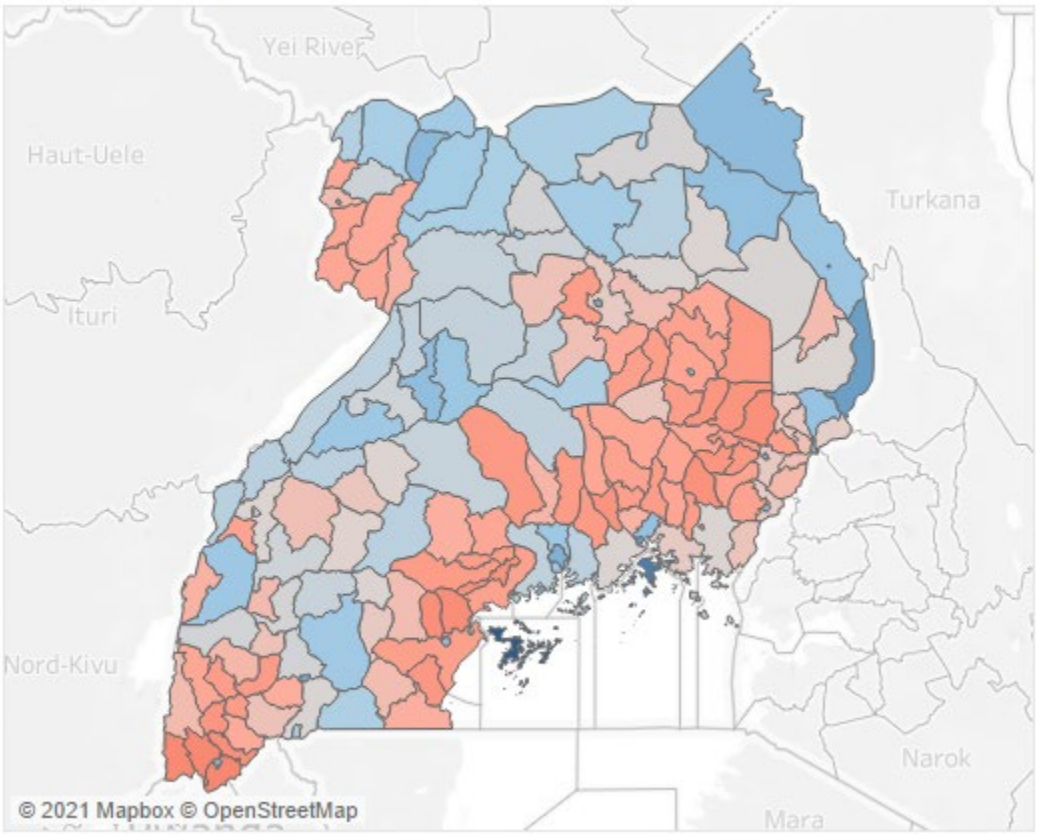
ASSESSING THE RISK OF COVID-19 IN UGANDA

As COVID-19 vaccines are becoming available, governments will need to assess the number and location of the most vulnerable people within their populations. However, problematically, tracking data for most low- and middle-income countries are only available at the national level. To support the COVID-19 relief effort, the Gender, Climate Change, and Nutrition Integration Initiative (GCAN) was commissioned to develop a subnational dataset of key COVID-19 risk indicators and potential risk hotspots.

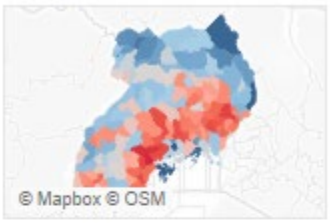
Based on patient data compiled and analyzed worldwide, the science community's consensus is that key COVID-19 risk factors include age, sex, and obesity. Being old, male, and obese increases both vulnerability to infection and the likelihood of negative outcomes. Based on each indicator's COVID-19 death hazard ratio, a composite index for the second-level subnational administrative units was constructed using exploratory factor analysis (a statistical technique that reduces the number of variables). The results of the subnational risk index (map a) and the risk indicators (maps b, c, and d) are presented visually below, resulting in hotspots (the redder colors) and cold spots (the bluer colors).

The age-related risk is high across the Eastern and Central Regions. The sex-related risk (i.e., more male) is highest in the Central Region. The obesity-related risk is high in the Central and Western Regions. Overall, the risk index pattern follows the age-related risk, which is highest in the Eastern and Central Regions.

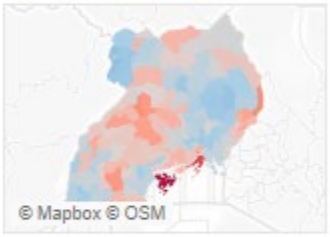
a. Risk index in Uganda



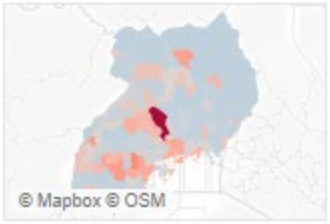
b. Age-related risk



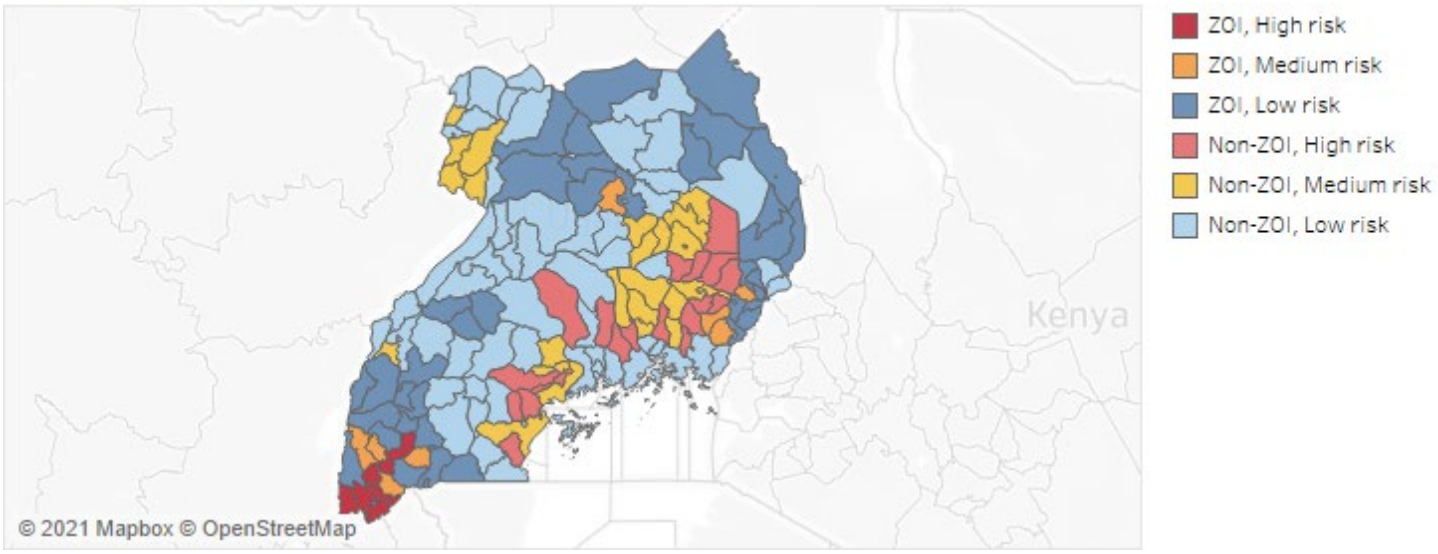
c. Sex-related risk



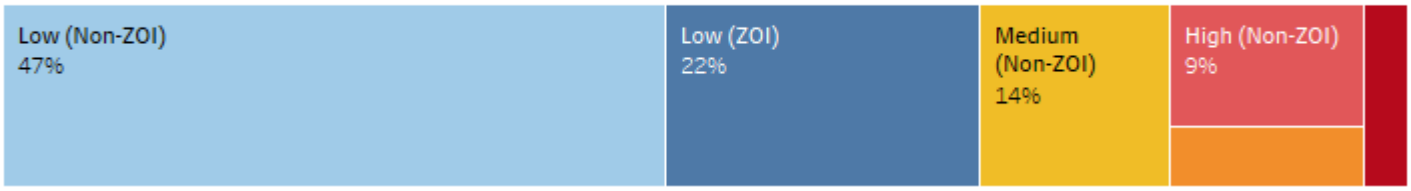
d. Obesity-related risk



e. Risk index classes



f. Distribution of adult population in each class of risks



The above figures categorize the risk index values into areas of low, medium, and high risk (map e) and visualize the number of adults (≥18 years old) in each category (figure f). ZOI indicates the zone of influence of the U.S. Government's Feed the Future program. Areas of high risk are Iganga (Bugweri, Busiki, Luuka), Kumi (Bukedea, Kumi, Ngora), Kabale (Ndorwa, Rubanda, Rukiga), Pallisa (Budaka, Kibuku), Luwero (Bamunanika, Nakaseke), Masaka (Bukomansimbi, Kalungu), Kisoro (Kisoro), Mpigi (Butambala, Gomba), Kayunga (Ntenjeru), Bushenyi (Sheema), Mukono (Nakifuma), Katakwi (Usuk), Soroti (Serere), Rakai (Kyotera), Rukungiri (Rubabo), and Ntungamo (Kajara). Districts in Kabale, Kisoro, Bushenyi, Rukungiri, and Ntungamo are located in ZOI.

The total number of adults in the high risk areas is about 2.2 million (12% of the country's total adult population), all of which are in rural areas. About 26% of the total adult population at high risk is in ZOI (dark red; 0.6M). Given the relatively high estimated risk in rural areas, supporting interventions targeting agricultural laborers should be encouraged. To mitigate the transmission risk in rural communities, socially distanced farming activities should be practiced whenever possible. Interventions practiced in other countries include collecting harvested grain at the farm gate to minimize farmers' travel to markets and the use of informal social networks to coordinate fieldwork on rotating days. Recently published studies also underscore that, across low- and middle-income countries, rural areas show lower accessibility to safe water for personal hygiene and healthcare facilities than urban areas. Only 17% of the rural population in Uganda has access to a basic handwashing facility with soap and water, compared to 34% of the population in urban areas[1]. Another notable vulnerability in rural areas is related to household structure and composition. About 50% more rural households live with elders (older than 65) than urban households in Uganda. The higher share of elders across larger, rural households may render those areas particularly vulnerable to the spread of COVID-19.

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[1] *WASH and COVID-19*. UNICEF, 2020. https://data.unicef.org/topic/water-and-sanitation/covid-19. Accessed 9 February 2021.