COVID-19 Contagion Risk in Border Regions: A Case of Busia One-Stop Border Post Inefficiencies in Clearing Truckers

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Abstract

Truckers are known to exacerbate emergence and spread of contagious diseases across borders. This study aims at investigating the implementation of COVID-19 prevention and control measures at Busia One-Stop Border Posts and its contribution to community spread of COVID-19. The study is anchored on viral-epidemiological theory and descriptive design. The research employed naturalistic observation and desk review techniques. Using google search engines, novel data streams containing google flu trends and epidemiological journal articles were accessed. The internet also enabled access to the Ministry of Health fact sheets, books and reports. The study found lengthy turnaround time for truckers due to unharmonised and uncorordinated implementation of COVID-19 prevention and control measures, poor infrastructure such as truck parking space, the intermittent supply of test kits and PPEs at points of entry and exit control. This resulted in congestion and mingling at Busia border post creating a 'perfect storm' for the contagious COVID-19 diffusion into the local community. Besides developing infrastructure, the study recommends One Stop Border Posts (OSBPs) to leverage on emergent technologies such as genomics, truck scanners, and digital systems for data capturing. Smartphones and social media provide a good option for contact tracing, too. In addition, to integrate COVID-19 protocols in one window customs clearance system built on trust of member states. Finally, the East Africa customs union should support building capacities of officers responsible for immigration, health and trade at Busia OSBP.

Key words: COVID-19; contagion risk; Busia One-Stop Border Post

INTRODUCTION

COVID-19 means a novel Corona virus disease that cause breathing difficulties. It was identified first on 31 December, 2019 in China (Wuhan City). The strain is part of a large zoonotic virus family (usually begin in animals) that affect human lives, too. Other members to this family include Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). Symptoms of COVID-19 are mild illnesses, common cold, fever, pneumonia, respiratory problems, kidney failure and sometimes death. Since its discovery, novel Coronavirus-19 (COVID-19) has diffused into most countries, through media of travellers, posing global crisis. African governments estimate deeper economic challenges globally unless appropriate strategies for mitigating and suppressing the impact of COVID-19 are implemented. In a period of two months (between December 2019 and January 2020, the global economy is already facing a recession of 3.3%, equivalent to a loss of 2 trillion US dollars (IMF, 2020). Numbers of infections and deaths in sub-Saharan Africa have risen exponentially. The worst hit are emerging and developing economies such as Kenya in the horn of Africa

characterized by traditional economic models of low-capital-to-labour ratio, insufficient credit, and vulnerable employment status and oriented to informal markets that are unprotected from impact of macroeconomic policies (Campbell, 2011).

On 13th March 2020, the first COVID-19 case was confirmed in Kenya (COMESA, 2020). Kenya, like many other counties focused on preventing the virus from spreading from the source region to other regions. The Republic of Kenya, through the Ministry of Health (MoH) formed COVID-19 Response Taskforce to gather actionable data and champion mitigation efforts, development of policies and interventions (Perliamentary Budget Office, 2020). The taskforce adopted *Test, Isolate and Treat* as a COVID-19 prevention and control strategy. Some of its works has been 'stay home' directive, prohibition of public gatherings such as burial rites that can be a 'perfect storm' for COVID-19 transmission (Sulk et al., 2014). Closure of bars and restaurants and dusk to dawn curfews are some of the control measures. In addition, all flights (inward and outward public flights) were disallowed. The only mode of transporting goods was by trucks whose drivers were to be certified by Ministry of Health to be virus-free from point of origin and point of entry.

One-Stop Border Post is a one-way Common Market for Eastern and Southern Africa (COMESA) increased efficiency by reducing waiting time in the fright movement across national borders. Busia One-Stop Border Post was launched with the aim of facilitating the efficient movement of persons and goods. In the times of COVID-19, the post has become critical points not of control but a hot spot for community contamination. This is demonstrated in the surging numbers of COVID-19 cases reported between April and June, 2020 by the COVID-19 Response Taskforce in Kenya.

Problem Statement
The research problem is that the truckers' delays and congestions at Busia border accelerate the spread of COVID-19 in the community. Unless efficiency in clearing truckers is enhanced, contagion risk of diffusing COVID-19 virus among border communities is likely to escalate. By 3rd June 2020, Busia was ranked 3rd county after Nairobi and Mombasa with COVID-19 prevalence of 9.4 per 100,000 people. By 13th day of July was at 61.5 per 100,000 people 550 reported cases and by 3rd of September 2020 Busia had recorded 1,117 COVID-19 cases (Health, 2020). The COVID-19 Response Taskforce attributes this increase to truck drivers. Why? Because of lengthy turnaround time and cross border impasse. The anticipated efficiency in the clearing of freight at Busia One-Stop Border Post is a nightmare. On average truckers sit waiting for 4 to 6 days in anticipation of COVID-19 tests and results. On average truckers sit waiting for 4 to 6 days in anticipation to COVID-19 tests and results. The containers could line up for about 50 and 70 km, Malaba Border to Webuye and from Busia town to Matayos, respectively. The truck drivers proceed to the ports health specimen collection station at the OSBP to be tested, and once the specimens are taken they are sent to laboratory at Alupe for processing. During this period, the truck drivers engage and interact with designated healthcare workers and other OSBP personnel, scantly protected bodaboda riders, mingle with community around for food, lodging and other essential services. After crossing the drivers are again cross-checked for clearance by Ugandan health officers (Bwire, 2020).

Research objectives

To assess the implementation of COVID-19 prevention and control measures at Busia One-Stop Border Post and its effect to community spread

    1) To investigate the chances of COVID-19 spread to the border communities in Busia due to clearance delays of Heavy Goods Vehicles (HGV).

    2) To assess the COVID-19 contagion risk posed in Busia border regions because of control and quarantine measures among truckers at Busia Border.

Justification of the study

COVID-19 is a Public Health Emergency of International Concern (PHEIC) that has caused societal disruption. It is of internal concern that all and sundry contribute to its prevention and control to save the human life. Secondly, the study findings promote and deepen regionalism in EAC. The implementation of the study recommends building into a stronger East African Community with effective East African Customs Union. Resultant ease of doing business across borders and prosperity will be realized among the entrepreneurs. It also feeds into the call of integrating health into international trade. Results and recommendations of this study will inform policy makers to come up with harmonized and effective COVID-19 protocol that does not defeat that that it purports to prevent and control. Healthier border regions would be realized if Uganda and Kenya agreed to harmonize their COVID-19 prevention and control measures and mainstreamed them into a one custom clearance system.

LITERATURE REVIEW

Theoretical review

This study adopted the ***viral-epidemiological theory***. The viral-epidemiological theory estimates viral transmissibility through network and diffusion concepts. According to the theory, disease moves in a society from an infected person to a non-infected person through contact. When infected traveller moves from regions with high endemicity or source region of COVID-19 to new destinations, they are likely to distribute the virus to nil endemicity regions, hence posing new public health challenges. The travelers import COVID-19 cases to new cities through diffusion. Through association and contact with other people in the new destination the virus flows from the index or primary case to create secondary and tertiary cases that transmit the disease to the locality, hence beginning community spread. In other words, traceability of viral diffusion in the community is possible by tracking the network routes and social contacts of the index case. Apart from the contacts, the theory assumes that rate of diffusion of virus in the community is dependent on time or 'duration of infectiousness' (Rothman, Lash, & Greenland, 2013), among other factors such as demographics and socio-economics (Omran, 2001). Based on this theory epidemiologists and health geographers are able to map, compute and predict secondary cases arising from every infected individual. Advances in this theory have shown that a single infected individual has the potential to spread the disease to a certain number of individuals in a susceptible population over a defined time. Whereas the time taken from an index patient to the secondary case is called *generation time*, *reproductive number time*s are the expected secondary cases from each infected person in a susceptible population (Guzzetta et al., 2019). The speed with which COVID-19 pathogens would be distributed in a social system would depend on lapse of time from the landing of an infected person contracting of the secondary person under normal environment (Milton et al., 20190). In this context, observed increase in waiting time in the

fright movement across Busia borders increase the transmission potential of COVID-19 in communities in the border region. Increasing time for truckers at Busia borders put the population in the border region in a 'temporal fashion' that exposes the society to be susceptible to infections and community spread or 'infective' stage (Exeter & Sabel, 2017).

Empirical review

The concept of time in predicting epidemiological spread risks
Recent experiences of life-threatening diseases outbreaks such as COVID-19, Ebola, Dengue, Chikungunya, West Nile and Bluetongue in the world have shown how pathogens can diffuse within and across borders leading to unpredictable morbidity and security risks in border regions. Nations are therefore put on notice to predict, prevent and control these outbreaks before causing undesired havoc. Suk et al., (2014) in a study on infectious diseases across borders identified climate change, land use patterns, global trade and travel and migration as interconnected risk factors that fueled the spread of infectious diseases in the border regions. In the context of this study intensified global trade and travel opened up borders and facilitated global transmission COVID-19 from Wuhan, china to the rest of the world. Within a span of six months the gravity of outbreak is demonstrated in over 650,000 deaths and sharp decline in the economy.

In border regions, clearance time of truckers across national borders has been found to be a critical factor in the diffusion of an epidemic from one infected traveller in the population in border regions. A study in Sao Paulo, Brazil on flow of Variola Minor found that the pattern of the contagious disease diffusion in the region and subsequent neighborhoods depended on time and social interactions between areas. In 12 months alone, the epidemic of Variola Minor had infected 85.7% of the districts, 80% of the elementary schools and 1006 km^2 of the Braganca Paulista city and its neighborhoods (Angulo et al., 1980). In Colombia, a study of Zinka epidemic using the reproductive number time(R_0) between 2015 and 2016 revealed that time determined the disease incidence curve in society (Perkins et al., 2019). In Lofa County, Liberia - West Africa, time factor was used to determine peaks and troughs of Ebola transmission in a mathematical model. Estimating the reproductive number time helped Liberia craft right strategy to eliminate Ebola in Lofa County (Funk et al., 2017). In Botswana, truckers were on the sport for ferrying the Corona virus from highly endemic area to COVID-19 free regions (Ktn news, 2020).

It is interesting to note that advances in emergent technologies offer epidemiologists and health geographers a ray of opportunities to track viral distribution. In 2016, a study on tracking virus with smartphone and social media discovered a wide range of technologies (Rainwater-Lovett et al., 2016). The study proved that viral evolution and transmission routes can well be traced by virtue of genomic and bioinformatics. Contact patterns can be mapped with the help of wearable sensors and viral genetic signatures (Angulo et al., 1980). Equally, movement loggers can estimate the movement of patients using smartphones enabled with satellite imagery and Global Positioning Systems (GPS). These technologies form a breakthrough in contact tracing of patients in highly mobile and migratory populations such as crews in HGVs. Instead of traditional physical tracing of patients using snowballing and significant geographic features, public health officers are able to leverage on emergent technologies to map the network routes of the patients.

One-Stop Border Posts and temporal COVID-19 transmission risks

A border is a geographically demarcated zone connecting sovereign states with different enforceable laws and policies for socio-economic development and security. One-stop border post (OSBP) is a single legal and institutional facility meant to simplify transit procedures by standardizing and minimizing documentation processes for people, goods and vehicles. In an OSBP, goods, people and vehicles underwent necessary controls and border crossing formalities as outlined the regional and national laws, hence enabling them move from one state to adjoining state. In 2007 the World Trade Organization (WTO) through the World Customs Organizations (WCO) in partnership with other trade agencies started OSBPs to address coordination failures across borders. The program targeted national borders with common transportation, health and technical standards. The aim was to reduce transit time for people, goods and vehicles across borders.

Before OSBPs, Mangeni and Juma (2019) found out that one needed eight documents and 31 days to export. Incase of imports, one needed nine documents and and 37 days. These requirements posed an investment impediment. The World Bank explained these delay time as a result of poor infrastructure and poor trade facilitation. Comparatively, the delays made African transport three times expensive than South American and five times expensive than Asia; impacting negatively for Africa on international trade. In advent of one-stop border post(OSBP), a time release study on 33 border posts in 10 states showed truckers taking on average 5 days, 1 hour and 14 minutes between arrival and release (Mangeni & Juma, 2019). The OCBP were meant to simplify and harmonize procedures, offer supply chain management, leverage on modern techniques and technologies and facilitate legitimate trade through new border management institutions (Kieck, 2010).

Chirundu one-stop-border post (OSBP) is an example of one stop border between Zambia and Zimbabwe across Zambezi River. It was established in 2009 by Common Market for Eastern and Southern Africa (COMESA) in conjunction with South African Customs Union (SACU) to eliminate border protectionism and meet international border management standards between Zimbabwe and Zambia (Muqayi & Manyeruke, 2015). Empirical evidence on Chirundu one-stop-border post (OSBP) revealed a reduction in truckers waiting time to 20 minutes for accredited and 2 days for non-accredited truckers. Temporal trade impediments were minimized by leveraging on technologies such as using truck scanners that replaced daylong manual physical checks and introduction of advanced declaration system. The Chirundu OSBP succeeded because of trust among official from both Zambia and Zimbabwe; encouraging inclusive planning and designing the system, considering all logistical factors and allocating funds for constructing soft and physical infrastructure including training officials and installing operating system. The two states (Zambia and Zimbabwe) entered in a legal agreement detailing a joint sovereignty in control of the OSBP. Among other benefits Muqayi and Manyeruke (2015) observed that Chirundu curbed influx of disease transmission by the traders, tourists and other people in the border region. when clearance time is reduced, waiting and contact time with the rest of the community around is reduced. Susceptibility to diseases such as cholera, malaria and sexually transmitted diseases(e.g. HIV, gonorrhea, syphilis, genital watts, etc.) is high when delay time is increased for traders who are likely to endage in illicit activities.

Busia One-Stop-Border Post (OSBP) is a single window trade facilitation programme developed by East African Customs Union in 2017 at Kenya –Uganda border to address smuggling, reduce traffic congetion and improve security at the border. The OSBP is in Busia county, western Kenya about 202 km east of Kampala and 431 km west of Nairobi. The programme records a weekly traffic of 1784 vehicles from Uganda and 3324 vehicles from the Kenyan side. Before OSBP, clearance of goods across border was as long as 14 hours and 20 minutes. This frustated traders exposing the diseases and female traders to rape and sexual harrassment. OSBP reduced the time to 4 hours and saving about 70 million US dollars per year by introducing advanced clearance at the port of entry and electronic cargo tracking system that reduced documentation and steps to clear goods (Cheruiyot & Rotich, 2018). A survey on informal household livelihoods in Busia found positive effect in accessing cross-border trade and contagious disease control (Tyson, 2018).

According to the Ministry of Health, COVID-19 diffused in the society through two ways. One, is contact with an infected individual through coughing or sneezing. Second is by contacting contaminated surfaces or articles (Ministry of Health, 2020b). The situation of Busia is by the mobility of Heavy Goods Vehicles (HGV) crew infected populations carrying the pathogens from highly endemic areas like Nairobi and Mombasa to Busia, hence creating a new public health challenge in the border region. Mainstream media reported 45 of the 47 counties in Kenya had the disease already due to mobility of populations within a span of three months. Because of this, long distance truckers crossing borders were marked as high risk groups.

METHODOLOGY

Descriptive reserch design was used for the study. The questions were generated from the researchers' observions. The observed congestion and long traffic jams caused by Heavy Goods Vehicles (HGV) delayed clearing at Busia and Malaba border point between March and July 2020 prompted the researchers to relate the time factor with the contagion risk of imported primary cases to community spread. The study adopted desk review techniques to answer the research questions. Using google search engines the researchers accessed novel data streams on Goolge Flu Trends, Ministry of Health fact sheets, reports, books and peer reviewed journal articles published between 2010 and 2020.This was done over the internet. The researchers also used participant naturalistic observation techniques that entailed watching and recording traffic events against the COVID-19 incidence records in the border region. In methods of data collection, observational data is prefered because what people say may or not be their real actions (Christensen, 2011). In this context the study compared and contradict lessons documented elsewhere so as to predict risks of COVID-19 spread in Busia border region.

RESEARCH FINDINGS AND INTERPRETATION

After the declaration of the COVID-19 as a Public Health Emergency of International Concern (PHEIC), the East Africa Community (EAC) mobilized member state health ministries to develop protocol to protect vulnerable population from COVID-19 without compromising the regional trade (Ministry of Health, 2020c). International flights were suspended and all freights were to move across boders by either road or rail. Concerning ground transport and border crossing, Kenya adopted a double pronged strategy. On one hand, it promoted smooth and

uninterrupted movement of goods and services across borders. On the other hand, it protected vulnerable population from COVID-19. The double approach strategy has evidently increased COVID-19 generation and distribution time in Busia border region.

Delay of Heavy Goods Vehicles (HGV) clearing and COVID-19 spread in Busia

The Ministry of Health, Kenya (MoH) with the East Africa Community (EAC) developed standard operating procedures to guide the *Testing, Isolating and Treating (TIT)* strategy at ground crossings along the transport borders. The procedures focused on crew members to 1) have a valid COVID-19 negative attestation letter 48 hour before travel; 2) be regularly screened for COVID-19 symptoms, and mandatory quarantine for 14 days for any positive sign; 3) be subjected to monitoring by internet and County Rapid Response Teams (RRTs) that promptly recorded and reported suspected incidences (Republic of Kenya, 2020); 4) only stopping at designated points and hotels along the transport corridors.

Further, the government of kenya directed that truckers' temperature be taken at entry point and designated weighbridges i.e Namanga – Mlolongo; Busia- Gilgil-Mlolongo- Mariakani; Malaba - Gilgil- Mlolongo-Mariakani; Taveta, Mariakani. The clearance of the HGV is to be done by a multi-agency team comprising of KRA, Immigration, Health, Interior, EAC, MFA and Trade (COMESA, 2020). Truck occupants were subjected to stringent medical screening at all border points such as reading temperature and maintaining health forms within Kenya. The occupants were restricted to 3: 1 driver, 1 loader and 1 clearance officer per HGV were allowed across the border. Any of them who showed symptoms would be subject to a 14 days quarantine. On return all the cargo crew would be under self-quarantine for 14 days. At 50% staffing, the customs office worked between 9 am and 3 pm. Only essential services providers and public health were exempted. Equally the Kenya Ports Authority reduced its workforce into two shifts.

Despite a significant achievement in reduction of crossing time with OSBPs, there is still coordination and infrastucture related delays for Heavy Goods Vehicles(HGV) as shown in plate 1.


Plate 1: Long lining up of HGV at Busia Border (3rd day of August 2020).

A descriptive survey on 59 officials at Malaba border revealed multiple agencies working dishamoniously; without proper coordination and collaboration. In

addition, unnessary clearance procedures were duplicated, deficiency in staff skills and system downtime (Cheruiyot & Rotich, 2018). Another study on state encounters of one stop-border posts in East Africa revelaed inadequancy in infrastructre. Space for operational procedures and human resouce was not enough (Nugent & Soi, 2020). Combined with insufficient parking space at the post, the traders have more time to contact and socialise with the rest of population at the border region which creates a good fodder for COVID-19 consequently increasing Corona transmission time and flow into the communities in Busia. The findings are similar to challenges encountered by border community in Mano River region where lack of harmonisation and enforcement of agreed principles and protocol exposed Guinea, Sierra Leone and Liberia to epidemic risks and insecurity to border community (Poole & Mohammed, 2011). However, these challnges set a stage for the Mano River Union (MRU) counties to identify priorities for action and options for policy improvement. In Hauston, 45 international travellers were found to be at health risk of Zik virus due to distal and proximal social factors and were critical carriers of the virus across borders (Paat & Torres, 2019).

Current Rrisk posed by COVID-19 prevention & control measures in truckers

The enforcement of the new COVID-19 travel protocol cost the loss of gains achieved through OSBPs as a single window clearing system with minimal waiting time. There is evident lack of harmonised enforcement of COVID-19 protocol betwen Uganda and Kenya. Traders are required to stop twice at both sides of the border to be tested, isolated and treated by respective COVID-19 Response agencies. The lack of harmonised implementation of COVID-19 protocol betwen Uganda and Kenya exposes the HGV drivers to longer waiting time giving them chance to mingle and contact with residents in the border region, hence flouting hygiene, meeting, food handling guidelines. The post, consequently become a 'perfect storm' for transimiting the contagious COVID-19. The community at the border opens up to imported pathogens by the drivers. Table 1 demonstrates how the curve of COVID-19 incidences in Busia are at the beginning of the epi curve.
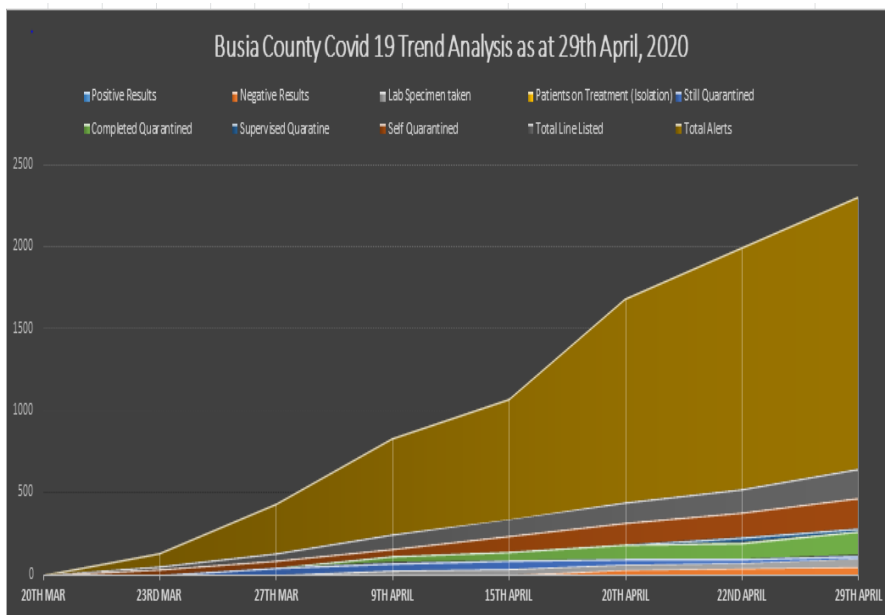
Figure 1: Busia COVID-19 Trend Analysis (Ministry of Health, 2020)

Results between 20th March 2020 and 29th April 2020 show upward trajectory in positive COVID-19 results and total alerts. The upward curve is associated with travel history from an epidemic source region. Given weak county health system, Busia's imported cases are turning quicly into secondary local community transmission cases. This is evident when cases are reported from subcounties far off the border post like Budalang'i. Kenya and Uganda have to buy-in into full COMESA and EAC regional integration COVID-19 guidelines to ease traffic at the borders.

RECOMMENDATIONS

In line with the findings, the study recommends the following:

a) Leveraging on emergent technologies to eliminate time ralated ground crossing impediments and tracking of freight crew. Borrowing from Chirundu (OSBP), the East Afica Customs Union should minimize temporal trade impediments by leveraging on technologies e.g. truck scanners, digital systems for data capturing and mobile apps to monitor the crew along the transport corridors. In addition, advances in genomics and bioinformatics as well as smartphones and social media provide enormous advantage in determining evolution of COVID-19 and mapping transmission pathways.

b) Building an integrated one window customs clearance system on trust. The Chirundu OSBP succeeded because of trust among official from both Zambia and Zimbabwe. The MoH departments of Uganda and Kenya under the auspice of EAC, should come up with one protocol for controlling COVID-19 at ground crossing integrated into the OSPB program.

c) Smooth and uninterrupted flow of COVID-19 test kits and Personal Protective Equipment (PPE) at OSBP. The front of health at the EAC should ensure COVID-19 test kits and PPEs are readily available at Busia OSPB.

d) Build capacities of ministries responsible for immigration, health, trade and revenue in border management. IoM in conjunction with WHO should help OSPB and COVID-19 response teams with training and developing Standard Operating Procedures(SoPs) for detection, notification, isolation, management and referral.

e) Enhancing infrastructure and hygiene at Busia OSBP. The county government of Busia should develop truck parking space and improve hygiene infrastructure at ground crossing points of entry and exit.

This study findings were limited to Busia OSBP. Further research should be done on other OSBPs and protocol for controling COVID-19 in flight crossing

CONCLUSION

COVID-19 is a Public Health Emergency of International Concern (PHEIC) that requires proper regional strategy to manage highly mobile populations such as truckers who are high risk groups. Time and timeliness is of importance in the management of their crossing border. The observed delays by East African Community (EAC) member states due to failure in adopting common COVID-19 certification scheme for truckers pose challenges to contain the spread of COVID-19. It is of paramount importance, therefore, for EAC members and development

partners to focus on developing Busia OSBP as a critical point of controlling the pandemic from crossing the border and spreading into the border region.

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