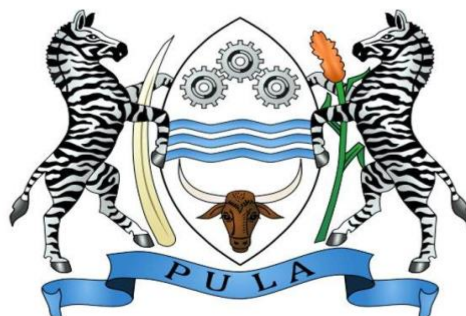

Republic of Botswana
Ministry of Health and Wellness

Implementation plan for the National Reference Tariff Roadmap: A cost-recovery led approach

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1 Introduction

1.1 Background

An established goal of the Government of Botswana (GoB), and currently included in the government's budget options initiative[1], is cost recovery for healthcare services provided by government funded facilities to members of the Medical Aid Schemes (MAS). A core infrastructure requirement to achieve this purpose is a system to set payment levels for the services concerned.

Further, there are ongoing related healthcare goals in Botswana to strengthen the partnership between the public and private health sectors in the financing and delivery of efficient, high quality and sustainable universal healthcare. A tariff setting cycle is a fundamental requirement for achieving a more effective partnership with fair and transparent competition and maximum sector productivity. Like cost recovery, programs to strengthen partnerships and provider participation across the whole health sector increase the need for all stakeholders to focus on managing costs and outcomes. In a purchasing environment this includes negotiating fair, equitable and sustainable cost-based standard tariffs. These standards, or reference, tariff schedules, are essential to underpin payment arrangements across both the public and private sectors so that they can compete on a level playing field.

1.2 Purpose of the implementation plan

The purpose of this implementation plan is to identify and outline the key steps for Botswana to establish a ta riff-setting cycle program for its healthcare sector. As a multi-year plan requires time and a set of coordinated actions, the implementation plan aims to generate tangible gains at each phase, with each phase building on earlier outputs. While the entire program is expected to take four years to reach an optimum level of precision and rigor, the plan is designed to begin showing gains in year-1 through implementing an immediate cost recovery program for claims to MAS by members using public hospitals. The cost recovery program for claims to MAS for treatment of members by public hospitals will provide a valuable step towards a more comprehensive purchasing reform aimed at improving efficiency, effectiveness, and cost control across the whole health sector.

The final draft of the roadmap implementation plan was presented and approved by the Health Financing Technical Working Group and Ministry of Health and Wellness (MOHW) in February 2021. The key comments made in these discussions involved the need for aligning the implementation of the tariff setting functions with the Budget Options Technical Working Group (BOTWG)[2]. As part of the TWG's scope of work, the team is expected to propose and/or generate additional information/data that may be required to inform the review of outdated inpatient tariffs used in public facilities. These revised tariffs can be used as a complement to the outpatient rates that are established through the first year's cost recovery exercise and will benefit from activities proposed to strengthen the associated claims system for public hospitals and medical aid schemes.

1.3 Phased implementation

There are three main phases of work under this implementation plan, with the first focused on cost recovery. The essential functions required for public hospitals and other public health facilities to implement a cost recovery mechanism from MAS align to the steps needed to develop an effective tariff-setting system as recommended in the Tariff-Setting Roadmap[3] . The workstreams are as follows:

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[1] The Ministry of Finance and Economic Development (MFED) has sought technical assistance from the United States Treasury for the preparation of **Budget Options.** Budget Options are formulated in the strategic phase of the budget preparation process to guide the fiscal policy decision making process. The Ministry of Health and Wellness has been identified as one of the pilot Ministries for the Budget Options initiative.

[2] The BOTWG is a technical group working with the US Treasury Advisor, comprising representatives from the Ministry of Finance & Economic Development (MoFED) and the Ministry of Health and Wellness (MoHW). They are tasked with the development of revenue enhancement initiatives across for the health sector as part of the GoB's Budget Options initiatives, including supporting implementation of the identified initiatives and its components

[3] Reference citation for Roadmap report here.

- Deploying classification, coding, data management, and costing tools in an accessible method so that hospitals, other healthcare facilities, and clinicians can use the feedback on performance norms as part of making the best resource choices both in activity planning and in performing their day-to-day work.
- Ensuring that meaningful records are kept for analyzing clinical activity, utilization, and financial expenditure for benchmarking costs against:
    - Normative reference standards from peer hospitals.
    - Evidence-based best practice; and
    - Hospital or clinical units' time series.
- Adjusting and calibrating payments dynamically to reward improved performance in outcomes, quality-of-care, and value for money.
- Establishing the necessary capabilities, data systems and support functions.

This plan has been formulated to achieve early implementation of the key tariff setting infrastructure building blocks. The phases have been organized to deliver the initial cost recovery reimbursement rates schedules as the preliminary output in year 1 as required by the payment mechanisms of the cost recovery implementation plan[4]. This program has the advantage of establishing the building blocks of the data capture and analytical infrastructure for both the cost recovery program and the next stages of the tariff setting function (Figure 1).

Cost recovery benefits setting will provide an early start to the tariff setting process with immediate gains

1.4 The implementation phases

Each phase of the plan has been designed to ensure critical development requirements of the cost recovery payment program are met as well as progressing capabilities to achieve the broader payment reform goals of the GoB in the earliest possible time frame. Technical experts are mobilized to assist with initial data collection, costing, and rate structure, while working closely with the BOTWG and other relevant focal point persons within MOHW to support alignment and build capacity. A stepwise approach was deployed to orient MOHW staff to the process and results of the initial tariff setting process through targeted trainings, briefings, and capacity development exercises. As a next step, key focal point persons should be assigned across functions such as long-term data management, stewarding of technical working groups and other functions based on existing roles and responsibilities within the ministry.

These outputs will deliver immediately usable tools for performance improvement to all the key stakeholders in the sector.

Key focal point persons in MOHW and across partner MAS will need to be identified to ensure implementation success

[4] Reference citation for Cost recovery implementation plan here.

Table 1: Implementation phase

Details	Phase 1 – Cost recovery and cost accountability infrastructure 2020-2021 Y1	Phase 2- Cost recovery plus tariff-based reimbursements for better results 2021-2022 Y2	Phase 3 – cost recovery plus strategic purchasing funding system reform 2022-2023 Y3	Longer term elements
Activity data	• Consolidate and evaluate existing activity data • Examine existing MAS or South African schedules • Identify criteria to recalibrate reimbursement rates	• Refine schedule for Botswana conditions, policies, priorities and goals. • Select Diagnostic Related Groups (DRG) and ambulatory care systems as framework for activity monitoring. • Consolidate specifications and requirements and create a data dictionary.	• Continue refining all activities.	• Establish pay for performance and other efficiency enhancing refinements. • Establish and develop integrated care purchasing to improve outcome accountability programs and cycles.
Cost analysis	• Conduct top-down costing. • Analyse claims datasets. • Establish expenditure levels including all funding sources.	• Establish initial costing standards and national costing study. • Identify health facilities that will participate in the costing study. • Map chart of accounts to episode level cost buckets and identify drivers.	• Continue refining all activities.	
Payment and performance system	• Select 10 high cost/ expenditure items for demonstrations. • Select usable schedules to review, calibrate and consolidate.	• Set up an analytical framework for cost recovery exercise. • Extend cost recovery claims to cover 80% of public hospital MAS cases.	• Create a model and shadow budget for all contributions. • Publish efficiency and effectiveness variability tables to recognize high performers.	
Supporting processes	• Assemble expert advisory working groups. • Engage local project team from MOHW working with ACS expert advisors. • Conduct training sessions and workshops.	• Establish and train simulation modelling team. • Train users of impact simulations and standards. • Establish data quality audits, edits and data quality assurance process and reviews.	• Appoint tariff setting program board and advisory committees • Continue training. • Conduc t ongoing program quality reviews.	

1.4.1 Phase 1. Cost recovery and cost accountability infrastructure support

Phase 1 focuses on establishing preliminary rates that will form the basis of a tariff setting system[5].

1. Fair and equitable cost recovery benefit rates.
2. Payment rules including format and content specifications for claims documentation.
3. Claims system that includes analytical, evaluative, and feedback mechanisms.

Activity data

The first step is to consolidate and evaluate existing activity data.
This will involve determining:

- What currencies and payment structure will be used (Fee-for-service categories or bundled)?
- How costs will be identified (charts of accounts mapped to outputs – products – patients-individually or by type).
  - Quantified: e.g., Estimated proportions by provider:
    - Numbers of cases by case type.
    - Expenditure by case type.
- How revenues will be identified (who are the payers?)
  - Quantified: e.g., Estimated distribution by payer:
    - Numbers of claims from providers by case type.
    - Revenue paid to the provider by case type.

- Existing MAS or Republic of South Africa (RSA) reimbursement schedule categories will also be examined for use as benchmarks
- Inclusion/exclusion differences will also be identified for recalibration reimbursement rates.

Cost analysis

The cost analysis aims to estimate how much it costs to produce one unit of each care product. This cost measuring process must be based on distributing to each of the episodes of care produced an appropriate share of the actual expenditure incurred by the provider in delivering the care.

An initial top-down costing study will also be conducted from costing of programs or product areas to track resources down to patient level episodes of care. This study will use either existing cost category totals or total operating expenditures. An analysis of claims datasets for MAS and MOHW will also be examined. Finally, all product expenditures including funding sources will be established at program and department levels.

Note that an initial cut of this exercise has been completed and helps form the basis for the initial rate structure and will need to be repeated as causes and conditions expand during rollout.

Payment and performance system

The payment and performance system will determine how many – of each product – will provide the best improvement in health outcomes for the available global budget in addition to the required funding for each unit.

- Ten high cost/expenditure inpatient items will be selected, as determined by both volume and cost (high (vol*cost)), and well-defined items for cost recovery demonstration sites in three volunteer hospitals.
- Up to three usable and relevant reimbursement schedules will be selected.
  - These will be consolidated into comprehensive preliminary reimbursement item schedule for use in Botswana as a reference cost-master; and

[5] Note that the following supporting activities will be required for the full cost recovery activity, and these are outlined in the cost recovery implementation plan.

    - The schedule items' relative weights and tariff multiplier will be calibrated to the actual expenditure on these items by the reimbursing payers according to volumes utilized in the reference year.
- Technical and policy claims system mechanisms will be specified to ensure collection of required reimbursement payments from MAS.

Supporting processes

Governance and accountability arrangements should include the formation of expert and stakeholder advisory and consensus building groups. A critical input into the operation and maintenance of the fee structure is to appoint a team from the MoHW and technical working groups (clinical, statistical, and cost recovery TWGs) to work on the fee setting activities as follows:

- Local project team within MOHW to manage and carry out the central coordinating functions of data management and analytical functions.
- Clinical experts for the design of the fee structure categories and validation of the fee setting methodology.
- Technical (costing and statistical) experts for establishing and validating the data infrastructure and calculation algorithms.
- Stakeholder Technical review body (Health Financing TWG).
- Training sessions and workshops will also be conducted to familiarize participating staff and stakeholders with necessary and relevant components of the tariff process.

1.4.2 Phase 2. Tariff based reimbursement for better results

A reimbursement rate infrastructure will be developed to better serve value maintenance and efficiency/cost management (e.g., identify emerging cost inflation behaviors).

Activity data

- As work progresses, the reimbursement schedule product categories will be refined for Botswana conditions, policies, health care priorities and health goals.
- Diagnostic related group and ambulatory care classification systems will be selected as framework for ongoing activity monitoring.
- Infrastructure specifications and instructions will be complied and consolidated, including:
    - Minimum data set (MDS) specifications.
    - Reporting requirements; and
    - Data dictionary.

Cost analysis

- Initial national health costing standards and a national health costing study will be initiated in sample facilities.
- The financial chart of accounts will be mapped to episode level cost buckets. This will include identifying high materiality cost-driver utilization data streams.
- Initial bottom-up utilization variables will be introduced and tested as a part of the costing study cost allocation model.

Payment and performance system

- The analytical framework for a cost recovery exercise will be set up using the tariff-setting model.
- Cost recovery claims requirements will be extended to cover 80% of public hospital MAS cases (approx. 30% of categories).
- A program for extension of the cost recovery claims system to comprehensive all-funding sources will be established along with systems for establishing a monitoring and payment framework.

Supporting processes

- The simulation modelling team will be established and trained on standards and using impact simulations.
- Data quality audits, edits and data quality assurance processes and reviews will be established.

Ongoing capacity development will be needed to develop costing and modeling capacities as rate structure evolves

1.4.3 Phase 3. Strategic purchasing funding system reform development

The cost reimbursement mechanisms will be extended to form the basis for broader funding reform mechanisms. This will include establishing national normative prices as the basis for competitive price setting and quality/value.

Activity data

- Annual cycles of reimbursement schedule updates and refinements will be continued.
- Diagnosis related group and ambulatory care classification systems will be continually applied and refined as the framework for ongoing activity monitoring.
- The data dictionary will continue to be updated and refined.
    - This will include refining MDS specifications and reporting requirements.

Cost analysis

The following activities will be continued:

- Development and annual publication of cost study reports
- Costing precision programs of allocation feeder system utilization data improvements facility by facility according to capability and representational scale.
- Program of expansion of scope of product (patient episode level) analysis according to analytical value (materiality) priority.

Payment and performance system

- Budget all-payer contributions to public and maybe private and not-for-profit facilities will be modeled and shadowed.
- Efficiency/effectiveness variability tables by unidentified hospitals will be published, with each hospital having its own recognition for high performers.
- Development of scope and precision of strategic purchasing and accountability system for improved system efficiency and cost/value accountability will be continued.

Supporting processes

- A tariff setting program board and advisory committees (clinical and technical) will be appointed.
- Training and consultation cycles and benchmarking report circulation to key stakeholders will be continued.
- An ongoing annual program of data quality audits, edits and data quality assurance processes and reviews will also be ongoing.

1.5 Longer term elements of the Tariff-Setting Roadmap

Beyond the phases presented above, longer term elements of the roadmap would include:

- Implementing and developing the first components and activities of a broader strategic purchasing mechanism.
- Refining and extending strategic purchasing dimensions.

- Achieving transparency performance enhancement efficiency cost controls, market support mechanisms and a level playing field for competitive value and efficiency improvement across the sector.

1.6 Deliverables by Phase

In order to successfully progress through each phase, it is essential that certain deliverables are developed and completed. Below outlines the list of required deliverables per phase to better enable success.

Table 2: Deliverables for each phase

Phase	Descrip tion	Deliverables
Phase 1	Cost recovery and accountability infrastructure support	• Reimbursement schedule for cost recovery (See annex A- cost recovery fee schedule). • Funding/Tariff Setting model with reimbursement component included. • Design, test and evaluate the cost reimbursement claims system in three hospitals.

Phase 2	Tariff based reimbursement for better results.	• Draft MDS specifications.
		  ○ Data dictionary.
		  ○ Data quality improvement goals.
		• Costing study reporting template.
		  ○ Draft costing standards.
		• Release program for extension of cost recovery claims system to enable a comprehensive monitoring and funding framework for all funding sources.

Phase 3	Strategic purchasing funding system reform development	• Ongoing development, maintenance, and review governance authority/responsibility/structures. • Board and committees' appointments and setting up work programs. • Establish an annual costing study cycle. • Implementation program of all system funding/strategic purchasing framework as an efficiency, sustainability, and quality monitoring support system.

1.7 Recommendations and next steps

1. Assign key focal point persons from MoHW and MAS to lead the process of implementation of tariff setting roadmap phases.
2. As the work advances towards demonstration sites, ensure alignment of outputs of budget options, work on cost recovery claims mechanisms and early implementation phases of Tariff Setting Roadmap.
3. Ensure Tariff Setting Roadmap implementation phases at every stage have immediate payoff in providing useful enablers for current revenue and reimbursement programs as well as longer term efficiency, sustainability, and cost effectiveness management infrastructure achievements.
4. Engage stakeholders in design and implementation activities to ensure tariff setting infrastructure delivers critical management and performance measurement functions for both provider, payer, and user stakeholders.

Annex A. Cost recovery fee schedule for inpatient services

Rationale

The cost recovery fee schedule can be an invaluable first step to building up a broader fee schedule for all causes and conditions. The calculation uses average cost per case (discharge) because:

- It helps to promote quality and integrity by ensuring that what is being reimbursed covers the cost of delivering a service based on actual activity and cost data
- In developing a fee schedule, all-inclusive average costs that bundle all items related to an episode of care promote efficiency and avoid each item being charged separately when typically done using fee for service arrangements.
- Allow policymakers to have a reliable key input into the early stages and ongoing processes for setting both national reference tariffs and cost recovery contribution rates.

Methodology

In order to build up the costs, three critical components are needed: cost data, activity data, and a calculation of the tariff cost/weight ratio. Data sources for this demonstration exercise included IPMS data and annual reports from the three pilot hospitals: Princess Marina, Nyangabgwe and Sbrana. The case counts and details of diagnoses and procedures recorded for the 2018/19 financial years were extracted from the IPMS data supplied for each hospital. This was then tabulated with the estimated annual costs of the hospitals' inpatient work. From these, the average cost per case was calculated for each hospital.

As a cross-check on the number of cases reported in the IPMS system, the number of inpatient cases reported by the hospital in its Annual Report was compared with the statistical data count. This is useful in the early stages of case-based cost recovery and reference tariff setting to help identify discrepancies in methods of counting cases between hospitals or reporting systems and enables improvements in data quality and counting consistency over time.

Average cost per case = Total cost of inpatient cases / Total number of cases (discharges)[6]

****When this process is carried out with all, or a representative sample of all hospitals, it can be used as a reliable calculation of the cost for each case type. This type of study is referred to as clinical or activity-based costing.***

Costs - To arrive at costs, we used the best estimate available of the total cost of inpatient care in the three selected hospitals (Tables 1-3 below). This involved examining the total hospital costs across the three major cost categories for the 2018/19 financial year and then using 70% ratio to estimate the inpatient fraction of these total hospital expenditure calculations.

Table 1: Princess Marina- Total estimated cost per case (discharge)

Cost Description	Total Costs	Inpatient Fraction	
MOHW Hospital Budget Costs (2018 Values)	70,946,610	70%	49,662,647
Total HRH Salary Costs	142,244,326	70%	103,071,028
CMS Inputs Utilization Costs	148.920.950	70%	104,244,665
Total Costs Salaries and Other	**367,111,887**	**70%**	**256,978,321**

*Conversion USD 0.087433

[6] A more complex calculation is usually made for greater precision in established reporting systems. This adjusts for cases carried over between the financial year periods combined with a cost adjustment for costs accrued for patients only for those patients discharged in the calculation year. However, a simple count of patients discharged in the accounting period combined with the estimated cash accounting costs is a good place to start until more detailed data are available.

- Number of Inpatient cases 2017/2018 (N.B. Definition to be finalized) – 16,641
    - Average cost per case at Princess Marina Hospital: 15,442 BWP/ 1,350 USD

Activity **-** We then applied the best available estimate of the total number of inpatient cases (discharges) for the year to which the costs applied. Based on these two inputs, we can calculate the average cost per case:

Table 2. Nyangabwe -Total estimated cost per case (discharge)

Cost Description	Total Costs	Inpatient Fraction	
MOHW Hospital Budget Costs (2018 Values)	58,674,355	70%	41,072,048
Total HRH Salary Costs	134,655,858	70%	94,259,101
CMS Inputs Utilization Costs	54,756,235	70%	38,329,364
Total Costs Salaries and Other	**248,086,447**	**70%**	**173,660,513**

*Conversion USD 0.087433

- Hospital electronic system reported total number of inpatient cases 2018 (N.B. Definition to be finalized): 23,871
    - Average cost per case at Nyangabwe: 7,275 BWP/ 636 USD
- Annual report total admissions recorded: 29,460
    - Total obstetrics and gynecology (OB/GYN) admissions: 19,017
    - Average cost per inpatient case excluding OB/GYN: 16,629 BWP/1,464 USD

Table 3. Sbrana - Total estimated costs per case (discharge)

Cost Description	Total Costs	Inpatient Fraction	
MOHW Hospital Budget Costs (2018 Values)	33,222,975	70%	23,256,082
Total HRH Salary Costs	49,156,920	70%	34,409,844
CMS Inputs Utilization Costs	5,681,783	70%	3,977,248
Total Costs Salaries and Other	**88,061,678**	**70%**	**61,643,174**

*Conversion USD 0.087433

- Hospital electronic system total number of inpatient cases 2018 (N.B. Definition to be finalized): 1,672
    - Average cost per case at Sbrana: 36,868 BWP/ 3,223 USD
- Annual report total admissions recorded: 1,802
    - Average cost per case: 34,208 BWP/2,991 USD

Tariff - The types of admissions were then analysed, and a selection criterion applied:

1. Account for a substantial proportion of activity in hospitals and thus a significant proportion of budget
2. Resource homogeneous distribution of cases
3. Contain clinically similar cases to establish a grouping that is clinically meaningful and not inclusive of other diagnostic types
4. Available data on average cost and relative cost weights
5. Used frequently in public hospitals by MAS members (estimate)

The cost weight ratio of each of the 5-10 case types relative to the average cost per case was then calculated. From these relative weights, we calculate the estimated cost of each 5-10 case types to be priced (Figure 4).

Standard tariff (for case type x) = average price (for all cases) * cost weight (for case type x)

Table 4: Prototype fee schedule on BPOMAS top 10 high value admissions

No	Type of admission HIGH VALUE	% of cases in pilot	Average cost (BWP)	Cost weight*
1	Leiomyoma of uterus (Fibroids)	15%	26,777	1.42
2	C esarian section	18%	17,413	0.92
3	Cataract	14%	20,408	1.08
4	Cholelithiasis (Gallstones)/(Lithotripsy)	1%	114,639	6.07
5	Abdominal and pelvic pain	11%	12,391	0.66
6	Motor vehicle accidents (multiple trauma)	1%	171,099	9.06
7	Pneumonias	8%	15,514	0.82
8	Diarrhea and gastroenteritis	15%	8,178	0.43
9	Spontaneous vertex delivery	13%	8,029	0.43
10	Chronic renal failure	3%	38,857	2.06
Total		**100%**	**18,888 (1,689.362 USD)**	**1.00**

Limitations

The goal was to obtain a single total or agreed data source, or reconcilable sample estimate for base year data on operating costs. However, several limitations were faced that will be mitigated as the tariff setting system is established:

1. The full expenditure on all hospital operating costs at this stage has to be estimated as described above and needs be calculated in a standard way from source documentation:
    - The operating financial accounts are split between various accounting systems and need to be routinely combined.
    - Some of the fixed costs do not appear to be brought to account in an easily accessible form – e.g. It may be possible to draw on National Health Accounts experience to help establish a reconcilable total.
2. A consistent, reconcilable number of episodes from a base year (cases, admissions, or discharges) needs to be confirmed according to standards:
    - The counting standards (when an admission starts and finishes) appear to be different in different reports and must be standardized and data quality regularly checked and audited.
3. Any officially endorsed relative values (e.g., DRG cost weights) for inpatient admissions or other healthcare episodes in Botswana or neighboring countries will be useful for cross validation when calculating standard individual item costs for a reference tariff setting framework.
    - Data was requested from both hospitals and MAS for this purpose and some initial information has been provided that demonstrates recording and reporting capabilities
    - These will need to be routinely reconciled and cross-validated with accepted published or official reports to ensure consistency of counting, recording, and reporting going forward