The costs of hospital services: a case study of Evangelical Lutheran Church hospitals in Tanzania

STEFFEN FLESSA
School of Management, University of Erlangen-Nuernberg, Nuernberg, Germany

The health care systems of many developing countries are facing a severe crisis. Problems of financing services leads to high patient fees which make institutions of Western health care unaffordable for the majority of the rural poor. The conflict between sustainability and affordability of the official health care system challenges both local decision-makers and health management consultants. Decisions must be made soon so that the existing health care systems can survive. However, these decisions must be based on sound data, especially on the costs of health care services. The existing accounting systems of most hospitals in developing countries do not provide decision-makers with these data. Costs are generally underestimated.

The leadership of the 16 hospitals of the Evangelical Lutheran Church in Tanzania is currently analyzing how the existing health care services should be restructured. Therefore, reliable estimates of the costs of hospitals services are required. A survey on 'Costing of health services of the Evang. Luth. Church in Tanzania' was prepared, which summarizes the results of seven months of field investigations in Lutheran hospitals. The major findings are that the costs of providing adequate services are much higher than expected. The most important factors determining these costs are the administrative efficiency of the hospital and the scope of services offered.

The paper closes with some recommendations on how to improve the services in order to make them both affordable for the rural poor and financially sustainable for the Church. It is concluded that even the best improvement of technical efficiency will not safeguard the survival of the hospital-based health care services of the Lutheran Church in Tanzania. These findings call for a reallocation of health care resources to lower levels of the health care pyramid.

Introduction

The Evangelical Lutheran Church in Tanzania (ELCT) is a major provider of health care services in Tanzania. For the last 100 years, one of the central activities of this Church has been hospital-based services. At present, 16 general hospitals and two mental hospitals provide services under the auspices of the ELCT. This constitutes roughly 10% of the entire hospital bed capacity of Tanzania. Most of the hospitals were inherited by the Church from the mission organizations after the establishment of an independent Lutheran Church in Tanzania in 1961. Since then the hospitals have been the largest and most expensive institutions of all dioceses.

The ability of the Church to provide professional and adequate health care is currently threatened: costs are increasing while the ability of the rural and poor urban population to pay for the services is decreasing. Therefore, the health services of the ELCT face the most severe crisis in their history—a crisis jeopardizing their existence. Consequently, decisions are needed on how to reconcile the conflicting goals of sustainability and affordability now, in order to be able to provide the catchment population of ELCT hospitals with affordable and adequate health care in the future. It is realized that these decisions must be based on sound data. However, the existing documents do not provide reliable statis-
tics as a basis for decision making. To fill this information gap, the ELCT undertook a study on ‘Costing of Health Services of the Evangelical Lutheran Church in Tanzania’. From August 1996 to February 1997 a research team visited the seven selected general hospitals and made a detailed cost analysis. The annual reports of the other hospitals were also taken into consideration.

**Methodology**

The research built on the experience and methodology of other cost analysis studies in developing countries, as presented by Barnum and Kutzin (1993: 79–142). However, there is little literature on East African hospitals, which almost completely lack reliable statistics. Mills analyzed 30 studies on hospital expenditure from developing countries, three of which were in Tanzania (Mills 1990a: 107–17; Mills 1990b: 203–18). Gilson and Rushby did an analysis of St. Francis Hospital in Tanzania in 1991. They concluded: ‘Despite the importance of hospital expenditure to overall health systems expenditure level, few hospital studies are available from developing countries’ (Gilson and Rushby 1991: 4). They acknowledged that their own analysis ‘... did not coincide with the full range of medical support and inpatient cost centres’ (p. 12). One year later a very detailed cost analysis of Kilimanjaro Christian Medical Centre (KCMC) in Tanzania was prepared by Walter (1992). Whereas this paper addressed special issues of a tertiary hospital, the reports of Mujinja (1995; 1996) are directly related to district hospitals.

The main problem facing the research team in the current study was that only the cash books were complete and reliable. None of the hospitals uses a fixed assets register or proper stores records. The statement of Lane applied to all hospitals investigated: ‘Perhaps the major problem of any researcher in Tanzania is the lack of data, the almost complete unreliability of what data is available and the absence of any recent data’ (Lane 1984: 4). Data collection took on average 12 man-days per hospital, but it could have been achieved in a tenth of this time if the hospitals had proper files, books of accounts and statistics. The entire process of the survey was limited by this situation, or as Gilson and Rushby state: ‘... the lack of relevant information within the hospital was itself a factor determining study methods and data collection practices’ (1991: 39). Therefore, the value of all buildings, equipment, linen, vehicles, etc., had to be assessed (or sometimes guessed) by the members of the research team. This required an interdisciplinary approach: an economist, a physician, a nurse, a pharmacist, a hospital engineer and a hospital architect were on the team.

In addition, none of the hospitals had developed standards of cost apportionment which would allow costs to be allocated to different departments (e.g. outpatient department, inpatient department, private ward). Like other studies of Tanzanian hospitals (Gilson and Rushby 1991: 10–11; Mujinja 1996: 57), we followed the step-down approach. Costs were allocated step by step to service and final cost centres. The costs of the first service cost centre were then allocated to the other service cost centres and the final cost centres. Afterwards the accumulated costs of the next service cost centre were apportioned in the same way. This procedure was repeated step by step until all service cost centres were allocated to the final cost centres. Wherever possible, direct allocation was made according to time and materials spent. Therefore, all members of staff were interviewed and the time consumption for each cost centre recorded in a special ‘cost allocation sheet’. These ‘direct labour’ and ‘direct materials’ were easily allocated. However, a huge amount of overheads remained (about 85% of total costs), which had to be apportioned to the different departments according to number of patients, files opened, floor sizes or estimates provided by the hospital management. The shortcomings of the general accounting system applied in Lutheran hospitals of Tanzania were a major obstacle to the objective of proper apportionment.

A result of the cost allocation process is the number of ‘equivalent inpatient days’ which is a measure for the workload of the hospital. The average cost per outpatient visit is compared with the average cost per inpatient day. In this way we can transform the number of outpatient visits into cost equivalent inpatient days, a figure which makes hospitals with different workloads of in- and outpatient departments comparable.

Furthermore, the research was supposed to provide the actual costs of running ELCT health services. The actual costs were assigned to three different categories. The category actual minimum costs includes all actual payments of the financial year 1995 for Tanzanian personnel, drugs, transport and administration. It does not include any costs of expatriates, maintenance or depreciation.
the amount of actual minimum costs is the absolute minimum which was necessary in 1995 to keep the hospital running for a short period. Actual sustainable local costs adds to actual minimum costs the expenditure for maintenance and the shadow salaries for expatriate personnel. If the hospital is able to recover these costs it will be financially sustainable. Actual full costs include actual minimum costs, full costs of expatriate personnel, full maintenance and full depreciation of equipment and buildings for the year 1995.

In addition to the actual figures of 1995, we calculated the costs which would have occurred if the hospitals had followed the service standards set by the ELCT headquarters. Table 1 states the most important standards.

The category standard minimum costs includes the same expenditure items as actual minimum costs, but uses the standards given above. For instance, one hospital with 120 beds actually had two physicians in 1995, but the ELCT staffing standards require three medical practitioners. Therefore, only the actual salaries for the two physicians were part of the actual minimum costs, but for standard minimum costs the average costs of one additional physician were added. This principle applies to staffing, drug consumption, maintenance and depreciation. Similarly the category standard sustainable local costs is the counterpart to actual sustainable local costs and standard full costs to actual full costs. Table 2 shows the different categories.

### Basic results

#### The costs of services

The costs of seven hospitals were analyzed. The second column of Table 3 presents the average costs per equivalent inpatient day. Applying these figures...
to all 16 general hospitals of the ELCT, we obtain the annual financial needs for Lutheran Church hospital services, as presented in column three.

Table 3 indicates that the costs of services differ widely according to the cost concept. A hospital has to cover the actual minimum costs (US$2.79 per equivalent inpatient day) if it wants to survive for a very limited period of time (e.g. the next budget period). This figure is closest to the actual expenditure recorded in the cash books. In order to survive in the long run, an ELCT hospital would have to cover the actual sustainable local costs (US$2.96 per equivalent inpatient day), as capital expenditure of ELCT hospitals (buildings and equipment) is financed by donations. However, a self-reliant health service would have to finance the actual full costs (US$6.43 per equivalent inpatient day) locally. If the hospitals had to meet the standards defined earlier, the costs would usually be much higher, e.g. the standard full costs would rise (on average) to US$9.62 per equivalent inpatient day.

Table 4 shows the composition of the actual costs. It is obvious that for all hospitals, salaries and drugs (stores) are the most important cost items. However, there are huge differences among the survey hospitals which are partly due to differences in the efficiency of the institutions (technical efficiency) and partly due to differences in the size of hospitals (economies of scale).

Table 3 indicates some differences between actual costs and standard costs per equivalent inpatient day. These differences are partly caused by over-spend (e.g. standard minimum costs are less than actual minimum costs). In particular, salaries, drug expenditure and transport costs are higher than necessary. Salaries are the largest cost category. The number of staff of each cadre was analyzed. Table 5 shows that the salaries of B-nurses and junior staff (untrained nurses, other staff) make up the largest shares of personnel costs.

In comparison with the standards given by the ELCT headquarters most of the survey hospitals were overstaffed in 1995. The large numbers of non-medical and non-nursing staff seem to have no impact on the quality of services but contribute to the high staffing
costs, thus reducing technical efficiency. Consequently, some hospitals have recently begun to retrench up to 40% of their personnel.

The costs of drugs, infusions, x-ray supplies, laboratory supplies, cleaning materials and linen are summarized as stores. Drugs are the most important component (73% of stores costs). The drug expenditure per equivalent inpatient day ranges from US$0.38 to US$1.90 with an average of US$0.80, i.e. the highest is five times the lowest. A minor part of this difference can be due to a different case mix and poor materials management and recording. Additionally, in several ELCT hospitals too many drugs are prescribed. The World Health Organization produced standard drug indicators for district hospitals in developing countries (WHO 1993). In comparison to these indicators ELCT hospitals have

<table>
<thead>
<tr>
<th>Table 4. Composition of actual costs: average [minimum; maximum]</th>
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</thead>
<tbody>
<tr>
<td>minimum costs (%)</td>
</tr>
<tr>
<td>Salaries</td>
</tr>
<tr>
<td>Stores</td>
</tr>
<tr>
<td>Transport</td>
</tr>
<tr>
<td>Equipment</td>
</tr>
<tr>
<td>General Exp.</td>
</tr>
<tr>
<td>Projects</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 5. Staffing (seven ELCT hospitals in 1995)</th>
</tr>
</thead>
<tbody>
<tr>
<td>annual costs per employee (US$)</td>
</tr>
<tr>
<td>Physicians</td>
</tr>
<tr>
<td>MAs</td>
</tr>
<tr>
<td>A-nurses</td>
</tr>
<tr>
<td>B-nurses</td>
</tr>
<tr>
<td>Untrained nurses</td>
</tr>
<tr>
<td>Paramedics</td>
</tr>
<tr>
<td>Administration</td>
</tr>
<tr>
<td>Other staff</td>
</tr>
<tr>
<td>Training</td>
</tr>
<tr>
<td>Other staff expenditure*</td>
</tr>
</tbody>
</table>

* Other staff expenditure includes holiday pay, presents, pension fund, etc.
a moderate over-consumption of general drugs (26%) but a severe over-use of antibiotics (150%) and injections (60%) (Nummenmaa 1997).

The majority of ELCT hospitals have installed an infusion unit\(^4\) to produce i.v. fluids locally. However, only 37% of these units can break even, i.e., for the majority of ELCT hospitals the purchase of infusions from the central pharmacy would be cheaper. The 1995 medical records of seven ELCT hospitals were analyzed. The average number of infusions per bed-day was 0.43. However, there was a wide range among these hospitals. This range cannot be explained by case-mix differences alone. For instance, Ndolage Lutheran Hospital and Haydom Lutheran Hospital provide similar services,\(^1\) but have very different infusion input (an average consumption of infusion fluids per bed-day of 0.075 litres in Ndolage, 0.35 litres in Haydom). Therefore, further analysis is required in order to find out whether these differences are medically necessary, or whether costs for the hospital and the patients could be cut by reducing the number of infusions given.

Several of the ELCT hospitals are located in remote areas. The ELCT Health and Diakonia Directorate expected that the transport costs per equivalent inpatient day would be very high for these remote hospitals as the hospital cars have to drive long distances on bad roads in order to buy necessary supplies in the next regional centre.\(^2\) However, the analysis shows that the transport costs per equivalent inpatient day are negatively correlated (−0.33) with the distance to the next regional centre. In other words, the more remote a hospital is, the less it spends for transport. Hospitals which are close to the regional centre have short distances per trip, but they drive more often. This indicates that there is potential for reducing the transport costs of these hospitals.

The efficiency of the existing hospitals could also be increased by prolonging the life of hospital buildings and equipment by providing preventive maintenance of buildings and equipment. In 1995 the actual annual expenditure for building maintenance was US$14.36 per bed. The inter-disciplinary research team calculated that on average US$34.52 per bed should be spent annually for building maintenance in ELCT hospitals. Therefore, the actual maintenance will not be sufficient for the upkeep of these buildings. The actual payment for equipment maintenance in 1995 was on average only 0.71% of the current budget. The standard equipment maintenance for the survey hospitals would be (according to the standards defined above) on average 6.41% of the current budget. Therefore, on average only 11% of the recommended amount was actually spent for equipment maintenance.

In a nutshell, the differences between the costs of services in ELCT hospitals are partly due to the differing technical efficiency of these institutions. Management and administration of several ELCT hospitals are rather unprofessional. Consequently, the technical efficiency is poor and must be improved.

**Economies of scale**

The analysis of the relationship between costs and hospital size indicates that there are economies of scale. Table 6 shows the coefficients of correlation between actual costs and hospital size.

Several costs categories increase more slowly than output and, therefore, the unit costs are decreasing. This is particularly true for the high costs of general staff (administration, laundry, watchmen, gardeners), but also the amount of equipment depreciation per equivalent inpatient day is negatively correlated (−0.65) with the size of the hospital. The coefficient of correlation between the number of equivalent inpatient days and the depreciation for buildings per equivalent inpatient day is −0.61. Bigger hospitals reap economies of scale as the same equipment and building can be used for more patients. Consequently, the ongoing process in Tanzania of opening new, small hospitals with less than 80 beds must be questioned.

The sample size (seven hospitals) is too small to use statistical techniques to analyze the relationship between size and average costs, but visual inspection shows the inverse relationship (Figure 1).

**Income analysis**

The income of ELCT hospitals consists of government grants, patient fees, project surplus\(^1\) and donations. The income categories reflect the cost categories. *Income based on actual minimum costs* includes full government grants, patient fees, project surplus and donations in form of drugs and cash. *Income based on actual sustainable local costs* additionally includes shadow salaries for expatriates. *Income based on actual full costs* includes all donations, for personnel, drugs, cash, equipment and buildings.\(^4\) If the ELCT health care standards were followed, a hospital would need additional donations...
in order to cover the difference between actual and standard costs. The income based on standard full costs adds these additional donations to the income based on actual full costs. Table 7 shows the contribution of the different income items to the total income.

The Tanzanian government supports church hospitals with staff and bed grants for an approved number of beds. In 1995, 67\% of the ELCT hospital beds were accepted by the government, i.e. the government had agreed to support these beds. However, the actual government contribution was on average merely 2.23\% of the total income. The Ministry of Health had not fulfilled its financial pledge but owed money to ELCT hospitals. Some hospitals received close to nothing, whereas other hospitals received almost the entire promised grant. No rationale could be found for these differences.

In 1995 the contribution of donations to the total income was on average 69\%, i.e. the dependency of the hospital-based health services of the ELCT on donations was 69\%. However, if the 16 ELCT hospitals followed the standards of the ELCT Health and Diakonia Directorate the dependency would increase to 79\% and they would need annual donations of about US$6,984,000. Currently the annual foreign assistance to the entire ELCT budget is about US$3,615,000.

Fees cover between 18\% and 61\% of the costs. The more comprehensive the cost concept is (actual minimum costs as least comprehensive, standard full costs as most comprehensive), the less important are the fees for the total income. The average fees and subsidy differ between inpatient and outpatient care, as shown in Tables 8 and 9.

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**Table 6.** Coefficient of correlation between cost and size

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Actual minimum costs</th>
<th>Actual sustainable local costs</th>
<th>Actual full costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>beds</td>
<td>-0.75</td>
<td>-0.77</td>
<td>-0.70</td>
</tr>
<tr>
<td>equivalent inpatient days*</td>
<td>-0.59</td>
<td>-0.70</td>
<td>-0.69</td>
</tr>
</tbody>
</table>

* The cost allocation analysis showed that (on average) one inpatient day is cost-equivalent to two outpatient visits.

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![Figure 1. Actual full costs and hospital size](https://academic.oup.com/heapol/article-abstract/13/4/397/596218)
Table 7. Income of 7 Lutheran hospitals in 1995

<table>
<thead>
<tr>
<th>Income item</th>
<th>Actual minimum costs</th>
<th>Actual sust. local costs</th>
<th>Actual full costs</th>
<th>Standard full costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government contribution$^a$</td>
<td>66 614</td>
<td>66 614</td>
<td>66 614</td>
<td>66 614</td>
</tr>
<tr>
<td>Patient fees</td>
<td>793 978</td>
<td>793 978</td>
<td>793 978</td>
<td>793 978</td>
</tr>
<tr>
<td>Drug donations</td>
<td>67 037</td>
<td>67 037</td>
<td>67 037</td>
<td>67 037</td>
</tr>
<tr>
<td>Cash donations</td>
<td>316 173</td>
<td>316 173</td>
<td>316 173</td>
<td>478 488</td>
</tr>
<tr>
<td>Expatriate salaries</td>
<td>0</td>
<td>46 344</td>
<td>1 153 349</td>
<td>2 280 027</td>
</tr>
<tr>
<td>Equipment donations$^b$</td>
<td>0</td>
<td>0</td>
<td>279 325</td>
<td>336 190</td>
</tr>
<tr>
<td>Building donations</td>
<td>0</td>
<td>0</td>
<td>202 696</td>
<td>235 407</td>
</tr>
<tr>
<td>Other donations$^c$</td>
<td>0</td>
<td>25 241</td>
<td>25 241</td>
<td>26 897</td>
</tr>
<tr>
<td>Project and other income</td>
<td>64 012</td>
<td>64 012</td>
<td>64 012</td>
<td>64 012</td>
</tr>
<tr>
<td>Total income</td>
<td>1 307 814</td>
<td>1 379 399</td>
<td>2 968 425</td>
<td>4 348 650</td>
</tr>
</tbody>
</table>

$^a$ Bed grants, staff grants and salaries of seconded staff.
$^b$ Annual depreciation of equipment (or buildings).
$^c$ e.g. linen, scholarships, . . .

Table 8. The outpatient department (OPD)

<table>
<thead>
<tr>
<th></th>
<th>costs per outpatient attendance</th>
<th>average fee per outpatient attendance</th>
<th>subsidy (% of costs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>actual sustainable local costs</td>
<td>US$1.70</td>
<td>US$1.47</td>
<td>13%</td>
</tr>
<tr>
<td>actual full costs</td>
<td>US$4.08</td>
<td>US$1.47</td>
<td>64%</td>
</tr>
</tbody>
</table>

Table 9. The inpatient department (IPD)

<table>
<thead>
<tr>
<th></th>
<th>costs per inpatient day</th>
<th>annual costs per bed</th>
<th>average fee per inpatient day</th>
<th>subsidy (% of costs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>actual sustainable local costs</td>
<td>US$2.88</td>
<td>US$894</td>
<td>US$1.52</td>
<td>47.42%</td>
</tr>
<tr>
<td>actual full costs</td>
<td>US$6.09</td>
<td>US$1891</td>
<td>US$1.52</td>
<td>74.98%</td>
</tr>
</tbody>
</table>
The absolute and relative subsidy of the costs per inpatient day is higher than the subsidy of the outpatient department (OPD). All outpatient departments visited by the author had a positive marginal contribution to cover a share of the general overheads of the hospital. In some hospitals the OPD was even generating a surplus to support the IPD (cross subsidization). However, since 1991 Tanzanian medical practitioners have the right to open dispensaries and hospitals of their own. Only few private hospitals were founded, but many new private dispensaries attract outpatients. Therefore, the number of outpatients of ELCT hospitals has decreased, but the workload of the inpatient department has remained almost unchanged. The decrease of OPD cases is negatively affecting the ELCT hospitals which lose the profitable outpatients and remain with the highly subsidized inpatients.

Some hospitals of the ELCT have opened private wards. These wards offer higher standards of hotel services in order to attract those patients who are able to pay higher fees. It was the target of the ELCT that these private wards should make a profit in order to subsidize the general wards. However, our analysis shows that in 1993–95 no private ward in ELCT hospitals had a positive marginal contribution. The subsidy per private bed was always higher than the subsidy per bed in general wards. A more equitable system would require an increase in fees for private wards, but it will not be permitted as a major part of the private patients are pastors from the governing dioceses. They have to be given special attention in private wards although they are not able or willing to pay fees which recover full costs. There is some pressure from the diocesan leadership on the hospital management to set low fees in order to make private wards affordable for diocesan employees. This is a kind of subsidy from the hospital to the diocese.

**ELCT responses**

The results presented above have been accepted by the leadership of the Evangelical Lutheran Church in Tanzania and have become the basis of its new health policy. It is the objective of the ELCT to recover standard sustainable local costs without donations (sustainability). Taking for granted that donations and government grants will not increase, this calls for higher patient fees. At the same time it is equally important for the leadership of the ELCT that the poor and needy should be able to afford the treatment in Lutheran hospitals (affordability). These two goals are in conflict – a collision which is threatening not only the health care services of the Lutheran Church in Tanzania, but the social services of all developing countries. Sustainability and affordability have to be reconciled, which can be achieved in different ways:

1. **Increasing technical efficiency:** Hospital management must be improved in order to reduce costs. This includes training of staff and setting of administrative standards (e.g. accounting, medical recording). By increasing the efficiency of existing institutions the standard sustainable local costs can be reduced, increasing the prospects of sustainability.

2. **Setting of standards:** Standards have to be developed for hospital buildings, equipment, drugs and staffing, and they should be enforced. They will determine the structural quality and the scope of services offered. Staff, procurement of equipment and drugs, and maintenance will be much more efficient.

3. **Reducing services:** The occupancy rates of some smaller hospitals have been decreasing for about 10 years. This is mainly due to increased competition by private practitioners, and major urban hospitals have become more accessible for rural people because the road system and public transport have improved. Hospitals with very low occupancy rates will cease to be institutions with full hospital services. However, this does not necessarily mean that they must be closed down. They can continue to exist as health centres and as support centres for primary health care activities in their service areas.

4. **Risk sharing:** Several health care providers in developing countries have started implementing ‘community-based health funds’. The risk sharing fund of the ELCT, for instance, is supposed to attract peasants in the catchment areas of hospitals with a moderate, and in the first few years, subsidized premium. Thus, efforts are being made to ensure that church health care remains affordable even for the poor.

**Implications**

The new health care policy of the ELCT includes aspects of improving technical efficiency, setting of standards, reducing services and implementing a health insurance scheme. However, it does not include major steps to reallocate funds to lower levels
of health care. An analysis of the current budget of the ELCT reveals that it will not be possible in the near future to recover the standard sustainable local costs. Even if the hospitals could work more efficiently, if proper management and high motivation could be guaranteed, the costs could not be decreased to a level affordable to the rural poor. So the goals of ‘sustainability’ and ‘affordability’ remain unattainable as long as health care services are mainly based on hospital institutions. Therefore, the present form of hospital-based health care is unaffordable for the ELCT and the nation as a whole.

Increasing the technical efficiency of the existing hospital-based health care services will not guarantee the survival of church-related health care in Tanzania unless allocative efficiency can be improved. Church health care in Tanzania is mainly hospital-based. As several examples show, health care services can be made more efficient by reallocating resources to the lower levels of the health care pyramid (e.g. World Bank 1993; World Bank 1994; LaFond 1995; Tarimo and Webster 1996). The Lutheran Church in Tanzania should restructure its health care system and foster preventive health care, dispensaries and health centres.

This recommendation was previously made in the Alma Ata declaration of Primary Health Care in 1978. However, primary health care philosophy has not really been implemented by the ELCT. The lion’s share of the health care budget is consumed by hospitals. Preventive medicine is virtually neglected and the few existing health education programmes are insufficiently supported by the hospitals. The author recommends that church hospitals in Africa should find their place as supporting units for primary health care programmes. For 100 years hospital-based care has been the most important component of church health care services. Changes in the economic and health care environment dictate that the emphasis has to be revised; the church hospital should no longer be seen as the heart and focus of all services, but as a supporting unit for comprehensive and integrated district health care.

This process requires scientific consultancy and financial support, in order to safeguard that the ELCT health care services remain what they have been for about 100 years: a blessing to the people of Tanzania and the pride of the Lutheran Church.

Endnotes

1 Heidemann discusses adequacy and standards of health services and concludes that ‘standards must be “tailor-made” if they are to serve well the specific constituency for which they are intended’ (1993: 4). Therefore, the term ‘adequate health care’ must be seen in the perspective of one of the (economically) least developed countries.

2 ‘Sustainability’ is one of the key-words of development economics. In its broadest sense it means that an economy or an institution should have the ability to survive for a long time without major support from outside, especially from donors. Applied to hospital services this principle would call for high fees in order to recover the costs of services. Full cost recovery through patient fees would lead to the exclusion of the poor. Therefore, sustainability and affordability are contradicting goals.

3 For example, if the cost per outpatient visit is US$1 and the cost per inpatient day is US$2, then two outpatient visits are ‘cost-equivalent’ to one inpatient day. Therefore, if the hospital has 80,000 inpatient days and 40,000 outpatient visits, the hospital has 100,000 equivalent inpatient days.

4 The full costs of, for instance, an expatriate physician are about US$80,000 per year. A Tanzanian colleague would cost roughly US$250 per month. Therefore, the shadow salary incorporated in the costs of ‘actual sustainable local costs’ for the expatriate physician are US$250 per month.

5 The survey analyzed the actual figures for 1993 and 1994 as well. These are not presented here, as the deflated costs per service unit remained constant.

6 It should be repeated that standards must be seen in the perspective of one of the (economically) least developed countries.

7 Please note that these figures are higher than those recommended by the World Bank (1994).

8 The current budget of the seven hospitals in 1995 was on average about US$2.81 per equivalent inpatient day.

9 The analysis included 14 different cadres.

10 An infusion unit consists mainly of a filter and an autoclave. It is installed and maintained by the ELCT infusion units project, Moshi. The unit costs about US$3600.

11 Concerning the number of patients, importance of surgical and gynaecological departments, number of medical specialists.

12 Tanzania is divided into 25 regions. Each region has a regional centre. The stores (e.g. regional medical store) in this centre are the main source of supply for most hospitals.

13 Several ELCT hospitals have small farms or a shop. The surplus of these projects should subsidize the health services.

14 Equipment and building donations are balanced as accumulated fund on the liability side of the balance sheet. This fund is written off periodically.

15 The categories ‘income based on standard minimum costs’ and ‘income based on standard sustainable local costs’ were defined accordingly.

16 Sample: seven Lutheran hospitals.

17 In 1996, 20 private hospitals with 110 beds (0.4 % of the bed-capacity of all Tanzanian hospitals), seven private health centres (2 % of all health centres) and 311 private dispensaries (9 % of all dispensaries) were officially licensed (United Republic of Tanzania 1996).

18 For example, if all ELCT hospitals had the same x-ray equipment, the zonal maintenance teams could store spare-parts for it. Today almost every hospital has a different type.
The costs of hospital services

References


Biography

Steffen Flessa has studied business administration, economics and economic geography and completed his studies with a PhD in Operations Research. His main field of interest is the application of quantitative techniques in health care in developing countries. He has five years’ experience in Tanzania, working partly as a lecturer for health care administration and partly as a health management consultant of the Evangelical Lutheran Church in Tanzania. Currently, he is a lecturer at the University of Erlangen-Nuernberg. He is also a consultant for several aid institutions.

Correspondence: Steffen Flessa, University of Erlangen-Nuernberg, School of Management, PO Box 3931, D-90020 Nuernberg, Germany