

East, Central and Southern African Health Community (ECSA-HC)

The Implementation and Impact Assessment of Hospital Efficiency Costing in Kenya

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December, 2008

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Executive Summary

This preliminary evaluation was commissioned by Eastern, Central and Southern Africa (ECSA) Health Community Secretariat Headquarters, Arusha, Tanzania mainly to document what the Ministry of Health and Provincial Hospitals in Kenya have so far done with respect to adopting efficiency oriented measures in the running of hospital services. This comes against the background of efforts initiated by ECSA Secretariat to foster adoption of hospital services costing in the region in a bid to improve their efficiency in the face of growing resource constraints for the delivery of health care.

Costing of hospital services for efficiency emerged as a complementary option to augment resource mobilization for delivering health care in the region following the technical guidance of the Directors' Joint Consultative Committee (DJCC) Meetings of 2001 and 2002 which noted that inefficiencies in utilization of available resources in the hospitals was partly responsible for the inability of the health care goals of the community to be reached. Adopting efficiency oriented measures entailed training hospital management teams to conduct scientific analyses of inputs and outputs in order to make management decisions that are objectively informed.

The evaluation involved visits to the Kenya Ministry of Medical Services (formerly Ministry of Health) Headquarters, three provincial hospitals, and ECSA Secretariat where both individual interviews and group discussions were conducted in order to understand the entire process from inception and adoption of 'costing' to utilization of the data in management decision making. The findings of the evaluation indicate that there were variations in the way the staffs from the three hospitals were exposed to the costing process, and consequent to that the levels of adoption of the costing principles were also widely varied. While all hospitals initiated the process and have hitherto, managed to utilize the results in a variety of ways, the evidence emerging is that stakeholders did not fully

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embrace the ownership of this as one of their routines. Beginning with the Ministry of Health Headquarters to the hospital management teams, there is need to fully absorb costing as one of the everyday exercises, which entails ensuring that there are sufficient structures and human resources dedicated to the demands of coordinating, implementation and sustaining the efficiency oriented measures specifically and the cost conscious culture in general.

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1.0 Introduction

Health systems in developing countries are faced with numerous challenges in delivering health care. In particular, gaps have been observed in the ever increasing limitations on resource envelopes for health care financing against the growing burden of disease. While poor macroeconomic performance has a lot to do with this situation, health systems in developing countries have also been guilty of perpetrating operational inefficiencies by relying on non-scientific information to inform key management decisions. The realization that resource mobilization alone is not enough to contain the problems of resource inadequacy has culminated in complementary efforts that seek to improve utilization of available resources within the ECSA region. In other words, there is need to foster decisions that are based on scientific data, and it is on these grounds that the process of costing hospital services for efficiency is premised. This evaluation, therefore, seeks to shed some light on some of the processes undertaken in Kenya to establish the culture of costing hospital services while also evaluating the preliminary implementation achievements.

1.1 Background

Notwithstanding the various sources of assistance and the long history of the existence of ECSA, health care problems in the member countries (most of which are among the poorest in the world) continue to plague their populations. In keeping with the recommendations of the 2001 DJCC conference, ECSA Secretariat is making progress in designing and integrating HMIS for members states that is an object of scientific data. Beginning 2001 ECSA drew up an agenda which is articulated in the strategic plan for the Health Care Financing programme. Among other things, it emphasized the need to strengthen operational efficiency of delivering health care amongst the member states through capacity building and orientating hospital management teams in

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undertaking costing of hospital services. It was envisaged that costing of hospital services would provide a sound basis for allocating financial and human resources, provide benchmarks for budgeting and ultimately lead to overall hospital operational efficiency in the implementing hospitals.

To reach these goals one of the approaches adopted by the ECSA Secretariat involved developing of research based health care financing options that would be shared amongst the member states. Preliminary steps taken to facilitate the introduction of the hospital costing exercise included instituting a strategic partnership between the secretariat and the ministries of health and selected university teaching hospitals. Specifically, training was offered to Ministries of Health and selected hospitals in Kenya, Zambia, Uganda, Tanzania and Malawi, countries where the initiative was also to be tested. All countries, except Kenya, have one hospital experimenting with costing for hospital efficiency. In Kenya up to six hospitals have been involved and, based on this fact, the evaluation which seeks to identify lessons emerging from the implementation process is focused on this country. Specifically, this assessment sought to document the steps taken in order to introduce the costing process, challenges encountered, and to provide preliminary evidence for the adoption and utilization of costing results.

2.0 Scope and Methodology for the Assessment

The main objective of the assessment was to establish the impact of the HEC pilot in Kenya on the policy decision to scale up HEC to the rest of public hospitals in Kenya The scope of work was also guided by questions (see appendix II) generated by ECSA Headquarters to complement the consultants questions.

The scope for the evaluation can be classified into three major building blocks namely:

- To document the process leading to the introduction of the Hospital Efficiency Costing Tool in Kenya, which is to put on record the roles and commitments assumed by various partners in the run up to the introduction of this process.
- The second was to examine what lessons can be learnt from practical arrangements that were followed during the inception, implementation and utilization phases of the costing hospital services. This entailed unearthing an understanding the situation and decisions pertaining to human and financial resource capacity issues, completion of facilitative roles, constraining factors and taking note of the extent to which costing is being formalized into daily routine for managing the hospital facility.
- Thirdly, the assessment aimed to document and analyze the preliminary impacts of the costing results and using these to inform the decision makers about the potential scope for scaling up 'costing for hospital efficiency' in Kenya.

To reach the above goals the assessment drew upon two main sources of data. Secondary data was collated from background and working documents that were sourced from the three provincial hospitals, the Planning Department of Ministry of Health and ECSA Secretariat. Primary data through key informant interviews and group discussions at Ministry of Health Headquarters, Provincial Hospital Management and Costing teams, and ECSA Secretariat staff complemented the secondary data. Additionally, one former Chief Administrator and member of costing team for Mombasa was also interviewed.

Specifically, three hospitals, Nyanza Provincial Hospital in Kisumu, Coast Provincial Hospital in Mombasa and Moi Teaching and Referral Hospital in Eldoret, the Ministry of Health (Kenya) and ECSA Secretariat were visited and provided the required information for the evaluation. Two question guides were

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produced, one for Management levels which included MOH Headquarters, Hospital Management and ECSA Secretariat as key informants, and the other for hospitals targeting the costing teams with whom group interviews as well as individual discussions were held. The list of those who took part in this process is in appendix III.

The evaluation also benefited from the preliminary assessment which was undertaken by the Coordinator for Health Care Financing and Reforms towards the end of 2007 at the Coast Provincial General Hospital (CPGH) in Mombasa and Moi Teaching and Referral Hospital (MTRH) in Eldoret.

3.0 A Synopsis of the Hospital Efficiency Costing (HEC) Tool

The HEC tool was developed by ECSA-HC with view of assisting managers at hospital and national levels in the region to make more objective decisions, particularly, with regard to resource allocations, comparison of performance of hospital functions and to enhance efforts for improving the quality and sustainability of services. An expenditure based model called 'Machame' developed in Arusha Tanzania with African characteristics was adopted for the purpose. The model involves classifying cost centers within which cost data is analyzed and broken into categories of direct, indirect, variable, fixed and overhead costs. At the center of this model is the process of assigning costs to hospital outputs, also referred to as the workload. The costs of the services produced can then be compared across the hospital functions together with the estimated unit cost of inputs that have been invested in producing the specified output. Following this simplified technical process, efficiency oriented decisions can easily be undertaken by managers of the implementing hospital.

4.0 Findings of the Assessment and Analysis

This section presents and analyses the key evaluation results based on the core objectives articulated in section two. A detailed scope of work can be found in the appendices of the report. The gist of this section is to answer whether the hospitals adopted the HEC and how they are actually making use of the indicators emerging from the implementation of the HEC for making efficiency oriented management decisions.

4.1 The Process of Introducing HEC

Introduction of the HEC needs to be viewed in the wider perspective of implementing regional health systems strengthening initiatives by the ECSA community. The activity fits in with the ECSA secretariat's programme largely driven by recommendations of the DJCC. Intervening to address the capacity gaps for implementation of the HEC, training was identified as one of the means to reach the practitioners in the hospitals within the region. The approach to training was staggered in sessions that can be classified into three different target groups. First, at the international level the training sensitized a group of senior managers from the ministries of health and selected hospitals, the second target group was made up of hospital management teams from provincial hospitals in Kenya and then the last round of training was the all inclusive internal training of heads of units and among other key personnel directly involved with costing at the piloting facilities. The following section outlines the induction process and how it evolved into practical costing.

4.1.1 Induction for senior managers in the region

As a follow up to the 2001 resolution of the DJCC which sought to 'strengthen the health services operational efficiency within member states' ECSA Secretariat took an initiative to organize and facilitate the initial training for managers from

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Ministries of Health and selected hospitals in the region. Present at this five day training, which was hosted by the Coast Provincial General Hospital (CPGH) in Mombasa in 2002, were 19 representatives from Mombasa Provincial General Hospital (Kenya), Ministry of Health (Seychelles), Mbabane Government Hospital (Swaziland), Kilimanjaro Christian Medical Centre (Tanzania), University Teaching Hospital (Zambia) and Parirenyatwa Hospital in Zimbabwe.

The main objective of this training workshop was to induct senior and middle level hospital managers on the important concept of costing and costing analysis for improving the quality and usefulness of HMIS in the hospitals and the Ministries of Health as a whole. Specifically the participants were introduced to the importance of a team based approach for the attainment of hospital operational efficiency, developing skills to conceptualize the linkages of costing to the process of budgeting and cost controls, and providing an expose' to the range of costing tools available for adoption. In particular the Machame Hospital Model was emphasized, and participants adopted it for its flexibility and relative ease. To conclude the training, the participants planned complementary follow up activities in form of action plans. These included organizing in-country hospital specific trainings that would set the ball rolling scheduled to take place within three to six months. Further plans for a team of experts with support from ECSA Secretariat to visit selected hospitals that had received training to monitor the adoption of the costing process were put in place at the end of this training.

4.1.2 Hospital Specific Training in Kenya

Kenya is the only country with up to six hospitals piloting the costing process. The following section describes the facilitation roles and arrangements that were put in place to pilot the costing process in health facilities.

The case of Coast Provincial General Hospital

As a follow up to the induction of senior country officials in 2002 articulated in the preceding section, the country teams were to plan for and organize comprehensive internal teams and introduce the HEC concept. However, the process met with a long period of inactivity until May 2004, when ECSA Secretariat revived the process, by facilitating the visit of a costing consultant to CPGH, tasked to train and guide staff through a process of defining 17 cost centers and sub centers. Eight individuals were inducted to form the core costing team, out of which three became the main players in the costing exercise. They also rationalized the basis for data collection and utilization for decision making. This initiative ignited a data processing activity predominantly undertaken by core members of the costing team which included the former Chief Administrator and former Hospital Accountant. This was followed by a second level training in 2006 conducted by Moi Teaching and Referral Hospital in two separate one week blocks for up to 32 individuals, directly working as heads of departments or sections.

Preparatory Steps taken at Moi Teaching and Referral Hospital

The capacity building process at this hospital started in 2005. ECSA Secretariat engaged with the Ministry of Health and the management of the MTRH and consequently established the MTRH as a training center for other hospitals in the region. The first training was conducted in Eldoret, facilitated by the Secretariat. Participants included the Hospital Director, two Deputy Directors, Financial Manager, Acting Chief Accountant and Head of Records Department. A similar approach was adopted at the CPGH, where the participants were guided through locating cost centers and data manipulation procedures. The participants were to become the core members of the costing team at the hospital and resource persons for all subsequent trainings. This training also put in place arrangements

that culminated into MTRH planning and executing training for other centers such as Nyanza, Nyeri, and Nakuru Provincial hospitals.

A second level internal training to accommodate all heads of departments and sections, and other strategic staff was also undertaken. The nature of the training involved practicing with actual cost data generated at the hospital. As such, it became imperative that other members of staff of the hospital involved with the data be co-opted to make the training process run smoothly. Similar training was also administered at this facility for two days to induct teams from other hospitals in groups of about five professionals each who eventually formed the core costing teams in their respective institutions.

Nyanza Provincial General Hospital

Two main steps were followed. At the first level, a two day induction course provided by MTRH to a five member team upon invitation by the Ministry of Health in 2006 to mark the beginning of costing hospital services at Nyanza Provincial Hospital. Second step involved organization of an internal training cum data processing exercise that lasted for almost one month involving more than 30 heads of departments was put together by the hospital management. The training benefited from the presence of facilitators from Moi Teaching and Referral Hospital. The process ended with a comprehensively peer reviewed quarterly report which was also launched by the Ministry of Health officials from the western region.

4.2 Adoption and Implementation

The foregoing discussion on the background preparatory phase shows that there were some variations in the manner the three hospitals were introduced to costing. It must, therefore, be expected that these variations must filter through to the adoption and implementation phase of costing hospital services in these

centers. Implementation essentially involves on producing the data that the management of the hospital can use for decision making. With regard to implementation, the first point of departure among these institutions is that, while at MTRH the implementation is ongoing, the other two centers have done it only partially and with varying degrees of success. Furthermore, the process has not been sustained in the other centers owing to various forms of bottlenecks which are discussed in subsequent sections of this report together with some of the positive outcomes.

4.2.1 Progress at MTRH

The Moi Teaching and Referral Hospital has a long history of development dating back to 1952. Since then the stature and mandate of the hospital has been steadily advancing. Besides being a referral hospital, MTRH has a semi-autonomous status to make key decisions pertaining to sourcing and utilization of revenues while also serving as a university teaching hospital for the entire country. These ingredients make MTRH a suitable national center to facilitate capacity building for implementing HEC in Kenya. Similarly, as an implementing agent, MTRH has a number of factors that puts the institution on the right footing to do hospital costing for efficiency. For example because of the autonomy and operating as a semi private entity means that staff attrition is low, thus a solid and stable costing team will remain in place for a considerable period. Being a training center means that the institution is on top of the procedures, thus it can more easily fill any gaps in the present capacity.

MTRH staff has received ample training; specifically two types of training were organized at this place, first for top management executives and second for all key personnel in administration and accounts departments. The hospital has up to 6 qualified trainers. These trainers are also the resource persons for other provincial hospitals. As part of the implementation process, the MTRH also went ahead to set up a costing unit, as a sub-section of the accounts department. A cost accountant, who works closely with the Director of Finance and

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Management Accountant, while also getting support from the rest of the costing team, is in charge of this unit. Setting up of the costing section has made it possible for the hospital to input raw data, channeled on a daily basis from all departments, and tabulating them into usable hospital resources. This new section is equipped with a computer for processing the data. All these steps are strongly linked to decisions taken on the basis of the autonomous status of the hospital.

In order to make the process systematic the hospital determined the cost centers for allocating expenditures. Although there will always be room for making improvements, for instance in determining allocations for cross cutting services and utilities i.e. those which are not department specific, the foundations laid are adequately poised for costing to yield good results in directing hospital operations.

The hospital also has one major factor working to its advantage, this being the autonomy status. The advantage of this aspect is that in the first place it limits staff turnover, notably this is the only hospital amongst the three with almost all individuals who trained in 'costing' still holding their positions and the costing team is still intact. Secondly, utilization of costing data has found a lot of favour in, and is perceived almost as a complimentary input to determining the rates for charging the various hospital fees. To this effect, MTRH's adoption of the costing process has become a crucial input into the operations of the private wards where fees are levied. At this point it can be seen that MTRH does not only have current capacity to do costing, but the potential for the future of hospital efficiency costing looks equally good in this institution. On account of its stability, efforts for transferring technical expertise and concretization of the current pilot initiatives in other hospitals in Kenya have a sound basis.

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4.2.1.1 Specific Implementation Achievements at MTRH

MTRH's achievements fall in two categories, first is the documentation of the useful experiences gathered during the implementing phase at this institution and, secondly is an examination of the leadership roles executed and capacities of MTRH as a training and resource center for other hospitals in Kenya. In both cases the set up of MTRH has already made enormous contributions to the future attainment of HEC goals at national level. The following are some of the achievements and conditions favoring the potential for furthering institutionalization of HEC.

Achievements as an implementing agent

- A solid team of six lead persons in the management cadres is in place to spearhead costing at this institution; this includes the Chief Executive of the hospital and a cross section of administrative, finance and technical professionals.
- ii) The Finance Manager has been identified as Coordinator to oversee the daily operations in respect of costing with close assistance from Management Accountant and Costing Accountant.
- iii) A Costing Section has been created within the Finance Department manned by a Cost Accountant who is equipped with a computer to ensure that costing is integrated as one of the routines at the hospital.
- iv) Costing procedures have a comprehensive coverage of the hospital functions. Heads of departments, Chairmen of divisions and most other key sections are involved in the trainings, data collection and the review processes that follow.
- v) Six main Cost Centers have been defined, with minor sub-centers also articulated to facilitate data manipulation and decision making.
- vi) Implementation is at an advanced stage although it is incomplete because some functions of the hospital such as the training centre, the

procurement unit and the hospital cafeteria are yet to be fully costed. The hospital is also in the process to operationalize a new wing for children and an oxygen plant which also need to be properly incorporated into the costing matrices.

- vii) The hospital has managed to produce costing data trends on monthly, quarterly and annual basis with the latest June 2008 report making a significant mark in the process of formalizing and utilization of such information for operations.
- viii) Four information hubs have been identified for collating data for the hospital. The budgetary control section, health records, statistics and supplies sections update records on an ongoing basis and the cost accounting unit relies on these to compile comprehensive hospital expenditures. This is a good example of synergies from team based complementarities in costing and decision making.

As a resource center for the Ministry of Health

- ix) With facilitation from ECSA Secretariat, MTRH provided training to staffs of all six hospitals participating in the pilot phase of costing in Kenya, including MTRH, Nyanza, CPGH, Nyeri, Nakuru between 2005 and 2006.
- x) All hospitals have had staff in the range of 30 to 40 receiving training.
- xi) MTRH has also been involved in retraining the hospitals on request with the facilitation of the hosting hospital management.
- xii) MTRH in collaboration with ECSA Secretariat makes follow up visits to the trained institutions

4.2.1.2 Emerging issues from implementation of HEC at MTRH

- i) Some of the obstacles faced in the earlier phase included definitions of cost centers for non specialized areas such as 'pharmacy' and 'outpatient department'. The learning process resulted into the exclusion of the pharmacy department from the list of cost centers. On the other hand, the outpatient department which could not be properly costed as one unit, has been split into four separate units to enable production of indicative cost data for harmonized units that can be meaningfully compared: (i) Accident and Emergency, (ii) Ambulatory clinics, (iii) Sick child clinic and (iv) Well baby clinic. This has enhanced specificity for management decisions.
- ii) The hospital is dependent on manually collated data. Daily routines including requisitioning and maintenance of consumption data are recorded on specific types of forms, which must then be channeled to the records units. This procedure poses risks for delays as these forms have to be moved to the five sections responsible for computerization. The system also leaves room for data inaccuracy especially that cases of non adherence to filling the requisition and consumption forms are commonplace in the hospital. Retrospective tracking of records has to depend on individual memory. The information gaps and errors generated at this stage are likely to understate expenditure estimates.
- iii) Some functions of the hospital, namely the training center and the cafeteria have not been comprehensively incorporated into the costing process. These functions are both semi-autonomous as they also get ample subsidies from the hospital budget. These conditions have contributed to difficulties in costing the services these two units provide, hence their exclusion. However, the task is not an impossible one, with ample effort it should be possible to include them on the list

of services being accounted for. The same goes for the currently omitted services rendered by the procurement section.

iv) Once reports have been produced, the management circulates summaries for the attention of the relevant heads of sections. However, there are indications that no systematic method of reviewing and sharing the 'cost reports' in a forum has been put in place. Currently the only forum that absorbs this information is the quarterly meeting attended by managers. Discussions have already proved to be vital for making crucial decisions, such as was the case when cost centers were being isolated. It should thus be easy to see that forums that deliberate on the outcomes of costing hospital services would not only enhance data generation processes but also help to tie individual behaviour at lower levels to cost consciousness. This would then speed up the integration of the entire process of costing together with other routines in the hospital leading to institutionalization of costing hospital services.

4.2.2 Progress made at Nyanza Provincial General Hospital

Nyanza Hospital has been in existence since the mid 1960s and serves catchments of about 5 million people from 21 districts surrounding Kisumu. This is a public hospital, which charges user fees for its services. The distribution of inpatient care and outpatient care cases is roughly estimated at just below 20,000 and 175,000 per annum respectively. At this hospital, the HEC process began in 2006 with five individuals, who formed the core costing team, after attending training at MTRH. This was followed by an in house training and data collection exercise organized at the provincial hospital. Forty staff members from across all departments and sections were involved in defining cost centers and putting together a draft costing report for one quarter. However, the adoption process remains incomplete due to a breakdown in communication between the

Ministry of Health and the hospital team. There was an understanding that the data output of this initial costing exercise would be presented at a launching forum in the western region, which would be attended by other stakeholders such as Nyeri and Nakuru Hospitals. Putting this arrangement on hold has proved to be a major operational bottleneck for implementation of the HEC.

4.2.2.1 Implementation achievements at Nyanza Hospital

- A costing team comprising five lead persons, namely, Hospital Administrator, Accountant, Matron, Medical Superintendent and Records and Information Officer was put in place to spearhead costing. However, the Chief Executive who was trained and was critical at supporting the initial processes has since been moved to another duty station. The critical mass nevertheless is still available at the hospital.
- The core team, with the facilitation of the MTRH gave training to about 40 hospital staffs who were also directly involved in the once off costing of services that took place.
- iii) In an exercise that lasted about one month, the hospital management hosted a training and implementation session that defined and costed 25 centers and sub-centers. MTRH was in attendance to oversee this process.
- iv) In a process that involved all departments costing results for one quarter of January-March in 2007 were produced. Although these estimates were scarcely used, there is still potential of building on the costing work that was already done.

4.2.2.2 Observations emerging from the implementation process

i) The hospital has not identified a focal person to coordinate the work. Although the accountant and records/information officer have been instrumental in putting together the spreadsheets for one quarter, the entire process was largely driven by the MOH headquarters. The apparent lack of hospital level ownership puts the whole process at the risk of stalling once the drive from the top wanes. Needless to say that insufficient institutional ownership of such a process is always a recipe for failure and needs to be addressed as the work progresses.

- ii) The two days induction course in Eldoret attended by core team members was reported to be too short to allow a good grasp of the concept and techniques. This insufficient knowledge base has hitherto, been compounded by the attrition of trained staff members. Currently, it is reported that up to 50% of the trained staff including the former Chief Hospital Administrator are no longer at the station. This calls for institution of measures that will assist in retaining services of competent staff who can take the process forward.
- iii) It would appear that there is a general practice across the entire network of government hospitals to handle records manually. For instance, the most reliable source of data from all departments is the requisition forms (S11), whose data are generally inconsistent. As such, costing of hospital services is based on very crude estimations of quantities being expended, which ultimately affects the imputed value of the services being offered in most service centers. Similarly, problems were encountered regarding the value of the hospital land. The cost of determining the true value proved prohibitive such that a crude estimate was made. Such difficulties with the estimation of input values also contributed to the stalling of the costing exercise at Queen Elizabeth Hospital in Malawi.
- iv) The hospital implements a policy of fee waivers and exemptions on some services, which were not captured in the costing exercise. In order to have a complete picture of the cost of all services, valuation of these free-ofcharge services needs to be imputed. This would also give a clearer picture to the hospital management regarding the resource gaps, and facilitate better decision making on revenue generation strategies.

- v) Costing has also been limited by the unavailability of information on the usage of motor vehicles at Nyanza Provincial Hospital. The absence of information such as fuel consumption, maintenance and other running costs, means that use of costing as a management tool is severely restricted. This component needs to be included in the costing matrices together with data for other forms of equipment in use at the hospital.
- vi) The tentative arrangements reached between this hospital and the MOH headquarters for rolling out 'costing' contributed significantly to the stuttering process. More importantly, the outcomes of this arrangement reveal the need for putting in place well articulated coordination mechanisms that are shared between the ministry and the facilities. This should be complemented by an elaboration of roles to be played by each of the key stakeholders such as the Ministry, the resource center and the implementing facility.

4.2.3 Progress made at Coast Provincial General Hospital

The first comprehensive costing report was produced for the financial year 2003/04, and this continued into 2004/05 and first quarter of 2005/06.

The adoption of the costing process was not smooth due to the understanding that Ministry Headquarters would provide the leadership in the implementation of the initiative. This did not happen until ECSA Secretariat organized a forum for costing in Zambia, where all provincial teams were expected to make presentations regarding their experience with the costing process. Nevertheless the HEC was implemented and the output generated was put to good use. However, the process has since been discontinued. The institution has lost up to five core members of the costing team, with only three of the trained personnel still in their positions at the time of the evaluation.

4.2.3.1 Specific implementation achievements at CPGH

- Following the initial training the hospital had up to eight members in the core team, however only three of these were instrumental in producing the figures for the period of 2004-2006 in which costing was done.
- With the assistance of ECSA Secretariat, 17 cost centers and sub centers were identified during a four day discussion forum involving all heads of sections at the hospital.
- iii) Up to 32 individuals attended training in 2006 offered by the MTRH to complement the earlier efforts initiated by ECSA Secretariat. However the majority appear to have been minimally involved in subsequent stages of costing.
- iv) Following the Lusaka forum, costing was intensively done for the said period and the information was also used to make important decisions at the hospital as is highlighted in the section on impacts.
- Implementation involved a cross section of departments spearheaded by the accountant and the former Chief Administrator culminating in a team approach that included areas that previously never figured in costing.

4.2.3.2 Issues arising from the implementation process at CPGH

 Similar to the case at Nyanza Hospital the understanding of the management of the hospital was that the MOH would initiate and steer the costing process. Implementation only started in 2004, when ECSA Secretariat retrained the staff and assisted in mapping out cost centers.

- ii) In the ensuing implementation process, a limited number of staff was closely involved in the data processing, perhaps with the Lusaka forum in mind. The absence of a widespread network of individuals playing key roles on this activity has resulted in the activity stalling completely because all the three key persons are no longer at the facility.
- iii) The idea of placing responsibility in the hands of heads of departments and sections to make costing a hospital wide activity has not happened at this institution, but there is plenty of potential to do so.

The assessment also sought to document the extent to which cost data is being utilized by the hospital managements' teams to guide operations, and also take note of any impacts that decisions at this level might have on the delivery of health care and more broadly on the health system.

4.3 Utilization of HEC Outputs and Impacts

4.3.1 Areas of utilization at MTRH

In trying to understand the scope for utilization of the cost data to influence the outcomes of decisions for delivering health care, it is important to show the areas in which the application of the HEC has found favour. Among the three hospitals sampled for the assessment, MTRH and CPGH have reached an advanced stage of implementation and thus, the examples of HEC utilization discussed in the following section are based on these two centers.

4.3.1.1 HEC as a business tool

The HEC has predominantly found favour as a business tool for the hospital management. The most important characteristic it brings to the system is one of revealing the unit cost for delivering a specified service. A number of decisions can be made on the basis of this information, such as the allocation of expertise and user charges among others. Provincial hospitals provide services at a fee. Clients to the hospitals fall into four categories, based on the mode of payment for the services. There are private patients, who pay for the full cost of the service out of pocket. These utilize the private wards of the hospitals. There are also clients covered by the National Health Insurance Fund (NHIF). These make a co-payment, which normally covers the cost in excess of the fixed rebate rates paid by the insurance fund. The third group of clients are those covered by the NHIF but are exempted from making a co-payment. There are also services of public health importance, which are provided to users free of charge, irrespective of their ability to pay. These include malaria and tuberculosis treatment and other interventions targeting women and children.

In the departments that charge for services the HEC has been instrumental in guiding the following decisions.

i) The 2005/06 cost data was used to compare the co-payment of Ksh1400 levied in excess of the NHIF rebate per inpatient client. The hospital was collecting revenue below the cost of delivering health care to each client. This was understating the cost of delivering the service to a single inpatient client by almost Ksh900. This revelation resulted in stakeholders engaging in cost recovery oriented negotiations culminating in effecting a mark-up charge of Ksh2300 in 2006/07 fiscal year. The rising cost of inputs made this rate redundant again, and currently the MTRH is in negotiations for another adjustment of the rate to Ksh6500 just enough for a cost recovery. Given that the MTRH has to run as an autonomous entity, it is important that deficit operations are minimized, and the utilization of the HEC has enhanced the conditions for revenue generation and avoidance of financial losses while sustaining the delivery of quality health care.

ii) Business decisions have also been made in utilization of the hospital CT scanner. The CT scanner is one of the most expensive pieces of equipment at the hospital. An assessment of the performance of this unit revealed two issues. First, the machine had outlived its lifespan and hence very high operating cost. While this is an obvious costly way to proceed, the charges for all scans produced by this machine were subjectively placed below the cost of production. Major decisions have been taken since the cost of operating the machine became known and charges on the scans have also been objectively adjusted to reflect reality and cost recovery. Boarding off of the old machine and investing in a new one is one of the key decisions taken. The hospital is clearly benefiting from the adoption of the HEC on account of the efficiency oriented decisions taken by saving on the costliness of the old machinery and being duly informed about setting appropriate rates for CT scans. Furthermore, the new machine is now producing more output. This implies that originally there was additional capacity that was never being put to use, and now it is being utilized without having to increase the human resources in the radiology unit.

4.3.1.2 Impacts on structures and human resources allocation

At MTRH use of the HEC data has contributed significant insights into the need for reorientation at two fronts. In the first instance the cost data requires that each ward is allocated consumption components that can be used to indicate areas of misuse. It also enables comparisons between revenues generated in the ward and the cost of producing output. Defining core services offered by a specific ward for costing gave a very general picture that masked the problematic areas in the outpatient department. Using this discovery, the MTRH applied the HEC reasoning of defining cost centers and sub-centers to split the Outpatient Department into four manageable sections that could easily be analyzed, namely;

- a) Accident and Emergency Unit
- b) Ambulatory clinic
- c) Sick Child Clinic
- d) Well Baby Clinic

In the light of this, not only has it become easier to examine the cost and revenue data, but the streamlining of services by grouping similar ones together improves the staff's focus on a specific area of specialization.

To go along with the outlined structural changes mentioned above, MTRH also undertook staff reallocation to match with the observations emerging from the efficiency oriented measures being instituted. Costing involves calculation of workload for each cost center or unit. One of the critical characteristics of the HEC is that it enables a comparison between the workload and the unit cost of delivering services in that unit. To this effect the human resource inputs into a ward, among others, can easily be examined. An application of this technique revealed that some wards at MTRH had more personnel than was required while others had fewer staff than they needed. This necessitated a reallocation; in particular, movements were predominantly made from the overstaffed private wings to the largely public wings.

Similarly, staff reallocation has been effected in order to accomplish the demands of HEC at MTRH. Initially there was only one person who was dedicated to collating costing data. In retrospect it was realized that the task was an enormous one and as such a total of five individuals have been placed as focal points. They man what can be termed as the hubs where all the consumption information is pulled together before being transformed into expenditure data for the hospital. This shows that there is need for a concerted effort in implementing the HEC. Secondly, a specific costing section has been created and this entailed allocating one of the staff members from the accounts department to work full time on costing. It must be noted that this did not require hiring new personnel; a mere rationalization of the workloads against the needs provided the guidance for reallocations.

4.3.2 Utilization and impacts at CPGH

4.3.2.1 Contracting out services

Although comprehensive costing was done beginning 2003/04 fiscal year, major decisions based on cost data were effected in 2005. Compilation of cost data revealed a number of areas where the hospital was performing inefficiently. Two notable areas where management decisions were taken based on the HEC are hospital catering services and laundry.

Initially the hospital was undertaking catering as one of the mainstream services. This means that catering was largely dependent on government funding. Revenue from central government has always been inadequate, for example, catering was allocated about Ksh800, 000 per month while costing revealed that the true expenditure was about Ksh1,800,000 for the same period. Consequent to this the hospital had been accumulating a debt which rose to about Ksh10 million. The problems in the catering department were compounded by costs of maintaining the casual labour force and loss of food supplies through pilferage. A management decision was taken to contract out the catering services in order to improve the quality of catering and also reduce the debt accumulation. Although private provisioning of catering services raised the unit cost of feeding patients, this approach improved two things in the system. First is that it helped to

negotiate with government to commit a quarterly allocation of Ksh5, 000,000 for catering from the initial Ksh2, 400,000. This left an operating deficit of Ksh4, 000,000 under the new arrangement. Equipped with this information, the hospital management engaged the hospital board and reached an agreement to raise the net deficit by adjusting the bed charges for the patients. Although, the government did not honour its commitment at the time, the potential success for this initiative is well documented and can easily be built upon.

Similar efficiency oriented decisions were undertaken in the laundry department and hospital cleaning services. Major costs for this department constituted casual labour, cleaning materials and management costs. With costing, a comparison was made with the option of outsourcing such services and it was realized that it was cheaper to leave these services to an independent firm. A tendering procedure was followed and the result was that the hospital was saving about Ksh200, 000 per month with expenses falling from Ksh800,000 to Ksh600,000. In the short run this amount might appear negligible but in the long run it sets a foundation for significant savings with a potential for a reallocation of the scarce revenue. It also creates space for management to focus on the core business of delivering health care.

4.3.3 Impact Common to all implementers

On a more general level across the implementing hospitals, a new dimension to cost consciousness is emerging. The involvement of personnel from all sections in the trainings, data collection and discussion forums reviewing expenditure and revenue collection performance means that individuals are moving towards embracing the concept of efficiency. For example, historically these hospitals have not been in the habit of examining the personnel costs because these are paid for directly from the central government. Within the context of costing hospital services, staff salaries and wages are compiled together with operational costs in order to create a more comprehensive picture of the input mix for these

services. Although the monetary costs associated with personnel are not directly attributable to the hospital, an examination of the complementarities between personnel costs and other inputs helps in making decisions pertaining to allocative efficiency. Reallocation of staff undertaken at both MTRH and CPGH are good examples of this point.

Benefits are also being realized in the sense that the entire hospital is brought together to make contributions to critical management decisions. By its nature costing is a team based process and the approach of the training and data collection stage, the adoption and implementation stage and the review process of the HEC seek to emphasize this point. All sections are involved, and the process is completed by close cooperation of key hospital officials who are also instrumental in major decisions. For example, the data from costing has emerged as an important input in the budgeting process. At MTRH a zero budget process has now been adopted to replace rolling budgets. Similarly, at Nyanza some of the costing data was absorbed by the Ministry of Health in the planning process. These indications show that there is room for the planning and budgeting processes to become more comprehensively integrated by the hospitals and the ministry as a whole.

4.4 What lessons can we learn from the observations?

4.4.1 Implementation

The foregoing discussion shows that implementation of the HEC in the three hospitals has had varied levels of success. All hospitals are still in the process of scaling up towards doing costing on a more comprehensive level. MTRH is ahead in both the inclusion of the widest range of services and implementing costing on an ongoing basis. Nyanza and CPGH have had more constrained experiences with HEC implementation. From this pilot phase, it is evident that costing demands a lot of commitment from the hospital teams. It is also clear that

each hospital has its own unique features and factors that affect the adoption process. In this case, each hospital should not be expected to embrace and adopt the HEC fully at once. Each institution must be given time to learn about their conditions and be allowed to work their way towards incorporating all services into the costing process in a phased manner.

The findings regarding delays in implementation evident at two of the hospitals suggest that support in the form of coordination and facilitation roles are crucial for the success of HEC implementation. These roles fall at two levels. The most crucial is the role of oversight from the ministry headquarters. The Ministry of Health plays a stewardship role in all health matters. Integration of the HEC at this level would put this new initiative at par with various other initiatives being carried out as routines in the hospital setting. This implies that, by way of organization, implementation of the HEC must have coordination responsibilities distributed throughout the hierarchy from the national level down to the regional institutions. This will not only warrant that it is accorded the right level of the right standards at all levels. This means that at the hospital setting there must also be a clear leader to anchor and drive the process forward.

Implementation hurdles have also been identified in the area of Information Technology. The hospital efficiency costing would do well with an improvement in computerization of the departments and networking of information for rapid sharing of data and feedback. The CPGH has attempted to computerize all departments, but the equipment is very old and slow and is not networked. This however is a good starting point that the hospital may build on.

4.4.2 Who uses the results of the HEC?

On the evidence in the three hospitals, it is clear that utilization of the results has found more favour in the private wings entrenched in applying business practices that have a close link with cost recovery and profit making. In this regard the main users of the HEC are the managers of these private wings.

The hospital management teams that make routine decisions have also been key users of the outputs of HEC. For instance in allocating human resources, lobbying government for more funding, outsourcing of services that are not in the mainstream of health care delivery are just some of the examples. However, it is worth noting that benefits and utilization of the HEC is yet to become an integral part of the ministry level management. Thus decisions such as resource allocation do not make use of indicators from the hospital cost data, when in fact they could have been enriched by such information.

Other uses have included determination of charges, allocation of human resources, restructuring of hospital functions, contracting out services and informing the budget process. However, it must be understood that there exists scope for increasing utilization of the HEC results. In particular, in the sections where clients do not have to pay for services, the HEC can still do more to highlight areas of wastage, and enable economic decisions to be made in such units. A case in point is the costs of running vehicles at MTRH. More attention needs to go into unmasking inefficiencies in such areas and bring them forward for management decisions.

Three aspects that can pave the way for furthering the scope for utilization of HEC are:

- Adequate interest and acquaintance with the HEC by the management teams at both the ministry and hospital levels.
- Allowing costing to become more inclusive and bring on board all areas that are spending hospital resources. This is likely to be a gradual process, but all aspects of the hospital spending need to be reflected in order to have a true picture of the hospital.

 The HEC outputs must be produced on an ongoing basis in order to produce trends that are comparable. The management team, at any level, needs to observe the trends for a considerable period for them to have confidence in the figures before applying them. In this case producing only occasional costing figures would not generate adequately useful insights.

4.4.3 Scope for Institutionalization

There is ample scope for institutionalization and scaling up of the HEC within the Government of Kenya. The national level commitment for this exercise exists. The HEC is in the custody of the Director of Medical Services (DMS). The incumbent has been on board with the HEC and has been very instrumental in rolling out the pilot phase. The custodial role being played at this level is relying a lot more on the incumbent's desire to see HEC implementation succeed than on an institutional decision to support the HEC. Lessons from the hospital level suggest that over-reliance on individuals can be a recipe for failure once individuals are transferred to other locations. In this regard, creating an institutional house for HEC that will support implementation should be urgently considered. This will not only help as a risk cover but will also relieve some of the pressure of facilitating and making follow-up on implementation progress currently borne by this office. A more suitable office for this would be the Planning and Monitoring Unit.

Scope for institutionalization is strengthened by the establishment of the in country training center. From the perspective of the need for repeated trainings, refresher trainings, endless staff movements and the expected expansion of HEC to other hospitals, establishing of the MTRH as a training and resource center creates a lot of potential for progress. For example, it has been noted that staff movements tend to deprive hospitals of key individuals such as accountants who have been trained. One way to mitigate this is to weigh possibilities of identifying and training all key people in all hospitals so that in the event of transfers to other

hospitals, services will remain unaffected. Coupled with this, a well designed schedule of regular trainings is necessary to fill the gaps that might have arisen at each institution. The idea is to create a sound in-country team that will sustain the process without having to rely on external support on an ongoing basis. All these are within the capacity of MTRH to deliver.

In its current form, the way forward will depend on the facilitation of ECSA in collaboration with the Ministry of Health to build the foundations further. The office of the DMS has plans to solicit for support in conjunction with ECSA to complete the ground work of building the in-country team and put together the necessary structures to support the process. The MOH recognizes that the MTRH holds immense potential for the success of all other hospitals. With this observation there is need to strategize for creation of a critical mass of drivers of costing at ministry level that can work hand in hand with coordinators placed at hospital level. A calendar of follow up activities also need to be prepared to aid the coordinators as well as the implementers to have a common understanding of the way forward and reduce lapses in implementation. The same will be useful for monitoring the activities by the unit in charge at ministry of health.

5.0 Conclusions and Recommendations

It is clear from the discussion that there is potential for successful institutionalization of hospital efficiency costing. The pilot phase has shown that, barring coordination hiccups, there is enthusiasm among the hospital staff and the managers at both the ministry and hospital levels. There also is technical expertise available in the system with sufficient back-up to take the process forward. From the implementation and utilization experiences, it is clear that there is scope for using the results of costing to positively influence hospital operations. Although the costing tool has so far been applied selectively, experience so far with its application reveals the potential for improving efficiency of hospitals, if it is applied in all hospital operations. This is strengthened by the fact that the Ministry of Health has shown a strong interest to collaborate with

facilitators in the process that will lead to the Ministry taking over the ownership and leadership of this initiative. Strong interest was also shown at hospital level by both trained and untrained staff that they can face up to the challenge. A number of staff who had moved to other stations also expressed willingness to contribute to the institutionalization process, if required. With all this in the background, the study makes the following recommendations:

- i) The MOH needs to exercise ownership and leadership in this exercise by handing a coordination role to the Planning and Monitoring Unit that would work hand in hand with the office of the DMS and hospital coordinators.
- Establishing clear dissemination and feedback forums where cost data will be shared by implementers at various levels will keep all pilot centers active.
- iii) Computerization of the entire information chain will improve the speed and quality of information being shared.
- iv) With the exception of the MTRH, all public hospitals need a fresh impetus for the costing process to take off again, thus MOH, ECSA Secretariat and MTRH need to facilitate a process of retraining the core teams.
- A clear action plan needs to be worked out by all stakeholders detailing the schedules and roles expected of each for follow up activities on which a monitoring process can also be designed.
- vi) Hospital management teams need to include all key areas to the costing for a more complete picture of the efficiency levels at the hospital.

- vii) Each hospital should identify a coordinator from the core team.
- viii) In the long term, effects of staff movements should be addressed by training all hospitals and repeating the trainings perhaps after every two years, so that even if trained staffs are rotated they remain within the system.
- ix) At the moment there are no formalized links between costing and the budgeting process. These need to be firmed up in order to have realistic hospital plans and budgets.
- x) Another long term target should be to introduce performance based payments to the hospitals and give them the autonomy to implement their budgets in order to enhance efficiency oriented behaviour and minimization resource gaps.
- xi) Implement a formalized training within the tertially institutions that will offer practical costing as a module on an ongoing basis and the MOH and other government departments can absorb such staff to their benefits.

6.0 References

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7.0 Appendices

7.1 Appendix I: The Concept Paper

East, Central and Southern African Health Community



Concept Paper

Dr. Mark Bura

Impact Assessment of Hospital Efficiency Costing in Kenya

Background

Over the past six years Health Systems Development Programme of ECSA Health Community has been addressing the problem of poor operational management at hospital level.

Hospital Services consume most of all expenditures for health in developing countries. In most Sub-Saharan Africa, health services have always been under - funded. In the past 5-10 years there seems to have been an increase in funding level to health services and most of this goes to hospital services. Recent National Health Accounts reports show that hospitals take up to 40-70 of Total Health Expenditure in most countries in Africa.

Improvement in operational efficiency at hospital level is bound to increase costeffectiveness of hospitals. To date most hospitals have been handicapped by lack of costing tools and therefore hospitals often plan, budget, manage and expand services without adequate financial analyses, management and costs of services.

To address this problem ECSA –Health Systems Development programme coordinator developed an intervention known as Hospital Efficiency Costing. A costing tool was developed, tested and applied to over 10 hospitals in the region. During the process of developing this tool a lot of experience and insight was gained on how best to cost and analyze hospital costs for management decision making at institutional level and at policy level.

Building on this experience, ECSA Health Community is scaling up this better practice at country and regional level. ECSA has developed collaboration with University Teaching Hospital. In this collaboration ECSA is technically supporting the Hospital Efficiency Costing in Kenya and Zambia.

In ECSA Hospital Efficiency costing scale up has been piloted in Kenya and Zambia in collaboration with the Ministries of Health, University Teaching Hospitals and provincial and tertiary level hospitals. In Kenya 6 hospitals, five provincial and a university hosiptals have fully developed

The Hospital efficiency costing has been completed at Moi Teaching and Referal Hospital, Cost, Kisumu, Nakuru,I, Nyeri and Garissa provincial general hospitals. Following this interventions hospitals improved the management of human and financial resources the main objective of this project. Following HEC initiatives some hospitals in Kenya and the rest of the regions have reported anecdotally improvement improves in financing and resource management. Contracting out of some services and better reallocation of resources are said to have taken place.

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It is therefore time to assess the impact of team Based Hospital Efficiency costing in Kenya. The result of such assessment will inform the Ministry of Health, Provincial Hospital management teams, donors and communities the usefulness of HEC and provide further rationale for scaling up HEC to all Kenyan Hospitals.

Methodology

Experts in Hospital Efficiency costing will be engaged to undertake this activity. ECSA Health Systems Coordinator and Health systems Advisor from USAID will facilitate the process. A tool to assess the impact is being developed in collaboration with the Moi Teaching and Referral, Ministry of Health Kenya and USAID/EA.

Two experts in hospital efficiency costing from f Moi Teaching and Referral hospital, a cost accountant and Health Management Information expert. Health Systems Advisor/SUAID/EA and Coordinator Health Systems Development will undertake this activity. They will visit all five provincial hospitals that have completed HEC over duration of two weeks. Prof. Harum Mengech the CEO of Moi Teaching and Referral Hospital will provide the administrative and management support. A questionnaire on hospital efficiency will be administered to management teams of hospitals and other staff, Ministry of Health team that participated in costing initiative in Kenya. In addition exit interviews with patients who have been admitted to the hospitals before the costing exercise and following the costing exercise will be also interviewed. Both qualitative and quantitative approaches will be used.

At hospital level a Focus Group discussion will be conducted focusing on the CEO and his management team and departmental teams

The costing manuals and other costing documents since the inception of HEC in Kenya will be referred to when focusing on expected results of HEC.

Impact assessment data will be analysed and a report and recommendations on the impact of Hospital Efficiency Costing for the 6 hospitals in Kenya will be presented to the Director of Medical Services, Ministry of Health. It is envisaged that following the assessment of the report the Hospital Efficiency Costing will be launched at the hospital of choice among the pilot hospitals by the Ministry of Health. Follow up activity will be based on the recommendations of the Impact Assessment and Ministry of Health decisions.

Qualifications:

Impact assessment will be undertaken by experts trained in costing and had hands on in undertaking the HEC costing and its applications. The experts must have adequate experience in cost accounting (at CPA level) and HMIS expertise at tertiary hospital level.

Objectives: The main objective of the assessment is to establish the impact of HEC pilot in Kenya for policy decision to scale up HEC to the rest of public hospital in Kenya.

Expected Outputs:

- Documentation of Impact o HEC for the six pilot hospital hospitals in Kenya.
- Analyze any gaps in HEC to improve the process of scaling up of HEC in Kenya and other ECSA countries
- Recommendations on Impact of HEC in Kenya

7.2 Appendix II: <u>Guidance for Consultant</u>

March 1, 2022

Dear Spy,

Thank you for the draft questionnaire you have shared with us for the forth coming consultancy on Assessment of Implementation of Hospital Efficiency in Kenya.

I have the following observations on you questionnaire.

- 1. I agree with two levels of assessment.
- 2. I also agree on your methodology base on assessment of
 - Secondary data
 - Primary data from two levels key informants at central and facility level
 - Comparative analytical procedure
- 3. On the tool I have some observations. First of all
 - Expand on all elements of the Scope of work page three:
 - "Questions to be answered by the assessment include:
 - 1. What was the process of introducing the Hospital Efficiency Costing tool in the country?
 - 2. What obstacles were encountered and how were they overcome?
 - 3. Who have been the users of costing the results? For what purpose?
 - 4. What has been the impact of the costing results?
 - 5. What is the capacity to use this tool at the hospital?
 - 6. Has the MOH scaled up use of this tool to other hospitals? If not why not? Are there plans to do so?
 - 7. Key informant interviews e.g. Permanent Secretary; Head of Planning; Head of Health sector reform; Donors e.g. USAID etc."
- 4. We appreciate your status as a consultant however, the above questions have been developed through peer appraisal of the SOW with our partners in Washington DC and I also fully agreed with these 6 elements. So you may regroup your questions as you see fit based on above main elements, however some elements in you questions are also very important for example the risk associated, the policy issues, equity issues, community impact, etc are also important.
- 5. To me the questions for central policy level should also be directed to some extent to the facility level.
- 6. On initiating the idea, I developed the HEC model with Professor of accounts clinicians, HMIS experts, costing accountants as you may see

from the acknowledgement. It is a business management model. There might not yet be great economic deductions using the classical economic analyses. These will come as the model is widely scaled up and institutionalized.

- 7. I am sending you some preliminary Impact Assessment I did to complement what a team in Moi Teaching and Referral hospital in Kenya was doing. I hope the report and the abstract we presented last year to the DJCC will help you. I am attaching it.
- 8. You will be working at three hospitals already selected; these are Moi Teaching and Referral Hospital, Kisumu Provincial Hospital and Cost Provincial General Hospital in Mombasa.
- 9. Finally we have an open mind- what you feel strongly about the questionnaire etc to make the consultancy a great success in welcome.
- 10. I will meet with you on 28 July upon your arrival in Nairobi.

My very best regards,

Mark

7.3 Appendix III: List of Individuals Consulted

1.	Dr. H. Lugina
2.	Dr. E. Moustache
3.	Mr. A. K. Muyinda
4.	Dr. M. Bura
5.	Ms. D. Mawole
6.	Dr. K. Shikely
7.	Dr. F. Kimani
8.	Mr. J. Anyumba
9.	Dr. D. Mwangi
10.	Dr. J. Othigo
11.	Mr. D. Elung'at
12.	Mr. D. Kirui
13.	Mr. B. Chepkairor
14.	Prof. H.H.K. Mengech
15.	Mr. L. Cheluget
16.	Mr. M. Birgen
17.	Ms. G. Byegon
18.	Mr. M. Kihuga
19.	Mr. T. Odhiambo
20.	Ms. M. Odeny
21.	Dr. J. Otieno
22.	Mr. S.O. Sewe
23.	Ms. M. Odhiambo

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