

**Methods used to assess drug prescribing and dispensing behaviours in the public and private sectors by non-professional health providers**

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**In most developing countries, self-medication is common. Pharmacies, drug stores and drug shops are important providers of health advice and provision of inexpensive medicines. In assessing drug sellers performance, various methods have been used to collect data from drug sellers and other non professional providers. Some of these methods include exit interviews for patients after purchase of drugs, observations to assess drug sellers/dispensers roles and consumers behaviour, interviews with the drug sellers and non-professional providers themselves, use of simulated client approach and use of the patients care indicators such as generic prescribing/dispensing, number of drugs selected from the essential drug list or national drug formulary of the particular country. The above mentioned methods or approaches have been widely applied in most developing countries to assess dispensing and prescribing practices related to diseases like malaria, respiratory infections (pneumonia), diarrhoea and other childhood conditions. Here, the assessment can be done in 3 problem areas, drug sellers (untrained/unlicensed or non-professionals), pharmacists or clinicians and other trained health workers) and patients. In most cases it has been found that non-professional providers sell drugs to customers with or without prescriptions. Furthermore, the majority of drug sellers/dispensers prescribe or dispense drugs using brand names. In addition, the most commonly prescribed and dispensed drugs, antimalarials and antibiotics mostly in syrup forms for under-five children or analgesics such as paracetamol and multivitamins. Rarely do non-professional providers and drug sellers advocate oral rehydration salts (ORS), probably because of the low profit margin compared to antibiotic syrups for diarrhoea.**

**Key words:** Self medication, drug sellers, prescribing behaviour, dispensing, non-professional health providers.

**INTRODUCTION**

In developing countries, people take medications according to their own wish (self-medication) or following advice of a drug seller, neighbour, friend or relative. This is a common practice in most developing countries where drugs are sold over the counter without prescriptions for common diseases like malaria, colds or cough [1-2]. Drug shops including pharmacies are frequently the common sources of health for third world countries [3-4]. Very little is known in Tanzania on how drug sellers give instructions and other advice to consumers when they visit these private facilities. People in the communities trust drug sellers for several reasons: they provide cheap drugs, there is

no waiting time, they can a fraction of the dose depending on one's ability to buy, drug sellers are more convenient to the people because they do not involve long walking distances.

Trade liberalisation in Tanzania has led to mushrooming of pharmacies and drug shops with many illiterate or untrained drug shop sellers mostly in small towns and rural areas. Most drug shops belong to non professional businessmen who have the money to invest in such shops and for that matter they do not employ qualified personnel since they can not pay them well. Furthermore, qualified people are few and often are not willing to work and live in rural or small towns. Thus, most of the drug sellers gain experience through in

service training by working with a qualified pharmacist for 2-3 months after which they work independently. Alternatively, they employ nursing assistants who have worked in public facilities and have retired. These people dispense and give advice to customers on specific drugs. Such inappropriate practices by drug sellers may have negative effects such as under-dosing leading to emergence and wide spread drug resistance [5] and over-dosing leading to drug toxicity [6, 7].

The use of brand/trade names leads to selling drugs which actually costs the customers more money thus making drugs are more expensive [8-9]. This may have negative effects on compliance especially in poor rural communities of Tanzania as the majority can not afford to buy a full course of treatment.

In this review paper, the author presents and discusses the various approaches which researchers have previously used to assess the drug sellers' performance in terms of drug dispensing or prescribing practices/behaviours of professional, non professional drug sellers. Some methods have been used to assess clinicians' performance in public and private health care facilities. The methods commonly used include exit interviews, non-participant observations, simulated clients, interviewing drug sellers regarding instructions or advice they give customers, participant observations and use of patient care forms to assess patient indicators. These include the number of drugs dispensed prescribed using generic name and drugs prescribed based on the essential drug list (EDL) [10].

### **Study protocol**

In assessing the quality of patient care, various approaches have been proposed and widely used in developing countries. These measures include monitoring the consultation time it takes to get all the necessary patient history, physical examination, the prescribing patterns and dispensing of drugs including correctness

of information given to patients on how to use the drugs properly at home [10].

Another approach is applying a non participant observation and interviews to patients by asking them how examination has been done to them or to the child by the clinician. So apart from gathering information from drug sellers and non professional providers, it is possible to study the private health care system (private dispensaries, health centres and hospitals), in terms of assessing the quality of care provision in general on the parameters on consultation time, physical examination, diagnostic facilities if available, prescribing patterns by clinicians and dispensing practices and whether drugs prescribed are available or not.

### **Data Collection**

Data can be collected using non-participant passive observations about patient examination, consultation, dispensing and instructions given to patients in both private and public health care facilities. Furthermore, use of questionnaires, interviews and prescription records from patients' treatment cards can be checked and recorded both for drugs prescribed by the clinician and drugs dispensed to patients by the drug dispenser.

### **Triangulation approach**

In assessing the performance of professional or non-professional drug sellers, use of more than one data collection methods (triangulate methods) is required. The strengths of triangulating data collection are: data is collected in a comprehensive manner; it uses a combination of different research methods to explore the quality of care provision in drug shops, public and private health care facilities. The approach of combining different methods in data collection and analysis is known as triangulation [11-12], where research adopts the advantage of seeing different realities. This way of seeing different views of a topic provides a greater perspective and serves as a way

**Table 1: Methods of data collection.**

Study method	Advantage	Disadvantages	Comments
Interviews	Get answers you planned (fixed)	There is no flexibility to choose or change anything	There pitfalls/drawbacks such as respondents may modify their responses to please the interviewer [15-16], interview bias; recall bias poses both reliability and validity issues [17-18].
Observations	Study behaviour or performance without subjects being conscious	Makes subject nervous or improves performance once they learn they are being observed/watched or may worsen performance; sellers can refuse to sell drugs	Observation bias and ethical issues if observing the subject without consent; studying drug sellers performance through non-participant observation could be thought as violation of their integrity
Simulated clients (SCM)	One can observe and record the scenarios	Can get poor cooperation or refusal if they identify you as a foreigner	There are ethical issues related to using SCM

of confirming (validating) the quantitative nature and completeness (credibility) of qualitative data [11-13]. In triangulation results can support, complement or contradict each other [14].

These various approaches (methods) used have helped to uncover the existing practices in private and public sectors, and how these gaps can be bridged so as to improve the dispensing and/or prescribing of drugs in a more rational way. By bridging the gap between households, the private and public sector, it means providing non-professional providers, non-professional (unlicensed) drug sellers, professionals and patients with appropriate means to prescribe, dispense drugs and correctly use the dispensed drugs at home.

### DISCUSSION

The review is based on the three main problem areas or levels: the performance of untrained and unlicensed drug sellers, trained providers such as physicians, nurses and highlighting the reasons if any as to why they perform that way. In

discussing the various aspects of quality of care provision which are being used, can be used or have been used to assess the private as well as the public sectors in Tanzania and other sub-Saharan countries.

It is obvious that the private and informal sector plays a significant role in disease management in developing countries. Studies have shown that private drug retailers sell drugs upon patient demand, with poor quality pills being prescribed, dispensed in inappropriate doses and with or without a prescription [19]. Furthermore, drugs are dispensed in inadequate doses and no proper drug information is given to clients [20-21]. This practice of dispensing inadequate dosage or over-dosage results in drug resistance development or toxic adverse events [22]. Most of the drug sellers are motivated by their own financial interests or gains. However, the dispensing of drugs by the unlicensed and/or untrained drug sellers sometimes may be due to their ignorance. It has been reported that drug shops including pharmacies are common sources of health for third world countries

where most people visit first to get medicines before visiting any other formal health care facilities [3-4]. These people treat themselves at homes with medications purchased from shops [23-24]. Experience from South-East Asia has shown that interventions can improve private drug sellers' performance [25-26].

Drug shops in developing countries provide easy access to patients who need medicines as there is less waiting time, there are cheaper drugs, there is wide range of options and that patients can purchase any amount of drugs they want with or without a prescription depending on their purchasing power without any restrictions from the drug sellers [21-22]. This provision of service by drug sellers have often been reported to be inappropriate [3, 27]. For example antibiotics have been reported to be frequently prescribed in common conditions like watery diarrhoea and acute respiratory infections. Such drug prescriptions are irrational as antibiotics are only indicated for patients / children with ARI and bloody diarrhoea [28].

Frequent dispensing of antibiotics has been reported in other studies [5]. Furthermore, studies have reported inappropriate prescribing, dispensing and irrational use of antibiotics in third world countries [29]. These practices are a waste of drugs in the public sector and are likely to contribute to emergence and development of antibiotics resistance especially to most inexpensive drugs which are affordable by the majority of poor rural communities [29].

Use of generic names mostly in the private sector/facilities is usually low. There are several reasons why use of generic names is not preferred by drug sellers despite some of them being taught during their pharmacy or medical training to use generic names when prescribing or dispensing drugs. Some of the factors include; limited availability of information such as leaflets, community perceptions and attitudes towards using generic names. Other factors are related to drug profit motives which encourage drug sellers to

sell or dispense drugs at higher price by use of brand names [30]. It is quite possible also those generic names are usually long and may not be easily remembered and hence favouring use of brand names which are short and easy to remember.

Tanzania, like many African countries, adopted the Integrated Management of Childhood Illness (IMCI) strategy [31], to improve quality management of childhood illnesses or fevers and other conditions in public health care facilities. However, considering the complexity of some diseases like malaria and pneumonia in under-five children of sub-Saharan Africa, interventions need to address disease management at all levels, by focussing on training at all health care levels (involving all stake holders) such as the private-drug sellers, private and public health care facilities. Focusing on health centre level alone and leaving aside the private drug sellers (private sector) and households may have little impact on reduction of morbidity, mortality and prevention of drug resistance.

Trained care providers as well do not take the time necessary to accurately diagnose, prescribe and dispense drugs rationally with correct instructions to patients. Further, they do not take time to explain treatment plans and make sure that patients understand them. This partly is explained by the fact that clinicians have heavy work load and the longer time they take with one patient (consultation time) the fewer patients they are able to see.

The other problem is from the patient perspective. Patients or caretakers themselves are not being adequately responsible for asking questions complying with medication instructions and seeking care and advice from professional sources. This is partly due to fear in asking questions from the care provider and especially in public health facilities where providers have little or no time to listen.

A study from Uganda have shown that approximately 50% of all fever episodes

are treated at home and only 8% of the febrile children are taken to a health centre or hospital [23]. Also in Tanzania and Kenya, a high proportion of children with fever are managed at home or by medications which are bought from shops by caregivers and presents at formal health facilities only when home management has failed or when severe complications occur [24, 33-34].

### CONCLUSION

There are several strategies which have been suggested in improving practices or performance of drug sellers / dispensers in developing countries such as provision of incentives and motivation. So far few interventions have been applied and evaluated on changing drug sellers' behavioural practices in developing countries. It has been reported in South East Asia that a "face to face educational" intervention carried out for counter attendants resulted in significant short-term improvements for anti-diarrhoeal drugs and instructions given to customers on the treatment of diarrhoea.

Lack of enforcement in most developing countries, has lead to availability of many drug formulations of different brands in most drug outlets. Most drugs for home treatment are purchased from private drug stores/shops or from drug vendors. Studies have reported that untrained/non-professional drug sellers have no knowledge about drugs and most of these shopkeepers had never received training on drug use. Furthermore, even prescribers in public and private health care facilities have inadequate knowledge on correct dosage of drugs and few of them gave proper instructions after dispensing the drugs to clients.

Thus, there is a need to design and implement interventions targeting non-professional providers/unlicensed drug sellers, health care providers in public and private health care facilities and the general public in urban and rural communities. This will help to improve both their knowledge about drugs and their prescribing and dispensing skills including

rational use of drugs by the communities. Furthermore, there is a need to increase drug monitoring and supervision by drug regulatory authorities in developing countries as this will enhance enforcement by punishing drug sellers who do not abide by the set rules and regulations.

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