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DEVOLUTION OF HEALTHCARE IN KENYA

ASSESSING COUNTY HEALTH SYSTEM READINESS IN KENYA: A REVIEW OF SELECTED HEALTH INPUTS

Brief

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Introduction

In August 2010, Kenya adopted a new constitution that introduced a new governance framework with a national government and 47 counties. This was a radical departure from the highly centralized form of governance that had been in place since independence, but resulted in political and economic disempowerment and unequal distribution of resources (World Bank, 2012).

The highly centralized government system also led to the weak, unresponsive, inefficient, and inequitable distribution of health services in the country (Ndavi et al., 2009). It is expected that a devolved health system will improve efficiency, stimulate innovation, improve access to and equity of services, and promote accountability and transparency in service delivery (Bossert, 1998). However, the complexity of Kenya's devolution framework has generated concern that services could be disrupted if the transition is managed poorly.

Under the new framework, responsibility for health service delivery is assigned to the counties while policy, national referral hospitals, and capacity building are the national government's responsibility (Constitution of Kenya, 2010).[1] The framework for the transfer of these functions[2] is in the Transition to Devolved Government Act, 2012. The health service delivery function was formally transferred[3] to counties on August 9, 2013, and one-third of the total devolved budget of KSh 210 billion was earmarked for health in the 2013/2014 budget following the transfer.

Fears of disruption of services are largely linked with concerns about the counties' readiness to deliver services. The Transition Authority (TA)[4] set specific timelines[5] and criteria[6] for the assessment of county preparedness to take up devolved functions. However, the criteria are generic, making it difficult to determine whether counties are ready to offer the health services

under their ambit. In addition, political pressure from the newly elected county governments led to a bulk[7] transfer of functions, irrespective of the counties' level of preparedness.

The USAID- and PEPFAR-funded Health Policy Project (HPP) conducted a study on the supply side to determine the extent to which health systems in the counties are ready to deliver services. By examining indicators related to key health inputs, HPP sought to address two key questions:

1. Are the key health system inputs available to deliver services?

2. Does county revenue per capita correspond to counties' relative readiness to deliver health services?

Methodology

To assess health system readiness, this study examined variations in county revenue per capita, availability of health facilities, and 16 county-level health input indicators. These indicators are based on the health system building blocks and fall under four broad categories: physical infrastructure and equipment; human resources for health; drug availability; and organization of service delivery and governance. Counties that consistently receive higher ratings across these indicators may be better prepared to provide health services than other counties.

The results should be interpreted with caution because the 16 indicators provide an approximate, rather than comprehensive, assessment of county readiness. Additionally, some counties' ratings may be above average compared to other counties in Kenya, but inadequate according to national or international standards. Therefore, counties that were rated highly on these indicators may face challenges in assuming devolved healthcare responsibilities.

Data from two surveys were included in the analysis. The first source is the 2013 Kenya Service Availability and Readiness Assessment Mapping (SARAM) report, a national census that involved all health facilities in the country and management units.[8] SARAM collected information on three core areas: basic facility information, service availability, and service readiness.

HPP chose 16 key health system inputs measured by SARAM as the indicators for county readiness to deliver health services.

The second survey, the 2012 PETS-Plus, combined a Public Expenditure Tracking Survey (PETS) and a Service Delivery Indicator (SDI) survey to assess overall service delivery performance of 294 public and private nonprofit health facilities (MOH, 2013a).[9] The survey also covered 1,859 healthcare providers, and used facility-level information to measure inputs, resources, and provider effort and competency. PETS-Plus supplements the SARAM data with assessments of the quality of service delivery. PETS-Plus data were also used to examine county variations in human resources.

Results

Availability of Health Facilities

Health facilities must be physically available for the population to access healthcare services. Just 63 percent of Kenyans have access to government health services located within an hour of their homes, and greater distance to a facility is a significant factor in decreased demand for healthcare in the country (Noor et al., 2006; Mwabu et al., 1993).

Health facilities are unequally distributed across the 47 counties.

Figure 1. County distribution of facilities per 100 square km* and 10,000 population
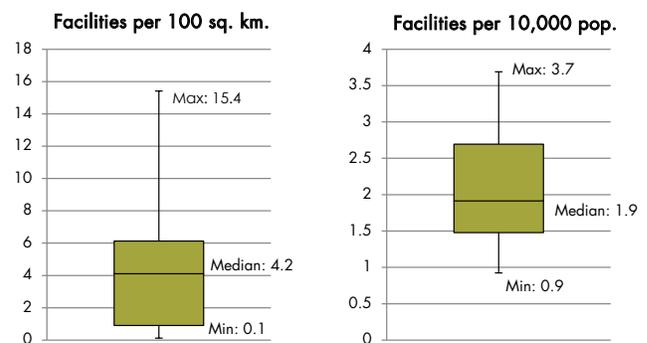
*Mombasa and Nairobi are outliers for facility density per square kilometer and are thus removed from the analysis.

Half of the counties have fewer than 2 health facilities per 10,000 people and fewer than 4.2 facilities per 100 square kilometers. Densely populated Mombasa and Nairobi have 134 and 124 health facilities per 100 square kilometers, respectively, but far fewer facilities per 10,000 people (2.9 and 2.4, respectively). Marsabit, Tana River, and Isiolo have the fewest health facilities per 100 square kilometers, but above-average numbers of health facilities per 10,000 people (MOH, 2013a). This suggests that these counties may have a sufficient number of facilities for the population, but patients must travel long distances to reach them.

There is less variation in the number of health facilities per 10,000 people. The counties with the fewest facilities per 10,000 people (Bungoma and Busia) have more facilities per 100 square kilometers than the average. This indicates that facilities may be accessible to people in these counties, but the counties may not be able to manage as many cases as other counties.

It is important to identify counties that were rated below average for both accessibility and coverage. The counties with few facilities per 100 square kilometers and per 10,000 people are Tana River, Kilifi, Mandera, Turkana, Wajir, Narok, and Bomet. People seeking healthcare in these counties are likely inconvenienced by travel time and distance to health facilities, and the counties may have limited capacity to care for everyone in their catchment area.

County Health System Readiness by Indicator

Table 1 shows the rates across all 47 counties for the 16 indicators, with color-coding to identify the top-, middle-, and bottom-performing third of counties for each indicator. General patterns reveal that counties such as Isiolo, Busia, Kisii, Taita Taveta, and Kisumu are more prepared than others to provide a range of healthcare services, based on their health system inputs. Nine counties (Nairobi, Kiambu, Meru, Majir, Trans-Nzoia, Kajiado, Nyeri, West Pokot, and Kirinyaga) fell into the bottom third for more than half of the 16 indicators, suggesting that they were less prepared to provide healthcare services under the devolved system.

Infrastructure and Equipment

HPP chose five infrastructure and equipment indicators to determine the

1. Percentage of primary care centers with an antenatal ward
2. Number of operating theaters per hospital
3. Number of ambulances per hospital
4. Number of KEPI (Kenya Expanded Programme on Immunization) refrigerators per maternal and child health/family planning (MCH/FP) unit
5. Number of CD4 machines per facility with laboratories

Counties varied widely in the percentage of primary care centers with an antenatal ward (8–85%). The number of operating theaters and ambulances per hospital ranged from 0.09 to 2.33, and from 0.06 to 3.63, respectively. In terms of equipment, all counties had at least one KEPI refrigerator per MCH/FP unit (ranging from 1.13 to 3.87), but there was a lack of CD4 machines in facilities with labs (ranging from 0 to 0.58).

Kirinyaga, Wajir, and Kajiado were consistently ranked in the bottom third for these indicators. Five counties did not fall in the bottom third for any of the infrastructure and equipment indicators: Isiolo, Narok, Kericho, Elgeyo-Marakwet, and Bungoma. Samburu was the only county in the top third for at least four of the five indicators, suggesting it was relatively more prepared than other counties in terms of infrastructure and equipment.

Table 1: Relative county readiness by indicator

KEY: Bottom 1/3 of counties   Middle 1/3 of counties   Top 1/3 of counties

Counties	ANR	Oper	Amb	KEPI	CD4	Doc	Nurse	MH drugs	CH drugs	HIV drugs	4FDC	ACT	Metformin	Data registers	Work plan	Board mtg
Isiolo	31%	0.67	0.67	2.27	0.33	1.00	12.80	36%	63%	40%	54%	93%	12%	79%	74%	55%
Busia	56%	1.00	0.29	2.20	0.22	0.60	6.70	31%	52%	40%	57%	89%	12%	77%	80%	72%
Kisii	55%	0.72	0.22	1.29	0.28	0.60	5.90	32%	57%	29%	58%	93%	17%	66%	86%	74%
Taita Taveta	20%	0.33	2.67	1.78	0.30	0.90	8.10	29%	50%	13%	56%	78%	19%	70%	73%	54%
Kisumu	85%	0.82	0.06	1.16	0.46	1.00	7.30	38%	57%	27%	57%	88%	21%	74%	78%	74%
Tharaka Nithi	17%	0.57	0.43	1.81	0.25	0.20	4.20	28%	55%	17%	33%	86%	13%	55%	50%	51%
Makueni	36%	0.33	1.00	1.69	0.26	0.40	4.10	29%	51%	38%	54%	84%	16%	65%	73%	65%
Embu	14%	0.75	3.63	1.58	0.09	1.10	11.50	26%	54%	23%	56%	88%	17%	62%	63%	60%
Narok	25%	0.71	0.86	1.78	0.18	0.40	3.10	27%	53%	18%	30%	84%	17%	65%	72%	61%
Laikipia	14%	0.75	2.75	1.79	0.15	0.70	5.90	32%	53%	19%	24%	82%	22%	63%	70%	55%
Nyandarua	34%	0.62	0.54	1.41	0.20	0.60	6.40	32%	50%	24%	40%	69%	22%	57%	57%	52%
Lamu	8%	1.00	1.00	1.63	0.00	0.50	9.20	35%	55%	11%	41%	84%	30%	72%	60%	53%
Kericho	32%	0.82	1.64	1.67	0.20	0.70	3.90	25%	56%	40%	30%	91%	10%	67%	76%	66%
Kakamega	26%	0.38	0.44	1.53	0.45	0.50	4.70	30%	52%	30%	53%	85%	11%	71%	70%	57%
Kitui	19%	0.38	1.08	1.82	0.17	0.40	4.80	23%	50%	25%	34%	88%	11%	60%	70%	63%
Kwale	13%	0.75	1.50	1.68	0.08	0.10	3.70	35%	60%	19%	65%	95%	13%	79%	75%	67%
Siaya	83%	0.50	0.13	1.37	0.37	0.20	4.70	35%	55%	50%	74%	87%	19%	73%	84%	74%
Machakos	17%	0.88	1.50	1.70	0.17	0.70	5.40	29%	49%	30%	49%	73%	23%	61%	61%	47%
Nakuru	25%	0.65	1.47	1.68	0.13	0.80	6.90	32%	53%	16%	37%	74%	27%	64%	58%	45%
Elgeyo-Marakwet	27%	0.67	1.33	2.00	0.17	0.50	7.80	18%	48%	17%	18%	85%	6%	64%	76%	76%
Homa Bay	61%	0.38	0.31	1.48	0.58	0.40	5.10	32%	54%	41%	67%	82%	7%	80%	80%	78%
Vihiga	28%	0.50	1.63	1.52	0.25	0.40	4.00	37%	59%	34%	58%	85%	8%	79%	70%	59%
Nyamira	66%	0.13	1.00	1.78	0.18	0.10	4.10	29%	57%	17%	53%	93%	9%	76%	87%	73%
Bungoma	41%	0.64	0.73	1.79	0.20	0.40	3.70	29%	49%	17%	60%	81%	11%	67%	66%	63%
Samburu	39%	0.75	1.50	1.95	0.00	0.30	6.30	24%	49%	18%	40%	81%	3%	53%	62%	61%
Baringo	14%	0.57	0.86	2.02	0.00	0.50	6.80	20%	49%	21%	21%	81%	5%	59%	68%	74%
Marsabit	13%	0.50	0.75	2.45	0.33	0.60	6.50	28%	49%	8%	36%	81%	15%	51%	57%	35%
Garissa	23%	2.33	0.89	2.21	0.15	1.00	4.40	33%	58%	5%	29%	82%	24%	53%	53%	45%
Muranga	22%	0.70	0.70	1.43	0.07	0.40	4.70	39%	60%	15%	45%	84%	24%	71%	0%	0%
Turkana	14%	0.57	1.14	2.32	0.33	0.10	1.60	29%	54%	19%	21%	82%	6%	51%	54%	48%
Bomet	24%	1.60	0.80	1.97	0.10	0.20	3.00	20%	55%	11%	31%	97%	11%	81%	91%	80%
Migori	81%	0.38	0.54	1.38	0.21	0.10	3.50	32%	48%	28%	52%	77%	14%	67%	78%	71%
Kilifi	11%	0.55	1.27	1.67	0.19	0.50	3.70	28%	47%	20%	42%	72%	18%	55%	48%	41%
Uasin Gishu	56%	0.83	0.42	1.48	0.00	0.80	3.50	26%	50%	23%	14%	74%	25%	62%	62%	51%
Tana River	13%	0.67	2.00	1.94	0.00	0.20	5.10	22%	48%	0%	38%	76%	2%	78%	86%	76%
Nandi	12%	0.80	1.20	2.16	0.09	0.10	4.30	23%	40%	31%	22%	68%	6%	56%	59%	57%
Mandera	36%	0.60	0.60	2.14	0.00	0.00	0.90	34%	55%	3%	27%	81%	19%	30%	42%	45%
Mombasa	9%	1.20	0.73	1.13	0.24	1.10	6.20	24%	38%	20%	49%	51%	21%	43%	18%	15%
Nairobi	30%	0.65	1.29	1.22	0.27	2.00	3.90	23%	34%	14%	33%	44%	22%	29%	29%	20%
Kiambu	31%	0.27	0.48	1.36	0.23	1.10	6.30	36%	55%	17%	30%	77%	35%	53%	42%	35%
Meru	14%	0.36	0.48	1.76	0.19	0.80	5.70	21%	42%	11%	36%	67%	21%	45%	36%	31%
Wajir	10%	0.36	0.45	3.87	0.14	0.10	2.10	28%	52%	2%	12%	90%	23%	57%	56%	47%
Trans-Nzoia	23%	0.50	1.00	1.74	0.15	0.50	4.20	21%	35%	0%	49%	57%	9%	52%	47%	38%
Kajiado	18%	0.27	0.47	1.48	0.15	0.20	4.40	31%	53%	12%	15%	75%	23%	52%	46%	42%
Nyeri	20%	0.30	0.30	1.32	0.27	1.50	10.60	24%	45%	7%	30%	63%	28%	48%	40%	39%
West Pokot	9%	0.40	2.00	2.10	0.00	0.20	4.20	24%	49%	23%	21%	80%	5%	54%	49%	45%
Kirinyaga	17%	0.09	0.32	1.32	0.10	0.60	6.60	23%	42%	17%	43%	61%	18%	46%	48%	40%

Figure 2: Human resources for health quality indicators

■ Average percent staff absenteeism   ■ Average percent correct diagnosis (all 7 cases) among clinicians
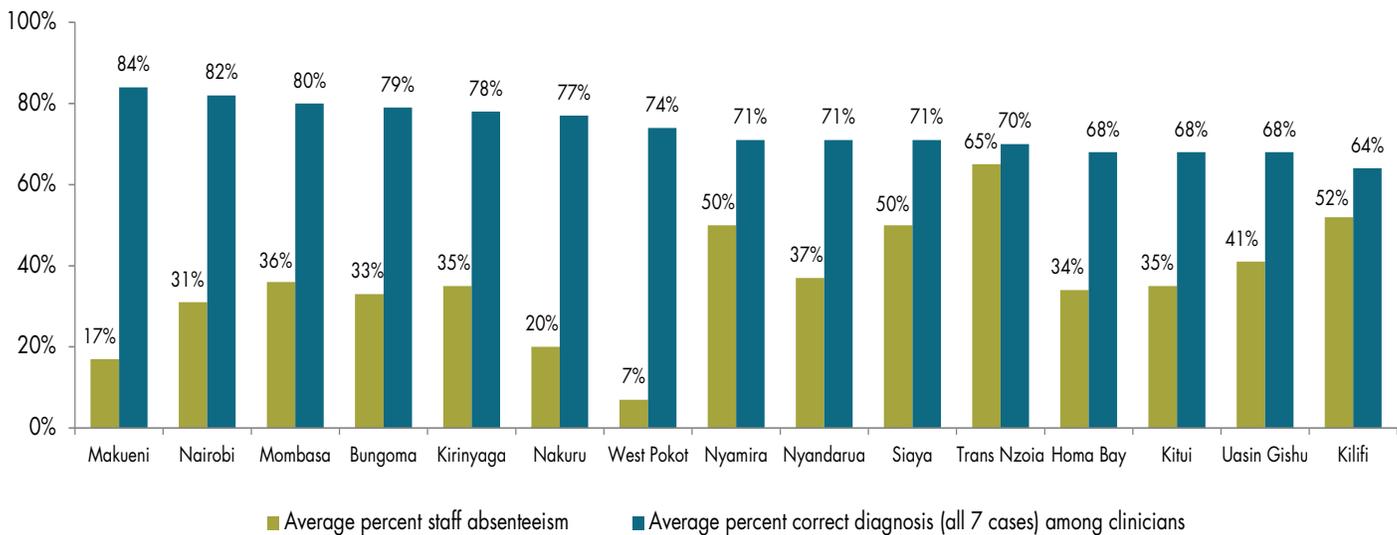
Human Resources for Health

The population densities of doctors and nurses are important indicators of a county's capacity to provide adequate primary healthcare coverage. The proportion of doctors per 10,000 people in the 47 counties ranged from 0 (Mandera) to 2 (Nairobi). These rates are below the national benchmark of 3 medical officers per 10,000 people (MOH, 2013b). Counties had higher population density rates for nurses, ranging from 0.9 per 10,000 in Mandera to 11.8 per 10,000 in Isiolo. However, just four counties met Kenya's benchmark of 8.7 nurses per 10,000 people (MOH, 2013b). In general, counties with higher population densities of doctors tend to have higher population densities of nurses.

Measurements of quality of care are just as important as quantifying the size and distribution of the healthcare workforce. Figure 2 shows the variation across 15 counties in two quality indicators: staff absenteeism, i.e., the frequency of sanctioned or unsanctioned absences from work, and correct diagnosis. High staff absenteeism is detrimental to healthcare delivery. Staff absenteeism varied greatly by county, from 7 percent in West Pokot to 65 percent in Trans-Nzoia. Additionally, the quality of care is largely dependent on clinicians' ability to accurately diagnose patients. The percentage of clinicians who correctly diagnosed seven different conditions ranged from 64 percent in Kilifi to 84 percent in Makueni.

Availability of Drugs

The quality of treatment depends on drug availability in facilities. The six drug availability indicators are

1. Average availability of 11 maternal health tracer drugs

2. Average availability of 11 child health tracer drugs

3. Availability of all first-line drugs for HIV

4. Availability of Artemisinin-based combination therapies (ACT), first-line treatment for malaria

5. Availability of RHZE, a four-drug fixed-dose combination (4FDC) for intensive treatment of tuberculosis (TB)

6. Availability of Metformin, the preferred oral treatment for diabetes

In all 47 counties, more facilities had maternal health drugs than child health drugs. On average, 34 to 63 percent of counties had maternal health tracer drugs in their facilities, but just 18 to 39 percent had child health tracer drugs. There were large disparities in the availability of all first-line HIV drugs (ranging from 0–50%) and 4FDC for TB (12–74%). Few facilities had drugs for diabetes; the availability of Metformin ranged from 2 to 35 percent across the counties. Counties tended to have greater availability of first-line treatment for malaria (ACT) than the other drugs included in this

analysis, with countywide availability ranging from 44 to 97 percent.

Five counties (Isiolo, Kisumu, Kisii, Vihiga, and Siaya) were consistently ranked in the top third of counties for drug availability, indicating that they were relatively more prepared to provide treatment. The counties consistently rated in the bottom third were Trans-Nzoia, Elgeyo-Marakwet, Nandi, Nyeri, and Tana River, which may be less prepared than others to provide high-quality treatment and care.

Organization of Service Delivery and Governance

Planning and financial management are critical for the seamless delivery of services. The three indicators analyzed were the percentage of facilities that had available data collection registers in the preceding 12 months; that had a 2012–2013 workplan; and whose board had met twice in the previous financial year. The proportion of facilities that had data collection registers ranged from 29 to 81 percent. Wider ranges existed among facilities that had a workplan (0–91%) and those whose board had met twice in the preceding year (0–80%).

The findings also showed that these three indicators are strongly linked. While 10 counties were consistently ranked in the bottom third across the three indicators, another 10 counties were in the top third for all three indicators. This suggests that counties where facilities were relatively better at planning and management may be better equipped for the devolution of healthcare than counties with poor ratings on these indicators.

County Readiness and Revenue

The analysis shows that revenue per capita varies significantly by county, as Mandera has nearly six times the per capita revenue of Nairobi (see Figure 3). Revenue per capita sometimes corresponds to counties' performance across the 16 indicators. For instance, Nairobi has the least amount of revenue per capita and is in the bottom third of counties for 9 of the 16 indicators.

However, there were notable exceptions to this relationship. Some counties with below-average revenue per capita performed better than the others across the 16 indicators (i.e., four or fewer instances of being in the bottom third): Nakuru, Kericho, Siaya, Kakamega, Narok, Machakos, Kisii, Kisumu, and Makueni.

Figure 3. County revenue per capita, 2013–2014
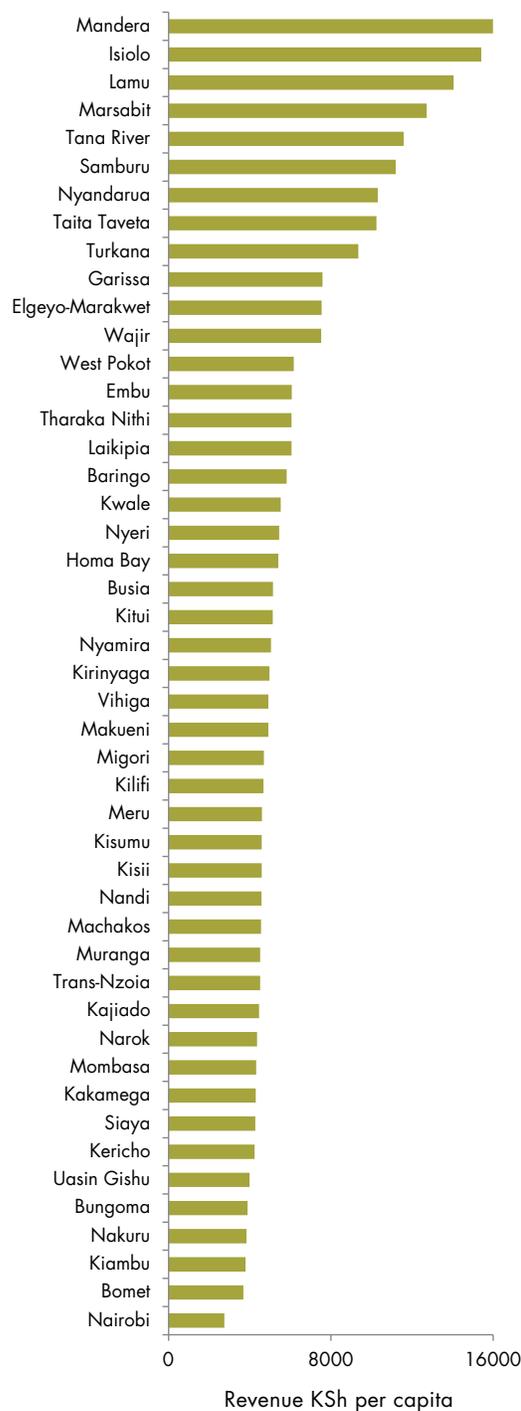
Other counties with above-average revenue per capita ranked in the bottom third of counties for at least half of the 16 indicators: Tana River, Mandera, Wajir, Nyeri, Kirinyaga, and West Pokot. The analysis showed that revenue per capita is not strongly linked to county health system readiness, indicating that greater revenue for counties may not necessarily increase their readiness to provide health services.

Conclusion

Analysis of 2013 SARAM and PETS-Plus data reveals great variability in county health system readiness to provide healthcare under the devolved system. Some counties face challenges in healthcare accessibility—seven counties had below-average numbers of facilities per 100 square kilometers and per 10,000 people. Furthermore, the nine counties that consistently ranked in the bottom third across the 16 indicators analyzed may be less prepared to provide health services than other counties. Although increased revenue may improve counties' readiness to provide healthcare services, this analysis did not find a particularly strong relationship between revenue per capita and relative performance across the 16 indicators. This suggests that other factors may largely account for the variations in county readiness.

Counties that performed relatively well across the indicators may still have inadequate healthcare inputs according to national or international standards. For instance, none of the counties met the national benchmark for population density of medical practitioners.

Based on the results, HPP recommends the following to improve county readiness:

1. **Focus on relatively low-performing counties:** Although most counties will face unique challenges during the devolution process, this analysis shows that some counties may struggle in more areas, from inadequacies in infrastructure and equipment to poor governance. Counties, the national government, and donors must investigate the underlying causes of ill preparedness in terms of health system inputs and direct financial and other resources to these areas. In particular, this investigation can inform decisions on the disbursement of the equalization fund.

2. **Target weak areas across all counties:** There are several indicators with poor rates across all 47 counties. For instance, most facilities do not have adequate supplies of drugs for noncommunicable diseases such as diabetes. As a result, the national government may need to issue guidelines or standards for specific county-level health system components. These weak areas also could be incorporated into the criteria for counties receiving conditional grants. Lastly, continuous monitoring of weak areas throughout the devolution process is critical for identifying strains on the newly created county health systems.

3. **Provide counties with norms and standards for benchmarking:** National and county-level norms and standards for health system inputs are lacking. These must be developed to conduct additional research on county preparedness and to track progress in closing gaps in readiness.

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Endnotes

1. County health facilities; rehabilitation and maintenance of county health facilities, equipment and machinery; inspection and licensing of medical premises; county health pharmacies; ambulance services including emergency response and patient referral system; promotion of primary healthcare.

2. These functions have further been unbundled and documented in the *Health Sector Functional Assignment and Transfer Policy Paper* (2013).

3. Gazette Supplement No. 116, Legal Notice 137 of August 9, 2013.

4. A statutory body with a constitutional mandate to facilitate and coordinate the transition to the devolved system of government in Kenya pursuant to the provisions of the Transition to Devolved Government Act 2012 and Section 15 of the Sixth Schedule to the Constitution of Kenya 2010.

5. July 2012–February 2013

6. Section 24 of the Transition to Devolved Government Act

7. Section 23 of the Transition to Devolved Government Act envisioned that the transfer of functions would be asymmetrical and phased.

8. The facilities surveyed include public health facilities, private nonprofit facilities, and private for-profit facilities. A total of 8,401 health facilities were visited, of which 7,346 completed the questionnaires in 10 zoned areas.

9. This sample is representative of the quality of service delivery and physical environment in which services are delivered in public and private nonprofit health facilities, health dispensaries, health centers, and district hospitals. Fifteen counties in Kenya were randomly selected for the first stage and categorized based on urbanity, poverty rates, and service delivery performance. To adjust for oversampling, inverse probability weights were generated and used to achieve an accurate representation of facility distribution by stratum at the national level.