

ORIGINAL ARTICLE

The status of health services in the 15 counties of Liberia

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Abstract

Aim: Liberia, situated at the West African coast, is composed of 15 counties with an economic gradient steeply decreasing from the Northwest to the Southeast. Health-related activities by government action in the 15 counties concentrate on the areas of family planning, antenatal and delivery care, as well as immunization, health workforce and infrastructure. The differences in this regard between the 15 Liberian counties will be reviewed.

Methods: A narrative review is employed, making use of the recent international and national documents, relevant literature and available information from the following primary and secondary sources and databases.

Results: The results point to gross differences between the 15 counties of Liberia in terms of health service provision. The overall readiness based on defined indicators for all 701 facilities was 59% with a range between facilities at the level of counties of 50% to 65%; for family planning services 88% (range 65% – 100%); for antenatal care 62% (range 55% – 100%); for immunization coverage 76% (range 66% – 86%). The health workforce of Liberia comprises 11.8 health workers per 10,000 population, WHO target is 23, the counties range from 8.0 to 15.7. Similarly, according to WHO standards, there should be 2 health facilities per 10,000 inhabitants, Liberia comes up to 1.9 however the counties range from 1.1 – 3.0 per 10,000.

Conclusions: It is obvious that across almost all areas of women and child health and health services in general there exist large differences between counties, which points to considerable health inequities in this country. The government of Liberia should consider reallocating the available resources per number of population instead of accepting historical developments, however with a correction factor in favour of disadvantaged regions and population groups.

Keywords: *Africa, health services, Liberia, narrative review.*

Conflict of interest: None.

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Introduction

Liberia is one of the smaller West African countries, situated at the Atlantic coast with a rainy season of approximately 6 months from mid-March to mid-October. Together with the neighbouring countries Sierra Leone and Guinea Liberia experienced in 2014/15 the devastating effects of the Ebola epidemic. The 4.5 million inhabitants – descendants of liberated American slaves with a majority indigenous tribal populations – are concentrated with more than 1 million in the capital Monrovia in the central county of Montserrado. There are 15 more or less populated counties with an economic gradient decreasing from the Northwest to the Southeast.

With this paper we refer to the 2005 Paris Declaration on Aid Effectiveness and the 2011 Busan Partnership Agreement (1) as well as the International Health Partnership for Universal Health Coverage (UHC) 2030 (2). Coverage of essential health services according to UHC relates to 4 categories: 1) reproductive, maternal, newborn and child health, 2) infectious diseases, 3) non-communicable diseases, and 4) service capacity and access to services. The Index of UHC presents an average coverage for 16 tracer indicators across the four categories, adjusted for coverage of the most disadvantaged population (3).

During the first meeting of the UHC-2030 working group in March 2017 (4), the main focus was on low and middle-income countries facing “a number of critical pressures on their health systems”. Some of these are particularly salient for countries that are currently or will soon be “transitioning to much lower levels of external financial support”. In preparation of the aforementioned situation, the Ministry of Health of Liberia has established a Health Sector Coordinating Committee serving as a regulator to the already established Pool Fund with five donors since 2008. Nevertheless, a significant amount of donor support which constitutes about 75% (5) remains off-budget with various parallel implementation arrangements.

In our review, we focus on the intra-country differences of health services between the 15 Liberian counties.

Methods

The authors employed a narrative review, making use of the recent international and national documents, relevant literature and available information from the following primary and secondary sources and databases:

a) Published Liberian documents including policies, strategies, plans, programs and reviews of the Ministry of Health and Government of Liberia; The most recent situation analysis is presented in the “Liberia Service Availability and Readiness Assessment and Quality of Care report (SARA and QOC) (6), while the most recent documents covering MNH policy implementation are the “Joint Annual Health Sector Review Report 2016”(7) and the “Consolidated Operational Plan (FY 2016/17)”(8).

b) Publications in the area of routine health statistics including population census and household surveys developed by the Liberia Institute of Statistics and Geo-Information Services with partners (2008 Population and Housing Census, Liberia Demographic and Health Survey 2000, 2007, 2013), national e-databases with administrative data of Liberia Health Information Management System (DHIS2) and international e-databases (WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division, UN Inter-agency Group for Child Mortality Estimation) for purpose of comparison;

c) Published reviews, scientific and professional articles on Liberian maternal and new-born health in international journals, national surveys and project reports of international organizations (WHO, EU, World Bank, UNICEF, UNFPA) that deal with issues of women's and new-born health in Liberia.

Results

Demonstration how resilience can be built after health crises like the Ebola epidemic has been recently presented in several scientific papers (9-11). However, the purpose of the Liberian actions in the field of health is to monitor progress throughout the implementation period of defined activities and achievements, following expressions in the Investment Plan (12). The purpose is described as building a resilient health system through: (a) improved access to safe and quality health services, (b) health emergency risk management, and (c) enabling environment and restoring trust.

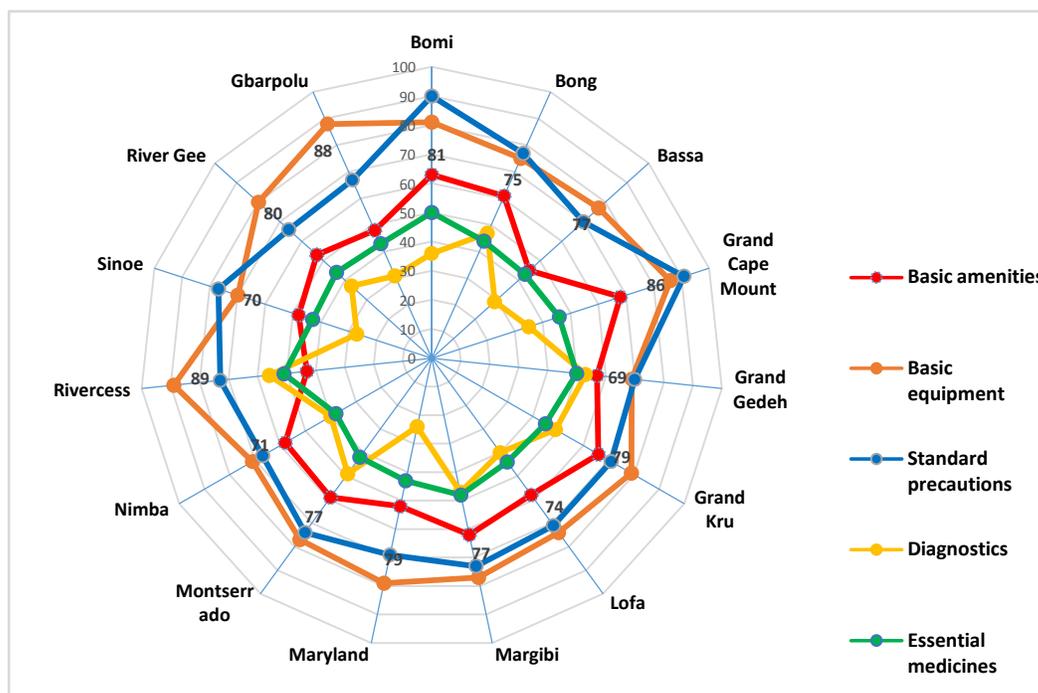
General services availability and readiness in 2016, based on the WHO SARA report (6) encompasses assessment of basic amenities, basic equipment, and standard precautions for infectious disease prevention, diagnostics, and essential medicines by involving particular tracer items. The overall readiness to provide general health services in 701 facilities was 59%, while the best situation at the national level was found for basic equipment (77%), followed by standard precautions for prevention of infections (73%), basic amenities (57%), essential medicines (44%), and availability of diagnostics (42%).

However, Liberia's 15 counties differ significantly in their capacity to deliver basic health services (Figure 1). The worst situation regarding general service readiness is found in Bassa, Maryland and Sinoe (each county with only half of facilities ready to perform a comprehensive basic health services). The best situation is found in Grand Cape (65% readiness for general services), followed by Bomi (64%), Rivercess and Grand Kru (each 62%). Diagnostics, which has included availability of 8 tracer items, (among them malaria and HIV diagnostic capacity, urine test for pregnancy), was the worst in Maryland (only 24% of facilities were ready), followed by Sinoe (27%) and Bassa (readiness was 29%). Nevertheless, it is worthwhile to mention that tracer items for malaria diagnostics were mostly present – in average in 88% of facilities with the least readiness interestingly in Montserrado (51%).

The UHC approach (13) embraces the following 4 core groups of indicators:

1. Reproductive and newborn health (indicators adopted in Liberia for family planning, four or more visits for antenatal care, skilled birth attendance and coverage of pregnant women with IPT). With regard to family planning, now in Liberia defined as 'Number of Total Couple Year Protection (all methods), the indicator should be redefined according to the UHC approach as: 'Proportion of married or in union women of reproductive age who have their need for family planning satisfied with modern methods'.

Figure 1. General service availability and readiness (as percentage) in Liberian counties (in total 701 health facilities were assessed)



Source of data: Ministry of Health, Republic of Liberia. Liberia Service Availability and Readiness Assessment (SARA) and Quality of Care Report, 2016: pages 137-138.

2. Child immunization (in Liberia: ‘fully immunized infants’). The corresponding UHC indicator is defined as: ‘DTP3 immunization coverage among 1-year olds’.

3. Infectious disease (in Liberia: ‘antiretroviral therapy (ART) for HIV positive pregnant women’ and ‘tuberculosis (TB) detection rate’. Instead more appropriate: ‘utilization of TB treatment’.

4. Major social determinants of the population’s health status as e.g. improved water sources and improved sanitary facilities.

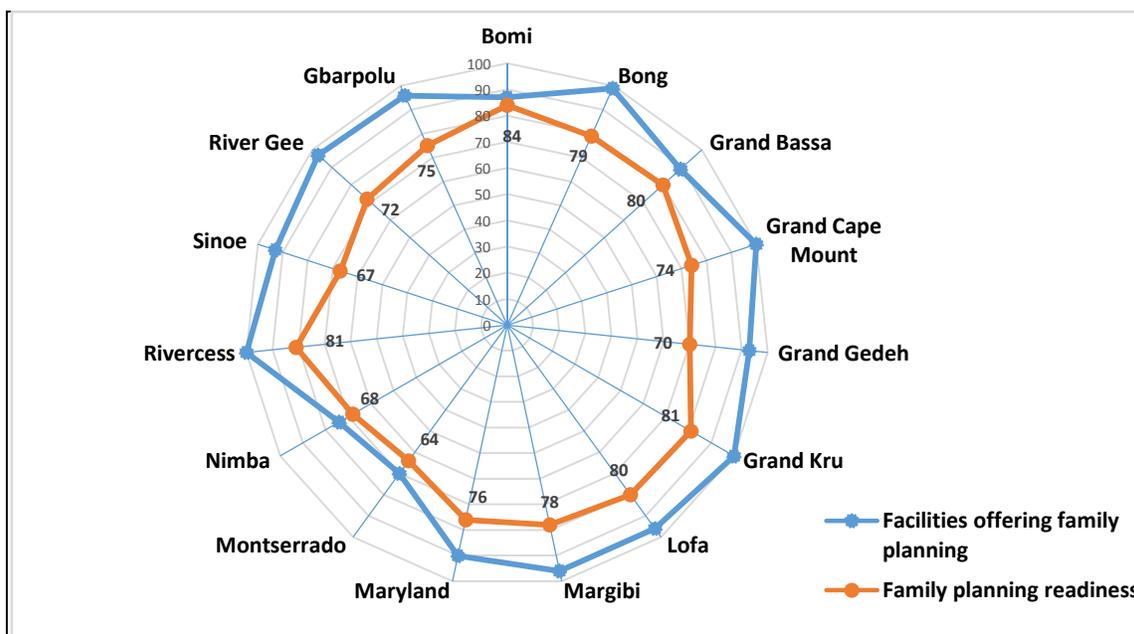
Looking at these indicators planned to measure implementation throughout national health policies, it is not possible to track all tracer indicators and to calculate the Index of UHC. Nevertheless, international, as well as national databases contain values for the main indicators of relevance.

The following sections describe availability and readiness for selected health services with a focus on the UHC priority of Mother and New-born Health (MNH):

1) Family planning

Despite 88% of health facilities are offering family planning services, still there are significant disparities in the availability between counties (Figure 2). Astonishingly, this service is more available in rural than in urban areas (97% versus 70%) and significantly more in government/public facilities (97%) in comparison to private (62%) and mission/faith based facilities (60%). Family planning readiness, in general 73%, is less present measured by availability of particular tracers: guidelines, check-lists, trained staff, and different modern methods of contraception. A particularly small number of facilities, only 14%, indicated to have at least one trained staff in the past two years for application of family planning counseling.

Figure 2. Family planning – availability and readiness of services in counties as percentage (701 health facilities)



Source: Ministry of Health, Republic of Liberia. Liberia Service Availability and Readiness Assessment (SARA) and Quality of Care Report, 2016: pages 143-144.

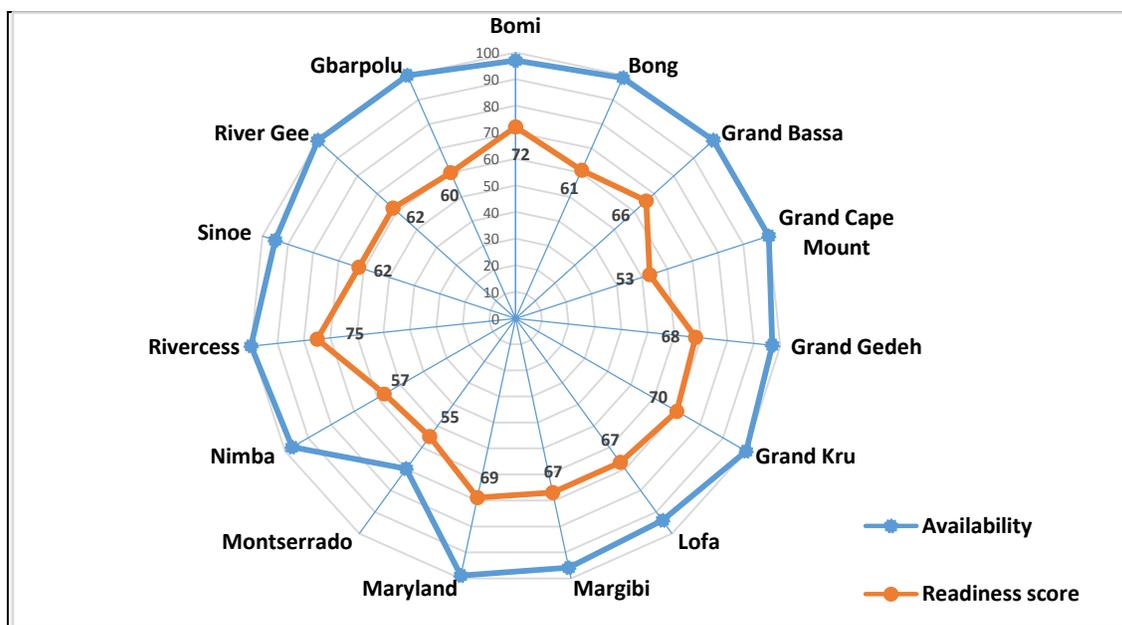
2) Antenatal care:

The next important UHC tracer indicator is antenatal and delivery care (14). Routine antenatal care (ANC) is clearly important for the health of the mother and her baby, but it also provides an important access point to the health-care system for pregnant women, and may include vaccination against tetanus, screening and treatment for high blood pressure, diabetes, anaemia, HIV, malaria and sexually transmitted diseases, dissemination of information on topics such as postpartum contraception and breastfeeding, and ultimately linkage to care during delivery.

Based on the SARA assessment in 2016 Liberia, in average, is doing well with 90% of facilities offering antenatal care, while 6 counties (Bassa, Grand Cape, Grand Kru, Rivercess, River Gee, and Gbarpolu) reported that all facilities are performing antenatal services and almost all have

tracer items available: iron and folic acid supplementation, intermittent preventive therapy, tetanus toxoid vaccination, and monitoring for hypertensive disorders of pregnancy (Figure3).

Figure 3. Availability and readiness of antenatal care services in counties as percentage (701 health facilities)



Source: Ministry of Health, Republic of Liberia. Liberia Service Availability and Readiness Assessment (SARA) and Quality of Care Report, 2016: pages 149-150.

Geographical location is also a factor with one third of world’s countries having ANC4 coverage at least 20% higher in urban than rural areas. In Liberia the situation is, according to the recent assessment in 2016, opposite: 75% of urban facilities are offering antenatal care in contrast to 98% of rural facilities. Even more: the most urbanized environment in Liberia – Montserrado County - has the least availability and readiness of antenatal services (70% and 55% respectively).

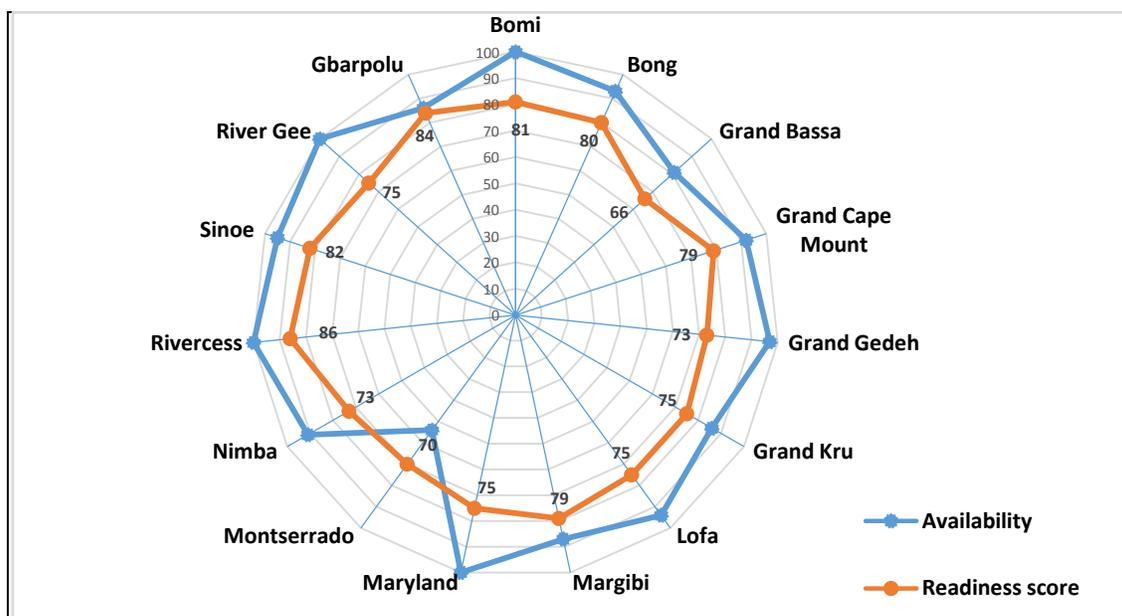
In general, the readiness in other areas - expressed as availability of staff, guidelines, equipment, diagnostics, and medicines and commodities - is considerably less. At the national level 62% of facilities are not fully ready to deliver antenatal care, predominantly due to the lack of diagnostics (only 27% of facilities are ready regarding diagnostics) followed by staff and guidelines (40% answered positively) (6). Tracer items in diagnostics, which are the most problematic and contribute to the low readiness, were: haemoglobin test (available only in 12% of facilities) and urine dipstick protein test (availability of 42%). Similar to the family planning services – low presence of Continuing Professional Development (CPD) of staff is contributing to lower readiness of antenatal health services. Only 15% of facilities had at least one trained staff in the two past years for antenatal care. So far, it seems that the availability of a well trained workforce in this field is still insufficient.

3) Immunization of children

Universal immunization is a core of one of UHC's objectives, and a key focus of global initiatives. Notably, the Global Vaccine Action Plan (GVAP) 2011–2020, which aims to achieve at least 90% national coverage by 2020 and at least 80% vaccination coverage in every district or equivalent administrative unit for all vaccines in national immunization programs is yet to reach the full target as planned. According to the SARA Report (6), Liberia still did not reach this threshold with an average 82% of health facilities offering child immunization and an average readiness score of 76% of facilities out of 701.

While in international statistics immunization coverage is at the level of 52% for Liberia in 2015, the national figure for the same year is above 60%. Such discrepancies can be a consequence of different definition of indicators or quality of the data. Nevertheless, MoH is reporting decrease in immunization for the two years stricken with EVD (15). The Investment Plan has a target of 91% fully immunized infants and the real progress will be monitored during the population survey DHS 2018. Only five counties (Bomi, Bong, Rivercess, Sinoe and Gbarpolu) have readiness scores proposed as threshold in the UHC approach - above 80% - although all counties, except one, have health facilities stated to offer child immunization in average above 80%. Extreme outlier is the highly populated Montserrado County, where only 54% out of 261 health facilities offer immunization services with a readiness score of 70%. Their readiness score encompasses (1) staff and guidelines, (2) equipment, and (3) medicines and commodities. One of the possible reasons could be the generally lower commitment to child immunization services in urban counties (only 61% are offering this service with 71% readiness). The same is the case regarding low immunization services offered by mission/ faith based health facilities, NGO/not-for-profit and particularly private-for-profit health facilities – possibly because they are more clinically oriented. While government/public facilities are offering immunization service in 95% of cases, private-for-profit institutions are doing so only in 47% of 235 registered facilities. Regarding readiness score counties are more equalized (reaching from 66% to 86%) (Figure 4).

Figure 4. Availability and readiness of child immunization services in counties as percentage (701 health facilities)



Source: Ministry of Health, Republic of Liberia. Liberia Service Availability and Readiness Assessment (SARA) and Quality of Care Report, 2016. pages 147-148.

The infrastructure regarding workforce, facilities and equipment is analysed in the following sections 5-7.

5) Health workforce

The Investment Plan 2015-2021 placed the health workforce as the first investment area: “to build a fit-for-purpose productive and motivated health workforce that equitably and optimally delivers quality services” (16).

Despite, the pull of human resources for health was heavily hit by the Ebola crisis, when 372 health workers obtained the disease and even 184 died (as of April 08 2015)(17), following the 2015/2016 health workforce census, the total number of health workers of 16,064(18) have exceeded the number projected in the National Health and Social Welfare Plan 2011-2021(19) and the National Human Resources Policy and Plan for Health and Social Welfare 2011-2021(20), which aimed at 15,626 in 2021 for the population projected to be 4,555,985 in the same year.

However, the actual composition of workforce does not follow the same positive path. If we look exclusively at the physician, physician assistants, registered nurses, certified midwives and nurse-midwives, we would expect to see - following the cited plans – more than 6,294 health workers and not as in reality only 4,756 of them placed on the Governments payroll.

That means, Liberia still has to cover a 24% deficit of the nationally projected number of the core health workforce.

The biggest deficit is with physician assistants, Liberia is still missing 48% of the projected number for 2021, followed by physicians with deficit of 44%. The least deficit is with registered nurses, certified midwives and nurse-midwives – 20%.

If we look at the WHO's threshold of 23 health workers per 10,000 population, then Liberia would need to speed up to reach the total number of 10,479 core health workforce. In other words, still 55% of health workforce is missing in comparison to the WHO threshold.

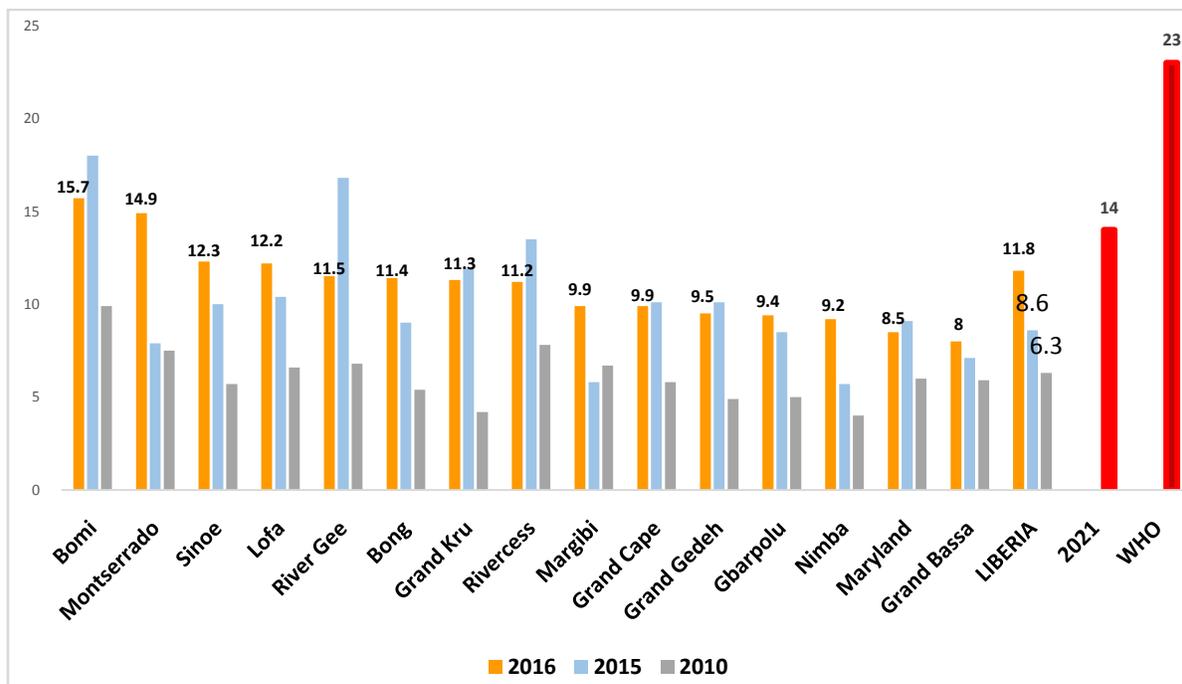
Achieving the SDG threshold of 44.5 per 10,000 would be even more unlikely. The Global strategy on human resources for health "Workforce 2030" underlines the required progress towards UHC by strengthening health workforce (21).

At the same time, inequitable distribution per 15 counties is remarkable and fluctuation of workforce is significant from year to year (Figure 5).

Commitment to strengthen workforce for health in Liberia by increasing investment through country resources is remarkable looking at the staff on payroll.

The percentage of health workers placed on the national budget payroll increased from 58% in 2015 to 68% (7,214 out of 10,672 employed in governmental/ public health facilities) in 2016.

Figure 5. Density of health workforce by counties – health professionals per 10,000 population



Data sources merged:

1. Ministry of Health, Republic of Liberia. Investment Plan for Building a Resilient Health System 2015 to 2021. Monrovia, Liberia: Ministry of Health, 2015. Pages 8-35.
2. Ministry of Health Republic of Liberia. Joint Annual Health Sector Review Report 2016. . Monrovia, Liberia: Ministry of Health, 2016. Page 44. Available from: http://www.seejph.com/public/books/Joint_Annual_Health_Sector_Review_Report_2016.pdf [cited 2017 July 30]

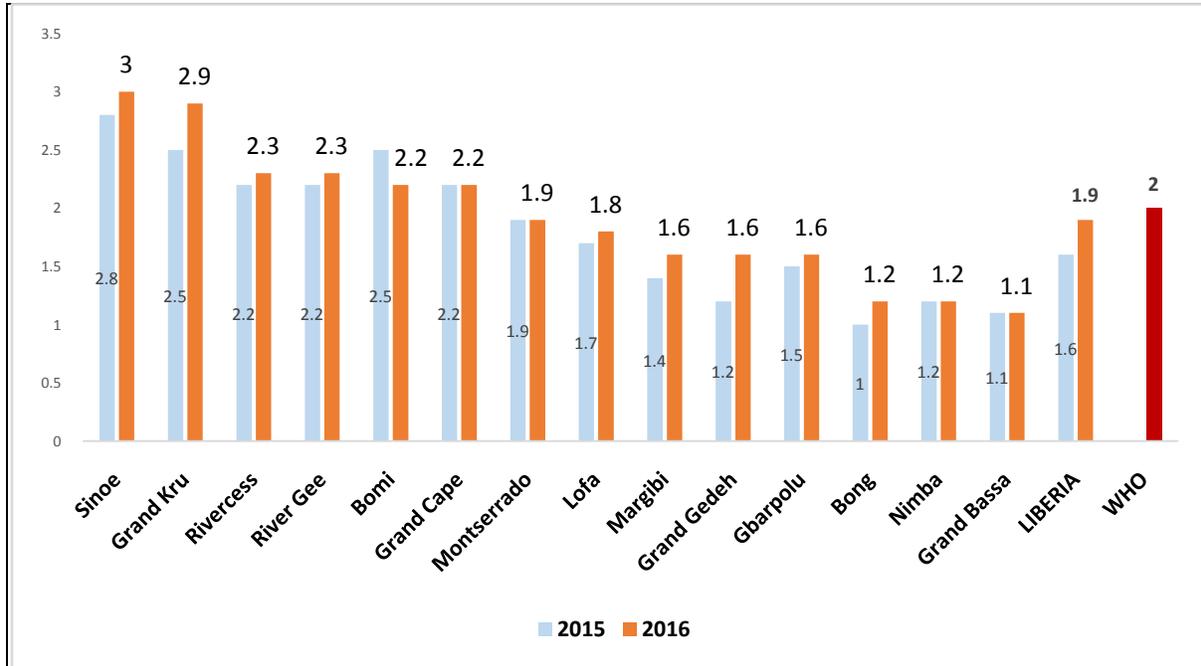
6) Construction of health facilities

While lack of access to health services continues to be of major concern and central tenet of UHC, in many parts of the world, there are several forms of barriers, the most obvious being the lack of quality health services; but there are also obstacles such as a deficit of numbers of health facilities and distance to the nearest one (22). The WHO global threshold for health facilities is 2 per 10,000 population, while there is no set target for the indicator “percentage of population living within 5 kilometres from nearest health facility” (national target for 2021 in Liberia is 85%).

Figure 6 presents the density of public and private health facilities per 10,000 population. Though, mal-distribution of health facilities by counties is still obvious, even six counties exceeded WHO threshold of 2 per 10,000 already in 2015, and the same situation appeared in 2016: Sinoe, Grand Kru, Rivercess, River Gee, Bomi and Grand Cape. In comparison to 2015, critical shortage of health facilities has decreased, however still three counties – Bong, Nimba and Grand Bassa have extremely low health facilities’ density being <1.5 per 10,000 population.

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Figure 6. Health facilities' density per 10,000 population by counties



Sources:

1. Ministry of Health, Republic of Liberia. Investment Plan for Building a Resilient Health System 2015 to 2021. Monrovia, Liberia: Ministry of Health, 2015; page 7. Available from: <http://moh.gov.lr/cabinet-endorses-investment-plan-for-building-a-resilient-health-system/> [cited 2017 Mar 17]
2. Ministry of Health Republic of Liberia. Joint Annual Health Sector Review Report 2016. . Monrovia, Liberia: Ministry of Health, 2016. Page 54. Available from: http://www.seejph.com/public/books/Joint_Annual_Health_Sector_Review_Report_2016.pdf [cited 2017 July 30]

One example is county Nimba. The projected figure of 70 public health facilities is not enough to reach a density of 2 per 10,000 population; in fact it would be necessary to have 121 facilities in this county. As of 2016, Nimba has 68 public and private health facilities and therefore still 53 functional health institutions are missing in order to reach WHO's threshold.

In 2011, MoH reported 550 opened health facilities (378 public and 172 private) (23), while in the 2016 health sector performance report 727 health facilities were listed (out of 701 directly assessed: 437 public; 216 private-for-profit and 48 private-not-for-profit – together 264) (24). Whereas in 2011, Liberian health policy set out a projection of 543 public health facilities to be reached up to 2021- with reference to the WHO's threshold of 2 functional health facilities per 10,000 population - Liberia would need a total of 911 health facilities serving the projected number of population being 4,555,985 in 2021. In conclusion Liberia needs in addition to the 543 public facilities projected by GoL and the 264 private ones, pre-existing in 2011 a number of 211 additional facilities, either public or private.

7) Availability of equipment

At this stage of implementation, the envisioned inventory of equipment and a comprehensive maintenance plan for facilities and equipment are still missing. With significant differences between counties, basic equipment is ready in 77% of 701 health facilities, however only 19% of facilities have all items (adult and child scale, thermometer, stethoscope, blood pressure apparatus, light source). While Margibi and Montserrado have problems with child scales, dramatic problems with light sources are reported in five counties which have less than 20% of facilities with permanent electricity: Maryland, Sinoe, River Gee, Grand Kru and Grand Gedeh (6).

Discussion

In spite of the described deficits Liberia's position with regard to the 15 West-African countries is acceptable for a country after civil war and Ebola epidemic (25). The health related SDG Index for Liberia is 33 i.e. the 9th position where Niger is the 15th with a value of 23 and neighbouring Sierra Leone 13th with 27. Ghana takes the 2nd position with 43 and Capo Verde islands the first with 53 (26).

Although the validity of the data used here may be questioned to some degree it is obvious that across almost all areas of women and child health and health services in general considerable differences between counties can be identified (even with regard to basic immunizations) which points to considerable health inequities in this country. The most impressive ones are demonstrated in figures 5 and 6 regarding the density of staff – ranging in 2016 from 8.0 to 15.7 - and facilities per population ranging the same year from 1.1 to 3.0 per 10.000 population. Whereas the national average of the number of facilities is close to the WHO recommendation of 2.0 facilities per 10.000 population, the number of staff in average is far below i.e. 11.8 vs. 23.0 with an interim goal of 14 per 10.000 in 2021 (7).

Nevertheless, the recent health workforce census has identified once more the low motivation of health workers and their deep frustration regarding financial incentives together with insufficient possibilities for professional development (27). This demonstrates very clearly that investments should go with priority into education and continuing training of qualified staff, paid regularly and reliably, especially registered midwives (28). Furthermore the poor infrastructure in Liberia (lack of roads, electricity, water and sanitation) and the devastating economic situation appear to be the main threats to the health system in general (personal communications).

In addition to the availability of sufficient health facilities, their staffing and quality of services, also accessibility in terms of distances and road quality are of highest relevance. The Investment Plan 2015-2021 set a percentage of population living within 5 km from the nearest health facility (approximately within one hour of walking distance). In 2016 71% of all Liberian citizens have access within 5 kilometers of their place of living. Nevertheless, Liberia is yet to reach the nationally projected target of 85%. In addition, there are significant disparities across counties, with Gbarpolu having only 32% of population with nearby access and Montserrado with 96% respectively (29).

In order to obtain more reliable estimates of the main health indicators across the Liberian health sector, the Government of Liberia is preparing - in collaboration with international partners - the next generation of demographic and health surveys together with the Population Census for the year 2018.

Conclusions

The Ministry of Health has the responsibility to take care of effective extension of coverage of health services to the entire population in Liberia. One key instrument is transparent investment, i.e. timely and accurate reporting of local and international donor agencies including implementing partners and correspondingly to reallocate the available resources per number of population instead of accepting historical developments, however with a correction factor in favour of disadvantaged regions and population groups.

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