

RAPID ASSESSMENT OF AN AFRICAN DISTRICT HEALTH SYSTEM. TEST OF A PLANNING TOOL

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SUMMARY

Occasional rapid health care system assessments are potentially useful for planning, for monitoring health care systems development over time, and for comparing health systems in different areas. With the decentralization of health sector management, for example in Kenya, there is a growing need of such assessments at district and sub-district levels. Can rapid assessments be conducted at affordable cost at these levels? What variables and methods are feasible?

This paper reports on a rapid health system assessment conducted in rural Kenya during 1991. It required the completion at each health facility of a self-administered questionnaire which included questions on resources, health care programmes, management, service output, and prominent problems. It also included interviews with officers in charge of each health institution in the sub-district and an examination of records and reports available at each facility.

The paper presents the range of issues addressed, the indicators used, the methods applied, the problems encountered, the costs of the assessment, and a small selection of the findings. We conclude that the assessment model is manageable at district level with modest planning and analysis support from central level. Field staff need more precise instructions for completion of the questionnaire, and more population-based estimates need to be calculated. Reassessment taking place every 3-5 years should be adequate for monitoring the process of change in the local health care system.

KEY WORDS: Rapid appraisal; Health planning; Health care infrastructure; Descriptive analysis; District; Kenya

INTRODUCTION

Every health sector plan and every programme planning and implementation cycle requires a situation analysis or baseline study describing the current position (Conyers and Hills, 1984; Tarimo, 1991). Such an analysis, shown in Figure 1 (modified after Amonoo-Lartson *et al.* (1984)) taking place as part

of a health planning cycle, is a useful basis for formulating plan objectives, targets and programmes. However, in very low-income countries little planning takes place at district and sub-district level except modest annual incremental budgetary adjustments. A proper situation analysis is often omitted due to scarcity of data, trained staff, and funds. Policies and plans end up being based on sketchy information about local health conditions and service use (Tanner, 1988). Infrastructure and service descriptions are sometimes undertaken but more often as baseline studies early on in special projects, rather than as part of a continuous health planning cycle. They are often called rapid assessments or appraisals, implying a descriptive assessment of the services provided, with the active involvement of service providers and allowing rapid access to results (Smith, 1989; Vlassoff and Tanner, 1992; Oyoo *et al.*, 1991).

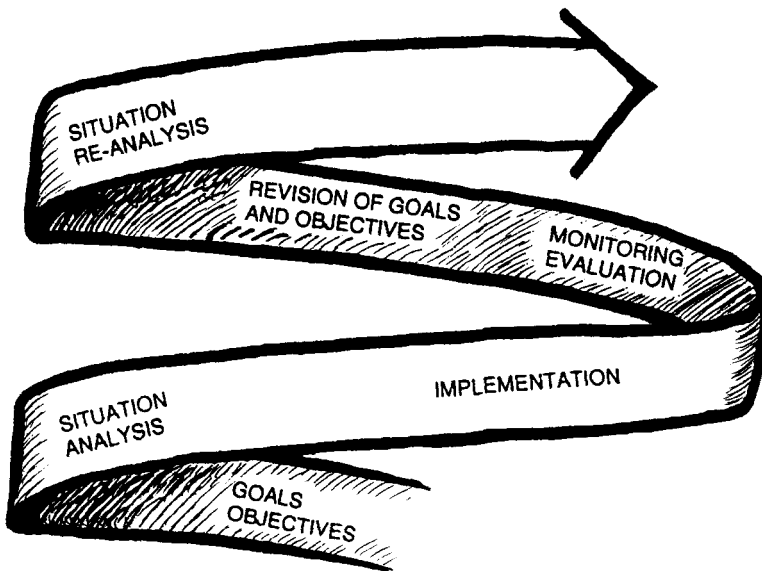


Figure 1. The planning cycle.

A descriptive analysis is a potentially useful tool as it can be used at district level to plan and monitor change over time, or it can provide a basis for comparison between regions and districts.

Current health information systems generate large amounts of data which often are incomplete, or inaccurate, and therefore are little used by planners. They may include data on activity and on resources, but indicators are poorly harmonized with those applied elsewhere and thus difficult to use for inter-district comparisons.

Most published texts on health care planning and management in developing countries are based on a primary health care strategy (Segall, 1983; Vaughan

et al., 1984). Some have emphasized epidemiological analysis (Vaughan and Morrow, 1989) while others deal with the structure and performance of the health service system (Smith and Bryant, 1988; Flahault *et al.*, 1988). Little attention has been paid to standardized descriptions of health care systems and their service output.

After a study in Tanzania, Gish (1975) found it 'remarkable just how little is known in many ministries of health about the state of most of the nation's health facilities', particularly health centres and dispensaries. A descriptive analysis of two Ghanaian district health systems was conducted in the mid-seventies by a team from the University of Sussex (de Kadt and Segall, 1981). And in a book on district health care management in developing countries, Amonoo-Lartson *et al.* (1984) mentioned the 'review of existing state of services' as the first phase of the planning process. They suggested five methods of finding out what was happening in the district, including the extraction of information from available health statistics and from knowledgeable people, using existing data on health-related institutions, and conducting household surveys on socio-economic community characteristics and local health practices. This and a few other relevant texts are listed in Table 1.

The World Health Organisation (1981) has proposed 'indicators for monitoring progress towards Health for All by the Year 2000', including, for instance, the organizational framework, resource allocation, service coverage, community involvement, mortality and morbidity, and quality of care. These indicators are not operationalized and cannot easily be monitored routinely by local health personnel because they lack skills, resources and information. The special surveys that would be required can neither be managed by local staff nor financed within the declining health budgets. An analysis of financial information, such as capital and recurrent budgets and actual expenditures, applicable at district level in developing countries, has been published by Waddington *et al.* (1989).

Methods for 'rapid appraisal' of health problems, service systems and institutions have been proposed in recent years, for instance by Chambers (1981). Scrimshaw and Hurtado (1987) presented data collection check-lists intended for primary health care programmes. In 1991 Annett *et al.* (1991) presented seven 'rapid evaluation modules', of which one deals with the district or rural hospital, one with primary health care facilities and one with the entire district health management system.

A rapid appraisal approach has been applied in Sri Lanka by Jayasuriya (1986), who also reports on a district level pilot project developing indicators for monitoring at sub-national level in support of a decentralization effort. The use in Tanzania of self-administered health questionnaires distributed through the existing administrative system has been reported by Lengeler *et al.* (1992), and rapid anthropological assessment methods have been reviewed by Manderson and Aaby (1992). A review of methods applied to rapid Material and Child Health-Family Planning (MCH-FP) assessments in five countries (Botswana, Madagascar, Papua New Guinea, Uganda and Zambia) has been published by Anker *et al.* (1993).

Table 1. Selected published texts dealing with the description of health infrastructures in low-income countries.

| Source | Main focus of the source | Items described |
|-------------------------------------|---|--|
| Amonoo-Lartson <i>et al.</i> (1984) | District level health care management and planning | One chapter deals with description of system: training, transport, supplies, maintenance, referral, supervision, planning, evaluation |
| Scrimshaw and Hurtado (1987) | Anthropological data collection methods | 14 data collection guides applicable to PHC providers: interviews with community leaders and with health personnel, description of physical facilities, etc. |
| Vaughan <i>et al.</i> (1984) | District health care management and planning | 'Framework for analysis' proposed for district level: manpower, training, transport, maintenance, information, budget, supplies, supervision, referrals, monitoring |
| Annett <i>et al.</i> (1991) | District level health care management | Seven modules, one of them designed to describe district health care management and support systems: health facilities, staff, training, supplies, health information, planning, budgeting, etc. |
| de Kadt and Segall (1981) | District level health care management and planning | Disease pattern, service needs and output, resources, health care infrastructure. Effectiveness indicators |
| Waddington <i>et al.</i> (1989) | Health expenditure at district level in five developing countries | Budgets and expenditures by programme and by type of service output |

A 'framework for analysis' of health care systems and particularly of primary health care at district level has been proposed by Vaughan *et al.* (1984), who consider such an analysis essential before introducing change or new training activities. They identify five main areas for analysis (see Table 1).

We draw three conclusions from this review. First, few broad descriptive studies of health care systems in low-income countries have been published. Second, study methodology and costs are rarely presented in published reports. And third, feasibility and usefulness for planning and evaluation have not been tested.

In Kenya decentralization of public sector management has been initiated in 1984 within the framework of the so-called 'district focus policy for rural development' (Government of Kenya, 1984). Kenya's health care system, five-tiered like those of many other African countries, combines government institutions with different non-government facilities and private practices. This paper presents a study in rural Kenya aimed at testing a rapid method of assessing a sub-district health care structure and its service output. It draws conclusions

applicable to East African health care management and planning at district level and below.

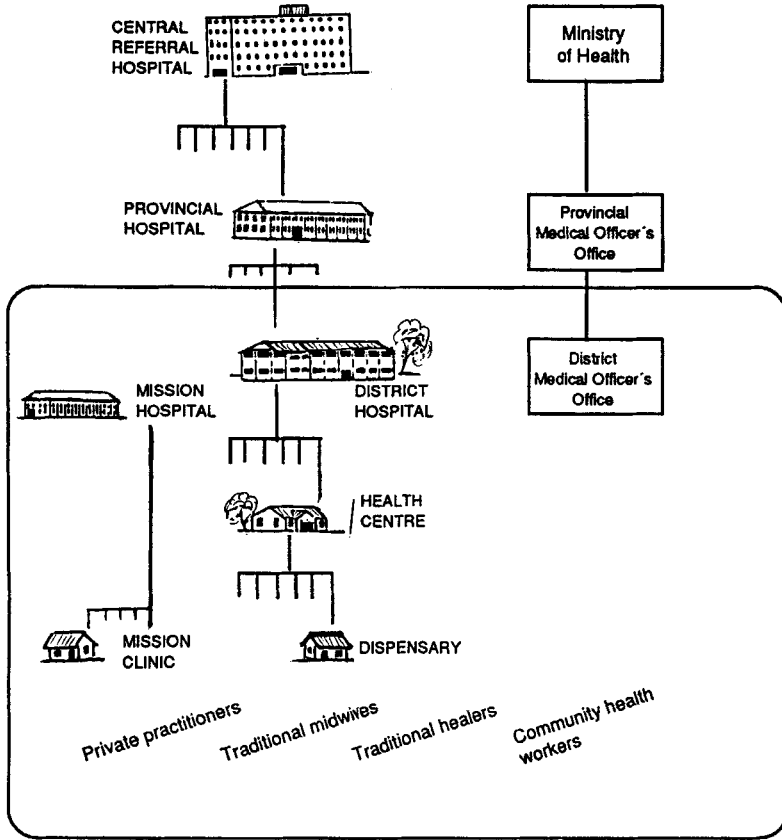


Figure 2. Kenya's health infrastructure.

DATA AND METHODS

Our study was conducted in Kibwezi Division of Machakos District, located about 200 km from Nairobi along the Nairobi–Mombasa road. It comprised three components: (a) a self-administered questionnaire to be completed by staff in charge of all health institutions; (b) structured interviews with the same sample of staff; (c) review of written records and reports kept at the health facilities.

The self-administered questionnaire

Two slightly different questionnaires were developed—one for hospitals and one for all smaller facilities focused on assessing infrastructure, organizational

development and relationships with other organizations and individuals. After pretesting, we found little reason to use two different questionnaires. The questionnaires were merged into one and revised on the basis of suggestions made during the pre-testing phase. The final questionnaire included questions on:

- physical facilities (land, buildings, equipment);
- manpower (categories, number, training);
- budget and actual expenditure;
- resource consumption, e.g. drugs, other supplies;
- work programmes—daily, weekly, monthly;
- curative service output—patients treated, referred;
- preventive activities (health education, nutrition, environmental health, MCH-FP, immunizations);
- training activities;
- contacts with local leaders and groups, such as non-government organizations (NGOs);
- decision-making authority at institutional level;
- contacts and coordination with non-health sectors;
- constraints, problems, and future plans.

The self-administered questionnaire was presented and explained to the officer-in-charge of each of the 16 in-situations in the division and of Machakos District Hospital. Although the persons in charge of pretest facilities felt that 3 or 4 days would be sufficient to complete the questionnaire, it turned out that some facilities needed several weeks. Still, in the end, three (mission) clinics declined to participate and 13 of 16 facilities in the division, or 82%, completed the questionnaires.

After coding—which included post-coding of a few open-ended questions—data were entered into a micro-computer using dBase III and a data base management program, then translated into an ASCII format and analyzed with the EPI-INFO program.

Interviews

A few months after completing the self-administered questionnaire, the officer-in-charge of each facility was visited and interviewed by one of the investigators, who used a structured questionnaire in which following issues were addressed:

- the appropriateness of the descriptive questionnaire;
- service implications of constraints and problems;
- local decision-making authority;
- contacts with sectors other than health;
- previous descriptions, if any, of the local system;
- local community involvement and its mechanisms;
- job satisfaction and main frustrations;
- the health information system.

While the interview was structured, opportunities existed for the respondent to elaborate on issues which were addressed in the earlier written questionnaire. At the same visit validation took place by cross-checking the answers to some questions, either with regard to accuracy through supplementary observation or with regard to reliability through repeat questions.

Review of records and reports

A review of locally available records and reports was conducted at each health facility, but this generated limited information.

RESULTS

The results have been presented in an unpublished project report which includes the tables listed below (Table 2). They summarize the characteristics of the responding facilities and their services, and we have selected as examples five variables—one from each category in Table 2—to illustrate the approach and a few methodological questions.

The first example (Table 3) shows the number of government and non-government health facilities by category.

It would be useful to separate NGO-owned facilities from for-profit private clinics and to specify the NGOs concerned. Also, the qualification of the private practitioners is potentially useful information for management of cases in need of referral and for planning of supervisory visits.

The second example is an attempt to estimate the catchment area population served by each health facility.

The questionnaire asked respondents to identify, on a map or otherwise, the geographical area from which the majority of patients are drawn, and to estimate the total number of people living in that area. Only five of 13 responding facilities answered this question (Table 4). Two facilities included not only the entire sub-district population but also 40 000 people living in the surrounding areas. Kibwezi Rural Health Centre included the whole sub-district population, Masongaleni Health Centre counted people in a limited area around the health centre while Sulmac Dwa Health Centre, a plantation staff clinic, correctly counted only plantation staff and their families.

In the third example, a study of the equipment situation, we applied a list of items judged to be crucial for providing key services (Table 5). Staff were asked to indicate whether functioning and non-functioning items on the equipment listed were presented or not. We did not define 'functioning', although this could in some cases be open to different interpretations. In case of incomplete answers, clarification was obtained during the subsequent interviews. We have simplified the presentation by omitting the numbers of each item in the table. We note, for example, the absence of functioning refrigerators at the dispensaries, of minor surgery sets at small government facilities, of vaginal specula at dispensaries and private clinics and of blood pressure machines at private clinics.

Table 2. List of tables describing the system.

Physical facilities

Health facilities by type and ownership (Table 3)

Health facilities in Kibwezi Division by location

Land/floor area occupied by each facility

Coverage

Population served by facility (Table 4)

Resources

Distribution of beds by facility

Health manpower by category in GOK facilities

Health manpower by category in private facilities

List of functioning equipment (Table 5)

Supplies and their availability

Actual recurrent expenditure

Budget and expenditure for selected votes

Service output

Immunization statistics

Out-patient statistics

In-patient statistics

Laboratory test statistics

Maternity services statistics

MCH and FP services statistics

Number of community health workers and traditional birth attendants in the area (Table 6)

Most common surgical operations

Most common out-patient diagnoses

Most common in-patient diagnoses

Reported authority to take administrative decisions

Management characteristics

Reported participation in planning and budgeting

Reported presence of selected management tools

Reported main problems (Table 7)

Source: Kazibwe *et al.* (1991).

Table 3. Health facilities by type and ownership.

| Facility | Ownership | | Total | Per cent |
|-------------------|------------|-------------|-------|----------|
| | Government | NGO/private | | |
| Sub-hospital | 1 | — | 1 | 6 |
| Health centre | 1 | 1 | 2 | 13 |
| Sub-health centre | 2 | — | 2 | 13 |
| Dispensary | 3 | 3 | 6 | 38 |
| Private clinic | — | 5 | 5 | 31 |
| Total | 7 | 9 | 16 | 100 |

Our fourth example is the reported number of trained volunteers in the area. Kibwezi Division, with around 600 trained community health workers (CHWs) and almost 400 trained traditional birth attendants (TBAs) serving about 170 000 people, is comparatively well off with regard to the numbers

Table 4. Estimated population served by health facility.

| Facility | Stated population served | Basis for estimate |
|-------------------------------|--------------------------|---------------------|
| Masongaleni Health Centre | 24 000 | 1979 projection |
| Sulmac DWA Health Centre | 3500 | Employment register |
| Makindu Sub-district Hospital | 200 000 | 1979 projection |
| 'Equity Medical Clinic' | 200 000 | 1979 projection |
| Kibwezi rural Health Centre | 176 000 | 1979 projection |

Table 5. Selected basic equipment and proportions of facilities with functioning equipment.

| Equipment | Hospital (N = 2) | Gov HC (N = 1) | Gov sub HC (N = 3) | Gov disp (N = 4) | Private clinic (N = 3) |
|------------------------|---------------------|----------------------|--------------------------|------------------------|------------------------------|
| Car | 2/2* | 1/1 | 1/3 | 0/4 | 3/3 |
| Motor-cycle | 2/2 | 1/1 | 1/3 | 0/4 | 3/3 |
| X-ray machine | 1/2 | 0/1 | 0/3 | 0/4 | 3/3 |
| Microscope | 2/2 | 1/1 | 2/3 | 0/4 | 3/3 |
| Autoclave | 2/2 | 1/1 | 2/3 | 0/4 | 0/3 |
| Anaesthetic machine | 1/2 | 0/1 | 0/3 | 0/4 | 0/3 |
| Blood pressure machine | 2/2 | 1/1 | 2/3 | 4/4 | 0/3 |
| Auriscopes | 2/2 | 1/1 | 2/3 | 4/4 | 0/3 |
| Ophthalmoscope | 2/2 | 1/1 | 0/3 | 0/4 | 0/3 |
| Operation lamp | 2/2 | 1/1 | 1/3 | 0/4 | 0/3 |
| Stethoscope | 2/2 | 1/1 | 2/3 | 4/4 | 3/3 |
| Centrifuge | 2/2 | 1/1 | 0/3 | 0/4 | 0/3 |
| Dental chair | 1/2 | 0/1 | 0/3 | 0/4 | 0/3 |
| Vaginal speculum | 2/2 | 1/1 | 2/3 | 0/4 | 0/3 |
| Delivery forceps | 2/2 | 1/1 | 2/3 | 0/4 | 0/3 |
| Delivery set | 2/2 | 1/1 | 2/3 | 0/4 | 0/3 |
| Vacuum extractor | 2/2 | 1/1 | 0/3 | 0/4 | 0/3 |
| Minor surgery set | 2/2 | 1/1 | 1/3 | 0/4 | 3/3 |
| Dental extraction set | 2/2 | 1/1 | 1/3 | 2/4 | 0/3 |
| Water/sanitation tools | 2/2 | 1/1 | 2/3 | 4/4 | 3/3 |
| Refrigerator | 1/2 | 1/1 | 1/3 | 0/4 | 3/3 |
| Stand-by generator | 1/2 | 1/1 | 1/3 | 0/4 | 3/3 |

*Meaning that two out of two hospitals have a functioning car.

Gov HC, government health centre; Gov disp, government dispensary.

of these cadres (Table 6). This is mainly due to a community-based health care programme run in the area since 1980 by Kibwezi Rural Health Centre.

The question on main problems was open, without any predetermined alternatives. The most common stated problems were resource-related: lack of transport, shortage of trained staff, lack of water and lack of supplies, in this order (Table 7). The dispensaries did not mention their lack of functioning refrigerators and minor surgery sets. And none of the three private clinics mentioned

Table 6. Number of active community health workers (CHWs) and traditional birth attendants (TBAs) under health facility supervision.

| Supervising facility | Number of trained CHWs | Number of trained TBAs |
|-------------------------------|------------------------|------------------------|
| Makindu Sub-district Hospital | 117 | 60 |
| Ngwata Health Centre | — | 44 |
| Kibwezi rural Health Centre | 387 | 239 |
| Mtito Andei Dispensary | 40 | 29 |
| Kalulini dispensary | 20 | 13 |

Table 7. Reported main problems facing facilities.

| | Health facility | | | | | | | | | | | | |
|-----------------------------|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|
| | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 |
| Poor security | | | | | x | | | | | | | | |
| Lack of medical journals | | | | | | | x | | | | | | |
| Lack of supplies | x | x | x | | | | | x | | | | | x |
| Untarmaced road | x | | | | | | | | | | | | |
| Shortage of trained staff | x | x | x | | | | x | x | x | | | | x |
| No staff housing | x | | x | | | | | | | | | | |
| Communication barrier | | x | | | x | | | | | | | | |
| Lack of transport | x | x | x | | | | | x | x | x | | | x |
| Lack of power (energy) | | | x | | | | | | x | x | | | x |
| Traditional beliefs | | | | | x | | | | | | | | |
| Lack of space | | | | | | | x | | x | | | | |
| Old drainage blocking | | | | | | | | | | | | x | |
| Leaking flat roofs | | | | | | | | | | | | x | |
| Lack of funds | | | | | | | | | | x | | | |
| Poor solid waste management | | | | | | | | | | | | x | |
| Theft | | | | | | | | | | | | x | |
| Lack of water | x | x | | | x | | x | | x | | | | x |

any problem despite, for example, the stated absence of some functionally important equipment items.

DISCUSSION

We selected descriptive variables largely on the basis of our own experience as supervisors of health facilities at regional and district level in developing countries, and we adopted some variables suggested by Vaughan *et al.* (1984), Amonoo-Lartson *et al.* (1984) and Annett *et al.* (1991). Our aim was to develop a tool for medium- and long-term health care planning and not for day-to-day management of existing facilities.

The concept 'catchment area population' was interpreted differently by differ-

ent respondents. It was mentioned by Annett *et al.* (1991) but not defined. There are several difficulties: census figures are of dubious quality, they are only rarely updated at sub-district level and below, and population density figures are simply unavailable at small administrative units. It is, therefore, difficult for local health staff to produce reasonably accurate estimates. But the translation of absolute figures into population-based rates, even if somewhat imprecise, is highly desirable for comparative and monitoring purposes. Therefore, precise institutional catchment area and catchment population definitions should be provided by ministries of health, and managers at all levels should be encouraged to apply them in their analysis of epidemiological and service output data.

We conclude (a) that a more precise and operational definition of the catchment area concept must be formulated, and (b) that estimates made by clinics without access to district maps and population density figures are unreliable. The method proposed by Annett *et al.* (1991) is not sufficiently precise to be useful at rural health facilities. The district medical officer and his team should make the estimates in consultation with the district planning office on the basis of a recent demographic update and a standardized catchment area definition formulated by the Ministry of Health.

The equipment inventory (Table 5), although restricted to a few items, revealed a few surprises. Government facilities responsible for operating field programmes had much less transport capacity than private clinics. No dispensary and only one sub-health centre had functioning refrigerators, which are crucial for immunization programmes, and there was a similar lack of minor surgery sets. Neither dispensaries nor private clinics had any vaginal specula, essential instruments in sexual and reproductive health. A few items, such as delivery forceps, ophthalmoscopes and dental chairs do not provide important information and could be omitted from the check-list.

The information on CHWs and TBAs (Table 6) reflects primary health care efforts in the area and give an indication of the prospects for local community involvement. The accuracy of the stated figures is uncertain, partly because they may be inflated by respondents anxious to look good; partly because state figures are difficult for supervisors to counter-check.

State problems, focused on shortages of supplies, transport and trained staff, reflect serious social sector resource constraints in times of general economic decline and structural adjustment. Despite the lack of essential functioning equipment revealed in Table 5, no institution mentioned this as a problem.

Tables 3–7 are examples of findings generated by the study and presented here to illustrate the method. A few comments are needed also regarding data on other issues listed in Table 2, such as budget, supplies and client attendance.

Financial information is important for assessing the resource situation but hard to obtain and difficult to analyse in countries such as Kenya, where sub-district hospitals, health centres and dispensaries do not have their own institutional budgets or expenditure records. They do not, therefore, know their allocations and their expenditures. Also, some resources such as drugs and vaccines are received in kind, but budgeted at central level with amounts unknown

in districts and at institutions. The consolidated annual revised budget for all rural health facilities in the district can, however, be compared after a couple of years with corresponding actual expenditures and both can be monitored from year to year to determine long- and short-term trends. This is actually what we did for a 5-year period. The same data can also be used to calculate programme expenditures for a few activities such as primary health care, as shown for instance by Waddington *et al.* (1989). The analysis would be much facilitated if each institution had its own budget and if the cost of items made available in kind to the district was known to the district health team.

The study recorded the availability of 14 supply items including water, electricity, petrol, laboratory reagents, drugs, vaccines and wound suture material. Each facility was asked to state for each item whether it was 'always, usually, rarely or never available'. The reliability of this approach can be questioned because of the temptation among respondents to exaggerate shortages in the hope of increasing future supply allocations. Validation through observation and review of records is possible both during regular (well-planned) supervision visits and during follow-up visits to a sub-sample of institutions. For items which may be rapidly exhausted, e.g. commonly used drugs, vaccines and petrol, such visits have to occur within days of completion of the questionnaire. Our follow-up visits in this project were able to check statements on items such as water and electricity, but occurred too late for meaningful validation of data on drugs and petrol.

Client and patient statistics were obtained for in-patients, out-patients, immunizations, MCH visits, surgical operations and child deliveries. In the absence of proper catchment area population data, the figures could not be transformed into population-based rates. Much data is of dubious validity: first, recording of data at the clinics is generally haphazard and is often delegated to poorly trained and supervised attendants. Second, stated figures are often inflated to make the facilities appear busy and deserving more resources. Improvement is possible with more precise instructions from the Ministry of Health regarding the recording and local analysis of data. It could also be improved if more feedback was given to field staff, and if more systematic supervision by the district health team was offered.

The feasibility of this kind of study depends mainly on the amount of time and effort the district health management team is prepared to allocate to the task. It also depends on the support provided by health workers in charge of the local health facilities. In this particular case we consider the level of effort as probably similar or slightly higher than what can be expected in a random Kenyan district. Distributing a written questionnaire to be completed within a couple of weeks by the local officer-in-charge worked well with some but poorly with others. It appears that Lengeler *et al.* (1992), working with the educational system in Tanzania, had few problems with late return of filled questionnaires. The district medical officer and his team were informed in advance about the study and appeared supportive. In reality they felt hard pressed by other urgent tasks and needed several weeks to fill in the questionnaire. Furthermore, some important questions remained to be answered and

this was done in the subsequent interview. The conclusion is that the district medical officer and his team need to be briefed and involved at an early stage in planning the study in order to have sufficient time to secure the support and the involvement of local staff.

The need to standardize indicators was illustrated by the information on equipment, supplies and budget. The lists of basic equipment and basic supplies were long. Instead, items selected for study should be few and considered crucial for a small number of key activities.

Budgetary figures may be anything from 'preliminary estimates' or 'revised' estimates to 'actual expenditure', each of which could be development capital, revenue or combined. Budget breakdowns use different sub-votes, making comparisons difficult. In this situation even a modest degree of standardization would help. We propose that expenditure figures should be 'actual' expenditure or, as second best, revised budget estimates, and that both recurrent and capital expenditure should be presented. Breakdowns should at least outline the separate votes for salaries, allowances, travel, drugs and other medical supplies (including the cost of provisions in kind), in-patient food supplies (when applicable), petrol, and maintenance of buildings, vehicles and equipment.

Is a study of this kind affordable within the recurrent health budget of the district? The cost of this survey, excluding respondents' staff time used to complete the questionnaires and to answer follow-up interview questions, was estimated (in 1991) at KSh 121 400 (USD 7000) with the following breakdown: planning and sensitization KSh 13 200; data collection KSh 50 000; data analysis KSh 53 200; questionnaires KSh 5000. We estimated the respondents' staff time costs at KSh 60 000, which makes a total of KSh 181 000 (USD 10 000), or KSh 36 000 (USD 2000) per year if conducted once every 5 years. These costs should be compared to the cost of the existing health information system, which absorbs considerable staff time and consumables. We have not encountered any estimate of this type of costs but are aware of the numerous forms to be completed regularly by every health facility. It seems that the existing system could be streamlined and its costs be reduced. The savings could cover part or maybe all of the costs of one rapid health system assessment.

Our computerized data analysis was time-consuming and probably unnecessary. Manual data processing would have been possible and less expensive and would probably also have demystified data analysis for local staff. Costs could be further reduced if the survey is limited to a systematic 10–15% sample of facilities; in ordinary districts with 75–150 health facilities the sample could be limited to 10–20 institutions. This would make it more manageable and affordable within local district resources, except for a modest amount of out-of-district assistance for planning and analysis. Local staff should be allowed 1 month to complete the self-administered questionnaire and to consult documents and other colleagues.

The subsequent interview with staff in charge of participating facilities were conducted several months after completion of the written questionnaire. This delay, mainly caused by re-assignment of researchers to other duties, was unfortunate as some respondents had problems recalling the questionnaire and their

original answers. Delay also includes the risk that respondents are transferred elsewhere and become unavailable for follow-up interview.

We conclude that this type of rapid health system assessment, if restricted to a 15–20% sample of institutions, can be carried out at district level by local staff with little outside assistance. Selective cut-backs in the existing health information system can generate savings to cover part or all of the costs of the surveys taking place once every 3–5 years. Actual annual health expenditure data should be calculated for each facility and be quickly made available to managers. Questionnaire data should be processed and analysed within a few weeks and then used as a basis for subsequent interviews, which should be conducted no more than 3 months later. This process would still qualify as 'rapid' as defined by Vlassoff and Tanner (1992). The monitoring of health sector development may combine three methods: (1) regular and systematic supervision visits with written records; (2) annual reports submitted by each health facility according to a standardized format; and (3) adopting a rapid assessment instrument to be applied regularly in any given district. Severe resource constraints have restricted supervision trips with government vehicles to almost zero, but the few trips actually taking place could be more effectively used. If methods are combined as proposed, one supervision visit per year can be used specifically to collect data for the annual report.

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REFERENCES

- Amonoo-Lartson, R., Ebrahim, G.J., Lovel, H.J., Ranken, J.P. (1989). *District Health Care. Challenges for Planning, Organisation and Evaluation in Developing Countries*. London: Macmillan Press.
- Anker, M., Gidotti, R.J., Orzeszyna, S., Sapirie, S.A., Thuriaux, M.C. (1993). Rapid evaluation methods (REM) of health services performance: methodological observations. *Bull. WHO* 71, 15–21.
- Annett, H., Janovsky, K., Kielmann, A. (1991). *Assessing District Health Needs, Services and Systems. Protocols for Rapid Data Collection and Analysis*. London: Macmillan and Nairobi: AMREF.
- Chambers, R. (1981). Rapid rural appraisal: rationale and repertoire. *Public Admin. and Dev.* 1, 95.
- Conyers, D., Hills, P. (1984). *An Introduction to Development Planning in the Third World*. Chichester: John Wiley.

- Flahault, D. *et al.* (1988). *The Supervision of Health Personnel at District Level*. Geneva: WHO.
- Gish, O. (1975). *Planning the Health Sector*. London: Croom Helm.
- Government of Kenya. (1984). *District Focus for Rural Development*. Nairobi.
- Jayasuriya, R. (1986). Use of indicators in monitoring and evaluation of national strategies for health for all: experience of Sri Lanka. *Wld Hlth Stat. Quart.* **39**, 298–310.
- de Kadt, E., Segall, M. (1981). Health needs and health services in rural Ghana. *Soc. Sci. Med.* **15A**, 397–518.
- Kazibwe, S., Kisubi, W.K., Nordberg, E., Onyango, J.W., Taban, E.L. (1991). *Integrated District Diagnosis Project: A Descriptive Study of the Health Care System of Kibwezi Division, Machakos District, Kenya*. Nairobi: AMREF (mimeo).
- Lengeler, C., Sala-Diakanda, D.M., Tanner, M. (1992). Using questionnaires through an existing administrative system: a new approach to health interview surveys. *Hlth Policy Plann.* **7**, 10–21.
- Manderson, L., Aaby, P. (1992). Can rapid anthropological procedures be applied to tropical diseases? *Hlth Policy Plann.* **7**, 46–55.
- Oyoo, A.O., Burström, B., Forsberg, B., Makhulo, J. (1991). Rapid feedback from household surveys in PHC planning: an example from Kenya. *Hlth Policy Plann.* **6**, 380–383.
- Scrimshaw, S.C.M., Hurtado, E. (1987). *Rapid Appraisal Procedures for Nutrition and Primary Health Care*. Los Angeles: University of California and Tokyo: The United Nations University.
- Segall, M. (1983). Planning and politics of resource allocation for primary health care: promotion of meaningful national policy. *Soc. Sci. Med.* **17**, 1947–1960.
- Smith, D.L., Bryant, J.H. (1988). Building the infrastructure for primary health care: an overview of vertical and integrated approaches. *Soc. Sci. Med.* **26**, 909–917.
- Smith, G. (1989). Development of rapid epidemiologic assessment methods to evaluate health status and delivery of health services. *Int. J. Epidemiol.* **18** (Suppl. 2), S2–S15.
- Tanner, M. (1988). *District Level Data Collection and Use*. Commissioned paper for International Commission on Health Research for Development. Cambridge: Harvard School of Public Health.
- Tarimo, E. (1991). *Towards a Healthy District. Organizing and Managing District Health Systems based on Primary Health Care*. Geneva: WHO.
- Vaughan, P., Mills, A., Smith, D. (1984). *District Health Planning and Management: Developments Required to Support Primary Health Care*. London: London School of Hygiene and Tropical Medicine, EPC Publication No. 2.
- Vaughan, J.P., Morrow, R.H. (1989). *Manual of Epidemiology for District Health Management*. Geneva: WHO.
- Vlassoff, C., Tanner, M. (1992). The relevance of rapid assessment to health research and interventions. *Hlth Policy Plann.* **7**, 1–9.
- Waddington, C., Kello, A.B., Wirakartakusumah, D., Ganiarto, E., Malik, R., Maneno, J., Thube, C., Wangombe, J., Attanayake, N., De Silva, U., Ndeki, S. (1989). Financial information at district level: experiences from five countries. *Hlth Policy Plann.* **4**, 207–218.
- WHO. (1981). *Development of Indicators for Monitoring Progress towards Health for All by the Year 2000*. Geneva.