An evaluation of the Fiji national drugs policy

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Abstract

A national drug policy was implemented in 1995 providing the framework for pharmaceutical services development over the next five years. One of the components of the national drug policy is to undertake research in relevant areas. This is the first research conducted under the ambits of the national drug policy and evaluates pharmaceutical services at the operational level.

The key issues evaluated in this research were the availability of documentation to carry-out functions, management of pharmacy resources, rational drug use, quality of counselling and dispensing processes and efficiency of processing of orders by Government Pharmacy.

Introduction

Fiji's health services are divided geographically into the Central/Eastern, Western and Northern divisions. There are two main streams, Hospital Services and Primary and Preventive Health Services. Divisional Doctors head the primary care services at the divisional level. In addition, two specialist hospitals are available to deal with psychiatric illness and tuberculosis / leprosy control. There are four divisional hospitals, twenty-one subdivisional hospitals, fifty six health centres and ninety six nursing stations. Each division is further partitioned into subdivisions served by a subdivisional hospital, and a number of health centres and nursing stations to provide primary health care services.

The public sector has an established Essential Drug List of over 400 items which is reviewed and updated on an ongoing basis by the National Drug and Therapeutics Committee. The provision of essential drugs is an important component of primary health care, and these are supplied to hospitals, health centres and nursing stations on an "allocation" system. Supplementary orders to cover periods of increased demand are possible. The Ministry of Health has established an appropriate infrastructure to provide essential drugs and this survey arose from a desire to evaluate the status of the essential drugs programme in Fiji.

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Background

Government Pharmacy is an institution within the Ministry of Health and is responsible for the procurement, storage and distribution of all essential drugs and medical supplies to public sector health facilities. Orders for all drugs and medical supplies are processed through requisitions from health facilities. There are five categories of health facilities: divisional hospitals, specialised hospitals, subdivisional hospitals, health centres and nursing stations. Monthly orders are raised by divisional and specialised hospitals and quarterly orders by all the other facilities.

Government Pharmacy is headed by the Chief Pharmacist with functions beyond warehousing. These include responsibility for the Ministry's essential drugs programme, administration of pharmacy based legislation, implementation and monitoring of the National Drug Policy, coordination of the diploma in pharmacy at the Fiji School of Medicine and the training of the pharmacy workforce. The Chief Pharmacist is also responsible for the management of the Bulk Purchase Scheme, which operates on a revolving fund account established to provide a defined range of safe and effective essential drugs to patients at an affordable price, through both the private and public sectors.

The Fiji National Drug Policy (NDP)[2] was adopted by Cabinet in February, 1995. The overall goal of the NDP is "*to develop within the available resources, the potential that drugs have to control common diseases and alleviate suffering through promotive, preventative and curative health services*". The NDP is a consensus document which covers a wide range of activities and includes drug procurement,

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distribution and prescribing, cost recovery, legislation, quality assurance and rational drug use. The importance of the NDP is that it establishes national priorities in relation to desired developments within pharmaceutical services over a five to ten year period.

Section 12.5 of the NDP states that the Ministry of Health will support important areas of health research which have a bearing on the NDP. These areas include health systems research to measure the impact of the NDP and its main components, behavioural research on prescribing and dispensing problems at different levels of the health system and research into the economics of drug supply and utilisation.

The NDP therefore provides the basis for this study. The aim of the survey was to provide a rapid assessment of the effectiveness of the operations of Government Pharmacy, of the quality of Pharmaceutical Services and of the implementation of rational drug use policies within the public sector. This survey could potentially be used as a benchmark for further research. No information is presented on the operation of the private sector of health care.

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Methods

Eight facilities were surveyed using a combination of administered questionnaires and interviews with patients and medical staff, in conjunction with physical inspections and records audits. The facilities were chosen (not randomly) to be an inclusive sample of four levels of service and all three medical Divisions and included one Nursing Station, one Health Centre, five Subdivisional Hospitals and one Divisional Hospital.

Facilities which had regular transportation were chosen for this study. It was considered that facilities at each level of service would provide a similar range and quality of services. However, the facilities chosen were not considered to be a representative sample and this may impact upon some of the findings of the study. All personnel who were approached agreed to participate.

Study focus

The survey was carried out in two parts:

- A records audit to determine the average amount of time to fill pharmaceutical orders at Government Pharmacy on receipt of requisition forms from the eight facilities.
- An interview of prescribers at the eight facilities to determine the extent that principles of rational drug use were being promoted and adhered to.

The first part was conducted internally by Government Pharmacy. The second part was carried out by a seven member survey team who conducted the surveys on the 8th and 9th September, 1996 at the eight facilities. The team comprised volunteers from the Ministry of Health Health Information Systems Unit and health service volunteers from the USA, all of whom received two days of training prior to the survey. The training was provided by staff of the Government Pharmacy and the Health Information Unit. The trainers assessed the competency of the survey team during training before the survey was conducted. The survey team included representative racial groups of Fijian, Indian and European, and was predominantly female. The team carried out the following activities

- Interview of medical staff at the eight facilities regarding availability and use of publications, promotion of rational drug use, and prescribing patterns.
- Interview of Pharmaceutical Services staff regarding service provision practices and adherence to Government Pharmacy policies, and inspection of pharmacy facilities to determine resource management practices.
- Interview of patients to determine the level of understanding imparted by prescribers and pharmacists, and the accuracy and completeness of instructions given to the patient in line with Pharmaceutical Services policy.

Ethical issues

There is currently no Ethics Committee in the Ministry of Health so approval for the survey was sought and obtained from the Director Hospital Services who is Chairman of the National Drug and Therapeutics Committee.

Results and discussion

The interviewers inspected each institution and interviewed staff to ascertain availability of five printed Government Pharmacy materials. These materials were:

- **Drug Allocation Schedules** which list the quantities of all items which are provided to each health facility.
- **Essential Drug List** which identifies all the drugs available for use within the public sector.
- **National Drug Policy for Fiji** which describes policy on drug acquisition, distribution and use, plus pharmaceutical services development plans, over the next ten years.

Table 1. Respondents with access to printed Government Pharmacy prescribing guidelines and other information (n=42)

Publication number	Publication	Respondents who had material readily available
1	Drug Allocation Schedules	41%
2	Essential Drug List	19%
3	National Drug Policy for Fiji	24%
4	Drug Usage in Hospitals and Health Centres	45%
5	Pharmanews	52%

- **Drug Usage in Hospitals and Health Centres** which describes the policy on drug use within the public sector.
- **Pharmanews** a monthly bulletin prepared by Pharmaceutical Services which provides information on the activities of Government Pharmacy, therapeutic news and information on adverse drug reactions.

Forty two staff, who would have been expected to have had copies of all of these materials readily available to them, were interviewed. Table1 lists the percentage of respondents who had access to these materials. Access was taken to mean being within reasonable reach of the officer when required for use.

The most widely available publication was the Pharmanews. It was disappointing to note that only 19% of the respondents had a copy of the *Essential Drug List*. The non-availability of the above documents is of concern as it implies that the Ministry of Health staff are generally unaware of pharmaceutical policies and developments brought about by Government Pharmacy and the Ministry of Health. The non-availability of the list would result in drugs being prescribed which are not stocked in the public sector, thus causing financial hardship for the patient.

All the above documents when produced by Government Pharmacy are circulated in sufficient quantities to all the health facilities. The above results could possibly be explained by problems in communication between Government Pharmacy and health facilities. It could also be possible that such documents have been removed by field officers on being transferred from one station to another, and that these items have not been handed over as part of the usual stationery inventory.

Table 2 shows the percentage of materials that each staff member should have had in relation to his/her position responsibilities.

There were 7 supervising doctors, 7 matrons, 6 ward doctors, 6 pharmacists, and 16 other prescribers who should have had five publications each. Pharmaceutical Services staff had the highest percentage (70%) while individual prescribers (25%), and wards (27%) had the lowest percentage of the materials which had been distributed by Government Pharmacy.

The Drug and Therapeutics Committees

In 1995, the Ministry of Health adopted a policy that Drug and Therapeutic Committees should exist at all hospitals which have a particular level of service delivery as evident by the presence of a pharmacy service with a minimum of one full time pharmacist.

Managers at each facility were asked questions concerning the activities of local drug and therapeutics committees.

Table 2. Staff with access to Government Pharmacy prescribing guidelines and other information

Position	Respondents with access to all 5 Government Pharmacy documents
Supervising doctor (MS, SDMO, etc)	40%
Matron, supervising Sister	31%
Ward doctors	27%
Pharmaceutical Services Staff	70%
Prescriber (all doctors except 1 nurse)	25%

Table 3. Use of the various drug supply systems by the six facilities

Method of inpatient drug supply	Number of facilities using method
Imprest	50%
Requisition	83%
Full for Empty	100%
Prescription / Treatment Sheet	67%
Phone Order	17%

Seven of eight facility managers were aware of or had participated in a recent local drug and therapeutics committee meeting. Of the seven local drug and therapeutics committees (at all the facilities except the nursing station), all had met within the past three months prior to conduct of the survey, and all reported that they routinely met quarterly or monthly. Only two of the seven managers interviewed could list two ways in which their local committee was promoting the rational use of drugs, based on National Drug Policy requirements.

It is however, encouraging to note the formation of drug and therapeutics committees. The formation of these committees is the initial infrastructure mechanism to address drug related issues at the local level and to assist in decision making at the national level.

The Conference of Experts on the Rational Use of Drugs, convened by the World Health Organisation in Nairobi in 1985[3], defined rational drug use as:

"*the rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community.*"

Rational drug use is a relatively new concept for Fiji and the results obtained above are not surprising. Fiji developed its Essential Drug List in 1991, and since then, there have been two updates. There are no standard treatment guidelines in place to promote the rational use of drugs and the production of such guidelines is a top priority for the National Drug and Therapeutics Committee. Rational drug use will gain greater recognition as more emphasis is placed on appropriate therapeutics, both at the undergraduate teaching level and during continuing education activities.

Management of pharmacy resources

Both outpatient and inpatient pharmacies (or drug storage facilities in the absence of a pharmacy) were inspected by the interview teams for the presence of stock record cards, and expired lots of drugs. Pharmacists or other dispensing personnel were interviewed to determine their effectiveness in managing drug supplies.

Three of the 8 (38%) facilities visited were using stock record cards to manage drugs dispensed to outpatients, and to assist in calculating re-order quantities.

Of the three facilities which were using stock record cards for outpatient drugs, only one had a balance between the stock record cards and the actual stock of drugs on the shelf for five indicator drugs. The five indicator drugs were:

- Insulin Isophane Injection
- Methyldopa 250mg tablets
- Paracetamol 500mg tablets
- Penicillin V 250mg tablets
- Thyroxine 100 microgram tablets

For the five indicator drugs listed above, one of the eight facilities was found to have had expired lots of one or more of the drugs. Seven of eight pharmacists or other dispensing personnel reported doing periodic checks for expiry date. The Ministry of Health policy is that expired drugs must not be used.

Drugs require good inventory management to avoid their obsolescence through expiry. For this reason, sound inventory management practices advocate the use of stock cards or other manual and automated inventory control systems. In Fiji, the use of stock cards is advocated for this purpose.

One of the reasons for the non-availability of stock cards at some of the centres may have been due to the difficulty of obtaining these supplies. Stock cards are not recognised standard stationery issued by the Ministry of Health stationery section and therefore staff at the peripheral centres may not know where to obtain such supplies. Pharmaceutical Services has in the past assisted some of the centres which have made a request for these in the absence of a designated source.

Staff require training on how to use these stock cards. Fiji lacks a manual with a focus on management of medical supplies although such a manual is being developed. The absence of such a manual could also mean that staff do not have the necessary skills to use management tools such as inventory cards, although other factors such as a lack of time and/or insufficient interest could also be contributing factors towards their non-use.

Pharmacists or other dispensing personnel were asked which drugs they commonly ran out of, and what actions they took when the drug supplies provided by Government Pharmacy were depleted. The following drugs were listed as being commonly out of stock:

- Antibiotics - Amoxycillin, Penicillin, Erythromycin, Flucloxacillin, Co-trimoxazole
- Depressants - Promethazine, Diazepam
- Analgesics - Paracetamol, Aspirin
- NSAIDs - Indomethacin
- Inhalers and tablets for the treatment and prophylaxis of asthma

Actions commonly taken included:

1. None (waiting for the next supply period);
2. Faxing supplementary order to Government Pharmacy for urgent despatch;
3. Sending patients to a community pharmacy (medicine shops being run by untrained personnel) or private pharmacy where the drugs can be purchased;
4. Requesting supplies from larger neighbouring institutions.

Antibiotics were commonly reported as being out of stock. This result could be explained by the high use or irrational use of antibiotics, or by insufficiency of supplies. Without any drug utilisation evaluation having being undertaken on antibiotics, this phenomenon remains to be fully explained. Funding for initial drug utilisation evaluation studies and training has been incorporated into future planning for 1998/99.

It is a cause of concern that diazepam tablets have been reported to be in short supply. The indications for this drug are now restricted and the National Drug and Therapeutics Committee considers that there is overuse. Further studies will be required to establish accurate data on usage.

The depletion of asthma inhalers, paracetamol and indomethacin, is possibly a symptom of undersupply and was the target of discussion during the therapeutic review of the Essential Drug List carried-out in 1996. It could also have been related to inappropriate use due to non-availability of treatment guidelines.

A surprising response to the actions taken following the depletion of drug supplies was to wait for the next supply period. Although a quota or allocation system is used by the Ministry, all staff have been informed that they are able to draw additional supplies when required. Such information is essential to Pharmaceutical Services in order to further investigate drug use and solve allocation problems where necessary.

Six facilities surveyed admitted inpatients. Pharmacists or other dispensing personnel were asked to name drug supply systems which they used for supplying drugs to inpatients. Table three shows the methods and the percentage of the six facilities using that method. The reason for investigating this matter was to determine the success of an Australian Agency for International Development (AusAID) funded programme in 1995. Two voluntary pharmaceutical consultants had been provided under the Professional Associations International Development Scheme (PAIDS), to work for one month in each of the three main divisional hospitals establishing imprest drug distribution systems. It was intended that there would be a "trickle-down" effect to the other institutions.

In evaluating Table 3, one needs to be aware that any facility may use all of the above systems, ie. there is not one desired system. For instance, full for empty can be used in conjunction with imprest systems and requisition systems. In other words, the table does not provide information on frequency of a partiular process, rather it simply demonstrates presence or absence.

Table 3 shows the developments which have taken place over the last few years in inpatient dispensing systems. The most common system used to be and still is, the ward based requisition system. The use of newer systems such as the imprest and full for empty systems, is now evolving in Fiji.

In the interest of safety, it is encouraging to note that only one insitution used the phone order system. In the Drug Usage in Public Hospitals and Institutions[4] booklet, the use of this system is strongly discouraged, except for permitted use in an emergency.

Rational drug use will gain greater recognition as more emphasis is placed on appropriate therapeutics, both at the undergraduate teaching level and during continuing education activities.

Actual drug stocks of the five above listed indicator drugs were inspected on wards at each of the six facilities which admitted patients. Of eighteen lots of the various indicator drugs that were available, two lots had expired and six lots had no expiry label (making expiry date impossible to determine).

Labelling of expiry dates is an important issue to be considered here. In Fiji, bulk pack sizes of 500 or 1000 tablets are usually purchased to secure the best prices. These are then repackaged at the hospital level and every repackaging must carry a label containing batch number and expiry dating. Good Manufacturing Practice (GMP) packaging processes had been introduced during the AusAID funded imprest programme. This had obviously not been done for some repackings. Such a system must be introduced and maintained.

Table 4. Prescribers who considered that the drugs on the Essential Drug List were adequate for treating several conditions. (n = 27)

Condition	Prescribers who considered the essential drug list was adequate to treat this condition
Asthma	82%
Hypertension	77%
Diabetes	85%
Common cold / Influenza	96%
Tonsillitis	96%
Boils / Common Infections	85%
Rheumatism / Arthritis	52%
Gastric / duodenal ulcer	55%

A system of drug disposal should be put in place so that drugs which have expired are removed from the stock-holdings, including the wards, and safely destroyed.

All wards in the six facilities which admitted patients were inspected for the availability of Drug Treatment Sheets printed by the Ministry of Health. All six facilities had the approved Drug Treatment Sheets on every ward. This is very encouraging as an adequate supply of Drug Treatment Sheets is necessary to fully document all drug therapy prescribed during every inpatient encounter. A later study will determine appropriate use of Drug Treatment Sheets.

The rational use of drugs by prescribers

Twenty seven prescribers from the eight institutions were interviewed, and asked questions regarding the effectiveness of the available drug list, the use of references for prescribing, adverse drug reactions, and their adherence to rational drug use guidelines. The irrational use of drugs is a cause for concern amongst all health professionals in Fiji, as anecdotal evidence indicates that several important antibiotics may be losing their effectiveness due to over-prescription, lack of patient compliance with prescribed regimens, or inappropriate selection of antibiotic for a particular indication. Analytical testing of antibiotics and other drugs by the Therapeutic Goods Administration (TGA) in Australia has indicated that drugs are efficacious when supplied from Government Pharmacy. It is proposed to investigate in a future study, the potency of antibiotics when stored in tropical conditions.

Effectiveness of the Essential Drug List as perceived by prescribers

Prescribers were asked if they considered that the Essential Drug List (EDL)[5] developed by the National Drug & Therapeutics Committee was adequate to treat certain conditions. This followed on from a WHO sponsored review of the essential drug list in which doctors, pharmacists and nurses had participated. The conditions queried and the responses of prescribers are listed in table four. With the exception of Rheumatism / Arthritis (52%) and Gastric / Duodenal ulcers (55%), over three quarters of respondents considered that the essential drug list provided adequate drug therapy options for the treatment of the listed conditions. Nearly all (96%) of respondents felt that the EDL was adequate for treating the common cold, influenza, and tonsillitis. Eighty five percent felt that there was adequate treatment for boils and other common soft tissue infections, and for diabetes, and 82% felt that there was adequate treatment for asthma.

Essential drugs are those which satisfy the health care needs of the majority of the population; they should therefore be available at all times in adequate amounts and in appropriate dose forms[6]. The majority of the population is taken to mean providing 90% of the drug needs of the entire population. This figure should form the benchmark for any effectiveness analysis.

There could be several ways in which this benchmark indicator may be tested and the above table illustrates one method. The table concentrates on providing information on the suitability of drugs available on the Fiji essential drug list to treat a range of conditions. The best covered areas are common cold and tonsillitis. Conditions such as rheumatism, and gastric and duodenal ulcers, are however, not readily manageable given the limited availability of NSAIDs and the non-availability of drugs like ranitidine at the primary levels of health care. The introduction of ibuprofen in the 1996 essential drug list will provide a greater treatment choice for rheumatic disease. This type of information will be crucial for a committee like the National Drug and Therapeutics Committee as it attempts to maximise the use of limited financial resources.

These results should be viewed with caution because they could be affected by the following:

- whether the prescribers interviewed were locals or expatriates, and their educational background (33% of existing medical staff in the public sector are expatriates, most of whom come from Philippines, China and Burma).
- whether the prescribers were familiar with the essential drugs concepts.
- whether the prescribers had actually participated in the revision of the essential drug list.

Some prescribers may view the Essential Drug List as a limitation to their rights to prescribe, rather than as a guideline for better and more rational prescribing, within the context of limited financial resources. It is considered that considerable prescribing is based on habit, which has been learnt through years of practice, and as such, may not have been amenable to easy change through provision of the Essential Drug List to every prescriber.

References used to prescribe drugs

Prescribers were asked whether or not certain references were used to aid in drug prescribing. The references used, and the percentage of prescribers who reported using those references as a guide to prescribing are listed in table five. The most commonly used reference was the MIMS Monthly followed closely by the Guidelines series for specific drugs and the British National Formulary, though half of the prescribers reported using no references at all.

There are currently no independent sources of drug information provided to health care personnel, in particular to prescribers. The above table shows that over 50% of the prescribers do not have any source of independent drug information. Publications listed in the above table are only available after concerted efforts are made by individual prescribers to secure these as well as through donations sought by Pharmaceutical Services. Without access to independent drug information, prescribers could easily be influenced by unscrupulous marketing techniques. Clearly, such a situation cannot continue and a strategic plan needs to be implemented to rectify the situation urgently.

The development of standard treatment guidelines will assist in the education of prescribers. The benefit of standard treatment guidelines is that it is a disease centered approach whereby the therapeutic management of every disease is clearly laid-down. The real benefit comes from the involvement of all practitioners in guideline development. With this in mind, it is intended to develop standard treatment guidelines locally, so that local ownership is generated.

In addition, an independent drug information centre would be desirable for drug information dissemination. Further thought will be given to the establishment of a national centre, and to networking with other centres which already exist in the region.

Rational use of antibiotics

The same prescribers were asked if they had prescribed four indicator antibiotics - amoxycillin, co-trimoxazole, flucloxacillin, and topical antibiotic powder for twelve conditions. It is possible to argue suitability in absolute terms, however for this study, it was considered that appropriate prescriptions were: amoxycillin for urinary tract infections (UTI), otitis media, and sexually transmitted diseases; co-trimoxazole for UTI; flucloxacillin for boils and impetigo. According to the listed indications for these antibiotics[7], the most commonly misprescribed drugs included:

- *amoxycillin* for tonsillitis (63%) when penicillin V would have been the drug of choice.
- *co-trimoxazole* for otitis media (74%) although this may have been appropriate in some instances, however, amoxycillin would have been the drug of choice.
- *flucloxacillin* for anything other than boils and impetigo: surgical wounds (70%), and minor cuts and scratches

Table 5. References used by prescribers to guide prescribing

Reference	Percentage who reported using this guideline
British National Formulary	44%
Australian Pharmaceutical Formulary	11%
Established Protocols	44%
New Ethicals Monthly	26%
MIMS Monthly	48%
Therapeutic Guidelines series	44%
Others	33%
None	>50%

(41%) . The use of flucloxacillin in impetigo may be appropriate if topical antiseptics have been unsuccessful, as staphylococcal infections often occur secondary to the primary streptococcal infection.

It should be stated that the review gathered no information on antibiotic sensitivity in each institution. It should also be noted that self-reported prescribing could be unreliable.

The inappropriate use of antibiotics to treat viral illnesses remains a cause of concern for the Ministry of Health. The results indicate some inappropriate use of antibiotics to treat what are generally, predominantly viral infections such as influenza and tonsilitis. A broad spectrum antibiotic amoxycillin, has been used to treat tonsillitis, when penicillin V, if any antibiotic were required, would have been the drug of choice. The indiscriminant use of flucloxacillin for broad indications is of concern given the incidence of flucloxacillin-induced jaundice associated with this drug[9] and the possibility of the development of resistance. No information was gathered on the prevalence of methicillin resistant *staphylococcus aureus* (MRSA).

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The high use of topical antibiotic preparations in Fiji is documented by the use of topical antibiotic powder for a range of indications such as boils, impetigo, cuts/scratches and surgical wounds. The evidence on the effectiveness of topical antibiotics is weak and topical use may lead to both resistance and sensitisation so the general recommendation is that the use of topical antibiotics should be avoided[7,8,10]. No information was gathered on the use of parenteral antibiotic preparations, applied topically. Public health measures targeting personal hygiene and increased use of antiseptics would be more advantageous in Fiji's tropical weather conditions.

Since this survey, an Antibiotics Guidelines has been produced to aid the rational prescription of antibiotics.

Prescribing instructions, labelling of dispensed medicines and appropriateness of prescriptions

To investigate the number of drugs prescribed, the use of generic drug names, and the evidence of rational drug use, 104 randomly sampled outpatient prescriptions written on the day the survey were collected from eight facilities. Of these 88% were from general outpatient departments and 12% from speciality clinics.

On average, there were 2.2 drugs prescribed per prescription. There were three or more drugs prescribed on 25% of the prescriptions. The maximum number of drugs observed on any one prescription was five. This is an indicator test for polypharmacy during prescribing. An average of two drugs per prescription is not unreasonable. There is no gold standard as to what should be the ideal number of drugs per prescription in a general outpatient setting. More than three drugs in 25% of prescriptions may not be unreasonable, given the high prevalence in Fiji, of diseases such as diabetes, hypertension and cardiovascular conditions where secondary manifestations are not uncommon. This aspect could be further evaluated for a balance in polypharmacy practice level.

The average number of drugs prescribed by generic name per prescription was 0.98. With an average of 2.2 drugs per prescription it is clear that less than half of the drugs prescribed, met Ministry of Health prescribing guidelines, which require prescription by generic name. This finding is disappointing given the need for prescribing by generic name as recommended by the National Drug Policy and the document "Drug Usage in Public Hospitals and Institutions" prepared by the National Drug & Therapeutics Committee. If the policy guidelines are followed, it will be reasonable to expect 100% prescribing by generic drug names as a standard practice. It is of course possible, that doctors do not know the generic names of the drugs which they prescribe by habit.

Over 43% of prescriptions contained at least one antibiotic. This finding suggests high use of antibiotics.

Information given to patients by prescribers and pharmacy staff regarding drugs

Patients were interviewed immediately after having received their medication, and were selected at random. No patient declined to participate, and this may indicate some selection bias on the part of the interviewer. Doctors and pharmacists were not informed of the purpose of this interview.

Of 104 patients interviewed from the outpatient pharmacy during the day of the survey:

- Sixty one percent of patients did not know the name of the drug supplied to them. Drug names are highly technical and complex in nature and it is possible that although drug names were given to the patients, they actually could not remember when questioned. Patients are more likely to know the names of the drugs which they are taking if they are on chronic therapy, rather than those who are seen in the general outpatients department. The sample in this instance contained only 12%

from the special outpatients clinic, and it is these patients who are likely to be on long-term medication.

- Eighty nine percent of the patients knew the indications for which they were being treated. A positive response was taken in this instance if patients actually described the symptoms for which they were being treated or the medical condition itself. For example, a patient who stated that the condition was joint pain and had actually been prescribed indomethacin was taken as knowing the indication. It is possible that patients were also told of their medical condition but could not recall upon questioning, the medical jargon which had been used.

- Only 7% of patients interviewed were aware that the drugs supplied to them had any side effects, or that they should report these to their doctor. This is a very low percentage and suggests that inadequate counselling had been provided. Opportunities for counselling exist at two points: at the prescribing stage by the doctor concerned, and at the dispensing stage by the pharmacist who is supplying the medication. In terms of professional care, both these groups have equal responsibility in the appropriate counselling of their patients.

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Out of the eight institutions surveyed, only two institutions did not have the services of pharmacy staff and one institution (the nursing station) did not have the services of a doctor. The low percentage result for counselling, therefore cannot be adequately explained by this factor alone. Indications on appropriate levels of staffing and health worker personnel turnover, should also be considered in whether this has any bearing on the survey results.

One of the critical issues is the amount of time spent during the consulting and the dispensing processes. The public sector has always been understaffed and overcrowded, and this suggests that there may not be adequate time to counsel patients. The survey did not look at the average consulting or dispensing times and this issue could be investigated by the local drug and therapeutics committees, and monitored along with patient waiting times.

All of the dispensing outlets with the exception of one divisional hospital, do not have an adequate reception area so that patients can not routinely be counselled in confidence, in an environment which is conducive to exchange of information and which encourages the patient to ask questions.

Counselling for adverse effects requires special skills to ensure that patients are not unduly alarmed by the information presented. It serves the useful purpose of ensuring that patients are better able to recognise adverse effects, and thus to seek medical assistance if required. This could assist with the reporting of adverse drug reactions by health care personnel in the future, and improve medication concordance and overall patient care management standards.

Seventy percent of patients knew the dose (not the strength) of the drug supplied to them, while 73% of patients knew the required duration of drug treatment.

Dose and duration of treatment form an integral part of drug therapy and there is a general expectation that all patients should be aware of the dose and duration of therapy. The counselling process includes the dissemination of such information to patients. It is disappointing to note the low percentage of patients who could recall the dose and duration. Factors that could explain this result include language barriers, inattention being paid at the time of counselling and the knowledge that directions could be read prior to dose administration and that help may be available at home. The dispensing and counselling processes should ensure that 100% of patients are aware of such critical information prior to their leaving the end-stage of the prescribing and dispensing processes. It is possible that such information was supplied on all 104 occasions in the survey but that this was successful in only 70% of cases.

Drug labelling by pharmacy and appropriateness of prescription

Of 104 prescriptions presented to interviewers by patients:

- Ninety-nine percent of the labels were clearly written for the drugs given to the patient. "Clearly written" was determined to be the ability of the interviewer to decipher the message on the label. This is a positive finding in that patients had been provided with labels which were legible.

- The strength of the drug was given on only 79% of prescriptions. It is difficult to comment on this finding because some preparations may not have had a strength. For example, cough mixture and magnesium trisilicate mixture. The strength of the drug is an important piece of information for the patient. It should always be clearly written on all prescriptions when applicable, and subsequently on all labels. It becomes essential information

when multiple strengths of a particular drug are available.

- Seventy four percent of prescriptions had the proper date recorded. This finding shows that about a quarter of all prescriptions did not meet this basic safety, legal and procedural requirement.

- The dose was assessed as having been clearly written on 100% of prescriptions.

- Fifty percent of prescriptions had the name of the patient clearly written. In Fiji, many Fijian family names and many Indian family names are the same or similar. There is potential for misadventure as the incorrect name could easily be put on the label and the prescribed medicine could be dispensed to the wrong person. All prescriptions should clearly indicate for which patient the drug has been prescribed.

- Seventy seven percent of drugs had been prescribed by generic name. This result is higher than that obtained in section 4.5.1.2, however, this figure should have been closer to 100% given the Ministry of Health's policy to prescribe all drugs by the generic name.[2,4]

- Seventy seven percent of the drugs which had been prescribed were considered appropriate for the condition as stated by the patient. In cases where drugs were considered to have been inappropriately prescribed, it was evident that had been used outside recommendations as determined independently by pharmacy personnel.

It is disappointing to note the low percentage of patients who could recall the dose and duration. Factors that could explain this result include language barriers, inattention being paid at the time of counselling and the knowledge that directions could be read prior to dose administration and that help may be available at home.

Processing time of orders received by Government Pharmacy

This part of the survey was completed by a third year pharmacy student from the Fiji School of Medicine as his major project. Orders on receipt at Government Pharmacy are first checked for agreement with the allocation quota, and any inaccuracy or illegibility clarified by telephone or by radio telephone for remote islands. This initial step is described as "the approval process". Following approval, the order is filled by storemen and sent to the despatch area for delivery according to a geographical schedule, or when road or sea transport is available. Bin cards are adjusted when the order is filled, and stock record cards are completed following despatch of the order.

For the eight facilities included in this survey:

- Average time to approve orders for 11 orders sampled was five working days or one calendar week from the initial receipt of the order.

- Average time to complete an order once it had been approved was an additional five working days, or two calendar weeks from the initial time that the order had been received by Government Pharmacy.

- Average time to dispatch an order once it had been approved and completed, was an additional five working days, or roughly three calendar weeks from the time that the order was initially received by Government Pharmacy. Thus on average, it took three weeks to fully process and despatch an order of drugs from the time that the order had been received at Government Pharmacy

The above findings are supportive of the fact that Government Pharmacy is effectively processing the orders that are being received from all of the health facilities, although this does not take into account the statistical spread involved that would give a better picture of processing efficiency. Based on these available data, provided that institutions submit their requisitions before the due date, their drugs will arrive on time.

Monitoring of order approval time, completion time and dispatch time will reveal potential bottlenecks in the system. Problem areas such as poor shipping services can be targeted if the delivery times appear to be longer than usual, whilst the approval and completion times remain the same.

Valuable though this information is, the survey did not take into account the important factor of customer satisfaction. It is not known what the users of Government Pharmacy's service really think of its efficiency.

Conclusions and recommendations

The survey has been useful to indicate the functioning of Pharmaceutical Services administration and drug delivery within the public sector. Some specific conclusions and recommendations arising from the study include:

- **Communication systems.** There appears to be a communication gap between the Government Pharmacy and the health facilities which results in poor flow of information between the two units. This conclusion is

made from the absence of essential documents produced and distributed by pharmaceutical services at the health facilities. It is however, recognised that documents may have been misplaced and removed following receipt.

There is a need to carry out a detailed investigation into communication between Government Pharmacy and the service users. Such investigation should look at the effectiveness of the existing reporting lines being used by the Ministry of Health (hierarchy based). Availability of up to-date information is crucial for service staff to perform effectively and independently. They must also be fully involved and able to influence decisions which will affect their practice.

- **Drug and Therapeutics Committees:** Whilst the need to establish local drug and therapeutics committees is accepted, little information has been gathered from this study to determine if the committees are operating effectively. The National Drug & Therapeutics Committee should provide guidelines to the local drug & therapeutics committees so that they can concentrate and act on a common agenda and which could possibly be used as the basis for future audits on effectiveness.

- **Inventory management:** Inventory management skills of health workers need to be upgraded and there is an urgent need to provide the tools necessary for efficient inventory management. There is a need to develop a stores management manual which contains information on good inventory management techniques. Training will be required to ensure that all health workers have basic inventory management skills. At the time of preparing this final report (February 1998) such a stores manual had recently been developed.

There appears to be a communication gap between the Government Pharmacy and the health facilities which results in poor flow of information between the two units.

Newer inpatient drug supply systems such as imprest and full for empty and drug treatment sheets are now being used in some of the public health facilities. Stock management cards should be a standard item provided by the Ministry of Health Stationery Section to assist with inventory management.

- **Essential drugs concepts:** The essential drugs concepts need to be actively promoted and explained to the health workers and prescribers in particular to elucidate greater acceptance of the Essential Drug List. The National Drug & Therapeutics Committee should conduct workshops to promote the essential drugs concept to all health workers. The second-yearly reviews of the Essential Drug List should involve as many prescribers as possible.

- **Drug information:** There is a need to provide independent drug information to all prescribers. A strategic plan should be developed by the Ministry of Health to provide independent drug information to all health workers.

- **Rational drug use:** Appropriate use of antibiotics must be targeted as one of the priority areas as far as the rational use of drugs is concerned, although the study has not conclusively proven a problem of irrational prescribing. The policy of prescribing by generic names must be constantly promoted. Appropriate counselling of patients to promote correct use of prescribed medicine should be given greater consideration by medical practitioners and pharmacists.

- **Collaboration and Training:** All guideline documents should be prepared collaboratively by the Ministry of Health and should be disseminated as widely as possible in order to ensure concordance from health workers. Monitoring of average patient consultation times and dispensing times to determine their impact on the medication counselling of patients, should be a continuous quality measure.

All expatriate medical staff should be provided with an essential drugs workshop before they commence their duties, and their prescribing practice monitored by drug audit at three, six and twelve months following their appointment. Those who do not meet ninety five percent compliance with the Fiji Essential Drug List should be counselled and if there is no improvement at the end of one year should be subject to termination of contract.

The collaborative development of therapeutic guidelines is seen as a key to improvement in rational drug use. Since the completion of this survey, the inaugural antibiotic guidelines have been published and disseminated. A plan is in place to produce draft guidlines during 1998 and 1999, and for these to be reviewed by a consultant and implemented by the year 2000.

- **Government Pharmacy efficiency:** Government Pharmacy appears to take approximately three weeks to dispatch an order from the date of receipt. Further research is necessary to investigate the efficiency of Government Pharmacy in dispatching orders.

Finally, a further but more comprehensive review should be undertaken in two years' time and the results compared with this baseline analysis.

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Gluttony is an emotional escape, a sign something is eating us.

Peter de Vries (1906 -) in Comfort me With Apples.