BRIEF ON HEALTH SYSTEMS SOFTWARE

1. Background

The health system is a complex, adaptive system. There are at least 13 different elements into which a country needs to invest (human resources, health products, governance systems, etc), each of which has multiple intervention areas. These all interact in unique ways in different situations, times, and contexts to lead to the desired capacities for provision of services. Health System capacity is therefore not only a function of the investments made, but also the way these are mixed and matched in order to produce a desired level of functionality. For instance, better access to services can be achieved through building more facilities, expanding mobile clinics, recruiting special health workers, or even changing governance arrangements. The different elements into which investments need to be made are shown in the figure below.
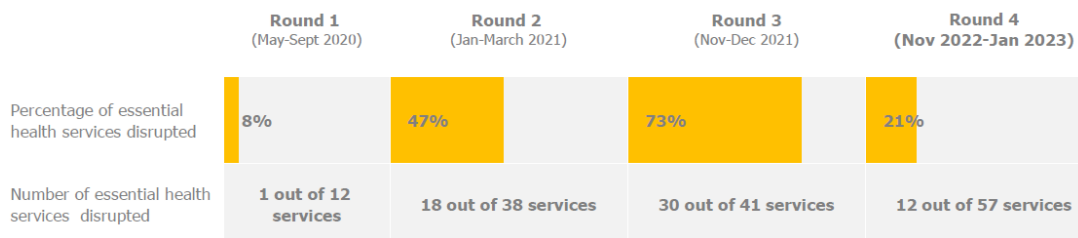
Figure 1: Health systems elements *(source: WHO)*

2. Progress in service delivery systems

The pluralistic service delivery model in the country comprising of public sector, private and mission facilities is a good mix towards enhancing access to health services. The progress made in the quality-of-care space has been instrumental in the achievement of better health outcomes for the population as evidenced by key health indices such as a reduction in maternal mortality. Better health outcomes have also been contributed by the continuum of care across the network of facilities and including from the public sector to the private sector. To sustain the gains that have been made, it is important to refocus efforts on re-defining the service delivery model including the re-definition of clusters, and the re-definition of Essential health services among others.

The PULSE survey analysis indicated the level of disruptions throughout the COVID pandemic. As portrayed in Figure 2, significant progress has been made to mitigate disruptions when accessing to essential health services. Useful strategies deployed include home-based care, community communications, and rapid training mechanism.

Figure 2: continuity of essential health services in Botswana during COVID-19 (*source: WHO*)

	Round 1 (May-Sept 2020)	Round 2 (Jan-March 2021)	Round 3 (Nov-Dec 2021)	Round 4 (Nov 2022-Jan 2023)
Percentage of essential health services disrupted	8%	47%	73%	21%
Number of essential health services disrupted	1 out of 12 services	18 out of 38 services	30 out of 41 services	12 out of 57 services

Delivery systems:

Good Progress:

- The review noted efforts towards involvement of community-based services, outreaches, and home-based care, targeted to bridge the gap between individuals and delivery service points.
- National guidelines for implementation of Integrated community-based health services were developed in 2020.
- Community structures have participated actively in creating demand for services such as covid-19 vaccination.
- On the supply side, organization of health facilities in clusters have facilitated referral systems and structures are instituted to guide quality of care.

Challenges:

- On the other hand, gaps exist in standardization of care for the different service delivery points, implementation of guidelines and SOPs, focus on curative care Vs wider scope of public health functions, spanning promotion, prevention, diagnostic, curative, palliative and
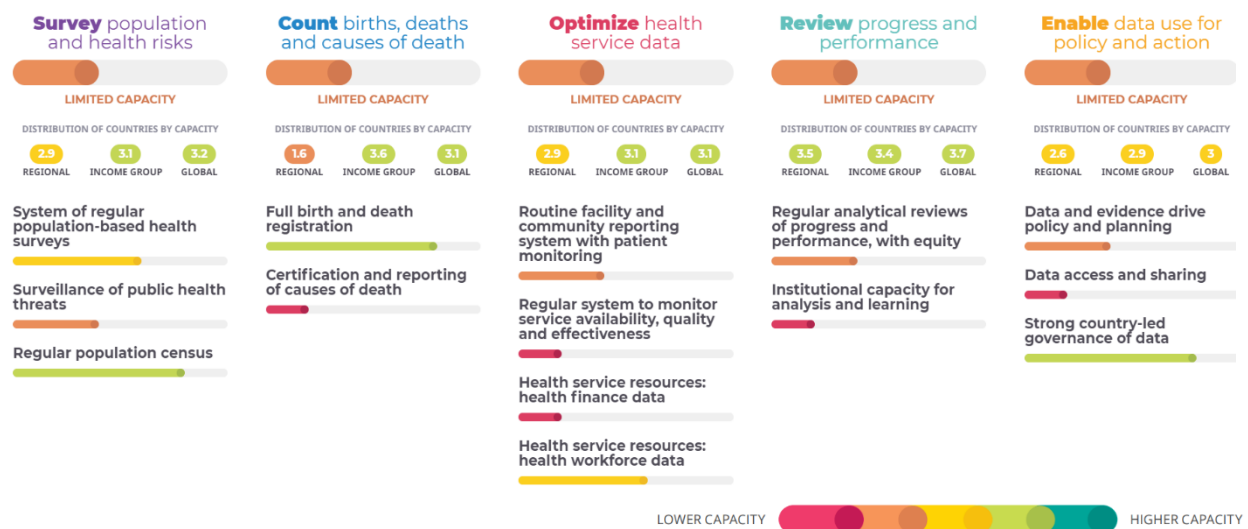
3. Progress in Health information

A functional health information system is a system for the generation, storage, transmission, analysis, and use of health data to support decision-making. The availability of health information is dependent largely on the functionality of the M&E and HIS system. The M&E and HIS system in the country at present does not lend itself to generate robust data that can be used to monitor and track progress on the different elements of the health system. There have to be efforts therefore to build robust health information and M&E systems including strengthening mortality measurement in the country. This would require significant investments in all the pillars of a functional health information system while leveraging the benefits that the current technology confers.

Figure 1: **SCORE assessment of Botswana Health information system** *(source: WHO, 2018)*

Health information :

- Good progress:
  - Development of legislation and governing tools (eg Data Protection Act, eHealth strategy)
  - MOH investments in M&E systems with availability of M&E and IT officers at the different levels.
  - Power infrastructure, specifically electricity exists in 89% of the health facilities and 80% of the health facilities have health information systems running (70% running IPMS and 80% on PIMS)

Challenges:

- The systems for data generation are not interoperable i.e., they cannot exchange the information hence some of the data have to be entered manually
- The use of data for decision making remains sub-optimal as most of the health care workers prefer not to use the electronic systems and resort to manual systems

4. Progress in Health financing

One of the key successes in the last 10 years has been the increased Government funding to health. The government remains the main source of health expenditure (57% of the total health expenditure), and the system has successful risk pooling, with 83% of the population relying on free public systems. Although substantive and adequate financial investments are made, the sector can benefit from enhanced technical and allocative efficiency.

Figure 1: Out-of-pocket expenditure as a percentage of current health expenditure (CHE) (%) *(source: WHO)*
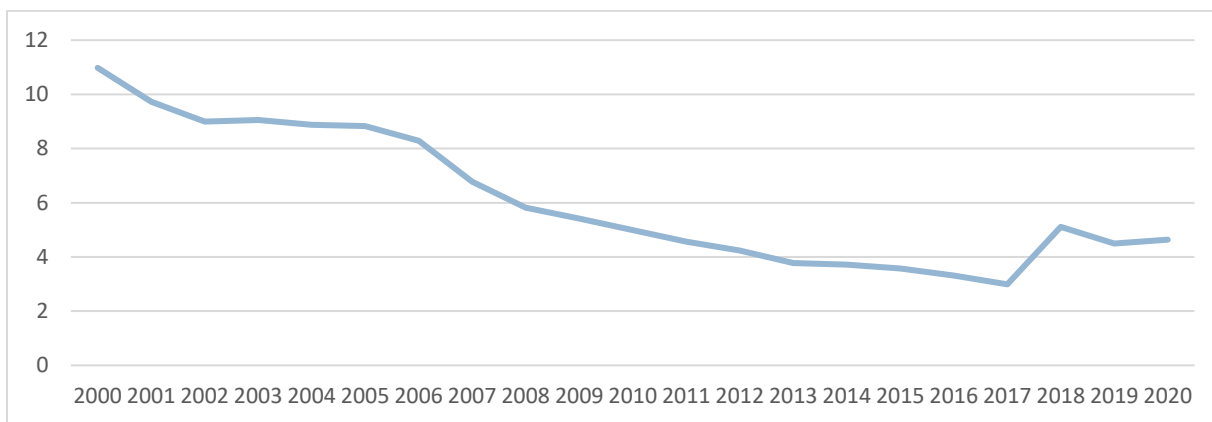
Recent analysis indicated that Botswana has technical efficiency of 0.22 out of 1 (measured by Constant return to scale). This is estimated to cost the country **865.27 million USD**. Amongst others, weak regulation of health systems functions and the private sector, weak price controls, and suboptimal health workforce regulation are associated with technical inefficiency. The dominance of paper-based systems is also a source of technical inefficiency. mHealth and mobile applications combined with strong information systems lead to increased access to good-quality data and efficient use of resources but are not fully exploited.

Health financing:

Good progress:

- Strong commitment from the political leadership and the leaders
- Government funds the largest percentage of health services (79% of current health expenditure), whereas OOP is a small percentage (3%) of current health expenditure
- Approximately 83% of the population relies on the nearly free public system for their health care while the remaining 17 percent uses private providers and is covered by one of the country's nine commercial medical aid schemes (MAS)

Challenges:

- Lack of clear delineations between the providers and purchasers.
- Co-payment fees for beneficiaries under the medical aid schemes is a barrier to accessing services
- Technical inefficiencies exist in the sector

5. Progress in Governance

The National health policy acknowledges that the performance of the health sector is dependent on the quality of leadership and governance. The policy sets out to ensure strategic guidance and oversight in the regulation and implementation of all health-related services. The legal framework in the sector has been improved and expanded with the presence of the Public Health Act 2013, the Data protection Act, the draft Research Council bill (in preparation). Planning in the sector has improved with annual performance planning instituted at the national level. DHMTs have been established with functional structures for the provision of better services .

Figure 2: Oversight capacity of districts in Botswana, 2023 (Source: WHO)

According to the recent assessment of districts health systems, the oversight capacities are strong. However, there is need to place emphasis on social accountability, which looks at mechanisms to ensure answerability of health leadership to the public.

Governance:

Good progress:

- Availability of Legislations - presence of the Public Health Act 2013 and Data protection Act
- Planning in the sector has improved with annual performance planning instituted at the national level
- DHMTs have been established with functional structures for the provision of better services

Challenges:

- Organizational structure of the MoH makes it difficult for accountability within MOH
- Inadequate cooperation between the MOH and relevant agencies/ councils
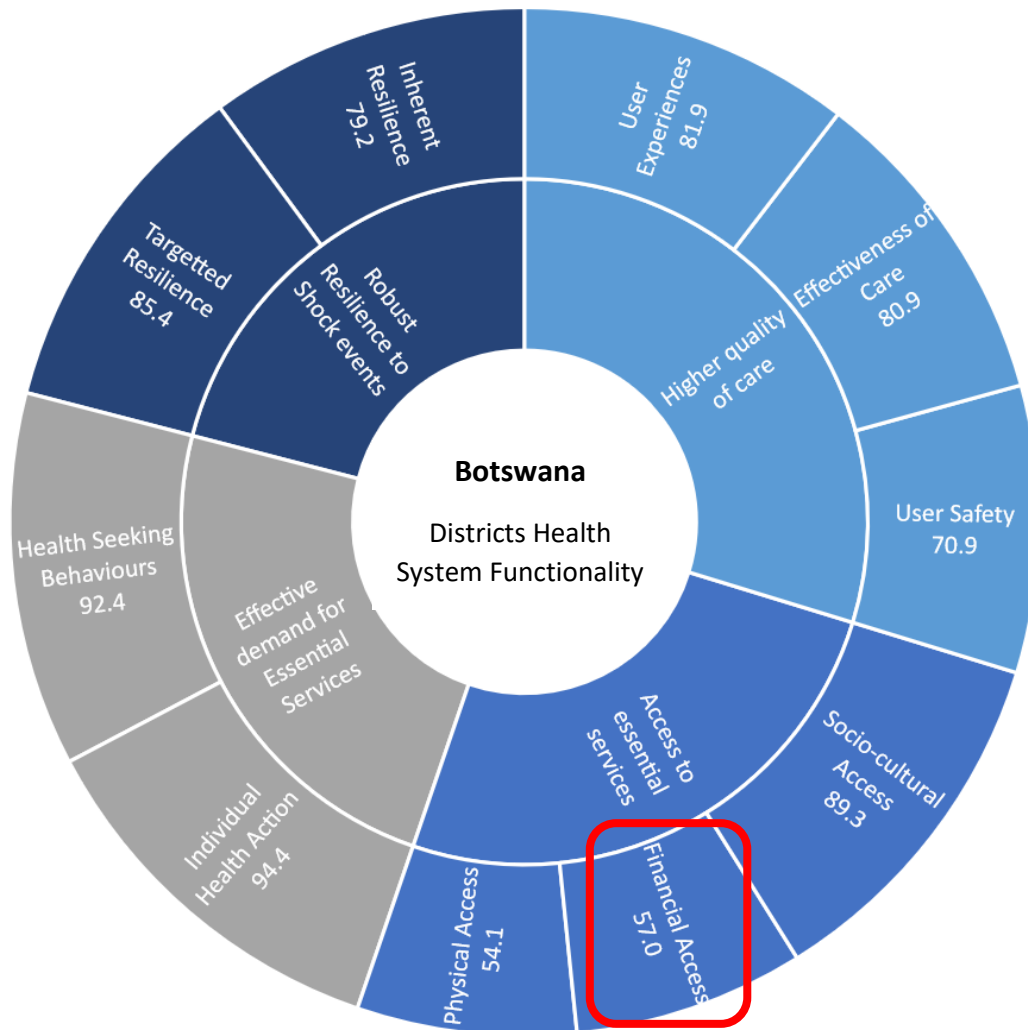- Limited and untimely monitoring of policy and strategy implementation

6. Analysis and implications

The software elements of the systems are pivotal for the health systems engine. In the context of Botswana, few issues and implications were identified:

- The National health policy acknowledges that the performance of the health sector is dependent on the quality of leadership and governance. There is need for enhanced technical and social accountability, alignment of structure and functions, and strengthened coordination amongst stakeholders.
- Significant investments in all the pillars of a functional health information system, while leveraging the benefits that the current technology confers.
- Although substantive and adequate financial investments are made, the sector can benefit from enhanced technical and allocative efficiency. There is also need for removal of fees that can act as barrier to accessing care

Figure 4: Health systems capacity of districts, 2023 (%) (Source: WHO)

7. Recommendations

	Operational	Strategic	Policy
Governance	• Establish and convene regular stakeholders' fora in districts and at national level. • Map and plan levels of decision space for health. • Establish and deploy district support teams. • Put in place a district strategic leadership training program.	• Institute annual appraisal of the health sector governance landscape. • Conduct an annual health summit. • Devolve and reorganize health sector functions in line with the policy. • Restructure the levels of care in the health sector. • Determine norms for the levels of care. • Put in place a process for monitoring health worker integrity. • Review of health legal framework	• Monitor the implications of decentralization on service delivery • Institutionalize regular planning, and monitoring of priorities • Have functional partnership, coordination and management processes at all sector levels
Health Information	• Put in place a comprehensive health information strategic landscape. • Move to a single, harmonized cost efficient first-mile digital platform. • Establish one integrated DHIS-2 system for data channeling and management.	• Accelerate capacity enhancement for M&E and HIS staff. • Roll out integrated IT systems. • Review and update data collection tools. • collaborative framework/Partnership framework. • Expand ICD-11 use, for certifying causes of death.	• Establish a singular, comprehensive monitoring and evaluation system – tracking all services (UHC, HSE, DoH) and capacity enhancements (functionality) • Eliminate paper-based information management • Have a single national data warehouse • Have required and functional ICT infrastructure for digital platforms and DHIS-2 in all facilities • Expand vital statistics system with standard causes of death

	Operational	Strategic	Policy
Delivery system	• Harmonize Health Sector Districts with other sector districts. • Establish therapeutic committees in all hospitals. • Re-institute comprehensive mortality audits • Develop national care standards for service provision. • Establish a nationwide supportive supervision/mentoring process. • Put in place a national health facility stepwise accreditation system.	• Integrate health services provision around age cohorts. • Rationalize referral processes • Conduct quarterly joint supportive supervisions.	• Reorganize the service delivery system around 4 levels defined by the essential package of services to be delivered (Primary Care, 1st, 2nd and 3rd level hospitals) • Implement comprehensive district health system program to **revitalize** PHC approach, • **A**ttain highest level of quality with formal accreditation –through stepwise accreditation • Integrate essential services provision around age-cohorts • Regularly track the progress and relevance of the essential health package to respond to population needs
Health Financing	• Conduct a comprehensive health financing review. • Develop a resource allocation formula for financing all levels of the sector. • Conduct allocative and technical efficiency study for the last financial year.	• Rationalize and expand the role of private sector engagement in provision of services. • Establish private wings within public hospitals. • Put in place a results-based budgeting and performance review process. • Put in place fiscal decentralization. • Institutionalize financial accountability and efficiency processes. .	• Mandatory social health insurance scheme through integration of existing systems

References

1. End-term review of the Botswana health sector strategy report, 2022
2. Integrated African Health Observatory (iAHO)

Sources

Data on Universal Health Coverage (UHC) come from World Health Organization: integrated African Health Observatory

Production of the infographic was supported by the Integrated African Health Observatory.

Photography: https://photos.hq.who.int/, https://photos.afro.who.int/

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