Drug utilization and cost patterns in selected health care facilities in Kenya

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Purposive sampling in 4 public and private health care facilities in Coast and Nyanza provinces, Kenya was conducted to determine the variations in the duration of hospitalization, number of therapeutic agents used in treatment, duration of dosing, criteria for drug selection, and patient monitoring procedures. The pricing of the drugs was also evaluated where possible.

The study showed that malaria accounted for the largest percentage of hospitalization, 30%; gastro-intestinal cases accounted for 27%, while chest infections accounted for approximately 13%. These observations were comparatively similar in the two regions surveyed; the Coast and Nyanza provinces. The climatic conditions (hot and humid) are similar in the two study areas and malaria is endemic.

The mean cost of drugs as a percentage of the total hospitalization bill was 44% and ranged from 21.3% to 72.4%

Key words: Drug utilization, cost, hospitalization

INTRODUCTION

The cost of pharmaceutical products in Kenya have been viewed as being generally higher than in may other parts of the world (1). A number of reasons have been advanced for this observation (2). However, no studies have been conducted in the country to quantify this apparently high costs of drugs relative to other medical services offered alongside the usage of pharmaceuticals. Similarly, no studies have been documented linking drug usage and cost containment of the health care sector.

The review of drug usage in the health facilities may be used as a basis for implementing effective cost containment measures in the ever escalating expenditure in the health system (3-8). The basic aim of Drug Utilization Review (DUR) process is to improve patient care through optimization of drug therapy. Retrospective drug utilisation reviews involve the evaluation of therapy while the patient is receiving the drug, or after the patient has completed the course of therapy. These studies permit analysis of relatively large amounts of data for numbers of prescribers, dispensing outlets, and patients to establish patterns of prescribing, dispensing and drug use in particular patients (9).

MATERIAL AND METHODS

Purposive sampling in several hospitals in Coast and Nyanza provinces was done to determine the following: variations in the period of hospitalisation using selected medical and surgical cases, number of therapeutic agents in a treatment, duration of dosing, criteria for drug selection, patient monitoring and pricing structure used.

Research instruments

In depth interviews involving the use of a well structured questionnaire were carried out. Standardised forms used for collecting basic data extracted from hospital and pharmacy records included items such as period of hospitalization, number of drugs used, total hospital bill and part of bill due to drugs.

RESULTS AND DISCUSSION

Self-medication with over the counter (OTC) pharmaceuticals:

The level of patients presenting themselves for self-medication over the counter was approximately 50%. Of the drugs requested for, antibiotics were in high demand followed by antimalarials, cough medications, dermatological products and antifungal agents. Other products included antihistamines, antiasthmatics and analgesic/antipyretics.

Level of generic prescribing and dispensing

Generic prescribing ranged between 10.5% and 80.5% with a mean of 30%. Dispensing of generic products ranged between 30% - 90%. The choice of generic or branded product that was prescribed or dispensed by the pharmacist depended on his knowledge of the product, the patient's need and perception, long usage and advertising influence.

Hospital drug utilisation patterns

Two public hospitals and two private hospitals in Kisumu and Mombasa participated in the study with each category being represented in each town.

Thirty randomly selected medical cases in each hospital were examined. These were ten cases each for the

months of September, October and November 1993.

Tables I and II show the breakdown of cases in terms of medical impression, duration of hospitalisation and the number of drugs used in the public hospitals.

At the Coast General Hospital, (table I) the mean hospitalisation period was 6.5 days and ranged between 2 and 17 days. On the average 4 drugs were used in each case. Malaria and chest infections (pneumonia) were the major causes for hospitalisation each accounting for 34% of total cases followed by gastrointestinal conditions with 7%.

At the New Nyanza Hospital (Table II) the mean hospitalisation period was 7.8 days and ranged between 2 and 18 days. On the average 5.3 drugs were used in each case. The major causes for hospitalisation were malaria which accounted for 30% of the total cases evaluated, followed by gastroenteritis with 27%, typhoid fever 13% and chest infections 13%.

Out-patient attendance at government hospitals apparently depended on availability of drugs as it was found to be higher, soon after delivery of drugs to the hospital pharmacy. This would suggest that possible hoarding of drugs for self medication and is directly related to erratic and often inadequate supplies.

In order to improve availability of drugs supplies to public facilities a number of measures are suggested:

a)   the MSCU should be restructured in order to be more responsive to individual needs of the health facilities that it serves,

b)   manufacturing facilities of the government hospitals should be improved MSCU should supply the basic raw materials for this form of production,

c)   a voucher of the cash and carry type should be introduced at the MSCU to allow for institutions to buy what they need.

The patterns in the private hospitals were similar to those observed in public hospitals (Tables III and IV).

At a private hospital in the Kisumu region (Table III), average period of hospitalisation was 8 days, and ranged between 3 and 19 days. The average number of drugs used per patient was 5, and varied between 2 and 10. The average cost of drugs as a fraction of a mean hospitalisation bill of Ksh.4,183, (range Ksh.1,725 to Ksh.10,000), was 16.6% (range of 5 - 56.7%). The major causes for hospitalization were evaluated for 26 cases. Malaria accounted for 48% of 26 cases evaluated, chest infections 24% and gastrointestinal disorders 16%.

TABLE I. Hospitalization period and number of drugs used at Coast General Hospital for 30 cases

Medical Case	Days Hospitalised	No. of Drugs
Lobar pneumonia	4	1
TB and Keratoconjuctivitis	14	7
Malaria	4	4
CCF	10	6
Malaria with spondylitis	10	3
Malaria	4	6
Septic scabies	17	6
Upper GI bleeding	3.	4
Ascites with intra-abdominal mass	3	2
Nephrotic syndrome	5	4
Malaria	5	6
TB	21	2
Pneumonia	9	3
Schistosomiasis/anaemia	2	5
Lobar pneumonia/malaria	2	3
Lobar pneumonia	9	2
Diabetes/stroke	9	1
Traumatic cataract	2	3
Bronchopneumonia	5	5
Asthmatic attack/pneumonia	2	2
Malaria/pneumonia	7	6
CCF	3	2
Asthmatic attack/pneumonia	3	4
Anaemia	6	3
Chronic malaria/GI bleeding	4	4
Malaria	3	7
Malaria	4	6
Pleural effusion	10	1
Cerebral malaria	10	4

TABLE II. Hospitalization period and number of drugs used at the New Nyanza General Hospital for 29 cases

Medical Case	Days Hospitalised	No. of Drugs
Malaria	8	8
TB/intestinal obstruction	4	14
Lobar pneumonia	6	5
Hypogylceamia	4	6
Malaria	11	6
Cerebral malaria	13	4
Sickle cell crisis/malaria	5	4
Malaria	13	4
Gastroenteritis/malaria	13	8
PTB	5	3
Gastroenteritis	19	5
Typhoid fever	13	6
Typhoid fever	8	6
Malaria	6	7
Malaria	2	4
Typhoid/peritonitis	11	6
Cerebral malaria/typhoid	18	2
Gastroenteritis	6	7
Typhoid/perforated gut	10	4
Gastroenteritis	4	4
Gastroenteritis	3	6
Gastroenteritis	6	5
Gastroenteritis/URTI	4	4
Cerebral malaria	3	2
Lobar pneumonia	6	5
Malaria/UTI	4	4
Acute gastroenteritis	5	4
Acute gastroenteritis	8	6
Malaria/schistosomiasis	11	7

TABLE III.   Hospitalization period, number of drugs used, drug fraction, and the total hospital bill at a private hospital in Kisumu

Medical Case	Days Hospitalised	No. of Drugs	Drug Total Bill (%)
Chest pain	3	7	20.7
Severe Joint Pain	19	5	56.7
Loose stool	6	7	18.6
Malaria/PUD	13	9	19.1
Diarrhoea/vomiting	3	6	17.5
Vomiting/GE	11	10	6.6
Malaria	8	4	19.3
Malaria/bronchitis	9	4	28.9
Malaria/oedema	15	9	15.8
Vomiting/GE	10	8	7.4
Swelling of testes	13	3	8.3
Malaria/hypertension	3	3	16.0
Acute pharyngitis	5	2	17.8
Pruritus ant	7	2	15.1
Hyperacidity/neuritis	3	4	19.5
Malaria	8	5	20.4
URTI	8	3	15.6
Malaria	4	4	20.8
Malaria	4	6	15.7
Malaria	6	6	12.5
Epigastric distress	11	5	9.5
Malaria/pneumonia	18	5	5.0
Severe arthritis	10	5	7.9
Malaria	4	3	15.9
GI distress	8	6	10.1
Cerebral malaria	10	7	12.7

At a comparable private hospital in the Mombasa region (Table IV), average period of hospitalization was 4 days, (ranged 1-12 days). The average number of drugs used per case was 6, and varied between 2 and 10.

The causes of hospitalization were evaluated in 26 cases. Unlike the hospital at Kisumu, the reasons for hospitalization were more varied with gastrointestinal disorders accounting for about 15% of the cases.

The mean cost of drugs as percent of the total hospital bill was 44.6% with a range of 21.3% to 72.4% which in real terms was Ksh.5,407, with a range of 660 - 16,105. This was on a mean hospitalization bill of ksh.12,464 and a range of between Ksh.2,965 to Ksh.42,120.

Charges for private hospitals were much higher in Mombasa than in Kisumu. The fraction of the drug cost in the total hospital bill was also higher in Mombasa.

Hospitalization charges in private hospitals are high due to high charges by the private practitioners. Tourists are generally charged higher fees by private practitioners.

The consequence of inadequate and often erratic drugs supply in Government facilities lead to patient looking for affordable alternative sources. These are in the form of purchase from private pharmacies or from drug peddlers through illicit drug channels.

An investigation of the Illicit Drug Channels showed that in Kisumu town, drug including antibiotics were openly sold at the bus station and kiosks. The prices were marginally lower than in the pharmacies. A check in 6 kiosks found that the drugs were not expired. Samples of Ampicillin were purchased and analyzed, the samples were of acceptable quality as per the Pharmacopoeia [9]. Nevertheless, an in depth investigation of this channel of distribution was not conducted.

TABLE IV. Hospitalization period, number of drugs used, drug fraction and the total hospital bill at a private hospital in Mombasa

Medical Case	Days Hospitalised	No. of Drugs	% Total bill
Diabetes	6	7	39.0
Hepatocellular jaundice	3	8	21.3
Diabetes/hypertension	4	5	72.4
Renal colic	-	5	43.1
Anaemic	4	5	31.2
Malaria	8	10	33.2
Dysmenorrhoea	2	7	46.7
Gastroenteritis	6	7	58.2
Malaria	2	3	59.2
Heart disease	1	2	35.9
Diabetes/PUD	6	10	44.0
Gastroenteritis	4	8	34.9
Acute tonsillitis	3	6	47.1
PUD	7	10	54.0
PUD/jaundice	3	9	48.4
Asthma	2	6	60.3
Malaria	3	8	51.1
PUO	4	6	46.4
CCF	6	7	23.1
Gastroenteritis	1	6	55.4
Labor pneumonia	3	6	49.3
Acute gout	2	2	41.7
Gastroenteritis	-	5	48.5
UTI	12	9	28.4
Pneumonia	-	2	29.5
Lobar pneumonia	-	5	57.0

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