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The Role of Smart Technology in managing Infectious Diseases in the Developing World. The Case of Covid-19 Pandemic in Kigali City - Rwanda

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Abstract

This study examines the effectiveness of smart technology in managing the Covid-19 pandemic in Kigali City - Rwanda. Data were collected through interviews by the use of structured questionnaires addressed to 4 administrative officers in the health sector. Also, 32 out 96 residents were randomly selected in each district. Results have shown that Drones (UAVs) were more used by 95% as opposed to Robots and cameras to warn and inform the community to take precautions. In addition, they were used to distribute medical items whereby 500,000 face masks and 1,000,000 gloves were distributed. Also, 43,379 blood samples were collected; other light medical equipment were transported by drones within the city within a period of 3 months saving 158 out of 287 people who had been affected. Limited finance, lack of qualified and skilled personnel to operate drones and robots during these times jeopardized the effectiveness of smart technology. We conclude that the use of smart technology should be a national agenda to improve management of pandemics. This aligns with training of community to handle health crisis during and even after the Covid-19 pandemic. Also, the establishment of the department for innovative ideas to fight current and future pandemics is inevitable.

Keywords: Smart Technology; Covid-19; Developing World; Kigali City

1. Introduction and literature review

Infectious diseases have a long history in human lives and have caused serious fatalities. One of the first known recorded pandemics is the Plague in 542 CE which occurred in the 14th century and claimed millions of lives and the Black Death (McNeill, 1998). Another in the list was Smallpox that killed people in numbers that exceeded those of any who have fought in wars in history. To this date, however, Smallpox is the only disease that human beings have been able to eradicate completely. In the 19th century, Cholera erupted and it remains a concern and still does not have a complete cure (Seshaiyer and McNeely, 2020).

Although the foregoing infectious diseases impacted several million people, it was not until the 1918 influenza pandemic and it forms one of the greatest "natural disasters" in the 20th century infectious diseases with a death count estimated to be more than 50 million (ibid). The unexpected urgent rapid spread of global novel H1N1influenza Virus has created the tensions and confusion on the explanation of the Word "Pandemic" since early 2009 (Morens et al., 2020). Following this disaster, several countries and leading organizations increased funding and attention to finding cures for infectious diseases in the form of vaccines and medicines - particularly for those diseases that are

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