



Analysis of Financial Management in public Emergency Medical Services sector: Case study of the Department of Emergency Medical Services, Uganda

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ABSTRACT

Introduction: The purpose of the study was to critically analyse financial management of the public Emergency Medical Services (EMS) sector with specific focus on the financing methods for public EMS.

Methods: The study is a descriptive cross-sectional quantitative survey. It was conducted in the Department of EMS at the Ministry of Health, Uganda. A census was conducted for all twenty-one members of the Department of EMS. Data was collected with the use of a structured questionnaire.

Results: The prominent sources of funding towards EMS in Uganda included government, development partners and charity organizations. The most highlighted factors constraining financial management of EMS included reduced government funding, bureaucracies within government agencies and increasing costs of running EMS. The major strategies to improve on the financial constraints included formation of a national insurance scheme, increasing government's contribution and forming Public-Private Partnerships.

Conclusion: The department seemed to be taking on the trend of the developed world in form of strategies to combat financial management constraints which is a step in the right direction but should be cognizant of the challenges this could bring on due to adaptation of these practices. The department of EMS still had a narrow scope of funding sources mainly circling around government and development partner support and was utilizing less of the more contemporary sources mainly exercised by the developed world.

Introduction

Financial management is based on decisions concerning how much and what types of assets to acquire, how to raise the capital needed to buy these assets, and how to run the firm so as to maximize its value [1,2]. It is the responsibility of financial management to allocate funds to all assets and to obtain the best financing mix [3]. Good financial management helps an organization to make effective and efficient use of resources, achieve organizational objectives and fulfil commitments to stakeholders [4,5].

Internationally, financing for public services has for the most part been through Government funding to offer equity in consumption of such services [6]. Sources from which Government gets funds to avail to its agencies offering public services vary from country to country. In the developed World, most of this comes from taxes. The developing World with its small tax base, looks more at borrowing to fill the gap. Sole government funding for these services comes with a number advantages

including ensuring equitable provision and continued availability of the service. However, this kind of financing method has lots of limitations including political influence in service provision, misappropriation of the funds and efficiency issues due to an ever declining contribution from government with a raising population [7,8].

Most countries in Europe and the West, since the mid 90's, have resorted to alternative financing methods in the hope of fighting off these limitations [9,10]. Private EMS companies are being contracted to offer public services with oversight from government agencies to ensure continued equity in provision [7,8]. This sort of financing mix has seen citizens of such countries benefiting from an efficient public service provision system with development indices such as life expectancy being above the age of 60 years on average [11].

In Africa, apart from South Africa, most countries are still using the solely government funded public service provision model. Given the above highlighted limitations to this model, it is no surprise that most of them are struggling to sustain an efficient and effective system of public

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service provision [11].

In Uganda, the National public EMS sector is under the Ministry of Health and has received up to 958 Million Uganda Shillings for operations starting with the 2018/2019 financial year [12]. This is from the overall health budget of 2.3 Trillion Ugandan Shillings allocated for that financial year [13]. The African Federation for Emergency Medicine did a costing survey in 2018, for EMS in Uganda covering the next 5 years and estimated the cost for the 2018/2019 financial year to be 60 Billion Ugandan Shillings [14]. This clearly shows a gap in funding towards EMS in Uganda.

Emergency Medical Services are one of the facets of health as a public service. It includes the care given to a victim/patient before reaching a health facility. It includes the ambulance services available to transport any patient to a health facility and the medical attention given in the same time period [9].

EMS in Kampala, for the general public, is centrally controlled by the government through the Ministry of Health Department of Emergency Medical Services. This new department of EMS is a transition from the Uganda National Ambulance Services, UNAS. UNAS struggled in providing emergency care services since its inception in 2014 [15]. It started off with a fleet of over 20 functional ambulances but by the time it transitioned to this new department, it was down to only 4 functional ambulances sighting poor maintenance due to financial constraints as one of the causes for this decline in the numbers. Most ambulance staff had as well dropped off due to inconsistencies in payment of allowances and other incentives. This new department is running a solely government funded model for EMS provision. As seen from the international arena, this model is challenging to sustain for a low income country such as Uganda. The objectives of this study was to identify the sources of funding currently being used to cover the cost of running public EMS in Uganda, to analyse the factors responsible for financial constraints of public EMS in Uganda, and to design a strategic framework to improve the financial management of public EMS in Uganda.

Methods

Research design and approach

The study utilized a descriptive cross-sectional survey design. The study used a quantitative approach. Quantitative data was captured through embedding questions requiring concrete numerical responses from the participants in the data collection tools.

Study population and eligibility

The study was conducted in the Department of EMS at the Ministry of Health, Uganda. Eligible candidates were all officers of the department and the technical support staff. The organizational structure includes the Commissioner, the Principal Operations Officer, Senior Education & Training Officer, Senior Fleet Officer, Senior Call & Dispatch Officer and one technical consultant [16]. The department also had fifteen ambulance drivers categorized formally as technical support staff. All in all, the study population was a total of twenty-one (21) individuals. This represented a census of all members of the Department of EMS Data.

Data Collection procedure and techniques

Data was collected with the use of a questionnaire. Data collection spanned a length of three weeks. Participants were communicated to via both email and phone calls to set up appointments. An interviewer-administered questionnaire was used for all the officers of the department of EMS. The technical support staff were approached with a self-administered questionnaire for data collection. Both questionnaire types had the same content.

Data sources and instruments of data collection

Data for this study was collected from Department of EMS. Data collected from the study participants were used to triangulate quantitative findings from questionnaires.

Questionnaires

Questionnaires were used to collect data from all study participants. Two questionnaire types were used; the interviewer-administered questionnaire and the self-administered questionnaire for the departmental officers and technical support staff respectively. Both questionnaire types had the same content. This separation in questionnaire delivery was as a result of time availability of the two different arms of workers in the department. The questionnaires were structured with closed ended questions whose responses were linked to a Likert scale of 1 to 5 (1- Strongly disagree, 2- disagree, 3- neither agree nor disagree, 4- agree, 5- strongly agree).

Reliability and validity

The research instrument was pretested to ensure its reliability, validity and relevance in regards to meeting the set objectives of the study. Pretesting was done at Lubaga Hospital Emergency Department, an urban centre Private-Not-For-Profit hospital, among the five administrators in charge of financial management. The results from the pre-test were used to modify the items in the instrument. A Cronbach's alpha correlation coefficient of > 0.5 was considered as passing the reliability test and instrument considered suitable for use. Validity testing of instruments was done using the inter-rater content validity method using four Emergency Medical Service delivery experts from the Public EMS delivery arena in Uganda. Instruments with a content validity index of 0.6 or higher are considered acceptable for use. The Questionnaire scored 0.9.

Quantitative data analysis

Data collected using the questionnaires was proof read and edited before leaving the respondent.

Data was then converted to numerical codes representing attributes or measurement of variables. Microsoft Excel was used to analyse this quantitative data. Descriptive statistical analysis was applied for the purpose of meaningful distribution of scores or measurements of statistics that were used. The output was presented in form of tables, graphs and pie-charts.

Ethical considerations

The investigator obtained a letter of introduction from the College of Business and Management Sciences Makerere University, which aided in approaching the participants for the data collection process.

All participants were informed about the project objectives and outcomes, and were required to sign informed consent forms in duplicate before offering any information. One copy of the consent form was left with the participant and the other retained by the interviewer.

The participants were offered the final report of the findings from the study before it was publically disseminated.

Bias

This could have arisen from the fact that the principal investigator was a close associate of all the staff of the Department of EMS at the Ministry of Health Uganda thus the participants could have been put in an uncomfortable position disclosing true information especially on sensitive topics such as financial mismanagement. This was controlled for by having other investigators that were part of the team doing the

data collection and participants assured of confidentiality of the availed information. They were further assured that their personal identifiers would be removed from the study such as their names and position in the department.

Results

Response rate

The researcher issued questionnaires to 21 respondents constituting a census of the staff of the department of EMS at the Ministry of Health. A response rate of 100% was realised as all questionnaires were completed. This formed the basis for the analysis.

Demographics of respondents

The study involved taking on a census of all the 21 staff of the Department of Emergency Medical Services at the Ministry of Health.

Respondents age brackets

The respondents' age brackets are as shown in Table 1 below. The largest proportion fell into the age bracket between 31 and 40 years of age.

Gender of the respondents

As regards the gender of the respondents, 71% of them were males and the rest females indicating an overall dominance of males working at the department of EMS. This is illustrated in Fig. 1 below;

Respondents' level of education

All respondents had at least a basic diploma and the majority of them were bachelor's degree holders (47.6% of respondents). 38.1% of the respondents had post-bachelor degree qualification.

Respondents' length of working experience in EMS

The majority (90.5% of the respondents) had two years and more of working experience in EMS. This gave us confidence that each respondent had a good working knowledge of the EMS system given this experience level.

Sources of funding for EMS

Respondents were asked to select the available sources of funding to the EMS Department considering the magnitude of each funding source's contribution.

Respondents' responses, through the Likert scale from 'strongly disagree', 'disagree', 'neutral', 'agree' and 'strongly agree', were categorized and ranked in order of magnitude of contribution. The ranked

responses are shown in Table 2 below;

Factors responsible for financial constraints of EMS

Respondents were asked to select the factors responsible for financial constraint to EMS with consideration of the magnitude of contribution of each factor to the constraint. The ranked responses are shown in Table 3 below;

Strategies to improve the financial management of EMS

Respondents were asked to choose strategies to improve financial management of EMS in accordance to the magnitude of contribution of each strategy to the constraints. They had the following responses according to the Likert scale. These were ranked in order of magnitude of contribution as shown in Table 4 below;

Discussion

Sources of funding

From the findings, the top three sources of funding namely development partners, government and charity organizations, for a public service such as Emergency Medical Services, reflect for the most part the picture of public service funding in most of the African states [7]. Public services are state owned and run. Government also relies on development partners and charity organizations to cover up what it cannot avail through its revenue base. This sort of funding is shadowed by challenges to the government systems that limit its sustainability, as exemplified by systems constraints contributing the largest part of the constraints to EMS financial management aired out by the respondents from the department of EMS.

The more entrepreneurial sources such as crowd funding and organized group membership fees are not well acknowledged sources of funding. Such strategies can be predicted to take on a large portion of the contribution towards funding of EMS in the foreseeable future, Uganda being one of the most entrepreneurial countries. This trend is already evident in some African countries such South Africa [5].

Health insurance coverage of EMS as compared to the developed world is still a very underutilized source. In the developed world, > 80% of the population is covered by health insurance that extends to cover EMS [9,10]. The financing is driven by insurance reimbursements to mostly private EMS providers. Uganda is on this trend with a National Health Insurance Bill in its process to reach enactment.

Client out-of-pocket contributions are quite under stated by these findings. Health systems experts agree that the Ugandan health system is very reliant on out-of-pocket payments made by the public [20]. Government has not formally acknowledged this but it's a reality that taints our system.

Third party claims are an underutilized source of funding in Uganda compared to the developed World for road traffic accidents. Millions of shillings are paid towards third party insurance but most of this remains

Table 1
Age bracket of respondents.

Age	Frequency	Percent	Valid percent	Cumulative percent
< 20 years	0	0.0	0.0	0.0
Between 21 and 24 years	0	0.0	0.0	0.0
Between 25 and 30 years	3	14.3	14.3	14.3
Between 31 and 40 years	13	61.8	61.8	76.1
Between 41 and 50 years	3	14.3	14.3	90.4
Between 51 and 60 years	1	4.8	4.8	95.2
Between 61 and 65 years	0	0.0	0.0	95.2
> 65 years	1	4.8	4.8	100.0
Total	21	100.0	100.0	

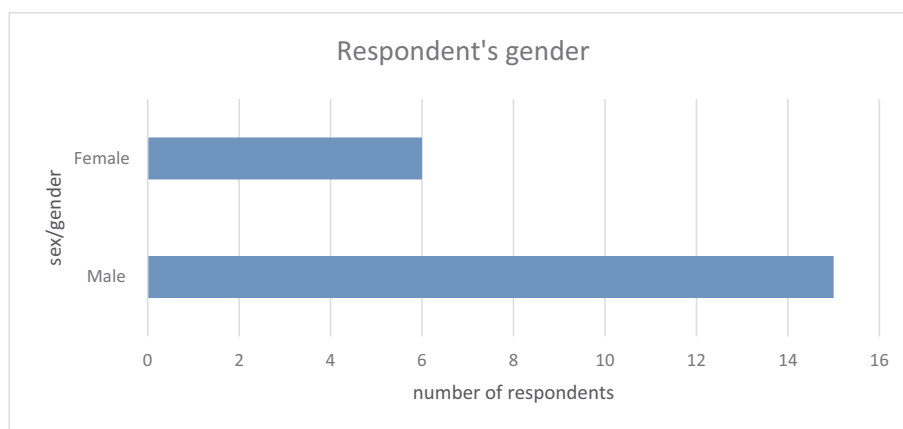


Fig. 1. Gender of the respondents.

Table 2

Ranking of sources of funding according to analysis of the respondents' views.

Funding source	Rank	Justification from analysis
Development partners	1	86% agreement, 9% disagreement
Government	2	76% agreement, 19% disagreement
Charity organizations	3	76% agreement, 24% disagreement
Client out-of-pocket contributions	4	57% agreement, 34% disagreement
Grants	5	48% agreement, 38% disagreement
Third party claims	6	10% agreement, 66% disagreement
Health insurance schemes	7	9% agreement, 77% disagreement
Organized groups membership fees	8	5% agreement, 29% strong disagreement, 52% disagreement
Crowd funding	9	5% agreement, 33% strong disagreement, 48% disagreement

Table 3

Ranking of the factors responsible for financial constraints of EMS according to analysis of the respondents' views.

Factor causing financial constraint	Rank	Justification from analysis
Reduced government funding	1	95% agreement
Bureaucracies with in the Ministry of Health and/or other government agencies	2	76% agreement
Increasing costs of running EMS activities	3	67% agreement
Limited sources of funding	4	52% agreement
Lack of control by financial managers in the EMS department over budgets and funds	5	43% agreement
Restrictive financial policies	6	34% agreement
Mismanagement of funds	7	29% agreement

Table 4

Ranking of the strategies to improve financial management of EMS.

Strategy	Rank	Justification from analysis
Creation of a National Health Insurance Scheme	1	57% strong agreement, 43% agreement, 0% disagreement
Increasing Government's contribution towards EMS	2	52% strong agreement, 48% agreement, 0% disagreement
Forming Public-Private Partnerships	3	95% agreement, 0% disagreement
Attracting more development partners	4	24% strong agreement, 62% agreement, 4% strong disagreement, 5% disagreement, 5% neutral
Cost-sharing schemes with citizens	5	19% strong agreement, 67% agreement, 5% strong disagreement, 0% disagreement, 9% neutral
Strengthening financial management legal framework	6	10% strong agreement, 76% agreement, 0% strong disagreement, 0% disagreement, 14% neutral
Strengthening internal audit function	7	81% agreement, 0% disagreement, 19% neutral
Professionalization of financial management	8	77% agreement, 14% disagreement
Strengthening external audit function	9	76% agreement, 0% disagreement, 24% neutral
Amendments in the financial reporting system	10	76% agreement, 10% disagreement, 14% neutral
Amendments in the financial accounting system	11	24% agreement, 19% disagreement
Privatization of EMS	12	19% agreement, 76% disagreement

unclaimed due to lack of awareness by the public of the claim process [21].

Factors responsible for financial constraints of EMS

Given that the largest contributor towards funding for public EMS was the government and its development partners in Uganda, it is not surprising that the main factors causing financial constraint were related to governmental functions such as reduced government contribution and ministry bureaucracies. Mismanagement of funds came in as weak factor according to responses but can be seen as under stating its limiting nature given Uganda has notably high levels of embezzlement of funds in government agencies [10].

Interestingly, constraint due to limited sources of funding was a notable factor. There are many other sources that the department has not explored and this can offer an avenue to drastically turn around the financial restriction to running EMS. It has well been observed that countries with multiple other sources of funding other than sole reliance on government funding, have had remarkable sustenance of EMS [17].

EMS as a public service requires a huge investment to keep it functional. The cost of running these services has in recent years been increasing due to several reasons. Some of these include advancements in technology, bringing on board more expensive sophisticated equipment and tools needed to provide EMS [5].

Strategies to improve the financial management of EMS

The department seems to be taking the trend of the developed world opting for a national health insurance scheme as the top strategy to turn things around. That said, the department still has seemingly futile hopes that increasing government contribution will boost EMS service

provision. The WHO recommends that each country contributes at least 15% of its annual budget towards health [18]. In Uganda, for the past 30 years, the health contribution has always been below this recommended bare minimum.

Attracting more development partners is a highly ranked strategy by the department. This comes with its challenges. With development partner support sometimes comes conditional detrimental prerequisites with the funding.

Cost sharing schemes with citizens, as a strategy to fund a public service such as EMS, is not a new concept. Citizens have been contributing towards their health services out-of-pocket to bridge the gap due to inadequacies in the health system. Formalization of this type of funding source has always been the challenge with its recognition.

Strategies to strengthen formal financial management systems have seen vast development of EMS in the developed world [19]. These strategies are yet to be acknowledged by the department of EMS as strong and worthwhile undertakings.

Privatization of EMS is seen as the least helpful strategy by the department. This reflects the general feel of negativity that sprung up due to the challenges privatization brought up in the 1980's and 90's when the government privatized most of the state owned business entities. Privatization has been used as a useful method in most developed countries to supplement advancement in financial management of EMS though still tainted by controversies [9,10].

A potential source of bias was that the principal investigator had been working as a close associate to all the participants at the Department of EMS. This might have limited the entirety of truthfulness of the participants especially on inquiries relating to mismanagement of funds as a constraint to financial management at the department.

These study findings can be seen as reflective of most sections/divisions/departments handling Emergency Medical Services in a Health Ministry of a Low or Middle Income Country, given the comparability of finance utilization in these countries.

Conclusions

The department of EMS still has a narrow scope of funding sources mainly circling around government and development partner support and is utilizing less of the more contemporary sources more mainly exercised by the developed world.

Given that the largest contributor towards funding EMS is the government and its development partners in Uganda, it is not surprising that the main factors causing financial constraint in EMS are related to governmental functions such as reduced government contribution and ministerial bureaucracies. Other factors, still government related, that also contribute to the constraint include lack of financial control by line managers, restrictive financial policies and mismanagement of funds meant for EMS.

The department seems to be taking on the trend of the developed world in form of strategies to combat financial management constraints, the biggest being setting up a national health insurance scheme, which is a step in the right direction but should be cognizant of the challenges this could bring on due to adaptation of these turbulent practices.

Dissemination of results

Results from this study were shared with staff members at the

Department of Emergency Medical Services, Ministry of Health through an informal presentation and email interactions. The results were also included in the department's annual report to the senior top management at the Ministry of Health.

Authors' contribution

Authors contributed as follow to the conception or design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content: KP contributed 60%; TP 25%; CB 10% and KJ 5%. All authors approved the version to be published and agreed to be accountable for all aspects of the work.

Declaration of competing interest

The authors declared no conflicts of interest.

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