Framework for Assessing the Performance of the Ghanaian Health System: Study Protocol

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Methodology

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Abstract

Background: Assessing the performance of health systems through quantitative and qualitative methods is recognized as an effective approach to strengthening national health systems. However, while many high-income countries have institutionalized health system performance assessment (HSPA) as an integral component of their respective health systems, few studies on HSPA have been documented in low and middle-income countries, including Ghana. This study aims at providing a comprehensive framework for periodic assessment of the performance of the entire health system in Ghana.

Methods: The study will have four work packages. First, a structured review will be conducted to identify both international and national HSPA frameworks that could be applied to the Ghanaian context. Second, based on the structured review, an assessment framework tailored to the Ghanaian health system context will be developed. Third, the draft framework will be presented and discussed with experts and stakeholders for its appropriateness, feasibility and acceptability. Finally, the framework will be piloted to assess its effectiveness and suitability for full-scale implementation.

Discussion: Currently, Ghana does not have a full-fledged HSPA tool that provides a holistic health sector-wide approach to assessing health system performance. Thus, developing this HSPA framework for the country will provide a tool for periodic and comprehensive assessment of the performance of the health system, which can be compared with that of other countries. Such a comparison will offer the opportunity for mutual learning and for exploring new options for formulating more effective national health policies. As this is expected to be the first attempt to develop a comprehensive HSPA framework in Ghana, this study will provide a basis for future discussions on how to further develop and implement HSPA programs in the country.

Introduction

Health systems are considered one of the largest sectors of the world's economy and among the most important determinants of community development and social welfare [1]. In recent times, there has been an increased emphasis on improving the performance of health systems, especially in low and middle-income countries (LMICs) to meet the health needs of the people. Policy makers and development experts have realized that strong health systems are key to achieving and sustaining health gains [1, 2]. Increased attention to improving the performance of health systems has also been stimulated by the United Nations Sustainable Development Agenda that calls for attaining health related targets, including improving maternal health, reducing child mortality, achieving universal health coverage (UHC), and preventing and controlling a number of diseases that have greater bearings on population health by the year 2030 [3]. There is now growing consensus that without strong health systems, achieving and sustaining the health-related components of the Sustainable Development Goals (SDGs) will be difficult if not impossible [4].

Assessing the performance of health systems through quantitative and qualitative methods is recognized as an effective approach to strengthening national health systems [5]. Health system performance
assessment (HSPA) is a tool for gathering information about the functioning of a health system to inform policy decisions, monitor progress towards improved health, and to identify best practices. Measuring the performance of a health system is considered an essential requirement in creating systems that are resilient, responsive, efficient, equitable, patient-focused, accessible and sustainable [5]. Further, HSPA is viewed as a step towards promoting transparency and accountability in healthcare services delivery. As a result, HSPA has now emerged as one of the priority areas of health systems research [6].

Measuring and improving the performance of a health system is not new. For instance, in the 1860s, Florence Nightingale pioneered systematic collection, analysis and dissemination of hospital data to understand and improve hospital performance [7]. However, the first attempt to systematically measure the performance of health systems in a rigorous manner was based on the work of the World Health Organization (WHO), through its publication of the “World Health Report 2000”, where the performance of health systems in WHO member states was comprehensively assessed [8, 9].

Many high-income countries (HICs) have institutionalized HSPA as an integral component of their respective health systems [6, 10, 11]. However, few studies on HSPA have been documented in LMICs [12–15]. Examples of these few studies in LMICs include an analysis of district level HSPA within the context of decentralization in Indonesia [16]; an assessment of the effect of health system reforms between 2001 and 2006 in Mexico, using a report card approach [17]; an evaluation of the performance of the healthcare delivery system in 16 states of India, using an econometric approach [18]; and monitoring of the rapid expansion of health services in Afghanistan, using a balanced scorecard approach [19]. In Africa, few countries have institutionalized HSPA in their health systems. One of these is the Health Systems Trust of South Africa’s district health barometer, which monitors about 20 set of indicators. The Ugandan Ministry of Health has also been producing an annual health system performance report since 2011, using league table analysis introduced in 2003 to compare performance among districts and determine ‘good’ and ‘poor’ performers, and the reasons why [13].

Over the last decade, Ghana has continually advanced in using various assessment tools to monitor and evaluate the performance of the health sector. For instance, the Ghana Health Service (GHS) has “The Health Sector in Ghana Facts and Figures” that produces annual reports on the performance of some key health sector indicators. There is also the Maternal Health Survey jointly designed and conducted by Ghana Statistical Service (GSS) and GHS to provide data for monitoring key maternal health indicators such as: fertility levels, maternal mortality, family planning methods, pregnancy and postnatal care, abortion and miscarriage [20]. Similarly the GSS in collaboration with other stakeholders in various sectors of government, researchers, civil society and international organizations, has been implementing the Ghana Demographic and Health Survey (GDHS) program that collects, analyzes and disseminates information on demographic and health indicators such as: housing and household characteristics, education, maternal and child health, nutrition, and knowledge and behavior related to HIV/AIDS and other sexually transmitted infections (STIs) [21]. Moreover, through the National Health Accounts (NHA), the country systematically and comprehensively monitors the flow of financial resources in the health system [22]. Above all, the Ministry of Health (MOH) adopted a monitoring and evaluation framework
called “The Holistic Assessment Tool” during its 2007–2011 Program of Work (POW) to monitor and assess progress towards achieving the objectives of the country’s Health Sector Medium Term Development Plans (HSMTDPs). It is also to serve as a feedback mechanism to development partners and other key stakeholders of the health sector. The framework has a set of indicators, milestones and targets clustered under the objectives of the national health strategy as defined in the HSMTDPs [23].

In spite of the existence of the aforementioned assessment programs, Ghana does not have a full-fledged HSPA tool that provides a holistic health sector-wide approach to assessing health system performance. For instance, our recent analysis revealed that the Holistic Assessment Tool, which is considered more comprehensive relative to the other assessment methods, does not measure key health system dimensions such as responsiveness of the health system and information systems for health [15]. Per the literature, a comprehensive HSPA encompasses measuring and analyzing how well a health system is meeting its overall goals (i.e. improved health, responsiveness to people’s expectations, social and financial protection and improved efficiency), and how its performance against intermediate outputs (e.g. access, coverage, quality and safety of health services) contributes to achieving these goals [24]. Developing and implementing a Ghanaian HSPA tool that covers the entire health system will bring the country in line with many developed and some developing nations in creating systems and frameworks that monitor and assess the performance of their health systems.

Aims

The overarching aim of this study is to provide a possible framework for periodic assessment of the performance of the entire health system in Ghana. This work will build on the previous efforts that have contributed to broader HSPA in the country, as indicated above. The study has four specific objectives classified into two main phases and linked to four work packages (Fig. 1).

Objective 1: To comprehensively review the literature and analyze the current national and international health system performance assessment frameworks as tools for policy decision-making towards improved health.

Objective 2: Based on objective 1, to develop an assessment framework tailored to the Ghanaian health system context

Objective 3: To present and discuss the draft framework with experts and stakeholders for its appropriateness, feasibility and acceptability

Objective 4: To pilot the framework to ensure its effectiveness and suitability for full-scale implementation.

Methods
The study has four work packages (WPs): a literature review, development of an HSPA framework suitable for the Ghanaian context, presentation and discussion of the framework with experts and stakeholders, and piloting the framework. We will draw from a wide range of disciplines, including Public Health, Health Systems Research, Political Science, Health Economics, Health Management Information Systems and Quality Management in Healthcare. The study will start in November, 2020 and will run until January, 2023 (Fig. 2).

Systematic Review (WP1)

We will conduct a structured review to identify and examine the existing HSPA frameworks, especially the more established ones. The purpose of this task is to determine which framework or aspects of particular frameworks could be applied to the Ghanaian context. The review will inform the next stage of the study, where a draft framework will be developed and appropriate indicators extracted and mapped onto it.

A search strategy will be developed for key databases, including MEDLINE, CINAHL, PsycINFO, PubMed, Scopus and Science Direct. We will include any type of report or peer reviewed journal article that reports on health system performance assessment framework. Our search will be limited to English language publications between January, 1990 (the year after which the vision of using large scale data sources to help improve the performance of the healthcare delivery system as a whole became a reality) and October, 2020. In addition to the database search, we will search online archives of specific journals that publish research on health systems and policy, including ‘Journal of Global Health’, ‘International Journal of Health Policy and Management’, ‘Health Policy’, Health Policy and Systems, ‘Health Systems’, ‘Health Research Policy and Systems’, and ‘Learning Health Systems’ using the key phrase “health system performance assessment framework”. Furthermore, we will check the bibliographies of papers that will meet our inclusion criteria and contact the authors of identified frameworks to ask for any unpublished reports that will be considered relevant. Moreover, the websites of governmental entities and international organizations such as the Organization for Economic Cooperation and Development (OECD), European Observatory on Health Systems, the United States Agency for International Development (USAID), the World Bank, WHO and Health Systems and Policy Monitor will be searched for relevant documents.

Frameworks with well-defined conceptual models and clearly stated dimensions will be included in the analysis. Each of the selected frameworks will be examined for congruence to the Ghanaian context, considering its conceptual outline and content, especially its dimensions. The dimensions most relevant to the Ghanaian health system will be discussed in detail and selected for inclusion in drafting the framework. Indicators contained in each dimension will be also analyzed for inclusion in our indicator selection.

Development of Ghana’s HSPA Framework (WP2)

Following the literature review, a draft performance assessment framework will be developed for the Ghanaian health system. Two main tasks will be performed at this stage: drafting a conceptual
Drafting a conceptual framework

The frameworks analyzed and selected during the literature review will be grouped into various conceptual themes, such as goal driven framework, the Donabedian's structure-process-outcome model [25], quality-based framework, results-based logic model, balance scorecard system, etc. We will then discuss and agree on the conceptual framework or parts of particular frameworks suitable for adoption for Ghana. To guide our discussion, we will define the main objectives of the HSPA within the broad context of the national health system goals and strategies. Having adopted a framework for Ghana, the next step will be selecting appropriate health system dimensions that are applicable to Ghana's health system, taking into consideration the local and cultural context. All dimensions within the selected HSPA frameworks during the literature review will be listed and individually discussed for inclusion and exclusion for Ghana's HSPA framework.

Selecting and mapping indicators to the draft framework

A broad range of indicators covering all aspects of the Ghanaian health system will be selected and mapped to the dimensions of the draft framework. Our aim is to select indicators that are both relevant to the local context and externally comparable. Thus, our indicator selection will come from two main sources: drawing from internationally based indicators, and selecting from a list of local indicators that are collected routinely through the implementation of various health strategies, policies and assessment programs. The internationally based indicators will be mainly the indicators that will be identified through the literature search. With the locally based indicators, we will first list all of the existing health policies, strategies and assessment programs. This will be followed by a detailed scrutiny of each of these strategies, policies or assessment programs for the appropriate and relevant indicators to be extracted.

A set of three selection criteria will be used as guiding principles to assess each of the extracted indicators for inclusion in the draft framework. These are: 1) relevance of the assessment indicator to the health system, in terms of its ability to provide useful information for policy makers to take specific actions to improve service delivery and health outcomes; 2) feasibility of obtaining data for the measure; and 3) scientific soundness of the indicator, in terms of validity, reliability and accuracy. Each indicator will be internally scored on a scale of 1–5 on these criteria by two members of the research team, working independently. The cumulative results will be compared to generate a list of indicators that will score more than 50% of the median score. The internal assessment will enable us reduce the number of the extracted indicators to a more manageable number, which will then be subjected to further external scoring and validation in the next stage of the project.

Presenting and discussing the draft framework with experts and stakeholders (WP3)
After selecting and mapping appropriate indicators to each of the dimensions of the draft HSPA framework, we will present the tool for external validation. This will involve two main stages. First, we will organize a workshop for a detailed discussion on the appropriateness of the framework to the needs and circumstances of the Ghanaian health system. Participants will be drawn from the academia (health related academics), the Health Ministry (mainly senior civil servants), and managers and senior clinical leaders within the Ghanaian healthcare delivery system (both public and private). The framework will be presented and explained to the participants, after which the discussion will follow. Feedback from the participants will be used to revise the draft framework.

The next stage will involve an expert panel discussion, where the shortlisted indicators will be presented for external scoring. We will develop a list of health policy and systems research experts with extensive publications and professional experience in the fields of Health Systems Reform and Strengthening, Health Planning and Management, Global Health, Health Economics, Health Promotion, Human Resource for Health, Health Quality Management, Epidemiology (communicable and non-communicable diseases), and Health Management Information Systems within the context of developing countries. Participants will be asked to score each of the shortlisted indicators according to the same set of criteria that will be used for the internal assessment, as described earlier. The panel members will be allowed to discuss and resolve any ambiguity related to selection and content of the indicators. A mean score will be computed for each indicator by summing all ratings reported for a single item. Subsequently, the indicators will be listed in descending order of priority and with consensus of all members in the expert panel, the final set of indicators will be selected for inclusion in the framework development.

**Piloting the draft framework (WP4)**

The final stage of our work will involve testing the suitability of the draft framework by using it to assess the performance of the Ghanaian health system. The piloting, which will be in the form of a feasibility study, will help us determine data availability and data generation for all of the selected indicators, as well as ensuring sound and meaningful interpretation of reports that will be generated from the assessment program.

We will collect and analyze data pertaining to the final set of indicators included in the framework. Requests will be made to the Ministry of Health, Ghana Statistical Service, Ghana Health Service and all other ministries, departments and agencies that are involved in healthcare provision in the country to request data between 2010 and 2020. The performance of each indicator, in terms of trend over time and international comparison, will be deduced from the collected data. International comparison will be mainly carried out with the WHO African Region. Points ranging from 0 to 2 will be allotted for the two bases of comparison as shown in Table 1. The sum of each category will be added for each indicator to derive the overall assessment score, ranging from Very Good (4) to Very Poor (0).
Table 1
How each indicator will be classified and assessed.

|   | Indicator               | Trend over time       | International comparison | Assessment     |
|---|-------------------------|-----------------------|--------------------------|----------------|
| 1 | Improving = 2           | Ghana fares better = 2 | Very good = 4            |                |
| 2 | Stable = 1              | Ghana fares same = 1  | Good = 3                 |                |
| 3 | Deteriorating = 0       | Ghana fares worse = 0 | Satisfactory = 2         | Poor = 1       |
|   |                         |                       |                          | Very poor = 0  |

Once the assessment scores for the indicators are calculated, we will compute the overall score for each dimension using the sum of the scores of each indicator within each dimension. A classification similar to that of the indicators – i.e. from Very Good (4) to Very Poor (0) - will be produced for each dimension.

Having completed the analysis, we will put together an assessment report and again invite health policy and systems research experts to review the assessment methodology, especially the scoring and classification systems for the indicators and their respective dimensions, as well as interpretation of the results. The framework will be amended to incorporate suggestions and/or recommendations from the experts. Also, indicators with no readily available data for their measurement will be excluded from the final draft framework. We expect to conclude this project with a formal HSPA framework with clear and unambiguous dimensions that are linked to the values and priorities of the Ghanaian health system.

**Discussion**

We strongly support the argument that developing a robust conceptual framework within which specific performance measures could be tested and implemented regularly is a major requirement for a performance measurement system in any country [5]. The framework we intend developing will cover all of the major dimensions of the Ghanaian health system. We will ensure that the framework aligns with the health system objectives of Ghana, integrates with information technology (IT) and routine data collection in the country, includes high priority and hard-to-measure areas, and has measurement indicators that are internationally comparable.

A major benefit of developing this HSPA framework for Ghana is that it will provide a tool for periodic and comprehensive assessment of the performance of the health system, which can be compared with that of other countries. Such a comparison will offer the opportunity for mutual learning and for exploring new options for formulating more effective national health policies. The framework is also expected to be added to the existing assessment tools that are being used to measure progress towards attaining UHC and the health-related components of the SDGs. Furthermore, as this is expected to be the first attempt to develop a comprehensive HSPA framework in Ghana, our work will provide a basis for future discussions on how to further develop and implement HSPA programs in the country.
There is no doubt that including a large set of indicators will improve the content validity of each dimension of the framework. However, to avoid collecting and presenting overwhelming number of indicators, which could result in unreasonable burden of data collection and analysis, we will ensure that the number of indicators of the framework stays within acceptable limits. We will be guided by the experience of other countries in developing their HSPA framework and reduce the number of indicators to a more manageable number so that trends in performance could be effectively monitored.

One major limitation we anticipate is a situation of gaps in data availability to measure some of the important indicators we will identify. This might result in the exclusion of key assessment indicators from the HSPA framework. Also, because we will use existing HSPA frameworks in developing our framework, and few performance assessment frameworks have been developed in low and middle-income countries, there is a greater challenge of avoiding conceptualization of the framework in high income country settings, which may essentially be different from situations prevailing in Ghana.

We intend presenting and explaining the final work to the authorities of the Ministry of Health to increase the chances of the Ministry's adoption of the framework for formal assessment of the performance of the health system at the national level. Also, academic dissemination will be done through publication of the output of the project in a per-reviewed, open access healthcare journal and presentations at conferences.

**Abbreviations**

HICs: High-income countries

HSMTDP: Health Sector Medium Term Development Program

HSPA: Health System Performance Assessment

LICs: Low-income Countries

MOH: Ministry of Health

WHO: World Health Organization

**Declarations**

**Ethics approval and consent to participate**

Not applicable (study is a conceptual paper)

**Consent for publication**

Not applicable
Availability of data and materials

The data used in this analysis are available from the corresponding author on request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

All authors contributed to conceptualizing the research. EK, AF and SEA wrote the proposal. All the authors read and approved the manuscript.

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**Figures**

![Diagram of Framework for Assessing the Performance of the Ghanaian Health System](attachment:image.png)
### Figure 1

Overview of the study to develop a framework for assessing the performance of the Ghanaian health system

| WPs | 2020 | 2021 | 2022 | 2023 |
|-----|------|------|------|------|
|     | N    | D    | J    | F    | M    | A    | M    | J    | A    | S    | O    | N    | D    | J    | N    | D    | J    | F    | M    | A    | M    | J    | J    | A    | S    | O    | N    | D    | J    |
| WP1 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| WP2 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| WP3 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| WP4 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

*WP1: Literature review, WP2: Framework development, WP3: Experts engagement, WP4: Piloting the framework, Report writing*

### Figure 2

Timeline for developing a framework for assessing the performance of the Ghanaian health system