



# Estimating Efficiency Levels of County Health Facilities in Kenya Pre and During COVID 19 Period using DEA Methodology

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## Key messages

1. Provision of quality, effective and efficient health service delivery remains a major concern for many governments all over the world. To achieve this requires efficient utilization of health resources to achieve improved health outcomes. In Kenya, health is one of the devolved functions managed by the county governments. Since inception of devolution, huge amount of public resources have been spent in provision of health services. There are lots of expectation among the public that these heavy expenditures that has gone into financing of health care will result into

improved delivery of health services. This policy brief highlights findings from a study on efficiency of county health facilities in Kenya in pre-and-during COVID 19 period.

2. This study evaluates efficiency of county health facilities in Kenya pre-and-during COVID 19 period using DEA methodology. The study utilizes the number of hospital beds per 100,000 population, health human resource density per 10,000 population, facility density per 10,000 population and health per capita spending as inputs, while outpatient, hospital admissions, per centage of skilled deliveries, per centage of immunization rate, constituted the outputs. The study also analysed factors determining hospital efficiency, for instance access to health insurance cover, primary care by a nursing practitioner among others. The importance of assessing efficiency in the health sector is to examine the extent to which the inputs to the health sector, in form of expenditures and other resources, are utilized to produce a valued health system goal. Health is considered as one of the components of delivering Vision 2030 under the social pillar given the importance of a healthy society in driving the economy. Additionally, the Kenyan government is committed to achievement of Universal Health Coverage (UHC) for enhancing socio-economic development by ensuring that all Kenyans access and receive essential quality health services without suffering financial hardship. Thus, the need for close monitoring of the progress made towards the achievement of the health-related milestones committed by the government for policy direction.
3. The study finds that the mean efficiency in 2019 (Pre-COVID-19) stood at 76.8 per cent which means that most of the counties (37 counties) were efficient with Nakuru county recording the highest efficiency at 91 per cent while Baringo and Tharaka Nithi had the least efficiency at 63 per cent and 62 per cent respectively. On the other hand, the mean efficiency in 2020 stood at 75.6 per cent with more than half of counties (31) also recording high efficiency with Nairobi and Narok recording the highest efficiency at 99 per cent and 98 per cent respectively. Kisii and Kakamega counties had the least efficiency at 25 per cent and 27 per cent respectively. High efficiency scores means that counties are able to use less inputs to achieve increased health outcomes. Factors contributing to efficient access to health insurance cover by the population, increased education levels, access to radio and TV, and access to ICT enabled equipment.

Research findings show that majority of counties have recorded high efficiency levels during pre-Covid and Covid-19 period (see the table below).

### Tabulation of County

County	mean_Eff_2019	mean_Eff_2020
Baringo	.625	.598
Bomet	.864	.971
Bungoma	.692	.683
Busia	.839	.056
Elgeyo Marakwet	.624	.836
Embu	.844	.884
Garissa	.757	.646
Homa Bay	.703	.513
Isiolo	.765	.926
Kajiado	.879	.867
Kakamega	.756	.274
Kericho	.817	.442
Kiambu	.736	.372
Kilifi	.899	.706
Kirinyaga	.679	.341
Kisii	.685	.253
Kisumu	.829	.978
Kitui	.724	.975
Kwale	.780	.526
Laikipia	.808	.922
Lamu	.907	.799
Machakos	.692	.863
Makueni	.574	.995
Mandera	.734	.868
Marsabit	.785	.802
Meru	.657	.573
Migori	.804	.972
Mombasa	.704	.610
Muranga	.771	.972
Nairobi	.869	.987
Nakuru	.910	.937
Nandi	.861	.683
Narok	.833	.983
Nyamira	.639	.916
Nyandarua	.752	.943

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**Tabulation of County Continued**

County	mean_Eff_2019	mean_Eff_2020
Nyeri	.619	.974
Samburu	.714	.749
Siaya	.894	.967
Taita Taveta	.850	.928
Tana River	.817	.966
Tharaka Nithi	.620	.787
Trans Nzoia	.804	.529
Turkana	.752	.556
Uasin Gishu	.867	.891
Vihiga	.803	.922
Wajir	.729	.926
West Pokot	.860	.706
Average	0.768638298	0.75687234

## Conclusions and policy recommendations

Health efficiency remains high before and after COVID-19. This could be attributed to devolved hospital management system which has brought public financial management services closer to the hospital and increased effectiveness in delivery of services. Similarly, there were also variations on health efficiency with some hospitals recording low and high efficiencies, which can also be attributed to hospital management.

### Policy recommendations

- Access to health insurance cover by the population. Access to health insurance cover is a contributing factor to increased efficiency of county health facilities. Access to health cover increases the chances of the population to access health. The government is committed towards expansion of the national health insurance in mechanism. For instance, mobilizing increased membership enrollment to the government-sponsored National Hospital Insurance fund (NHIF), the total NHIF membership comprising of principal members and their dependents increased by 6.64 per cent from 22.0 million in 2019/20 to 23.4 million in 2020/21. Additionally, the Linda Mama program provides a package of basic health services accessed by pregnant women on the basis of need and not ability to pay. However, voluntary payments to the NHIF may remain a challenge to most of the population due to tough economic challenges such as high inflation rates the country is facing.

- Access to information: The study identified access to information through devices such as television and radio contributing to efficiency in county health facilities. Various attempts by the government have been put in place to develop communication infrastructure such as transition from analogue to digital to ensure access to information. Health benefits that can be accrued from access to information include access to health-related information by the population for informed decision. However high cost of electricity and low penetration of electricity in the rural areas may hinder access to information. Rural electrification also enhances access to information and leisure activities through devices such as radio and television.
- Access to secondary education: High education levels among household heads have been associated with improved health outcomes of other households' members. Additionally, an educated population is able to look for better health interventions to their lives. Some of the key interventions by the government of Kenya have been provision of free primary education, subsidies to secondary education and provision of education loans to fund tertiary education.
- Access to ICT: ICT has been identified as a crucial enabler to access to services and overtime the Kenyan government has committed to invest and implement various infrastructural initiatives to increase the level of access and connectivity in the country as guided by several strategic policies such as the Vision 2030 through the Medium-Term Plans, Digital Economy Blueprint, National Broadband Strategy and National ICT. Currently, the government is implementing the digital super-highway project aimed at expanding internet infrastructure in under-served regions. Additionally, measures to lower the cost of internet access are vital to enhance internet accessibility and further reduce unemployment rates in the country. Prioritizing the expansion of ICT infrastructure and promoting affordable internet access, to increase access to internet is also necessary. Additionally, electricity is an enabler to access ICT thus make electricity available and affordable more so in rural areas.

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