

Planning universal accessibility to public healthcare in sub-Saharan Africa

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Supplementary Information

The role of private and non-governmental healthcare in sub-Saharan Africa

This paper focuses on public healthcare because of the comprehensiveness of the recently published georeferenced public facilities data, which is largely unavailable for private facilities in sub-Saharan Africa. There has thus not been a deliberate choice to privilege public over private and non-governmental healthcare in the analysis. Yet, the authors believe that healthcare – especially for the poor who may not be able to afford services at their market price – is a public good and a basic human right, and thus that governments are responsible for providing it, at least for those sections of the population. This is also because regions where healthcare is remote are likely to overlap with provinces with high poverty ratios – which also imply an inability to afford travelling and healthcare provision itself –, and thus it contributes to a vicious circle between poverty and poor health.

Irrespective of the public focus of this study, the authors are aware that private and non-governmental healthcare is prominent in some regions of the continent, also as a consequence of the fragmented coverage of public facilities. The most comprehensive figure available that we could retrieve (1) is from 2005 and it reveals that about 50% of the total health expenditure in the region was captured by private providers. This includes the for-profit sector (multinational corporations, local private companies) and no-profit facilities owned by non-governmental organizations and missionary hospitals. Data from 2008 (2)

reveals that in Ethiopia, Nigeria, Kenya and Uganda more than 40% of people in the bottom 20% of the income distribution received their healthcare from private, for-profit providers. The numbers (3) however suggest a significant country heterogeneity in the share of general government expenditure on health as a share of the total expenditure in the sector, with countries such as the DR Congo, Nigeria, Cote d'Ivoire, and Cameroon where the state contributes with less than one-third to the total healthcare expenditure, and others such as Mozambique, Angola, and Botswana where the figure rises to above two-thirds. Recent contributions have highlighted the importance of public-private partnerships in promoting healthcare delivery in sub-Saharan Africa (4), which can simultaneously guarantee high clinical standards and subsidisation or free service provision to those in need.

Detailed results

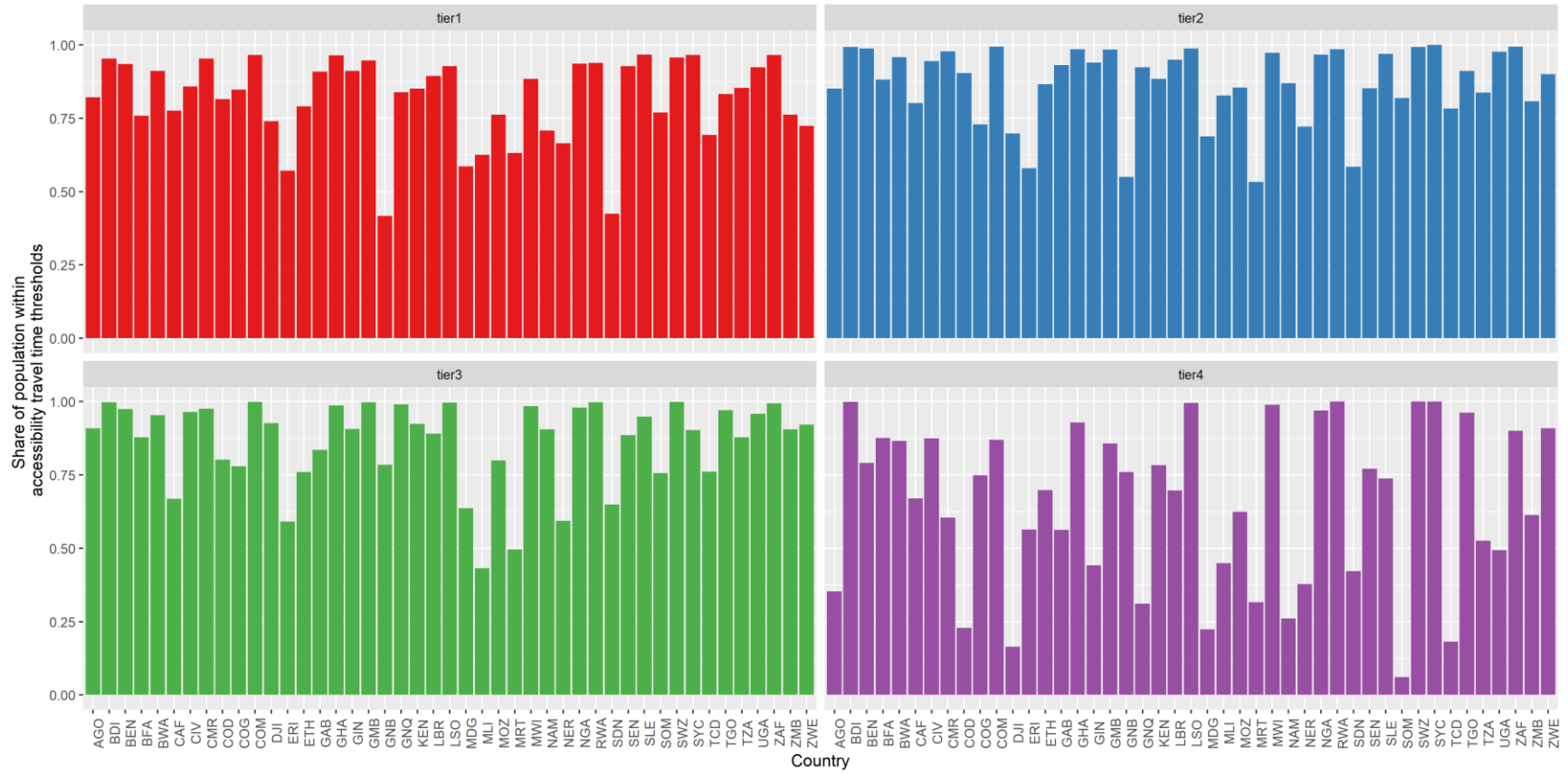


Figure S1: Detailed healthcare accessibility deficit, by country and tier

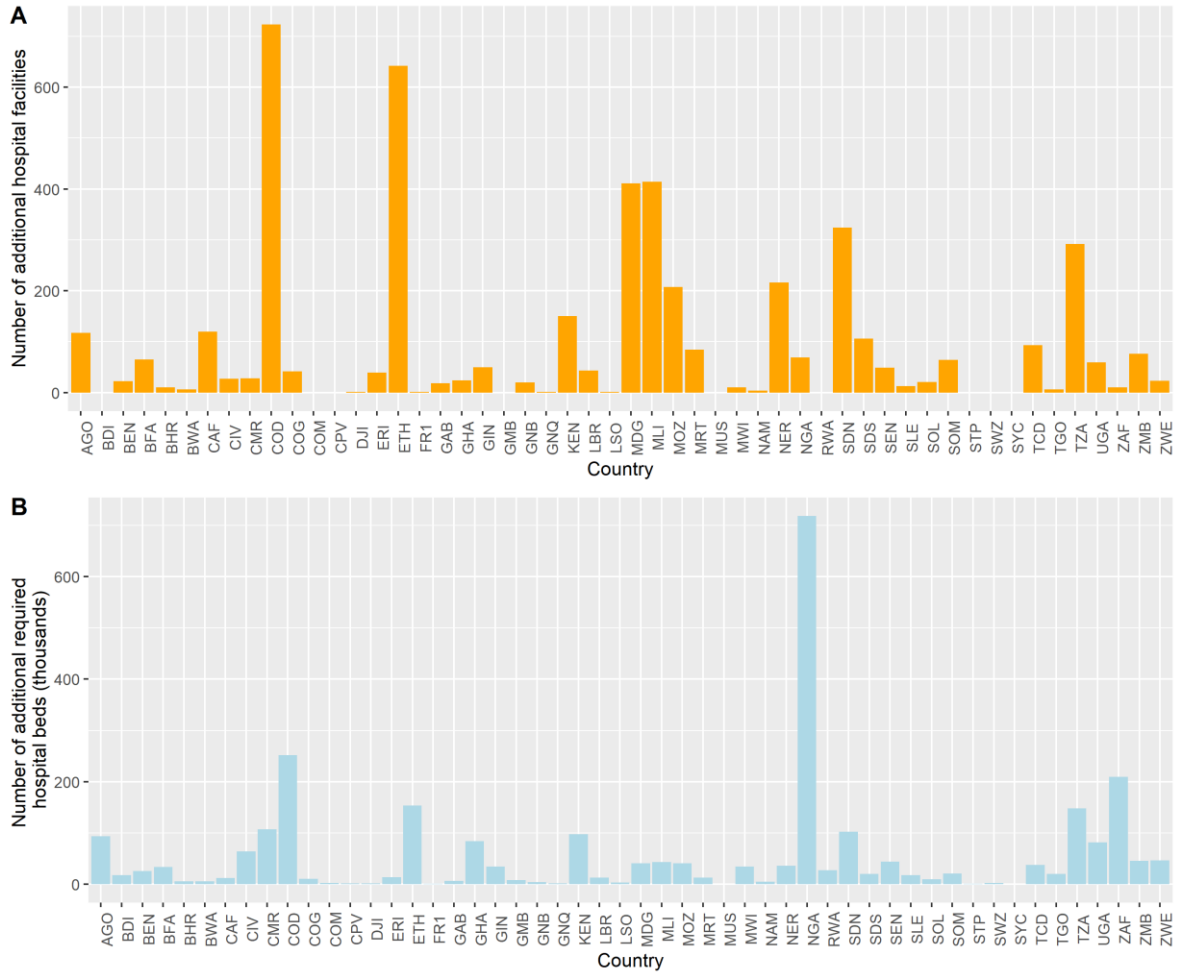


Figure S2: Results for the optimal number of hospital facilities and hospital beds (including facilities expansion/densification), by country (baseline scenario)

Sensitivity analysis: complete results

Share of population

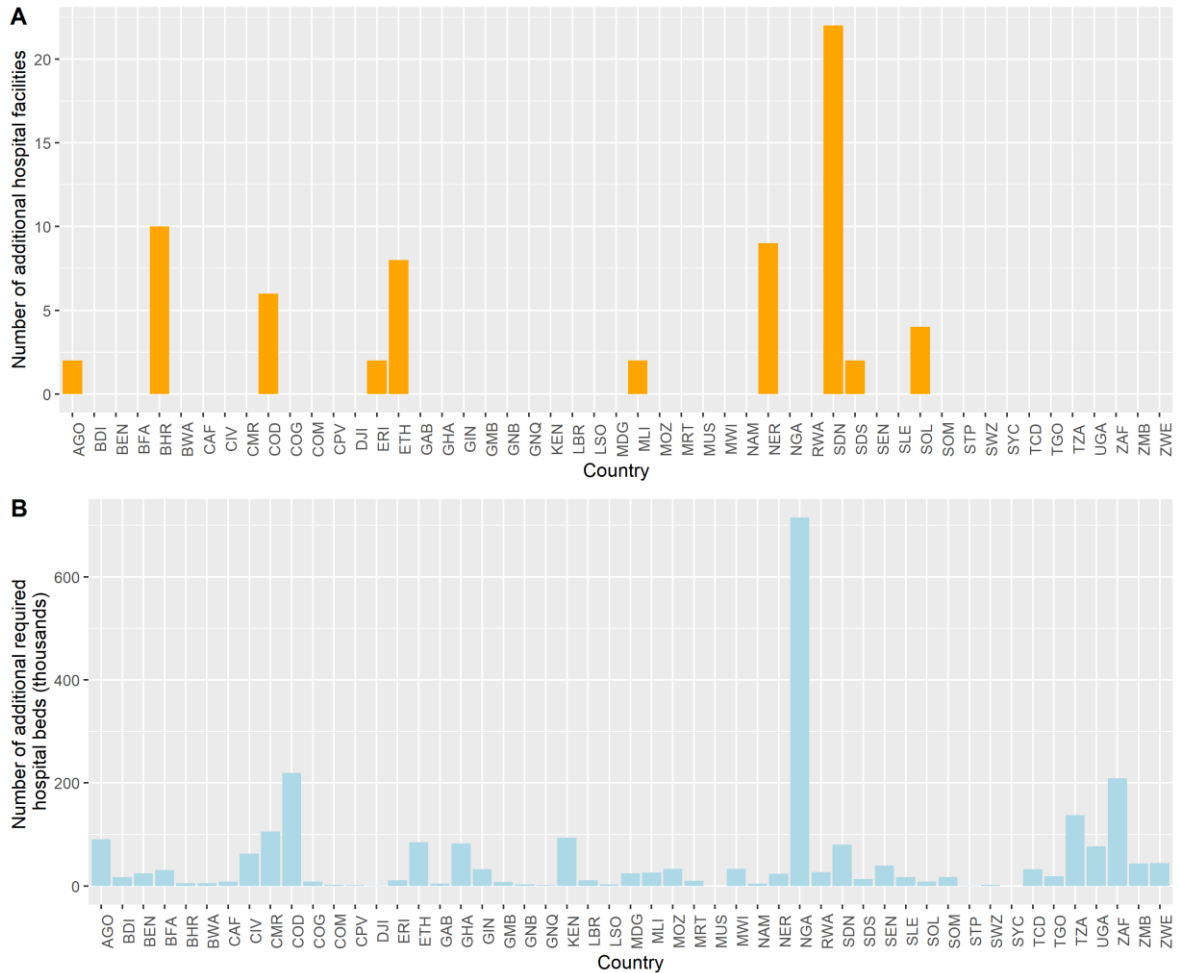


Figure S3: Results for the optimal number of hospital facilities and hospital beds (including facilities expansion/densification), by country (75% of population scenario)

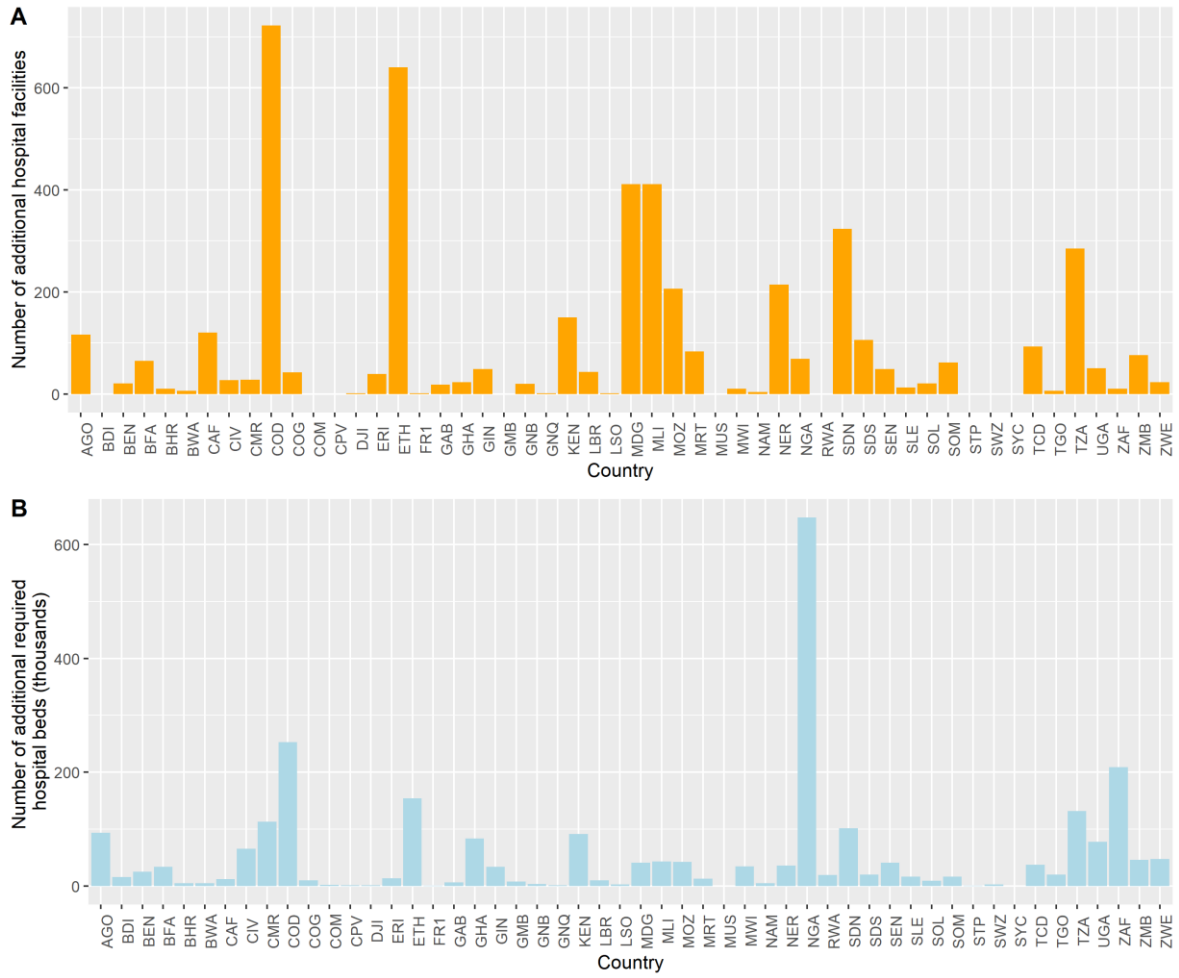


Figure S4: Results for the optimal number of hospital facilities and hospital beds (including facilities expansion/densification), by country (90% of population scenario)

Travel time objectives

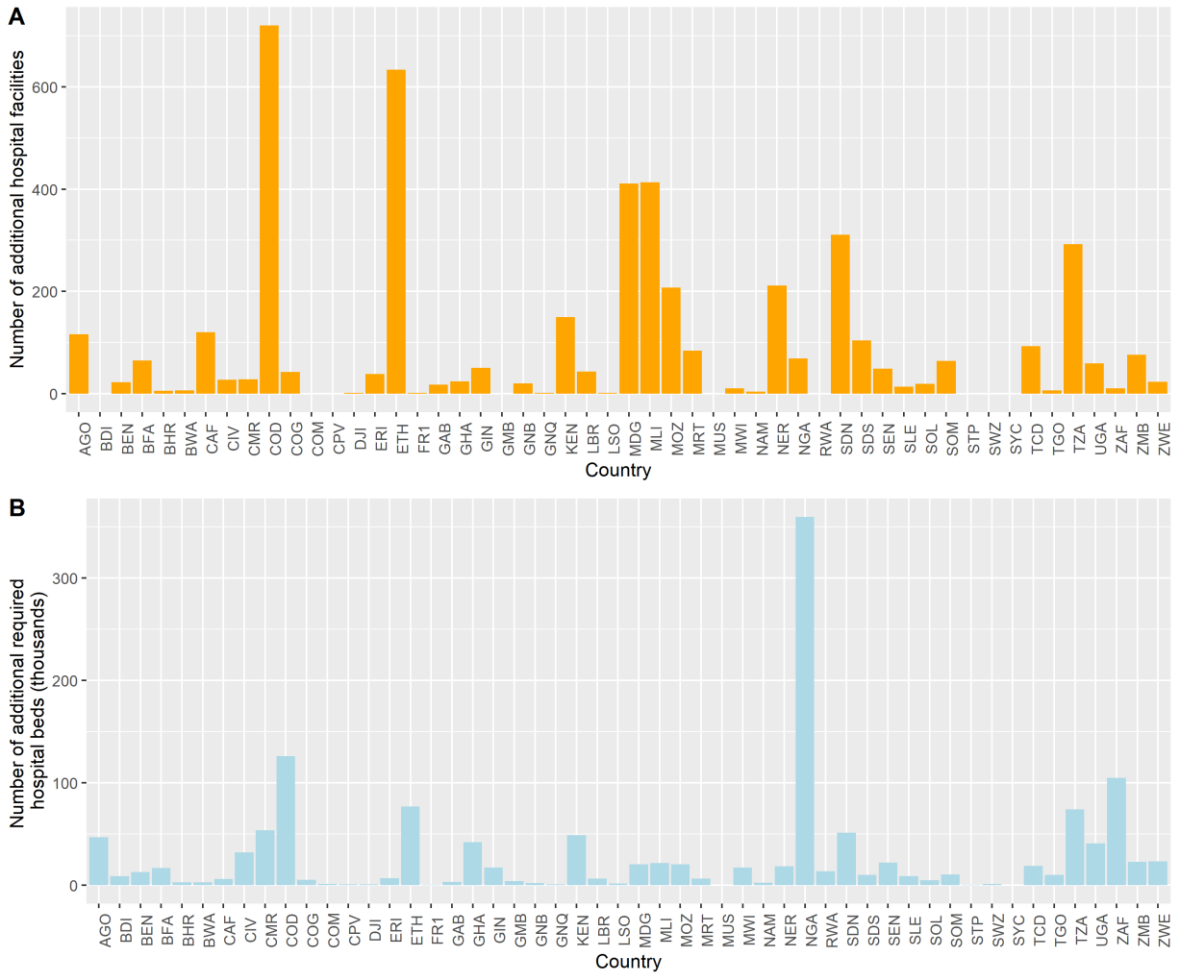


Figure S5: Results for the optimal number of hospital facilities and hospital beds (including facilities expansion/densification), by country (Increased travel time scenario)

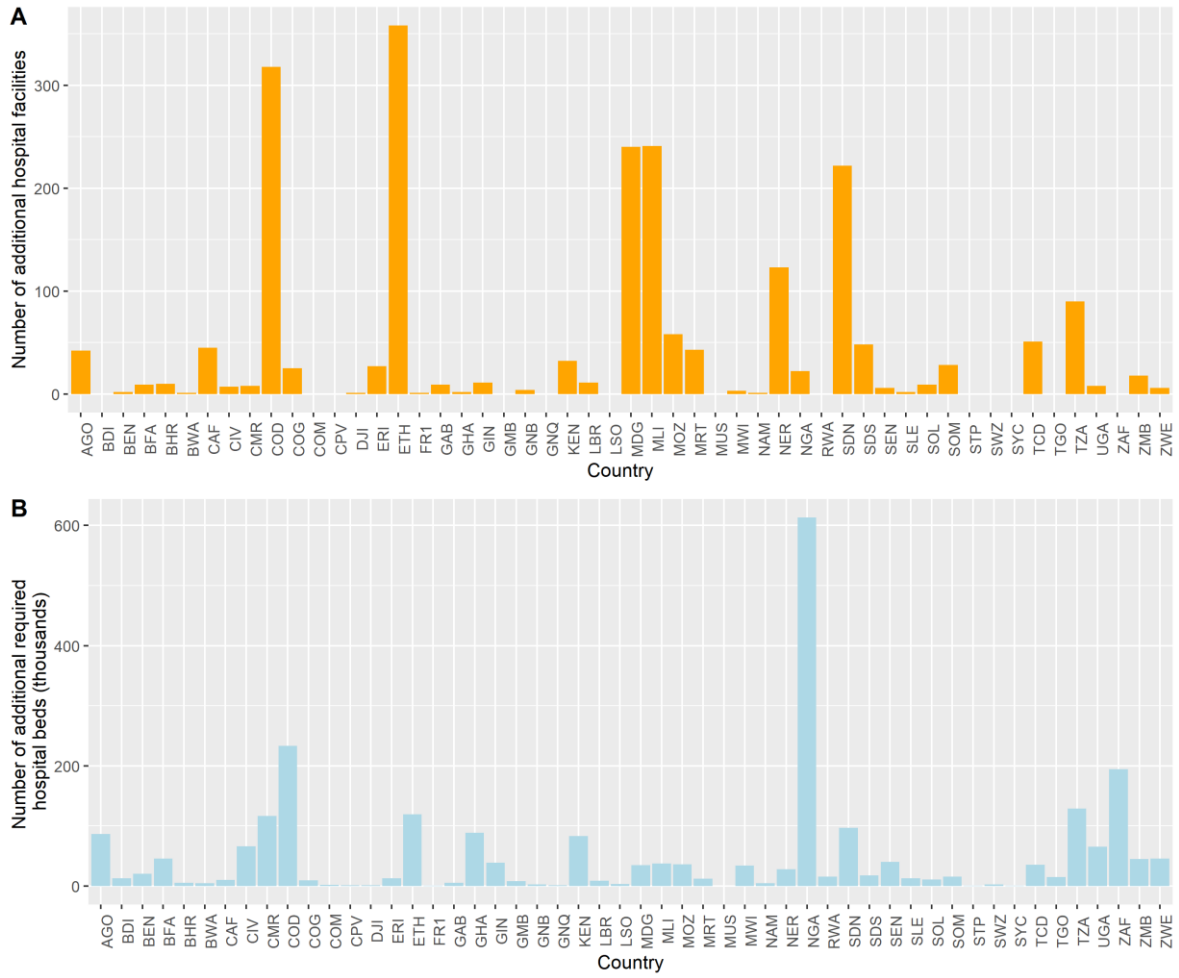


Figure S6: Results for the optimal number of hospital facilities and hospital beds (including facilities expansion/densification), by country (reduced travel time scenario)

Hospital beds per 1,000 inhabitants

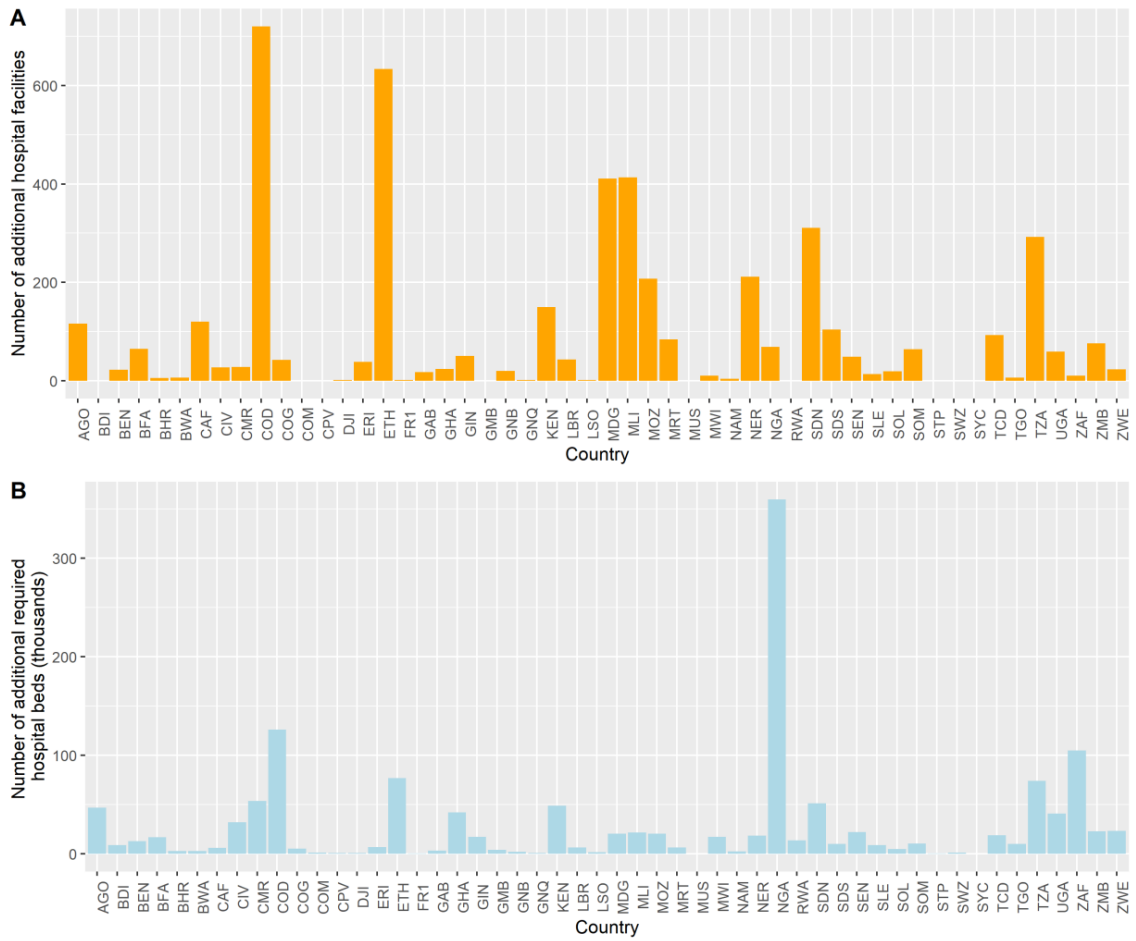


Figure S7: Results for the optimal number of hospital facilities and hospital beds (including facilities expansion/densification), by country (1 bed / 1,000 inhabitants scenario)

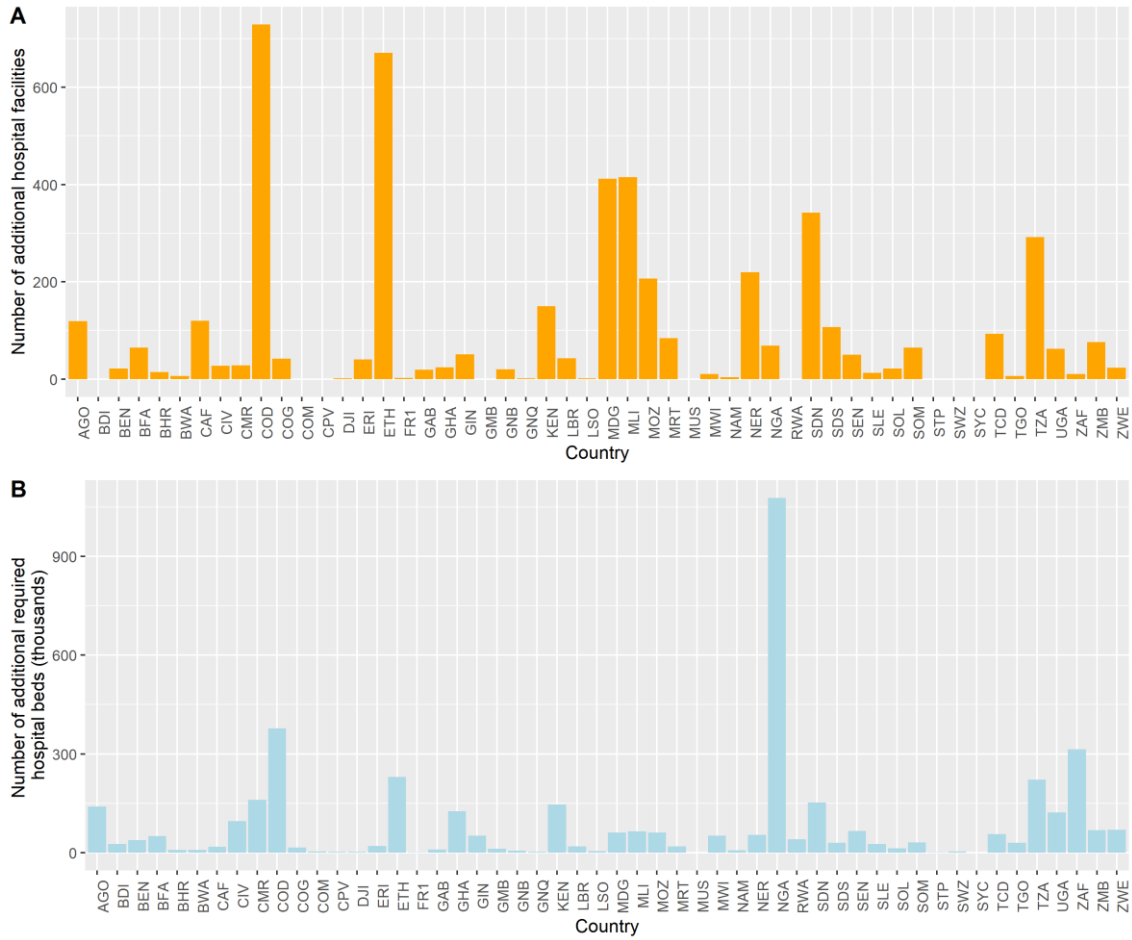


Figure S8: Results for the optimal number of hospital facilities and hospital beds (including facilities expansion/densification), by country (3 beds / 1,000 inhabitants scenario)

Road infrastructure improvement

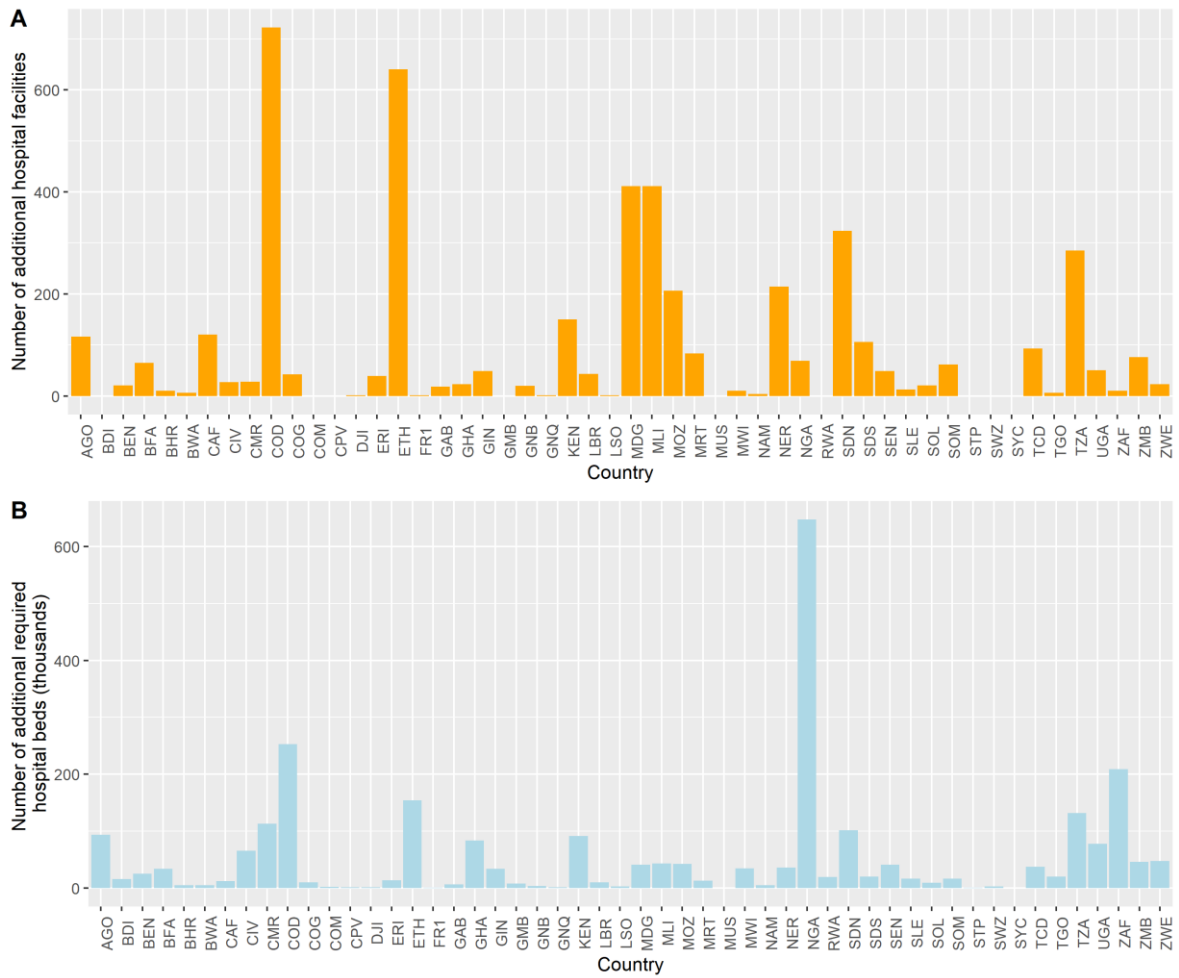


Figure S9: Results for the optimal number of hospital facilities and hospital beds (including facilities expansion/densification), by country (improved road infrastructure scenario)

Supplementary Media

Supplementary Media 1: Animation of the prioritisation of required public hospitals by their impact on overall accessibility in sub-Saharan Africa.

Supplementary References

1. Corporation, I. F. The Business of Health in Africa: Partnering with the Private Sector to Improve People's Lives. *Washington (District of Columbia): International Finance Corporation* (2007).
2. Ghatak, A., Hazlewood, J. G. & Lee, T. M. How private health care can help Africa. *The McKinsey Quarterly* **3**, 1–5 (2008).
3. Organization, W. H. Atlas of health statistics, 2011. *Geneva: World Health Organization-Regional Office for Africa* (2011).
4. Hellowell, M. Are public–private partnerships the future of healthcare delivery in sub-Saharan Africa? Lessons from Lesotho. *BMJ Global Health* **4**, e001217 (2019).