



Pharmacological

The Newsletter of the Rational Drug Use Directorate
Ministry of Health, Sultanate of Oman

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Welcome to the second edition of the newsletter from the Directorate of Rational Drug Use (DRDU), Ministry of Health. In general, the feedback from the first issue seems to have been favourable. This second edition intends to carry on where the first edition left off and we wish to continue to provide news, views, research articles and advice on all matters of rational drugs use.

This time the focus is mainly on news and articles of general interest relevant to rational drug use. There are quite a few research studies in the pipeline and hopefully they will appear in the next edition.



Part of a group of pharmacists who took part in a one day workshop on rational drug use research methodology held at the DGET Conference Room, Al Wattaya on 6 September , 2005

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The Essential Drugs Concept (EDC)

by
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The concept of essential drugs was launched by the WHO in 1975. By definition, essential drugs are those which satisfy the health care needs of the majority of the population. They should be available at all times in adequate amounts, in the appropriate dosage forms and at the lowest costs.

WHO's Essential Drugs List (EDL) is a compilation of essential drugs generally required for day-to-day medical practice. The drugs are classified under different therapeutic categories and the usual strength of the dosage form is also mentioned. The model EDL lists about 300 drugs and has undergone considerable review and modification over the years. The list of essential drugs for a particular country should be drawn from the model list after consultations amongst experts at the national level. Local experts in public health, medicine, pharmacology and drug management should be involved in ongoing review and updating of the list

The EDC in developing countries:

In developing countries, the main problem is lack of access to even the most basic drugs. Public funding for health care has been replaced by privatised health care with resultant inequality in access to health care. In many countries the problem is aggravated by

high drug prices in the private sector, irrational prescribing, waste of resources and lack of quality assurance. The best way to improve the situation is by bringing together all concerned to develop and implement a National Drug Policy on the basis of the EDC. This approach has been beneficial for many developing countries. Over 100 developing countries now have active essential drugs programmes. It is now generally accepted that the concept of essential drugs leads to better health care at a price the community can afford.



The EDC in developed countries:

In developed countries most drugs are paid by public funds or through insurance schemes. Unrestricted freedom to prescribe all drugs including expensive new drugs leads to enormous cost increases.¹ An increasing number of developed countries are now using key components of the essential drugs concept. Model treatment guidelines have been developed for use by hospitals and other health

¹ In fact the UK introduced a 'blacklist' of drugs which would no longer be available for prescribing on the NHS in 1985 [Ed.].

units. This development was triggered by spiralling drug costs and variations in the quality of health care.

Summary:

Essential drugs are the most cost-effective drugs for a given situation and are not second-rate drugs. Essential drugs lead to better quality health care. An Essential Drugs List provides a rational basis for drug procurement at national level and drug requirements at regional levels within the health care system. The concept of essential drugs is a global concept and is just as relevant in developed countries as it is in developing countries

Do We Need a GP and Assistant Pharmacist In Each Health Facility 24/7?

by
Ph Batool Jaffer Suleiman, Director, DRDU, MoH

Introduction:

A study was conducted by our department in South Batinah Region for the month of December 2004 comparing issues of antibiotics during working hours where treatment is carried out by GP and prescribed medication is dispensed by assistant pharmacist with issues after working hours where these duties are carried out in the treatment room by nurses.

The results from 3 health centres were as follows:

Results:

Antibiotic	Issued from pharmacy (morning)	Issued from treatment room (afternoon)
Health centre 1		
Amoxicillin susp.	54 bot.	175 bot.
Amoxicillin 250 mg cap.	1393 cap.	3000 cap.
Health centre 2		
Amoxicillin susp.	15 bot.	134 bot.
Amoxicillin 250 mg cap.	617 cap.	1535 cap.
Chloramphenicol eye drops	11 bot.	24 bot.
Tetracycline eye ointment.	6 tubes.	10 tubes.
Health centre 3		
Amoxicillin susp.	26 bot.	236 bot.
Amoxicillin 250 mg cap.	700 cap.	2229 cap.
Chloramphenicol eye drops	17 bot.	44 bot.
Tetracycline eye ointment.	5 tubes.	25 tubes.
Erythromycin 200mg/5mL susp.	6 bot.	17 bot.
Amoxicillin drops	4 bot.	16 bot.
Erythromycin stearate 250 mg tab.	54 tab.	88 tab.

Percentage of prescriptions during different shifts was:

Health centre	Total No. of prescriptions during Dec. 2004	% of prescriptions during working ² hours	% of prescriptions after working hours
1	1229	70%	30%
2	1019	43%	57%
3	1734	42%	58%

² "Working hours" are typically 7:30 to 14:30

Conclusions & Recommendations

It appears that there is overprescribing, particularly of antibiotics, after the traditional hours. In some health facilities the differences are enormous. There are several possibilities to consider.

1. There is a real patient need to use health services outside of 'normal hours' or 'working hours'.
 - ◆ *If this is the case then the overall staffing of health facilities should be revised and staff hours arranged accordingly*
2. Patients realise that there is no doctor or assistant pharmacist on duty after normal hours and that they are more likely to get what they demand.
 - ◆ *This could also be resolved by a change in the staffing policy and traditional hours of opening*
3. The nurse prescribers are not confident or strong enough to deal with patient demands
 - ◆ *An in-service training course or workshop should be organised to highlight these problems and train the nurse prescribers. They should learn to deal with patients in a non-confrontational way*

4. There is a gap in the knowledge of the nurse prescribers

- ◆ *These are key people in the health system but it is vital that they receive the same training as the GPs and the assistant pharmacists with regards to rational prescribing and use of drugs.*

Since 2001 similar studies have been carried out in some other health regions of the country and generally concur with the present findings.

Recommendation

It is highly recommended that nurse prescribers have a dedicated formulary of their own with a restricted list of drugs that they can prescribe.

Dermato Logical

by
Dr Brian C Gunn

The prescribing and dispensing of topical preparations is a major area of concern. In the past, little thought was given to the supply of these items to patients. It has been recognised that some form of standardisation is essential to prevent stock-piling, wastage or possibly under-treatment. Particular care needs to be

taken with the prescribing and dispensing of topical corticosteroids due to the potency of these preparations and the serious nature of side effects brought on by overuse. The fingertip unit is a sensible approach to the problem.

Fingertip units

One fingertip unit (FTU) is the amount of ointment or cream that is squeezed out from a standard tube along an adults fingertip. (This assumes the tube has a standard 5 mm diameter nozzle). A finger tip is defined as from the very end of the finger to the first crease in the finger.



One FTU is enough to treat an area of skin twice the size of the flat of an adult's hand with the fingers together.

Two FTUs are about the same as 1 g of topical steroid. Therefore, for example, say you treat an area of skin the size of eight adult hands. You will need four FTUs for each dose. (This is 2 g per dose. If the dose

is once a day, then a 30 g tube should last about 15 days of treatment.)

The following are further examples:

Area of skin to be treated (adults)	Size is roughly:	FTUs each dose (adults)
A hand and fingers (front and back)	About 2 adult hands	1 FTU
A foot (all over)	About 4 adult hands	2 FTUs
Front of chest and abdomen	About 14 adult hands	7 FTUs
Back and buttocks	About 14 adult hands	7 FTUs
Face and neck	About 5 adult hands	2.5 FTUs
An entire arm and hand	About 8 adult hands	4 FTUs
An entire leg and foot	About 16 adult hands	8 FTUs

Fingertip units and children

An FTU of cream or ointment is measured on an adult index finger before being rubbed onto a child. Again, one FTU is used to treat an area of skin on a child

equivalent to twice the size of the flat of an adult's hand with the fingers together. You can gauge the amount of topical steroid to use by using your (adult) hand to measure the amount of skin affected on the child. From this you can work out the amount of topical steroid to use.

The following gives a rough guide:

Child age	3-6 month	1-2 year	3-5 year	6-10 year
Entire face and neck	1	1.5	1.5	2
An entire arm and hand	1	1.5	2	2.5
An entire leg and foot	1.5	2	3	4.5
The entire front of chest and abdomen	1	2	3	3.5
The entire back including buttocks	1.5	3	3.5	5

Suitable quantities of corticosteroid preparations to be prescribed for different areas of the body are:³

Creams & Ointments	
Face & neck	15 – 30g
Both hands	15 – 30g
Scalp	15 – 30g
Both arms	30 – 60g
Both legs	100g

³ Adapted from BNF. Section 13.4 Topical corticosteroids

Trunk	100g
Groin & genitalia	15 – 30g
Usually suitable for an adult for twice daily application for 1 week	

Note that the quantities of other topical creams and ointments recommended for prescribing and dispensing are slightly more generous.

Ophthalmological

Eye drops or other solution drops.

For aqueous solutions of eye drops and some oral solutions it can also be difficult to estimate how much a patient might need to complete a course of treatment. It is generally taken that 1mL is approximately equivalent to 20 drops (naturally this will vary with the surface tension, the temperature and the nature and viscosity of different liquids) therefore a much better estimate of the quantity to supply can be made.



Bug Busting the Solution to Head Lice?

by

Ph Batoool Jaffer Suleiman

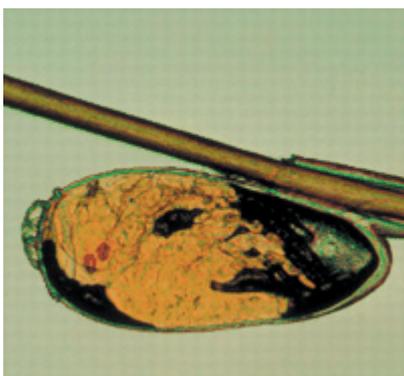
Head lice (*Pediculus capitis*) infestation is a common social disease particularly in children of around school age, particularly 3 – 11 years old.



Their presence does not mean a lack of hygiene

or sanitation practised by their host. However, most persons afflicted find it extremely embarrassing.

The adult lice establish themselves in any kind of hair (short, long, clean, dirty, dry or greasy) and glue their eggs or “nits” to the hair shaft near the root.



The adults feed on blood from the scalp. The effects of a full blown colonisation are itching, tenderness, flaking, secondary infections and a general feeling of malaise.

The disease has even entered the day to day language. If someone feels ‘lousy’ they are feeling pretty bad. The lice are very tenacious and fast moving and can easily pass from head to head on contact. They do not survive for long once they are removed from the body and they become very sluggish. More rarely, infestation can occur from using other peoples’ combs, hair brushes, hats, shared bedding, etc. As the lice do not survive away from a host for long this is still controversial.

For years different types of treatment have been tried from complete head shaving to potent insecticidal shampoos or lotions (pediculicides).

The former is too drastic and a traumatic experience for a child. The latter have been tried and found to be quite effective but resistance and relapse is a common occurrence and side effects are always a possibility. More recently wet combing



with special nit combs and using the patient’s own preferred conditioner and



shampoo has been proposed as the best treatment.

The '**Bug Buster Kit**' was introduced by Community Health Concern - a UK charity - and consists of 4 unique types of comb. The **Bug Buster** comb removes adult and baby lice. The mini **Bug Buster** combs are for small children and the kit also includes a **Nit Buster** for removing unsightly egg shells. A wider toothed detangling comb is used for preparing the hair for treatment.

The James Cook University, North Queensland, Australia recommends⁴ the use of plenty of conditioner on dry or wet hair. In addition to easing the use of the combs the conditioner stuns the lice and makes them easier to remove.

A recent single blinded randomised trial published in BMJ in August 2005⁵ showed that 'Bug Busting' was more than 4 times as effective as pediculicide treatment.

Advantages of the Bug Buster method

- Lice cannot become resistant (immune)
- Bug Busting fits in with a weekly hair washing schedule to keep on top of head lice.
- Bug Busting is a safe, no-pesticides way to cope with head lice routinely and in a crisis.

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<http://www.jcu.edu.au/school/phtm/PHTMhlice/hlinfo1.htm>

⁵ N Hill, et al, BMJ, **331**; 384-387, (2005)



The above picture shows the relative size of adult lice compared to a match and a pin head.



Dr Brian & Dr Ali, DRDU, summarising a 'brainstorming' session at a recent DRDU workshop for Muscat pharmacists

Drug Consumption vs. Drug Value

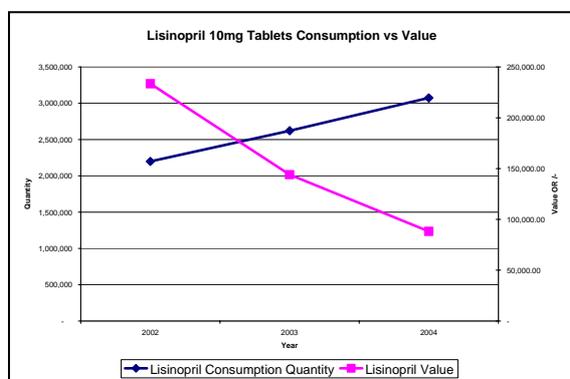
by
Dr Brian C Gunn

Drug management in the health unit is an essential part of the pharmacist and assistant pharmacist's duties and is an aid to rational drug use. It is important to know the cost of drugs consumed as well as the total consumption. However, the parameter which carries the most importance for the health unit is the actual drug consumption. Both individual drugs as well as therapeutic groups should be monitored.

Monitoring of drug consumption value alone can sometimes be misleading.

Lisinopril 10mg Tablets		2002	2003	2004
	Quantity		2,199,750	2,621,918
Value		233,546.53	144,078.22	88,263.09

For example, take the case of lisinopril 10mg tablets over the period of 2002 to 2004. The drug consumption value has declined steadily but the actual consumption has increased



Drug costs are controlled primarily by the Directorate General of Medical Supplies

and by purchasing centrally. DGMS purchases drugs aiming at the best quality and the best price. Drugs are purchased by tender from the GCC⁶ area or worldwide. Other strategies such as switching from a branded drug to a high quality generic can help to reduce costs. Another possibility of cost containment would be by limiting a therapeutic group of drugs (e.g. ACE 1 inhibitors) to only a few choices. Therefore a prescriber can only prescribe from the available selection. Such restrictions on 'me too'⁷ drugs are widely practised in many countries. The pharmacist and assistant pharmacist can help to control consumption value indirectly and that is by helping to reduce consumption quantity. This can be achieved by managerial policies within the health unit and by actively promoting rational drug use and training or educating other health workers and the general public.

There is a finite limit to the reduction in price of drugs by selective purchase. Once the highest quality generic has been purchased the price will inevitably 'bottom out'. Ultimately all prices will rise again in line with economic inflation.

⁶ GCC = Gulf Cooperation Council

⁷ The term 'me too' is often used to refer to drugs in the same therapeutic class with little or no clinical difference in their properties e.g. β -blockers, ACE I inhibitors, NSAIDs, etc

Thinking generically

There is much talk about generic prescribing and the use of generic names by health workers. The overall idea is not to substitute low quality unbranded drugs for well known, but expensive brand names. In fact pharmacists, doctors and other health workers should use the generic name of the drug exclusively as they will then be using the scientific name of the drug and talking the same language.

As you are aware there can be many brand names for a drug (over 200 for diclofenac in Micromedex® for example). With health workers in Oman coming from many different backgrounds and cultures there is a greater problem in communication of drug names and thus a potential risk for patients.

Many are familiar with the trade name Zeet® a brand of chlorpheniramine. This particular brand has not been available in Oman for many years but the name persists, probably because it is short and snappy and easily remembered. Paper prescriptions and hospital inpatient sheets are almost exclusively written by brand name.

To drive home the dangers of thinking only by brand name a recent article was highlighted in the **WHO Pharmaceuticals Newsletter**, No 2, 2005, p 2. The article refers to a 'Dear Health Professional'

letter from Eli Lilly & Company to advise on the prescribing of olanzapine and cetirizine which are often prescribed in error. At first sight it may seem incredible that these drugs would be mixed up until you examine their trade names: Zyprexa® (olanzapine) and Zyrtec® (cetirizine). By thinking only of trade names and storing these drugs together in the pharmacy or on the ward it can be seen how they might easily be mixed up.

Naturally there are also examples of generically named drugs with similar looking and sounding names. Overall, there is no substitute for absolute vigilance.

Role of the Pharmacist in Community Education

by

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As pharmacists throughout the world seek a new and expanded role for their profession to encompass all aspects of clinical care, they are increasingly pioneers or major role players in drug education programmes for the public. Community pharmacists are "natural" sources of information and education on medicines, although this requires a very clear awareness of separation between educational and commercial functions. The increasing

community education role of pharmacists is a welcome trend.

The “*Self-care*” programme of the Pharmaceutical Society of Australia encompasses a key collaborator in the government sponsored “*Be wise with medicines campaigns*” and a medicines information kit for school children. In Africa, the Lady Pharmacists Association of Ghana gives educational talks on medicine usage, in markets and workplaces. In Sweden, each year, following a different theme, a pharmaceutical care campaign is conducted in all pharmacies.

It is desirable that the role of the pharmacist be expanded in developing countries, particularly with a view to coping with the problems of poor access to essential drugs and the irrational use of drugs. This objective requires improved collaboration & cooperation between the medical and pharmacy professions.

The role of the pharmacist with respect to patient’s education should be to strive to deliver superior pharmaceutical care. Whether or not a prescription medicine is necessary, there is an opportunity to improve the therapeutic experience of patients and to assist them in achieving a better quality of life in the face of the disabling effects of diseases. However, if pharmaceutical care is truly to be provided, “*there must first be motivation to display both expert knowledge and sincere caring*”.

It is now a well recognized responsibility of the pharmacist to counsel the patient before

dispensing the medication. The role of pharmacist in the intervention and counselling about medication has led to significant improvement in the quality of health care. Patients now store greater confidence in their pharmacist for advice on proper and safe use of medication prescribed or purchased over the counter (OTC). During the process of counselling the pharmacist provides the patient with sufficient information about rational and safe use of the medications. This usually includes knowledge regarding the administration of all the various dosage forms, timing of the dose, duration of use, storage conditions, expected side effects, drug interactions, refill information and therapeutic intent whenever possible and necessary. Apart from ensuring the safe and appropriate use, the pharmacist also makes every possible and necessary effort to facilitate patient concordance. No rational therapy can achieve the desired therapeutic goal without this.

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Did you know?

by

Dr Brian C Gunn

Erythromycin is not useful in urinary tract infections because it is only partially excreted in the urine.

Glucocorticoids such as prednisolone should be taken in the morning as there is less possibility of hypothalamic-pituitary-adrenal (HPA) axis suppression.

In patients whose disease is unlikely to relapse, courses of prednisolone up to 40 mg per day can be stopped without tapering off.

Most statins should be taken in the evening as this is the major time for *de novo* cholesterol synthesis by the liver. With atorvastatin it is not so important as it has a longer elimination half life.

The first dose of an ACE 1 inhibitor should be taken just before bedtime, so there is less chance of syncope due to postural hypotension.

The maximum dose of diclofenac is 150mg per 24 hours by any route.

Elderly patients on long term antidepressant therapy are particularly susceptible to hyponatraemia as a side-effect.

The drug metoprolol was actually named by scientists with a sense of humour. Metoprolol is another β -blocker and a classic example of a 'me too' drug.

The drug warfarin was named after the Wisconsin Alumnae Research Foundation after discovery at University of Wisconsin, Madison. The profits from patents for this drug (and others) continue to drive medical research at this prestigious institution.

One millilitre (1mL) of an aqueous fluid contains approximately 20 drops at room temperature.

Doubling the dose of co-amoxiclav (**Augmentin®**) 375mg should never be done for a patient requiring 500mg of the amoxicillin component. This would mean the patient receiving 250mg of the clavulanic acid. One 375mg tablet should be co-prescribed with a 250mg capsule of amoxicillin.

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