

A GIS-based Modeling Approach to Assess Physical Access to Family Planning Services in South Sudan

United Nations Population Fund (UNFPA)

1. Introduction

As the world's youngest country, the Republic of South Sudan has recorded some of the world's worst social indicators, particularly those for women and girls. Since its independence, the country has been plagued with conflicts and ongoing spates of insecurity, both internally and with its northern neighbor, Sudan. This has led to the vast loss of lives, frequent population displacements, and destruction of both physical and social infrastructure.

Within the health domain, South Sudan suffers from severely limited access to essential medicines and healthcare facilities and weak health supply chains. Of the existing healthcare facilities, only 40% are considered functional and most lack basic equipment, supplies, and sufficient numbers of health personnel, especially midwives. This lack of access has led to a national maternal mortality rate estimated at 789 per 100,000 live births. The high maternal mortality rate is principally attributed to limited coverage and availability of quality services, with an extremely low skilled birth attendance rate of 19.4% ([WHO, 2018](#)¹). Further, there is a national backlog of approximately 60,000 cases of obstetric fistula ([Fistula Foundation](#)²).

South Sudan's contraceptive prevalence rate is 1.7% for modern methods and 10% for any method of family planning. National metrics indicate the unmet need for family planning is at 30.6% ([familyplanning2020](#)³). This sizable unmet need severely hinders a woman and girl's right to choice and bodily integrity. The median age of sexual debut is 14 years old, vastly increasing the vulnerability of young girls to teenage pregnancy, sexually transmitted infections, HIV, AIDS, social stigma and isolation. According to the [UNAIDS](#)⁴ report in 2019, the national HIV prevalence rate was 3%, with adolescents and youth representing the most affected group, with 14% of the country's new infections. Female sex workers and their clients are estimated to represent 54% of all new infections ([UNAIDS, 2019](#)).

Moreover, the country has an overwhelmingly high child marriage rate, with 45% of children married before the age of 18 (Health and Household Survey, 2010⁵). Young people and other key populations, particularly sex workers, have poor access to integrated sexual and reproductive health (SRH) services and information, including immense gaps in comprehensive sexuality

¹ [WHO Country Cooperation Strategy: South Sudan](#)

² [Fistula Foundation: Surgeons Bring Relief to South Sudan Obstetric Fistula Sufferers](#)

³ <http://www.familyplanning2020.org/south-sudan>. FP2020 is a global partnership to empower women and girls by investing in rights-based family planning.

⁴ [Global AIDS Update 2019](#)

⁵ [South Sudan - Household Health Survey 2010](#)

education and youth-friendly SRH information services for both in and out-of-school adolescents. The inadequate national legal and policy frameworks, coupled with deeply rooted socio-cultural beliefs and practices, hinder the use of globally available SRH and gender-based violence prevention and response services.

However, the Government of South Sudan has recently committed to increase access to, and use of quality, integrated SRH information and services, through the [National Health Policy \(2017-2026\)](#)⁶, the Health Sector Strategic Plan (2018-2022) and other global commitments such as Family Planning 2020 ([familyplanning2020](#))⁷. UNFPA, through its mandate, is supporting the Government's work to achieve universal access to essential, good quality, SRH services. Within this national context, UNFPA is also committed to promoting the global achievement of its three transformative results of ending unmet need for family planning, eliminating preventable maternal deaths, and ending violence and harmful practices against women and girls, as well as health equity and quality of life. To achieve universal access to SRH services and the three transformative results, it is imperative to understand the current coverage gaps and an individual's access to each element of UNFPA's defined essential SRH services.

In order to systematically improve upon current access, it is critical that the Government and its development partners invest in the production of robust analyses to guide initiatives and policies. Certain analyses, such as subnational geospatial analyses, can be used to visually display coverage gaps based on disaggregated data. With these visually displayed analyses, decision-makers can implement evidence-based initiatives to achieve the greatest impact. The analyses can also inform future development initiatives to address changes in access due to population influxes and/or movements. This future forecasting is especially important in a young country such as South Sudan, where there are often frequent variations in population locations.

Through efforts to support developing South Sudan's evidence base, this brief will 1) analyze the spatial distribution of healthcare facilities that provide family planning (FP) services across the country and 2) assess the population's physical access to the identified healthcare facilities providing FP services with benchmark numbers of modern contraception methods available. This analysis was conducted by integrating available population estimates with health infrastructure data. The produced outputs can contribute to developing and implementing strategic national planning and initiatives for improving access to SRH services in South Sudan.

2. Findings

The young country South Sudan experiences some of the world's worst performance on social indicators. Since its formation, the country has suffered through various internal and external

⁶ [National Health Policy \(2017-2026\)](#)

⁷ <http://www.familyplanning2020.org/south-sudan>. FP2020 is a global partnership to empower women and girls by investing in rights-based family planning.

conflicts and bouts of insecurity, causing vast displacements, loss of lives, and destruction of both physical and social infrastructure. In order to improve upon South Sudanese livelihoods, it is critical that evidence-based development initiatives and policies are implemented by the Government and partner development actors. This evidence base should be developed from in-depth analyses of data collected in national and sub-national surveys. Ideally, all surveys should be georeferenced enabling geospatial analyses and maps to visualize and increase the integration of the produced analytical outputs into the formation of policies and initiatives.

Within the scope of this technical brief, the geospatial analysis of an individual's physical access to healthcare facilities providing FP services with at least three and five modern contraception methods available identifies clear disparities and gaps across South Sudan. Of the 1,308 healthcare facilities surveyed in the 2018 SARA Survey, only 22.3 %, or 292, of them meet the minimum benchmark of providing at least three modern contraception methods. The analysis also revealed that there are severe physical access limitations across South Sudan to those 292 identified healthcare facilities, with 58.74% females aged 15 to 49 requiring over 120 minutes of travel time to reach an identified healthcare facility providing the minimum benchmark of three modern contraception methods for FP . Further, it is evident that inequities exist between states. Individuals residing in Northern Bahr El Ghazal, Lakes, and Warrap states experienced much greater accessibility, while individuals in Jonglei had considerably longer travel times to access the healthcare facilities offering the benchmark services within the state.

As discussed, the targeted female and male populations left behind represent 59.52% (females aged 15-49). These populations require travel times in excess of two hours to reach an identified healthcare facility providing the minimum benchmark of three modern contraception methods for FP. This is a clear deterrent to accessing health services and utilizing commodities. Further analysis is needed to assess the specifics of this population, i.e. living conditions, regional trends, socioeconomic status, etc. Moreover, to better assess not only physical access, but also use of the offered services, a future line of research should assess the actual use of the offered services at the national and sub-national level.

The protection and advocacy for the fundamental human right of access to the highest attainable standard of health, including sexual and reproductive health, is core to UNFPA's three transformative results and mandate. UNFPA's efforts to achieve universal access to sexual and reproductive healthcare are reliant upon quality, timely data to identify existing coverage gaps and where initiatives and policies could have the greatest impact. Further, analyses of quality, timely data can inform future forecasting to determine where and how needs might change due to socio-economic, environmental, political, migratory factors, etc. and how best to ameliorate any subsequent changes in coverage. Evidence-based, strategic development policies and initiatives are critical to ensuring that every individual's right to access the highest attainable standard of sexual and reproductive healthcare is protected and guaranteed.

3. Recommendations

There are two key recommendations emerging from the GIS-based analysis to assess physical access to family planning services in South Sudan. First, the country is plagued by crumbling and nonexistent infrastructure, which is only exacerbated by the conflicts that have ravaged the country for years. Vast investments and improvements are needed to not only improve upon the country's existing minimal infrastructure but also develop physical infrastructure, where needed. Primarily, investments should be made to construct new roadway systems that would enable travel during the rainy season. Currently, the rainy season causes major disruptions across South Sudan as inadequate roadways become impassable for months at a time. It is imperative that new roadways, capable of withstanding flooding, are constructed. Beyond roadways, it is also critical for investments in South Sudan's overall healthcare system. These investments are essential for the construction of new healthcare facilities in many areas across South Sudan. As revealed in this analysis, many South Sudanese lack timely access to healthcare facilities, as it can take an individual more than several hours to reach the closest healthcare facility. Furthermore, it is important that investments are also made to improve existing healthcare facilities.

The second key recommendation is that huge investments are needed by the Government to train, recruit, and retain healthcare professionals. Without adequate staffing in healthcare facilities, South Sudanese will continue to be underserved as there simply are not enough trained professionals to serve the needs of the population. This investment would need to begin with the development of sound national policies on training and retention of healthcare professionals, while also ensuring the development, monitoring, and adherence to overall national healthcare policies and standards.