

Effects of A Free-Care Policy on the Demand for Routine Medical Services in the Democratic Republic of the Congo During a Lengthy Ebola Outbreak

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Abstract

In order to sustain routine service levels, the government subsidised health services in a few health zones in reaction to the DRC's 10th Ebola Virus Disease epidemic. In order to test the hypothesis that routine services would not significantly decline during the FCP, we evaluate the effects of the initial and revised Free Care Policies on overall clinic visits, uncomplicated malaria, simple pneumonia, fourth antenatal care clinic visits, and measles vaccinations. Methodology and results From January 2017 to November 2020, we used data from the DRC's national health information system. Facilities that were originally and subsequently enrolled in the FCP, which took place in August 2018 and November 2018, respectively, were considered intervention facilities. In the North Kivu Province, only comparison facilities from the health regions where at least one Ebola case was reported. An examination of a controlled interrupted time series was performed. As comparison to comparable locations, the FCP appeared to have a favourable impact on boosting overall clinic attendance rates, uncomplicated malaria case rates, and simple pneumonia case rates. Most of the FCP's long-term effects were insignificant or, if they were, just of modest significance. The introduction of the FCP did not appear to have any significant effects on the rates of measles vaccines or fourth ANC clinic visits, compared to reference locations. We did not notice the drop in measles vaccination rates that has been noted in other places. The study has limitations because we were unable to take health facility into account. Service volumes and bypassing in private healthcare facilities. Conclusions: Our results show that FCPs can be used to continue providing ordinary services during epidemics. The study's design also shows that regularly reported health data from the DRC are capable of picking up changes in health policy.

Keywords: Demand for Health Care; Finance; Funding Budgeting; Health Economics; Health Policy and Planning; Infectious Diseases Communicable Diseases

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Introduction

West and Central Africa are endemic regions for the Ebola virus disease [1]. The World Health Organization reports that there have been 37 EVD outbreaks in Africa since the virus was originally discovered in 1976 [2]. A third of the outbreaks in Africa occurred in the Democratic Republic of the Congo in the past ten years, which accounts for about half of the continent's outbreaks [3].

Urbanization, armed conflict, and climate change all contribute to EVD outbreaks being more common and lasting longer and this is likely to continue in the DRC and other African nations [4]. EVD outbreaks have a negative influence on the provision of standard healthcare services in addition to having a direct impact on human health [5]. Between 2014 and 2016, Guinea, Liberia, and Sierra Leone saw the greatest EVD outbreak to date [6]. The outbreak severely taxed the health systems of the affected nations, which

in turn reduced access to and use of health services [7]. Use of all healthcare services declined by an estimated mean of 18% during the West African EVD pandemic of 2014 [8]. Between June and September, Liberian health centres lost between 35% and 67% of crucial primary care health system outputs, causing a statistically significant decline in all assessed indices [9]. In Sierra Leone, the median number of hospital admissions dropped by an estimated 70%, and between May and October 2014, the median number of major surgeries decreased [10]. In Guinea, the number of consultations at medical facilities fell by 58% between January and August 2014 compared to the previous year [11]. The number of hospital admissions in Guinea decreased by 54% when the same time periods were compared [12]. In order to preserve routine service volumes, the government subsidised routine medical services in a few health zones in reaction to the DRC's 10th Ebola virus disease outbreak. In order to test the hypothesis that routine services would not significantly decline during the FCP, we evaluate the effects of the initial and revised Free Care Policies on overall clinic visits, uncomplicated malaria, simple pneumonia, fourth antenatal care clinic visits, and measles vaccinations [13]. From January 2017 to November 2020, we used data from the DRC's national health information system [14]. Facilities that were originally and subsequently enrolled in the FCP, which took place in August 2018 and November 2018, respectively, were considered intervention facilities. The North Kivu Province was the only region with comparison facilities, and only health zones with at least one Ebola case.

Methodology

We analysed the comparative 2011 United States dollar (\$) cost of diagnosis and treatment of drug sensitive TB (DS-TB), MDR-TB and XDR-TB, based on National South African TB guidelines, from the perspective of the National TB Program using published clinical outcome data.

Discussion

An examination of a controlled interrupted time series was performed. As comparison to comparable locations, the FCP appeared to have a favourable impact on boosting overall clinic attendance rates, uncomplicated malaria case rates, and simple pneumonia case rates. Most of the FCP's long-term effects were insignificant or, if they were, just of modest significance. The introduction of the FCP did not appear to have any significant effects on the rates of measles vaccines or fourth ANC clinic visits, compared to reference locations. We did not notice the drop in measles vaccination rates that has been noted in other places. The study has limitations since we were unable to take into account service volumes at health facilities and private medical centres. Our findings show that FCPs can be used to keep regular service delivery going during outbreaks. Furthermore, the design of the study reveals that frequently reported health data from the DRC are sensitive enough to recognise changes in health policy. The Ebola virus causes the dangerous and frequently deadly sickness known as Ebola virus disease. This virus is a single-stranded negative SENSE RNA virus that belongs to the family Filoviridae and the genus Ebolavirus. The Democratic Republic of the Congo's northern town of Yambuku reported the first official EVD

outbreak in 1976. The EBOV is mainly spread between people through contact with infected body fluids and corpses. Patients are not considered contagious until they show symptoms, which can take anywhere from 1 to 21 days within the typical incubation period of 5 to 9 days. Patients initially exhibit nonspecific febrile illness symptoms, such as loss of appetite, arthralgia, headache, malaise, myalgia, and a rash that worsens over the course of the first week. Nausea, vomiting, and diarrhoea that ranges from mild to severe. The severity of EVD's clinical symptoms grows along with the Ebola virus load. Clinical case definition and laboratory testing, typically real-time reverse transcription polymerase chain reaction to detect viral RNA or quick diagnostic tests based on immunoassays to detect EBOV antigens, are required for diagnosis. Two antibody-based treatments for EVD were found to be beneficial in a randomised controlled trial, but much more work needs to be done to enhance outcomes. Combination therapy, such as antivirals paired with intensive supportive care, may improve outcomes in terminally ill patients with severe illness. Vaccinations to prevent the latest EVD epidemics in Guinea and the DRC have been contained in part thanks to the development and usage of the Ebola virus. Nonetheless, the current Ebola vaccination situation highlights the need for greater community participation in public health efforts. The indirect impacts of an EVD epidemic on a health system can be severe in such a setting. Beyond infected patients and deaths directly linked to EVD, there are indirect repercussions. According to the literature, studies on indirect effects also offer valuable information, although few of them have been conducted on the size of all affected areas. The health systems of the affected nations have indeed become more vulnerable as a result of EVD epidemics, according to the evidence. This study primarily focused on the indirect effects of the EVD epidemics in Guinea, Sierra Leone, and Liberia because those countries saw the majority of epidemics and the greatest one, respectively, in the DRC. This study's goal was to identify and quantify the indirect impacts of the EVD epidemics have had on the health systems in the Democratic Republic of the Congo (DRC), Guinea, Sierra Leone, and Liberia, and then use those lessons to increase those systems' resistance to future EVD outbreaks and other situations where a comparable health emergency may arise. Following the methodological principles outlined by Arksey and O'Malley in 2005 and Levac, Colquhoun, and O'Brien in 2010, this scoping review was reinforced by expert interviews. Next we decided on the study issue, conducted a literature review, chose the studies, extracted the data, summarised the findings, and reported them.

Conclusion

To correlate our scoping review with the "best standard" approach in this field, we also drew from the PRISMA checklist "Extension Scoping Review PRISMA-ScR. We identified "What are the indirect consequences of EVD outbreaks on the health systems in the Democratic Republic" as the study question. DRC, Guinea, Sierra Leone, and Liberia. We used the WHO frameworks on epidemic management and health systems, which evaluate the effects of epidemics on the six components of a health system, to ascertain the indirect consequences of EVD outbreaks on health systems. The six building blocks are service delivery,

which entails the use and management of medical resources, tools, prevention, and other patient-centered services the health workforce, where a "high-performing" nation has a responsive and fruitful supply of trained health workers who are always accessible; and information, which entails the development of health information, surveillance systems, standardised tools and instruments, and the collection of data from various sources. Medical products, vaccines, and technologies, and their procurement and use to protect populations from health disparities; leadership and governance, which includes governments forming alliances, collaborating with outside actors, and developing policies to help the health system protect citizens. We further identified indirect effects for this sixth component of the health system by utilising the governance analysis approach developed by Mikkelsen-Lopez. The following sub-questions were developed from the six building blocks: What are EVD epidemics' unintended consequences for service delivery? The medical profession health information technology the financing of health the governance and leadership, as well as the basic medications, in the DRC, Guinea, Sierra Leone, and Liberia?" To find materials in English or French (articles, reports that were pertinent to the research of indirect impacts of EVD on health systems and published, we did a literature search in PubMed and the grey literature. There is little knowledge of the effects that conflict situations have on disease transmission and control in areas prone to unrest and violence. Also, the complex nature of the conflict-related events during an epidemic has not yet been defined. We give a descriptive timeline of the incidents during the ongoing Ebola outbreak in the Democratic Republic of the Congo using conflict data, anthropological analysis, and a mathematical model. To show how conflict occurrences are a factor in the epidemic's persistence, we assessed the unrest that precedes a conflict event and its impact on control actions afterward. We can adapt our model framework to other infectious illnesses in settings with a history of persistent war and violence. The most severe and protracted Ebola outbreak in history is currently occurring in the Democratic Republic of the Congo. Despite the efforts of the government and international humanitarian organisations, 1,405 deaths and 2,084 cases have already occurred. The likelihood of Ebola spreading to neighbouring nations is increasing in the absence of a persistent slump. Conflict and civil instability have spread throughout the eastern DRC at the same time as the Ebola outbreak. Politics, ethnicity, property ownership, and economy are the main driving forces behind the violence. Particularly, disputes over rights have caused fighting between more than 70 armed groups, destabilising mining zones in the provinces of North Kivu and Ituri. The Ugandan Allied Democratic Forces is one of the most dangerous armed organisations. Monitoring, contact tracing, and immunisation have all been hampered by the ongoing war in North Kivu and Ituri. In regions where it is too risky for health personnel to visit or work, it is increasingly harder to identify cases and contain Ebola. For instance, violent occurrences characterised by abductions and murders prevented medical personnel from working near the main road that connects the provinces of North Kivu and Ituri. However, during the outbreak, attacks on healthcare personnel and Ebola treatment facilities resulted in at least 10 deaths and numerous

other seriously injured healthcare workers. Just 8 days had passed since the 2018 epidemic in the province of Equateur ended when the Ebola outbreak in North Kivu was proclaimed. Due to rigorous contact tracing and the use of the recombinant vesicular stomatitis virus-Zaire Ebola virus vaccine, the Equateur epidemic was successfully under control within a month. The vaccination programme not only helped to quickly stop the outbreak, but it also increased public knowledge of the illness and the use of Ebola safety practises. While ring vaccination, which tries to immunise contacts of Ebola patients who are at risk for infection, has been delayed by the socio-political turmoil in eastern DRC, contact tracing has not. Although it has been speculated that the ongoing violence may make the outbreak worse, the relationship between the conflict and disease transmission has not yet been determined. The public health response was directly impacted by a number of conflict-related incidents during the course of the pandemic, including assaults on ETCs or healthcare personnel and demonstrations by healthcare workers. Such instances are what we refer to as disruptive incidents. Effective control tactics necessitate an understanding of how the multidimensional character of conflict affects transmission and control. Unfortunately, little is known about the local circumstances prior to a disruptive event occurring or how quickly the reaction restores the status quo. To evaluate how and to what degree these disruptive occurrences interfere with disease control during the current outbreak, In addition to an anthropological analysis of the local circumstances surrounding ETC attacks, we give a timeline of conflict occurrences in the context of the outbreak. Additionally, we assess the effects of disruptive events on the efficiency of case isolation and vaccination as well as on the temporal trajectory of the outbreak using a transmission model of Ebola informed by anthropological evidence and conflict data. As 2018 came to a close, resentment over the local election's postponement was aimed towards the public health response teams because of their association with the administration. For instance, locals weakened local cooperation and sparked conflict by associating the Medicines Sans Frontiers (MSF) teams with the DRC Ministry of Health. Based on our direct involvement in caring for patients in one of the North Kivu ETCs, we give a narrative of local circumstances prior to attacks on ETC facilities in Katwa and Butembo and their subsequent effects on public health response. There are around 20 separate armed groups operating in the Butembo and Katwa health zones, which have been torn apart by civil strife for many years. Attacks on medical facilities in the nearby Beni city were indicative of the rising antagonism in the months before the attacks in Butembo and Katwa. As things in Beni became better, the fighting spread to Butembo and Katwa. There were two key indicators that the ETC in Katwa would be attacked in February. The initial indication was a shift in the public's attitude about the MSF.

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Conflict of Interest

None

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