesses. Meanwhile, the high degree of mobility of

the affected populations, combined with occasional mistrust of the response, has meant that contacts that had been identified have sometimes been lost to follow-up for extended periods.

Improvements to the security situation, and improved acceptance by affected communities had led to improvements in most surveillance metrics by June 2019 (figures 9, 11). Building on these improvements will be central to controlling the outbreak.

Cross border surveillance has also been an essential part of the response, with temperature

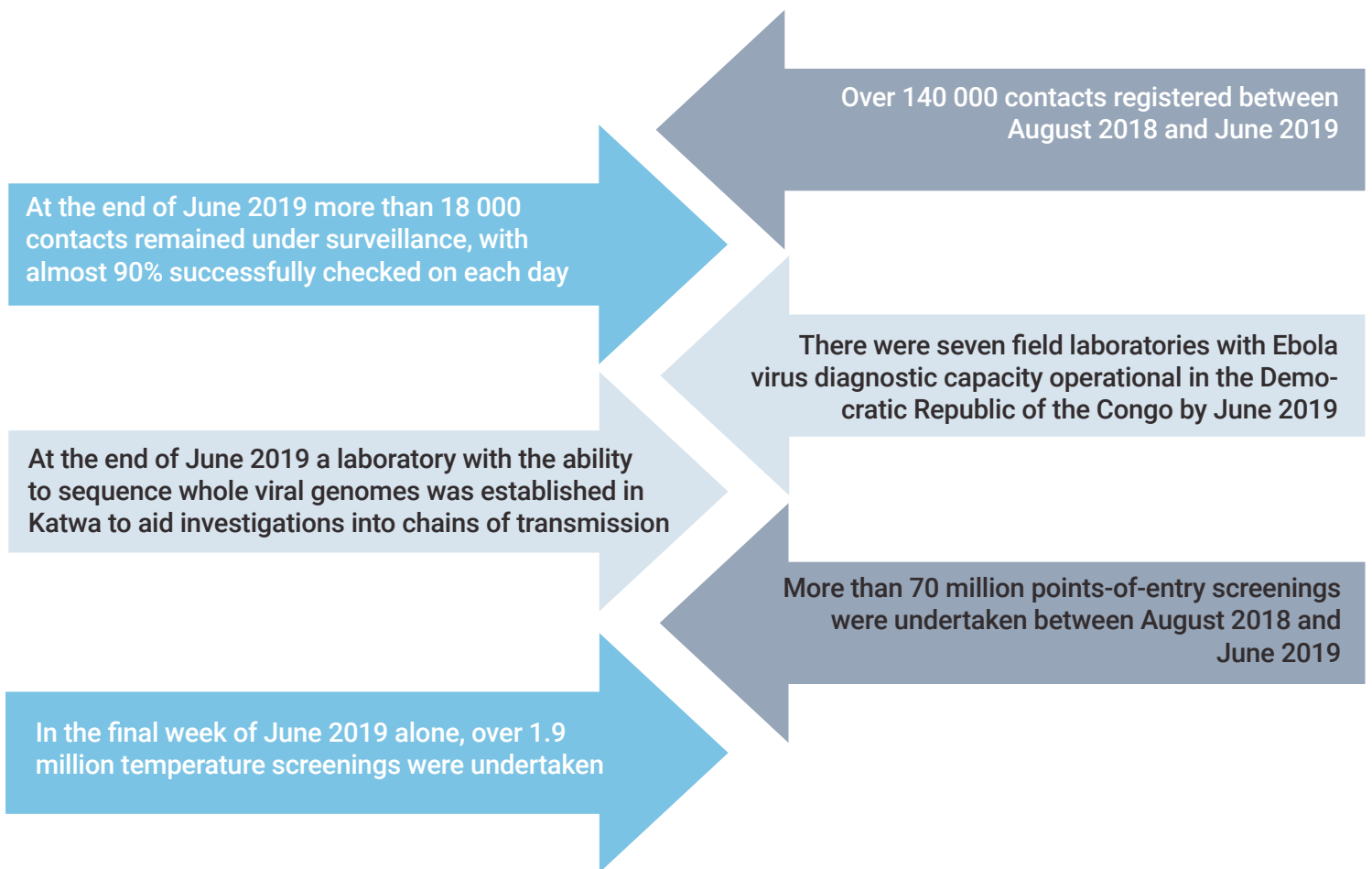


Red cross volunteers carry out temperature screening at a point of entry. Between August 2018 and June 2019, around 2 million people were screened at checkpoints each week, identifying over 500 verified suspected cases, 20 of which were subsequently confirmed as Ebola.

screening at key internal and national borders helping to contain the geographical extent of transmission. Between August 2018 and June 2019, the International Organization for Migration and coordinated with government agencies from DRC and surrounding countries conducted over 70 million screenings at various national and provincial points of entry, with an average of almost 2 million screenings conducted each

week. Over the same period the cumulative number of alerts raised by screening was 1423, with 547 alerts validated as suspect cases, of which were 20 subsequently confirmed with EVD following laboratory testing.

Figure 11 | **Key surveillance figures as at end June 2019**



Clinical care and innovation



WHO/C. Black

The CUBE, or Biosecure Emergency Care Unit for Outbreaks, is a self-contained and easily transportable system for outbreaks of highly-infectious disease. The CUBE not only enables carers to have 24-hour safe access to patients, but also means that patients are able to see visiting friends and family.

Until very recently, clinical care for patients with Ebola virus disease has relied solely on supportive care – keeping patients hydrated and as comfortable as possible while their immune system tries to fight off the virus. For patients who are diagnosed quickly and receive supportive care in a purpose-built EVD treatment facility, the rate of survival is around 50%. During the North Kivu and Ituri outbreak the rate of survival has been lower, at around 40%. This, however, is attributable to the late stage at which most patients present to specialized Ebola treatment centres. Rapid diagnosis and treatment is especially crucial during the treatment of Ebola virus disease.

By early 2019 onwards, the opening of new transit centres closer to transmission hotspots

in response to community feedback had started to reduce the time to presentation, and consequently clinical outcomes. The relatively high fatality rate, however, should not obscure the revolution in the care available to patients with Ebola Virus disease since the outset of the outbreak.

Building on the best practices from West Africa, the first Ebola treatment centres opened by ALIMA, MSF, and the International Medical Corps from August 2018 incorporated design innovations that delivered not only an improved quality of care, but also an improved quality of life for patients and health workers. ALIMA's first facility in Beni was fitted out with biosecure emergency care units dubbed CUBEs, which enable patients to receive round

For more on the ALIMA CUBE see: <https://www.alima-ngo.org/en/alima-cube>

For more on the groundbreaking trial of Ebola therapeutics see: <https://www.who.int/news-room/detail/12-08-2019-update-on-ebola-drug-trial-two-strong-performers-identified>

the clock care from medical and psychosocial teams, as well as having closer interactions with their families and visitors with no risk of transmission.

The design and operation of Ebola treatment centres in the North Kivu and Ituri outbreak represents an evolution of what was previously available to patients. At the same time, the treatment available to patients has undergone a revolution. For the first time, investigative therapeutics have been available to use by clinicians from early on in the outbreak, either through the Monitored Emergency Use of Unregistered and Investigational Interventions (MEURI) protocol, or as part of a clinical trial.

MEURI is part of a number of measures that

have been brought from concept to reality since West Africa through the work of WHO's Research and Development Blueprint for Action to Prevent Epidemics. The Blueprint aims to replicate and refine the coordinated efforts that brought the VSV-EBOV vaccine to trial in Guinea during the West African outbreak, whilst avoiding some of the shortfalls in coordination and prioritization that led to the unsatisfactory conduct and conclusion of a number of trials of novel therapeutics during the same outbreak.

In November 2018, enrollment began in a number of Ebola treatment centres for a trial comparing the efficacy of the four experimental treatments that were made available under the MEURI protocol: the antiviral Remdesivir, and the antibodies ZMapp, REGN-EB3, and

For more on the WHO RnD Blueprint see: <https://www.who.int/blueprint/en/>



At this laboratory in Mangina, technicians test samples from patients with suspected Ebola virus disease. Rapid diagnosis using the latest techniques ensures that patients receive appropriate care without delay. Seven field laboratories were deployed in affected areas between August 2018 and June 2019, backed up by the national laboratory in Kinshasa. More than 57 000 samples were tested for Ebola virus between August 2018 and June 2019.



Ebola treatment centres have been targeted with violence throughout the outbreak, as have staff and patients. Periods of insecurity have severely hampered the response.

mAb 114, developed by DRC's National Institute of Biomedical Research and the US National Institutes of Health. The trial got underway just several months after the onset of the outbreak, and was designed and coordinated by a consortium of researchers led by WHO. The results could have far reaching consequences for patients in this and future outbreaks. The trial was stopped early on the advice of an independent monitoring board as there was clear evidence to show that two of the treatments, REGN-EB3 and mAb114, had an increased chance of survival.

Further improvements to clinical outcomes depend primarily on continued improvements to the effectiveness of other core response pillars, particularly active case

finding, contact tracing, and community engagement. Continued dialogue with affected communities and local health facilities to ensure that Ebola treatment centres and transit centres are the first ports of call as soon as individuals show signs of infection with Ebola.

For the many patients who survive the disease, over 700 between August 2018 and the end of June 2019, care continues through a specialized programme of follow-up care, with an emphasis on psychosocial support for survivors and their family members. The survivor programme is coordinated by the Ministry of Health and INRB with support from WHO. The overall psychosocial support programme is coordinated by UNICEF.

Vaccination



Vaccination with the rVSV ZEBOV vaccine is offered to all contacts, and contact of contacts, of confirmed cases. Between August 2018 and June 2019, more than 140 000 individuals received the vaccine. Over 300 local Congolese vaccinators have been trained by the Guinean researchers who carried out the first trial of the vaccine during the West Africa Ebola outbreak.

The successful trialing of the safe and effective rVSV ZEBOV Ebola vaccine in Guinea was one of the major triumphs of the West African outbreak response. In North Kivu and Ituri, for the first time ever during an Ebola outbreak response, the rVSV ZEBOV Ebola vaccine was available at the outset of the outbreak due to its prior approval for compassionate use in the country during the most recent previous outbreak in Equateur province.

Using the same distributed cold-chain technology, and many of the same Guinean team who were trained during the original trial, WHO, the DRC Ministry of health and partners started a campaign to provide

the experimental vaccine to populations at the highest risk from early August 2018 onwards. Initially the campaign focused on health workers, other high-risk workers, and “rings” of contacts of confirmed cases, and contacts of those contacts.

By the end of June 2019 over 140 000 people had received the vaccine in DRC. However, repeated incidents of violence have hampered the ability of response teams to immediately identify and create vaccination rings around all people at risk of contracting Ebola. In addition, although take up of the vaccine was high at around 90%, some research and analyses of social media messaging suggested that the ring

approach was unclear to some people in affected communities.

On 7 May 2019, the WHO Strategic Advisory Group of Experts (SAGE) on Immunization issued interim guidance that the implementation of the ring vaccination strategy be altered to include limited geographical vaccination, with expanded eligibility criteria to include individuals who could “potentially be involved in the tertiary generation of cases”. This approach, they explained, “addresses community requests to offer vaccination to additional members of the community that they consider to be at high risk”.

At the same time, the vaccine has been a central part of preparedness and operational readiness efforts in surrounding countries and provinces, with approvals for use fast tracked and thousands of frontline health workers vaccinated.

While still unlicensed, the use of the vaccine was justified under “compassionate use.” The vaccine was also used during the outbreak in Equateur. Clinical trials for the vaccine were held during the 2014-2016 West Africa Ebola outbreak.



Uptake of the vaccine has been high, with more than 90% of contacted eligible recipients opting to be vaccinated.

Infection prevention and control, and safe and dignified burials



Health workers in Beni put their gloves on before checking patients at one of the approximately 600 health facilities in North Kivu and Ituri in and around areas affected by the outbreak. Health workers receive infection prevention and control supplies and training as part of measures to protect health workers and patients by reducing transmission inside health facilities.

Because the Ebola virus is spread by direct physical contact with infected bodily fluid, frontline health workers are at increased risk, as are those members of the community, primarily women, who traditionally play the role of carers within the family. As a consequence, prevention of transmission of EVD through improved standards of infection prevention and control (IPC), supported by improved water, hygiene and sanitation (WASH) measures, has always been a core pillar of outbreak response.

In addition, bodily fluids of people who have died from Ebola are likely to be highly infectious at the time of death, putting anyone

involved in the moving and preparation of dead bodies at increased risk. It is therefore essential that only trained and specially equipped teams come into contact with the dead bodies of any individuals, whether in the community or in Ebola treatment centres, who are known to or suspected to have died from Ebola.

The IPC and WASH pillar is co-led by UNICEF and WHO, with safe and dignified burials included as a key component within the pillar led by the International Federation of Red Cross and Red Crescent Societies. Between August 2018 and June 2019, the IPC strategy has focused primarily on identifica-

tion and mapping out the many hundreds of local health facilities, many of which combine traditional and modern medical practices, and targeting these health workers at these facilities for rapid training in IPC measures. At the same time, a package of IPC materials and equipment is supplied, and restocked when necessary, to ensure that health workers have the necessary equipment such as gloves, handwashing stations, and masks, necessary to minimize the likelihood of transmission in health care settings. By June 2019 almost 600 health facilities had received IPC kits. Over the same period, over 250 000 pairs of medical gloves were issued, along with over 19 000 full personal protective equipment kits. However, health worker infections have continued to occur throughout the outbreak. Between January and June 2019, at least one health worker infection was reported every week (figure 10).

Within affected and at-risk communities, activities have centred around supporting risk communication messaging about the benefits of good hygiene practices by supplying basic hygiene and sanitation supplies. For example, between August 2018 and June 2019, more than 3300 hand-washing stations were installed in public places. In addition, around 120 decontamination teams are employed to make safe the households of any patients who have had a confirmed diagnosis of EVD. Around 60 safe and dignified burial teams, primarily employed through the Red Cross or national civil protection agency, responded to a total of 7681 alerts of deaths in the community between August 2018 and June 2019. Of those alerts, 6171 (80%) were responded to successfully.



DRC Red Cross volunteers perform safe and dignified burials, and carry out door-to-door visits to sensitize the community in Beni. The teams carry out one of the most demanding and essential roles in the response. Negotiating with the bereaved families of individuals who may have died from Ebola virus disease requires tact, diplomacy and sensitivity. Ensuring that those individuals receive a safe and dignified burial is both technically and physically demanding.

Risk communication and community engagement



Healthworkers and a social mobilization team work together to raise awareness of Ebola. An estimated 18 000 people at risk of Ebola were reached between August 2018 and June 2019 through community engagement and interpersonal communication approaches, including door-to-door visits, church meetings, small-group training sessions, school classes, and briefings with leaders and journalists.

Risk Communication and Community Engagement (RCCE) are essential parts of any disease outbreak response (figure 12).

Risk communication in the context of an Ebola outbreak refers to the real time exchange of information between frontline responders and people who are faced with the threat of Ebola.

By their nature, the interventions that form the backbone of an effective response – contact tracing, safe and dignified burials, identification and treatment of the sick –

are intrusive in the sense that they touch on many aspects of daily life in affected communities, some of which, such as the burial of the dead, are of profound personal and cultural significance to those involved. The degree to which affected communities accept these interventions can vary widely, both within and between different communities, and is often cited as the single most important factor that determines the effectiveness of the response to the outbreak. To be effective, a response has to first be able to elicit the views and concerns of affected communities, and second, use

this intelligence to adapt interventions to community needs. The shorthand used for this process, which can be done in a variety of ways, is community engagement. Though discrete from risk communication, the process of community engagement is essential to adapt and shape risk communication strategies.

Throughout SRPs 1-3, the RCCE pillar has been led by UNICEF with input from WHO and other partners. The overall RCCE strategy

was set out within days of the outbreak onset, in the Risk Communication and Community Engagement Preparedness and Readiness Framework: Ebola Response in the Democratic Republic of Congo in North Kivu strategy document. The document was developed by the incident management team for the Ebola Virus Disease outbreak response in the Democratic Republic of the Congo by WHO, UNICEF and International Federation of Red Cross and Red Crescent Societies, with inputs from Global Outbreak Alert and

For the Risk Communication and Community Engagement Preparedness and Readiness Framework: Ebola Response in the Democratic Republic of Congo in North Kivu strategy document see: <https://apps.who.int/iris/handle/10665/275389>

For mapping of social science research projects for the Ebola response in the DRC and neighbouring countries see: <https://www.who.int/risk-communication/social-science-research-for-ebola/en/>



© V. Tremeau / UNICEF

Fabiola Masika Mwengesali, an Ebola survivor, talks to students La Vérité school about detecting the symptoms of the virus and preventing its spread in Butembo, Democratic Republic of Congo, 23 March 2019. Fabiola worked at the local hospital taking care of children until a Ebola-infected child died. After inheriting the virus, Fabiola received care at the Ebola Treatment Centre in Butembo and now visits schools and other public places to share her story, as well as raise awareness. The Ministry of Health and the World Health Organisation (WHO) instituted an Infection Prevention and Control (IPC) campaign at four healthcare facilities in Butembo and Katwa in May to help healthcare workers to stop transmission of Ebola, specifically addressing hand hygiene and the importance of safe injections.

Table 1 | **Risk communication outreach (as at end June 2019)**

	Target	Achieved (%)
Number of at-risk people reached through community engagement and interpersonal communication approaches (door-to-door, church meetings, small-group training sessions, school classes, briefings with leaders and journalists)	21 500 000	17 790 173 (83%)
Number of listed eligible people for ring vaccination informed of the benefits of the vaccine and convinced to receive the vaccine within required protocols.	143 436	141 633 (99%)
Number of households of confirmed cases, contacts and neighbours of confirmed cases who received a hygiene and prevention kits with adequate messaging	15 000	4840 (33%)
Number of teachers briefed on Ebola prevention information	32 296	23 844 (74%)
Number of affected families with confirmed, suspected, or probable cases who received one or several kits of assistance to support their children	7000	6967 (99%)

Response Network (GOARN), US Centres for Disease Control, Social Science Humanitarian Action Platform, and Anthrologica.

Key metrics for risk communication are shown in table 1. For community engagement, adaptations have been made to the response on a rolling basis, informed by knowledge, attitude and practice surveys, community feedback forums, and social-scientific analyses (eg the Social Science Humanitarian Action Platform, and the many social science research initiatives mapped by GOARN-Research social science and the EU-funded social sciences network SONAR-Global).

Key adaptations have included: modifications to the ring vaccination strategy to broaden eligibility criteria, along with changes to the way the vaccination strategy is communicated to affected communities; more sensitive approaches to safe and dignified burials; increased use of transit centres and other strategies to improve perception of Ebola treatment centres (the design of the treatment centres themselves is a result of community feedback); and adaptations, where possible, to the visibility of security measures.

Figure 12 | **Risk communication and community engagement feeds into all aspects of the response**



Coordination and operational support



WHO staff greet the Director-General and Regional Director at the coordination hub in Butembo. WHO is supporting the DRC Ministry of Health to coordinate the response at the national and subnational level.

At the request of the DRC Government, WHO has supported the coordination of the public health response to the outbreak of Ebola virus disease in North Kivu and Ituri, alongside all preparedness and readiness efforts in surrounding provinces and countries.

From August 2018 to June 2019, three strategic response plans (SRPs) have guided the overall direction of the response. Each SRP was developed with the input of a wide range of multi-sectoral and multidisciplinary national, regional and global partners and stakeholders for EVD response, research

For all situation reports and disease outbreak news updates see: <https://www.who.int/ebola/situation-reports/drc-2018/en/>

For the updated global EVD dashboard see: <http://who.maps.arcgis.com/apps/opsdashboard/index.html#/e70c3804f6044652bc37cce7d8fcef6c>

Figure 13 | **Partners involved in the response by type (as at end June 2019)**



and preparedness. By June 2019 over 70 different partners were involved in the response. Figures 13, 14, 15, and table 2, give a full break down of the different partners involved in the response in DRC by type, pillar, and geographic location, with roles and responsibilities mapped out in operational plans that accompany each SRP.

In total, WHO has around 650 staff deployed within DRC at any one time, primarily in coordination and facilitation roles, along with technical specialists across all aspects of the response. In addition, since the start of the outbreak WHO has engaged the Global Outbreak Alert and Response Network (GOARN), Emerging and Dangerous Pathogens Laboratory Network (EDPLN), Emerging Disease Clinical Assessment and Response Network (EDCARN), and the Emergency Medical Team (EMT) initiative – as well as regional operational partners and collaboration centres in Africa – to deploy experts and multidisciplinary teams

for the response, and to support intensive preparedness and readiness activities in neighbouring and at-risk countries.

Coordinating, monitoring, and adjusting response on a day-to-day basis required the generation, collation and evaluation of huge amounts of data, from epidemiological trends, mapping and clinical data to equipment stock checks, human resources management and financial tracking. WHO’s information management teams, in coordination with Ministry of Health teams and the UN Office for the Coordination of Humanitarian Affairs, have created thousands of internal and external data products, including situation reports for operational partners, throughout the outbreak.

WHO logistics teams have contributed to the deployment of over 5000 metric tons of equipment and supplies between August 2018 and June 2019.

Figure 14 | **Number of partners (by organization type) involved in each response by pillar (as at end June 2019)**

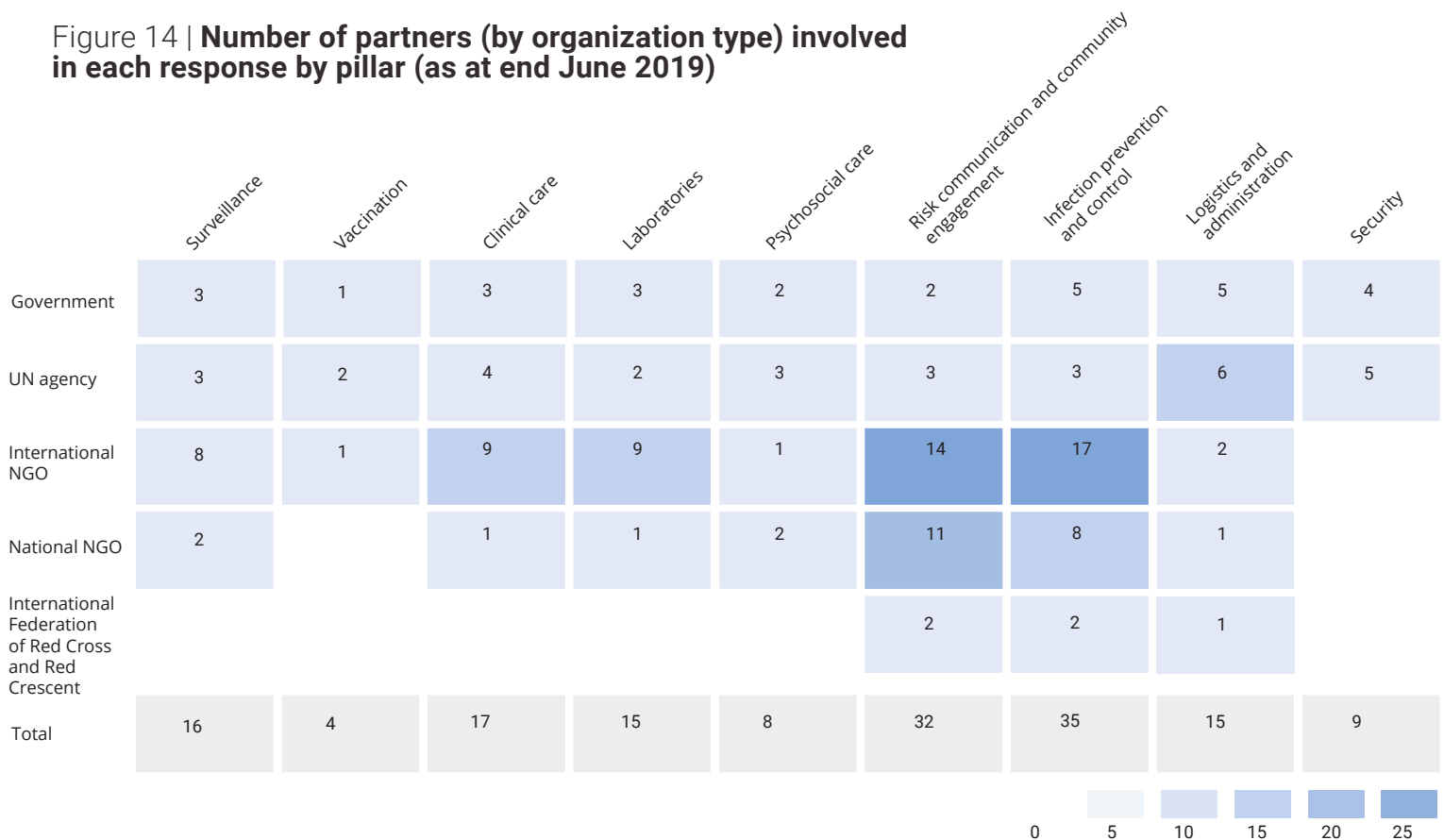
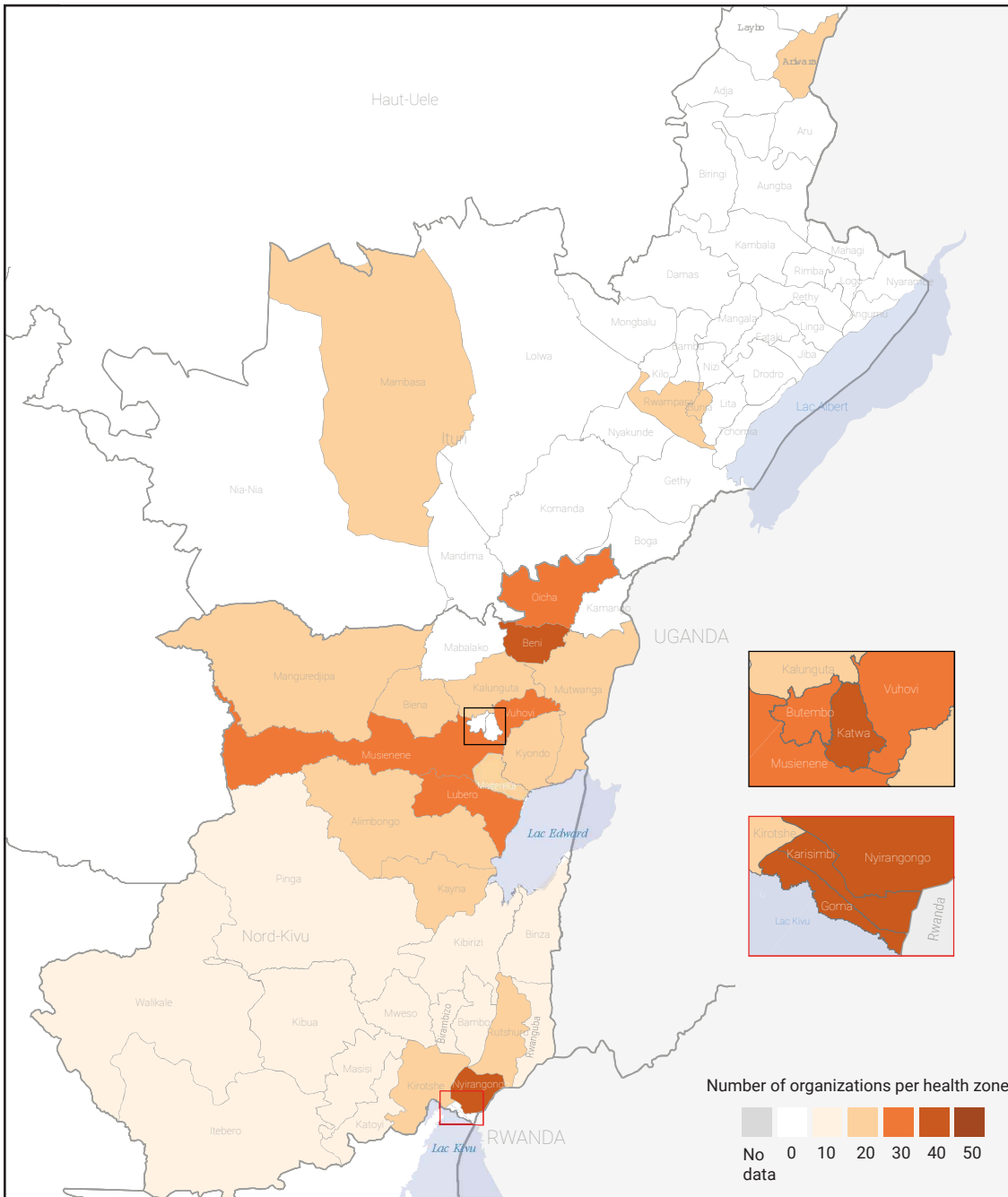


Figure 15 | **Geographical distribution of partners in the response at end June 2019**



Partners in the response are concentrated in and around the primary hotspots in the response of Beni and Butembo, with a large concentration at the coordination hub in the city of Goma.

Table 2 | **Partner organizations involved in the response by pillar and by geographical coordination hub (as at end June 2019)**

	Beni	Butembo/Katwa	Goma	Bunia	Komanda	Mabalako	Tchomia
Surveillance	MSP, OIM, OMS, PDSS, PNHF	AFENET, CDC Africa, MSP, OIM, OMS, UNICEF	CDC Africa, Inter News, MSF-H, MSP, OIM, OMS, Oxfam, PNHF, UNICEF, USAID	MSP, OMS, UNICEF	OIM, PNHF	CDC Africa, IMA, JICA, MSP, PAP RDC, SANRU, Save The Children, World Vision	MSF, MSP, OIM, OMS, PNHF
Vaccination	MSF, MSP, OMS	MSP, OMS	MSP, OMS, UNICEF		MSP, OMS	MSF, MSP, OMS	MSP, OMS
Clinical care	ALIMA, CARITAS Congo, IMC, IRC, MEDAIR, MSF, MSP, OMS, PAM, PDSS, UNFPA	ALIMA, IMC, IRC, MSF, MSP, OMS, PDSS, UNICEF,	MSF-H, MSP, OMS, UNICEF		Samaritan's Purse	CARITAS Congo, CORDAID, INRB, IRC, Mercy Corps, MSF, OMS, UNFPA	Mercy Corps
Laboratories	ALIMA, IMT Anvers, INRB, IPD, IRD Montpellier, MEDAIR, MSP, OMS, PDSSP, Tearfund, UCLA RDC, USAMRID	CDC Africa, IPD, MSP, NIH, OMS, PDSS, UNHAS, USAMRID, INRB	CDC Africa, INRB, MSP, OMS	INRB, OMS	CDC Africa, JICA, INRB	ALIMA, CDC Africa, IMT Anvers, IPD, IRD Montpellier, JICA, NIH, OMS, Predict-Metabiota, UCLA RDC, USAMRID, INRB	CDC Africa, JICA, OMS
Psychosocial care	ADRA, CARITAS Congo, MSP, UNICEF	CARITAS Congo, DRC, MSP, OMS, PAM, UNICEF	UNICEF	DIVAS, UNICEF	CARITAS Congo, DIVAS, PAM, UNICEF	CARITAS Congo, DRC, MSP, PAM	CARITAS Congo, PAM, UNICEF
Risk communication and community engagement	FICR, Inter News, MEDAIR, MSP, OMS, Oxfam, PDSS, PPSSP, RAC0J, Save The Children, SFCG, UNICEF, World Vision	ADRA, CARITAS Congo, CDC Africa, FHI 360, FICR, IMA, IMC, MEDAIR, Mercy Corps, MSP, OMS, Oxfam, PPSSP, SFCG, UNICEF, World Vision	ADRA, AFEPROM, BDR Int, CENADES, CARACON, CR RDC, Inter News, Mercy Corps, MSF-H, MSP, OMS, Oxfam, PADD asbl, PUI, REMED, Save The Children, SFCG, UFO, UNICEF, World Vision		CARITAS Congo, MEDAIR, UNICEF	FICR, MSP, Oxfam, UNFPA, UNICEF	CARITAS Congo, FICR, MSF, MSP, MUSAKA ongd, OMS, UNICEF
Infection prevention and control	ADECO, FARDC, FICR, IMA, IMC, IRC, MEDAIR, MSP, OMS, Oxfam, PAP RDC, PDSS, PNC, PPSSP, Premiers Secours, Protection Civile, Save The Children, UNICEF	ADRA, CDC Africa, CEPROSSAN, CONCERN, FICR, IMC, IRC, MEDAIR, Mercy Corps, MSP, OMS, Oxfam, PPSSP, Protection Civile, Save The Children, UNICEF, World Vision	CIF-Sant'Ž, CONCERN, FICR, IMA, IMC, IRC, LWF, MEDAIR, MEMI, MSP, OMS, Oxfam, PPSSP, PUI, Save The Children, Tearfund, UNICEF	CR RDC, FHI 360, FICR, MSP, Protection Civile	MEDAIR, UNICEF	ADECO, CARE International, CBCA, CR RDC, FICR, IRC, MSF, Oxfam, Save The Children, UNFPA, UNICEF	FICR, OMS, PPSSP, UNICEF
Logistics and administration	CARITAS Congo, FARDC, INRB, IRC, MEDAIR, MSP, OIM, OMS, PAM, PDSS, PNC, UNFPA, UNHAS, UNICEF	MSP, OMS, PAM, UNHAS, UNICEF	MSP, OMS, PAM, UNFPA, UNICEF	MSP	MSP, OMS, PAM, UNICEF	FICR, OMS, PAM, UNICEF	OMS, PAM, UNICEF
Security	FARDC, MONUSCO, OIM, OMS, PNC, Protection Civile, UNHAS	FARDC, MONUSCO, OMS, PNC, UNDSS	MSP		OMS		

Preparedness in adjacent countries and provinces



As part of preparedness and readiness strengthening in South Sudan, the International Organization for Migration has mapped key transit points to strengthen health screening.

Nine countries share a border with the DRC – Angola, Burundi, Central African Republic, Republic of Congo, Rwanda, South Sudan, Tanzania, Uganda and Zambia – and all have been on alert for an imported case of Ebola since May 2018, when an outbreak was declared in DRC’s northern province of Equateur. In June 2018, WHO published the Regional Strategic EVD Readiness Preparedness plan, which used voluntary Joint External Evaluation scores or, in the cases of Republic of Congo and the Central African Republic, EVD preparedness checklist scores, to identify priority areas for targeted support. Since then, the outbreak in North Kivu has refocused efforts on the four countries closest to the outbreak – Burundi, Rwanda, South Sudan, and Uganda (figure 16) – and the unaffected health zones in DRC most at risk, with particular attention paid to the city of Goma and province of South Kivu.

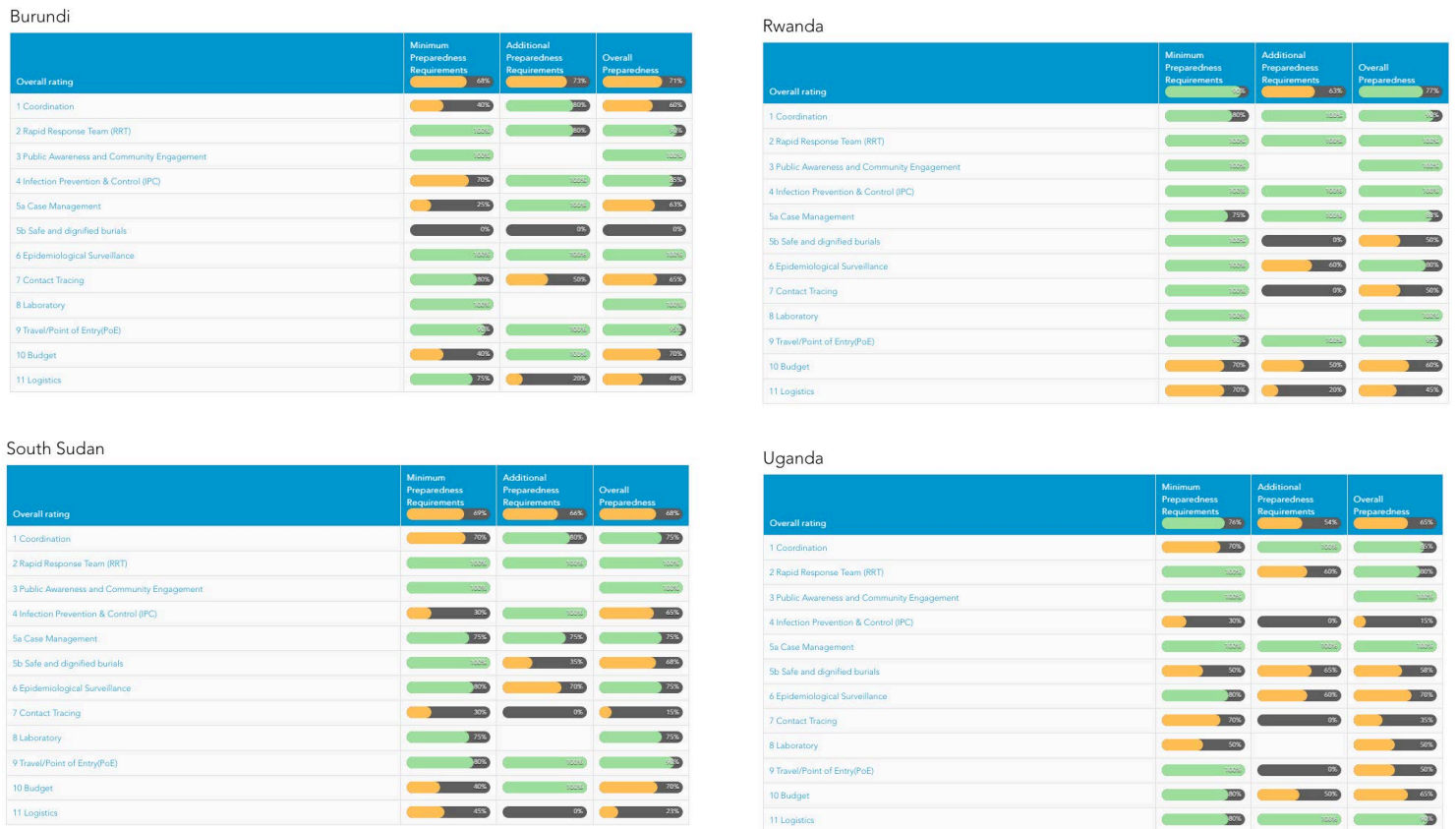
Building on the experiences of West Africa, dedicated multi-disciplinary and multi-partner preparedness strengthening teams have been deployed to deliver tailored technical assistance, conduct exercises and simulations to test response systems at the district level in areas modelled to be most likely to receive an imported case. At the national level, WHO is mapping partner activities, tracking the implementation of key tasks on a publicly available preparedness dashboard.

These efforts have already paid valuable dividends. Uganda, which shares a long and porous border with North Kivu and Ituri, is the country at greatest risk of imported cases from the current outbreak. Over 20 000 people pass back and forth through the busiest border markets each day, and many families and commercial interests straddle the border between the two countries.

For more on the WHO Regional Strategic EVD Readiness Preparedness Plan see: <https://www.who.int/csr/resources/publications/ebola/strategic-plan-for-evd/en/>

For the WHO preparedness map and dashboard see: <http://apps.who.int/ebola/preparedness/map>

Figure 16 | **Scores (%) against the WHO Ebola preparedness checklist in Ebola-adjacent countries (as at end June 2019)**



On 11 June 2019, the Ugandan Ministry of Health (MoH) confirmed three cases of Ebola Virus Disease (EVD) in Kasese district, Uganda, a short distance east of the border with DRC. All three cases crossed the border from DRC, and were quickly identified and isolated after Congolese authorities alerted their Ugandan counterparts. All three patients subsequently died, but the rapid detection and isolation of the cases, and the close cross-border cooperation between Congolese and Ugandan authorities, ensured that the risk of further transmission was minimized, and no further cases were reported.

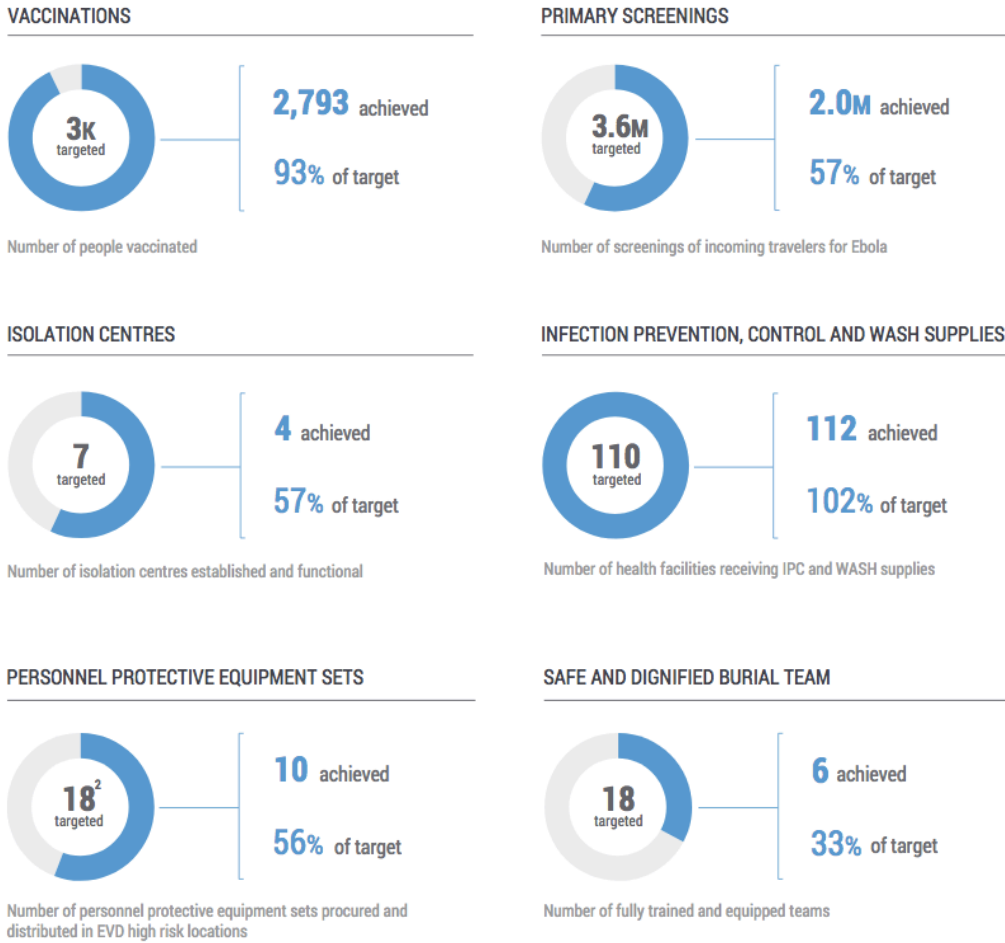
The response in Uganda is a blueprint for how the outbreak can be geographically contained. However, although at the highest risk of an

imported case, Uganda is was already one of the best equipped of the four adjacent countries to detect and respond to a pathogen it has already dealt with in the past.

WHO has supported Rwanda and Burundi to undertake a broad programme of work to prepare, particularly in the building of laboratory capacity and vaccination of health workers. Compared with August and September 2018, both countries showed much improved scores in WHO’s composite measure of preparedness by June 2019, although the lack of safe and dignified burial capacity in Burundi was cause for concern (figure 16).

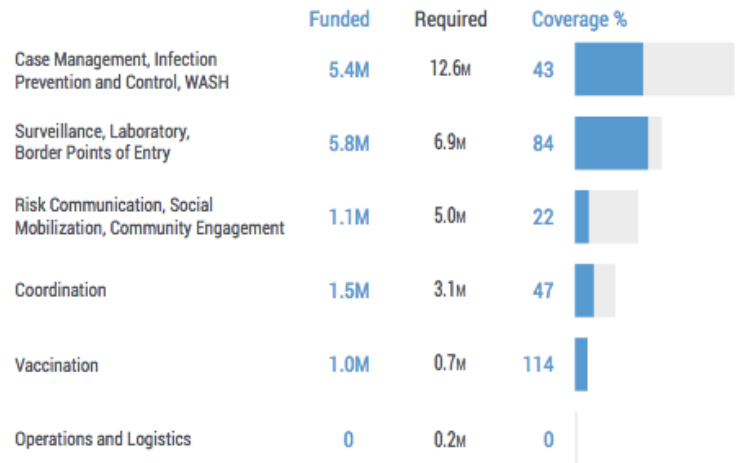
Many of the same factors that have limited the effectiveness of the response in DRC – conflict,

Figure 17 | **Progress against key readiness targets in South Sudan (as at end June 2019)**



extreme deprivation, a highly mobile population, and a threadbare health system – are also present in the border regions of South Sudan. As in DRC, the effective engagement of at-risk communities will be the decisive factor in controlling any importation there, and WHO has supported intensive efforts to improve laboratory capacity, rapid response capabilities, risk communication and community engagement. By the end of June 2019 South Sudan had showed increases across WHO’s composite measure of preparedness, with particular progress in the areas of vaccination, and supply of infection prevention and control materials (figure 17). However, progress against other key indicators fell short of targets, with funding shortfalls partly

Figure 18 | **Funding against targets for South Sudan (as at end June 2019)**



responsible (figure 18). All four high priority countries regularly report against preparedness checklists, with results published in situation reports updated on the WHO preparedness dashboard.

In DRC itself, one of the main planks of the initial response was the ramping up of operational readiness in previously unaffected health zones surrounding the current outbreak. A 30-day plan was implemented from mid-September 2018 until mid-October 2018 by the Ministry of Health, supported by WHO and partners in six high-risk provinces: Haute Uele, Bas Uele, Maniema, Tanganyika, South Kivu and Ituri. During this period 237 rapid response team members were trained, infection prevention and control kits were distributed to all provinces, and 685 community leaders were trained in messaging about Ebola.

A huge effort effort has also been focused on the city of Goma, the sprawling capital of North Kivu close to the border with Rwanda, and a regional and international travel hub for the surrounding provinces. By June 2019, WHO had supported the Ministry of Health to open of a new emergency operations centre to coordinate operational readiness activities, including intensified surveillance.

The intensity of efforts to prepare surrounding countries and health zones for an imported case has already paid off once in Uganda, but limited funding has held back some progress, particularly in South Sudan in the areas of operations and logistics, and community engagement.

Financial summary

WHO's response to the 2018-2019 outbreak of Ebola virus disease (EVD) in North Kivu and Ituri, Democratic Republic of the Congo, would not have been possible, nor as effective, without the generosity and engagement of our donors (table 3, figure 19). Together, we have achieved a great deal in some of the most challenging circumstances faced during

any outbreak. As the outbreak moves into its second year, we are determined that with a renewed, revitalised, and comprehensive strategy that builds on the lessons of the past 12 months, together we can end the outbreak.

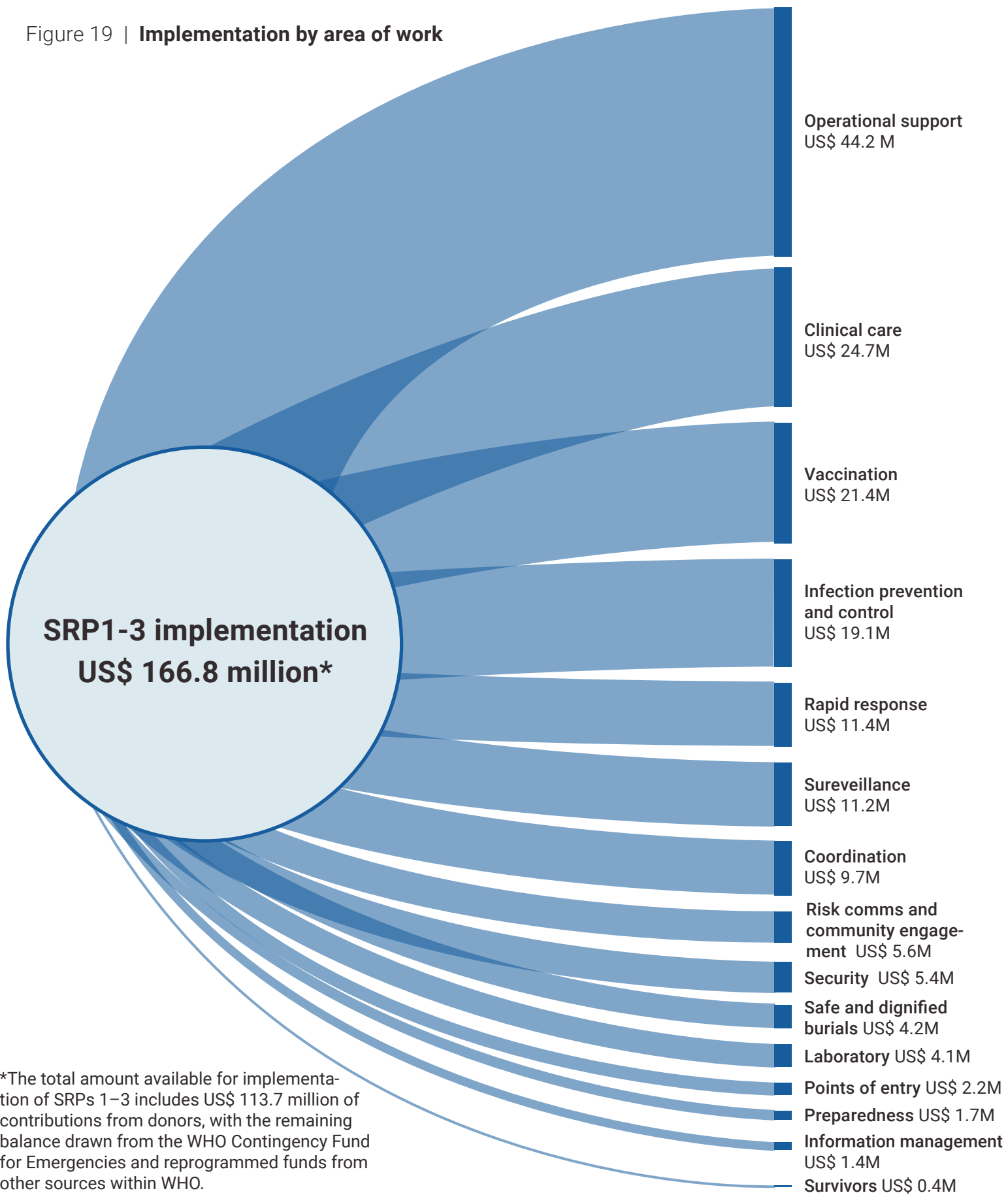
Table 3 | **Donations to Strategic Response plans 1–3 by donor***

Donor	Amount (US\$)
African Development Bank	1 million
Bill and Melinda Gates Foundation	6 million
China	2 million
ECHO	6.9 million
Gavi, the Vaccine Alliance	13.1 million
Germany	4.5 million
Norway	2.4 million
Paul Allen Foundation	0.7 million
Republic Of Korea	1 million
Sweden	4.3 million
UK Department for International Development	29.8 million
UN Central Emergency Response Fund	1.7 million
United States Agency for International Development	5 million
Wellcome Trust	4.3 million
World Bank: Contingency Emergency Response Component	23.8 million
World Bank: Pandemic Emergency Financing Facility	7.2 million
Total	113.7 million

For an updated summary on the funding situation see: <https://www.who.int/emergencies/diseases/ebola/drc-2019/funding>

*Several donors also provided funding to the [WHO Contingency Fund for Emergencies](#) in recognition of the critical role the fund has played in responding to the Ebola outbreak.

Figure 19 | **Implementation by area of work**



*The total amount available for implementation of SRPs 1–3 includes US\$ 113.7 million of contributions from donors, with the remaining balance drawn from the WHO Contingency Fund for Emergencies and reprogrammed funds from other sources within WHO.

Next steps

One year into the North Kivu and Ituri outbreak, the response now stands at a decisive juncture. The appointment in May of a new Ebola Emergency Response Coordinator, David Gressly, means the response now has a powerful asset: a high-level leader empowered to supervise the totality of the international support effort, working at a strategic level to engage with the national government, provide strategic direction to the UN bodies working on the response, strengthen security, and free up WHO's field operation to focus on its core strengths supporting the public health response.

Also in May, the UN Inter-Agency Standing Committee unanimously decided to activate the IASC Humanitarian System-Wide Scale-Up Protocol for the Control of Infectious Disease Events, in order to boost the humanitarian response to the outbreak. Additionally, on 17 July, WHO Director-General Tedros Adhanom Ghebreyesus accepted the conclusions of the Emergency Committee under the International Health Regulations (IHR), and declared the outbreak a Public Health Emergency of International Concern.

These developments helped put the response on the front foot. The fourth strategic response plan (SRP4), for the period July 2019 to end of December 2019, enables it to leverage the comparative strengths of a broad base of partners to tackle the key drivers of the outbreak.

A broad coalition of national authorities, UN agencies, international and national non-governmental organizations, and donors were invited to provide their input into SRP4 via an operational review that took place on 14 and 15 June in Goma. This broad coalition is a major strength, as the response evolves from a disease-focused configuration to an emergency response that places managing the EVD outbreak as the top priority within a broader set of humanitarian and public health needs. Addressing these broader needs will have multiple indirect benefits

for the strengthened public health response, which will continue to be led by WHO in support of the national government.

The implementation of the UN scale-up strategy will be directed by an Ebola Emergency Response Team (EERT) chaired by the Ebola Emergency Response Coordinator and the WHO Assistant Director General for Emergency Response, Dr Ibrahima Socé Fall. The EERT will have strategic oversight over five pillars (figure 20). In addition to the strengthened public health response pillar, led by WHO, the EERC will lead two pillars that will directly strengthen the public health response: political engagement, security and operations support; and support to communities affected by Ebola. These pillars address head on the two primary driving forces behind the outbreak: insecurity and community resistance to the response.

In addition, a strengthened financial planning, monitoring and reporting pillar overseen by the World Bank, will free WHO from the burden of day-to-day financial management of the response and enable the Organization to increase its focus on the public health response. The remaining pillar speaks to strengthened preparedness in countries surrounding DRC, and will combine WHO's expertise in preparedness with OCHA's in operational readiness, and IOM's strengths in cross-border affairs.

The EERT's role will be facilitated by an information management and analysis platform that will provide a detailed global overview of both UN and international NGO activities. This will enable rapid, data-driven coordination of the response, including resource allocation.

The new structure, strategic plan, and UN-wide scale-up will enable the response to push on towards the end of the outbreak. And as always, the support of donors will be central to bringing these plans from concept to reality.

For the fourth strategic response plan see: https://www.who.int/docs/default-source/documents/drc-srp4-9august2019.pdf?sfvrsn=679e4d26_2

Figure 20 | **Concept of operations: UN scale-up strategy for ending the North Kivu and Ituri outbreak**

