In-Kind Drug Donations for Tanzania

Stakeholders' Views – A Questionnaire Survey

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Abstract

Tanzania, a country with low access to essential drugs, receives substantial drug donations (DDs) as in-kind gifts. To support the ongoing health sector reform and to promote a good donation practice, stakeholders' and recipients' views on the appropriateness and acceptability of DDs are of particular interest. The objectives were to collect information on the situation of in-kind DDs in Tanzania, to assess the characteristics of the DD system in Tanzania and to collect stakeholders' and recipients' views on problematic areas in DD processes including all strategies of drug donation. Using a qualitative approach, data were collected through validated postal questionnaires in Swahili and English, which were sent out in June 2001 countrywide to stakeholders of all sectors and levels of decision-making involved in healthcare in Tanzania. Of 1,383 mailed questionnaires, 496 were returned, of which 411 (30%) were eligible for analysis. All respondents perceived in-kind DDs as an important resource to assure drug availability in a context of poverty. Half of the respondents were recipients of in-kind DDs. On average, an estimated 27% of the recipients' drug supply was covered through DDs. The main problem for recipients of all sectors involved in healthcare was the insufficient quantity of DDs for sustainable treatment. Representatives of the public sector asked for more transparency in the DD processes. NGOs and religious facilities with better developed structures raised problems such as shipment fees, insufficient infrastructure and training. Recipients suggested that optimizing communi-

cation would have the greatest impact on improving the DD processes. In Tanzania, DDs were highly accepted by recipients and stakeholders. The primary concern of DD recipients was less the quality of drugs, although quality assurance remained an ongoing concern, than the discrepancy between the recipients' needs and the donors' supply. DDs often failed to cover priority needs. Suggestions of recipients for DD process optimization corresponded fully with the principles of the Tanzanian and the World Health Organization (WHO) guidelines for DDs, with the call for better implementation of the guidelines among donors and recipients.

Background

Drug Donations

Access to essential drugs has a high priority in the health system of all countries. Nevertheless, millions of people worldwide have either limited or no access to such drugs (Pecoul et al 1999; Hozerzeil 2003). In this situation, appropriate drug donations (DDs) can play an important role in bridging drug supply gaps (Reich 2000).

DDs can be either gifts in-kind or cash donations earmarked for drug purchase. In-kind DDs are manufactured drugs imported free into the recipients' country. In development cooperation, different strategies for donating drugs are known (WHO 1999). Drugs can be given directly to the basic healthcare system of the recipient country and made available through private humanitarian institutions (religious, non-governmental and private voluntary organizations), or they can be donated by private companies and individuals. Alternatively, they can be single-source DDs or DDs as part of public/private partnerships (PPPs) with a clearly defined public health goal (Dull et al. 1998; Oladele 1999; Wehrwein 1999; Buse et al. 2000a; Buse et al. 2000b; Shretta et al. 2000; Shretta et al. 2001). Whatever the mode of donation, DDs must comply with the needs and demands of the recipients. Often, however, DDs fail to take account of recipients' needs, existing capacities or the resources of the recipients' country; they do not meet national and international quality standards and their handling wastes human and economic resources (Berckmans et al. 1997; Reich 1999; Autier et al. 2002).

In 1996, the World Health Organization (WHO) issued Interagency Guidelines for Drug Donations (WHO-GDDs) in cooperation with major international agencies active in humanitarian relief. These guidelines, revised in 1999, are intended to serve as an evidence-based tool to be adapted for good donation practice (GDP), as an aid to decision-making, as a reference for national or institutional guidelines and to empower recipients (Table 1) (WHO 1999). The positive impact of these WHO-GDDs on the quality of DDs and DD processes is well documented (Hogerzeil et al. 1997; Oladele 1999; Reich 1999; WHO 2000; Autier et al. 2002).

Within the framework of development cooperation, DDs should be integrated into a country's drug supply system and must be planned as a sustainable support. They have to comply not only with globally valid standards but also with circumstances at the local level, and they must respect the particular needs and interests they serve (WHO 2000b; Junghanss 2001; Weiss et al. 2001).

Table 1. Interagency WHO guidelines for drug donations: principles and applications (WHO 1999)

Core principles	Practical application
• Maximum benefit to the recipient	• Selection of drugs
• Respect for the wishes and authority of the recipient	• Quality assurance and shelf life
• No double standard in drug quality	• Presentation, packing and labelling
• Effective communication between donor and recipient	• Information and management

Peer-reviewed literature on DDs is scarce, and what research there is has usually been carried out in post-emergency situations after disasters and wars (Autier et al. 1990; Berckmans et al. 1997;

Autier et al. 2002) or has focused on DDs for specific diseases (Guilloux et al. 2000) and on corporate DDs in the framework of a program (Shretta et al. 2000; Shretta et al. 2001; Peters et al. 2004). In 1999, Reich provided the first systematic analysis of DDs, examining a range of factors affecting the impact of DDs (Reich 1999). His analysis included preliminary field studies in Armenia, Haiti and Tanzania. The main outcomes of these field studies were (a) DDs were appreciated by all three countries for a variety of reasons, (b) DD processes were perceived as very complex and varied from country to country, (c) problems in organizational relationships had consequences for the recipient of DDs, and (d) WHO-GDDs were perceived as helping to improve DDs.

The Health System in Tanzania

Tanzania is one of the poorest countries in the world and is, as are many countries in the south, a recipient of substantial DDs from abroad. Indicators that are important for the Tanzanian DD system are summarized in Table 2 (MOH 2002; UNDP 2002; CIA 2005). Since 1961, the former English protectorate has been a republic, shifting in 1992 from a one-party socialistic republic to a multiparty government with a free market economy. The people of Tanzania live in a stable society with rare conflict situations, but poverty remains a major challenge. Despite ongoing reforms and improvements such as better access to safe drinking water, a higher adult literacy rate and a decreasing poverty line (SEAM 2003), development indicators are not promising: Population growth, lack of manpower, problems with good governance, marginal economic growth and the burden of diseases like malaria, tuberculosis and HIV/AIDS have the effect that Tanzania depends heavily on foreign aid for health services.

Since independence, the Government of Tanzania has recognized the importance of health and has given it high priority. In 1994, the Health Sector Reform (HSR) was launched with the aim of improving equity, quality, accessibility and efficiency in the health sector, and with a focus on the poor and most vulnerable. Private sector participation is promoted and the authority of healthcare is decentralized to district and local levels (MOH 1994, 1999a, 1999b; Semali 2003). To facilitate the reforms and to develop a common funding approach with a commitment among stakeholders and partners, a sector-wide approach (SWAp) has been adopted (MOH 1994, 1999a, 1999b; Bürki 2001; Semali 2003).

In Tanzania, healthcare is delivered through both the public and the private sectors, the latter being divided into for-profit and non-profit services. This grouping follows the classification of the Ministry of Health (MOH), but sectors are sometimes difficult to delineate (Wyss et al. 1996; Weiss 2002). The healthcare system assumes a pyramidal referral pattern: the village post, dispensaries, health centres, district hospitals, regional hospitals and referral hospitals (MOH 2002). Not-for-profit organizations include private voluntary (PVOs), non-governmental (NGOs) and religious organizations. Christian missions provide 40% of all health services, and work in largely in rural areas, mostly under the umbrella of the Christian Social Service Commission (CSSC) (Muhume 2001). Other important faith-based providers are the Muslim services such as Bakwata and Aga Khan Health Services, and the Hindu Mandal. In this study, private-for-profit facilities are all those that aim to maximize profit through health services and include pharmacies, wholesalers, manufacturers, dispensaries, health centres and hospitals.

Drug Supply in Tanzania

In 1991, the MOH launched the National Drug Policy (MOH 1993). Tanzania was one of the first countries to adopt the essential drug concept and continues to promote it. The National Essential Drug List for Tanzania (NEDLIT) and the Standard Treatment Guidelines (MOH 1997a) were published in 1991 and updated in 1997. In 2001, a draft revision of the NEDLIT became available. The NEDLIT stratifies drugs by facility level, adapted to the educational level of the health staff.

The WHO rates Tanzania as a country with low access to essential drugs (50–79% of the population). The Swiss Agency for Development and Cooperation (SDC) stated in its review of the HSR in 2001 that the Tanzanian pharmaceutical sector is significantly underfunded (Bürki 2001). Despite

Table 2. Indicators important for the Tanzanian DD system (UNDP 2002; CIA 2005)

Indicator	Year	Tanzania
Geography		
Area, in sq km		945,000
Location		Eastern Africa, bordering the Indian Ocean, between Kenya and Mozambique
Paved roads, in %		5 (of 85,000 km)
Demographic Indicators		
Population	2001	35 million (estimated)
Annual population growth rate	2001	2.2%
Adult literacy rate at age 15	2000	76%
Population living in urban area	2001	33%
Epidemiological Indicators		
Life expectancy at birth, years	1990	50
Life expectancy at birth, years	2001	44
Under-five mortality rate per 1,000 live births	2001	165
Estimated HIV/AIDS prevalence rate	2001	7.8%
Economic Indicators		
Population living below USD 1 per day	2001	20%
Poverty line of USD 2 per day	2001	60%
GDP per capita in USD	2001	520
Health Sector		
Leading diagnosis for the whole country	1998	Malaria 37% Acute respiratory infections 13% Diarrhoeal diseases 6%
Expenditure on health as % of total government expenditure	2001	12.1%
Governments expenditure on health, in millions of USD	2002	84
External resources for health as % of the government health expenditure	2001	29.5%
Total expenditure on health as % of GDP	2001	4.4%
Total number of healthcare facilities	2000	4,717
Government or PPP-owned health facilities funded by the government	2000	3,747
Hospital beds per 1,000	2000	9
Physicians for the entire country	2001	355
Nurses for the entire country	2001	5,288
Pharmacists for the entire country	2001	42

Table 2. Continued

Pharmaceutical technicians for the entire country	2001	91
Population with sustainable access to essential drugs	1999	50–79%
Government expenditure on drugs as % of total health expenditure Thereof paid (Muhume 2001) By the government Through cost-sharing Through development partners with basket funding	2000	47% 50% 20% 30%
Population with sustainable access to an improved water source Urban Rural	2000	 90% 57%

developments such as the introduction of cost sharing and the significantly improved performance of the Medical Stores Department (MSD), the parastate wholesaler for the public and non-profit sectors, major structural problems still remain, such as the non-availability of qualified pharmaceutical staff, the absence of a clearly defined mandate for the staff in the pharmaceutical sector, lack of integration of the pharmaceutical sector into the healthcare system and insufficient health worker training in the essential drug concept (MOH 1997b; Wiedenmayer et al. 2000; Wiedenmayer et al. 2004). In 2001, Strategies for Enhancing Access to Medicines (SEAM), funded by Management Sciences for Health, assessed access to essential medicines in Tanzania (SEAM 2003). They identified gaps in drug availability, primarily in the public sector, and problems with quality and affordability of products and services, especially in the private retail sector. Geographical access was not perceived as a problem by the public. In MSD zonal stores, drug stock-outs occurred occasionally. On the other hand, availability does not seem to be a significant problem at mission health facilities. SEAM data revealed that the public cannot be assured of good drug quality for a significant proportion of drugs on the Tanzanian market.

Drug supply for health centres and dispensaries in the public sector is based on prepacked standardized kits as part of the National Essential Drug Programme (EDP). The composition of the kits is based on the NEDLIT and national morbidity data. The MSD is responsible for purchasing and distributing the kits. In 2001, 75% of the kit costs were paid by the government and 25% by the Danish International Development Agency (Danida). Although drugs provided by kits do not comply with the definition of in-kind DDs in this study, some health workers perceive them as drugs donated as gifts in-kind. This may be due to the fact that in the 1980s, kits were prepacked and fully financed from abroad, mostly by UNICEF and Danida (Hingora 2001).

Drug Donations for Tanzania

Tanzania has launched instruments for an effective regulation of DD processes, including guidelines for the importation of pharmaceuticals and DDs and the NEDLIT (MOH 1995, 1997a, 2000). By transferring the authority of healthcare to the district and local levels, health sector reforms have also led to a decentralized DD process. Within the HSR, the concept of a SWAp redefined the donors' role. Donors' funds are now pooled and earmarked for priority activities (basket funding) and within the SWAp system donors are responsible for synchronizing and reviewing their aid (Hutton et al. 2004).

The MOH has a regulatory overview. The chief pharmacist, i.e., the head of the pharmaceutical services section in the directorate of the curative health service, is responsible for the NEDLIT and the Donation Policy. The registrar, the director of the Pharmacy Board (since 2003 under the Tanzanian Food and Drug Authority, TFDA) is responsible for implementing the NEDLIT and for policies regarding the importation of drugs and is also in charge of the National Drug Quality Control Laboratory. The main regulations for handling DDs are the "Guidelines on donations of

drugs and medical equipment to the health sector for Tanzania Mainland, 1995," the "Guidelines for Importation of Pharmaceuticals, 2000" and the NEDLIT. Differences between the earlier published Tanzanian guidelines on DDs and the WHO-GDDs are as follows:

- Donors should understand Tanzania's DD policies.
- DDs have to be declared to the MOH for clearance and all importation of any pharmaceutical product requires approval by the Pharmacy Board and has to undergo a registration procedure.
- A financial contribution by the donor should be considered, since it may be more cost effective to buy drugs locally.

The Tanzanian GDDs from 1995 are currently undergoing revision and the release of updated GDDs is expected soon (Muhume 2001).

Both the public and not-for-profit sectors of Tanzania receive DDs for basic healthcare and as part of specific DD programs. The MSD is mandated to receive and store all in-kind DDs that are given to the government. Additionally, the MSD distributes the DDs given in the framework of programs within the country. These DDs are cleared at the port of Dar es Salaam and other harbours together with DDs given for the private-for-profit facilities. Christian umbrella organizations have their own clearing offices. Local pharmaceutical companies do not receive DDs; on the contrary, they are in-country donors of DDs.

With this background, the objectives of this descriptive study were to collect information on the situation of in-kind DDs in Tanzania, to assess the characteristics of the DD system in Tanzania and to collect stakeholder and recipient views on problematic areas and gaps in DD processes including all strategies of donating drugs.

Methods

Approach

This paper is part of a research project in Tanzania and Switzerland analyzing the knowledge, attitudes, perceptions and practices of stakeholders with regard to in-kind DDs for development aid at the local level. The design of the entire study relied on the triangulation of data and methods (KFPE 1998; Flick 2000). It employed a participatory approach, with the involvement of individuals at every level of decision-making, and its overall goal was to identify their priorities where problems with DDs exist and to publish effective suggestions for the optimization of DD systems.

The DD system is characterized by a DD process between a donor and a recipient system (Figure 1). Various stakeholders can be involved in the donor and recipient systems: NGOs, governmental organizations, private companies, private foundations, private donors, health facilities and patients.

Figure 1. Drug donation system (DD system)

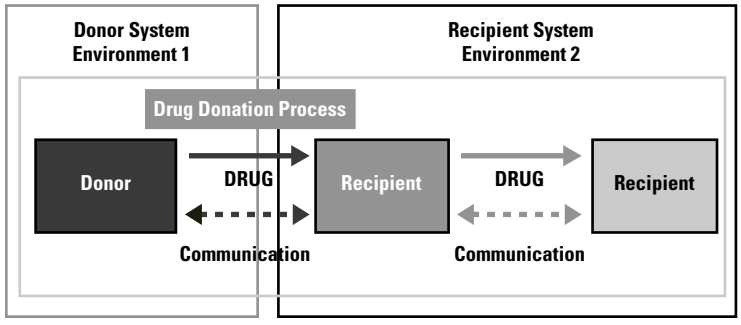


Table 3. Characteristics of the DD system

Determinants	Indicator	Guidelines for DDs		Results in Table
		WHO	Tanzania	
Environment				
Demographics	Population			No. 2
Epidemiology	Morbidity, Life expectancy, Prevalence of HIV/AIDS, Child mortality of under fives			No. 2
Economy	Poverty, GDDs per capita			No. 2
Education	Adult literacy rate			No. 2
Geography	Paved roads			No. 2
Health sector and DDs	Sectors involved, Distribution channels for DDs, Number of pharmacists and educated healthcare staff, Public spending for health, Control of importation of DDs			No. 2
National Drug Policy	Guidelines for DDs, Laws for importation, Essential drug list (EDL)		No. 4.1 No. 4.2a–c	No. 2
Resources and Structures				
Organizations	Characteristics of the organizations			No. 5/7
	Involvement in DD processes			No. 5
Staff competence	Accountability			No. 7
	Knowledge of GDDs			No. 8
Documents	List of needed drugs		No. 3	No. 8
	Quality criteria for DDs			
	Treatment criteria for DDs			No. 8
	Availability of GDDs			No. 8
Financial aspects	Shipment and custom fees	No. 12		No. 12
	Value of DDs			No. 9
	Payment for DDs			No. 9
	DDs in cash earmarked for buying drugs		No. 3	No. 5
Process				
Selection of drugs	Expressed need by recipient	No. 1		No. 10
	DDs part of the EDL of the country or of the WHO	No. 2	No. 4.2d	No. 11
Management	Origin of DDs			No. 10
	Coverage of drug supply with DDs			No. 10
	Use of DDs			No. 7
	Disposal of unwanted drugs			No. 10
Transparency	Evaluation of DD processes			No. 10

Table 3. Continued

Communication	Information by donors	No. 10	No. 3	No. 10
	Collaboration with partner organizations			No. 10
	Receipt of invoice documents	No. 10		No. 11
Quality of the Donated Drug				
Quality assurance	Certificate schemes on the quality of DDs	No. 4	No. 4.2h	No. 11
	Shelf life	No. 6	No. 4.2g	No. 11
	Unused drugs	No. 5	No 4.2j	No. 11
Presentation	Labelling	No. 7	No 4.2f	No. 11
Perception of Stakeholders				
Satisfaction of recipients	Long-term treatment, Implementation of GDDs, Relevance of DDs, Shipment and custom fees, Transparency in DD processes, Communication between donor and recipient, Infrastructure, Training of health-care staff, Quality of DDs			No. 12
Usefulness of DDs				No. 6

The focus in this paper is on the characteristics of the recipient system. To achieve a broad analysis and to structure the complex information, determinants and indicators were elaborated in a deductive process. They were based on experiences from an exploratory study, on Reich's research (Reich 1999), on WHO publications (MSH 1997; WHO 1999, 2000a, 2000b) and on results from previous publications on the impact of DDs, as summarized in Table 3. DDs should comply with the quality standards required in both the donor and the recipient country. In the WHO GDDs, the indicators for the minimal required quality of DDs are certification of a reliable source of the pharmaceutical product (e.g., WHO Certification Scheme on the Quality of Pharmaceutical Products), shelf life, presentation, packaging, labelling, absence of unused drugs (drugs from patients returned to pharmacies and free samples given to health professionals) and documentation (WHO 1999). The indicators compiled in a framework for analysis (Table 3) enabled the formulation of quantitative and open questions to assess the characteristics of the DD system. Data were collected by interviews with key persons in an exploratory study and by a questionnaire.

Exploratory Study

Data collection in Tanzania was initiated with an exploratory study in 2000 to promote participatory collaboration. The idea was to learn about personal views concerning DDs at the local level, to develop an information exchange and to elaborate the objectives of the main study and the methodological tools. Unstructured key informant interviews were used, based on a snowball sampling. In February 2000, 45 key persons (39 from Dar es Salaam, five from Ifakara and one from Dodoma) from each sector of the health services were visited and interviewed.

Each interviewee had experience with DDs. Main outcomes were that DDs are helpful in (a) temporarily bridging gaps when drugs are missing in basic healthcare or (b) for fulfilling specific public health goals. Many problems in DD processes were pointed out, such as unsatisfactory communication and a low level of transparency, different perceptions and motivations between donors and recipients, insufficient drug quantities for long-term treatments, irrelevant drugs for the diseases

prevalent in the country, inadequate logistics and infrastructure, high custom fees and shipment costs, poor drug quality, insufficient training of healthcare staff and insufficient implementation of guidelines and policies. These perceptions were integrated in the creation of the questionnaire.

Field Study – Questionnaire Survey

The questionnaire we developed (Questionnaire 2001) contained a set of 16 open questions to gather perceptions and opinions, 39 quantitative questions for basic information, followed by 12 open questions to further develop the quantitative questions. The questionnaire was validated with a pilot questionnaire to check form and content. Only minor changes were necessary after the pilot study.

In June 2001, 1,383 questionnaires in English and Swahili were sent out with cover letters and prepaid envelopes for the return of completed questionnaires. Two months later, a reminder was sent out to non-respondents. Data gathering was completed in December 2001. As an incentive, the WHO-GDDs for DDs, provided by the WHO Geneva, were given to each respondent who returned a questionnaire.

Stakeholders of all sectors involved in healthcare during the year 2000 were contacted in Tanzania. Address lists as complete and updated as possible were collected for all groups of recipients and donors of each sector (public, religious, private-non-profit and private-for-profit) and from the entire country. All the addresses were taken from some lists; from others, only a randomized sample, depending on the length of the list. Questionnaires were sent out either directly to an organization or to a diocese or district medical office with the invitation to distribute the questionnaires to health facilities of their diocese or district. To assess the non-respondents to the questionnaire, 50 individuals from the non-responding sample were selected (randomized and stratified by sectors) and followed up by telephone call.

The questionnaire was designed and processed with the software TELE*form*® Standard Version 7.0 from Cardiff Inc. Data quality assurance was done by a double control of the entire dataset. The data were transferred to a Microsoft® Access database and analysis was performed with Microsoft® Excel. Chi-square analyses (χ^2) were performed to assess differences between sectors using SPSS 13.0 for Windows. Generally, differences between the sectors were highly significant; the text specifies where this was not the case. Details of the calculation are given below the tables. Qualitative data from the open-ended questions were analyzed using content analysis. In this study, the deductive text analysis was based on the concepts of Mayring (Mayring 1997; Flick 2000). Key words used in this analysis were derived from important categories of the DD system as listed in Table 3 and from most-cited terms.

Approval of the Research Clearance, Tanzania, RC 2000/25 was given in 2000 from the Commission of Science and Technology, COSTEC, Dar es Salaam. The ethical review was done by the National Institute for Medical Research (NIMR) in Tanzania in 2002.

Results and Discussion of the Questionnaire Survey

Due to the multi-faceted nature of the study, the presentation of results is combined with comments and discussion to track the evolving analysis.

Respondent Rates

A total of 1,383 postal questionnaires were sent out countrywide (Table 4). Of these, 496 were returned and 467 were completed. To achieve a broad coverage of respondents, all sectors were approached and the addressed institutions were invited to distribute copies of the questionnaires. This resulted in questionnaires that were not filled in properly (n = 29) or were not analyzable (n = 56), mainly because of duplicates. Of the resulting eligible sample of 411 (30%) questionnaires – the so-called respondents (recipients and non-recipients together) – 47% were in Swahili. The target of one third returned questionnaires was achieved.

Table 4. Description of the questionnaire survey sample

Questionnaire	Public Sector (*n* / %)		Relig. Sector (*n* / %)		NGO (*n* / %)s		Private-for-profit (*n* / %)		Not identified (*n*)	Total (*n* / %)	
Mailed postal	442	*	531	*	169	*	85	*	*156	1383	**100%**
Returned	151	*	212	*	75	*	50	*	*8	496	**36%**
Completed	145	31%	208	45%	66	14%	48	10%	0	467	**34%**
Eligible	119	29%	181	44%	64	16%	47	11%	0	411	**30%**

*Allocation of some organizations to a sector was not possible.

Table 5. Characteristics of respondents

Question	Answer	All Respondents *N* 411=100%	Public Sector *N* 119=100%	Religious Sector *N* 181=100%	NGOs *N* 64=100%	Private-for-profit Sector *N* 47=100%
1. Which category identifies your organization best?	Hospital	29.0%	37.0%	40.3%	0.0%	4.3%
	Health Centre	8.5%	14.3%	7.7%	3.1%	4.3%
	Dispensary	20.9%	15.1%	27.1%	0.0%	40.4%
	Political, organizational, technical level	25.5%	13.4%	17.7%	89.1%	0.0%
	Manufacturer	1.2%	0.8%	0.0%	0.0%	8.5%
	Wholesaler	1.5%	0.0%	1.1%	0.0%	8.5%
	Pharmacy	3.9%	0.0%	0.0%	0.0%	34.0%
	No answer	9.5%	19.3%	6.1%	7.8%	0.0%
2. Is drug supply the main activity of your organization?	Yes	40.4%	49.6%	39.2%	15.6%	55%
	No	54.0%	42.9%	55.8%	79.7%	41%
	No answer	5.6%	7.6%	5.0%	4.7%	4%
3. Is your organization involved in DDs as gifts in-kind?	Yes[a]	50.4%	61.3%	58.0%	35.9%	12.8%
	No	47.4%	36.1%	40.3%	59.4%	87.2%
	No answer	2.2%	2.5%	1.7%	4.7%	0.0%
4. Has your organization ever received earmarked money in cash for buying drugs?	Yes[b]	16.1%	13.4%	24.3%	9.4%	0.0%
	No	61.3%	52.9%	55.2%	79.7%	80.9%
	I don't know	10.9%	18.5%	12.2%	0.0%	2.1%
	No answer	11.7%	15.1%	8.3%	10.9%	17.0%

[a] Public and religious sector vs. NGOs: $\chi^2 = 95.757$, $p < 0.001$.
[b] Religious sector vs. public sector $\chi^2 = 49.309$, $p < 0.001$. / Religious sector vs. NGOs $\chi^2 = 22.213$, $p < 0.001$.

To evaluate the return rate and the sample consistency, a sample of non-respondents were contacted and their responses recorded and analyzed. Only 20 of the 50 randomly chosen non-respondents were reachable. Of these, 17 (85%) said they had not received the questionnaire. This may largely explain the non-response rate in the questionnaire survey, with geographical and logistical problems as well as incorrect address lists playing a role.

The response rate to the various questions was very uneven and often varied between sectors. Public and religious sectors had a higher response rate to questions concerning quality aspects (e.g., Q. 31 ff, Table 11), while NGOs had a higher response rate to questions requiring more technical knowledge (e.g., Q 8, 15, Tables 7, 8). A similar pattern emerged for the answer "I don't know." NGO respondents were in general more informed about the DD process (e.g., Q 4, 10, 13, 20, Tables 5, 8, 10). When data were not available or the question was an open one, the "no answer" rate was more than 20% (e.g., Q 17, 21, Tables 9, 10). Question 3 on the receipt of DDs and the questions on familiarity with GDDs for DDs (Q 12, 15, Table 8) were answered by nearly every respondent. Even though the response "no answer" tended to be frequent, the responses were consistent and logical (e.g., Q 18 compared with 19, Q 24 with 25, Tables 9, 10), except the answers to Q 20 and 20a.

Analysis of Respondents

A summary of the characteristics of the respondents for each sector is given in Table 5. Basic health-care was offered by 66% of the public sector, 75% of the religious sector and 83% of the private-for-profit sector facilities, but 89% of the NGOs worked mainly on an organizational or technical level. Of all respondents, 40% reported that drug supply was the main activity of their organization. The other 54% specified their activities in an open question. The resulting 363 answers were classified as follows: 76% activities in health services in general (mostly curative, preventive and promotive health services and education as well as program activities), 4% technical support to the health system, 8% religious activities and 12% various other activities.

Half of the respondents (51%) were involved in DDs, mainly in the public and religious sectors, and 16% received earmarked money in cash. It is apparent that public and religious facilities that worked directly with patients were receiving more DDs than facilities working on a more administrative level, such as NGOs. The religious sector, with its well-organized network of support and providers, received the most earmarked donations in cash (25%). This complies with the recommendation of the Tanzanian GDDs to promote donations in cash (MOH 1995).

The perception of DDs for all respondents was assessed with two open questions (Table 6). Eighty percent of all respondents answered the question "In which situation do you consider DDs as useful?"; of these, 29% mentioned economic aspects as the most important. This was underlined through the second question on the reasons for supporting the drug supply system through DDs, where more than 55% gave economic aspects and support of poor people as positive reasons. Drug availability was rated lower, although drugs in health facilities were often lacking because of limited procurement funds.

This view reflects the situation of the country and mirrors the perception of Reich's interviewees, who considered DDs especially important for the poor who cannot afford cost sharing. Poverty changes perception and hinders a critical view of DDs. Another positive aspect that respondents emphasized was the important public health impact of DDs given within DD programs.

Reasons against supporting drug supply with DDs focused primarily on quality aspects (41%): They did not express a basic refusal of DDs but characterized the low quality of DDs as a notable problem. The expiry date, a major problem, is easy to assess and was perceived as an indicator of the donor's attitude.

DD System

This paper focuses on the analysis of recipients of DDs. But six respondents of the private-for-profit sector involved in DDs (two dispensaries, one hospital, one manufacturer, two private pharmacies) pointed out that they were donors in their country. They were therefore excluded, giving a new sample of recipients (N = 201).

Structure and Resources

Characteristics of the recipient organizations (Table 7) did not differ from those of the respondents (Table 5): 82% of the religious and 67% of the public facilities were delivering healthcare in hospitals, health centres and dispensaries, and 87% of NGOs were working more in organizational, technical or preventive services.

Although the questionnaires were sent out to the head or director of district medical offices, dioceses or health facilities, with the assumption that they would select the person responsible for DDs to answer the questionnaires, an average of 52% of recipients were in charge of DDs (74% within NGOs, 53% in the religious and 44% in the public sector). A reason for differences among the sectors might be that the questionnaires were sent to a member of the administration who often has overall responsibility for DDs but is not the person working directly with patients and drug supply. Another reason for low accountability might be that there is no person in charge of DDs. This supports the HSR recommendation that responsibilities in the pharmaceutical sector have to be clearly defined at every level of service (MOH 1997).

A list of needed drugs (Table 8) had been worked out in detail by 66% of religious organizations and 52% of the NGOs, but by only 18% of public organizations. This correlates with the result observed by SEAM that services in the religious sector have less problems with drug availability (SEAM 2003) and with the fact that NGOs had, in general, more clearly defined structures. A list of needed drugs requires an essential drug list (EDL) and information on the stock of available drugs, and it helps to specify requests. During the period of data collection, the public sector health centres and dispensaries were provided with prepacked kits, which are delivered monthly. The motivation to establish or to use a list of needed drugs was much lower in this sector and, thus, unwanted DDs could not be refused as easily. The existence of a set of special criteria for using DDs in the treatment of patients was reported by 70% of the NGOs and 30% of the public and the religious sectors. This result again confirmed that international NGOs, in particular, are involved in well-structured programs for the treatment of single diseases with DDs (Shretta et al. 2000).

On average, 45% of recipients were familiar with the Tanzanian GDDs and 30% with the WHO-GDDs. Fifty-four percent of recipients from the religious sector, 35% from the public sector and an equal percentage of NGOs were familiar with the Tanzanian GDDs. The WHO Guidelines were known equally by 39% in the religious and NGO sectors, but by only 15% in the public sector. Recipients in NGOs knew both the WHO-GDDs and the Tanzanian GDDs to a similar degree. The question on whether recipients had copies of the GDDs gives a similar picture: They were more available in the religious and public sectors, less so in the NGOs. NGOs and religious facilities had, to the same degree, more copies of WHO guidelines than the public sector. Pushing the distribution of both the Tanzanian and the WHO guidelines in the later 1990s through the CSSC had a positive effect (Kigadye 2001). On the question of whether the WHO-GDDs influence the practice of the organization, 56% of recipients gave no answer or did not know. The level of information was more advanced in the religious sector and within NGOs, presumably related to their background in an international setting. On the whole, less than 50% of the recipients had copies of printed material. For questions on the familiarity with and availability of GDDs, "no answer" and "I don't know" responses were very low and the consistency among the responses was high. This high response rate shows the importance of a good donation practice and the need for a tool like the GDDs.

Only 30% of recipients were able to estimate the monetary value of DDs as a drug supply resource for their organization (Table 9). NGOs were best able to estimate the monetary value, with 57% responding; the public sector had the lowest ability, with only 15% of positive answers.

Table 6. Perception of DDs of respondents

Question	Answer	
5. In which situation do you consider DDs as useful?	**Usefulness of DDs: From 328 (80%) respondents, a total of 521 (=100%) answers were given**	
	Economic aspects, which included better affordability in general, fighting against poverty, missing funds 29%	
	DDs for specific needs and for programs (e.g., tuberculosis, HIV/AIDS, chronic diseases, malaria)	17%
	Guarantee of the availability of drugs	14 %
	Emergency situations such as disasters, refugee camps, epidemic outbreaks	13 %
	Other features included usefulness in any situation, donations in cash preferred, supplement of the essential drug list	17%
6. There are reasons for and against supporting the drug supply system through in-kind DDs. Suggest some of them.	**Positive features of DDs: From 289 (70%) respondents, a total of 333 (=100%) answers were given**	
	Economic aspects such as better affordability of drugs and reductions in costs for purchasing drugs	37%
	Support of poor people	18%
	Availability of drugs	16%
	DDs perceived as positive in any situation	7%
	Other features included better quality of DDs than of locally manufactured drugs, supporting local needs, DDs for emergency situations	32%
	Negative features of DDs: From 289 (70%) respondents, a total 250 (=100%) answers were given	
	Short shelf life of DDs as a quality aspect	29%
	DDs often do not meet local needs	13%
	Other quality aspects such as poor labelling of DDs, counterfeit drugs	12%
	DDs not part of the NEDLIT	8%
	Other features included hampering the building of local competence, no sustainability of DDs, dependency on donors	38%

The high proportion of "no answer" and "I don't know" responses to the question on the value of DDs indicates that data are not available, that transparency is very low or that this aspect has never been analyzed. However, knowledge of the value of DDs is a prerequisite for judging the economic impact of DDs on drug supply.

On the other hand, recipients had clear ideas about the pricing policy for DDs, and more than 90% indicated whether patients had to pay for DDs. The pricing policy was applied and perceived differently in the various sectors. In 74% of religious facilities, patients had always or at least sometimes contributed financially to DDs, while only 26% paid always or at least sometimes

Table 7. Characteristics of the recipients' organizations

Question	Answer	All Recipients	Public Sector	Religious Sector	NGOs
	Single Answers	*N* 201=100%	*N* 73=100%	*N* 105=100%	*N* 23=100%
7. Could you specify the category which describes your organization?	Hospital	39.9%	30.1%	55.2%	0%
	Health Centre	11.4%	17.8%	8.6%	4.3%
	Dispensary	15.9%	19.2%	18.1% 2)	0%
	Political, technical or organizational level	22.3%	13.7% 1)	13.3% 3)	87%
	Manufacturer or wholesaler	1.5%	1.4%	1.9%	0%
	No answer	9%	17.8%	2.9%	8.7%
	1) 5 District Medical Offices, 3 MOH, 2 International Organizations (Public Sector)				
	2) 18 Mission Dispensaries, 1 Islamic Dispensary (Religious Sector)				
	3) 10 Dioceses, 4 Islamic Organizations (Religious Sector)				
8. Are you the person in charge of DDs in your organization?	Yes[a]	52.2%	43.8%	53.3%	73.9%
	No	38.8%	46.6%	37.1%	21.7%
	No answer	9.0%	9.6%	9.5%	4.4%
	Multiple answers	*N* 359=100%	*N* 156=100%	*N* 169=100%	*N* 34=100%
9: For what purposes did you receive DDs?	For primary healthcare	31.8%	32.7%	32%	26.5%
	For secondary and tertiary healthcare	15%	5.8%	24.3%	11.8%
	For natural disasters	7.2%	11.5%	4.1%	2.9%
	For refugee camps and during wars	2%	2.6%	0.6%	5.9%
	As partner of a program	18.7%	21.1%	15.3%	23.5%
	As earmarked in-kind DDs for specific diseases	10.3%	11.5%	8.9%	11.8%
	For research activities	2.5%	1.9%	1.8%	8.8%
	On request of individuals	5.8%	3.9%	7.7%	5.9%
	I don't know	2.2%	3.9%	1.2%	0%
	Other reasons	4.5%	5.1%	4.1%	2.9%
	Specification	*N* 114=100%	*N* 51=100%	*N* 54=100%	*N* 9=100%
9a: Specification of the receipt of DDs for primary healthcare in Q 19	As prepacked kits	43.0%	72.6%	16.7%	33.3%
	DDs for basic needs	49.1%	23.5%	74.1%	44.5%
	No answer	7.9%	3.9%	9.2%	22.2%

[a] Public vs. religious sector χ^2= 121.002; $p < 0.001$ / Religious sector vs. NGOs χ^2= 37.214; $p < 0.001$ / Public sector vs. NGOs χ^2= 31.534; $p < 0.001$.

Table 8: Policies of the recipients' organizations

Question	Answer	All Recipients	Public Sector	Religious Sector	NGOs
	Single Answers	*N* 201=100%	*N* 73=100%	*N* 105=100%	*N* 23=100%
10. Do you have a list of needed drugs, which you give to the donors?	Yes[a]	46.8%	17.8%	65.7%	52.2%
	No	39.8%	61.7%	24.8%	39.1%
	I don't know	6%	12.3%	2.8%	0%
	No answer	7.4%	8.2%	6.7%	8.7%
11. Has your organization special criteria for deciding to treat a patient with donated drugs?	Yes[b]	34.8%	32.9%	28.6%	69.6%
	No	50.2%	53.4%	56.2%	13.0%
	No answer	14.9%	13.7%	15.2%	17.4%
12. Are you familiar with the WHO Guidelines for DDs?	Yes[c]	30.3%	15.1%	39.1%	39.1%
	No	65.7%	83.5%	55.2%	56.5%
	No answer	4%	1.4%	5.7%	4.4%
13. Do you have a copy of the WHO Guidelines for Drug Donations?	Yes[d]	21.4%	8.2%	29.5%	26.1%
	No	70.1%	87.7%	58.1%	69.6%
	I don't know	3%	2.7%	3.8%	0%
	No answer	5.5%	1.4%	8.6%	4.3%
14. Did these Guidelines influence practices with regard to drug donations in your organization?	Yes	17.4%	9.6%	22.9%	17.4%
	No	26.9%	26.0%	28.6%	21.7%
	I don't know	39.3%	53.4%	27.6%	47.8%
	No answer	16.4%	11.0%	21.0%	13.0%
15. Are you familiar with the "Guidelines on Donations for Tanzania Mainland" of the MOH?	Yes[e]	45.3%	35.6%	54.3%	34.8%
	No	51.7%	63.0%	41.0%	65.2%
	No answer	3.0%	1.4%	4.8%	0.0%
16. Do you have a copy of the "Guidelines on Donations for Tanzania Mainland" of the MOH?	Yes[f]	33.8%	26.0%	44.8%	8.7%
	No	60.2%	71.2%	45.7%	91.3%
	I don't know	2.5%	1.4%	3.8%	0.0%
	No answer	3.5%	1.4%	5.7%	0.0%

[a] Religious sector and NGOs vs. public sector: $\chi^2 = 100.705$; $p < 0.001$.
[b] Religious and public sector vs. NGOs: $\chi^2 = 13.878$; $p < 0.001$.
[c] Religious sector and NGOs vs. public sector: $\chi^2 = 49.947$; $p < 0.001$.
[d] Religious sector and NGOs vs. public sector: $\chi^2 = 31.198$; $p < 0.001$.
[e] Public sector and NGOs vs. religious sector: $\chi^2 = 93.958$; $p < 0.001$.
[f] Religious and public sector vs. NGOs: $\chi^2 = 50.798$; $p < 0.001$.

in NGOs and in the public sector. Furthermore, 56% of recipients in the religious sector perceived payment for DDs as justifiable, but only 23% of the public and 30% of the NGOs agreed. Possible reasons are that religious organizations have had a much longer tradition with DDs and may know the educational aspect of even a very low financial contribution. For example, under the umbrella of the CSSC, religious health facilities have established new financing schemes such as a Revolving Drug Fund (RDF) (Kuper and Njau 1998). The public and NGO sectors have a long tradition with cost-free health services and therefore have a different view about pricing policy and the implementation of financing schemes, although cost sharing was established as an element of the HSR.

Processes

The highest proportion of DDs were of European origin (an average of 42%), followed by 15% from North America and 12% from Africa (Table 10). Reich estimated that 60–90% of DDs, a much higher proportion, were coming from Europe, based on the assumption that religious health facilities had a strong relationship with their mother houses. In this study, the religious sector stated that 47% of the DDs received were from Europe. An average of 23% of DDs were received from Tanzanian donors (34% in the public sector, 18% in religious facilities and 13% in NGOs). This discrepancy could be explained by recipients' difficulties in assigning the origins of drugs contained in the kits. They are partly produced in-country and not perceived as DDs of foreign origin.

Table 9. Economic aspects of the recipient's organizations

Question	Answer	All Recipients	Public Sector	Religious Sector	NGOs
	Single Answers	N 201=100%	N 73=100%	N 105=100%	N 23=100%
17. What is the value of the DDs received in 2000?	Value known[a]	27.9%	15.1%	30.5%	56.5%
	I don't know	44.3%	63%	38.1%	13%
	No answer	27.8%	21.9%	31.4%	30.5%
18. Do patients have to pay for donated drugs?	Always	15.4%	6.8%	23.8%	4.3%
	Sometimes[b]	35.8%	19.2%	50.5%	21.7%
	Never	37.3%	63.0%	14.3%	60.9%
	I don't know	3.5%	2.7%	3.8%	4.3%
	No answer	8.0%	8.2%	7.6%	8.7%
19. Do you think is it justifiable to sell donated drugs?	Yes[c]	41.3%	23.3%	56.2%	30.4%
	No	53.2%	71.2%	38.1%	65.2%
	No answer	5.5%	5.5%	5.7%	4.3%

[a] Public vs. religious sector: $\chi^2 = 81.549$; $p < 0.001$ / Religious sector vs. NGOs: $\chi^2 = 45.012$; $p < 0.001$ / Public sector vs. NGOs $\chi^2 = 9.530$; $p = 0.002$.
[b] (Answers always and sometimes) Public sector and NGOs vs. religious sector: ($\chi^2 = 193.148$; $p < 0.001$.
[c] Public sector and NGOs vs. religious sector: $\chi^2 = 129.263$; $p < 0.001$.

The main purpose for using DDs (32%) in every sector was primary healthcare (PHC) (Table 7). Differences in the use of DDs were recorded for secondary and tertiary healthcare, where religious sector involvement was 24% and public sector involvement only 6%. The public sector and NGOs were more involved as partners in programs and in the treatment of specific diseases. Seventy-five

Table 10. DD process

Question	Answer	All Recipients	Public Sector	Religious Sector	NGOs
20. Origin of DDs in 2000?	**Multiple Answers**	*N* 267=100%	*N* 102=100%	*N* 136=100%	*N* 29=100%
	Asia	6.3%	13.7%	2.2%	0%
	Africa	11.6%	10.8%	10.2%	20.7%
	Europe	41.6%	35.3%	47.1%	37.9%
	North America	14.6%	14.7%	14%	17.2%
	Other Regions	6.4%	4.9%	6.6%	10.4%
	I don't know	7.5%	11.8%	5.9%	0%
	No DDs in 2000	12%	8.8%	14%	13.8%
20a. Did you receive DDs from Tanzanian donors in 2000?	**Single Answers**	*N* 201=100%	*N* 73=100%	*N* 105=100%	*N* 23=100%
	Yes[a]	23.4%	34.2%	18.1%	13%
	No	61.2%	38.4%	73.3%	78.3%
	I don't know	8%	17.8%	2.9%	0%
	No answer	7.4%	9.6%	5.7%	8.7%
21. What percentage of your drug supply was covered in 2000 by DDs?	0–10%[b]	44.3%	34.2%	53.3%	34.8%
	11–50%	14.4%	11%	17.1%	13%
	51–90%	6.5%	6.9%	3.8%	17.4%
	90–100%[c]	9.4%	16.4%	2.9%	17.4%
	No answer	25.4%	31.5%	22.9%	17.4%
	The following row presents the average coverage of the drug supply through DDs. "No answers" are neglected, because it is assumed that the non-respondents for this question have a similar average coverage.				
	Average of coverage	26.9%	37.1%	17.1%	41.6%
22. What percentage of drugs received did your organization have to dispose of?	0–10%	47.8%	41.1%	53.3%	43.5%
	11–50%	6.0%	6.8%	4.8%	8.7%
	51–90%	3.0%	1.4%	4.8%	0.0%
	91–100%	0.5%	0.0%	1.0%	0.0%
	No answer	42.8%	50.7%	36.2%	47.8%
23. Has your organization ever carried out an evaluation of your donation processes?	Yes[d]	22.9%	16.4%	23.8%	39.1%
	No	52.2%	50.7%	53.3%	52.2%
	I don't know	16.9%	24.7%	15.2%	0.0%
	No answer	8.0%	8.2%	7.6%	8.7%

Table 10. Continued

24. Did you receive in 2000 donations that you specifically asked for?	Exclusively[e]	16.9%	13.7%	19.0%	17.4%
	Partly[e]	28.4%	16.4%	35.2%	34.8%
	No	35.3%	39.7%	31.4%	39.1%
	I don't know	8.0%	12.3%	5.7%	4.3%
	No answer	11.4%	17.8%	8.6%	4.3%
25. Did you receive in 2000 donations that you had not asked for?	Exclusively[f]	3.5%	2.7%	3.8%	4.3%
	Partly[f]	34.8%	37.0%	38.1%	13.0%
	No	44.3%	31.5%	47.6%	69.6%
	I don't know	8.5%	17.8%	3.8%	0.0%
	No answer	9.0%	11.0%	6.7%	13.0%
26. Does your organization cooperate with partner organizations?	Yes	34.2%	28.8%	36.2%	43.5%
	No	25.9%	17.8%	31.4%	26.1%
	I don't know	27.9%	42.5%	21%	13%
	No answer	11.9%	10.9%	11.4%	17.4%
27. Is your organization informed beforehand about the composition and the date of shipment of the donations?	Always[g]	29.9%	9.6%	41.9%	39.1%
	Sometimes[g]	19.4%	5.5%	29.5%	17.4%
	Never	20.9%	37.0%	10.5%	17.4%
	I don't know	18.4%	35.6%	7.6%	13.0%
	No answer	11.4%	12.3%	10.5%	13.0%
28. Does your organization receive invoice documents with the DDs?	Always[h]	27.9%	11.0%	38.0%	34.8%
	Sometimes[h]	15.4%	8.2%	20.0%	17.4%
	Never	29.4%	42.4%	21.0%	26.1%
	I don't know	16.4%	27.4%	10.5%	8.7%
	No answer	10.9%	11.0%	10.5%	13.0%
29. Are the drugs received included in the National Drug List of Tanzania?	Exclusively[i]	20.4%	23.3%	21.0%	8.7%
	Partly[i]	44.8%	46.6%	47.6%	26.1%
	No	14.9%	9.6%	15.2%	30.4%
	I don't know	7.5%	9.6%	3.8%	17.4%
	No answer	12.4%	11.0%	12.4%	17.4%

Table 10. Continued

30. Are the drugs received included in the WHO Essential Drug List?	Exclusively[j]	20.9%	13.7%	26.7%	17.4%
	Partly[j]	30.3%	31.5%	32.4%	17.4%
	No	10.0%	2.7%	12.4%	21.7%
	I don't know	25.9%	41.1%	15.2%	26.1%
	No answer	12.9%	11.0%	13.3%	17.4%

[a] Religious sector and NGOs vs. public sector: $\chi^2 = 58.609$; $p < 0.001$.
[b] Public sector and NGOs vs. religious sector: $\chi^2 = 146.033$; $p < 0.001$.
[c] Public sector and NGOs vs. religious sector: $\chi^2 = 19.185$, $p < 0.001$.
[d] Public vs. religious sector: $\chi^2 = 67.184$; $p < 0.001$ / Religious sector vs. NGOs: $\chi^2 = 68.610$; $p < 0.001$ / Public sector vs. NGOs $\chi^2 = 8.469$, $p = 0.004$.
[e] (Answers exclusively and partly) Religious sector and NGOs vs. public sector: $\chi^2 = 65.377$; $p < 0.001$.
[f] (Answers exclusively and partly) Religious and public sector vs. NGOs: $\chi^2 = 41.825$; $p < 0.001$.
[g] (Answers always and sometimes) Religious sector and NGOs vs. public sector: $\chi^2 = 41.825$; $p < 0.001$.
[h] (Answers always and sometimes) Religious sector and NGOs vs. public sector: $\chi^2 = 150.209$; $p < 0.001$.
[i] (Answers exclusively and partly) Religious and public sector vs. NGOs: $\chi^2 = 48.605$, $p < 0.001$.
[j] (Answers exclusively and partly) Religious and public sector vs. NGOs: $\chi^2 = 27.297$, $p < 0.001$.

percent of public health facilities covered their basic needs through kits. The results on the purpose for receiving DDs provided information about the activities of organizations in the sectors. Religious facilities worked more in primary health services and in rural areas. Involvement of NGOs in programs and in the treatment of specific diseases was more on an administrative level. Involvement of the public sector in programs showed the shift from a more vertical distribution to an integration of DDs in basic healthcare

A large proportion of all recipients (44%) covered 10% or less of their drug supply with DDs: 53% in the religious sector and 34% in the public sector and in NGOs; only 17% of the public and non-governmental sectors and only 3% of the religious sector covered their drug supply with 91–100% DDs. At first glance, this seems a small contribution of DDs to the drug supply of organizations. But, on average, 27% of the drug supply was covered by DDs: 42% in the non-governmental, 37% in the public and 17% in the religious sector. This distribution among sectors was expected to be rather the reverse, but an explanation can be provided: The average of 37% in the public sector might be due to the perception of kits as DDs and to participation in programs. The NGO average of 42% might also be due to participation in programs. Local NGOs sometimes cover their entire drug supply through DDs. On average, 25% of recipients had no answer to this question. Either the data on DDs were not available, process steps were not transparent or the respondents were not in charge of DD issues. This assumption is strengthened by a similar reply to the question on the value of DDs. Since Reich interviewed only nine health facilities, it is difficult to rate and compare his estimate of coverage (Reich 1999).

An evaluation of DD processes was carried out by 39% of NGOs, 24% of religious organizations and 16% of public facilities. In each sector, more than 50% have never done an evaluation. This relates to a lack of data for other questions, such as the value of DDs or the coverage of the drug supply by DDs.

Almost 70% of DDs in the public and religious sectors were always or partly included in the Tanzanian EDL and 50% in the WHO EDL. Only 35% of DDs from NGOs were always or partly included in the Tanzanian and the WHO EDL.

Of all recipients, an average of 45% said that the DDs they received had been exclusively or partly requested. The religious sector had the highest rate with 54%, followed by the NGOs with 50% and the public sector with 30%, while 30% of the public sector gave no answer. In contrast, only 17% of NGOs and about 40% of public and religious facilities received DDs they had not requested. Interviewees in Reich's study expressed concerns that donors did not provide the types

of products expected, shipments did not contain all the items that were requested and the products were not appropriate (Reich 1999). Only 15% of our recipients in the public sector were always or sometimes informed beforehand about the composition and the date of shipment, in contrast to 71% in the religious and 56.5% in the non-governmental sectors. The same picture emerged for invoice documents: 19% of recipients in the public sector, 59% in the religious sector and 52% of NGOs always or sometimes received invoices. Communication between donors and recipients was better developed in the religious and non-governmental sectors.

Table 11. Quality of donated drugs

Question	Answer	All Recipients	Public Sector	Religious Sector	NGOs
	Single Answers	*N* 201=100%	*N* 73=100%	*N* 105=100%	*N* 23=100%
31. How long is the average shelf life of the DDs received?	Min. 1 year[a]	35.8%	23.3%	41.9%	47.8%
	6 to 12 months	24.4%	30.1%	23.8%	8.7%
	Up to 6 months	12.9%	19.2%	10.5%	4.3%
	Expired	5.5%	4.1%	7.6%	0.0%
	I don't know	8.0%	11.0%	5.7%	8.7%
	No answer	13.4%	12.3%	10.5%	30.4%
32. Are the DDs labelled in a local language?	Always[b]	29.4%	38.4%	28.6%	4.4%
	Sometimes[b]	27.4%	26.0%	29.5%	21.7%
	Never	25.9%	20.6%	26.7%	39.1%
	I don't know	6.0%	2.7%	5.7%	17.4%
	No answer	11.4%	12.3%	9.5%	17.4%
33. Does your organization receive a quality certificate with the DDs?	Always[c]	11.9%	5.5%	16.2%	13.0%
	Sometimes[c]	10.9%	5.5%	16.2%	4.3%
	Never	40.8%	42.5%	38.1%	47.8%
	I don't know	22.9%	35.6%	15.2%	17.4%
	No answer	13.4%	11.0%	14.3%	17.4%
34. Does your organization receive "unused" drugs (drugs returned by patients to pharmacies)?	Exclusively	0.5%	1.4%	0.0%	0.0%
	Partly[d]	14.4%	12.3%	18.1%	4.3%
	No	66.2%	67.1%	64.8%	69.6%
	I don't know	6.0%	5.5%	5.7%	8.7%
	No answer	12.9%	13.7%	11.4%	17.4%

[a] Religious sector and NGOs vs. public sector: $\chi^2 = 196.710$; $p < 0.001$.
[b] (Answers always and sometimes) Public vs. religious sector: $\chi^2 = 81.549$; $p < 0.001$ / Religious sector vs. NGOs: $\chi^2 = 60.782$, $p < 0.001$ / Public sector vs. NGOs $\chi^2 = 10.082$, $p = 0.001$.
[c] (Answers always and sometimes) Public vs. religious sector: $\chi^2 = 79.067$; $p < 0.001$ / Religious sector vs. NGOs: $\chi^2 = 58.447$, $p < 0.001$ / Public sector vs. NGOs $\chi^2 = 4.321$, $p = 0.038$.
[d] Public vs. religious sector: $\chi^2 = 47.792$; $p < 0.001$ / Religious sector vs. NGOs: $\chi^2 = 108.213$, $p < 0.001$ / Public sector vs. NGOs $\chi^2 = 3.517$, $p = 0.061$.

Quality of DDs

Quality criteria were based on the minimal requirements of the Tanzanian and WHO GDDs (Table 11). In this study, short expiry dates were perceived as one of the major negative arguments against DDs (Q 6). Forty-eight percent of the non-governmental, 42% of the religious and 23% of the public facilities received DDs with a remaining shelf life of 1 year or more, the average shelf life of 6 months up to more than 1 year was 60%, and an average of less than 6% of the DDs had expired. WHO and Tanzanian GDDs require a minimum shelf life of 1 year. In each sector, less than 50% fulfilled this requirement. This relates to the perception of all stakeholders that the expiry date was a major problem. The shelf life is important in countries with weak infrastructures (e.g., delays in customs clearance and transport) and tropical climates.

Looking at the other requirements of the guidelines, no labelling of DDs in a local language such as Swahili or English was reported by 27% of recipients in the religious sector, 21% in the public sector and 39% of the NGOs. A quality certificate was always or sometimes included in 11% of the public, 32.5% of the religious and 17.3% of NGO shipments. No organization received exclusively "unused drugs." The religious sector received a relatively high proportion of unused drugs (18%), which can be attributed to a high proportion of DDs given by individuals (Q 9). No difference was observed between the public sector and NGOs. The average of never receiving unused drugs was 66.2%. In Reich's study, every facility received unsolicited shipments of DDs including patient drug returns from abroad (unused drugs) (Reich 1999).

All questions about the quality of DDs had a high number of "no answer" and "I don't know" responses. This high rate might be explained by the administrative function of the recipient respondents. In the NGO sector, "no answer and I don't know" responses were sometimes nearly 40%.

In the meantime, the Tanzanian Pharmacy Board has established better quality control of drugs, including DDs, at all points of entry and covering all sectors (Kowero 2001).

Main Problems in the DD System

Problems reported by interviewees in the exploratory study (see above) were presented to the recipients as a list of possibilities, with the request to rate the various statements (Q 35). Multiple answers were possible. Of all recipients, 168 (84%) answered (Table 12).

The most frequently mentioned and apparently most relevant problem for all sectors was the fact that the quantity of DDs was not sufficient for long-term treatment (20%). This fact reveals the daily challenge to the Tanzanian healthcare system to cope with economic constraints and with the problems of sustainability in drug supply.

All the other problems varied from sector to sector. Non-relevance of DDs for local diseases was a main problem for the religious and public sectors (13%). This problem, together with the insufficient quantity of DDs, indicates that DDs persist in being more supply than demand driven. All other problems highlight problems of structure and process: the implementation of GDDs in the public and religious sectors, high shipment and custom fees for religious and non-governmental organizations, low transparency and insufficient communication between donor and recipient in the public sector, and insufficient infrastructure and training for NGOs. The quality of donated drugs was a minor problem in every sector. This can be explained by the pyramid of needs: As long as drugs are not available and affordable in the country, access to treatment is more important and the quality of donated drugs remains a minor issue.

Optimization of the DD System

To the open question "In your opinion, what are the most important actions needed to optimize drug donations?" 157 recipients (78%) answered, with 330 multiple answers (Figure 2). The question was not specifically analyzed by sector.

The most important suggestion of the recipients of DDs was to improve communication. Without good communication between donor and recipient, the supply of requested drugs cannot be improved, local needs are not met and transparency is not guaranteed. Even though drug quality

was not a major problem for recipients because drug availability was the more important issue, quality remains a very important factor in the supply chain. Quality can also be improved through communication and the distribution of GDDs (fourth suggestion).

All suggestions were a logical consequence of the main problems identified and were consistent with the core principles of the WHO GDDs: (a) maximum benefit of the recipients (meeting local needs), (b) respect of the wishes of the recipient (participatory approach), (c) no double standard in quality (quality aspects) and (d) effective communication between donor and recipient.

Table 12. Main problems with DDs in recipient organizations

Question	Answer	All Recipients	Public Sector	Religious Sector	NGOs
	Multiple Answers	*N* 588=100%	*N* 259=100%	*N* 275=100%	*N* 54=100%
35. What causes the main problems in the drug donation processes of your organization?	Quantities not sufficient for long-term treatment	19.6%	15.4%	23.6%	18.5%
	GDD and other tools not implemented	11.7%	14.3%	10.2%	7.4%
	Not relevant for local diseases	11.7%	12.7%	12.7%	1.9%
	Shipment and customs fees	10.5%	4.2%	16.4%	11.1%
	No transparency in DD processes	9.9%	14.7%	5.5%	9.3%
	No communication between donor and recipient	9.7%	14.3%	6.9%	1.9%
	Insufficient infrastructure	8.8%	7.7%	8.4%	16.7%
	Insufficient training	8.5%	8.5%	6.9%	16.7%
	Poor quality of DDs	5.8%	6.2%	5.5%	5.6%
	None	1.9%	1.2%	1.5%	7.4%
	Others	1.9%	0.8%	2.5%	3.7%

Limitations of the Study

One important consideration is that the study was done as a stakeholder analysis reflecting views rather than providing facts. Results represent the situation in 2001, but in the years up to 2005 there were no important changes concerning DDs or in Tanzanian DD policy. A further limitation lies in the distribution of the questionnaire to the heads of districts, dioceses and facilities who themselves selected the respondents (selection confounder). Additionally, this approach can only focus on the system as a whole and cannot provide detailed aspects of its inner structure. It is possible to assess differences between sectors, but it is difficult to obtain very detailed insight into single DD processes and to differentiate between different strategies for donating drugs. The outcome of processes of DDs at the patient level was not assessed.

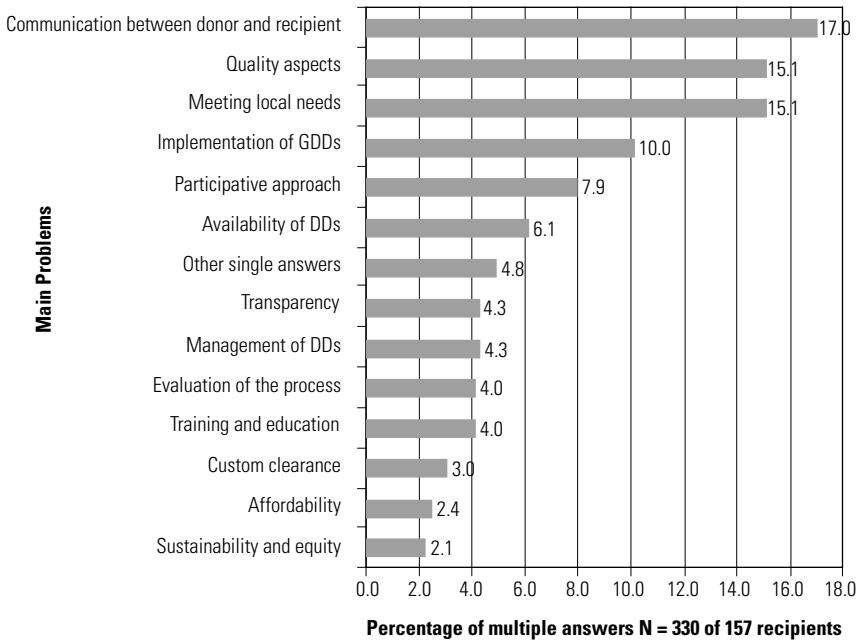
Conclusions

This descriptive study presents a first comprehensive analysis of stakeholders' perceptions and knowledge about the characteristics, structures and processes of in-kind DDs at a local level in Tanzania in 2001. The stakeholders' views cover the entire range of donation strategies: In-kind DDs given

directly to health facilities as well as DDs given as part of PPPs in the context of a program.

As in earlier published studies and reports, major contextual factors for DD systems in Tanzania were poverty, a resource-constraint economy, donor dependence as well as weak infrastructure. Consequently, in the eyes of stakeholders at every level of decision-making, including recipients and non-recipients, DDs were highly accepted for supporting the drug supply in a setting of poverty.

Figure 2. Optimization of drug donation processes (percentages of multiple answers, N 330)



An estimated average of 27% of the recipients' drug supply was covered by DDs. This important proportion of drug supply coverage is a relevant public health feature. Nevertheless, the prime concern of recipients of DDs was not drug quality, although quality assurance remained an ongoing concern, but the discrepancy between the recipients' needs and the donors' supply. DDs did not cover recipients' priority needs and their quantity was insufficient for sustainable treatment of patients and for continuous support to fill gaps in the access to essential drugs.

Other perceived problems varied among sectors and focused on drawbacks in structures and processes. The public sector requested more transparency in DD processes, which correlated with weaknesses in public structures as well as a lack of information and accountability. NGOs and religious facilities with better developed structures addressed problems such as shipment fees, insufficient infrastructure and training. These differences call for more collaboration of the private and public sectors and suggest that they could learn from each other, as recommended in the HSR.

Improved communication between recipients and donors was the major suggestion to render DD processes more effective. Donors should act in a transparent way, discuss with recipients any offer of DDs and respect recipients' needs. On the other hand, recipients were not always able to report clearly to donors what quantity of which drugs they actually needed. High numbers of "no answer" in the questionnaire highlight a lack of data, which makes useful quantification and selection of requested drugs very difficult. Recipients seemed to be disengaged from future involvement in reforming or planning drug supply, both of which are crucial for improving drug supply in general and DD processes in particular. The low response rate of recipients in charge of DDs reflected the

problem tackled in the HSR to better define responsibilities of the pharmaceutical sector within a pluralistic, decentralized healthcare delivery system.

Suggestions of recipients for optimizing DD processes corresponded fully with the principles of the Tanzanian and the WHO GDDs and called for broad distribution of the GDDs and their enforcement among donors and recipients. Finally, recipients should be empowered to apply and adhere to good DD practices while receiving continuing skills development in drug supply management.

List of abbreviations

CSSC = Christian Social Services Commission
Danida = Danish International Development Agency
DD = Drug Donation or donated drug
EDL = Essential Drug List
GDD = Guidelines for drug donations
GDP = Good Donation Practice
HSR = Health Sector Reform
MOH = Ministry of Health
MSD = Medical Store Department
NEDLIT = National Essential Drug List
NGO = Non-governmental Organization
NIMR = National Institute for Medical Research
PHC = Primary healthcare
PPP = Public/private partnership
PVO = Private voluntary organization
Q = Question or quest.
RDF = Revolving drug fund
SDC = Swiss Agency for Development Cooperation
SEAM = MSH Organization for Strategies to enhance Access to Essential Medicines
SWAp = Sector-wide approach
TFDA = Tanzanian Food and Drug Authority
UNICEF= United Nations Children's Fund
WHO = World Health Organization
WHO-GDDs = WHO Guidelines for Drug Donations

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