



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



## Is the COVID-19 pandemic masking the deadlier Lassa fever epidemic in Nigeria?



Rine Christopher Reuben<sup>a,\*</sup>, Margaret M.A. Danladi<sup>b</sup>, Grace Rinmecit Pennap<sup>c</sup>

<sup>a</sup> Department of Science Laboratory Technology, Nasarawa State Polytechnic, Lafia, Nigeria

<sup>b</sup> Department of Microbiology, Plateau State University, Bokkos, Nigeria

<sup>c</sup> Department of Microbiology, Nasarawa State University, Keffi, Nigeria

### ARTICLE INFO

#### Keywords:

Lassa fever  
COVID-19  
Outbreak  
Public health

### ABSTRACT

With the COVID-19 officially declared a pandemic, Nigeria alongside other countries is directing all its resources and manpower to contain this pandemic. However, the existence of Lassa fever (LF), a more severe, zoonotic, endemic and viral haemorrhagic fever caused by Lassa virus with higher case fatality ratio (CFR) rages on across Nigeria while receiving little or no public health attention. The simultaneously increasing cases of COVID-19 and LF across Nigeria would be catastrophic unless infection prevention and control measures toward both LF and COVID-19 outbreaks are considered alongside.

From Wuhan city in China, the coronavirus disease (COVID-19) caused by the novel SARS-CoV-2 virus spread to other cities within China and the world over [1] with the World Health Organization (WHO) declaring the COVID-19 outbreak a pandemic on March 11, 2020. As of May 8, 2020, the world has recorded 3,726,292 confirmed cases and 257,405 deaths due to COVID-19 across 215 countries and territories [2]. In Nigeria, from the 23,835 samples tested across the 36 states including the Federal capital territory (FCT), there had been 3526 confirmed cases and 107 deaths as of May 8, 2020 [3]. Being the 7th most populous country in the world with over 200 million people, Nigeria is at grave danger for a collapse of its convulsive healthcare system and to a large extend social life. Like with COVID-19, Nigeria has been battling with Lassa fever (LF), a more severe, zoonotic and viral haemorrhagic fever caused by Lassa virus, a single-stranded RNA virus first isolated from Lassa, a town in north-eastern Nigeria [4]. Transmission of Lassa virus to human occurs primarily through contact with contaminated urine, excreta, body fluids or saliva of Multimammate rat, *Mastomys natalensis* (known to be the virus natural reservoir) or secondarily through the person-to-person spread and nosocomially via contact with infected body secretions, excretions and blood [4,5].

From the first LF outbreak in Nigeria in 1969, the disease has continuously occurred annually and had long been declared endemic in Nigeria, affecting over 26 states including the FCT. Outbreaks of LF mostly occurred during the dry season in Nigeria with the highest incidence around (November-April) [2]. All ages and gender can be

infected with LF. In West Africa, approximately 300,000–500,000 cases of LF occur annually with over 5000 deaths [6]. Currently, Nigeria has recorded 4622 suspected cases of LF with 991 confirmed cases and 191 deaths as of May 8, 2020. These cases spread across 128 Local Government Areas from 27 States with the case fatality ratio (CFR) of 19.3 % lower than 22.7 % reported for the same period last year [7].

While Nigeria's government alongside the NCDC focuses on COVID-19 with a far lower CFR of 3.0 %, the increasing cases of LF with 19.3 % CFR across the country are overlooked and not given the urgent and needed attention. Prior to the emergence of COVID-19, the WHO posited that Nigeria's capacity to manage LF remains suboptimal at the sub-national levels with weakened infection prevention and control (IPC) measures [2]. Nigeria's healthcare system has inadequately managed the recurring LF outbreaks in previous years with grossly inadequate diagnostic kits and referral centres, high mortality involving health professionals and poor surveillance and management. Since the management of COVID-19 and LF cases in Nigeria demands shared clinical and laboratory facilities, confronting COVID-19 and LF simultaneously will add severe diagnostic difficulties to the poor and inadequate facilities available. Although a majority of LF infected persons are asymptomatic, severe cases are characterized by febrile illness associated with severe diarrhoea, haemorrhage and multiple organ dysfunction [5] with patients in dare need of healthcare facilities alongside COVID-19 patients. Furthermore, due to the inadequate molecular diagnostics for the detection and confirmation of COVID-19 using reverse transcription polymerase chain reaction (RT-PCR) [8], the

\* Corresponding author.

E-mail address: [reubenrine@yahoo.com](mailto:reubenrine@yahoo.com) (R.C. Reuben).

possibility of misdiagnosis of these 2 viral infections is high in Nigeria. Pseudo-serological results for COVID-19 in LF patients and vice versa cannot be overruled. Most importantly, although no cases of COVID-19 and LF coinfection has been reported among patients, the possibility of such occurrence cannot be precluded. With the simultaneously increasing cases of COVID-19 and LF across Nigeria, both outbreaks will be catastrophic.

The blueprint for mitigating LF lies primarily with the control of rodents' infestation of homes and the promotion of good community hygiene. Farm produce especially grains and other foodstuffs in homes should be effectively stored in rodent-proof bags while household garbage should be disposed far from residential areas. Also, contact with secretions, excretions and blood from infected persons should be avoided. For robust and effective containment of these 2 outbreaks, Nigeria needs to adequately equip its health centres with available, contemporary and functional diagnostic facilities and kits. Additionally, due to wild misconceptions regarding COVID-19 and LF, urgent public health enlightenment campaigns across Nigeria are needed for both control and minimization of the outbreaks.

#### Declaration of Competing Interest

None exist.

#### Acknowledgements

All authors have interest on emerging and reemerging zoonotic viral

pathogens. They have over the years worked on Ebola, Lassa, rabies among other infections. They are trained public health microbiologists and faculty members.

#### References

- [1] C. Wang, P.W. Horby, F.G. Hayden, G.F. Gao, A novel coronavirus outbreak of global health concern, *Lancet* 395 (2020) 470–473, [https://doi.org/10.1016/S0140-6736\(20\)30185-9](https://doi.org/10.1016/S0140-6736(20)30185-9).
- [2] World Health Organization (WHO), Lassa Fever- Nigeria, (2020) 2020 (Access 8 May 2020) <https://www.who.int/csr/don/20-february-2020-lassa-fever-nigeria/en/>.
- [3] Nigerian Centre for disease control (NCDC), COVID-19 SITUATION REPORT, DATA AS REPORTED AND ACCURATE BY NCDC by Midnight 7th May 2020, (2020) (Access 8 May 2020), <https://ncdc.gov.ng/diseases/sitreps/?cat=14&name=An%20update%20of%20COVID-19%20outbreak%20in%20Nigeria>.
- [4] I.S. Usuwa, C.O. Akpa, C.D. Umeokonkwo, Knowledge and risk perception towards Lassa fever infection among residents of affected communities in Ebonyi State, Nigeria: implications for risk communication, *BMC Public Health* 20 (2020) 217, <https://doi.org/10.1186/s12889-020-8299-3>.
- [5] E.J. Awosanya, Post-epidemic awareness and knowledge of Lassa fever among residents in affected community in Ibadan, Oyo State, Nigeria, *Vet. World* 11 (8) (2018) 1059–1063, <https://doi.org/10.14202/vetworld.2018.1059-1063>.
- [6] O. Ogbu, E. Ajuluchukwu, C. Uneke, Lassa fever in west African sub-region: an overview, *J. Vector Borne Dis.* 44 (1) (2007) 1–11. Available from: <https://www.ncbi.nlm.nih.gov/m/pubmed/17378212>.
- [7] Nigerian Centre for disease control (NCDC), Lassa Fever Situation Report, Epi Week 18: 26 April – 03 May 2020. <https://ncdc.gov.ng/diseases/sitreps/?cat=5&name=An%20update%20of%20Lassa%20fever%20outbreak%20in%20Nigeria%202020> (Access 8 May 2020) (2020).
- [8] B. Job, V. Wiwanitkit, COVID-19 can present with a rash and be mistaken for Dengue, *J. Am. Acad. Dermatol.* (2020), <https://doi.org/10.1016/j.jaad.2020.03.036>.