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Togo Service Delivery Indicators

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SERVICE DELIVERY INDICATORS

Data for Results and Accountability

Health service delivery in

TOGO

WORLD BANK GROUP

AFRICAN ECONOMIC RESEARCH CONSORTIUM
Consortium pour la Recherche Economique en Afrique

Togo
Service Delivery Indicators
2013

Health Technical Report

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EXECUTIVE SUMMARY

Service Delivery Indicators (SDI) provide a set of metrics to benchmark service delivery performance. In sub-Saharan Africa, the SDI's overall objective is to gauge the quality of service delivery in primary education and basic health services. The SDI enable governments and service providers to identify gaps and track progress over time and across countries in a region. This report presents the findings from the implementation of the first round of SDI surveys for the health sector in Togo.

From September to November 2013, surveys were conducted in 180 health facilities, which included district hospitals, health centers, and dispensaries. Information was gathered from 1,364 health providers who were representative of facilities across different settings of care, ranging from public and private (nonprofit) facilities, and facilities located in rural and urban settings.

The SDI survey assesses three broad categories of indicators: provider effort (what providers do); provider knowledge and ability (what providers know); and inputs (what providers have to work with). The findings are summarized below.

What providers do

Absence rate: during an unannounced visit, on average 40 percent of health workers were observed to be absent, of which 65 percent of those absences were approved. Absence rates are generally higher in private and urban facilities relative to public and rural ones. This is most marked at the dispensary (USP1) level, where private providers are 36 percent ($p<0.1$) and urban public providers are 63 percent ($p<0.05$) more absent than their public or rural public counterparts, respectively.

Caseload: adjusting for provider absence, health providers in Togo see 7.4 outpatients per provider-day. Private and rural public facilities have higher volumes than their public (22 percent) or urban public (21 percent) counterparts. This is most marked at the health center level, rural public providers have 48 percent ($p<0.05$) and public providers have 40 percent ($p<0.05$) outpatient consultations per provider day, respectively. The 92 percent average rise in caseload (taking into account absence and off-duty staff) points to the fact that absence may be a major factor that impacts the rise in caseload across types of facilities. However, no clear pattern is apparent in the relationship between caseload and absence rate; typically, caseload is observed to be higher in facilities that have between five and 10 staff with about half the number of cases in lower-level health facilities.

What service providers know

Diagnostic accuracy: on average, providers successfully diagnosed 52 percent of the five tracer conditions (malaria with anemia, acute diarrhea with severe dehydration, pneumonia, pulmonary tuberculosis, and diabetes mellitus). These pathologies are commonly seen by providers. There is no statistically significant difference across public/private and rural/urban within public facilities, but urban providers averaged 25 percent higher performance rates than rural ones ($p<0.05$). Examining individual tracer conditions, pneumonia is the only condition where there are significant differences—private providers were 1.8 times more likely than the public providers ($p<0.01$) to correctly identify the condition.

Adherence to clinical guidelines: on average, for the five tracer cases, providers asked two in five of the medically-necessary questions to diagnose the case according to the Togolese guidelines. Medical assistants asked more questions and carried out more necessary examinations than nurses ($p<0.01$).[1]

Management of maternal and neonatal complications: on average, 24 percent of the necessary clinical actions to manage immediate post-partum hemorrhage and neonatal asphyxia were taken by providers. Public providers perform 20 percent more treatments than private providers ($p<0.01$), rural providers take 21 percent more treatments ($p<0.05$), and dispensaries perform 34 percent better than hospitals ($p<0.01$). Private providers concentrate the majority of diagnostic testing, undertaking three times more than public ones ($p<0.01$) and among urban providers, who undertake four times more tests than the rural ones ($p<0.01$).

What service providers have to work with

Drug availability: on average, facilities had 44 percent of tracer drugs available, with no significant difference among public and private facilities or public facilities by location, although hospitals averaged higher tracer drug availability than lower-level facilities ($p<0.01$). Tracer medications for children (56 percent) were generally more available than those for mothers (36 percent). Urban public facilities had more average availability of drugs for mothers ($p<0.1$) and children ($p<0.01$).

Equipment availability: Approximately two in three facilities had functional basic equipment,[2] with the lowest levels observed in clinics (USP2). There are differences in equipment types, with private facilities tending to have more electric sterilization devices (*Poupinelle*; $p<0.05$) and resorting less to boiling in pots ($p<0.01$).

Infrastructure availability: Private providers were 2.3 times more likely to have safe drinking water, functional sanitation, and power available on the day of the survey ($p<0.01$) or one of the three elements ($p<0.01$). Likewise, urban public facilities are 2.8 times more likely to simultaneously have all three elements than rural public facilities ($p<0.01$). All elements are more present in urban than in rural facilities, although safe water is more equally available (24 percent less likely; $p<0.1$) than sanitation (39 percent; $p<0.01$) or power (2.4 times less likely; $p<0.01$).

What does this mean for Togo?

This report presents the findings from the implementation of the first SDI survey for health in Togo. The report is structured as follows: Section 2 outlines the analytical underpinnings of the indicators and how they are categorized. It also includes a detailed description of the respective indicators. The methodology of the SDI health survey is presented in Section 3 and Boxes 1 and 2. The results are presented and analyzed in Section 4. The report concludes with a summary of the overall findings as compared to other countries where SDI surveys have been conducted, and some implications for Togo.

[1] Medical assistants have three years of professional training at the university level. This cadre type is better trained than a nurse or a midwife.

[2] Defined as a scale, thermometer, stethoscope, sphygmomanometer in all facilities and sterilization and refrigeration in clinics and dispensaries. Annex A has detailed defines of the indicators.

Table 1. SDI at a glance

	Togo	Public	Private (non-profit)	Private (for-profit)	Rural public	Urban public
Caseload (per provider per day)	7,4	6,7	8,6	7,0	5,5	7,4
Absence from facility (% providers)	39,8	36,4	42,2	32,7	42,2	39,8
Diagnostic accuracy (% clinical cases)	51,7	49,1	54,8	48,6	49,6	51,7
Adherence to clinical guidelines (% clinical cases)	36,0	34,8	37,4	34,7	34,8	36,0
Management of maternal and neonatal complications (% clinical cases)	22,8	24,8	20,6	26,7	21,6	22,8
Drug availability (% drugs)	43,0	42,9	43,2	41,4	48,9	43,0
Equipment availability (% facilities)	63,7	64,7	62,2	65,7	60,4	63,7
Infrastructure Availability (% facilities)	60,8	40,2	92,8	29,6	82,5	60,8

I. INTRODUCTION[3]

As the Country Status Report (2009) notes, Togo has held steady or slightly improved on key outcome indicators such as under-five mortality, malaria, nutrition, and neonatal care. The maternal mortality rate in Togo has reduced more rapidly, and trained personnel attend 60 percent of all births. Life expectancy at birth (in 2010) was estimated to be 63 years, nearly 10 years more than the West African average, according to United Nations Population Fund (UNFPA) estimates. This must be measured in a context of limited available resources, both from the national budget (10 percent decrease per capita in constant FCFA over 2001-2010) and from donors.

Togo reached the Heavily Indebted Poor Country Completion Point in 2010. However, the health sector received 7.8 percent of government allocations and 6.2 percent of government spending over the period 2009-2013, at around six percent of government expenditure.[4] External financing

[3] Data presented here are from the World Development Indicators database maintained by the World Bank, unless otherwise stated.

[4] From http://isdatabank.info/boost_togo/, accessed on September 9, 2014. Transfers were larger than investments in 2009.

remained quite limited relative to the overall aid envelope (average value USD14.3 million in constant dollars per year for 2004-2012, or four percent of the overall aid budget), albeit lower. It was also limited relative to the government's own budgetary execution for the sector (even after excluding investments that might be externally financed). From a financing perspective, this would have created a context with little room for improvement and limited physical capital improvements.[5]

The objective of spending on health is the provision of quality and affordable health care to all members of society. However, there are significant gaps in all areas, whether skills, human resource management, or inputs. The concentration of doctors in the capital city, Lomé, may be a factor,[6] but the overall level of ability to properly handle the various cases remains a concern. In addition, the gap between those formally trained and trained on the job, particularly for adult care, is a further cause for concern. The level of skills in managing maternal and neonatal complications contributes to a high maternal mortality ratio (401/100,000 live births – DHS 2013-2014).

The SDI program (see boxes 1 and 2) aims to document what results are obtained through public spending in the health and education sector. The focus is on the individual dimensions, whether effort (presence and workload) or knowledge (diagnostic accuracy, adherence to clinical guidelines, and case management). These dimensions are not routinely measured and reported publicly in a comparable fashion, yet are among the factors that influence policy outcomes in health.

The remainder of this document is organized into three major sections: methodology and implementation; results; and implications for Togo. Annexes present details of the sampling strategy, definitions of the indicators, and additional results. A final section presents the references consulted or cited.

[5] The source of information is the Creditor Reporting System of the OECD/DAC (https://stats.oecd.org/Index.aspx?DataSetCode=CRS1).

[6] The Country Status Report (2009; p. 142) estimates that 74 percent of doctors (specialists and generalists) are based in the capital, Lomé.

Box 1. The Service Delivery Indicators (SDI) Program

A significant share of public spending on education is transformed to produce good schooling outcomes. Understanding what takes place at these frontline service provision centers is the starting point to determining where the relationship between public expenditure and outcomes is weak within the service delivery chain. Knowing whether spending is translating into inputs that teachers have to work with (e.g. textbooks in schools), or how much effort is made by teachers (e.g. how likely are they to come to work), and their competency would reveal the weak links in the service delivery chain. In general, reliable and complete information on these measures is lacking.

To date, there is no robust, standardized set of indicators to measure the quality of services available to citizens in Africa. Existing indicators tend to be fragmented and focus either on final outcomes or inputs, rather than on the underlying systems that help generate the outcomes or make use of the inputs. In fact, no set of indicators is available for measuring constraints associated with service delivery and the behavior of frontline providers, both of which have a direct impact on the quality of services that citizens are able to access. Without consistent and accurate information on the quality of services, it is difficult for citizens or politicians (the principal) to assess how service providers (the agent) are performing and to take corrective action.

The SDI provides a set of metrics to benchmark the performance of schools and health clinics in Africa. The SDI can be used to track progress within and across countries over time, and aim to enhance active monitoring of service delivery to increase public accountability and good governance. Ultimately, the goal of this effort is to help policymakers, citizens, service providers, donors, and other stakeholders enhance the quality of services and improve development outcomes.

The perspective adopted by the indicators is that of citizens accessing a service. The indicators can thus be viewed as a service delivery report card on education and health care. However, instead of using citizens' perceptions to assess performance, the indicators assemble objective and quantitative information from a survey of frontline service delivery units, using modules from the Public Expenditure Tracking Survey (PETS), Quantitative Service Delivery Survey (QSDS), and Staff Absence Survey (SAS).

The literature points to the importance of the functioning of schools and, more generally, the quality of service delivery. The service delivery literature is, however, clear that conditional on providers being appropriately skilled and exerting the necessary effort, increased resource flows for health can indeed have beneficial outcomes for education.

The SDI initiative is a partnership of the World Bank, the African Economic Research Consortium (AERC), and the African Development Bank to develop and institutionalize the collection of a set of indicators that would gauge the quality of service delivery within and across countries and over time. The ultimate goal is to sharply increase accountability for service delivery across Africa by offering important advocacy tools for citizens, governments, and donors alike; to work toward the goal of achieving rapid improvements in the responsiveness and effectiveness of service delivery.

More information on the SDI survey instruments and data, and more generally on the SDI initiative, can be found at: www.SDIndicators.org and www.worldbank.org/sdi, or by contacting sdi@worldbank.org.

II. METHODOLOGY AND IMPLEMENTATION

A. Implementation

In 2013, the Togo SDI survey collected information from 180 lower-level health facilities and 1,364 health providers (see Table 3). The survey was preceded by consultation with government and key stakeholders on survey design, sampling, and the adaptation of survey instruments. Pre-testing of the survey instruments, enumerator training, and fieldwork took place between September and November of 2013.[7]

In the Togolese health system, three categories/types of facilities can be identified, and these three types were included in the survey population.[8] These facilities account for the overwhelming part of the health service utilization as reported in the 2011 household survey undertaken by the National Statistical Office (*Direction générale de la statistique et de la comptabilité nationale*). Annex A provides additional details on the sampling.

The results provide an assessment of the quality of service delivery and the environment in which the services are delivered in rural and urban locations, in public and private (nonprofit) health facilities. While the private (nonprofit facilities) largely include facilities owned by faith-based organizations, there are also some facilities that are owned by nongovernmental organizations.

The surveyed population comprised three types: dispensaries (USP1), health centers (USP2), and district hospitals (HD1 and HD2). The survey used a two-stage sampling strategy that allowed for disaggregation by geographic location (rural and urban), by provider type (public and private nonprofit), and by facility type (see Table 3). Since there were 20 first-level district hospitals, a decision was made to sample them exhaustively.[9]

[7] The survey was implemented by the National Opinion Research Center of the University of Chicago, and the Demographic Research Unit (*Unité de Recherche Démographique*) of the University of Lomé with support from the World Bank. The World Bank's SDI team drew the sample after work with the DGSCN on the population and housing census and supervised the various survey stages.

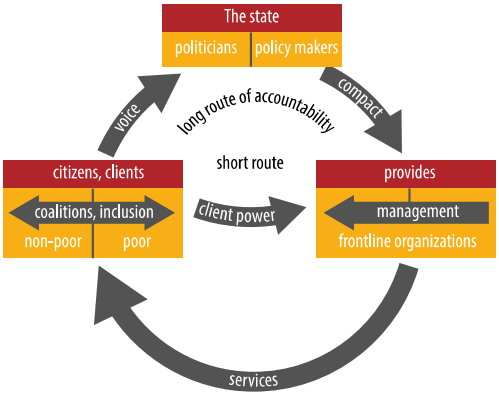
[8] The literal translation of "Unités de Soins Périphériques" is "peripheral care units."

[9] There are 19 in the sample because one was used during the pre-test phase. One of these hospitals is not-for-profit.

Box 2. Analytical underpinnings

Service delivery outcomes are determined by the relationships of accountability between policymakers, service providers, and citizens.[a] Human development outcomes are the result of the interaction between various actors in the multi-step service delivery system, and depend on the characteristics and behavior of individuals and households. The delivery of quality healthcare is contingent foremost on what happens in health facilities, where a combination of several basic elements have to be present in order for quality services to be accessible and produced on the frontline. This, in turn, depends on the overall service delivery system, and these institutions and governance structures provide incentives for the service providers to perform.

Figure 1. Relationships of accountability: Citizens, service providers, and policymakers



Source: a. World Development Report, 2004.

Service delivery production function

Consider a service delivery production function, f, which maps physical inputs, x, the effort put in by the service provider, e, as well as his/her type (or knowledge), θ, to deliver quality services into individual level outcomes, *y*. The effort variable, *e,* could be thought of as multidimensional and, thus, include effort (broadly defined) of other actors in the service delivery system. We can think of this type as the characteristic (knowledge) of the individuals who are selected for a specific task. Of course, as noted above, outcomes of this production process are not just affected by the service delivery unit, but also by the actions and behaviors of households, which we denote by ε. We can therefore write:

$$y = f(x,e,\theta) + \varepsilon$$

To assess the quality of services provided, one should ideally measure $f(x,e,\theta)$. Of course, it is notoriously difficult to measure all the arguments that enter the production and would involve a huge data collection effort. A more feasible approach is, therefore, to focus instead on proxies of the arguments which, to a first-order approximation, have the largest effects.

Indicator categories and the selection criteria

There are a host of data sets available in education. To a large extent, these data sets measure inputs and outcomes/outputs in the service delivery process, mostly from a household perspective. While providing a wealth of information, existing data sources (like Living Standards Measurement Survey [LSMS], Welfare Monitoring Surveys [WMS], and Core Welfare Indicators Questionnaire Survey [CWIQ]) cover only a sub-sample of countries and are, in many cases, outdated.

Notes: a. World Development Report, 2004.

Box 2. Analytical underpinnings (continued)

The proposed choice of indicators takes its starting point from the recent literature on the economics of service delivery. Overall, this literature emphasizes the importance of provider behavior and competence in the delivery of health and education services (as opposed to water and sanitation services and housing that rely on very different service delivery models). Conditional on service providers exerting effort, there is also some evidence that the provision of physical resources and infrastructure has important effects on the quality of service delivery.

The somewhat weak relationship between resources and outcomes documented in the literature has been associated with deficiencies in the incentive structure of health systems. Indeed, most service delivery systems in developing countries present frontline providers with a set of incentives that negate the impact of pure resource-based policies. Therefore, while resources alone appear to have a limited impact on the quality of education and health in developing countries, it is possible inputs are complementary to changes in incentives, so coupling improvements in both may have large and significant impacts (Hanushek, 2006). While budgets have not kept up with the expansion in access in recent times, simply increasing the level of resources might not address the quality deficit in education and health without also taking providers' incentives into account.

SDI proposes three sets of indicators: (i) provider effort; (ii) competence of service providers; and (iii) availability of key infrastructure and inputs at the frontline service provider level. Providing countries with detailed and comparable data on these important dimensions of service delivery is one of the main innovations of the SDI. Additional considerations in the selection of indicators are (i) quantitative (to avoid problems of perception biases that limit both cross-country and longitudinal comparisons), (ii) ordinal in nature (to allow within and cross-country comparisons); (iii) robust (in the sense that the methodology used to construct the indicators can be verified and replicated); (iv) actionable; and (v) cost effective to collect.

Table 2. Health SDI indicators

Provider effort
Absence rate
Caseload per provider
Provider competence
Diagnostic accuracy
Adherence to clinical guidelines
Management of maternal and neonatal complications
Inputs
Drug availability
Medical equipment availability
Infrastructure availability

Notes: a. the indicators listed here are not the only metrics collected in SDI surveys. For example, here are some examples of management and governance data included in the instrument: roles and responsibilities in facilities, government supervision, time use, leadership, people management practices, user fees, financial (cash) support to facilities by source, community involvement etc.

B. Sampling

Table 3. Survey sample

Variable	Sample	
	Total	Share of total
Facilities	180	100
Dispensary (USP1)	110	61
Health center (USP2)	51	28
Hospital (first level; HD1)	19	11
Ownership	180	100
Public	143	79
Private (nonprofit)	37	21
Location	180	100
Rural	110	70
Urban	70	30
Rural public	99	69
Urban public	26	31
Healthcare workers	1,364	100
Doctors	32	2
Medical officers	112	8
Nurses	388	28
Midwives	95	7
Birth attendants	319	23
Para-professionals	418	31

The survey used a sector-specific questionnaire with several modules (Table A1), all of which were administered at the facility level. The questionnaires built on previous similar questionnaires based on international good practice for Public Expenditure Tracking Surveys, Quality of Service Delivery Surveys, and observational surveys. The SDI team carried out a pre-test of the instrument with staff from the Ministry of Health in April of 2013, and two additional pilots were carried out in September of 2013. Table 4 provides a breakdown of the sample used for absence and competency rates by health worker cadre.

Table 4. Sample for indicators of absence and competence

Cadre	Total Sample		Absence rate[a]		Competence indicators	
	Total	Percent	Total	Percent	Total	Percent
Doctors	32	2.4	16	1.6	13	3
Clinical (medical) officers	112	8.2	71	7.2	59	12
Nurses and midwives	483	35.0	340	34.6	380	76
Birth attendants	319	23.3	245	24.9	44	9
Para-professionals	418	31.1	310	31.6	0	0
Total	1,364	100	982	100	496	100

Notes: a. All consulting staff were included in the absenteeism sample frame, but only staff present on the day of the first visit and who regularly led consultations were to be included for the competence frame. Details are presented in **Error! Reference source not found.**

III. RESULTS

A. Delivering health services

Most facilities are open nearly every day, with slight variation among lower-level facilities. Information is provided in Table 5 below.

Table 5. Hours and days of service delivery

Facilities	Togo	Public	Private (nonprofit)	Difference (%)[a]	Rural Public	Urban Public	Difference (%)[a]
			Number of days per week facility was open				
All facilities	6.5	6.7	6.1	3	6.7	6.8	-2
Health posts	6.7***						
Health centers	6.3***						
Hospitals	7						
			Hours outpatient consultations offered per day				
All facilities	15.5	15.7	15.3	9	15.7	15.7	0
Health posts	18.6*						
Health centers	13.5***						
Hospitals	20.6						

Notes: a. Level of significance: *** p<0.01, ** p<0.05, * p<0.1. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.

The availability of basic and comprehensive emergency obstetric care (Table 6) is consistent with the findings of the evaluation of the emergency obstetric and neonatal care needs and the mapping of such services in Togo done in 2012. The study was a census of all facilities that had delivered at least one child in the twelve months prior to the study team's visit (July-December of 2012). It found that 3.5 percent of facilities offered basic emergency obstetric care (BEmOC) and 2.8 percent offered comprehensive emergency obstetric care (CEmOC). Leaving out the higher-level hospitals that were not part of this study, one percent offered BEmOC and zero percent offered CEmOC. As with the SONU study, the limiting factor is the instrumented births with forceps or suction devices, which is offered by one-quarter of the hospitals and less than five percent of the lower-level facilities. Of the three signal functions of the CEmOC, neonatal resuscitation is offered in 15 percent of facilities, including

59 percent of the hospitals; blood transfusion is offered in one percent overall and 29 percent of hospitals, and no facilities offered cesarean sections, which is consistent with a sample frame that excluded those hospitals with operating blocks.

Table 6. Availability of emergency obstetric care

Facilities (%)	Togo	Public	Private (nonprofit)	Difference (%)[a]	Rural public	Urban public	Difference (%)[a]
Share of facilities offering full basic emergency obstetric care (%)							
All facilities	0.3	0.5	0.0	100**	0	2.4**	-
Health center	0.4***	2.3	0	100	0	0.4	-
Hospital	11.8	11.8	-	-	-	-	-
Share of facilities offering full comprehensive emergency obstetric care (%)							
All facilities	0	0	0	0	0	0	0
Health center[a]	0	0	0	0	0	0	0
Hospital	0	0	0	0	0	0	0

Notes: a. Level of significance: *** p<0.01, ** p<0.05, * p<0.1. In many countries comprehensive emergency obstetric care is only supposed to be offered at hospital level. Differences are in percentage points of the public and rural public values, respectively.

Table 7 shows that the allocation of providers is uneven across rural and urban areas. Better-trained providers are concentrated in urban areas. This is broadly consistent with the 2013 health norms, although the lack of doctors in rural areas is inconsistent with having USP2 facilities headed by a doctor. This is similar to the results of the Togo health sector situational analysis.

Table 7. Distribution of health cadre by ownership and location

Cadres (%)	Togo	Public	Private (nonprofit)	Difference (%)	Rural Public	Urban Public	Difference (%)
All medical staff	100.0	49.3	50.7	-2.8	56.5	43.5	22.9
Doctors	2.4	1.4	0.9	35.5	0.0	2.9	.
Clinical officers	6.5	1.9	4.7	-152.3	0.0	3.7	-15,869.4
Nurses	30.3	15.3	15.0	1.7	19.4	11.5	40.9
Para-professionals and other	60.8	30.8	30.1	2.2	37.0	25.4	31.5
Total	100.0	49.3	50.7		56.5	43.5	

Note: 1,364 providers are in the sample. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.

B. Caseload (external consultations)

Methodological note

The caseload indicator is defined as the number of outpatient visits (recorded in outpatient records) in the three months prior to the survey, divided by the number of days the facility was open during the three-month period and the number of health workers who conduct patient consultations (paramedical health staff such as laboratory technicians or pharmacists' assistants are excluded from the denominator). In hospitals, the caseload indicator was measured using outpatient consultation records; only providers doing outpatient consultations were included in the denominator. The term caseload rather than workload is used to acknowledge the fact that the full workload of a health provider includes work that is not captured in the numerator, notably administrative work and other non-clinical activities. From the perspective of a patient or a parent coming to a health facility, caseload—while not the only measure of workload—is arguably a critically important measure.

Table 8. Health services utilization (outpatient visits) by facility level

Outpatient visits (%)	Togo	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
Dispensary (USP1)	31.2	62.6	10.1	83.9***	67.5	38.2	43.4***
Health center (USP2)	63.2	37.4	89.9	-140.6	32.5	34.3	-5.6
Hospital (HD1)	5.6						

Source: Author's calculations from the health facility management information documents in the facility.
Notes: a. There are no HD1 facilities in rural locations and one not-for-profit HD1.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

Provision of care in Togo is generally at the USP2 level, which corresponds to a clinic in many countries (Table 8). The public sector provides the majority of its care in the rural areas, consistent with the population distribution. Over one-quarter of total urban public care is provided in hospitals, which may reflect bypassing of lower-level facilities. That private care is primarily provided in the larger USP is also a function of the relative distribution of these facilities.

Table 9. Caseload by facility level

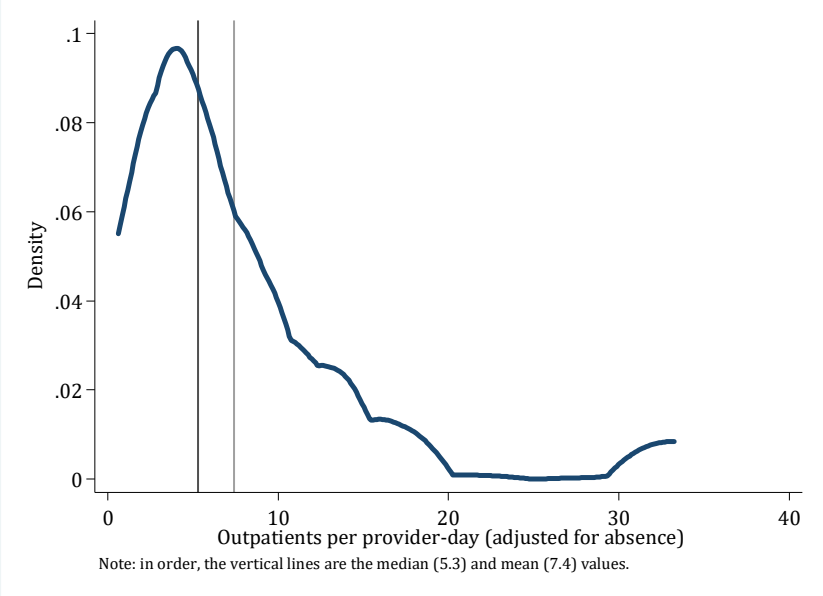
Facilities (%)	Togo	Public	Private (non-profit)	Difference (%)[a]	Rural public	Urban public	Difference (%)[a]
All facilities	7.4	6.7	8.6	22.4	7.0	5.5	21.2
Dispensary (USP1)	4.8	5.0	3.2	36.0	5.0	7.8	-57.2
Health center (USP2)	11.0	14.7	9.7	40.2**	7.6	4.0	48.0**
Hospital (HD1)	6.1						

Notes: a. There is one private hospital in the sample and all hospitals are in urban areas.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

The average absence-adjusted caseload in the public sector was 7.4 patients per provider per day (Table 9). The overall distribution was skewed left—in fact, 50 percent of the providers had fewer

than 5.2 patients per provider-day (Figure 2). As Figure 2 shows, there is variation in the level of workload across ownership status. The median private facility has more patients than public ones, primarily due to the differences in hospital workload. Public USP1 have higher workloads than not-for-profit ones, but public USP2 have lower median workloads than private ones.

Figure 2. Distribution of caseload



Note: in order, the vertical lines are the median (5.3) and mean (7.4) values.

C. Absence rate

Methodological note

The average rate of provider absence is measured by assessing the presence of at most 10 randomly selected clinical health staff at a facility during an unannounced visit. Only workers who are supposed to be on duty are considered in the denominator. The approach of using unannounced visits is regarded best practice in the service delivery literature. Health workers doing fieldwork (mainly community and public health workers) were counted as present. The absence indicator was not estimated for hospitals because of the complex off-duty arrangements, interdepartmental shifts etc.

In Togo, 40 percent of health workers were absent on a given day (Table 10).[10] The providers least likely to be absent are the public providers in dispensaries (37.3 percent) and public providers in rural dispensaries (25.6 percent). The difference is particularly strong in the dispensaries, where private ($p<0.01$) and urban public ($p<0.1$) are more absent than their public or rural public counterparts, respectively.

[10] Table 29 in Annex C provides more detailed results.

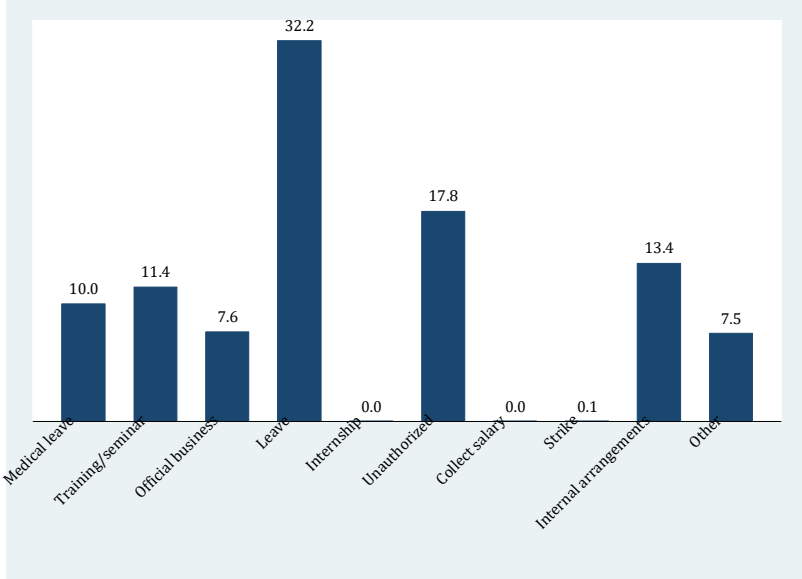
Table 10. Provider absence by level of facility

Facilities	Togo	Public	Private (non-profit)	Difference (%)[a]	Rural public	Urban public	Difference (%)[a]
All facilities	39.8	36.4	42.2	-15.9	32.7	38.2	-16.8
Dispensary (USP1)	37.3	33.8	45.9	-35.8*	25.6	41.8	-63.3**
Health center (USP2)	40.7	37.2	41.7	-12.1	41.7	33.9	18.7

Notes: a. Hospitals are excluded from the absence rate tabulations.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

The overwhelming majority—75 percent—of all absences were approved. The reasons for absence are multiple, some excused and some unexcused (Figure 3). Beyond annual leave (32.2 percent), providers were in training, meetings, and seminars (11.4 percent) or on official business (7.6 percent). Among the unexcused absences, there were some staff remaining on duty during break time and then leaving early to compensate the extra hours (13.4 percent), although this practice, known as "unbroken day" (*journée continue*), was not authorized by the ministry.

Figure 3. Breakdown of reasons for absence (percent)



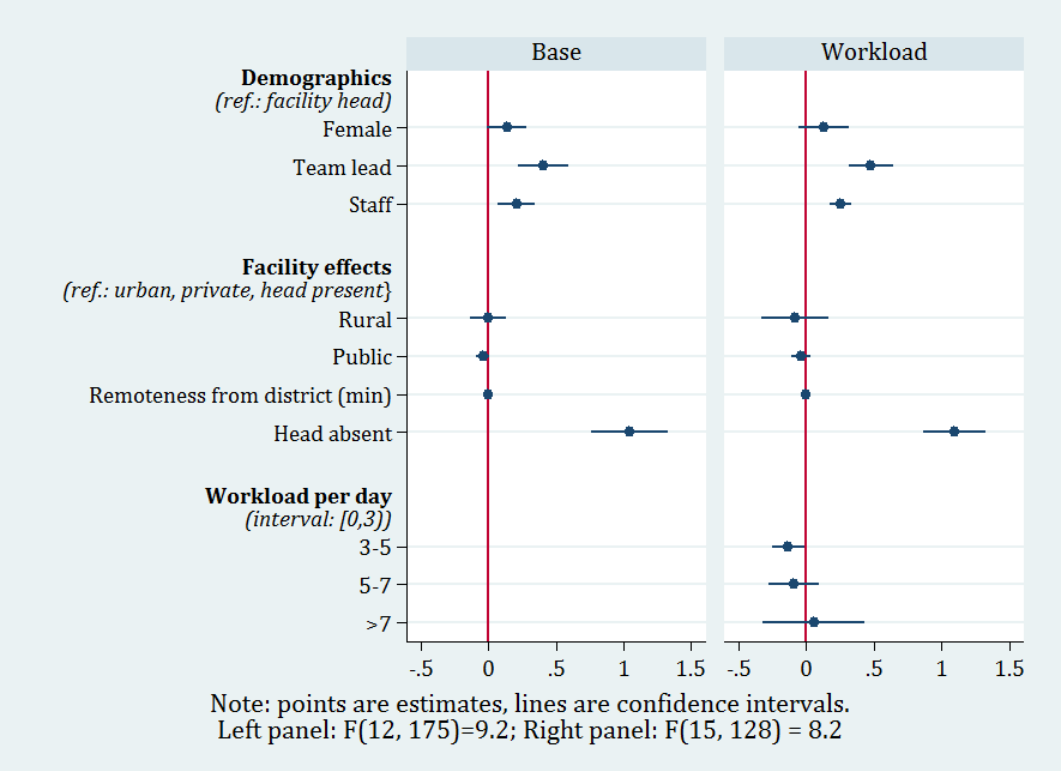
Notes: Medical leave is both sick and maternity leave. Internal arrangements is the practice of allowing someone to leave early as compensation for covering during the lunch break, although this not allowed by the ministry's rules.

Absence is strongly correlated with a few key factors; Figure 5 shows the marginal effects of one more of each variable (or of switching from one category to another in the case of a binary variable). The left-hand panel shows a basic model, while the right-hand panel shows the effects of introducing the workload per day for each consultant.[11] The models suggest four key messages regarding absenteeism: junior staff are more likely to be absent than facility heads; the absence of facility heads has the largest effect on staff absence; while distance from the district office matters, rural staff are

[11] Workload per day is the total number of ambulatory consultations over the past three months (same in all facilities), divided by the number of staff who regularly led consultations. Both panels control for regional effects.

more likely to be present; and facilities that have larger workloads are most likely to face staff absence.

Figure 4. Correlates of absence



Notes: a. The models are weighted, account for regional effects, and the times are distances to the district hospital. Summary statistics for the variables are in Table 27 and the marginal effects are in Table 28.

D. Diagnostic accuracy

Provider ability and knowledge. Having health professionals present in facilities is a necessary but insufficient condition for delivering quality health services. For this reason, quality was also assessed using two process quality indicators (the adherence to clinical guidelines in five tracer conditions and the management of maternal and newborn complications) and an outcome quality indicator, diagnostic accuracy, in five tracer conditions.

Methodological note

The choice of tracer conditions was guided by the burden of disease among children and adults, and whether the condition is amenable to use with a simulation tool, i.e., the condition has a presentation of symptoms that makes it suitable for assessing provider ability to reach correct diagnosis with the simulation tool. Three of the conditions were childhood conditions (malaria with anaemia; diarrhoea with severe dehydration, and pneumonia), and two conditions were adult conditions (pulmonary tuberculosis and diabetes). Two other conditions were included: post-partum haemorrhage and neonatal asphyxia. The former is the most common cause of maternal death during child birth, and neonatal asphyxia is the most common cause of neonatal death during birth. The successful diagnosis and management of these seven conditions can avert a large share of child and adult morbidity and mortality.

These indicators were measured using the patient case simulation methodology, also called clinical vignettes. Clinical vignettes are a widely used teaching method used primarily to measure clinicians' (or trainee clinicians') knowledge and clinical reasoning. A vignette can be designed to measure knowledge about a specific diagnosis or clinical situation at the same time gaining insight into the skills in performing the tasks necessary to diagnose and care for a patient. According to this methodology, one of the fieldworkers acts as a case study patient and he/she presents to the clinician specific symptoms from a carefully constructed script while another records the interaction. The clinician, who is informed of the case simulation, is asked to proceed as if the interviewer is a real patient. For each facility, the case simulations are presented to up to 10 randomly selected health workers who conduct outpatient consultations. If there are fewer than 10 health workers who provide clinical care, all the providers are interviewed.[a]

Notes: [a] For more information on the methodology, see www.SDIndicators.org. There are two other commonly used methods to measure provider knowledge and ability, and each has pros and cons. The most important drawback in the patient case simulations is that the situation is not a real one and that this may bias the results. The direction of this potential bias makes this issue less of a concern—the literature suggests that the direction of the bias is likely to be upward, suggesting that our estimates can be regarded as upper-bound estimates of true clinical ability. The patient case simulation approach offers key advantages given the scope and scale of the Service Delivery Indicators methodology: (i) a relatively simple ethical approval process is required given that no patients are observed; (ii) there is standardization of the case mix and the severity of the conditions presented to the clinician; and (iii) the choice of tracer conditions is not constrained by the fact that a dummy patient cannot mimic some symptoms.

In Togo, these conditions are important, both for morbidity and mortality. Key burdens of disease cited by WHO include malaria (12.7 percent), respiratory infections (11.7 percent), diarrheal diseases (8.1 percent), tuberculosis (7.3 percent), maternal conditions (1.8 percent), and perinatal conditions (12 percent).[12] For neonates, infants, and children under the age of five, malaria (25 percent), pneumonia (17 percent), diarrhea (14 percent), and neonatal asphyxia (21 percent of all neonatal deaths; 6 percent of all under-five deaths) are major contributors to mortality.[13] The most important cause of maternal mortality in Togo is hemorrhage (28.8 percent of maternal deaths).[14]

In this section, two process quality measures (adherence to clinical guidelines and managing maternal and neonatal complications) and two intermediate outcome measures (diagnostic accuracy and treatment accuracy relative to guidelines) are used. The results of the measures used to assess provider knowledge and ability are presented below.

Providers made the correct diagnosis in approximately half (51.3 percent) of the tracer conditions (Table 11), with medical assistants performing the best (67.5 percent). Urban providers were better than rural providers (11.2 percentage points; $p<0.01$), but private providers were not statistically different from public ones, except medical assistants where the differences are highly significant. Disease-specific diagnostic accuracy is captured in Table 34 in Annex C.

Table 11. Diagnostic accuracy for the five tracer conditions, by broad cadre type

Cadre (%)	Togo	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
All cadres	51.3	48.6	54.4	-12.0	48.0	49.3	-2.6
Doctors	53.1	–	–	–	–	–	–
Medical assistants	67.5	53.0	73.8	-39.3***	100	52.7	47.3***
Nurses and midwives	47.5	48.2	46.5	3.5	48.6	47.5	2.1

Notes: a. There are 13 doctors in the sample, so disaggregations are not meaningful.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

Using as a proxy the ability to correctly diagnose the five tracer cases, Figure 5 and Figure 6 highlight the wide spectrum of competencies in the Togolese health system. Even common conditions are not well-diagnosed (Figure 5). Some of this is due to the providers missing the co-prevalent condition, for example, the level of dehydration with the diarrhea (acute) and the anemia with malaria. Consistent with medical practice, the failure to identify these is defined as a failure to properly diagnose.

As there are few doctors at the levels studied, the focus is primarily on medical assistants and nurses, who comprise the majority of the personnel (Figure 6). Medical assistants tend to do well. However, their variation is less than that of the nurses, who tended to correctly diagnose two conditions.[15] The pattern is partly driven by the performance of different sub-categories as nurses with degrees tend to perform better than those without. Table 34 and Table 35 in Annex C present additional information for disease-specific diagnostic accuracy by facility type.

[12] Togo Health, Nutrition, and Population Analytical Report on Health and Poverty, Figure 7. Burden of Disease in Togo. Hereinafter referred to as "Country Status Report."
[13] Country Status Report, Figure 10. Principal causes of child and neonatal mortality in Togo (2006), as reported in the National Health Development Plan.
[14] Country Status Report, page 68.
[15] Diarrhea with severe dehydration and pneumonia are the two with the highest diagnostic accuracy rates for nurses.

Figure 5. Tracer conditions diagnostic accuracy (proportion)

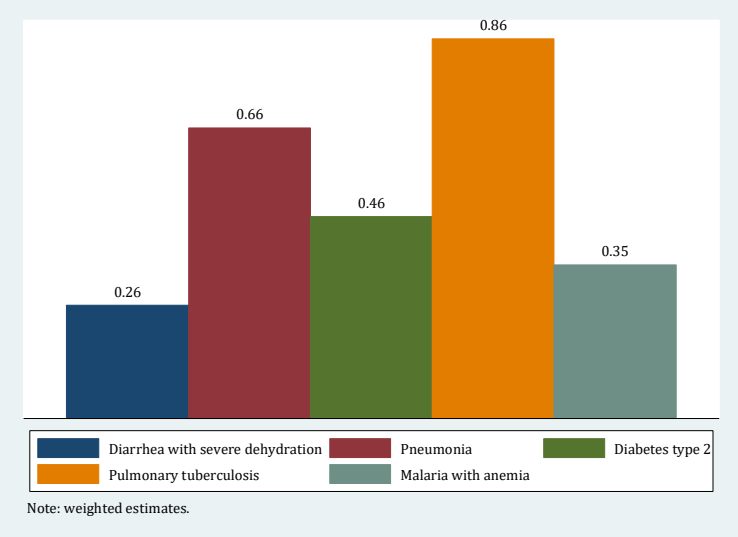
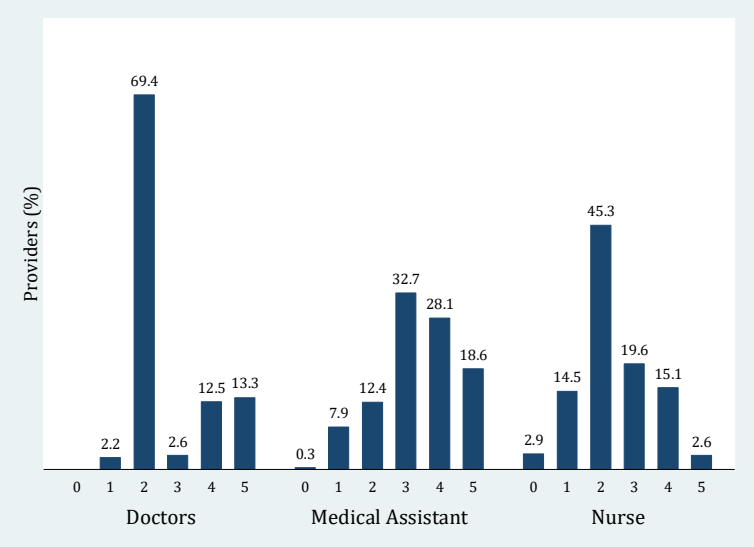


Figure 6. Provider diagnostic accuracy for the tracers (number of cases; percent)



Two systemic points are suggested by these results. The diabetes results may reflect the geographic pattern of the burden of a non-communicable disease in a country where, in 2011, nearly three in five citizens were poor (59 percent overall) and nearly three in four were poor in rural areas (73 percent).[16] The household survey sheds light on consultations patterns (Table 12). This is correlated with the pattern of competence: malaria and diarrhea that are simple and relatively cheap to diagnose and treat are handled in public facilities. Patients from better-off households are more likely to visit the private sector for more complicated conditions such as acute respiratory infections.

[16] Coulombe, H. and C. Malé (2012), « Togo: Profil de pauvreté 2006-2011 », UNDP and DGSCN. On average, households spent 41 percent of their budget on food in 2011.

Table 12. Ratio of public to private consultation rates by poverty status for selected conditions

		Expenditure quintile				
Complaint	**Togo**	**Quintile 1** (poorest)	**Quintile 2**	**Quintile 3**	**Quintile 4**	**Quintile 5** (richest)
Malaria	2.2	1.6	1.3	0.8	0.5	0.9
Diarrhea	4.1	3.7	3.5	16.4	0.6	2.6
Stomach ache	2.6	4.4	0.8	1.1	0.8	1.3
Wound or trauma	1.6	2.9	3.9	0.7	1.1	1.3
Dental	0.0	2.7	1.6	0.0	0.4	1.9
Skin	..	10.0	2.4	0.3	0.6	1.1
Vision	4.2	..	1.3	2.2	0.7	1.5
Hearing	..	..	0.0	..	0.9	1.0
ARI	0.4	2.1	1.3	0.7	0.5	0.7
Other	3.7	3.4	1.9	0.9	0.4	1.0
Total	2.2	2.2	1.4	0.8	0.6	1.0

Source: author's calculations based upon the Questionnaire des indicateurs de base du bien-être (QUIBB) 2011. Where there were no private consultations, cells have missing values.
Note: "ARI" is acute respiratory infection.

When comparing among facility levels, Table 35 shows a similar pattern: higher-level facilities handle more complicated pathologies better. A striking case is that of malaria with anemia, where USP1 staff are 66 percent more likely to identify only simple malaria relative to hospitals. However, they provide far better education than do the hospitals. This pattern is consistent with the desired one in a health system: the most prevalent and simple conditions are treated at the bottom of the health pyramid, while more complicated ones are treated at a higher level.

E. Adherence to clinical guidelines

Methodological note

The assessment of process quality is based on two indicators: (i) clinicians' adherence to clinical guidelines in five tracer conditions and (ii) clinicians' management of maternal and neonatal complications. The former indicator is an unweighted average of the share of relevant history-taking questions, and the share of relevant examinations performed for the five tracer conditions. The set of questions is restricted to core or important questions as expressed in the Integrated Management of Childhood Illnesses (IMCI).

The second process quality indicator is clinicians' ability to manage maternal and neonatal complications, i.e. post-partum haemorrhage and neonatal asphyxia. This indicator reflects the unweighted share of relevant treatment actions proposed by the clinician. The set of questions is restricted to core or important questions as expressed in the IMCI and Togo's Standard Treatment Guidelines for the tracer conditions.

Which cadre types are more likely to adhere to the clinical guidelines? Adherence to guidelines was generally positively correlated with levels of training: doctors do better than medical assistants who in turn perform better than nurses (see Table 32 and Table 34 in Annex C). Within cadre categories

there is an interesting pattern: junior nurses do as well as the more senior nurses in almost all cases.[17] The disease-specific results are shown in Table 34 and Table 35 (in Annex C).

Table 13. Adherence to clinical guidelines by cadre type

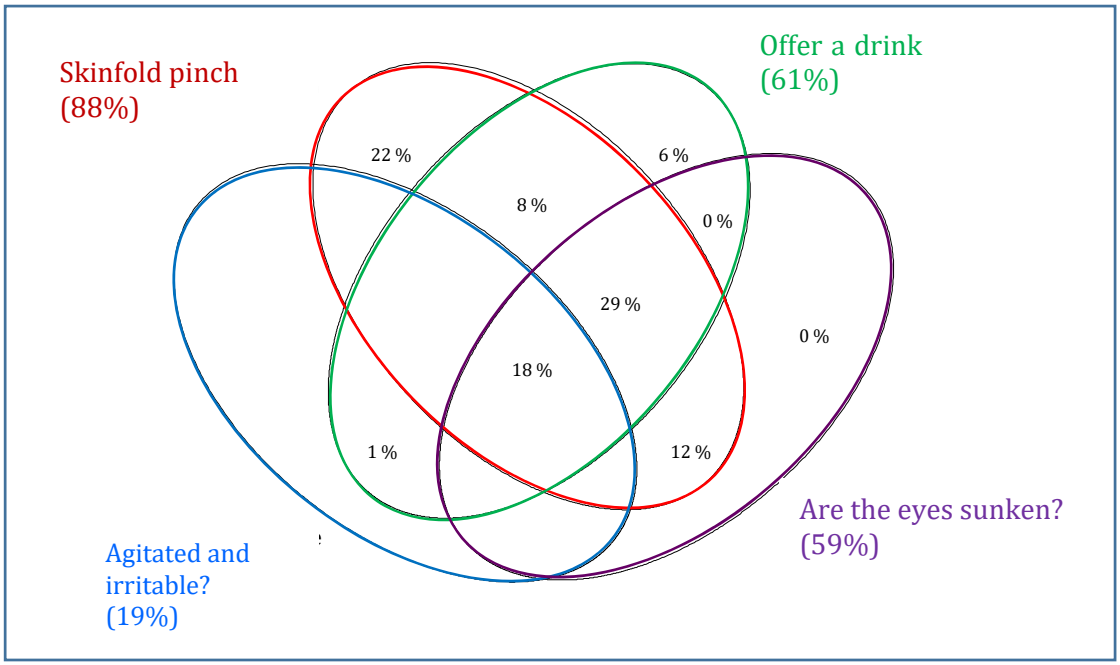
Cadre (%)	Togo	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
All cadres	36.0	34.8	37.4	-7.4	34.7	34.8	-0.3
Doctors	40.1	.	.	.	.	.	.
Medical assistants	47.7	40.3	50.9	-26.4**	38.0	40.3	-6.0
Nurses and midwives	32.7	33.3	31.7	4.7**	34.7	30.9	10.9*

Notes: a. There are 13 doctors in the sample, so disaggregations are not meaningful.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

Figure 7 shows an example of results for one of five cases that was used to construct the adherence to clinical guidelines indicator. The clinical guidelines for the tracer condition, "Diarrhea with severe dehydration" require four main actions.[18] The diagram shows that some actions are covered by almost all providers (the skinfold pinch; 88 percent), as well as the share of providers that adhered to four items in the clinical guidelines (18 percent of providers). Generally, the pattern from diagnostic accuracy is repeated in the adherence to clinical guidelines, although the differences are not as important across the various breakdowns. The diagnostic performance is, therefore, not surprising in light of the relatively low adherence to the guidelines.

[17] A junior nurse (*Infirmier auxiliaire*) has completed lower secondary and three years of training. Older senior nurses (*Infirmier diplomé d'Etat*) achieved the same, while the younger cadres have completed high school plus three years of training. Nurses trained on the job (*Infirmier permanent*) generally do worse than formally-trained colleagues.
[18] These are among the items required to correctly identify severe dehydration according to the Togolese adaptation of the IMCI Guidelines (2013 version).

Figure 7. Adherence to clinical guidelines for Diarrhea with severe dehydration



Notes: Data presented here are for those providers who correctly identified the clinical case, diarrhea with severe dehydration. The percentage after a question indicates the rate at which it was asked (e.g. 19 percent for "agitated and irritable?"). The percentages in the circles are the percentage of providers who asked two or more questions (e.g. zero percent offered a drink and asked if the eyes were sunken).

Figure 7 highlights those who succeeded. Since the child presented with diarrhea, according to his mother, the challenge was identifying the severity of the dehydration. The key questions are in Table 14, which shows that providers often failed to ask all the key questions and did not always correctly interpret the responses to their questions. Almost three-quarters of the providers asked for the results of the skinfold test ("asked" column), but far fewer asked about sunken eyes (45 percent) or if the child could drink when offered water (32 percent). However, two severity signs (identified with an "(S)" in the table) are required to classify the child as severely dehydrated according to the Togolese IMCI guidelines.

When looking at the four signs, only 21 percent of providers asked them all and only half of them (52 percent; "correct diagnosis with item") provided the correct diagnosis. This suggests an incomplete mastery of the IMCI guidelines on the part of providers. Clinical officers who asked all the severity questions gave the correct diagnosis in 64 percent of cases. More generally, asking all four questions was highly associated with a correct diagnosis (52 percent of the time, $p<0.01$). However, nurses did not utilize the information effectively: three in eight gave the right diagnosis with these answers.

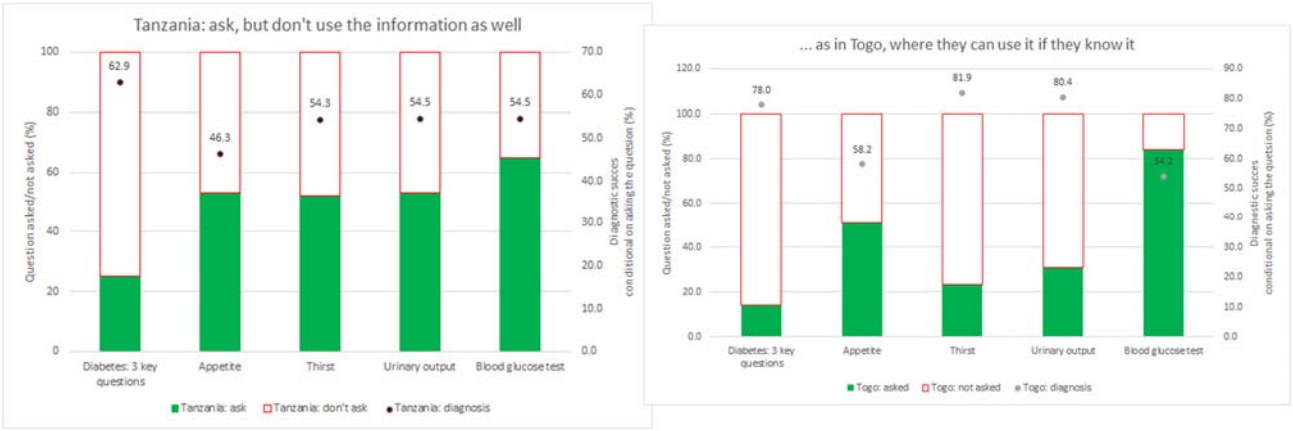
Table 14. IMCI key questions and diagnostic performance (proportions)

Item	Asked	Correct diagnosis with item	Doctor	Clinical Officers	Nurse	Correct diagnosis without item
Duration of diarrhoea	0.876	0.277	0.466	0.587***	0.196	0.128
Blood in stool	0.323	0.250	0.186	0.449	0.168	0.263
Lethargic/unconscious	0.396	0.389***	0.413	0.627***	0.241	0.174***
Agitated/irritable (S)	0.049	0.976***	0.299	0.966***	1.000***	0.222***
Sunken eyes (S)	0.452	0.338	0.285	0.515	0.238	0.194
Drinks if offered water (S)	0.318	0.500***	0.340	0.589	0.445***	0.146***
Skinfold test (S)	0.767	0.299	0.455**	0.501	0.220	0.131
All severity questions asked (4)	0.211	0.520***	0.303	0.641*	0.375*	0.188***

Notes: The significance levels are from a Pearson test of a two-way tabulation of the item (asked/not asked) and the diagnostic outcome (correct/incorrect). The significance levels are *** (p<0.01), ** (p<0.05), and * (p<0.1); estimates and standard errors are weighted to account for the complex survey design. Items with an "(S)" are those identified in the Togo IMCI as the questions to classify the severity of the dehydration.

In looking at countries that have undertaken SDI surveys, it is possible to compare how providers use information which they have. The case of Type 2 diabetes is interesting, because three simple questions serve to correctly orient the provider. They are an increase in appetite and in thirst accompanied by more frequent urination. Figure 8 compares these key questions, the request for a measure of blood sugar levels (fasted or not), and diagnostic success among Togolese and Tanzanian providers. In comparing the three key questions, Togolese providers ask them all 43 percent less than their Tanzanian counterparts, but reach the correct diagnosis 14 percent more often. This comes from the very strong relationship between the urination and thirst questions and diagnostic success for Togo relative to Tanzania. However, the results of a blood sugar exam are better used in Tanzania than in Togo.

Figure 8. Diabetes: comparison of Tanzania and Togo



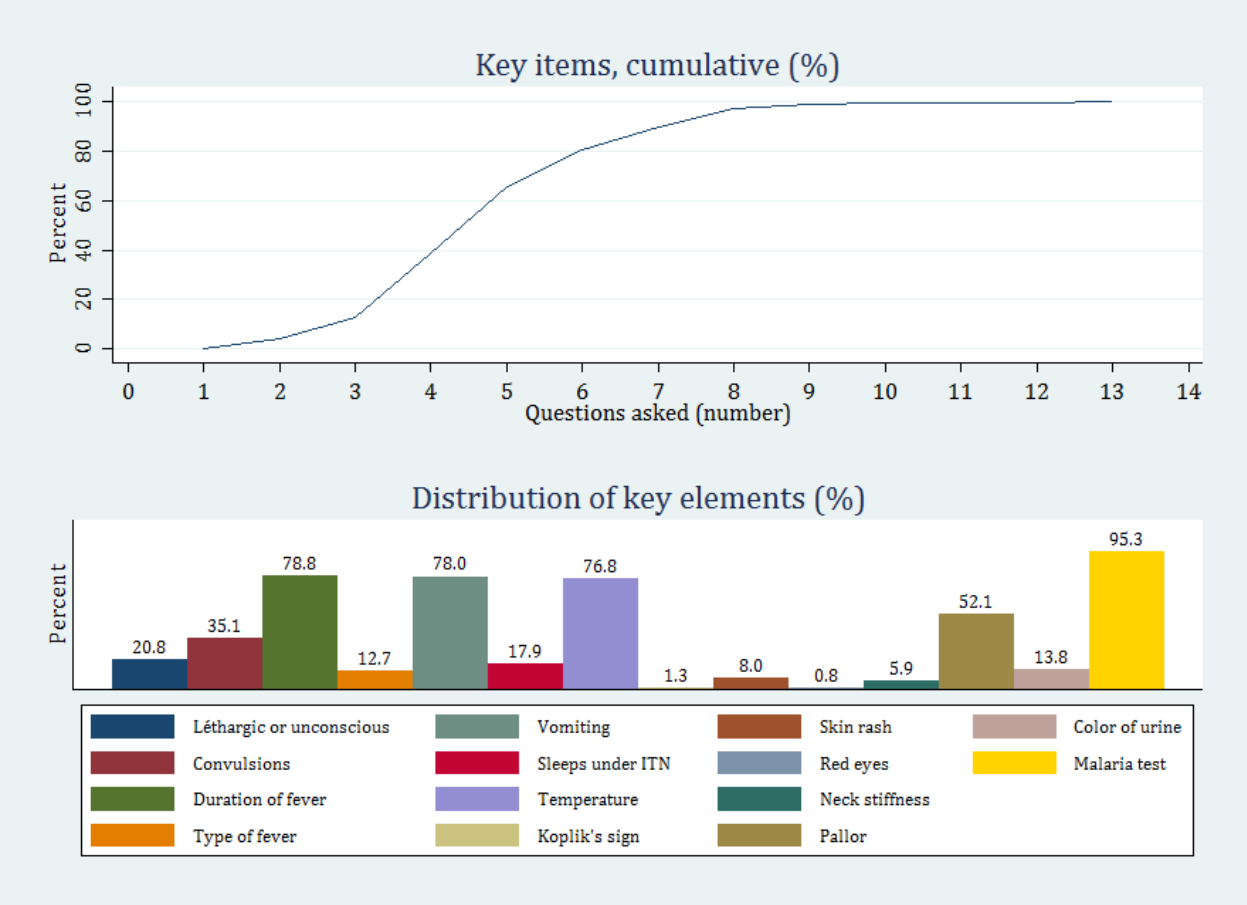
Note: the bars are measured on the left abscissa and the green represents the percentage of providers who asked the question. The right abscissa gives the range for diagnostic success of providers who asked a given question, shown by a point in the chart. For example, 25 percent of Tanzanian providers asked the three key questions and 62.9 percent of them identified the pathology.

This link between the clinical guidelines and the diagnostic observed in diabetes mellitus repeats itself generally across all pathologies, although the differences are not as sharply delineated in all cases. Providers generally diagnose better when they follow the guidelines, but research in other

countries suggests that they may find adhering to guidelines to be tedious.[19] However, given the rates observed in Togo from the HMIS reports, this does not seem to be a primary concern. Rather, as shown in Table 14, a significant proportion of the providers seem to neither ask the key questions nor to correctly interpret the answers they receive.

Problems linked to key questions are also addressed in Figure 10 and Figure 11 in Annex C; some providers ask most of the key questions in most of the five tracer conditions. However, this does not rule out what is observed, namely that 20 percent of providers ask none of the IMCI danger signs questions for a child presenting with fever, 40 percent ask one question, 30 percent ask two, and roughly 10 percent ask three. More generally, Figure 9 presents the key questions for malaria with anemia. Among the questions which identify danger signs and rule out other pathologies, 63 percent of clinicians ask four or less questions, 80 percent ask five or less, and none asks all the questions. The distribution of questions in the lower panel shows that roughly one in two clinicians asks about palmar or conjunctiva pallor, which makes it difficult to identify anemia and results in the observed diagnostic success rates.

Figure 9. Elements of malaria management



After the diagnosis, there are concerns with care, as shown in Table 15, which shows the prescriptions delivered by the clinicians who correctly identified the case as a simple malaria with anemia. Overall, only 28.5 percent of providers gave a prescription for artemether-lumefantrine (for

[19] Lange, Mwisongo, et Mæstad (2014), « "Why don't clinicians adhere more consistently to guidelines for the Integrated Management of Childhood Illness (IMCI)? »

malaria) and iron/folic acid (for anemia). Differences within facility levels are often large, but primarily statistically significant in the case of the clinics when comparing public and private. Public providers provide a prescription far more often. Combining information in Table 15 with the availability in stock of unexpired drugs, a significant proportion of providers do not prescribe them even when they are present: arthemether-lumefantrine (30.5 percent), iron/folic acid (38.7 percent), and both together (44.2 percent). Since the sample is limited to those who correctly diagnosed the pathology, it suggests that adherence to guidelines is low.

Table 15. Care of simple malaria with anemia among clinicians who correctly diagnosed the pathology

Providers (percent by level)	Togo	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
			Prescription for arthemether-lumefantrine				
All facilities	78,1	80,0	74,4	6,9	84,8	77,1	9,1
Dispensaries	64,1	62,2	81,8	-31,2	78,0	54,0	30,8
Health clinics	77,5	96,2	50,3	47,7**	88,6	98,8	-11,6
Hospitals	66,7						
			Prescription for iron and folic acid				
All facilities	32,6	41,3	16,1	61,1***	44,5	39,4	11,4
Dispensaries	69,6	68,1	100,0	-46,8	87,8	58,0	34,0
Health clinics	37,3	60,1	4,1	93,1***	88,6	50,2	43,4
Hospitals	49,6						
			Prescription for arthemether-lumefantrine and iron/folic acid				
All facilities	28,5	36,7	12,9	64,9***	38,3	35,8	6,5
Dispensaries	61,0	59,9	81,6	-36,1	71,5	54,0	24,5
Health clinics	36,2	59,3	2,6	95,6***	88,6	49,1	44,6
Hospitals	35,0						

Notes:
a. There are no hospitals in rural areas.
b. Comparisons within facility type are relative to public and public rural. Comparisons across facility types are relative to hospitals.
c. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

F. Management of life-threatening maternal and neonatal complications

The second process quality indicator is clinicians' ability to manage maternal and neonatal complications (Table 16). This indicator reflects the unweighted share of relevant treatment actions proposed by the clinician. Provider adherence to the guidelines was always below that of the tracer guidelines, with notable drops in all categories. Midwives and birth attendants, who are specialized in family planning and obstetric-related care, perform worse than the clinical officers in all settings, although the differences are not statistically significant across any of the cadre types. There is no marked difference between the different facility levels (Table 36) and adherence is generally low.

Table 16. Management of maternal and neonatal complications by cadre (percent)

% cadre	Togo	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
All cadres	23.5	24.8	22.0	11.3	26.5	21.8	17.6**
Doctors	38.2						
Medical officers	23.9	20.8	24.9	-19.5**	33.8	20.7	38.7***
Nurses and midwives	22.9	24.8	20.3	17.9**	26.5	20.9	21.0***

Notes: a. There are 13 doctors in the sample, so a disaggregation is not meaningful.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

Looking at the breakdowns of the two cases (and Table 37), there are poor overall diagnostic rates and treatment levels. For immediate post-partum hemorrhage, private providers are more than three times more likely to perform key examinations ($p<0.01$). The comparisons within public providers show that rural providers treat the condition 21 percent better ($p<0.05$) than urban ones, although urban ones are more than four times more likely to order appropriate tests ($p<0.01$). From a facility level perspective (Table 38), the results show that hospitals have an equipment advantage. Dispensaries provide 34 percent more treatment ($p<0.01$) but test four times less ($p<0.01$). Otherwise, there is no statistical difference for the providers who were randomly selected in the various facility levels.

This result on the different rate of laboratory tests is interesting in that urban providers are more likely to request them, but do not treat better overall. The survey did not include questions relative to the equipment that was available to evaluate blood compatibility or hemoglobin levels, so the hypothesis that equipment is a limiting factor must be addressed by taking advantage of the questions asked of the providers once they had finished treating the case as they would normally do in their facility. The following paragraph describes how this was done.

During the survey, providers were first asked to treat as they normally would in their facility. Thereafter, the interview team asked them what else they might do if they had all necessary resources. All those who either indicated the use of equipment or medications in their current environment or still did not indicate the use of equipment or medications are grouped as “no”. Those who added items are coded as “yes”. This allows an analysis of constraints to provider competence from equipment, which differs from the rest of the analysis that focuses on the current context.

In this context, Table 17 summarizes what providers said they would have done had they the necessary resources for the two laboratory examinations that were necessary for the post-partum hemorrhage case. Nine percent of providers would have drawn blood for typing and compatibility analysis and 19 percent would have done the hemoglobin levels. The differences are not always statistically significant, but the demand for exams are particularly strong in the dispensaries for both, with even unserved demand in hospitals. The case of the dispensaries is striking when comparing public and private facilities. The differences are quite strong, because 16.1 percent of public providers would have drawn blood for typing compared to 0.9 percent of private providers ($p<0.01$). In the case of hemoglobin, the same pattern is observed: 30.9 percent in public versus 4.2 percent in private ($p<0.01$).

Table 17. Lab exams that providers would have ordered if resources were available in the case of post-partum hemorrhage

Pour-cent	Togo	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
			Blood for typing and compatibility analysis				
All facilities	8.9	10.1	6.9	31,7	10,5	9,8	6,9
Dispensaries	10,9	16.1	0.9	94.5***	11.7	22.7	-94,0
Health clinics	7.3	3,8	11,9	-210,7	7,2	2,6	64.6
Hospitals	5,9						
			Hemoglobin levels				
All facilities	18,7	22,1	12,6	43,0	28,5	17,7	37,9*
Dispensaries	21,8	30.9	4.2	86.5***	29,1	33,7	-16,0
Health clinics	16,0	13,2	19,8	-49,8	26,8	8,1	69,7*
Hospitals	14,1						

Notes:
a. There are no hospitals in rural areas.
b. Comparisons within facility type are relative to public and public rural. Comparisons across facility types are relative to hospitals.
c. Statistical significance: *** p<0.01, ** p<0.05, * p<0.1.

For neonatal asphyxia, the management is worse than that of post-partum hemorrhage. Public providers undertake 26 percent more examinations (p<0.05), but diagnosis rates and care levels are undistinguishable. Among public providers, those in rural areas diagnose roughly half as well as those in urban areas (p<0.05), but the physical examinations and treatment are similar. Hospitals do better in the diagnosis of neonatal asphyxia (p<0.01), but are generally similar otherwise to the other facility types. The presence or absence of equipment to unblock the upper respiratory passages or of a bag and mask do not seem to be a factor, as very few providers say they would use them if they had access to all necessary equipment.

G. Drug availability

Methodological note

This indicator is defined as the number of drugs of which a facility has one or more available, as a proportion of all the drugs on the list. The drugs have to be unexpired and observed by the enumerator. The drug list contains tracer medicines for children and mothers identified by the World Health Organization (WHO) following a global consultation on facility-based surveys. The priority drugs are listed in **Error! Reference source not found.**. For comparison with the SARA, the availability of 14 specific tracer drugs identified in SARA is shown in Table 41 in Annex C.

On average, Togolese facilities had 43.0 percent of tracer drugs available (Table 18). While there is no overall difference in drug availability, public facilities tend to have less drug availability (WHO tracer list) than their private counterparts. This is more pronounced at the dispensary (35 percent; p<0.01) than the health center (9.1 percent; p<0.06) level. Among public facilities, those in urban areas had more drugs than those in rural facilities. Key maternal drugs are available in similar proportions, except for rural public facilities, which have 28 percent (p<0.01) less drugs than urban public ones. For children, public facilities had 11 percent higher availability than private ones (p<0.01) and rural public facilities had 5 percent higher availability than urban public ones (p<0.01).

Table 18. Drug availability by facility type

% drugs	Togo	Public	Private (non-profit)	Difference (%)[a]	Rural Public	Urban Public	Difference (%)[a]
			All drugs				
All facilities	43.0	42.9	43.2	--0.7	41.4	48.9	-18.2*
Dispensary (USP1)	49.0	46.8	63.5	-35.6***	45.4	56.5	-24.4***
Health center (USP2)	38.8	38.9	40.2	-9.1**	35.3	41.6	-17.8***
First level hospitals	59.3						
			Drugs for mothers				
All facilities	36.2	36.1	36.3	-0.7	34.1	43.8	-28.2***
			Drugs for children				
All facilities	55.8	58.3	51.8	11.1***	58.9	55.9	5.2***

Notes: a. There are no HD1 facilities in rural locations.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

H. Equipment availability

Methodological note

The equipment indicator focuses on the availability (observed and functioning by the enumerator) of minimum equipment expected at a facility. The pieces of equipment expected in all facilities are a weighing scale (adult, child, or infant), a stethoscope, a sphygmomanometer, and a thermometer. In addition, it is expected that the following pieces of equipment be available at health centers and hospitals: sterilizing equipment and a refrigerator. Table 47 shows the availability of each of these types of equipment.

Table 19 presents availability of minimum equipment adjusted by level of facility, and Table 48 shows the availability of each of these types of equipment. Nationally, equipment was available at 63.7 percent of facilities. Private (nonprofit) facilities did better than public facilities.

Table 19. Medical equipment availability (adjusted for level of facility)

% facilities	Togo	Public	Private (non-profit)	Difference (%)[a]	Rural public	Urban public	Difference (%)[a]
All facilities	637	64.7	62.2	3.8	65.7	60.4	8.1*
Dispensary (USP1)	94.8	94.8	100	-6.3	93.5	97.8	-4.6
Health center (USP2)	43.1	24.9	56.8	-127.9*	23.7	28.8	-21.8
Hospital (HD1)	84.2						

Notes: a. There are no HD1 facilities in rural locations. There is only one not-for-profit HD1 in the sample.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

The differences in levels are caused by the presence or absence of functional refrigerators and sterilization equipment (Table 48). Nearly three-quarters of public facilities have refrigerators, while roughly half of private ones have them. Among the types of sterilization equipment, private facilities are 2.3 times as likely as public ones to have electric sterilizers ($p<0.05$), and urban public facilities are nearly 13 times as likely ($p<0.01$). Conversely, public facilities are nearly five times as likely to have a pot ($p<0.01$) and rural public facilities are more than twice as likely have the same relative to urban public facilities ($p<0.05$).

I. Infrastructure availability

Methodological note

The infrastructure indicator captures the availability of three inputs: water, sanitation, and electricity. The indicator is an unweighted average of these three components. Eligible sources are:

Electricity sources: Electric power grid, a fuel-operated generator, a battery-operated generator or a solar-powered system as their main source of electricity.
Water sources: Piped into the facility, piped onto facility grounds or comes from a public tap/standpipe, tube well/borehole, a protected dug well, a protected spring, bottled water or a tanker truck.
Sanitation sources: Functioning flush toilet, ventilated and improved pit (VIP) latrine, or covered pit latrine (with slab).

Table 20 shows that on average, 60.8 percent of facilities had all three infrastructure items (electricity, water, and sanitation). There are critical disparities across public-private (nonprofit) and rural/urban lines. Private (nonprofit) facilities were 2.3 times ($p<0.01$) more likely to have the three infrastructure items and for public facilities the ratio was 2.8 times more for urban than rural ($p<0.01$). The deficits were concentrated in the lowest-level facilities: at the dispensary level the private/public ratio was 4.4 ($p<0.01$).[20]

[20] Health centers are 1.5 times more likely to have all three infrastructure items ($p<0.10$).

Table 20. Infrastructure availability (percent)

% facilities	Togo	Public	Private (non-profit)	Difference (%)[a]	Rural public	Urban public	Difference (%)[a]
All facilities	60.8	40.2	92.8	-131.0***	29.6	82.5	-179.0***
Dispensary (USP1)	31.4	21.9	95.6	-336.6***	17.2	54.0	-214.2***
Health center (USP2)	79.0	61.2	92.4	-51.0*	48.3	100.0	-107.0**
Hospital (HD1)	89.5						

Notes: a. There are no HD1 facilities in rural locations.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Levels of significance: *** p<0.01, ** p<0.05, * p<0.1.

Access to electricity is the primary constraint for Togo's infrastructure indicator. Overall, 48 percent of public facilities have access to electricity while 99 percent of private ones do (p<0.01). This holds even when comparing only health centers and hospitals: private facilities are 1.5 times more likely than public ones (p<0.05) to have electricity. Although electricity is the primary constraint, there were also important weaknesses in access to sanitation. The national average for availability of sanitation was 81 percent, but private facilities are 1.3 times more likely to have toilets (p<0.01) and urban public facilities were nearly 1.4 times more likely to have them than rural public facilities (p<0.01). Clean water is also a constraint, with private facilities roughly 20 percent more likely to have access to it than public facilities (p<0.01).

IV. WHAT DOES THIS MEAN FOR TOGO?

As the Country Status Report (2009) notes, key outcome indicators such as under-five mortality, malaria, nutrition, and neonatal care have slightly improved or remained stable. Reduction in maternal mortality has progressed more rapidly, and trained personnel attend 60 percent of all births. Life expectancy at birth (in 2010), was estimated to be 63 years, nearly 10 years more than the West African average, according to UNFPA estimates. This must be measured in a context of limited available resources, both from the national budget (10 percent decrease per capita in constant FCFA over 2001-2010) and from donors.

Togo reached the HIPC Completion Point in 2010. According to the Togo BOOST data, salaries and investments are the two largest budgeted items for the ministry, with salary allocations nearly doubling and investment halved in the 2009-2013 period.[21] However, the execution rates make investments the worst performer for the ministry. Although the ministry receives allocations in the upper half of all ministries, its execution rates for personnel (generally below-average) and investments (20th percentile or below) limit its ability to deliver services. The Creditor Reporting System of the OECD/DAC allows the disaggregation of funds by sector.[22] External financing remained quite limited relative to the overall aid envelope (average value USD14.3 million in constant dollars per year for 2004-2012, or four percent of the overall aid budget), albeit with lower volatility (the standard deviation is 65 percent of the median as compared to 148 percent of the median). It was also limited relative to the government's own budgetary execution for the sector (even after excluding investments that might be externally-financed). From the financing perspective, this would have created a context with little room for improvement and very limited physical capital improvements.

However, there are significant gaps in all areas, whether skills, human resource management, or inputs. The concentration of doctors in the capital may play a role, but the overall level of ability to properly handle the various cases remains a concern. In addition, the gap between those formally trained and trained on the job, particularly for adult care, is a further cause for concern. The overall level of skills in the management of maternal and neonatal complications is in line with the burden of mortality (401 deaths per 100,000 pregnancies; DHS 2013-14). Togo's performance in diagnostic accuracy, adherence to guidelines, and the management of maternal and child health complications places it in the middle of the table for SDI countries.

Human resource availability is a challenge, with a 40 percent national absence rate. Compared to primary education in Togo, this is high, as teachers are only absent 20.4 percent of the time using the same methodology. This is a strong result as the education survey was undertaken in a period of widespread strikes, and the "normal" absence rate is likely lower. As with education, the most important correlate of absence is whether or not the head of the facility is present. For health, another important factor is the distance between the facility and its district headquarters, with increasing travel time positively correlated with increasing likelihood of absence. What is not captured is the feasibility, willingness, and ability of managers to incite staff to be present and the alternatives available to staff. This leads to a situation in which most SDI countries have higher productivity and lower absence rates than Togo.

[21] From http://isdatabank.info/boost_togo/, accessed on September 9, 2014. Transfers were larger than investments in 2009.

[22] According to the same source, primary education received three times less funding.

Input availability is relatively low for infrastructure in public. In part, this may reflect variable and sometimes low levels of budgetary execution for investments (from 3 percent in 2003 to 23 percent in 2008, and averaging 15.1 percent over 2001-2010). The publicly-available BOOST data suggest that budgetary allocations are orders of magnitude larger than the execution of investments. Regardless of the cause, the lack of basic inputs, such as refrigerators and sterilization equipment, and the lack of electricity (may also cause refrigerators to not function) make it difficult for health personnel to provide appropriate care.

Comparing Togo with other countries that have done SDI.

Table 21. SDI comparator table

	Togo	Nigeria	Kenya	Uganda	Tanzania
Effort and productivity					
Caseload per day (per provider)	7	2	9	10	7
Absence from facility (percent of providers)	40	29	28	47	14
Knowledge					
Diagnostic accuracy (percent of conditions)	52	36	72	58	60
Adherence to clinical guidelines (percent of conditions)	36	31	44	35	44
Management of maternal and newborn complications (percent of conditions)	23	17	45	20	30
Input availability					
Drugs availability (percent of drugs)	43	45	54	40	60
Minimum equipment (percent of facilities)	64	25	76	18	84
Minimum infrastructure (percent of facilities)	61	18	47	47	50

Note: Nigeria averages across twelve states.

As a summary, Table 21 compares the Togolese health sector to other countries that have done SDI. Providers tend to be more absent than in other countries although absence-adjusted caseload indicates a patient per hour. Although the SDI information does not permit us to estimate the part that is demand and the part that is supply, 40 percent absence rates are high and may contribute to lower overall utilization of health care.

The knowledge of Togolese doctors, within the constraints of their facilities' environments, is better than the average, although still low in absolute terms. On average, for the tracer conditions, one patient in two will receive an incorrect diagnosis and three in four post-partum hemorrhage and/or neonatal asphyxia cases will be improperly managed.

From diagnostic accuracy: generally, the pattern from diagnostic accuracy is repeated in the adherence to clinical guidelines, although the differences are not as important across the various breakdowns. Research shows that providers generally do better when they adhere to the guidelines, but this is felt to be time-consuming.[23]

Togolese providers' knowledge, within the constraints of their facilities' environments, is better than the average, although still low in absolute terms. On average, for the tracer conditions, one patient in two will receive an incorrect diagnosis and three in four post-partum hemorrhage and/or neonatal asphyxia cases will be improperly managed.

[23] Lange, Mwisongo, and Mæstad (2014), "Why don't clinicians adhere more consistently to guidelines for the Integrated Management of Childhood Illness (IMCI)?"

Togo has problems relative to other SDI countries in the area of human resource availability and performance. In the areas of equipment and infrastructure, Togo does relatively well, although it is in the lower part of the table as regards drug availability.

V. ANNEXES

ANNEX A. SAMPLING STRATEGY

The sample frame was constituted from information provided by the Ministry of Health and the National Statistical Directorate (*Direction générale de la Statistique et de la Comptabilité nationale*; NSD). Problems with toponymy were addressed with the NSD and the Survey on Neonatal and Obstetrical Emergencies (SONU). The ministry provided two different facility lists, one that was supposed to be exhaustive from the census of all neonatal and obstetric care facilities (SONU; census of all facilities, then in-depth questions for those that did neonatal/obstetric care) and another from the Service Availability and Readiness Survey (100 facilities). Extensive efforts were deployed to address concerns related to toponymy (with the NSD) and to facility listings (with the ministry).

The sample frame was stratified along rural/urban (per the NSD's definitions), ownership (public/private), and facility type (USP1/USP2/HD1) to maximize intragroup homogeneity. An implicit stratification on the poverty rate of the area was done based upon the published poverty reports (2012). The selection was done with probability proportional to the population served using the Core Welfare Indicators Questionnaire's (2012) information on facility usage rates as the allocation criteria among facilities within a given area.

Table 22, from the 2011 household survey undertaken by the National Statistical Office (*Direction générale de la statistique et de la comptabilité nationale*), shows where people have consulted first in the past four weeks. Further analysis of the 2011 household survey shows that among the primary reasons for consultation are malaria (57 percent of reported consultations in the months of June-August 2013), stomach ache (11 percent), and acute respiratory infections (6 percent).[24] For the treatment of such cases, users visit low-level health care facilities (*case de santé,* USP, *centre de santé,* and PMI; 50 percent of consultations), clinics and medical offices (22 percent), and hospitals (18 percent). Although hospitals are visited throughout the country, they are most visited in Maritime, Lomé, and Kara. This represents 89.9 percent of total consultations. Consideration of the facility's ownership rather than the type of facility, based upon the same source, shows that all but the richest families consult primarily in the public sector when they report consulting a health provider. The survey does not differentiate private-for-profit from private nonprofit facilities.

[24] The full breakdown is in **Error! Reference source not found.** in **Error! Reference source not found.**. Note: By importance, "other" includes higher-level hospitals and those who consult at home.

Table 22. Provider consultations by socioeconomic status (%)

	Expenditure quintile					
Health level consulted	**Poorest**	**Second**	**Third**	**Fourth**	**Richest**	**Total**
Primary care facilities	79.3	65.3	66.5	71.0	63.0	67.7
First-level hospitals	14.4	25.3	20.9	21.7	24.7	22.2
Others	6.3	9.4	12.6	7.3	12.4	10.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculations based upon the *Questionnaire des indicateurs de base du bien-être* (QUIBB) 2011.

For indicators related to individuals, two further samples were independently drawn among providers. The overall weight of these indicators, defined below, is the product of the facility weight and the individual weight for the concept (absence rate or knowledge).

For absence rate, a secondary sampling frame of all health providers who work at the facility is prepared (Module 2A). The methodology requires 10 providers, or all those in the facility if it has less than 10 providers. If a facility has more than 10 providers, a random selection without replacement is undertaken where each provider has equal probability of being selected. This gives the inflation factor, or weight, for provider absence rate, defined as the product of the probability of selecting the facility and the probability of selecting a given provider in the facility.

For knowledge, the secondary sampling frame of all health providers who work at the facility is used in conjunction with information on whether the provider is the lead caregiver for an outpatient consultation at least once per week (Module 2A). The methodology requires 10 providers, or all those in the facility if it has less than 10 providers. If a facility has more than 10 providers, a random selection without replacement is undertaken where each provider has equal probability of being selected. This gives the inflation factor, or weight, for provider knowledge, defined as the product of the probability of selecting the facility and the probability of selecting a given provider in the facility.

Once Module 3 had been entered and passed clean, a medical doctor with knowledge of the SDI instruments and experience in training and supervising SDI field staff reviewed all the cases to ensure that the information on diagnostic accuracy was not compromised by incorrect recording. A decision was made based upon the comments recorded and the treatment ordered. For example, a provider who failed to cite diarrhea with severe dehydration but implemented the appropriate treatment plan was judged to have correctly diagnosed the case. If anything, this will have biased upwards the diagnostic accuracy rate of providers in Togo.

Table A1. Health survey instrument

Module	Description
Module 1: Facility questionnaire Section A: General information Section B: General information Section C: Infrastructure Section D: Equipment, materials, and supplies Section E: Drugs	Administered to the in-charge or the most senior medical staff at the facility. Self-reported and administrative data on health facility characteristics, staffing, and resources flows.
Module 2: Staff Roster Section A: Facility first visit Section B: Facility second visit	Administered to the in-charge or the most senior medical staff at the facility. Administered to (a maximum of) 10 medical staff randomly selected from the list of all medical staff. Second visit is administered to the same 10 medical staff as in Module 4. An unannounced visit about a week after the initial survey to measure the absence rates.
Module 3: Clinical case simulations Section H: Introduction Section I: Clinical case Patient 1 Acute diarrhea and severe dehydration Section J: Clinical case Patient 2 Pneumonia Section K: Clinical case Patient 3 Diabetes mellitus Section L: Clinical case Patient 4 Pulmonary tuberculosis Section M: Clinical case Patient 5 Malaria and anemia Section N: Clinical case Patient 6 Post-partum hemorrhage Section O: Clinical case Patient 7 Neonatal asphyxia Section P: Frequency of different types of consultations	Administered to medical staff in facility to assess clinical knowledge.
Module 4: Health facility financing Section Q: General information Section R: User fees Section S: Government resources Section T: Receipt of medical consumables	Administered to the in-charge or the most senior medical staff at the facility.

ANNEX B. DEFINITION OF INDICATORS

Table B 1. Indicator definition and method of calculation

Caseload per health provider	
Number of outpatient visits per clinician per day.	The number of outpatient visits recorded in outpatient records in the three months prior to the survey, divided by the number of days the facility was open during the three-month period and the number of health professionals who conduct patient consultations (i.e. excluding cadre types such as public health nurses and outreach workers).
Absence rate	
Share of a maximum of 10 randomly selected providers absent from the facility during an unannounced visit.	Number of health professionals that are not off duty who are absent from the facility on an unannounced visit as a share of 10 randomly sampled workers. Health professionals doing fieldwork (mainly community and public health professionals) were counted as present. The absence indicator was not estimated for hospitals because of the complex arrangements of off-duty, interdepartmental shifts etc.
Adherence to clinical guidelines	
Unweighted average of the share of relevant history-taking questions, the share of relevant examinations performed.	For each of the following five clinical cases: (i) acute diarrhea with severe dehydration; (ii) pneumonia; (iii) diabetes mellitus; (iv) pulmonary tuberculosis; (v) malaria with anemia. History-taking questions: Assign a score of one if a relevant history-taking question is asked. The number of relevant history-taking questions asked by the clinician during consultation is expressed as a percentage of the total number of relevant history questions included in the questionnaire. Relevant examination questions: Assign a score of one if a relevant examination question is asked. The number of relevant examination questions asked by the clinician during consultation is expressed as a percentage of the total number of relevant examination questions included in the questionnaire. For each clinical case: unweighted average of the relevant history-taking questions asked, and the percentage of physical examination questions asked. The history-taking and examination questions considered are based on the Togolese clinical guidelines, the guidelines for Integrated Management of Childhood Illnesses (IMCI), and consultation with appropriate staff in the Ministry of Health.
Management of maternal and neonatal complications	
Share of relevant treatment actions proposed by the clinician.	For each of the following two clinical cases: (i) post-partum hemorrhage; and (ii) neonatal asphyxia. Assign a score of one if a relevant action is proposed. The number of relevant treatment actions proposed by the clinician during consultation is expressed as a percentage of the total number of relevant treatment actions included in the questionnaire.
Diagnostic accuracy	
Average share of correct diagnoses provided in the five clinical cases.	For each of the following five clinical cases: (i) acute diarrhea; (ii) pneumonia; (iii) diabetes mellitus; (iv) pulmonary tuberculosis; (v) malaria with anemia. For each clinical case, assign a score of one as correct diagnosis for each clinical case if diagnosis is mentioned. Sum the total number of correct diagnoses identified. Divide by the total number of clinical cases. Where multiple diagnoses were provided by the clinician, the diagnosis is coded as correct as long as it is mentioned, irrespective of what other alternative diagnoses were given.
Drug availability	
Share of basic drugs that at the time of the survey were available at the health facilities.	Priority medicines for mothers: Assign score of one if facility reports and enumerator confirms/observes the facility has the drug available and unexpired on the day of visit for the following medicines: oxytocin (injectable), misoprostol (cap/tab), sodium chloride (saline solution) (injectable solution), azithromycin (cap/tab or oral liquid), calcium gluconate (injectable), cefixime (cap/tab), magnesium sulfate (injectable), benzathine benzylpenicillin powder (for injection), ampicillin powder (for injection), betamethasone or dexamethasone (injectable), gentamicin (injectable) nifedipine (cap/tab), metronidazole (injectable), medroxyprogesterone acetate (Depo-Provera) (injectable), iron supplements (cap/tab), and folic acid supplements (cap/tab). Priority medicines for children: Assign score of one if facility reports and enumerator confirms after observing that the facility has the drug available and unexpired on the day of visit for the following medicines: amoxicillin (syrup/suspension), oral rehydration salts (ORS sachets), zinc (tablets), ceftriaxone (powder for injection),

	artemisinin combination therapy (ACT), artesunate (rectal or injectable), benzylpenicillin (powder for injection), and vitamin A (capsules). We take out of analysis of the child tracer medicines two medicines (gentamicin and ampicillin powder) that are included in the mother and in the child tracer medicine list to avoid double counting. The aggregate is adjusted by facility type to accommodate the fact that not all drugs (injectables) are expected to be at the lowest level facility, dispensaries/health posts where health workers are not expected to offer injections.
Equipment availability	
Share of facilities with thermometer, stethoscope and weighing scale, refrigerator and sterilization equipment.	Medical equipment aggregate: Assign score of one if enumerator confirms the facility has one or more functioning of each of the following: thermometers, stethoscopes, sphygmomanometers, and a weighing scale (adult or child or infant weighing scale) as defined below. Health centers and first-level hospitals are expected to include two additional pieces of equipment: a refrigerator and sterilization device/equipment. Thermometer: Assign score of one if facility reports and enumerator observes facility has one or more functioning thermometers. Stethoscope: Assign score of one if facility reports and enumerator confirms facility has one or more functioning stethoscopes. Sphygmomanometer: Assign score of one if facility reports and enumerator confirms facility has one or more functioning sphygmomanometers. Weighing scale: Assign score of one if facility reports and enumerator confirms facility has one or more functioning adult, child or infant weighing scale. Refrigerator: Assign score of one if facility reports and enumerator confirms facility has one or more functioning refrigerator. Sterilization equipment: Assign score of one if facility reports and enumerator confirms facility has one or more functioning sterilization device/equipment.
Infrastructure availability	
Share of facilities with electricity, clean water and improved sanitation.	Infrastructure aggregate: Assign score of one if facility reports and enumerator confirms facility has electricity, water, and sanitation as defined. Electricity: Assign score of one if facility reports having the electric power grid, a fuel-operated generator, a battery-operated generator or a solar-powered system as its main source of electricity. Water: Assign score of one if facility reports its main source of water is piped into the facility, piped onto facility grounds or comes from a public tap/standpipe, tube well/borehole, a protected dug well, a protected spring, bottled water or a tanker truck. Sanitation: Assign score of one if facility reports and enumerator confirms facility has one or more functioning flush toilets or VIP latrines, or covered pit latrine (with slab).

ANNEX C. ADDITIONAL RESULTS

Table 23. Distribution of health personnel by provider type (percent)

	All	Public	Private (non-profit)	Rural public	Urban public	Rural	Urban
Specialist	0.3	0.1	0.1	0.0	0.2	0.0	0.3
Doctor	2.1	1.8	0.3	0.2	2.1	0.2	1.8
Medical officer (diploma)	8.1	5.0	3.1	1.3	5.3	1.0	7.0
Medical officer (no diploma)	0.1	0.1	0.1	0.0	0.1	0.0	0.1
Nurse (diploma)	12.7	10.3	2.4	5.7	7.8	5.3	7.4
Nurse auxiliary (diploma)	9.1	7.0	2.1	3.9	5.2	3.8	5.3
Nurse (no diploma)	6.7	3.9	2.8	2.4	2.7	2.1	4.5
Midwife	7.0	5.6	1.4	1.4	5.9	1.2	5.7
Trained birth attendant (diploma)	9.2	7.6	1.7	3.2	6.7	2.8	6.5
Trained birth attendant (no diploma)	14.1	11.7	2.4	9.9	5.5	8.4	5.7
Nurse's aide	7.1	4.7	2.4	3.6	2.6	3.5	3.6
Biological engineer	1.5	0.7	0.9	0.0	0.9	0.1	1.5
Laboratory technician	4.4	2.9	1.5	1.5	2.3	1.5	2.9
Hygiene worker	4.9	4.6	0.3	2.0	4.0	1.7	3.2
Other	12.7	10.3	2.4	7.2	6.3	5.9	6.7
Total	100.0	76.1	23.9	42.4	57.6	37.6	62.4

N=1,364.

Table 24. Distribution of health personnel by facility type (percent)

	All	USP1	USP2	First-level hospitals
Specialist	0.3	0.0	0.1	0.2
Doctor	2.1	0.0	0.8	1.2
Medical officer (diploma)	8.1	0.4	4.5	3.2
Medical officer (no diploma)	0.1	0.0	0.1	0.1
Nurse (diploma)	12.7	4.8	3.7	4.2
Nurse auxiliary (diploma)	9.1	3.0	2.9	3.2
Nurse (no diploma)	6.7	1.8	4.3	0.5
Midwife	7.0	0.3	3.7	3.0
Trained birth attendant (diploma)	9.2	2.6	2.9	3.7
Trained birth attendant (no diploma)	14.1	7.5	4.2	2.5
Nurse's aide	7.1	2.8	2.7	1.6
Biological engineer	1.5	0.2	0.8	0.5
Laboratory technician	4.4	0.6	2.3	1.5
Hygiene worker	4.9	0.7	1.8	2.3
Other	12.7	5.2	4.0	3.4
Total	100.0	30.1	38.8	31.2

N=1,364.

Table 25. Distribution of health personnel by gender (percent)

	All	Female	Male
Specialist	0.3	0.1	0.2
Doctor	2.1	0.1	2.0
Medical officer (diploma)	8.1	2.1	5.9
Medical officer (no diploma)	0.1	0.1	0.1
Nurse (diploma)	12.7	2.6	10.1
Nurse auxiliary (diploma)	9.1	2.7	6.4
Nurse (no diploma)	6.7	3.1	3.6
Midwife	7.0	7.0	0.0
Trained birth attendant (diploma)	9.2	9.2	0.0
Trained birth attendant (no diploma)	14.1	14.1	0.1
Nurse's aide	7.1	3.5	3.6
Biological engineer	1.5	0.0	1.5
Laboratory technician	4.4	0.6	3.8
Hygiene worker	4.9	0.8	4.1
Other	12.7	5.1	7.6
Total	100.0	51.0	49.0

N=1,364

Table 26. Caseload per provider by level of facility

	All	Public	Private	Difference (%)	Rural Public	Urban Public	Difference (%)
All facilities	3.87	3.97	3.71	0.26	4.22	3.01	1.21
	(0.54)	(0.72)	(0.72)	(1.05)	(0.91)	(0.27)	(0.95)
USP1	3.35	3.41	2.97	0.44	3.45	3.20	0.25
	(0.22)	(0.20)	(1.08)	(1.09)	(0.23)	(0.42)	(0.47)
USP2	4.59	6.69	3.84	2.86	7.38	3.22	4.15
	(1.21)	(3.34)	(0.84)	(3.46)	(4.09)	(0.72)	(4.15)
First-level hospitals	2.78						
	(0.27)						

Notes: There is one private (nonprofit) hospital in the sample. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals. Standard errors are not rescaled from the underlying proportions.

Table 27. Variables used in the health absence rate regressions

	All	Public	Private	Diff.
Facility information				
Rural	29.8	30.6	29.3	-1.3
Public	41.5	100.0	0.0	-100.0
Head absent (d)	6.2	4.5	7.4	2.9*
Region: Lomé (d)	49.6	20.9	69.9	49.0***
Region: Maritime (d)	14.2	21.2	9.1	-12.1*
Region: Plateaux (d)	16.7	21.7	13.2	-8.5
Region: Centrale (d)	5.4	11.8	0.8	-11.0***
Region: Kara (d)	8.1	14.8	3.4	-11.4***
Region: Savanes (d)	6.1	9.6	3.6	-6.0*
Provider demographics				
Manager	12.5	12.7	12.4	-0.3
Team leader	13.0	16.9	10.1	-6.8**
Provider	74.6	70.4	77.5	7.1**
Female	53.0	50.0	55.2	5.3

Notes: Weighted means using sampling weights for absence rate for individual characteristics and sampling weights for facilities for the rest, based upon 982 providers in 180 facilities. The difference is defined as the difference of the means of public and private facilities and is measured in percentage points. Superscript (*) denotes that the difference is significant at the 1 percent (***), 5 percent (**), or 10 percent (*) significance level. All variables are binary unless otherwise indicated.

Definition of the variables and notes:
- Manager: Director or deputy director of a facility.
- Team leader: First-level supervisory function (unit manager, supervisor).
- Provider: Staff who are neither management nor team leaders.
- Time to district: Facility-reported time to the district office, grouped into facility-weighted quartiles.

Table 28. Correlates of absence results

Variables	Base	Workload-augmented
Individual characteristics		
Female (d)	0.674*	0.648
	(0.374)	(0.484)
Relative to a manager		
Team leader (d)	2.268***	2.872***
	(0.762)	(0.636)
Staff (d)	1.361*	1.812***
	(0.694)	(0.458)
Three to five cases per day (d)		-0.683**
		(0.323)
Five to seven cases per day (d)		-0.459
		(0.470)
More than seven cases per day (d)		0.263
		(0.918)
Head absent (d)	5.163***	5.482***
	(0.816)	(0.688)
Facility characteristics (relative to Lomé)		
Centrale (d)	0.110	0.298
	(0.297)	(0.484)
Kara (d)	0.194	0.335
	(0.388)	(0.491)
Maritime (d)	-0.656**	-0.685
	(0.256)	(0.456)
Plateaux (d)	-0.239	-0.148
	(0.330)	(0.508)
Savanes (d)	0.120	0.143
	(0.273)	(0.419)
Public interacted with supervision time	-0.00184	-0.00152
	(0.00393)	(0.00539)
Rural (d)	-0.0157	-0.418
	(0.336)	(0.678)
Constant	-2.500***	-2.685***
	(0.714)	(0.524)
Observations	917	703
F	9.190	8.195
Degrees of freedom (model)	12	15
Degrees of freedom (residual)	175	128
Probability > F	0	0

Notes: Standard errors in parentheses. Results are from a logit model with sample weights and jackknifed standard errors that account for the complex survey design. Significance levels are *** p<0.01, ** p<0.05, * p<0.1, respectively.

Table 29. Absence by level of facility (adjusted for shift breaks; percentage)

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
All facilities	39.8	36.4	42.2	-5.8	32.7	38.2	-5.6
	(0.02)	(0.03)	(0.03)	(0.04)	(0.07)	(0.03)	(0.08)
USP1	37.3	33.8	45.9	-12.1	25.6	41.8	-16.2
	(0.03)	(0.04)	(0.06)	(0.07)	(0.03)	(0.07)	(0.07)
USP2	40.7	37.2	41.7	-4.5	41.7	33.9	7.8
	(0.03)	(0.07)	(0.03)	(0.08)	(0.16)	(0.06)	(0.17)
First-level hospitals	39.3						
	(0.04)						

Notes: There is one private (nonprofit) hospital in the sample. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals. Standard errors are not rescaled from the underlying proportions.

Table 30. Caseload measures adjusted and unadjusted for absence rate

	All	Public	Private (nonprofit)	Difference (%)	Rural public	Urban public	Difference (%)
All providers	3.9	4.0	3.7	6.5	4.2	3.0	28.7
Adjusted for absence rate and off-duty	7.4	6.7	8.6	-28.8	7.0	5.5	21.2

Notes: *** p<0.01, ** p<0.05, * p<0.1. Adjusted caseload is defined as caseload / (1- absence rate – off duty). Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.

Table 31. Absence by level of facility (not adjusted for shift breaks)

	All	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
All facilities	44.3	42.5	45.5	-7.1	33.9	46.3	-36.4
	(0.02)	(0.03)	(0.03)	(0.04)	(0.07)	(0.03)	(0.08)
USP1	41.2	38.2	48.6	-27.1	26.4	48.4	-83.4
	(0.03)	(0.04)	(0.05)	(0.06)	(0.03)	(0.06)	(0.07)
USP2	44.7	43.1	45.1	-4.6	43.4	42.9	1.1
	(0.03)	(0.07)	(0.03)	(0.08)	(0.15)	(0.07)	(0.16)
First-level hospitals	47.5						
	(0.04)						

Notes: There is one private (nonprofit) hospital in the sample. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals. Standard errors are not rescaled from the underlying proportions.

Table 32. Diagnostic accuracy in the tracer conditions, by broad cadre type (percent)

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
All cadres	51.7	49.1	54.8	-11.7	48.6	49.6	-2.0
	(0.03)	(0.03)	(0.05)	(0.06)	(0.04)	(0.04)	(0.06)
Doctors	53.1						
	(0.08)						
Medical assistants	67.5	53.0	73.8	-39.3	100.0	52.7	47.3
	(0.05)	(0.05)	(0.05)	(0.07)	0.00	(0.05)	(0.05)
Nurse/BA/Midwife	47.5	48.2	46.5	3.5	48.5	47.5	2.1
	(0.03)	(0.03)	(0.04)	(0.05)	(0.04)	(0.04)	(0.06)

Note: There are 13 doctors in the competence sample. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals. Standard errors are not rescaled from the underlying proportions.

Table 33. Adherence to clinical guidelines by facility type (percent)

	All	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
All facilities	36.0	34.8	37.4	-7.4	34.7	34.8	-0.3
	(0.02)	(0.01)	(0.05)	(0.05)	(0.01)	(0.02)	(0.02)
USP1	34.5	35.0	32.3	7.7	36.7	30.9	15.7
	(0.01)	(0.01)	(0.05)	(0.05)	(0.01)	(0.03)	(0.03)
USP2	36.9	34.9	38.0	-8.8	32.1	38.6	-20.3
	(0.03)	(0.02)	(0.05)	(0.05)	(0.02)	(0.02)	(0.03)
First-level hospitals	33.8						
	(0.02)						

Notes: There is one private (nonprofit) hospital in the sample. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals. Standard errors are not rescaled from the underlying proportions.

Table 34. Tracer condition treatment details (percent)

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
Diarrhea with severe dehydration							
Key questions	44.3	47.6	40.3	15.3	44.3	51.6	-16.4**
Key physical exams	39.0	34.2	44.8	-30.8	32.3	36.6	-13.1
Diagnostic accuracy	24.7	29.9	18.5	38.3	28.4	31.7	-11.6
Key treatments	45.1	45.5	44.5	2.3	51.7	38.0	26.4***
Key education	21.1	25.6	15.9	37.7	34.8	14.2	59.3***
Pneumonia							
Key questions	42.6	40.3	45.4	-12.6	41.7	38.6	7.4
Key physical exams	20.9	15.2	27.6	-81.6**	16.0	14.2	11.1
Diagnostic accuracy	65.8	48.5	86.2	-77.9***	45.3	52.3	-15.5
Key treatments	85.8	80.8	91.6	-13.3*	77.2	85.3	-10.5
Key education	57.9	46.7	71.1	-52.1**	43.6	50.5	-15.6
Type 2 diabetes							
Key questions	23.1	21.5	25.1	-16.9	22.7	20.0	12.0
Key physical exams	35.6	34.1	37.3	-9.2	34.6	33.5	3.3
Key tests	28.4	26.0	31.3	-20.5	21.3	31.7	-49.0**
Diagnostic accuracy	45.7	37.7	55.2	-46.2	43.1	31.2	27.7
Key treatments	41.7	47.9	34.2	28.5	49.5	46.0	7.1
Key education	13.7	8.2	20.3	-146.3**	6.1	10.9	-78.8*
Pulmonary tuberculosis							
Key questions	35.4	31.7	39.9	-25.9*	30.4	33.2	-9.1
Key physical exams	58.1	64.1	51.0	20.4	65.3	62.5	4.3
Key tests	87.9	89.4	86.0	3.9	87.5	91.8	-4.9
Diagnostic accuracy	85.7	85.5	86.0	-0.5	84.6	86.6	-2.4
Key treatments	42.4	41.8	43.1	-3.2	38.2	46.2	-21.1*
Key education	14.8	22.3	5.9	73.6***	20.4	24.8	-21.6
Malaria with anemia							
Key questions	41.2	38.7	44.2	-14.3	38.0	39.6	-4.3
Key physical exams	15.7	16.8	14.4	14.3	18.4	14.7	20.4**
Key tests	47.0	48.5	45.3	6.7	47.0	50.4	-7.3**
Diagnostic accuracy	34.5	41.3	26.3	36.3	38.7	44.6	-15.2
Diagnosis of simple Malaria	50.5	39.4	63.7	-62.0**	46.6	30.5	34.5*
Key treatments	55.3	59.3	50.6	14.6	55.6	63.8	-14.8
Key education	22.5	18.2	27.6	-51.9**	20.0	15.9	20.6

Notes: *** p<0.01, ** p<0.05, * p<0.1. Key actions are based upon the Integrated Management of Childhood Illnesses guidelines or relevant disease-specific guidelines as adapted for use in Togo. The diagnosis of "simple malaria" means that the anemia was not identified. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.

Table 35. Tracer condition treatment details, by facility type (percent)

	Estimates			Differences (relative to district hospital; %)	
	Dispensary (USP1)	Health center	District hospital	Dispensary (USP1)	Health center (USP2)
Diarrhea with severe dehydration					
Key questions	45.6	43.3	47.0	3.0	7.9
Key physical exams	34.7	41.7	34.6	-0.3	-20.8
Diagnostic accuracy	31.8	21.0	26.1	-21.5	19.7
Key treatments	43.5	46.4	40.1	-8.4	-15.8
Key education	20.8	21.9	15.9	-30.6	-37.6
Pneumonia					
Key questions	39.7	44.6	38.7	-2.5	-15.2
Key physical exams	16.9	23.4	16.9	0.2	-38.1
Diagnostic accuracy	57.5	70.7	58.7	2.0	-20.5
Key treatments	83.0	87.4	83.7	0.8	-4.4
Key education	46.0	66.7	32.0	-43.8**	-108.7***
Diabetes					
Key questions	16.3	27.0	18.3	11.0	-47.4
Key physical exams	34.6	35.6	39.3	11.9	9.5
Key tests	22.4	30.7	33.6	33.3***	8.5
Diagnostic accuracy	26.5	55.1	47.0	43.6***	-17.3
Key treatments	34.7	44.5	46.5	25.2*	4.2
Key education	7.5	16.9	13.3	43.9**	-27.2
Pulmonary tuberculosis					
Key questions	28.4	39.3	32.4	12.3	-21.2*
Key physical exams	71.7	51.0	61.6	-16.3	17.3
Key tests	84.7	88.9	92.0	7.9	3.3
Diagnostic accuracy	84.2	87.5	77.3	-8.9	-13.1
Key treatments	40.8	42.6	47.8	14.6*	10.9
Key education	21.5	11.9	11.0	-96.0**	-8.7
Malaria with anemia					
Key questions	33.2	46.4	31.5	-5.4	-47.4***
Key physical exams	17.0	14.9	16.0	-6.4	6.7
Key tests	47.3	46.2	53.1	10.8**	12.9**
Diagnostic accuracy	26.8	37.9	37.5	28.7	-1.0
Diagnosis of simple malaria	64.2	45.1	38.7	-66.1***	-16.7
Key treatments	67.1	48.9	60.1	-11.8	18.6
Key education	26.0	21.7	14.2	-83.5***	-53.0

Note: *** p<0.01, ** p<0.05, * p<0.1. The diagnosis of "simple malaria" means that the anemia was not identified. Differences are expressed in percentage points.

Table 36. Management of maternal and neonatal complications, by facility type

	All	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
All facilities	23.45	24.79	21.98	11.33	26.49	21.84	17.56
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)
USP1	25.63	25.31	26.96	-6.55	25.70	23.98	6.69
	(0.01)	(0.01)	(0.03)	(0.03)	(0.01)	(0.02)	(0.02)
USP2	22.43	24.91	21.20	14.91	27.70	20.00	27.82
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.04)
First-level hospitals	22.25						
	(0.01)						

Notes: There is one private (nonprofit) hospital in the sample. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.

Table 37. Management of maternal and neonatal complications treatment details (percent)

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
Post-partum hemorrhage							
Key questions	12.2	12.7	11.7	7.7	12.3	13.3	-8.3
Key physical exams	34.2	34.0	34.5	-1.6	35.0	32.6	6.9
Key tests	20.5	9.5	33.3	-251.9***	3.8	17.3	-356.9***
Diagnostic accuracy	57.9	64.2	50.7	21.0	67.5	59.5	11.8
Key treatments	24.7	26.8	22.3	16.7	29.4	23.3	20.5**
Neonatal asphyxia							
Key physical exams	29.7	33.7	25.0	26.0**	34.2	33.2	2.9
Diagnostic accuracy	10.9	13.4	8.1	39.1	8.5	20.0	-134.0**
Key treatments	17.2	18.3	15.9	12.9	19.3	16.9	12.3

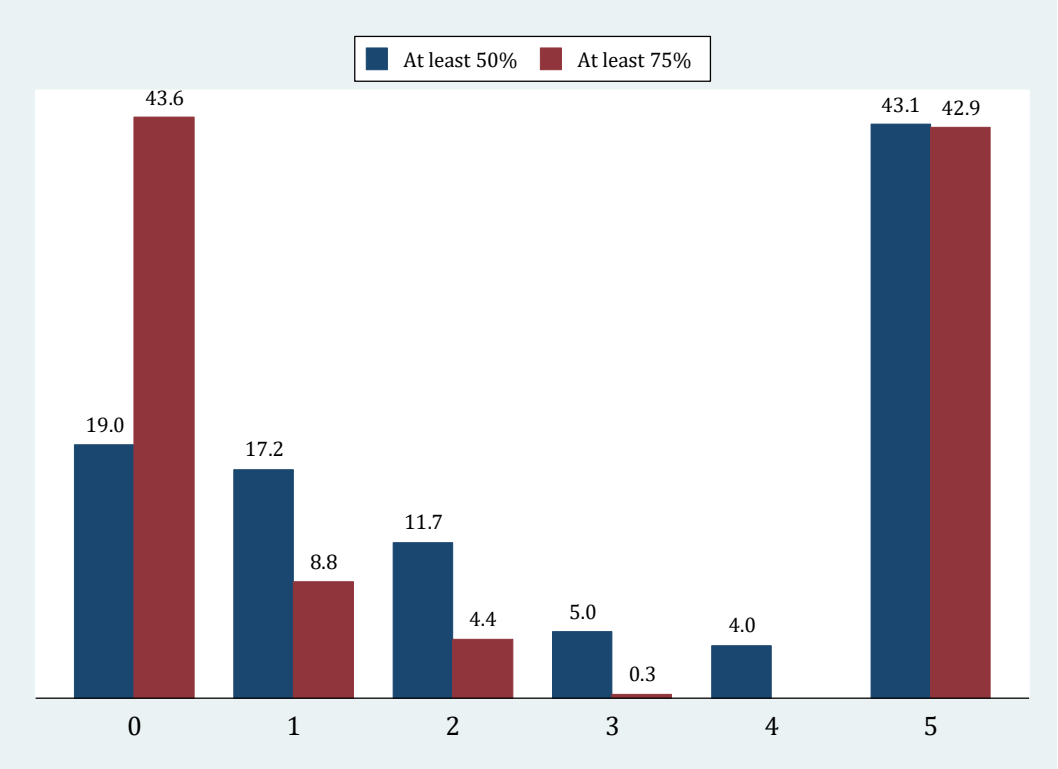
Notes: *** p<0.01, ** p<0.05, * p<0.1. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.

Table 38. Management of maternal and neonatal complications by facility type (percent)

	Estimates			Differences (rel. to district hospital)	
	Dispensary (USP1)	Health center	District hospital	Dispensary (USP1)	Health center
Post-partum hemorrhage					
Key questions	11.1	12.9	11.9	6.6	-8.2
Key physical exams	38.6	31.6	36.4	-6.2	13.0
Key tests	7.7	26.4	27.8	72.3***	4.9
Diagnostic accuracy	61.2	55.8	61.3	0.2	9.0
Key treatments	28.1	23.4	20.9	-34.0***	-11.8
Neonatal asphyxia					
Key physical exams	31.4	28.8	29.9	-5.0	3.9
Diagnostic accuracy	12.9	8.6	23.0	43.9**	62.7***
Key treatments	19.4	15.8	19.5	0.5	19.1*

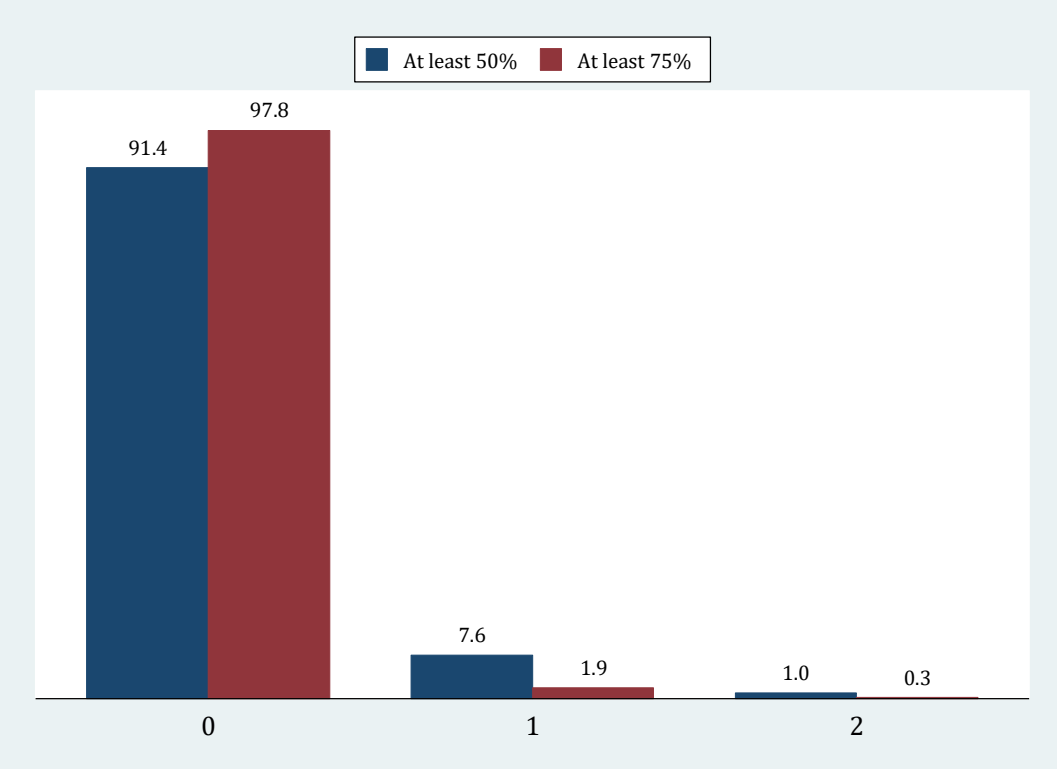
Notes:
a. There are 13 doctors in the competence sample
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.

Figure 10. Adherence to guidelines in the tracer vignettes



Notes: The horizontal axis presents the number of cases on which a certain adherence to guidelines was achieved. For example, two in five providers (43.6 percent) failed to adhere to at least 75 percent of the guidelines in all cases.

Figure 11. Adherence to guidelines in the maternal and neonatal vignettes



Note: The horizontal axis presents the number of cases on which a certain adherence to guidelines was achieved. For example, approximately two providers in 100 (2.2 percent) adhered to 75 percent of the guidelines in both cases.

Table 39. Adherence to clinical guidelines by broad cadre type

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
All cadres	36.0	34.8	37.4	-7.4	34.7	34.8	-0.3
	(0.02)	(0.01)	(0.05)	(0.05)	(0.01)	(0.02)	(0.02)
Doctors	40.1						
	(0.07)						
Medical assistants	47.7	40.3	50.9	-26.4	38.0	40.3	-6.0
	(0.03)	(0.02)	(0.03)	(0.04)	0.00	(0.02)	(0.02)
Nurse/BA/Midwife	32.7	33.3	31.7	4.8	34.7	30.9	10.9
	(0.02)	(0.01)	(0.04)	(0.04)	(0.01)	(0.02)	(0.02)

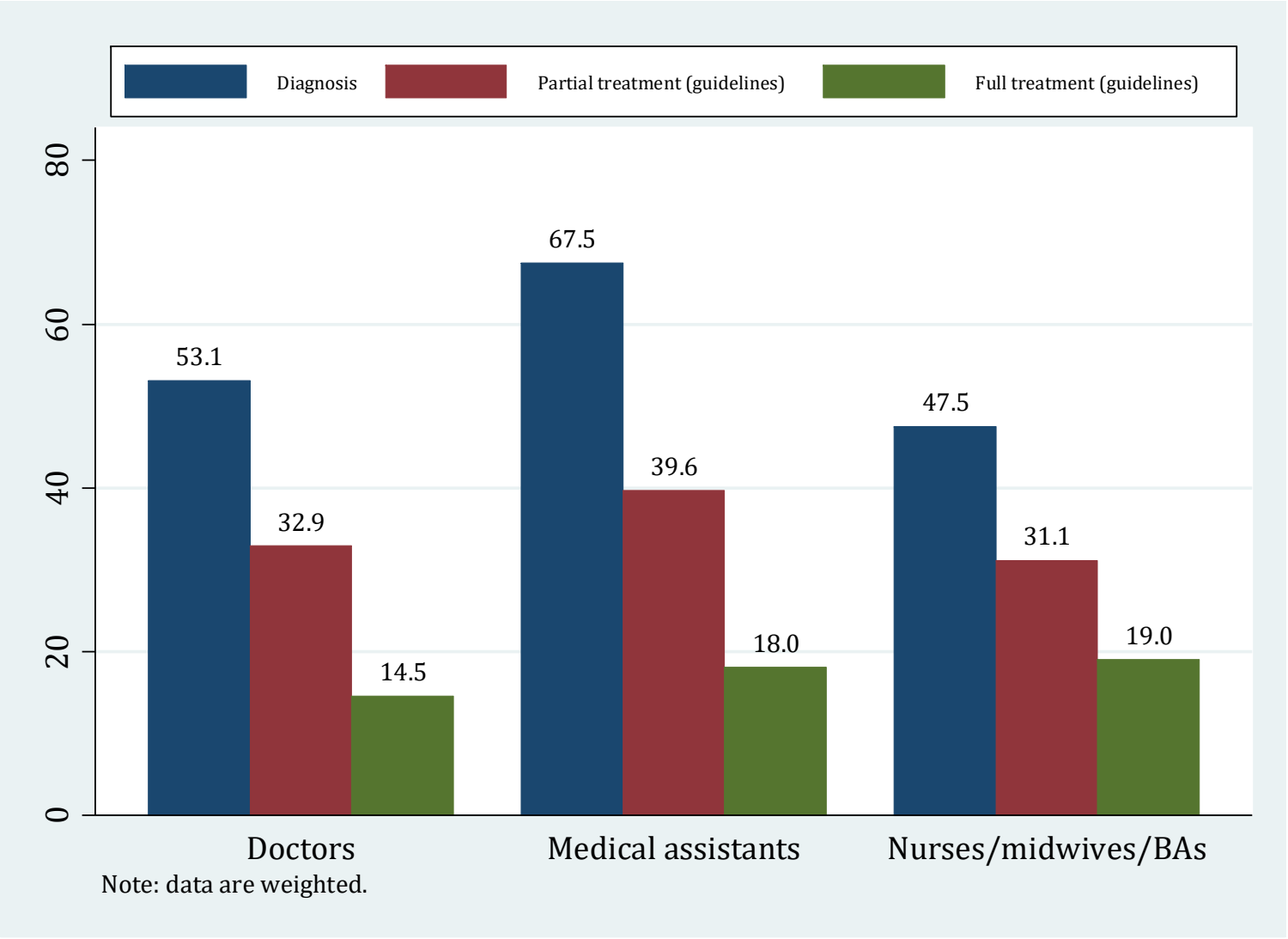
Notes:
a. There are 13 doctors in the competence sample.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Standard errors are not rescaled from the underlying proportions.

Table 40. Management of maternal and neonatal complications by broad cadre type

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
All cadres	23.5	24.8	22.0	11.3	26.5	21.8	17.6
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)
Doctors	38.2						
	(0.03)						
Medical assistants	23.9	20.8	24.9	-19.4	33.8	20.7	38.7
	(0.01)	(0.01)	(0.01)	(0.02)	0.00	(0.01)	(0.01)
Nurse/BA/Midwife	22.9	24.8	20.3	17.9	26.5	20.9	21.0
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)

Notes:
a. There are 13 doctors in the competence sample.
b. Differences are expressed as a percent of the public, rural, or rural public values.
c. Standard errors are not rescaled from the underlying proportions.

Figure 12. Treatment actions prescribed by cadre



Note: data are weighted.

Table 41. Drugs in the Service Availability and Readiness Assessment assessed in this report

Drug (form)	Overall	Mothers	Children
Amoxicilline (drinkable; 125 mg/5 ml)	1	0	1
Ampicillin powder (for injection; 500 mg and 1g)	1	1	1
Artemisinin-based combination therapy (artemether-lumefantrine or artesunate-amodiaquine; cap.)	1	0	1
Artesunate [60 mg (anhydrous artesunic acid) ; + separate sodium bicarbonate ampule 5 percent)/artemether (oily injectable solution: 20 mg/ml and 40 mg/ml and 80 mg/ml ; 1 ml)	1	0	1
Azithromycin (500 mg capsule or drinkable form: 200 mg/5ml)	1	1	0
Betamethasone (injectable ; 4 mg or 8 mg) or Dexamethasone (injectable ; 4mg)	1	1	0
Calcium gluconate (injectable ; 100 mg/ml, 10 ml)	1	1	0
Cefixime (200 mg capsule)	1	0	1
Cefixime (400 mg capsule)	1	1	0
Ceftriaxone (powder for injection ; 250 and 500 mg, 1 g)	1	0	1
Folic acid supplements (capsule ; 5 mg)	1	1	0
Gentamicin (injectable; 10 and 40 mg/ml, 2ml)	1	1	1
Iron salts (drinkable; 25 mg/ml)	1	1	0
Iron supplements (iron salts in capsule form; 60 mg)	1	1	0
Iron/folic acid supplements (FAF) (capsule ; 60 mg + 400 µg)	1	1	0
Magnesium sulfate (injectable; 500 mg/ml, 2 ml and 10 ml)	1	1	0
Medroxyprogesterone acetate (Depo-Provera) (injectable; 150 mg, 3 ml)	1	1	0
Metronidazole (injectable ; 500 mg, volumes of 100 ml)	1	1	0
Misoprostol (mifepristone in 200 µg capsules)	1	1	0
Nifedipine (gel/capsule ; 10 mg rapid release)	1	1	0
Oral rehydration salts (ORS sachets to dilute)	1	0	1
Oxytocin (Syntocinon) (injectable)	1	1	0
Paracetamol (cp: 500mg)	1	0	1
Procaïne benzylpenicillin (powder for injection)	1	1	1
Sodium chloride (Saline solution/NaCl) (injectable solution : 0,9% isotonic; 250 and 500 ml)	1	1	0
Vitamine A (cap.: 50 000 et 200 000 UI)	1	0	1
Zinc sulfate (cap. or gel. : 10 mg or 20 mg)	1	0	1
Total	**27**	**16**	**11**

Table 42. Drug availability (Adjusted for level of facility)

	All	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
	43.0	42.9	43.2	-0.7	41.4	48.9	-18.1
All essential drugs	(0.03)	(0.02)	(0.06)	(0.07)	(0.02)	(0.03)	(0.04)
	36.2	36.1	36.3	-0.7	34.1	43.8	-28.2
Essential drugs for mothers	(0.03)	(0.02)	(0.06)	(0.06)	(0.03)	(0.02)	(0.03)
	55.8	58.3	51.8	11.1	58.9	55.9	5.2
Essential drugs for children	(0.04)	(0.02)	(0.08)	(0.08)	(0.03)	(0.04)	(0.05)
	43.6	44.3	42.7	3.6	43.5	47.2	-8.3
Tracer drugs (adjusted)	(0.03)	(0.02)	(0.07)	(0.07)	(0.02)	(0.03)	(0.04)

Notes:
[a.] Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
[b.] Standard errors are not rescaled from the underlying proportions.

Table 43. Drug availability by level of facility (adjusted for level of facility)

	All	Public	Private (non-profit)	Difference (%)	Rural Public	Urban Public	Difference (%)
National	43.0	42.9	43.2	-0.7	41.4	48.9	-18.1
	(0.03)	(0.02)	(0.06)	(0.07)	(0.02)	(0.03)	(0.04)
USP1	49.0	46.8	63.5	-35.6	45.4	56.5	-24.4
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.04)
USP2	38.8	36.8	40.2	-9.1	35.3	41.6	-17.8
	(0.04)	(0.03)	(0.07)	(0.08)	(0.04)	(0.02)	(0.05)
	59.3						
First-level hospitals	(0.01)						

Notes:
[a] Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
[b] Standard errors are not rescaled from the underlying proportions.

Table 44. Vaccine availability by level of facility (proportion)

	All	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
All facilities	0.39	0.61	0.00	100.00	0.00	3.20	.
	(0.00)	(0.01)	0.00	(0.01)	0.00	(0.03)	-0.03
Dispensaries/Health posts	0.00	0.00	0.00	.	0.00	0.00	.
	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health center (USP2)s	0.65	1.30	0.00	100.00	0.00	12.03	.
	(0.01)	(0.01)	0.00	(0.01)	0.00	(0.11)	(0.11)
First level hospitals	0.00						
	0.00						

Notes:
[a] Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
[b] Standard errors are not rescaled from the underlying proportions.

Table 45. Vaccine availability by level of facility (excluding polio-10; percent)

	All	Public	Private (non-profit)	Difference (%)	Rural public	Urban public	Difference (%)
All facilities	31.8	28.7	37.3	-30.0	25.6	41.9	-64.0
	(0.08)	(0.06)	(0.17)	(0.18)	(0.07)	(0.08)	(0.11)
Dispensaries/Health posts	36.1	41.7	5.3	87.3	40.3	47.2	-17.1
	(0.06)	(0.06)	(0.05)	(0.08)	(0.07)	(0.11)	(0.13)
Health center (USP2)s	29.2	15.2	43.2	-184.8	12.0	41.4	-245.8
	(0.12)	(0.08)	(0.19)	(0.21)	(0.09)	(0.22)	(0.23)
First level hospitals	31.6						
	(0.06)						

Notes:
[a] Differences are expressed as a percent of the public, rural, or rural public values.
[b] Standard errors are not rescaled from the underlying proportions.

Table 46. Equipment availability (adjusted for level of facility; percent)

	All	Public	Private	Difference (%)	Rural Public	Urban Public	Difference (%)
All facilities	63.7	64.7	62.2	3.8	65.7	60.4	8.1
	(0.07)	(0.08)	(0.13)	(0.14)	(0.09)	(0.19)	(0.21)
USP1	94.8	94.0	100.0	-6.3	93.5	97.8	-4.6
	(0.03)	(0.04)	0.00	(0.04)	(0.04)	(0.02)	(0.05)
USP2	43.1	24.9	56.8	-127.9	23.7	28.8	-21.8
	(0.10)	(0.10)	(0.14)	(0.17)	(0.13)	(0.20)	(0.24)
First level hospitals	84.2						
	(0.04)						

Notes:
[a] Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
[b] Standard errors are not rescaled from the underlying proportions.

Table 47. Equipment availability (unadjusted for level of facility; percent)

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
All facilities	44.5	36.8	56.6	-53.8	31.6	57.6	-82.5
	(0.06)	(0.06)	(0.12)	(0.14)	(0.07)	(0.18)	(0.19)
USP1	45.2	43.6	56.0	-28.4	36.8	89.8	-144.0
	(0.05)	(0.05)	(0.17)	(0.18)	(0.06)	(0.05)	(0.08)
USP2	43.1	24.9	56.8	-127.9	23.7	28.8	-21.8
	(0.10)	(0.10)	(0.14)	(0.17)	(0.13)	(0.20)	(0.24)
First level hospitals	84.2						
	(0.04)						

Notes:
[a] Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
[b] Standard errors are not rescaled from the underlying proportions.

Table 48. Availability of individual items of equipment

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
Any scale	99.7	99.5	100.0	-0.5	99.4	100.0	-0.6
	(0.00)	(0.00)	0.00	(0.00)	(0.01)	(0.00)	(0.01)
Adult scale	96.9	95.0	100.0	-5.3	94.2	97.9	-3.9
	(0.01)	(0.02)	0.00	(0.02)	(0.02)	(0.02)	(0.03)
Child scale	75.9	88.6	56.0	36.8	94.6	64.7	31.7
	(0.06)	(0.06)	(0.13)	(0.14)	(0.02)	(0.20)	(0.20)
Infant scale	61.0	64.9	54.9	15.4	69.7	45.8	34.3
	(0.07)	(0.07)	(0.13)	(0.15)	(0.06)	(0.14)	(0.16)
Thermometer	89.6	92.2	85.6	7.1	100.0	61.1	38.9
	(0.06)	(0.05)	(0.11)	(0.13)	0.00	(0.19)	(0.19)
Stethoscope	94.5	100.0	85.8	14.2	100.0	100.0	0.0
	(0.05)	0.00	(0.11)	(0.11)	0.00	0.00	0.00
Sphygmomanometer	92.9	97.4	85.8	11.8	96.7	100.0	-3.4
	(0.05)	(0.02)	(0.11)	(0.11)	(0.03)	0.00	(0.03)
Any sterilizing equipment (all facilities)	49.4	44.6	56.8	-27.4	31.6	96.5	-205.6
	(0.06)	(0.07)	(0.12)	(0.14)	(0.07)	(0.02)	(0.07)
Autoclave	4.1	3.0	5.9	-98.1	1.3	9.4	-600.5
	(0.01)	(0.01)	(0.03)	(0.03)	(0.01)	(0.03)	(0.03)
Boiler	0.3	0.5	0.0	100.0	0.0	2.6	#DIV/0!
	(0.00)	(0.00)	0.00	(0.00)	0.00	(0.01)	(0.01)
Dry heat sterilizer (Poupinel)	34.6	23.1	52.7	-128.4	6.9	87.5	-1,169.3
	(0.06)	(0.06)	(0.12)	(0.13)	(0.04)	(0.05)	(0.06)
Pot for boiling	14.9	21.5	4.6	78.7	24.3	10.3	57.8
	(0.03)	(0.04)	(0.02)	(0.05)	(0.05)	(0.04)	(0.07)
Incinerator	18.2	22.9	11.0	52.0	18.9	38.8	-105.7
	(0.03)	(0.04)	(0.06)	(0.07)	(0.05)	(0.12)	(0.13)
Refrigerator (all facilities)	61.0	64.0	56.3	12.1	64.4	62.6	2.8
	(0.07)	(0.07)	(0.13)	(0.15)	(0.07)	(0.19)	(0.20)
Oxygen mask	13.7	16.7	8.9	46.8	16.2	19.1	-18.0
	(0.05)	(0.07)	(0.05)	(0.09)	(0.09)	(0.07)	(0.11)
Airway clearer	59.8	59.4	60.5	-1.9	65.4	35.3	46.1
	(0.07)	(0.07)	(0.13)	(0.15)	(0.07)	(0.12)	(0.13)
Refrigerator (USP2/HD1 only)	64.3	73.5	56.9	22.7	86.3	42.3	50.9
	(0.10)	(0.13)	(0.14)	(0.19)	(0.08)	(0.21)	(0.23)
Any sterilizing equipment (USP2/HD1 only)	51.9	45.5	57.0	-25.0	23.7	98.9	-318.2
	(0.09)	(0.14)	(0.14)	(0.19)	(0.13)	(0.01)	(0.13)

Notes: Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals..
Standard errors are not rescaled from the underlying proportions.

Table 49. Purpose of last trip that vehicle or ambulance made by facility level (percent)

	All	Public	Private	Rural public	Urban public
Transporting patients	84.6	70.3	14.3	30.8	68.2
Collecting medicines and supplies	15.4	0.7	14.7	0.0	1.0
Total	100.0	71.0	29.0	30.8	69.2

Table 50. Availability of specific elements used in the infrastructure indicator (percent)

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
Clean water	87.0	78.7	100.0	-27.1	75.0	93.3	-24.4
	(0.05)	(0.07)	0.00	(0.07)	(0.09)	(0.03)	(0.09)
Toilet for outpatients	80.7	72.4	93.5	-29.1	67.2	93.3	-38.8
	(0.04)	(0.05)	(0.05)	(0.08)	(0.07)	(0.04)	(0.08)
Electricity	68.4	48.7	99.3	-104.0	38.0	91.1	-139.8
	(0.05)	(0.08)	(0.00)	(0.08)	(0.09)	(0.04)	(0.10)
Electricity with no regular outages	67.3	47.2	98.7	-109.2	37.8	84.6	-123.7
	(0.06)	(0.08)	(0.01)	(0.08)	(0.09)	(0.06)	(0.11)

Notes:
a. Regular outages are defined as 15 or more outages lasting at least two hours each over the three months prior to the survey.
b. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
c. Standard errors are not rescaled from the underlying proportions.

Table 51. Infrastructure availability (percent)

	All	Public	Private	Difference (%)	Rural public	Urban public	Difference (%)
	60.8	40.2	92.8	-131.0	29.6	82.5	-179.0
All facilities	(0.06)	(0.08)	(0.05)	(0.09)	(0.09)	(0.06)	(0.11)
	31.4	21.9	95.6	-336.6	17.2	54.0	-214.2
Dispensaries	(0.05)	(0.04)	(0.03)	(0.05)	(0.04)	(0.11)	(0.12)
	79.0	61.2	92.4	-51.0	48.3	100.0	-107.0
Health center (USP2)s	(0.09)	(0.16)	(0.06)	(0.17)	(0.20)	0.00	(0.20)
	89.5						
First level hospitals	(0.04)						

Notes:
a. Comparisons within facility type are relative to public and rural public; comparisons across facility types are relative to hospitals.
b. Standard errors are not rescaled from the underlying proportions.

REFERENCES

Banerjee, A., and Duflo, E. (2005). "Addressing Absence," *Journal of Economic Perspectives* 20 (1): 117–32.

Coulombe, H. (2012). "Cartographie de la pauvreté au Togo en 2011," United Nations Development Program (UNDP).

Coulombe, H. and Malé, C. (2012). "Togo: Profil de pauvreté 2006-2011," UNDP and *Direction générale de la statistique et de la comptabilité nationale* (DGSCN).

Direction générale de la statistique et de la comptabilité nationale, Bureau central du recensement (2011). "*Recensement général de la population et de l'habitat: résultats définitifs*."

Das, J., and Hammer, J. (2005). "Which Doctor? Combining Vignettes and Item-Response to Measure Doctor Quality," *Journal of Development Economics*, 78:348–383.

Das, J.; Hammer, J.; and Masatu, L. (2008). "The Quality of Medical Advice in Low-Income Countries." *Journal of Economic Perspectives*, 22(2):93–114.

Gauthier, B. and Wane, W. (2009). "Leakage of Public Resources in the Health Sector: An Empirical Investigation of Chad," *Journal of African Economies* (18): 52–83.

Lange, S.; Mwisongo, A.; and Mæstad, O. (2014), "Why don't clinicians adhere more consistently to guidelines for the Integrated Management of Childhood Illness (IMCI)?" *Social Science & Medicine* 104 (2014) 56-63.

Ministry of Health, Togo (2013). "*Normes du district sanitaire au Togo*," unpublished.

Ministry of Health, Togo (2011), « *Analyse de la situation du secteur de la santé au Togo* », Version finale, co-publication avec l'International Health Partnership +.

Ministry of Health, Togo (2012). "*Guide technique du programme national tuberculose*," Third Edition.

Ministry of Health, Togo (undated). "*Liste nationale des médicaments essentiels sous dénomination commune internationale pour les adultes*."

Ministry of Health, Togo (undated). "*Directives de la prise en charge intégrée des maladies de l'enfant (PCIME)*."

Ministry of Health, Togo (2011). Health Sector Performance Profile.

Ministry of Health, Togo (2013). "*Evaluation des besoins en soins obstétricaux et néonatals d'urgence (SONU) et cartographie de l'offre des services de SONU au Togo*," draft report.

World Health Organization (2011). Priority medicines for mothers and children. Accessed at: http://www.who.int/medicinces/publications/A4prioritymedicines.pdf.

World Bank (2011), *"Santé, Nutrition et Population: Rapport Analytique Santé Pauvreté,"* report No. AAA69 – TG.