Measuring the equity of health services in Kenya

A tool for informing policy

Equitable access to health services is a key health systems goal in many low-income countries where often the poorest people have the highest health care needs but receive the lowest share of public health system benefits.

In Kenya, researchers have developed a new way of assessing how equitable public primary health services are, by looking at the associations between health facility characteristics and the poverty level of the area in which the facility is located. This method was used to assess variations in health facility resources and service availability across socioeconomic status in Kenya, and has the potential to be a useful tool to inform policy on increasing equitable access to health services elsewhere.

This brief outlines the methods that researchers used to measure health service equity, as well as the key findings from the study.

Introduction

Governments have tried to address the goal of equitable access to health care through a range of measures including reducing user fees, implementing social insurance schemes and enhancing primary health care infrastructure. However, evidence has shown that it is often relatively rich people who continue to benefit the most from health care expenditure, regardless of the source of financing, proximity to services or type of health care provider (public or private).

Likewise, in Kenya the poorest population receive the lowest share of total health system benefits despite having the highest health needs. The government's stated aim is to increase equitable access to health services, but more research is needed to understand the nature and causes of these inequalities, especially in the provision of public primary
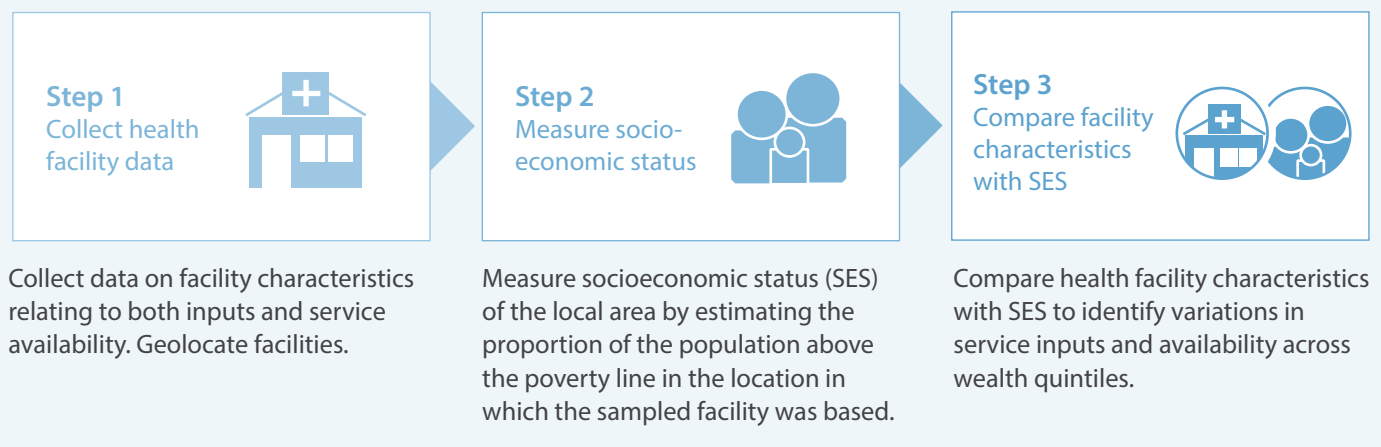
health services which are an important source of services for the poor.

A tool to measure equity

Researchers from the KEMRI-Wellcome Trust Research Programme and the London School of Hygiene & Tropical Medicine have developed an innovative way of assessing the equity of primary health services by combining data from national health facility surveys with local area poverty data (figure 1).

This information was used to identify differences in health service inputs (eg staff, vaccines, drugs and equipment) and availability (eg laboratory services, family planning services) across wealth quintiles.

Figure 1. Steps used to assess the equity of primary health services

Step 1
Collect health facility data

Step 2
Measure socio-economic status

Step 3
Compare facility characteristics with SES

Collect data on facility characteristics relating to both inputs and service availability. Geolocate facilities.

Measure socioeconomic status (SES) of the local area by estimating the proportion of the population above the poverty line in the location in which the sampled facility was based.

Compare health facility characteristics with SES to identify variations in service inputs and availability across wealth quintiles.

Step 1 Collect health facility data

The locations of all public health facilities in Kenya were documented in a spatial database. Data on facility characteristics were collected as part of a national survey of public primary care health facilities. Researchers identified the sets of characteristics related to facility inputs and service availability shown below.

Facility input variables
(equipment and infrastructure, commodities and staff)

- At least 15 out of 18 key equipment items available on the day of the survey
- Any electricity supply available
- Any water supply available
- All drugs on tracer list in stock on the day of the survey
- All essential family planning commodities in stock on the day of the survey
- All essential vaccines in stock on the day of the survey
- At least 4 staff with medically related qualifications available
- At least 2 support staff available eg cleaner, watchman, data clerk

Service availability variables

- Laboratory services available
- Family planning services offered
- Delivery services offered
- Voluntary Counselling and Testing (VCT)/Provider Initiated Testing and Counselling (PITC) services offered
- Prevention of Mother to Child Transmission (PMTCT) services offered
- Anti-retroviral treatment (ART) services offered
- Insecticide Treated Nets (ITNs) available for distribution
- At least one outreach activity conducted in the past three months
- All childhood immunization services available Monday to Friday
- All antenatal care services available Monday to Friday

Step 2 Measure socio- economic status

Researchers measured the SES of the local area for each facility by estimating the proportion of the population above the poverty line in the location where the sampled facility was based. The location (containing a median population of 3,122 and a median area of $16km^2$) was the smallest area for which poverty data were available in Kenya, and provides a rough approximation of facility catchment area.

The estimation of the proportion of households above the poverty line in each location was based on expenditure and consumption data from the 1997 Welfare Monitoring Survey (WMS) and the 1999 Population and Housing Census. The poverty line was estimated in 1997 prices at US$21.2 and US$ 45.3 per month for rural and urban households respectively. The census did not contain household expenditure data, but since the census and the WMS contained socio-economic variables, it was possible to statistically infer household expenditures for all households using regression analysis. On this basis, 53% of the rural population lived under the poverty line and 49% of the urban population.

Sampled facilities were grouped into weighted SES quintiles. Central Province had the highest concentration of facilities in the least poor quintile, while North Eastern and Western Provinces had the highest concentration of facilities in the poorest two quintiles.

Step 3
Compare facility characteristics with SES

Researchers looked for associations between SES and facility inputs or service availability using a number of measures including chi-squared tests, equity ratios and concentration indices. Concentration indices were indirectly standardised to control for facility type, province, and remoteness (distance to nearest main town).

Equity ratio

$$\frac{\% \text{ in the least poor quintile}}{\% \text{ in the poorest quintile}}$$
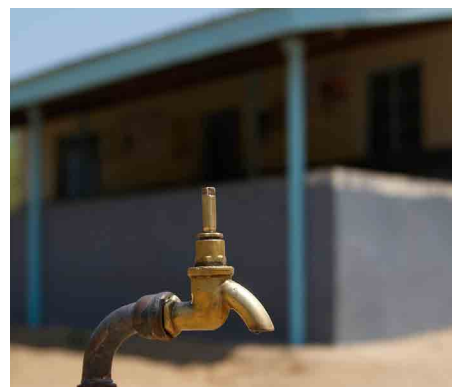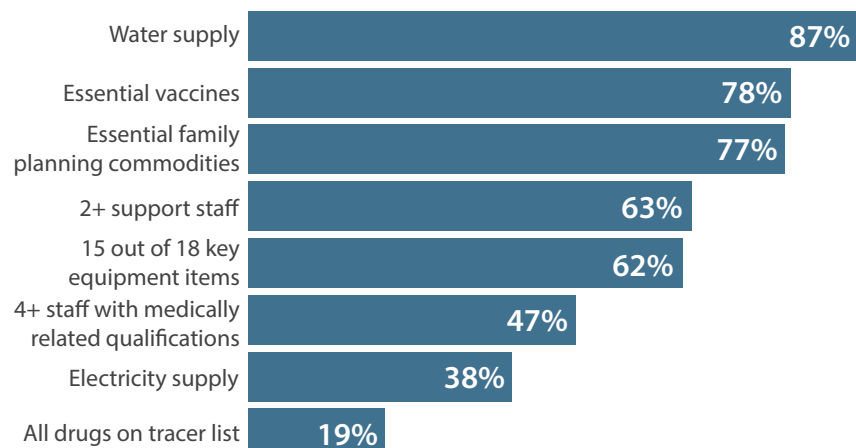
A ratio greater than 1 implies pro-rich inequalities.
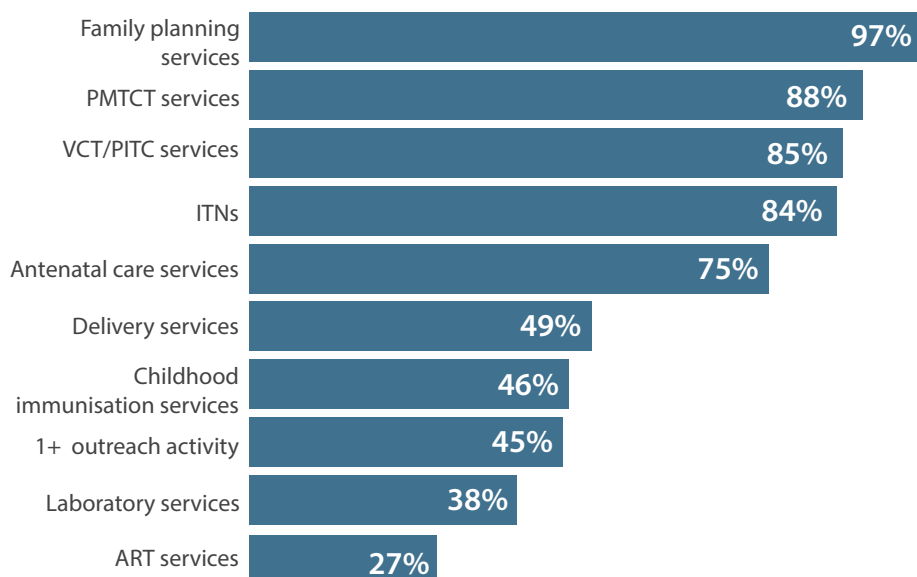
Concentration index

Ranges between -1 and +1 with 0 indicating equality, and a positive index indicating pro-rich inequalities.

Key findings from Kenya

Availability of facility inputs and services across public health centres and dispensaries

Water supply — **87%**
Essential vaccines — **78%**
Essential family planning commodities — **77%**
2+ support staff — **63%**
15 out of 18 key equipment items — **62%**
4+ staff with medically related qualifications — **47%**
Electricity supply — **38%**
All drugs on tracer list — **19%**

Almost all facilities offered family planning services, and 87% of facilities had a functioning water supply.

Family planning services — **97%**
PMTCT services — **88%**
VCT/PITC services — **85%**
ITNs — **84%**
Antenatal care services — **75%**
Delivery services — **49%**
Childhood immunisation services — **46%**
1+ outreach activity — **45%**
Laboratory services — **38%**
ART services — **27%**

Fewer than one in five facilities had all drugs on the tracer list in stock, only one third had laboratory services or electricity available.

Variation across socio-economic status

- For most input and availability indicators in primary health care facilities, there was no indication of variation by SES, which means there was little evidence of inequalities.

- However, there is clear evidence of pro-rich inequalities for electricity and for laboratory services. Facilities in the top SES quintile were three times more likely to have electricity and laboratory services as those in the bottom quintile. There were also some indications of pro-rich inequalities for availability of drugs and qualified staff.

- The lack of evidence of inequality for other indicators does not imply that availability of inputs and services was high; for example, while availability was close to 90% for water supply and family planning services, under half of facilities offered delivery services or outreach activities.

	Equity Ratio	Concentration index (indirectly standardised)
Laboratory services	3.43	0.05
Electricity supply	3.16	0.07
All drugs on tracer list in stock	1.97	0.02
4+ staff with medically related qualifications	1.89	0.03

Conclusions: a useful tool for policymakers

It is possible to combine local area poverty data with national health facility surveys to assess the equity of health care service availability, and this method provides a useful tool for informing policy to address inequalities in access to health services across contexts. However, the approach does not consider areas with no facility within reasonable reach and may therefore under-estimate inequality affecting the most remote communities.

Variations in service availability are only one determinant of inequality in health care utilisation and outcomes. They are also highly dependant on health financing systems, the knowledge of community members, and the quality of care provided. However, understanding variation in service availability is an important component in assessing the potential for health services to delivery equitable care.

Combining local area poverty data with national health facility surveys provides a useful tool to inform policy to address inequalities

About the research

This information is based primarily on a large-scale survey conducted in 2010 by researchers from KEMRI-Wellcome Trust and London School of Hygiene & Tropical Medicine in a nationally representative sample of 248 health centres and dispensaries.

The research was funded by DANIDA, Ministry of Public Health and Sanitation in Kenya and the Wellcome Trust.

Authors and contact information

Sassy Molyneux: smolyneux@kemri-wellcome.org
Catherine Goodman: catherine.goodman@lshtm.ac.uk
Mitsuru Toda: mitsuru.toda@gmail.com
Abdisalan Noor: anoor@kemri-wellcome.org

Related publications

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