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Alert and pandemic: the usefulness of mobile operators' mobility metadata

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Warning is defined as the warning to prevent a hazard or an event with a high risk potential. Epidemics are considered as high risk events, especially if they lead to a pandemic, which has been the case in recent global health situations. Indeed, the SARS-CoV-2 and monkeypox viruses led to pandemics, in accordance with international health regulations established by the World Health Organisation (WHO). Controlling epidemics from leading to pandemics requires the establishment of Early Warning Systems (EWS). These systems are at the heart of measures to limit the loss of lives and livelihoods due to hazards and disasters. They consist of a series of organised monitoring mechanisms or actions that collect information on potential hazards in a given location in order to trigger timely and coordinated responses. Information and communication technologies (ICTs) offer clear opportunities to improve warning systems. This was confirmed by the use of mobility metadata from mobile phone operators in Kinshasa during COVID-19. This anonymous and aggregated data from mobile network operators (MNOs) is a key data source for understanding population mobility. They provide information that can improve decision-making and scenario planning during the COVID-19 outbreak. These data were analysed in near-real time to provide an overview of mobility patterns across the Democratic Republic of Congo (DRC). This was done with the aim of providing decision-makers with information on the mobility of populations, thus enabling early prediction of disease outbreak areas.

Today, warning or alert is benefiting from technological developments that are helping health systems to better equip themselves in the fight against epidemics, and especially in the early prevention of pandemics. This necessarily involves the implementation of Health Early Warning Systems (HEWS) using the immense potential of social networks, the availability of mobility metadata, the computing power of computer systems, the precision of geospatial locations, automated data processing with artificial intelligence technologies, etc. The result is better control of epidemics in order to avoid the recurrence of pandemics.