Dispensing Practices at Mbagathi District Hospital

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Abstract

Inappropriate use of drugs is a major public health concern of present day pharmaceutical practice. It is associated with several consequences all leading to decreased quality of health care to the population. This study was to establish the dispensing practices in Mbagathi District Hospital. The study was a Cross-sectional study carried out at the outpatient Pharmacy. Using simple random sampling, records were reviewed retrospectively and prospective interviews done to dispensing staff and patients using a semi-structured questionnaire. Average dispensing time was 61(CI 52.2-69.8) seconds per patient. The hospital was able to dispense 68 % (CI 61.7-73.2) of the prescribed drugs. Ninety five percent (CI 89%-98%) of the dispensed drugs were adequately labeled and 92% (CI 85%-96%) of the patients correctly described the dosage of the drugs. The pharmacy had 80% (CI 52%-96%) of the key drugs used to treat common ailments during the study period. This study provides a baseline from which intervention programmes could be designed to improve dispensing practices in the hospital.

Key words: Dispensing practices; Mbagathi District Hospital; Irrational drug utilization

Introduction

Since we entered the 21st century, it has been a matter of great concern that inappropriate and irrational dispensing is still common in most countries. Although the problem is undoubtedly more serious in the developing countries, which also has to operate under minimal health budgets, the developed world is also prone to unscientific dispensing habits and practices[1]. Significantly, the rapid advances in technology and the use of modern education methods in health have failed to remedy the situation. In the developing countries, where the resources for the health sector are scarce, this inappropriate use of drugs makes the situation even worse as squandering of the lean provisions invariably affects the overall quality of care adversely, leading to serious consequences for the general population[2].

Since 1981, the World Health Organization, through the Action Program of Essential Drugs (DAP), the Nairobi Conference of Experts and the International Network for Rational Use of Drugs (INRUD) has been supporting and assisting developing countries in addressing this problem. Their technical assistance is mainly in the field of research, development of intervention strategies and promoting the rational use of drugs while also providing forums and tools of expertise[1, 3, 4]. Several factors are generally believed to contribute in varying degrees to inappropriate drug use. These factors greatly influence the behavior of the health care practitioners, and include their training (or lack of it), influence of sales representative of pharmaceutical companies, peer pressure, social and cultural pressure, emulating prescribing habits of senior health care providers, availability of drugs, procurement, selection irregularities and demands of patients for certain medications, supervision, level of training among others[5]. These irrational drug use practices cause wastage of scare resources, produce resistance to various commonly used antibiotics, and go against the ethics of the medical profession[6].

In Kenya, irrational dispensing practices are likely to be prevalent at all levels in the government health facilities as well as by the private practitioners[7].The public health sector, which serves more than 90% of the general population, is likely to have more of this problem[8]. Currently, small scale interventions are in place to address the problem but no scientific studies have been carried out in Kenya to evaluate the effectiveness of such policies and correlate them to the actual drug use practices[9]. Baseline studies are necessary to establish the current dispensing practices before interventional campaign programmes are designed. This study achieves the first step in improving the practice by examining the current dispensing practice at Mbagathi District Hospital.

Materials and Methods

Mbagathi District Hospital`s outpatient Pharmacy is mainly managed by Pharmaceutical technologists with a few pharmacists available. The facility is very busy attending to more than 100 patients a day. The hospital`s outpatient pharmacy formed the unit of study for this research. The design of this study was cross-sectional, mainly quantitative and descriptive. Quantitative data was collected retrospectively from prescriptions while Patient care data was collected prospectively according to standardized guidelines by World Health Organization (WHO)[10]. A questionnaire was used to collect data prospectively from patients and health care providers, using open and close-ended questions.

Retrospective data

In order to produce representative and comparable statistics of appropriate dispensing, the indicators defined by WHO in How to investigate drug use in health facilities: selected drug use indicators[10] were used to form the dependent variables. The World Health Organization (WHO) "core drug indicators" used included: average dispensing time, percentage number of drugs actually dispensed, percentage of patients with adequate prescription knowledge of correct dosage, and percentage of adequately labeled drug packages. Adequate patient knowledge of dosage schedule included adequate report of "how to take the medication" to the investigator of drug regimen, for all the drugs in the patients' hands.

In order to determine if drug supply contributed to inappropriate drug dispensing, i.e. if the appropriate drug was unavailable, and a less appropriate drug would be prescribed in lieu, the World Health Organization (WHO) "core health facility indicator" (an inventory of key essential drugs) was also completed.

Prospective data

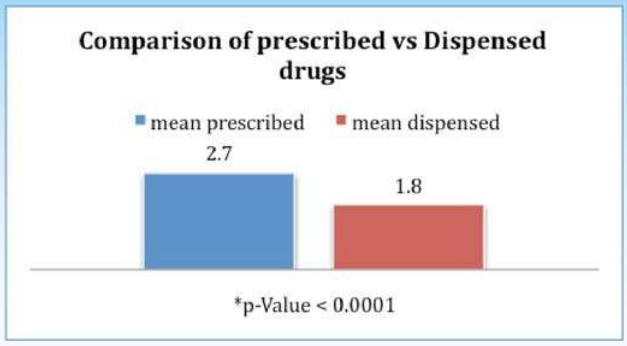
Standardized methods of investigating drug use indicators were used in conducting the study. These methods as published by World Health Organization (WHO) recommend a study of 100 patient records in a single large health facility[10]. Therefore 100 prospective records were collected from the facility`s outpatient department. The sample size of 100 patient interviews and all dispenser encounters at the hospital on the visit days were based upon World Health Organization (WHO) recommendations[10].

The quantitative data was analyzed descriptively and proportions and percentages of each dispensing and patient care indicator parameter calculated. Analytical tests used were odds ratio to measure magnitude of effect between binary and continuous variables and student's independent t-test to test the difference of independent variables means. The ethical considerations in this study focused specifically on ethical aspects that have posed particular problems in epidemiological studies of communities in developing countries. At both national and institutional levels, approval for this study was sought and granted from the Ethics Review Committee (ERC) at Kenya Medical Research Institute (KEMRI) and from hospital Medical Superintendent.

Results

On average, dispensing staff at Mbagathi District Hospital spends an average of 61 seconds only interpreting the prescription, issuing out the drugs and educating the patient on how to correctly take and store the medication. The study also found out that the hospital was able to dispense only 68% of the drugs prescribed to the patients. Patients were sent out to the private pharmacies to buy the rest of the unavailable prescribed medicines. This translates to a mean of 2.7 prescribed medicines compared to a mean of 1.8 that were actually dispensed (P-Value < 0.0001).

Fig 1: Average Comparison of prescribed and dispensed drugs



Out of the surveyed 100 prospective samples, 95% of the total dispensed drugs were adequately labeled with essential information on the drug package. This included at least the patient name, drug name and when the drug should be taken. Further to the packaging labeling, 92% of all patients interviewed had good knowledge of the drugs they were prescribed. These patients were able to know the drug and dosage schedule of the drugs they had as shown in the graph below:

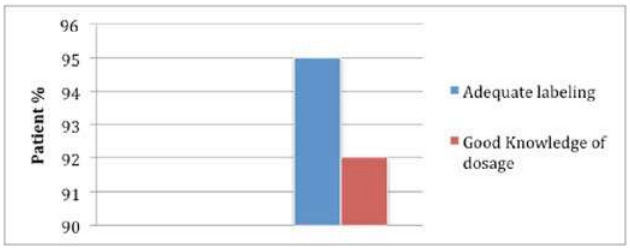


Fig 2: Percentage of Adequately labeled drugs and patients with good knowledge of dosage

On measuring the availability of key drugs in the outpatient pharmacy of the Mbagathi district hospital, this study found out that 80% of the Essential medicines for treatment of common community diseases were available at the time of data collection.

Discussion

While there may not be a gold standard to measure against on what is the ideal threshold for each of the parameters, other studies in the country and in the region provide an important comparative basis for planning interventions to improve drug use practice by both prescribing and dispensing staff[6]. Patient care indicators demonstrate an effort to quantify the dispensing process between a Health Care Provider and a patient. The rationale is that the more the time a Health Care Provider spends with a patient, the better they manage them and the better they prepare them on how to properly use the medicines prescribed. Similar studies done in some of the developing countries have shown that most of the countries dispensing time are in the same range as Mbagathi District Hospital except for Nigeria which is unusually short[6].

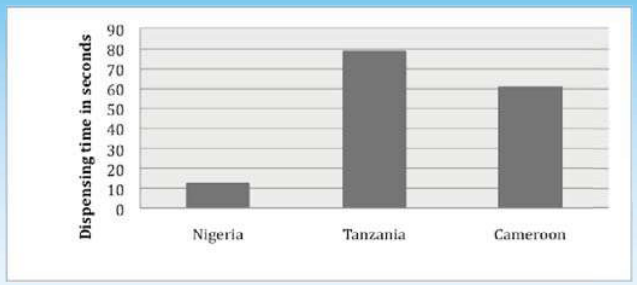


Fig 3: Dispensing times in some developing countries

This parameter is however likely to vary depending on the number of patients visiting the institutions and the number of health workers available to see patients. It was worth noting that 95% of the sampled drugs were adequately labeled and this has a potential of greatly reducing misuse of drugs by patients as a result of poor labeling. A correlation that was statistically significant (Chi-square P-Value < 0.007) was also established between correct labeling of the drugs and patients ability to correctly describe how to take each of the drugs issued. According to the significant result of the study, patients attending the outpatient pharmacy are unlikely to get all the drugs prescribed from the hospital pharmacy. The drugs dispensed were less than the prescribed drugs by ~1(P-Value < 0.0001). This poses a problem because it is not easy to know whether the patient bought the prescribed medication from the private pharmacies or not. Usually, the cost of medication in private pharmacies is much more expensive than in the public hospitals and this may present a valid barrier for the patients not to buy the drugs not dispensed at the hospital.

Conclusion and recommendations

Drug dispensing is the end of the therapeutic consultation. This study suggests that there are key areas of improvement by the pharmacy department in the hospital. At the same time the hospital is doing fairly well on some measured parameters compared to other institutions in surveyed similar countries[6].

One area that requires immediate action is on availability of medicines at the pharmacy. Many patients are unable to get prescribed medicines form the hospital pharmacy. This greatly erodes the patient quality of care provided by hospital. This is because the hospital is unable to tell whether the patients bought the right medicines or not at all form the private pharmacies.

The study also shows that Mbagathi District Hospital is doing fairly well on labeling of drugs which greatly improves patient's knowledge of correct dosage for the prescribed medicines. This best practice should be maintained and shared with other similar institutions. The hospital needs to set up a committee to regularly monitor dispensing and patient care practices while benchmarking with similar institutions in developing countries to ensure optimal care of patients by the dispensing staff. This will ultimately improve out-patients` quality of care. Similar study needs to be carried out in the inpatient pharmacy to compare the findings with the outpatient pharmacy department.

References:

1. **Laing, R.** International Networks for the Rational Use of Drugs. *Tropical Doctor.* 1990, Vol. 20, 133.
2. **World Health Organization.** *The World Drug Situation.* World Health Organization, Geneva, 1988.
3. **Ross-Degnan., et al.** A strategy for promoting improved pharmaceutical use: . *Social Science and Medicine.* s.l. : The International Network for the Rational Use of Drugs (INRUD), 1992. Vol. 35, 11. 1329-1341.
4. **World Health organization.** *The rational use of drugs: Report of the Conference of Experts, Nairobi.* World Health Organization, Geneva, Nov 25-29,1987.
5. **Soumerai, S.** Factors influencing prescribing. ; 18 (suppl): 9-16 . *Aust J Hosp Pharm.* Suppl, 1988, Vol. 18, 9-16.
6. **Ross-Degnan, D., Laing, R., Santoso, B., Ofori-Adjei, D., Diwan, V., Lamoureaux, C., Hogerzeil, H.** *Improving pharmaceutical use in primary care in developing countries: a critical review of experience and lack of experience. Presented at the International conference on improving use of medicines.* Chiang Mai Thailand : International Network for the Rational Use of Drugs, April 1-4, 1997.
7. **Amanda L.G., Hanov H., Flora M.H.** Intervention research in rational use of drugs: A Review. *Health policy and planning* . 2, 1999, Vol. 14, 89-102.
8. **Muga, R., Kizito, P., Mbayah, M., Gakuruh, T. (Eds).** Overview of Health Systems in Kenya. Ministry of Health. *Kenya: A service delivery provision assessment survey.* Nairobi : Ministry of Health, 2004.
9. **Ministry of Health.** *The Kenya National Drug Policy Report.* Ministry of health Gorverment of Kenya, Nairobi 1994.
10. **World health Organization; Action Programme on Essential Drugs.** *How to investigate drug use in health facilities: selected drug use indicators* . World health Organization and Action Programme on Essential Drugs, Geneva, 1993. WHO/DAP/93.1.