Geographically-targeted prioritization model of covid-19 vaccines distribution across Sudan states, using GIS

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This study explored the rationale for introducing a prioritization approaches for COVID-19 vaccine distribution in Sudan, by reconstructing adjustments to the ages stratified for vaccination, on the basis of a ranking scale to arrange Sudan States in a 3-level geographically targeted order for the vaccines distributions. Results suggest targeting population aged 55 years and above (older adults and elderly) with the highest burden of COVID-19 during the first vaccination phase; followed by the young and middle-age adults of 30-54 years in the second phase; and finally the population groups aged below 30 years in the third phase. In addition, the study modeled a geographically-targeted vaccination approach for prioritizing vaccines distribution amongst the different states, based on the degrees of their exposure to the pandemic as measured by systematic integration of state based scores and ranks in various indicators, and by using GIS-based weighted sum overlay and regression analysis. Accordingly, a vast geographical region of ten states was identified as the first priority for vaccination (El Gezira; Gedaref; Kassala; Khartoum, North Darfur; North Kordofan; Northern; Red Sea; River Nile; White Nile). The second priority encompasses three states (Sinnar; Eat Darfur; and South Darfur); and 5 states for vaccination as the priority (Blue Nile; Central Darfur; South Kordofan; West Darfur; West Kordofan). In practice, vaccination in each phase should include supply of vaccines to all three groups of states according to the order of prioritization. The credibility and usefulness of using the compiled maps and adoption of the proposed adjustments of prioritizations (regarding the age groups and the geographically-based dispatch of vaccines) can be evaluated as adds-in for achieving successful vaccination interventions, especially in the epidemically hot spots states across Sudan.

Biography

Abdel Rahman Khider H has completed his bachelor and MSC Degree at the University Of Khartoum, Sudan, 1985 and 1990 respectively. During 2003 he was awarded PH.D in applied geography/GIS. He was a lecturer at the same university and later on at the University of Juba during early 1990'. He also served as the regional director of Alibrahm International Humanitarian Foundation in east Africa (Kenya), between 1993 and 2000 - managing humanitarian, health and feeding programmes for local communities. Since 2013, he established and is managing a GIS training center in Sudan; devising, coaching and teaching variable courses in applications of GIS in Public health and healthcare services. In addition, he is also involved in training and consultation activities with NGO'S working in Sudan.

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