

Hospitals in sub-Saharan Africa: why we need more of what does not work as it should

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Summary

This paper analyses the origins of today's crisis in the hospital sector in sub-Saharan Africa. Present trends in availability of hospital services are extrapolated to the future in order to provide a low-end estimate of the need for expansion of first referral level hospitals. This will not be possible without giving due priority to this sector, a commitment to considerable investments and reorientation of resources from tertiary to first referral level hospitals. It is to be feared that if this is not done, the backlog will increase, and, given the time lag before investments translate into operational services, there will be a major shortage of hospital services in sub-Saharan Africa within a decade.

keywords Africa, hospitals, policy, health care financing.

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Introduction

Primary Health Care (PHC) policies in Africa were initially strongly influenced by a reaction against a colonial and postcolonial hospital-centred approach. It was only later, at a moment of economic crisis, that these policies rediscovered the need for basic health services and the organization of district health systems in which the first referral hospital has an essential supportive role to play. With no money left for maintenance, salaries, recurrent costs, hospitals became a symbol of the breakdown of social services in Africa during the 80s and 90s. Smaller hospitals were hit hardest, but by now even the major tertiary care and teaching hospitals are in a crisis. The consequences are and will remain of paramount importance since neither the big urban hospitals nor the remaining rural hospitals can meet the growing demand of growing populations.

There is general agreement that hospitals in Africa, especially public sector hospitals, perform poorly. But beyond stating the obvious and proposing stop-gap measures to solve problems on a day-to-day basis, present policy debates give little attention to future

requirements, and to what needs to be done today, in order not to face even more serious problems 10–20 years from now. The hospital will remain a major organization and face financial constraints for the foreseeable future. Present reluctance to invest in the functioning of existing district hospitals but also in the building of new ones is likely to jeopardise health care delivery. This paper tries to clarify some of the key issues in this debate, specifically the need to redirect attention from tertiary to first referral level hospitals, pointing out the extent of the challenges faced.

Background

At the origin of the Alma Ata movement in the late 70s were technocratic as well as ideological considerations: the emergence of the social and political potential of health and health care in the context of overall development; concern about inequities in coverage and the deteriorating situation in the rural areas; increasing demand for health care combined with a feeling of helplessness and dissatisfaction on the part of consumers and the explosion of health care expenditures and the

nonsustainability of classical approaches. Primary Health Care and its push for rural coverage and participation thus got under way, in an uneasy association of development technocrats and governments, donor agencies and NGO militants. This consensus was made possible by the vagueness of the modalities for the operational implementation of the Alma Ata principles.

This was a time of discredit for the two traditional health care delivery models in Africa: disease control programs and hospital-based curative care. The traditional disease control programs were too expensive, often ineffective, and clearly did not respond to the demand for care. Neither did the hospitals for obvious reasons of accessibility. Hospitals are located in towns and mainly serve urban communities: there is a distance decay in hospital utilization, a phenomenon first described in the 60s (King 1966), but also a social gradient (Weaver *et al.* 1990): the health centre is for the peasants, the hospital for the urban elite (Kloos 1990).

Improving access to hospitals was no solution: the typical hospital in the 60s and 70s was already overburdened with work, and it became increasingly apparent that it mostly provided care that could be given cheaper – if not better – at peripheral level. At the same time the large tertiary care hospitals swallowed the lion's share of resources: in Ghana the 1% of care provided by tertiary care hospitals consumed 40% of health expenditure (de Kadt & Segal 1981).

Disavowal of the hospital-care model was a central feature of the PHC movement towards the end of the 70s and the early 80s. This did not stop construction of new hospitals, mainly with European and bilateral funds, often in implementation of agreements reached during the previous decade. But it became increasingly difficult to obtain new commitments of multilateral donors and most influential NGOs in support of hospitals. Characteristically all types of hospitals were lumped together:

In the rush to develop primary health care, in preference of what some derided as the 'disease palaces' of tertiary care, the secondary care hospitals in between were forgotten (Pearson 1995b).

The pendulum swung from the inherited hospital-centred approach of the postindependence period to PHC in its voluntarist (village health workers) or verticalist (selective primary health care) interpretations

(Van Lerberghe 1993). The hospital found itself in limbo, less because of Alma Ata as such than due to policy reorientations and sustainability considerations.

The priority commitment of many development technocrats was to try out a new development model that would encompass rather vague concepts such as self-reliance, autonomy, participation, empowerment, and intersectoral collaboration. The technocrats were wary of the medical class and of the power of hospitals which they (rightly) considered major obstacles to the redirection of resources towards the coverage of rural areas.

At the same time the state was facing it increasing difficulties in supporting the rising costs of hospital-based curative care. Hospitals commonly account for 50–80% of public recurrent health expenditures. Most of this is concentrated in major tertiary care hospitals. In Zambia in 1980, for example, the 3 large central hospitals used 30% of the public health resources, the 39 lower-level hospitals another 36%; in Kenya, in 1986–87, provincial and central hospitals accounted for 44% of public health expenditure. In Zimbabwe, the 4 central hospitals used 45% of public funds for recurrent costs (World Bank 1994).

The emergence of the notion of district hospital

During the 80s the blunt critique of the hospital-centred approach became more selective: while hospitals *per se* are part of the problem, small first referral or district hospitals are certainly part of the solution. Much of this, paradoxically, is due to the fact that the health centre gradually emerged as the mainstream operationalization of the PHC strategy. Building on the basic health services tradition of South (Yach & Tollman 1993), East (King 1966) and Central Africa, and on a number of projects in countries such as Nigeria (Morley 1973), Zaire (Kasongo Project Team *et al.* 1982; Kasongo Project Team & Van Lerberghe 1983), Senegal (Janclous *et al.* 1982), Ghana (Waddington & Enyimayew 1989; 1990) and others, health centres were a realistic option: feasible (Lamboray 1979; Stroobant 1979; Pangu 1988), affordable (Kasongo Project Team & Van Balen 1984) and effective (Van den Broek *et al.* 1988; Kasongo Project Team & Van Lerberghe 1982; Van Lerberghe & Pangu 1988; De Brouwere & Pangu 1989; de Béthune *et al.* 1989), whilst maintaining a potential for dialogue

with the client populations (Jancloes 1975). But at the same time it became apparent that health centres could not operate properly and were unable to respond to need and demand without backup by a hospital. Although most agencies such as UNICEF and Oxfam continued to concentrate on first contact level services alone (Knippenberg *et al.* 1990), the PHC movement put the issue of the first referral level hospital and its place in the district on the agenda (Table 1).

A first phase has been characterized by the fact that a considerable number of hospitals, especially smaller NGO ones, joined the PHC movement and started to provide first contact level services. Gradually, however, activities shifted towards an organizing and supporting role in a 'health care district' framework; by the mid-90s, advocacy of the role of district hospitals was politically correct yet again.

Managerial experience and scientific documentation

A common perception of the essential features of a

district hospital is emerging: some 140 beds, 3–4 doctors providing obstetric, gynaecological, basic surgery and medical inpatient care, an outpatient referral department, laboratory facilities and a blood bank. This is an empirical choice based on nonsystematized field experience and a limited number of descriptive studies (Hamel & Janssen 1988; Van Lerberghe *et al.* 1992; Pangu *et al.* 1993; Parker & Newbrander 1994). The same can be said for the rationale for this renewed interest in the district hospital. Policy was not formulated on the basis of documented hard evidence or scientific proof, but emerged from field experience and practice, from common sense and a consensus among decision makers that the obvious demand and need cannot be ignored. In fact the case for district hospitals rests on a number of assumptions (Table 2) about the cost and effectiveness of a model with two complementary levels of care: hospital and health centre.

A major argument has always been that collaboration between the two levels of care in an integrated district system would strengthen both parties and result in overall benefits for the users. There is some evidence in

Table 1 Milestones in the emergence of the 'district hospital' as a cornerstone for health care organization

Date	Milestone
1981	The Aga Khan Foundation conference in Karachi. H. Mahler makes his often quoted statement that ' <i>A health system based on primary care cannot, and I repeat, cannot be realised, cannot be developed, cannot function, and simply cannot exist without a network of hospitals ...</i> '. (Aga Khan Foundation 1981)
1983	Medicus Mundi Internationalis and WHO <i>Guidelines for hospital annual reports</i> which (De Kok & Hamel 1983) will have a strong influence on the involvement of peripheral NGO hospitals in PHC (Van Lerberghe <i>et al.</i> 1994).
1985	WHO Expert Committee on the role of the first referral hospitals The district is the key, but the district hospital is usually the weakest link: poorly staffed and with insufficient backup (WHO 1987a).
1987	The WHO Harare Conference Stresses the importance of decentralising PHC management to the district level and assigns a leading and facilitating role to district hospitals in organizing PHC at district level (WHO 1987b).
1988–89	First attempts at establishing a profile of what peripheral hospitals do and should do Given the overall lack of empirical knowledge, these studies (Hamel & Janssen 1988; Van Lerberghe <i>et al.</i> 1990, 1992) will influence the work of WHO and the World Bank.
1990	WHO study group defines more precisely what a district hospital should do Including a shift from implementation of to support for PHC (WHO 1992; Van Lerberghe & Lafort 1990). There is an increase in the number of papers on financing of hospitals (e.g. Moens 1990; Mills 1990) and district hospital management (Unger 1992).
1991–93	The district hospital becomes a mainstream concept Through the Better Health in Africa study (World Bank 1994) and the World Development Report of 1993 (World Bank 1993), among others.

Table 2 Unproven assumptions underlying the crucial role given to district hospitals

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- In a district system hospital and health centre achieve better results than would be obtained by summing the effects of each.
 - The organization of referral linkages will result in health benefits.
 - The work of health centres and of hospitals is distinct and complementary.
 - It is possible to control the traditional financial, logistic, and cultural dominance of hospital care systems, and give the health centre network space for its development.
 - The district and its relatively small hospitals are manageable planning and implementation units.
 - District hospitals are an affordable way of providing hospital care.
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favour of this. A network of health centres could actually diminish requirement for hospitalization while enhancing appropriate utilization of the hospital (Van Lerberghe *et al.* 1988; Zwart & Voorhoeve 1990). However, there are methodological problems in providing conclusive evidence in favour of this assumption, e.g. proving causal links and eliminating confounding factors. Were it not for the extensive managerial experience, the scientifically documented empirical basis would be very weak.

The second assumption is that referral linkages between health centres and hospital will result in a health benefit. The main argument here is *a contrario*. When no such relations exist, things do not work. This is well exemplified by the case of Ethiopia: only 13% of hospital consultations follow a referral (Kloos 1990), and a logical assumption thus is that a referral-counter-referral system would improve things. Evidence comes mainly from overburdened hospitals, where channelling patients through first-line health services obviously improves the effectiveness of the entire health system. However, empirical evidence is weak that this improvement is as great in other settings or that formal referral-counter-referral structures reduce doctor or patient delay.

The statement that the work of hospitals and health centres is of a different nature goes against the enthusiasm of mainly smaller NGO hospitals in the early 80s to get involved directly in delivering first contact care. There are jobs actually done better by health centres than by alternative structures, be they vertically organized disease control activities or hospitals (Kasongo Project Team & Van Lerberghe 1982; Unger *et al.* 1990). Beyond the dimension of technical effectiveness, the rediscovery of the notion of care and the importance of relational aspects point to the specificity of health centres. The AIDS epidemic has been an important booster of this rediscovery, which in

turn solves the weakest point of hospitals: their 'fragmentation of the continuum of care' (Laurence 1994).

One proposed strategy, relying on the notion of the integrated health district is to distinguish clearly between the roles of health centre and hospital to avoid overlaps (Kasongo Project Team *et al.* 1981). This would mean that the hospital is involved as little as possible in delivering first contact ambulatory care. There is no hard evidence that this strategy works and, although it is becoming the mainstream approach in some countries, it is often challenged for both technical (Pearson 1995a) and economic reasons.

Are small district hospitals really manageable? In many African countries districts seem the obvious compromise of decentralization. The most convincing evidence for this may well be the resilience of the 'zones de santé' in Zaire. However, it is too soon to draw final conclusions from the rather timid attempts at delegating some degree of planning and managerial autonomy to district level; in many countries there is not enough competent personnel to take up these responsibilities.

Finally, the assumption that district hospitals are affordable is based on no more than a very rough idea of the financial implications. In the light of data gathered over the last few years it remains to be seen whether this will prove correct. Moreover, who is going to share the burden? Yet, even without proof that the district strategy will work and that first referral hospitals have their place in it, alternatives are not in sight. Suggestions that other intermediary structures between health centre and general hospital, referral health centres for example, could replace the district hospital have a bad track record in West Africa and elsewhere (Pepperal *et al.* 1995).

Overall, surprising as this may seem, documented empirical evidence with policy relevance is scanty, except maybe that concerning feasibility and

affordability. Nevertheless, first referral hospitals integrated in a district health care system seem to be the best bet at this moment.

Constraints on redirecting district hospitals

The proof of the district pudding will be in the eating, but before that a number of hurdles will have to be overcome. The hospitals that have to undergo transformations are indeed facing major constraints today, especially those that belong to the public sector.

In the first place there is a financing crisis: state subsidies have dropped – structural adjustment *oblige* -, resulting in lack of drugs, financial barriers to access to care and progressive deterioration of buildings and equipment. In Kenya the maintenance budget is 1% of capital stock instead of a more realistic 10%. The result is that the average life of sterilizers is only 2 years instead of 6, that of incubators 2 years instead of 8. This situation is worst in more peripheral public hospitals since resources are siphoned to the tertiary care level. Indeed, even though the district hospital has become popular, the tertiary care hospital is still there and has maintained most of its political and technical weight. In Senegal 19% of public personnel still work in the national hospitals in Dakar and 31% in regional hospitals, against 42% in health centres and health posts and 22% in specialized services (World Bank 1991).

Partly as a consequence of the financing crisis, there is a crisis of quality and confidence expressing itself in relative underutilization. This affects public hospitals more than others. They are losing their market share to NGO hospitals, as in Ghana, where in 1987 with approximately the same number of hospitals and less beds, NGO hospitals recruited 64% of outpatients and 56% of inpatients. At the same time overall bed occupancy was only 46%, and utilization levels fell below what they were 10 years earlier (World Bank 1990). Between 1978 & 1986 the number of hospital days in public hospitals in Senegal decreased by 67.3%, the number of people hospitalised by 22.5%, while the population grew by 25% and the number of facilities also increased (World Bank 1991). Decreases in hospital utilization were found elsewhere as well. In Chad the median occupancy rate of 26 hospitals was only 44.1% (MSP 1988). The bursting hospital of the 60s and 70s is emptying, while major tertiary hospitals continue to be overcrowded.

There is ample anecdotal evidence of problems with quality of care, patient dissatisfaction, underutilization and financial barriers. Of 999 orders and/or results in a medical ward in a Kenya district hospital used for teaching medical students, 357 were delayed, interrupted, never done or never received (Einterz *et al.* 1992). The problem is that the vicious circle of low quality, low staff morale, low confidence and inadequate funding has been going on for so long that many professionals and users no longer can imagine that a hospital or health centre can work in a different way. The present challenge is not only to insert the first referral hospital into the district care system, but also to reinstate acceptable levels of quality of care and confidence. Best practice cases show that this is possible with highly motivated staff (Moens 1990), even if they are not numerous enough to convince decision-makers. At macro-level not much can be done unless the resource balance is shifted from tertiary to first referral level care. If one wants health centres to work properly, to diminish the strain on the major tertiary hospitals and improve effectiveness, the priority should be to maintain at least a sufficient supply of first referral level infrastructure where the people live (Berardi *et al.* 1989).

Financing adequate supplies

Pearson (1995b) relates that between 1952 and 1975, the town population of a Nigerian district grew sevenfold from 30 000 to 200 000 while the number of hospital beds rose from 75 to about 500. This is a *status quo* in terms of population/bed ratio. The increase in the number of hospital beds elsewhere in sub-Saharan Africa overall has been important as well, but it has slowed down markedly over the last decade (Fig. 1): between 1950 and 1970 the number of beds nearly doubled, whereas it increased only by 58% over the following two decades. A large part of that increase took place in Nigeria: without this country the increase between 1970 and 1990 would be only 33.9%. The slow-down is even more apparent when one looks at a small group of 9 countries (Nigeria, Mozambique, Guinea Bissau, Botswana, Central African Republic, Sierra Leone, Gabon and Senegal) for which a complete data series is available. The rate of increase in hospital beds is 67.3% in 1960–70, 62.0% in 1970–80 and 31.5% in 1980–90; without Nigeria, these rates are 60.6, 16.9 and 3.2%. This is consistent with the evolution of capital

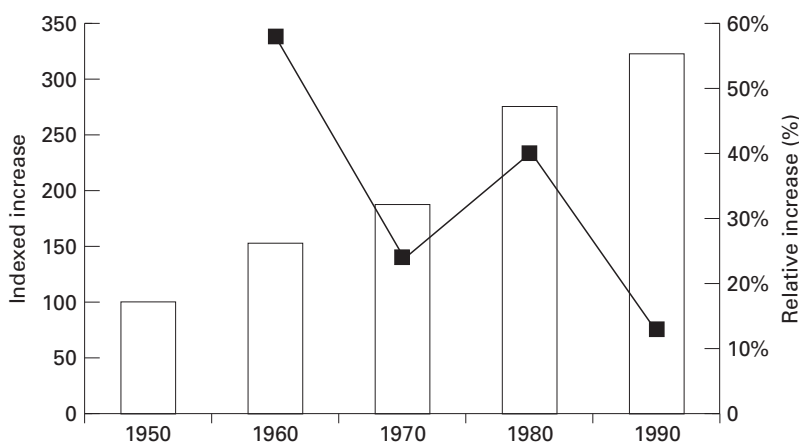


Figure 1 □ Indexed increase in number of hospital beds in sub-Saharan Africa extrapolated from data on 20 countries (1950-60), 35 countries (1960-70) and 24 countries (1970-80 and 1980-90). Index 1950 = 100. ■ Relative increase compared with the previous decade.

expenditure patterns: in Botswana they diminished by 1% per year in real terms in 1980-85; in Cameroon, Ethiopia and Senegal they started dropping in 1986 by 14.9%, 11.3% and 34.1%, respectively, per year in real terms (Ogbu & Gallagher 1992). Although we do not know what happened there after 1975, Pearson's district must be one of the luckier ones.

Data from WHO World Health Statistics Annuals of various years were collated to provide a broader picture of the trends of bed-population ratios in sub-Saharan Africa. Although pure time-series are not available, the overall trend shows that since 1950 the *per capita* supply of hospital beds has more than doubled. However, over the last decades supply *per capita* has been stagnating and there are indications that population growth now outruns creation of hospital beds (Table 3). The population/bed ratio remains 10 times higher than the 110:1 average for developed countries and more than twice the developing country ratio of about 500:1 (World Bank 1993). Outside the main cities the

situation is less favourable than the aggregate figures indicate. Unpublished reports from 21 district hospitals (public and NGO) between 1989 and 1992 in countries as different as Tanzania, Guinea, Benin and Chad yield a median population/bed ratio of 1772:1.

Using the ratios given in Table 3, the evolution of the overall number of hospital beds for 42 African countries (Table 4) can be extrapolated. It is difficult to estimate what exactly the most adequate level of supply would be, but just maintaining the 1990 population/bed ratios would require an annual increase of 14 250 beds (some 100-150 hospitals) during the current decade and 23800 extra beds (160-240 hospitals) per year after the year 2000. In absolute terms, this would mean an acceleration compared to 1980-90 (with an average increase of about 6000 new beds per year), and even compared to 1970-80, when the number of beds increased by some 16 250 per year (Fig. 2). These are low-end estimates, since one would expect the demand for hospital care to rise if communication improves, epidemiological

Table 3 Evolution of the population/bed ratio in Sub-Saharan African countries

Date (n=number of countries)	Weighted average	Median
1961-70 (n=36)	864 598 (without Nigeria)	771
1971-80 (n=14)	935	662
1981-90 (n=25; including health centre beds)	924 809 (without Nigeria)	825
1981-90 (n=21; hospital beds only)	1100	1400
1988-92 (n=4; district hospitals beds only, data on 21 hospitals, various sources)	2303	1772

Table 4 Evolution of the number of hospital beds in 42 African countries, assuming the 1990 median population/bed ratio is kept constant up to 2025. Population estimates for 2000 and 2025 are based on a medium fertility decline scenario

Year	Population (millions)	Median population/bed ratio	Corresponding number of beds
1970	245	771	318,289
1980	318	662	480,520
1990	445	825	539,856
2000	563	825	682,336
2025	1054	825	1,277,474

patterns evolve, and popular expectations put more pressure on the system.

This will require considerable investments, all the more since the existing hospital network is in dire need of rehabilitation. The archetypal case is Ivory Coast, where hospital beds increased from 4248 in 1945 to 9978 in 60 hospitals in 1959. In 1990 there were 11000 beds in 82 under-equipped public hospitals, 70% of them more than 30 years old, next to 3 confessional and 20 small private hospitals (Zagbayou Bedi 1990).

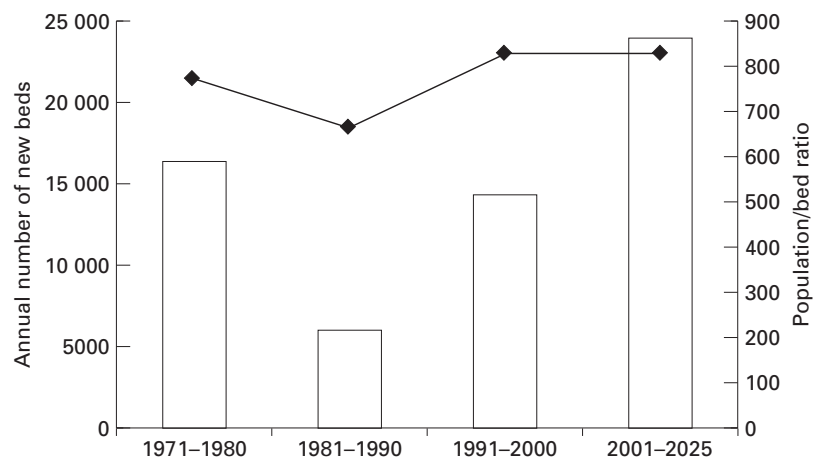
It is difficult to know what it costs to operate a first-referral hospital in Africa. Most produce too little to make financial information – if available – relevant. What information there is does not take operating inefficiencies into account. Data are distorted by the inclusion of (inadequate) salary costs.

If we assume that NGO hospitals operate satisfactorily, they would provide an indication of what it costs to run a 'reasonable' hospital. There is some information available on this aspect, through a series of mail surveys conducted by Medicus Mundi

Internationalis. The first survey in the late 80 s yielded a median cost of 986 US\$ per bed per year for 59 hospitals (Van Lerberghe *et al.* 1992); the second survey in the early 90 s estimated a median cost of 1195 US\$ for 65 hospitals (Rypkema & Santing 1994). There are important variations from country to country – largely related to salary differentials, but the cost per bed appears to be more robust than other indicators such as the cost per inhabitant served, or per in- or outpatient (Van Lerberghe *et al.* 1992).

Assuming that even teaching hospital beds are not more expensive than rural NGO hospital beds, and that the changes in epidemiological profile and technology do not increase costs, the yearly operating costs would be around 650 million US\$ at 1990 level, increasing by 17–28 million US\$ per year if the present population/bed ratios are maintained. This corresponds to about US\$ 1.5 per inhabitant per year just for operating costs and maintaining present inadequate levels of supply of hospital beds, thus being a gross underestimation of real needs. If one uses population actually served as

Figure 2 Yearly increase in number of beds (□) and population/bed ratio (■) in 42 sub-Saharan countries, over the last two decades, and projected yearly requirements in order to maintain 1990 population/bed ratios.



denominator – as was done for the Better Health in Africa study, – but based on very limited empirical evidence – the cost per inhabitant per year is likely to double or triple.

There is thus an evident problem of financing, even only for operating costs. In Rwanda, a 200-bed hospital completed in 1991 remained unopened two years later because its recurrent costs would amount to 15% of the MOH budget. Such examples abound. Over the last years various attempts have been made to finance hospitals by looking at both rationalization and cost-recovery strategies at local level (Berche 1993). Given the volume of funds required for operating hospitals and the required investment in rehabilitation and construction, this is no fundamental solution for the problem.

Classical problem identification for the crisis facing hospitals in the 80s has been centred on the resource question following diminishing state funding (Berche 1993). The solution would be to renew equipment, introduce user charges and hospital autonomy, train hospital managers and thereby acknowledge the pulling-out of the State. But such solutions are neither easy to operate nor to implement. In Mali, national policy has been aiming at rehabilitating and reorganizing the network of district hospitals since 1991, which has been hampered by difficulties in defining the new role of the district hospitals, by lack of trained and experienced manpower, by lack of showcases and even by administrative hassles imposed by funding agencies. Management issues are heavily debated, including ownership of public structures (Maïga *et al.* 1996).

Almost all countries have attempted to direct investments at extensions of the first contact level. But in the meantime the major hospitals have maintained *de facto* priority status and remain involved in inefficient provision of primary (Loewenson *et al.* 1991) and secondary care, as in Lusaka, where the 1835-bed Zambia University Teaching Hospital provides the bulk of hospital care for the entire city.

Redirecting public and donor funds from tertiary and teaching hospitals to first referral level hospitals and district health care systems is a key issue. When available and functional, they are more affordable, more appropriate and more efficient. This may mean to let major hospitals fend for themselves or down-scale, as presently in Brazzaville. This is a major political problem, given the ideological and political weight of these large hospitals.

Conclusion

Important investments in rural and urban district hospitals are unavoidable. The magnitude of the problems stems from their more or less systematic neglect in the last decade and the urgency today from the expected increase in the need for hospital care in sub-Saharan Africa in the 10–20 years to come.

Financing the investments needed for district hospitals will be a major challenge. Finding the money to operate those hospital beds will not be possible without a major shift in present allocations. So many years after the Alma-Atas, the Harares and the Bamakos, we are likely to see brand-new high tech hospitals rise on the skylines of Africa's major cities (Chinnock 1991), inaccessible to the populations of the poor rural or peri-urban areas. One of the primary conditions for guaranteeing access is to shift resources from tertiary care institutions to first referral level hospitals. If district hospitals are to play a role as elements and leaders of integrated health systems, they must be given top priority on the agendas of policy makers and donors.

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W. Van Lerberghe *et al.* **Hospitals in sub-Saharan Africa**

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W. Van Lerberghe *et al.* **Hospitals in sub-Saharan Africa**

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