

Moving toward accessible healthcare for all in sub-Saharan Africa

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Achieving universal access to healthcare is a key development priority and a major target of the UN's Sustainable Development Goal 3. The COVID-19 pandemic has only reinforced this urge. A rapid development and expansion of public, affordable healthcare infrastructure is particularly crucial in sub-Saharan Africa. In the region, communicable diseases are the first cause of death, infant mortality rates are above five percent, and lengthy journeys to healthcare facilities undermine the accessibility to basic healthcare for millions. At least one sixth of the population lives more than two hours away from a public hospital and one in eight people is no less than one hour away from the nearest health center.

The team of researchers from the RFF-CMCC European Institute on Economics and the Environment (EIEE), Catholic University of Milan, Fondazione Eni Enrico Mattei and Decatab recently published in *PNAS—Proceedings of the National Academy of Sciences* a study that provides a comprehensive planning-oriented, inequality-focused analysis of different types of healthcare accessibility in sub-Saharan Africa

based on a state-of-the-art georeferenced database of public [healthcare facilities](#).

Researchers, among them Soheil Shayegh, scientist at the RFF-CMCC European Institute on Economics and the Environment (EIEE), elaborate a strategy to efficiently abate the measured inequalities based on a geospatial optimisation algorithm which identifies the optimal location of future healthcare facilities of different tiers based on the projected distribution of the population of each country by 2030 in order to satisfy the conditions of SDG 3 targets.

"We were able to devise a spatial optimization framework to identify the optimal location and required bed capacity of public healthcare facilities in the region to ensure universal accessibility by 2030," explains Giacomo Falchetta, Research Fellow at FEEM and at the Catholic University of Milan and lead author of the study. "The work builds on different high-resolution data sources, the key one coming from the recent release from the World Health Organization of a comprehensive, georeferenced database on the location of different typologies of public healthcare facilities in sub-Saharan Africa."

"Our methodology and the results of our analysis can inform local policymakers in their assessment and prioritization of healthcare infrastructure," explains Soheil Shayegh, scientist at the RFF-CMCC European Institute on Economics and the Environment (EIEE). "This is particularly relevant to tackle healthcare accessibility inequality, which is not only prominent within and between countries of sub-Saharan Africa, but also relative to the level of service provided by healthcare facilities."

"Optimized location, type, and capacity of each healthcare facility can be explored in an online interactive dashboard," adds Ahmed Hammad, Data Scientist at Decatab and at the Catholic University of Milan.

The results of the analysis suggest that to meet commonly accepted universal [healthcare](#) accessibility targets, sub-Saharan African countries will need to build ~6,200 new facilities by 2030. The researchers also estimate that about 2.5 million new hospital beds need to be allocated between new facilities and ~1,100 existing structures that require expansion or densification.

More information: Giacomo Falchetta et al., "Planning universal accessibility to public health care in sub-Saharan Africa," *PNAS* (2020). www.pnas.org/cgi/doi/10.1073/pnas.2009172117

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