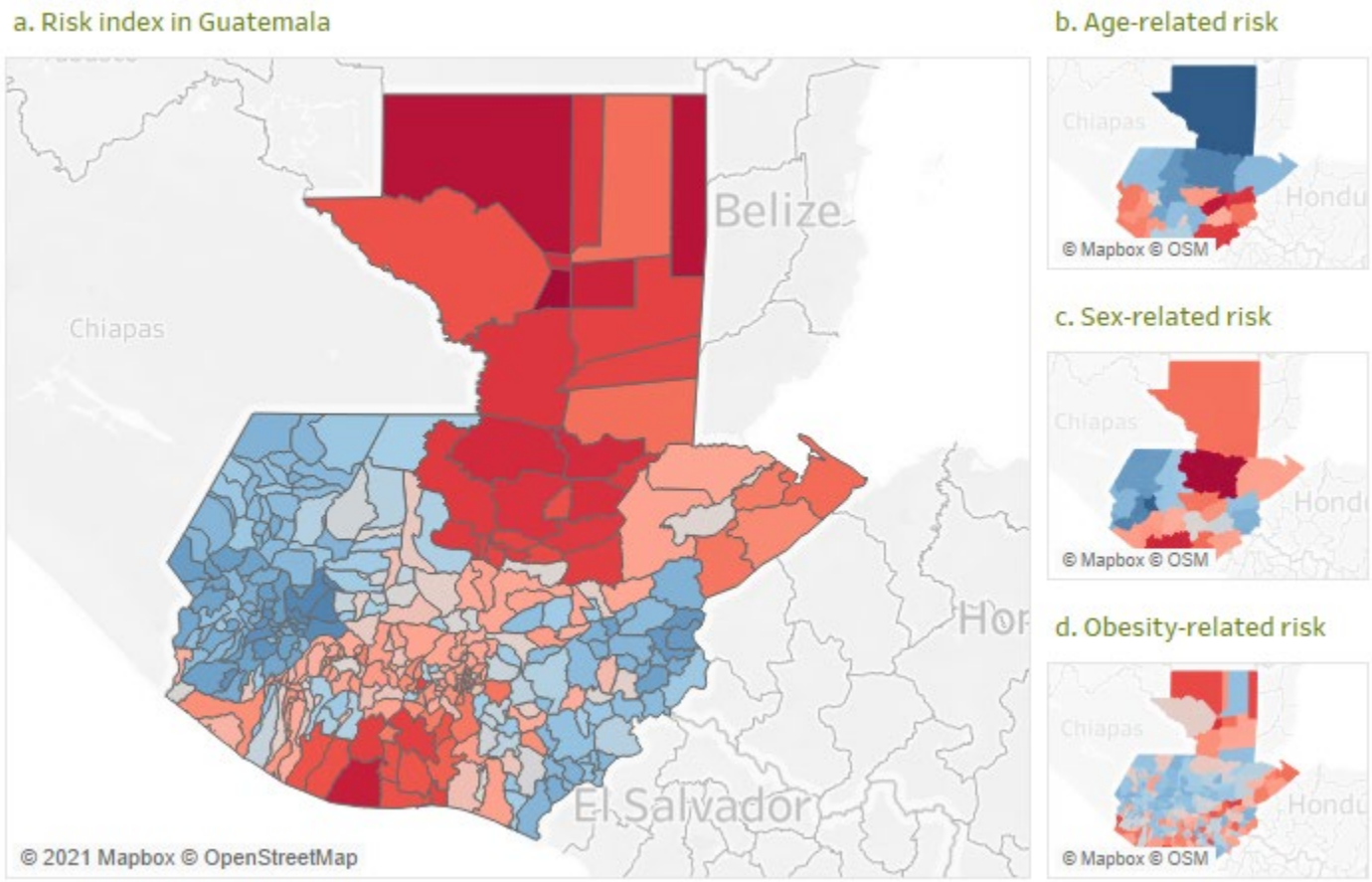
ASSESSING THE RISK OF COVID-19 IN GUATEMALA

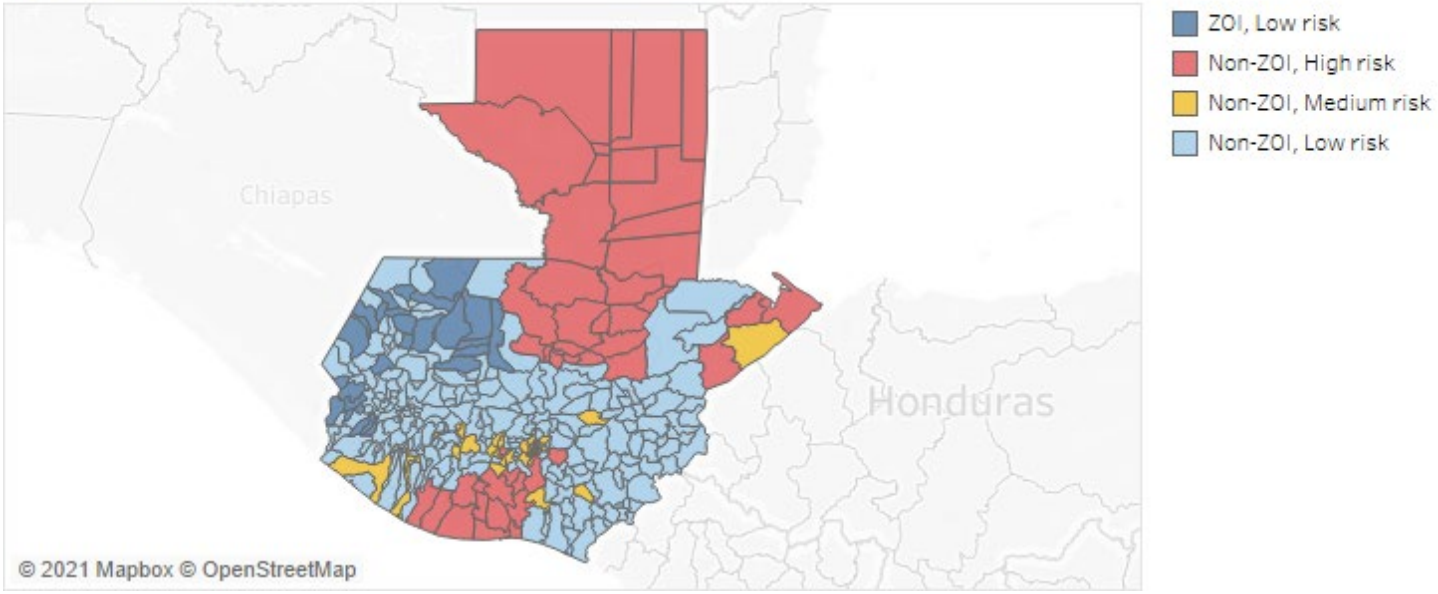
As COVID-19 vaccines are becoming available, governments will need to assess the number and location of the most vulnerable people within their populations. However, problematically, tracking data for most low- and middle-income countries are only available at the national level. To support the COVID-19 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).

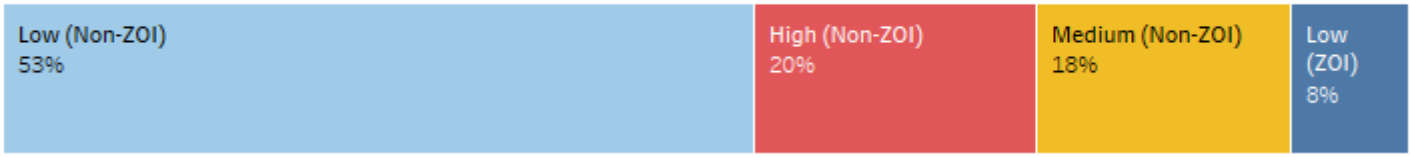
The age-related risk is notably high in El Progreso, Zacapa, and Jutiapa Departments. The sex-related risk (i.e., more male) is highest in Alta Verapaz Department. High obesity-related risk areas are spread across the country while the highest-risk areas are in Sololá and Sacatepéquez Departments. Overall, the highest level of risk is estimated in Petén Department.



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 Guatemala City and the Departments of Alta Verapaz, Escuintla, Petén, Izabal, Sacatepéquez, and Sololá. The total number of adults in the high risk areas is about 2 million (20% of the country's total adult population). All high risk areas are outside of the ZOI.

Most of the high-risk areas coincide with rural agricultural lands producing coffee and vegetables (Alta Verapaz and Sacatepéquez), staple foods and cattle (Petén), and other food crops (Escuintla and Izabal)[1]. Thus, supporting interventions targeting agricultural laborers in rural areas should be encouraged. About 90% of rural people are engaged in agriculture informally, which may pose difficulty accessing the government's emergency response programs. The country-wide lockdown has disproportionally impacted farming households that cannot travel to their farms and engage in export-oriented marketing activities. While enforcing social distancing and protective measures in the high-risk areas, consorted efforts should be made to keep agricultural value chains open and functional. Interventions practiced in other countries include collecting harvested grain at the farm gate to minimize farmers' travel to markets and draw on social networks to coordinate fieldwork on rotating days. Digital technologies are being leveraged to support contactless transactions and the delivery of inputs and agricultural commodities. Investments to improve the accessibility to safe water for personal hygiene and healthcare facilities are also urgently needed. About 30% of Guatemala's rural population does not have access to basic handwashing facilities with soap and water[2].

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[1] *Guatemala Livelihood Zone Map.* FEWS NET, 2017. https://fews.net/central-america-and-caribbean/guatemala/livelihood-zone-map/january-2017. Accessed 9 Feb 2021.
[2] *WASH and COVID-19.* UNICEF, 2020. https://data.unicef.org/topic/water-and-sanitation/covid-19. Accessed 9 Feb 2021.