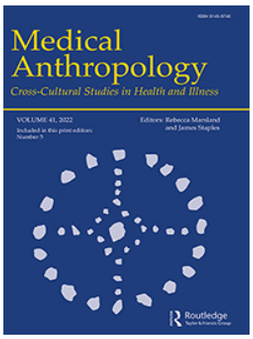

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"Are You Sure It's Not the Corona Vaccine?" An Ebola Vaccine Trial During COVID-19 in DRC

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ABSTRACT

The COVID-19 pandemic began as an Ebola epidemic was unfolding in the Democratic Republic of the Congo. In this article, we examine how COVID-19 influenced experiences of an Ebola vaccine trial and attitudes towards medical research in Goma. First, critical debates about vaccine research became a forum in which to contest ineffective local governance and global inequality. Second, discussions about new COVID-19 therapeutics reignited critique of Western biomedical colonialism. Third, rumors were made powerful through everyday observations of the unexpected adaption of Ebola trial procedures in the pandemic. This illustrates the difficulties of maintaining participants' trust, when circumstances dictate protocol alterations mid-trial.

RÉSUMÉ

La pandémie de COVID-19 a commencé alors qu'une épidémie d'Ébola se déroulait en République Démocratique du Congo. Cet article examine comment la COVID-19 a influencé les expériences d'un essai vaccinal Ébola et les attitudes envers la recherche médicale à Goma. Premièrement, les débats critiques sur la recherche vaccinale sont devenus un forum dans lequel contester la gouvernance locale inefficace et les inégalités mondiales. Deuxièmement, les discussions sur les nouvelles thérapies contre la COVID-19 ont ravivé la critique du colonialisme biomédical occidental. Troisièmement, les rumeurs ont été amplifiées par les observations quotidiennes de l'adaptation inattendue des procédures d'essai d'Ébola à la pandémie. Cela démontre les difficultés de maintenir la confiance des participants, lorsque les circonstances dictent des modifications de protocole à mi-parcours.

KEYWORDS

Clinical trial; COVID-19; DRC; ebola; vaccines

In April 2020, the possibility of COVID-19 vaccination trials in Africa reignited criticism of Western-led clinical research on the continent. When two French doctors suggested on live television that a potential COVID-19 treatment should first be tested on Africans, where "there are no masks, no treatment or intensive care … they are highly exposed and don't protect themselves," the football player Didier Drogba encapsulated the subsequent criticism in a tweet: "Africa isn't a testing lab" (BBC 2020). This debate flared in the Democratic Republic of the Congo (DRC) when Professor Muyembe – the co-discoverer of Ebola and the head of the research institute *Institut National de la Recherche Biomédicale* (INRB) – was quoted in the media saying that the DRC was a "candidate" for COVID-19 trials. After public outcry, he clarified his position and reassured his fellow citizens that they would not be used as "guinea pigs;" nothing would be tested in DRC before it had first been tested in Europe and

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Media Teaser: How did the COVID-19 pandemic influence local experiences of an existing Ebola vaccine trial in eastern DRC?

the USA (TV5 2020). The Congolese Minister of Human Rights responded to the comments of French doctors by stating, "Africa will no longer serve as a testing ground as used to be the case during the colonial or slavery days" (AFJN 2020).

This controversy unfolded as efforts were being made in eastern DRC to control the world's second largest Ebola epidemic (2018–2020). One experimental Ebola vaccine had recently been deployed in the region. A second was being trialed in Goma, the capital of North Kivu province. In April 2020, the DRC-EB-001 Ebola vaccine trial suspended for five months to avoid potential COVID-19 transmission in its clinics. When the trial restarted vaccination, a rumor circulated in Goma that the second dose of the Ebola vaccine had been replaced with an experimental COVID-19 vaccine which pharmaceutical companies were clandestinely testing on Africans. Whilst we were conducting research in Goma, participants in the trial asked us for reassurances that the second dose was indeed the Ebola vaccine. At the end of one interview, a trial participant leaned forward and whispered, "are you sure it's not the Corona vaccine?"

In this article, we examine the impact of the COVID-19 pandemic on experiences of the DRC-EB -001 Ebola vaccine trial in Goma and debates about clinical research more broadly. The trial took place between November 14, 2019 and February 9, 2021 and was led by a coalition of foreign and Congolese institutions: *Institut National de Recherche Biomédicale*, the Congolese Ministry of Health, and the London School of Hygiene and Tropical Medicine, in collaboration with Janssen, Epicenter, *Médecins Sans Frontières*, the Coalition for Epidemic Preparedness Innovations, United Kingdom Public Health Rapid Support Team, the Wellcome Trust and the World Health Organization. The trial evaluated the effectiveness, safety and immunogenicity of a heterologous two-dose (Ad26.ZEBOV, MVA-BN-Filo) vaccine, which had previously been evaluated for immunogenicity and safety in 11 clinical trials (Watson-Jones et al. 2022). The trial was conducted at six vaccination sites in two health areas of Goma: Majengo and Kahembe. Two doses (prime and boost) were administered 56 days apart. On April 9, 2020 , however, vaccination was suspended due to the COVID-19 pandemic, when only 9560 of the 20,000 participants had completed both doses. The Ebola epidemic ended in June 2020. However, in Goma, vaccination restarted on September 14, 2020 so that the remaining participants could still receive their second dose, and because the trial did not rely on Ebola cases but rather immunology (Watson-Jones et al. 2022). The trial provided participants with free medical care for one month following vaccination and pregnant women with free care until delivery (Watson-Jones et al. 2022). Over 75% of the participants received their second dose.

The article is based on ethnographic research conducted in Goma between October 2020 and April 2021, when vaccination restarted after the trial's five-month suspension. Our aim was to explore participant and community experiences of the trial. With the delay in commencing fieldwork due to COVID-19, we incorporated questions about the impact of the pandemic. Myfanwy James was based in Goma and conducted fieldwork, three months of which was conducted with a team of Congolese researchers. Shelley Lees led the research design. The ethnographic study was part of the trial protocol, which was clarified in informed consent forms. There was a tension in our research between maintaining academic independence and providing critique, whilst also providing insights that might help the trial to be responsive to the socio-political context (Enria et al. 2016). Yet, because our research commenced only after the trial had been operating for a year, it did not inform the trial's procedures, but instead captured the experiences of participants as the biomedical team adapted the trial during the pandemic. We maintained a degree of autonomy. For example, our research was kept distinct from community engagement, and systems were put in place to maintain the confidentiality of our data. We explained to participants that our aim was to study the trial, rather than to run the trial. Our research seemed to be viewed as an "evaluation:" linked to (but sufficiently separate from) the trial team, thus providing a space for critique.

We interviewed trial participants, citizens, and political and health authorities about their perceptions of the Ebola vaccine trial, the Ebola response, and clinical research more generally. The article draws on ethnographic observation at vaccine clinics, 46 interviews and five focus groups with trial participants, 8 interviews and three focus group discussions with provincial politicians, traditional

medical practitioners, civil society activists and health authorities and people who did not participate in the trial. All discussions were carried out in Swahili or French, and then transcribed and translated. Participants have been anonymized and names have been changed.

We adopt an anthropological approach to the study of medical research which examines the lived experience of "postcolonial techno-science" (Fairhead et al. 2006, 1110). This literature illustrates how trust in medical research is influenced by state-society relations, histories of medical violence, as well as contemporary global inequalities (Geissler 2005; Tilley 2011). Ethnographic studies have also focused on the inequalities embedded in "trial communities" and the "imperial origins as well as asymmetrical topography of power and resources" intrinsic to clinical research (Crane 2013; Geissler 2011:1). More recently, historians have examined the debates surrounding potential COVID-19 vaccine trials in Africa, illustrating how these discussions have become new sites in which people contest both contemporary global inequalities as well as historical wrongdoing (Tilley 2020). In effect, vaccine trials are not just entwined with political dynamics or understood in relation to them: trials themselves also become new arenas for articulating wider concerns about inequality and exclusion (Enria and Lees 2018; James et al. 2021) and are inseparable from broader concerns about social justice (Fairhead et al. 2006).

Drawing on the narratives of Ebola vaccine trial participants as well as those of citizens in Goma during the COVID-19 pandemic, we make three arguments. First, we show how critical debates about foreign-led vaccine research have become a political forum in which to contest ineffective local governance and to engage in broader historical conversations about global extraction and inequality. Second, the COVID-19 pandemic and discussions about new therapeutics have reignited popular critique of Western biomedical colonialism. Critical discussions around vaccine trials have become a space to discuss Africa's place in the world, challenging the depiction of Africa as a site of inevitable catastrophe and the global health discourses which continue to define some people and their knowledge as traditional and particular. Third, we argue that rumors are not only a reflection of political anxieties: they are also based on personal experiences of evidence (Butt 2005). There were several different rumors that emerged among trial participants and citizens living in Majengo and Kahembe. These were about the safety of the first and second Ebola vaccine doses, about effects on reproductive health, and about trials as pharmaceutical companies' business opportunities. The suspension of the Ebola trial created new concerns among participants: those who initially trusted the scientific rationales behind specific trial procedures were troubled by the changed schedule for the second dose. When trial procedures were adapted in exceptional circumstances, the rumor that the delayed second dose was an experimental COVID-19 vaccine became as convincing as other explanations. Ultimately, this case illustrates the difficulties of adapting trial operations in the face of uncertainty, whilst maintaining participants' trust in a trial's medical procedures.

To begin, we outline the political context during and after the Ebola epidemic in eastern DRC, the two vaccine trials in the region, and the arrival of the first wave of COVID-19. The second section describes the impact of the COVID-19 pandemic on participant experiences of the DRC-EB-001 trial: the delayed second dose; the reignited controversy about medical experimentation in Africa; and the rumors that the second dose was an experimental COVID-19 vaccine. The third section examines how the COVID-19 pandemic reignited medical research as a political space to discuss broader concerns about inequality, political economy and social justice: in a broader post-colonial context, and in a specific context of local contestation. Rumors about the delayed second Ebola vaccine dose, however, were not just symbolically meaningful, but were based on everyday observations as trial procedures were adapted in the pandemic.

Setting the scene: Ebola, vaccine trials and COVID-19 in eastern DRC

Between August 2018 and June 2020, the DRC's 10th Ebola epidemic occurred in the east of the country, leading to 2287 deaths. The epidemic began in the Grand Nord of North Kivu province, and quickly spread to the city of Beni, and then Butembo. There was hostility and distrust toward the

medical response, including attacks on treatment centers and healthcare workers. These dynamics must be contextualized within the specific political context of the region. North Kivu has been the epicenter of conflict in the Great Lakes for the last 25 years. The Grand Nord territories have a long history of violent conflict and rebellion from the central state and are governed by a mosaic of armed groups and local authorities. Recently, the Allied Democratic Forces rebel group has increased attacks against the population, leading to local discontent at the inability of the government forces or the UN's largest and most expensive peacekeeping mission to provide security (Bisoka et al. 2021; GEC 2020).

The introduction of the well-funded Ebola response (approximately $1.2 billion) into an area where basic services remain underfunded and people feel abandoned by the ruling class gave the impression that the response aimed to benefit intervenors rather than local populations (Crawford and Holloway 2021, 41). The difference in salary between staff from abroad and from Kinshasa compared with locally employed people, as well as instances of corruption, gave the impression that responders had incentives to prolong the outbreak, or even invent Ebola altogether as a "business" to enrich elites and international NGOs (Bisoka et al. 2021; Crawford and Holloway 2021; GEC 2020). The epidemic also unfolded at a particularly tense political moment. In November 2018, the electoral process began after being postponed by President Joseph Kabila for several years. But, in December 2018, Ebola was used as a pretext to cancel elections in Ebola-affected regions. This provoked mass protests, and many in the region concluded that Ebola was a political invention to suppress the opposition stronghold (Bisoka et al. 2021).

Two vaccines

During the 22-month epidemic, two vaccines were deployed. The first vaccine, manufactured by Merck (rVSV-ZEBOV), was administered by the DRC Ministry of Health and WHO in a ring vaccination to healthcare workers and contacts of confirmed Ebola cases. The vaccine had not yet been licensed but was used under a "compassionate use" protocol which allows for unlicensed treatments to be administered when there is no better alternative (Kelly 2018). In North Kivu, the side-effects of the vaccine sparked fear as well as rumors that the vaccine either aimed to exterminate the population or represented a business opportunity for pharmaceutical companies (Bisoka et al. 2021). The ring vaccination strategy also sparked controversy among the institutions responding to the epidemic. MSF called for an increase in production of the vaccine, criticizing the rationing of vaccines and arguing that the ring strategy would not vaccinate enough people to stop the spread of the virus (MSF 2019). Responders were concerned about the limited supply of Merck vaccines and the logistical difficulties of the cold-chain. In the end, the WHO urged for the adoption of another complementary vaccine with different eligibility requirements to enable more people to be vaccinated (SAGE 2019).

The proposed use of a second vaccine sparked debate about the ethics of medical research in epidemic contexts (James et al. 2021). The American-Belgian Johnson & Johnson (J&J) vaccine emerged as a favorite because of its more manageable cold-chain and because there was already sufficient supply of vaccines. A coalition of global health institutions and the DRC research institute INRB backed the deployment of the J&J vaccine. However, the Minister of Health, Oly Ilunga, was opposed to the idea of deploying a second vaccine in an outbreak, saying it would confuse the population (Branswell 2019). These discussions became entangled in political tensions in Kinshasa. In January 2019, President Tshisekedi took over from Kabila after 18 years in power and restricted Ilunga's mandate to non-Ebola matters. Ilunga subsequently resigned, and attacked backers of a second vaccine in his resignation letter: they "have shown an obvious lack of ethics by voluntarily hiding important information from medical authorities" (Ilunga 2019). Whereas Merck was only available to contacts and healthcare workers in the epicenter of the epidemic, the aim of the second vaccine was to create a protective "curtain:" it was available to volunteers in Goma who were near but outside the outbreak zone to prevent the virus from spreading (Watson-Jones et al. 2022). After Ilunga's high-profile resignation, there was popular debate in North Kivu about whose interests another vaccine served. For example, the civil society group, *Lutte pour le Changement*, published an article entitled "Ebola: vaccines or business?"

questioning the ethics behind testing another vaccine, challenging the claim that there was a shortage of Merck, and criticizing the trial's $80 million budget: "Is the priority for donors to quickly stem the current epidemic or to take advantage of the long duration of the epidemic to conduct all kinds of experimental tests on a wounded Congolese population?" (LUCHA 2019).

From Ebola to Corona

In this context of debate about clinical research in epidemics, the COVID-19 pandemic began. By the end of March 2020, President Tshisekedi announced a national lockdown. Travel to and from the capital was banned and international flights were suspended. Reflecting on their experience of these early days of the pandemic, people in Goma described their fear that a catastrophe was on its way. But when the first wave of COVID-19 did not "hit" as the narratives of inevitable catastrophe predicted, many concluded that COVID-19 existed in Europe, but not in Africa, highlighting differences in demographics, climate, food, travel, and medicines (Lees et al. 2022).

As eastern DRC grappled with the initial invisibility of COVID-19 during the first wave, some people concluded that COVID did not exist and was invented to replace Ebola business at the end of the epidemic. A man from Goma summarized the view in his neighborhood: "COVID is a *cop* [deal or business], it exists in Europe, but not here. It's a business, just like Ebola. The government inflates numbers [of cases] to attract funding. Doctors are paid to say someone died of COVID-19 so that the business can grow." Meanwhile, many in Goma lamented that COVID-19 restrictions were "making people poor:" the border closure with Rwanda meant people lost their livelihoods and cross-border trade. The application of lockdown restrictions was widely – COVID-19 was not seen as a priority when there were relatively few cases, basic services remained underfunded, and insecurity continued.

Rumors circulated that COVID-19, like Ebola, was a business opportunity for pharmaceutical companies and their Western backers. In particular, there was anxiety about COVID-19 vaccines. Rumors circulated that pharmaceutical companies had *created* COVID-19, to then make money from vaccines, or that both COVID-19 and its vaccines were Western schemes to exterminate the Congolese population. It was in this context that the DRC-EB-001 Ebola trial restarted vaccination after five months of suspension.

The impact of COVID-19

Delayed second dose

Participants in the DRC-EB-001 Ebola trial were initially meant to receive the two vaccine doses 56 days apart. Previous trials had compared dosage, vaccine order, and intervals between the two doses, and found that 56 days apart was the optimal regimen for vaccine-induced immune responses, and for making sure the trial could locate people eligible for their second dose (Watson-Jones et al. 2022). Shorter intervals produced fewer binding antibodies, whilst longer intervals produced an antibody response that was similar to 56 days (Pollard et al. 2021). In Goma, at the first dose, the date for participants' second dose was written on their vaccination card provided by the trial. Participants were told to return 56 days later. Because of concerns about participant return in a context of high mobility and insecurity, the community engagement team emphasized the date for the second dose as a means of encouraging participants to return for the second dose.

However, when the trial was suspended, around half of the trial's participants had not received their second dose. Whilst some participants thought that the decision to suspend was necessary to prevent the potential danger of COVID transmission, others described the suspension as an unnecessary risk to their health. "They [the trial] should have continued vaccination so those of us who had only received the first dose could receive the second and finish the vaccination," a woman in Kahembe summarized. Another participant in Majengo told us, "COVID-19 wasn't even really active here, so people were saying that the trial should have let us receive the second dose as planned. It was just

a question of receiving one person at a time and keeping a distance and washing hands. So, people thought it *[the decision to suspend]* was incomprehensible." Rumors circulated that the trial had revealed a side-effect of the vaccine and it had secretly been decided that it was not safe to continue.

After the emphasis placed on the importance of the 56-day window between the two doses, the delayed second dose caused anxiety among participants. The trial team restarted vaccination with the knowledge that the 56-day period was the optimum *minimum* gap between two doses for efficacy: existing evidence showed that longer intervals (such as 84 days) produced an antibody response that was as high as 56 days (Pollard et al. 2021). The priority for the trial was to ensure that all participants had the chance to be vaccinated, despite the disruption. But for participants, the logic behind the 56-day interval was left largely unexplained, and was thus read as crucial to *safety*, as well as efficacy. After the suspension, participants were concerned whether the vaccine would still be effective after months between the doses. Others were anxious about unintended side-effects of the longer gap between doses. "I ask myself if this distance [between the doses] will not cause me harm," one woman stated. Several other trial participants thought that the delayed second dose could, in fact, be fatal: "When I arrived to take the second dose, they told me that they had suspended activities, and then I started to worry that they wanted to kill me, since I had received the first dose and not the second and that meant that there would be things happening in my body," another woman explained. A man from Majengo who also brought his children to be vaccinated recounted:

> They said 56 days, now it's already been 5 months, it's to kill us this time. Yesterday I received a call saying I needed to come and get the second dose, so I asked a question saying well, you told us not to pass 56 days or there would be problems, so will there be problems now? But they reassured me that there would not be difficulties. Now I just wait for the effects on my body, I don't know if there will be or not, because they [the trial] have already contradicted themselves.

Meanwhile, another rumor circulated that the first dose was potentially poisonous, and that a timely second dose was the only antidote. A male participant from Majengo explained, 'There were concerns about the suspension and that this dose one might harm us, because they *[the trial]* told us with such insistence when we had the first dose "remember this date! The date for the second dose!"' A young woman who also vaccinated her children described, "us who had close ones who had not yet received the second dose began to worry . . . I worried that if they did not receive the second dose, the first dose might become expired and create problems in their body." Other participants thought that the date for the second dose was important because taking the vaccine on another date would harm the body: "So there are people who have refused to come back for the second dose because the period that was planned for it has already passed. If we dare to receive it these days, it will become poison in our bodies," as one woman put it. In sum, there were contradictory rumors about the delayed second dose: that *not* receiving the second dose was dangerous, or that receiving a delayed second dose was dangerous. Both tried to make sense of the trial's initial emphasis on returning 56-days later, and then the subsequent change in schedule.

When the trial restarted vaccination in September 2020, trial participants who did return for their delayed second dose described stigma in their neighborhood, including among fellow trial participants who decided not to return. A woman from Kahembe who brought her seven children to be vaccinated after the suspension, explained: 'The next morning my friends and neighbors began to mock me, saying "she even took all her children, you are all going to die!" I am scared because those who had the first dose were scared to come and take the second dose. They mock me, but I told them that I came to receive it to prevent being infected with Ebola when it returns. But they mock me still. Is it true that later it will cause problems for us who have been vaccinated?'

Africa will no longer serve as a testing ground

These anxieties about a delayed second dose intensified as the COVID-19 pandemic generated global debate about vaccine trials in Africa, just as the Ebola trial suspended activities. After recent Ebola vaccine trials in DRC, the suggestion of a possible COVID-19 trial proved a sensitive subject,

reinforcing the impression that Africans were being used disproportionately as the world's "guinea pigs." Professor Muyembe's comment that DRC was a potential "candidate" for COVID-19 vaccines reignited controversy about the DRC-EB-001 trial and the INRB's role in facilitating trials in collaboration with foreign pharmaceutical companies. A committee in support of the former Minister of Health, Ilunga, released a communique which referred back to the controversy about the Ebola vaccine trial, asserting that a "foreign pharmaceutical company [J&J] used its privileged relationship with a national laboratory [INRB] to launch vaccine trials whilst ignoring the recommendations of the government" (Comité de soutien 2020). The communiqué warned that this could happen again with COVID-19 trials.

These broader debates during the trial's suspension influenced personal experiences of the DRC-EB-001 trial in Goma. When responding to questions about the Ebola trial, participants expressed concern about the possibility of COVID-19 vaccine trials. For instance, when we asked a trial participant from Majengo whether he had any concerns about the DRC-EB-001 trial, he responded:

> I don't have any questions which have not been answered about this vaccine. What really worried me is that I learnt that they want to bring us the vaccine against coronavirus. When I found that out, I thought it's over, we are going to die. Because the whites want to bring us this vaccine, when it's they who are the most affected by COVID-19 in terms of deaths, so how do they want to bring *us* this vaccine when it's them [who are] the victims and they haven't even received or tried the vaccine themselves?

A young man from Majengo summarized the mood during a focus group discussion when he asked:

> When it comes to vaccine trials, why always in Africa or in Congo? They *[white people]* also want to test the corona vaccine still in Congo, why? . . . They have other hidden intentions. Where it should be done is there at home [*Europe/USA*] . . . We will receive what is already validated.

Global debate about COVID-19 trials also sparked criticism of Western biomedicine's global hegemony. In 2020, the President of Madagascar, Andry Rajoelina, was praised for articulating a pan-African form of resistance to Western pharma-capitalism by spearheading an "African COVID-19 cure," COVID-19 Organics, a tonic drink made from artemisia, a medicinal plant used in traditional medicines in DRC. In response to WHO's warnings about the untested treatment, Rajoelina said that criticism of the herbal tonic is another example of the West's condescending attitude toward Africa. In an interview on French television, he stated: "If it was a European country that had actually discovered this remedy, would there be so much doubt? I don't think so" (TV5 2020). Trial participants and people we interviewed in Goma alike praised Rajoelina and talked about Jérome Munyangi, a Congolese doctor and long-time advocate of the use of artemisia who was involved in COVID-19 Organics and has called for investment in African medical research. For instance, a man living in Majengo who chose not to take part in the trial explained:

> When it comes to health, we also have experts. I always wonder why people only believe in what comes from far away. We do not want to promote local efforts or rely on local capacities. There was a cure that a Congolese man discovered in Madagascar. But people find it hard to believe. Medicine always has to come from WHO, or white people, and yet we also have well-qualified people who can do important things . . . we also have capacities, but they are trampled on.

The WHO's skepticism at the potential of COVID-19 Organics was described as another example of how global health institutions side-line therapies which threaten Western pharma-capitalism. In focus groups, people drew on a repertoire of past experiences, referring to the fact that the use of artemisia for malaria was also delegitimized by WHO. Others talked about a Congolese immunologist, Dr. Lurhuma, who caused global controversy when he announced in 1988 that he had found a cure for AIDS. In 2020, rumors resurfaced that Lurhuma was murdered because his cure threatened pharmaceutical business interests in Africa. A man in Goma explained, "AIDS killed a lot of people

at one point, and when Dr. Lurhuma had a treatment which cured it, they *[whites]* killed him so that Whites' medicines . . . which are a source of money . . . were brought here. Why can whites not accept that Congolese drugs can also work across the whole world?"

Young men in Goma argued that the rumor that vaccines aimed to exterminate Africans is powerful because: "It is difficult to understand why things fabricated by Africans are forbidden for Africans to use, but things that are fabricated in Europe, they oblige Africa to use. Therein lies the problem. They refused the treatment from Madagascar. Why isn't our research promoted?" A traditional healer told us about his hopes for greater investment in traditional medical research so that he, too, could illustrate the contribution of his knowledge on the world stage. He told us that colonization is "the monopoly on invention and innovation," and that there is nothing more colonized than medical research. "Whose knowledge and inventions are trusted, and why do you think that is?" he asked. He concluded by suggesting that we return to Europe and tell WHO that Africa does not just have problems, but also "things to offer the world."

Are you sure it's not the corona vaccine?

In this context of debate about vaccine trials and new COVID-19 treatments, the Ebola epidemic ended and the DRC-EB-001 trial restarted vaccination. The trial team wanted to ensure that all participants could be vaccinated, despite the disruption. The number of people allowed in a clinic was reduced to avoid COVID-19 transmission, and the trial added an immunogenicity substudy to examine the antibody response to altered dosage intervals. But people living in Goma started to look for alternative explanations as to why the vaccination had restarted, given that the Ebola epidemic had already ended. A rumor spread that the second Ebola vaccine dose had been replaced with an experimental COVID-19 vaccine. Pharmaceutical companies were secretly testing experimental COVID-19 vaccines under the guise of the Ebola trial because European countries needed a vaccine, but did not want to risk the lives of their own citizens. The fact that J&J was also developing a single dose COVID-19 vaccination fed this rumor. When we introduced our research on the "experiences of the vaccine trial in Goma" to a senior health official, he responded with a wry smile, "which trial is that again, the COVID-19 one?"

Almost every trial participant we interviewed wanted to discuss the rumor that the second dose was an experimental COVID-19 vaccine. In a focus group, Kasereka, a trial participant from Majengo, explained: "The suspension here, really, increased distrust toward the [Ebola] vaccine. Because, as they [the trial] suspended, COVID-19 arrived. The distrust became severe because everyone thought that this was an opportunity to do a COVID-19 trial secretly, to replace the second dose with the COVID-19 vaccine." In Majengo, people found the timing suspicious, and concluded that the trial suspended the second dose in order to change the vaccine: 'People started to ask, "With this second dose, is there not a risk that they will bring us another vaccine which is not the Ebola vaccine?"' Another male trial participant explained, "because we knew that Corona comes from there in Europe and America, *chez les blancs*, and that they have not already found a cure . . . That really affected peoples" attitudes toward other vaccines, like this second dose of Ebola vaccine. What are we really being injected with in the second dose? Has the COVID-19 vaccine testing already begun? Are we not already trapped in their [white peoples'] schemes?"

In a café one afternoon, Kasereka described how this rumor emerged in Majengo during the Ebola trial's suspension, creating anxiety among trial participants: 'A huge number of people say that the COVID-19 vaccine is already here, and that Professor Muyembe himself accepted that they *[whites]* do trials here in Congo. There were even videos saying we have been chosen to do Corona trials here, so when he does his Ebola trials, people said, "Ah! This is a way that they can do COVID-19 trials directly and quickly."' The fact that Professor Muyembe was the Principal Investigator of the DRC-EB-001 Ebola trial fueled the rumor that it was secretly testing COVID-19 vaccines. Then, in June 2020, an EU delegation arrived in North Kivu to support the COVID-19 response. "It was when all the borders were closed, but then we find that an EU delegation arrived here in Goma with lots of boxes. Rumors

circulated saying *voilà*, they have brought COVID vaccines to test. Afterward, the vaccine trial [Ebola] here restarted, and everyone said, ok, where did those vaccines they brought really go?" Kasereka explained.

Out of the five other people Kasereka knew who took the first dose, he was the only person to return for the second dose. His friends were convinced that the second dose had been replaced with an experimental COVID-19 vaccine which would sterilize them. A young woman who works in a market in Majengo next to one of the vaccination sites, told us about the reaction in the neighborhood when vaccination restarted:

> People said that they *[the trial]* tell us it's an Ebola vaccine but that's not true, it's for Corona. If they *[the trial]* used the name Corona, it would not be possible to test the vaccine, because people would refuse. The objective of the vaccine is that among those who take it, in a few years some will be weak, others will be dead. So, they are in the process of killing us, step by step, because the objective of those people is to come, dominate us, and live here. That is the reason they are forcing us to take the vaccine.

Trial participants in Majengo talked about another rumor that the second dose had been replaced with a vaccine which infected people with COVID-19: 'the vaccine trial and the arrival of COVID-19 confused a lot of people. When they took the Ebola vaccine some participants got a fever, and fever is a symptom of Corona, so then people in the neighborhood started to say, "they injected you with Corona!"'

These rumors created tensions between trial participants. Those who had already received their second dose before the suspension felt relieved. As a female participant concluded:

> I don't have any concerns because when they *[the trial]* suspended, I had already received my second dose. When they stopped the vaccination, participants who were supposed to be vaccinated for the second dose started to worry that they were receiving the Corona vaccine without knowing. Those of us who had already received the vaccine were full of joy and felt superior.

Participants who received a second dose after the suspension described how their neighbors believed that they had received the COVID-19 vaccination. "People are mocking me . . . they say that white people are cunning. People tell me that my boys will no longer be fertile. They also tell me that my daughter is going to have complications every time she conceives," one mother in Kahembe explained. A health official concluded an interview by exclaiming, "We tried and tried to explain J&J was different from COVID vaccines, but COVID-19 has disturbed everything!"

Epidemic response in a pandemic

We describe an unusual situation in this article: a vaccine trial for an epidemic that was interrupted by a pandemic of another viral disease. The COVID-19 pandemic not only generated debate about possible COVID-19 vaccine trials in Africa, but also influenced experiences of existing trials. Drawing on the anthropological and historical literature on rumor and medical research, several broader points can be gleaned from this empirical case.

Medical research as a site of popular protest and rumor

First, anxieties about vaccine trials need to be situated in political context. Rumors are rich vehicles for articulating social and political anxieties, and gain strength "during times of social upheaval" (Masquelier 2002, 91). Rumors are not necessarily false, but reflections of socio-political realities and asymmetries of power (Feldman-Savelsberg et al. 2000; Taussig 1987; White 2000). Existing studies on medical research and vaccination campaigns in Africa illustrate how rumors need be understood in context of historical and contemporary state-society relations, as well as past colonial extractions and biomedical campaigns (Feldman-Savelsberg et al. 2000). Rumors about vaccination are symbolically meaningful idioms that articulate "broader political experience in colonial and post-colonial settings" (Yahya 2007:187), acting as "modern commentaries on social

relations that involve, and extend far beyond scientific medical research" (Geissler and Pool 2006:975). During the West Africa Ebola outbreak, for instance, rumors represented "more generalized concern about medical interventions; they are not simple misunderstandings but are rather rooted in histories of exploitation and mistrust" (Enria et al. 2016:8). Rumors about a vaccine trial in Sierra Leone were "windows into people's social and political realities, ranging from mistrust of a dilapidated national healthcare system to ambivalence regarding the role of international actors in Sierra Leone's affairs" (Tengbeh et al. 2018:37). In the context of clinical trials, rumor offers people a "language to express both disaffection and disillusionment with the political status quo" (Lees and Enria 2020:575).

Events in Goma show a striking resemblance to those described in these existing studies. Indeed, critical debates about foreign-led vaccine research became a political forum in which to discuss topics beyond the trial-participant encounter (Enria and Lees 2018), such as local governance and global inequality. The trial suspension took place at a critical moment in North Kivu, as the Ebola epidemic came to an end and the COVID-19 pandemic reignited global controversy about vaccine research. In eastern DRC, there was existing distrust of foreign intervenors, drawing on a history of imperial violence and post-colonial exploitation, as well as frustration toward the protected presence of international NGOs and a UN peacekeeping mission which have reshaped the political economy and created new forms of inequality, all whilst failing to provide security for civilians (Bisoka et al. 2021; Büscher and Vlassenroot 2010). The fact that vaccination restarted after the end of the Ebola epidemic only increased suspicion about the intentions behind the trial.

However, this case also illustrates how an emergent pandemic shifted the debate, creating new concerns about an existing trial. The COVID-19 pandemic shifted global attention onto vaccine trials, and after the deployment of two Ebola vaccines in eastern DRC, the rumors about COVID-19 trials reinforced the perception that Africans were being used disproportionately as "guineapigs." This had a direct impact on perceptions of the DRC-EB-001 Ebola trial because it reignited earlier controversy about the deployment of a second vaccine. The rumor that the Ebola vaccine was, in fact, an experimental COVID-19 vaccine articulated deeper anxieties that trials were a business opportunity for pharmaceutical companies. This rumor became part of a broader political critique about profit-making in crisis: a commentary on the recent Ebola response, the forms of exclusion and inequity it reproduced, as well as the continued neglect of more pressing local priorities, such as basic services and insecurity (Bisoka et al. 2021).

Yet, as Eboko (2020) has highlighted, Africa is today the "least sought out" part of the world for vaccine trials: in 2017, Africa and the Middle East combined represented only 7% of medical trials. Instead, critiques of vaccine research must be situated in legacies of colonial and post-colonial violence. As Tilley (2011) describes, it was not that long ago that Africa was viewed as a "living laboratory" for European regimes. Colonialism and epidemics have long been "intricately interlinked:" not only did "imperialism create new conditions for disease pandemics, but also epidemics served to justify empire" (Tilley 2011:28). In DRC, biomedicine was introduced as a tool of Belgian colonialism, with the aim of ensuring a healthy workforce for colonial economic activities. The colonial regime suppressed traditional healers and directed the Congolese population to seek treatment at Belgian-run hospitals (Hunt 2015). First encounters with colonial medicine involved violent medical campaigns, enforced isolation, and ineffective treatments which were experienced as an aggressive expression of colonial power (Lyons 1992). Contemporary concerns about being the world's "guineapigs" therefore draw on collective memories of unregulated and coercive medical campaigns during the colonial era (Hunt 2015; Lachenal 2014; Tilley 2011; White 2000), but also more recent cases of unethical drug testing by pharmaceutical companies in Africa (Graboyes 2015; Petryna 2009). For instance, Pfizer paid compensation to families of children who died in a clinical trial during a meningitis outbreak in Kano, northern Nigeria. A hundred children were given an experimental antibiotic Trovan, while a further hundred received a low dose of ceftriaxone. Five children died on Trovan, and six on ceftriaxone. Parents stated that Pfizer had not fully informed them of the risks, and this incident influenced trust in future immunizations in the region. In 2003, a polio immunization campaign was

brought to a standstill when leaders responded to widespread fears that the vaccines were contaminated with anti-fertility agents and HIV (Renne 2006; Yahya 2007). Ultimately, colonial history and recent events influence trust.

In the wake of COVID-19, discussions about vaccine trials in eastern DRC also became a new site to contest the way that global inequality *continues* to shape everyday lives. As Tilley (2020) summarizes, "no vaccine testing" became a popular slogan not just because of medical injustices of the past, but because people were contesting the fact that their lives continue to matter less on the global stage. Rumors about sterilization plots have historically been a means to articulate concerns about collective survival and asymmetries of power (Feldman-Savelsberg et al. 2000). Such rumors are both rooted in colonial experience, and a commentary on contemporary dynamics: a way to "debate the local within the global, and the present within its history" (Geissler and Pool 2006:978). They act as commentaries through which people can make sense of medical research as "part of a wider system of exploitative appropriation of value" (Geissler and Pool 2006:980). As White (2000:5) describes in her history of colonial Africa, rumors are not misinformation but epistemologies through which people describe the "extractions and invasions" and "the working of power and knowledge" in their daily lives. In 2020, the subject of clinical research in eastern DRC became a political space to discuss broader concerns about inequality and political economy: both in a broader post-colonial context, and in a specific context of local contestation.

Medical self-determination

These debates about new treatments in the COVID-19 era also became a space for popular critique of Western biomedical colonialism. Rather than a rejection of medical research altogether, these critiques represented a call for local ownership of science as well as investment in traditional forms of medical knowledge. The controversy surrounding COVID-19 Organics, for instance, became a means of articulating a pan-African form of resistance to Western medicine's hegemony and highlighting its historical relationship to colonialism (Richey et al. 2021). Just as traditional practices held social and political value as a form of anticolonial resistance or social critique in the colonial era (Feierman 1995), championing traditional or alternative cures to COVID-19 instead of foreign-produced vaccines was a means of critiquing the governance of outsiders "who set intellectual priorities, defined peoples' needs . . . and turned them from agents to objects of knowledge," and to raise questions of "therapeutic sovereignty and medical self-determination" (Tilley 2020:166–7). COVID-19 Organics came to symbolize an independent continent which produces its own medicines (Richey et al. 2021).

Critical discussions around vaccine trials and COVID-19 treatments represent a deeper engagement with the question of Africa's place in the world (Richey et al. 2021) and the *longue durée* of biomedical colonialism: a means of contesting the depiction of Africa as a site of inevitable catastrophe, and the global health discourses which define some people and their knowledge as traditional and particular, rather than universal and scientific. Criticism of foreign-led vaccine trials can be understood as part of a popular demand for medical self-determination, which remains detached from the contemporary discussions about "decolonization" in global health institutions and universities (Oti and Ncayiyana 2021).

Rumor and experiences of evidence

Yet, by solely focusing on what rumors symbolize in a political context, researchers risk reproducing a binary between academic "knowledge" and local "beliefs" (Good 2012:536). It is important to recognize not only what rumors "reveal about a particular socio-political context," but also how they affect the lives of people who circulate them, and *why* particular rumors acquire such power in a particular context (Samuels 2015). In other words, it is important to move beyond labeling "what appears to fall outside the conventional terms of practical reason as simply a strategic form of symbolic explanation," because this leaves out precisely *how* "symbols produce meaning" (Butt 2005:417). In her

study of rumors that prostitutes were infecting Papuans with HIV, for instance, Butt (2005) concludes that rumors were indeed a means of articulating political powerlessness, but they were also a response to observed inconsistencies in government practices concerning HIV/AIDs and sex workers. Rumors, then, are not just symbols that comment on political realities, they become powerful when grounded in everyday observations (Butt 2005; Samuels 2015). In effect, rumors draw on experiences of evidence in a given context – supporting evidence is not a "flexible means to establish connections," but "observations about disjunctures" (Butt 2005:432).

In Goma, rumors about the delayed second Ebola vaccine dose were not only a means of commenting on inequality, or the politics of medical research; they drew on observations of the unexpected adaption of trial procedures. The pandemic and subsequent suspension of the Ebola trial created new concerns among its participants: those who initially trusted the scientific rationales behind specific procedures were troubled by the changed schedule for the second dose. Rumors thrive in contexts of ambiguity and uncertainty, and become a way of "seeking out truth" (Kapferer 1990:3). After the suspension of vaccination to prevent possible COVID-19 transmission in the clinics, the trial team decided to restart vaccination, albeit with an amended dosing interval. But for participants, when the initially emphasized 56-day window proved to be elastic, the rumor that the delayed second dose was a COVID-19 vaccine disturbed "hierarchies of credibility" (Stoler 1992); it voiced the possible, and became as convincing as any other explanation. Ultimately, rumors do not "only reflect, but also contribute to" uncertainty and fear because of the possible truths they articulate (Samuels 2015:234). This rumor was particularly distressing for participants who had decided to take the delayed second dose and remained concerned for their future.

Conclusion

By tracing the impact of the COVID-19 pandemic on experiences of an Ebola vaccine trial in eastern DRC, we argue that discussions about clinical research have become a space for people to discuss broader concerns about inequality and governance, which are inseparable both from long-standing local contests, as well as historical and contemporary global inequalities. These debates do not just take place among politicians, but among citizens (including those who volunteer for clinical trials) as they make sense of, and contest, the workings of power in their everyday life. There is a need to recognize, and engage with, the popular political critiques of international intervention embedded in mistrust of vaccine trials, and the politics of inequality in which medical research is embedded. Critiques of clinical trials have become a means to discuss the influence of the past in the present, and the way that power continues to operate through biomedical intervention. Skepticism toward foreign-produced vaccines and the trust placed in treatments like COVID-19 Organics represent a demand for "medical self-determination" (Tilley 2020): these debates have become a new political terrain for discussing Africa's place in the world (Richey et al. 2021). Rumors are symbolically meaningful commentaries, but they become powerful when grounded in everyday observations in contexts of uncertainty. When the 56-day interval between the two Ebola doses was initially emphasized, but then adapted in the context of the pandemic, rumors that the Ebola vaccine had been replaced with a COVID-19 vaccine became one of the many possible truths for participants who had initially placed their trust in the scientific certainties of the trial's medical protocols. Ultimately, this case illustrates the difficulties of adapting trial operations in contexts of uncertainty, whilst maintaining trust in trial procedures.

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