Patients' Education
Sudan Journal for Rational Use of Medicine (SJRUM) is a quarterly publication produced by the National Medicine Information Center and Reference Library (NMICRL); Directorate General of Pharmacy; Federal Ministry of Health; Sudan. SJRUM is funded by Global Fund and technically supported by the World Health Organization. The first issue was published in September 2012. SJRUM aims to promote Rational Use of Medicines (RUM) through disseminating principles, views, news, and educating health providers about rational use of medicines. SJRUM targets health professionals; prescribers, pharmacists, and nurses. Each issue is centered on a theme; which usually is an important subject in RUM. SJRUM highlights in each issue the current situation in Sudan relevant to the theme, presented either by evidence from local research or with reliable anecdotal evidence. SJRUM includes research studies which aim to encourage young researchers to publish their work at national and international levels. SJRUM also includes a section for educational materials relevant to RUM relying mostly on the WHO educational materials and other reliable sources. The section of news reflects some important published news that may affect RUM practice. SJRUM includes some selected case studies, reflecting current practice at different health facilities in Sudan, so as to highlight the irrational aspects in order to overcome them.

As part of NMICRL activities, medical students and the public are endowed with leaflets and fliers on selected topics of SJRUM.

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Editorial

Dear fellows and readers

Welcome to the 12th issue of SJRUM.

It is always a pleasure to meet with you. We had a long journey of over two years now, going through many themes and issues of core importance to rational use of medicines. The one before us here is equally important; patient education. Great emphasis is placed on patient education because it is a key component in management, control and improving quality of life of patients with chronic diseases. Interest of patient education increased as the spread of diseases like diabetes and hypertension is increased.

On the coming pages you will find a brief description of where we stand, a focus on the patient rights, current topic, sound researches, news and a set of cases and educational materials that we hope to be of use and impact.

As always our readers are encouraged to visit our website www.sjrum.sd and indeed their contributions and comments are welcomed.

Dr. Nuha M. Agabna
Where are we from: Patients’ Education

Everyone within the healthcare setting has a role in patients’ education. Below are summery of data involving 7 national studies (1-7) addressing patients’ education:

A total of 46% of asthmatic patients (N=490) didn’t use their prescribed inhaled or orally administered anti-inflammatory medications (the preventers) regularly.

When evaluating the knowledge of diabetic patients, it was significantly improved ($p<0.05$) after the implementation of an educational program (N=152).

More than 50% of community pharmacist wasn’t able to demonstrate the optimal technique to use an asthma inhaler device (N = 300).

47% of the patients’ complaints (N=133) against their treating doctors at Sudan Medical Council 2005-2008, carry the cause of poor communications.

At Khartoum Teaching Hospitals, adequate patient knowledge regarding their medications was only 37% (N=100).

The knowledge of 81% of surgically operated patients (N=80) in Khartoum Teaching Hospital was very minimal.

Only 25% of patients with malignancy in Ibn Sina Hospital were told the truth about their disease (N=113).

References:

The principal aim of pharmacists is to use their own expertise to improve patient care, a responsibility that should always be shared between healthcare professionals. The role of pharmacists has extended dramatically over the past decade with increased bias towards patients to make the best use of their medications. As a result pharmacists have to join force with other healthcare professionals and increase their participation in patient care services. This would involve optimizing patients’ therapy through correcting or eliminating a medicine from patient’s drug regimen, educating and counseling patients on effective use of medications and identifying and correcting drug-related problems.

In Sudan, like many other developing countries; progress in pharmacy practice and pharmacy education are a mirror image of the country itself. Scarce resources drag back pharmacy education and practice. In spite of grim current situation, there is a strong and uniform desire among the pharmacy academics and practitioners to advance the science and practice of pharmacy.

To ensure optimal operational performance; currently six minimum standard requirements were determined: The leadership and practice management, drug information and patient education, optimizing medication therapy, drug distribution and control. Furthermore, adequate space, equipment, information resources and supplies should be available to support the professional and administrative functions and ensure a safe working environment for pharmacy staff (e.g. handling hazardous medicines), and drug therapy research.

Successful pharmacotherapeutic drug process requires changing the traditional attitudes and optimizing the practice setting. This in turn, can lead to development of quality pharmaceutical services in terms of improving patient health related quality of life.

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1. Lecturer of Pharmacy Practice, Faculty of Pharmacy, University of Sciences and Technology.
and acquiring of positive clinical outcomes with realistic economic expenditure. These goals can be achieved by establishing professional relationship between the physician, nurse, pharmacist and the patient for better record keeping of patient medical information, organization of information and recording them in a manner to accelerate access and evaluation of patient’s information. It is of prime importance to ensure accessibility to reliable and adequate information in order to educate the patient about disease, medications, review the therapeutic plan and modify when appropriate.

Pharmacists have continued to maintain their definitive responsibility for drug distribution and control, but globally their role has extended to include patient education and patient counseling, to keep abreast with the paradigm shift that took place in pharmacy profession. In fact, pharmacists now became responsible for orchestrating comprehensive services that integrate drug dispensing and drug distribution with informative services that included patient education.

Patient education activities include all needed information that improve and satisfy medicine use by patients for prescribed medications, self medications, compliance, drug monitoring, and nutrition and disease prevention.

For successful provision of patient education, pharmacists, being the last persons in the chain of healthcare delivery at a point of most effective education can take place, should effectively communicate with patients as well as the other healthcare providers.

To achieve making the required shift, a new vision for the desired pharmacy practice needs should be considered for reorientation of pharmacy services in the existing system. This will strengthen the basic pharmaceutical system before implementing advanced pharmaceutical services. Furthermore, pharmacy educational curricula need to be regularly revised and updated to accommodate the increasing development in education and the evolving new roles of pharmacists.

Radical change does not necessarily take place quickly; however, a gradual shift in the professional role of pharmacists should be facilitated by reviewing the regulations that address the new role.

References:
3. ASHP Guidelines: Minimum Standard for Pharmacies in Hospitals (Updated 2012)
Ahmed Abdel Aziz is a 52-year-old male accountant who was diagnosed with type 2 diabetes 3 years ago; he came to the Primary Health Care complaining of paresthesia and pain in both feet, he was referred to a specialized diabetic clinic. He was diagnosed with diabetic neuropathy. Ahmed is obese, with poor glycaemic and diet control, he also has compliance problem partly for being careless and partly for experiencing side effects.

Problems:
- The patient had poor blood glucose control which lead to the long-term complications diabetic neuropathy.
- Non compliance with medication and lifestyle changes reflect deficiencies in patient education.

Solutions:
- Health providers are responsible for educating patients with diabetes about their disease, short and long term complications, the importance of controlling serum glucose level and the significance of the therapeutic interventions, their effects and side effects.
- Patient education for diabetic patients should include the required changes in lifestyle such as body weight control, diet and physical activity.
- Patient education should be continuous; patients with long history of the disease should not be excluded as people tend to fall into bad habits.
- Regarding diabetes, all health care givers are educators; they must perform their roles fully and in harmony with other members. Teamwork does not mean relying on others to deliver education on your behalf.

Supplementing verbal education with reading materials, referral to reliable web sites and engaging in patient communities enhance learning and have positive effect on compliance and disease control.
Improper Use of Inhalers Leads to Failure of Control of Asthma!

Improper Use of Inhalers Leads to Failure of Control of Asthma!

Hamid M. Hamid1

Nadera Mohammed, a 7 year old child, with history of bronchial asthma, he attended the asthma refer clinic complaining of shortness of breath, cough and tight chest. She needed to use salbutamol more than two times per week. After assessment she was prescribed the following medications:

• Salbutamol Metered Dose Inhaler as needed
• Low dose Inhaled Corticosteroid, 1 puff two times per day

In the next follow-up visit, her asthma was found uncontrolled (using the salbutamol inhaler on daily bases) the patient was complaining of tremor and tachycardia. Upon full assessment and excluding other factors, the patient was asked about the use of her medications, the parents stated that they are using the medications as prescribed for her. Assessment of inhalation techniques revealed that there is improper use of inhalers. A proper education and demonstration on the inhalation technique was done to the patient and her parents and they were advised to use spacer. In a 2 weeks follow-up visit Nadera was found to be well controlled.

Problems:

• Improper use of inhalers leads to failure of control of asthma, overuse of salbutamol inhaler and development of side effects.
• The healthcare providers did not educate the patient and parents about the inhalation technique, and other messages necessary for asthma patients.

Solutions:

• Asthma patients should be properly educated about the disease, the sequel of stopping treatment, degree of control, medicine effects and adverse effects, inhalation technique, outcome of treatment, triggers of acute asthma and exacerbations, when to seek advice, when to go to emergency department.
• The healthcare providers did not educate the patient and parents about the inhalation technique, and other messages necessary for asthma patients.
• Supplemented with reading materials, or referred to reliable websites.

1. Lecturer of Pharmacotherapy, College of Pharmacy, Qassim University.
Fatima, 7 years old girl, was diagnosed with epilepsy two years ago, her seizures controlled with carbamazepine 200 CR (controlled release) formulation. Fatima’s mother always refilled her prescription from a neighboring pharmacy. The community pharmacist followed-up the case since diagnosis, and performs counseling upon each refill. During her school holiday, in which she was staying over with her aunt in another city, Fatima’s medication ran out and her prescription was left at home. In the nearest pharmacy the pharmacist provided a short course of the medication as "carbamazepine 200 mg" according to what mentioned by Fatima’s mother over the phone, waiting for the mother to send the prescription. Fatima took her medication regularly for one week but this morning she suffered episode of seizures and she was taken to the emergency. After been stabilized, the clinical pharmacist noticed that the original prescription is CR formulation while the lately dispensed medication is a conventional formulation. He educates Fatima and aunt about the differences between the two formulations and importance of adherence to the CR formulation which controls her seizures.

Problems:
- The pharmacist responds to a verbal order without ensuring the right medication (strip of the medicine should contain all information!). This leads to failure of therapy due to incomplete information.
- The patient and her mother were not counseled properly about the specific form of the medication (controlled released formulation CR).

Solutions:
- Care should be taken when responding to verbal orders and the medication name and dose should be ensured many times. The pharmacist should use techniques to ensure a correct medication (like asking for a photo of a prescription to be sent or asking about the spelling of the medication from the prescription, or its price) rather than recall it.
- Patient education about specific formulations should be an essential part of therapeutic plan, since the technique of formulation might affect the bioavailability.
Evaluation of Intravenous Administration in General Hospital

Wafaa A. Altahir1, Elamin I. Elnima2, Rashida A. Mohamed3

Introduction:

Intravenous (I.V) therapy has high risk of drug errors1. This is due to their greater complexity and the multiple steps required in their preparation, administration and monitoring2.

This study was conducted to quantify the type and frequency of medication errors related to intravenous therapy. The cases were measured against the standards of the American Society of Hospital Pharmacists (ASHP) for complete drug order3. Here, I.V therapy error was defined as any deviation from doctor’s prescription, manufactures’ instructions, and reference books. The sources5, 6, 7 and product leaflets were used as references regarding IV drug preparation and administration.

Method:

This was a descriptive, cross-sectional study conducted in four adults’ long-stay medicine and surgery wards, selected by simple random sampling in a general hospital.

Data was collected by a checklist on 6th to 17th February 2014. Observations were recorded on the ward on peak time of drug administration on both morning and afternoon shifts. Each ward was observed for two working days. Every I.V administration was considered as a new observation irrespective to the nurse or patient repetition.

Results and Discussion:

Table 1: Detected error types during intravenous dose preparation by nurses.

<table>
<thead>
<tr>
<th>Type of error</th>
<th>n/N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate drug</td>
<td>14/76</td>
<td>18.4</td>
</tr>
<tr>
<td>Inappropriate dose</td>
<td>15/76</td>
<td>19.7</td>
</tr>
<tr>
<td>Inappropriate diluent</td>
<td>8/76</td>
<td>10.5</td>
</tr>
<tr>
<td>Inaccurate diluent volume</td>
<td>49/62</td>
<td>79</td>
</tr>
<tr>
<td>Inappropriate infusion fluid</td>
<td>6/14</td>
<td>42.9</td>
</tr>
<tr>
<td>Inaccurate infusion fluid’s volume</td>
<td>4/14</td>
<td>28.6</td>
</tr>
<tr>
<td>Improper mixing (IV admixtures)</td>
<td>14/14</td>
<td>100</td>
</tr>
<tr>
<td>Improper mixing (IV injections)</td>
<td>27/62</td>
<td>43.5</td>
</tr>
</tbody>
</table>

1. Clinical Pharmacist, wafaa_abdulateef@hotmail.com.
2. Faculty of Pharmacy, University of Khartoum.
3. Faculty of Nursing Science, University of Khartoum.
Table 2: Detected error types during IV dose administration by nurses.

<table>
<thead>
<tr>
<th>Type of error</th>
<th>n/N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unauthorized injection</td>
<td>10/75</td>
<td>13.3</td>
</tr>
<tr>
<td>inappropriate drug dose</td>
<td>39/75</td>
<td>52</td>
</tr>
<tr>
<td>Inappropriate infusion rate (bolus)</td>
<td>74/75</td>
<td>98.6 (97.3 rapid rate 1.3 slow rate)</td>
</tr>
<tr>
<td>Unauthorized infusion</td>
<td>9/55</td>
<td>18.2</td>
</tr>
<tr>
<td>Inappropriate infusion rate (infusions)</td>
<td>29/55</td>
<td>52.8 (45.5 rapid rate 7.3 slow rate)</td>
</tr>
<tr>
<td>inappropriate infusion strength/dose</td>
<td>9/55</td>
<td>16.4</td>
</tr>
<tr>
<td>inappropriate route</td>
<td>21/130</td>
<td>16.2</td>
</tr>
<tr>
<td>Administration of expired injection/infusion</td>
<td>0/130</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: Prescription errors according to ASHP criteria for complete drug order.

<table>
<thead>
<tr>
<th></th>
<th>n/N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omission of date</td>
<td>4/104</td>
<td>3.8</td>
</tr>
<tr>
<td>Omission of drug/infusion name</td>
<td>0/104</td>
<td>0</td>
</tr>
<tr>
<td>Omission of drug dose</td>
<td>5/62</td>
<td>8.1</td>
</tr>
<tr>
<td>Omission of infusion dose/strength</td>
<td>14/42</td>
<td>33.3</td>
</tr>
<tr>
<td>Omission of route of administration</td>
<td>63/104</td>
<td>60.6</td>
</tr>
<tr>
<td>Omission of frequency of administration</td>
<td>12/104</td>
<td>11.5</td>
</tr>
<tr>
<td>Omission of prescriber’s name</td>
<td>85/104</td>
<td>81.7</td>
</tr>
</tbody>
</table>
Table (1): Shows the errors made by nurses during preparation of IV doses. Improper mixing was recorded 14 times out of 14 (100%), this is a very alarming and serious finding. Also use of inappropriate diluents was recorded 79% of the times. However, these findings are close to those reported by a study 2005 in Europe.

Regarding the administration process (Table 2), wrong infusion rate was the common type of error (97.3%). Of these observed intravenous injections 45.5% were given at a faster rate when compared with the recommended rates by manufactures or reference books. Fast rates of drug administration are associated with pain, phlebitis and loss of cannula patency irrespective to the characteristics of administered drug.

This study also recorded administration of a doses that were greater than or less than the amount ordered by the prescriber or administration of duplicate doses to the patient.

Administration of I.V medication prescribed by authorized personnel was observed in 10 out of 75 injections (13%) and 9 out of 55 infusions (18.1%).

Analysis of prescriptions for intravenous medications showed numerous omissions (Table 3), especially prescriber’s name (81.7%), route of administration (60.6%) and dose or strength (33.3%).

**Conclusion and Recommendation:**

Prescribing, dose preparation, and administration of intravenous drugs should be optimized to standards. Further studies are needed to verify the impact of medication errors.

References:
Diarrhoea and Dehydration

Introduction:

Diarrhoea is common in children under 3 years particularly in infants under 6 months who are not breast fed. Diarrhea can be classified into two types; acute diarrhoea (lasting less than 14 days) and persistent diarrhoea (lasting more than 14-days-it may be continuous or episodic). Bloody stool can be indicative of amoebic or bacillary dysentery.

History, Symptoms and Signs:

The onset may be very abrupt.
- The stools are characteristically frequent, watery, and green or bright orange in colour.

Signs of dehydration which rapidly appear include:
- Irritability and/or deterioration in level of consciousness.
- Sudden weight loss
- Dry mouth and tongue
- Depressed fontanel
- The skin, when pinched, remains folded
- Sunken eyes with loss of tears
- Rapid weak pulse and a low blood pressure
- Capillary refill time more than 2 seconds
- Decrease urine output

Investigations:

Diagnosis mainly clinical
1. Stool General.
2. Urea and electrolytes.

The steps to treat diarrhea are shown in the chart below

<table>
<thead>
<tr>
<th>1</th>
<th>Assess degree of dehydration</th>
<th>As for symptoms and look for signs indicating other problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Select treatment and treat appropriately for degree of dehydration</td>
<td>Treat for any other problems</td>
</tr>
<tr>
<td>3</td>
<td>Counsel mother</td>
<td>Teach mothers to give ORS and zinc (if available). Explain good food choices, including breast-feeding</td>
</tr>
</tbody>
</table>

Assessment of Severity:

<table>
<thead>
<tr>
<th>1. Look</th>
<th>A- any 2 signs of the below</th>
<th>B- any 2 signs of the below</th>
<th>C- any signs of the below</th>
</tr>
</thead>
<tbody>
<tr>
<td>General condition</td>
<td>Well alert</td>
<td>Restless, irritable</td>
<td>Lethargic or unconscious</td>
</tr>
<tr>
<td>Eyes</td>
<td>Normal and dry</td>
<td>Sunken</td>
<td>Very sunken</td>
</tr>
<tr>
<td>Tears</td>
<td>Present</td>
<td>Absent</td>
<td>Absent</td>
</tr>
<tr>
<td>Mouth and Tongue</td>
<td>Moist</td>
<td>Dry</td>
<td>Very dry</td>
</tr>
<tr>
<td>Thirst</td>
<td>Drinks normally, not thirsty</td>
<td>Thirsty, drinks eagerly</td>
<td>Drinks poorly</td>
</tr>
<tr>
<td>Capillary refill</td>
<td>&lt;2 sec.</td>
<td>2-4 sec.</td>
<td>&gt; 4 sec</td>
</tr>
</tbody>
</table>
2. Feel

Skin pinch
- Goes back quickly
- Goes back slowly
- Goes back very slowly

Fontanel
- Normal
- Depressed
- Very depressed

Heart rate
- Normal rate & volume
- Rapid rate, small volume
- Very rapid rate, small or not palpable volume

3. Classify

- No signs of dehydration
- Some signs of dehydration
- Severe dehydration

4. Hydration plan

Plan A
Plan B
Plan C

Pharmacological, non pharmacological Treatment and follow-up:
Adopted by Integrated Management of Childhood Illness (IMCI)

Plan A: Treat Diarrhoea at Home
- Give Extra Fluid for Diarrhoea and continue feeding
- No signs of dehydration
- Some signs of dehydration
- Severe dehydration

Plan B: Treat Some Dehydration with ORS
- TOXIC INFECTIONS
- 6-9 months: 50 ml/kg every 2 hours
- 9-12 months: 60 ml/kg every 2 hours
- 12 months or older: 100 ml/kg every 2 hours

Plan C: Treat Severe Dehydration Quickly
- Follow the advice if abdominal pain or vomiting stops for 3-4 hours
- Follow the advice if the child looks and acts better
- Follow the advice if the child gains weight

Mother Education:
A. Breastfeeding: Infants should be exclusively breastfed during the first months. Breastfeeding should be continued until at least 2 years of age, but complementary foods should normally be started at 6 months of age. Feeding bottles and teats should never be used.
B. Use of safe water (boil).
C. Hand washing: Hands can easily spread diarrhoeal diseases.
D. Maintain immunization especially that of Rota virus and Measles immunizations.

Reference:
The concept of patient rights has emerged with the developments in the concept of human rights and their reflection in medicine. It only started to be a subject of discussion after the 1970s and made its way to international texts on the 1980s.

Human rights in patient care refer to the theoretical and practical application of general human rights principles to the patient care context, particularly to interactions between patients and providers. It applies rights’ principles universally to a context or setting.

The modern movement for patients’ rights emerged out of increasing concern about human rights abuses in health care settings, particularly in countries where patients are assuming a greater share of health care costs and thus expect to have their rights as “consumers” respected in return.

Internationally, the World Health Organization in seeking to reaffirm fundamental human rights in health care to promote respect of the patient as a person adopted in 1994 a Declaration on the Promotion of Patients’ Rights in Europe. The declaration seeks to highlight the relationship between the patient and health care providers, to encourage the active participation of patients in their treatment and to humanize the assistance they receive. It presents the patient rights by detailing it under six main topics as shown in figure 1.

Figure 1: the six domains of patient rights as stated by the declaration on the promotion of patients’ rights in Europe

On the other hand in 1998, the US advisory commission on Consumer protection and quality in health care industry adopted what was called Patient’s bill of rights. The Bill was originally developed in 1973 by the American Hospital Association to affirm the rights of patients. The Bill of rights as defined by the US Advisory commission is “Patient rights encompass legal and ethical issues in the provider-patient relationship, including a person’s right to privacy, the right to quality medical care without prejudices, the right to make informed decisions about care and treatment options, and to right to refuse treatment”.

Worldwide the issue of patient rights is developing and encompassing the different aspects of healthcare. As an application of the patient right for information, different health societies and organizations adopted or developed their own patients’ bill of rights e.g. nurse and pharmacists associations. Moreover, the private healthcare institutes (hospitals, pharmacies, labs) of Europe and USA have their own patient bill of rights published on their websites.

The question now is: Where are we in Sudan from the theory and application of patient rights?

The Sudan National Health Policy of 2007 produced by the Federal Ministry of Health devoted a separate section to reflect the issue of patient rights under the title of “Consumer satisfaction and patients’ rights”. The policy calls for developing a Patients’ Bill of Rights that will provide, inter-alia, information on people’s rights in relation to information disclosure; choice of providers and treatment plans; access to emergency services; participation in treatment decisions; respect and non-discrimination; confidentiality of health information; complaints and appeals.

In 2008 the Quality Directorate within the FMoH developed a Patients’ Rights Bill. The document falls into four main domains: availability of basic services, receiving health services without difficulties, waiting areas with proper environment and receiving decent clinical services.

No one can deny that this document is a step forward for accomplishing patients’ satisfaction in healthcare services provided, however the document focus on the patient rights when dealing with physicians only. Not to forget that providing health is a complementary process between all members of the healthcare team (physician, pharmacist, nurse, lab technician, nutritionist …), one can say that this document need to be updated to embrace patient rights in its all aspects.

References:
2. Declaration on the promotion of patients’ rights in Europe, European consultation on the rights of patients in Amsterdam, World Health Organization, march 1994.
Tips on How to Use Eye Ointment

Eye ointments are a sterile pharmaceutical dosage forms applied inside the lower eyelid to produce a local effect directly on the eye and therefore they must be instilled correctly. They should generally be stored in a cool dry place (always check manufacturer specifications) and once eye preparation have been opened they should be disposed of after 28 days.

Professionals should clearly explain the following steps to their patients:

1. Wash your hands.
2. Sit in front of a mirror so you can see what you are doing.
3. Take the lid off the ointment.
4. Tip your head back.
5. Gently pull down your lower eyelid and look up.
6. Hold the tube above the eye and gently squeeze a 1cm line of ointment along the inside of the lower eyelid, taking care not to touch the eye or eyelashes with the tip of the tube.
7. Blink your eyes to spread the ointment over the surface of the eyeball.
8. Wipe away any excess ointment with a clean tissue.
9. Replace the lid on the tube.
10. Take care not to touch the tip of the tube with your fingers.

Other useful advice

- In case of the concurrent use with eye drops, the drops should be installed first, then after five minutes the ointment can be applied.
- In case of vision blurriness, eyes should not be rubbed. The blurring will clear after a few moments of blinking.

Adapted From:
http://www.netdoctor.co.uk/medicines/eyes/a5331/how-to-use-your-eye-ointment/.

Q. What is patient education?

A. Patient education is an indispensable component of current health care; it is a planned, systematic, sequential and logical process of teaching and learning providers to patients by healthcare team in all clinical settings. It is a continuous process involving the patient and/or patient’s family.

Q. What are the benefits from patient education?

A. The benefits of patient education include: increasing the patient's ability to cope with and manage his or her health, facilitating understandings of health status (diagnosis and treatment options, and consequences of care for patients and their families), enabling patients to make decisions related to their care, increasing patients' potential to follow a health care plan, helping patients to adopt healthy behaviours, promoting recovery increasing patient confidence in his or herself care, decreasing treatment complications.

Q. What is the basic information that patient should educate for?

A. Patients can be made aware of their disease process and potential treatment options, and how to administer the medicine safely and appropriately by basic understanding about the benefits/side effects of their prescribed medicines, route of administration, duration of use, storage condition.

Q. What are the different methods of patient education?

A. There are many methods to deliver patient education, among them one-to-one teaching, demonstrations, and vivid word pictures to grasp the concepts. Also can use one or more of the following teaching tools: brochures or other printed materials, podcasts, videos or DVDs, PowerPoint presentations, posters or charts, models, group classes, trained peer educators.

Q. On what bases you select effective material?

A. Patient education resources have the ability to change communication into action and improve health. The type of resources varies from person to person. Using a mixed media approach often provides better results. In some cases, it may not be possible to get the right materials for the patients' needs (e.g. when materials for new treatments in certain languages or on sensitive topics are not available). Instead, try having a discussion with the patient on sensitive topics or creating tools according to the patient's needs.

Q. How to provide effective patient education?

• Take advantage of modern technological advances.

• Find a suitable method to suite the patient’s learning needs. Stimulate the patient’s interest.

• Consider the patient’s limitations and strengths.

• Include family members when appropriate.

Mobile Apps Used to Improve Medication Adherence

mHealth news May 2015

An article published in mHealth news reports findings from a study that tested a mobile phone app to remind patients about taking their medication. Although medical science has seen major advances in the management of chronic diseases; some patients are not getting the benefits because they are non-adherent.

The U.S. based National Council on Patient Information and Education has advocated the use of Information Technology to overcome this problem. This resulted in a proliferation of up to 40,000 health apps that are currently available in the internet. However, most of these apps provide information on diet and exercise and do not disregard the need for a face to face counseling and advice session from the health provider.

One App, has demonstrated statistically significant improvements in glucose control (via A1c tracking), though there are some concerns regarding the study design.

There is an obvious potential associated with apps and improved medication adherence. Patients carry smart phones with them wherever they go which means that app reminders and alerts could prompt them to take their medications as intended. That, in and of itself, can go a long way in getting patients on the right medication adherence track.

Africa, a Polio Free Continent?

WHO August 2015

The 11th of August marks a year since the last polio case was reported in Africa. This was achieved by concerted efforts from the WHO and member countries to eradicate Polio in Africa by the year 2018. Nigeria was the country with endemic wild polio and if the country doesn’t report any more cases for the next two years, Africa will be considered free from polio.

Introduction of Inactivated Poliovirus Vaccine with Oral Poliovirus Vaccine

FMoH 2015

In spite of progress already made towards the goal of global eradication of poliomyelitis (polio), the risk of paralytic poliomyelitis is changing in many geographical areas. This risk is associated with continued routine immunization using oral poliovirus vaccine (OPV). Therefore an injectable inactivated poliovirus vaccine (IPV) was recommended. IPV is made of polio virus which is inactivated and hence it doesn’t cause vaccine associated paralytic poliomyelitis (VAPP).

Sudan is one of the countries that introduced inactivated poliovirus vaccine in 2015 (using a sequential OPV/IPV schedule); National Immunization Program conducted training programs targeting health workers in the immunization field, providing reliable information regarding importance of introducing (IPV) vaccine to the immunization schedule, advantages, precautions, its safety data, storage and handling requirements.

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Patient education is an integral part of self management and control of chronic diseases. The role of health professionals in patient care ends with end of contact. Therefore the patients and/or his family continue to care for the patient. To be able to do this they need to know about the disease, its management and medicines to carry out the recommended actions.

Patient education is any set of planned educational activities, using a combination of methods - like teaching, counseling, and behavior modification- that is designed to improve patients’ knowledge and health behaviors. All health care professionals; specialists, physicians, nurses, pharmacist, healthcare administrators, and allied health care professionals can deliver patient education.

There are different methods to deliver patient education, through lectures, demonstrations, reading materials, audiovisual materials or computer based learning. Many studies assessed the effectiveness of these different methods in delivery of information, reducing anxiety and influencing behavior. Generally it can be said that all methods are effective and the variations were not great when measuring immediate responses. However, recall and behavioral changes varied when assessed at longer periods (after 6 month). This is inevitable as people tend to forget and relapse into old habits.

A useful conclusion to draw: is that patient education should be repeated again and again to update knowledge and motivate behavioral changes.

Looking at our local practice; patient education is conducted on individual bases when the patient comes in contact with the health professional. This method of delivery is a good one; however, the education might not be thorough due to limited time, high work load or environmental distracters. The development and use of structured patient education manuals can help reduce this shortcoming.

It is wise to remind health care professionals that the effort and economic cost of initiating patient education is not huge, and that benefits by far exceed the cost.

There is a large pool of patient education materials whether printed or audiovisual, that are “tailored” to patients in easy to understand formats. Health professional can reproduce these materials, or direct their patients to these resources. Some of these sites are the Medline Plus www.nlm.nih.gov, UNICEF Arabic leaflets and posters www.unicef.org.uk, www.ntw.nhs.uk, brochure catalogue from www.health.qld.gov.au and the hand outs of Rochester General System www.rochestergeneral.org.

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Diabetes patient education has long been recognized as a vital and integral component of successful diabetes care. However, complex and daily requirements such as medication taking and adjustment, self-monitoring of blood glucose (SMBG), foot care, dietary modification and attendance for regular medical care place a psychological and financial burden on people with diabetes.

From literature review of education theories, it is very clear that there is no one theory which can be used for all people in all situations, there is general agreement that the learner must be an active participant in the learning process and that there must be a variety of learning experiences for optimal learning to occur.

The National Australian Consensus Report defined diabetes patient education as: “an interactive process that facilitates and supports the individual and/or their families, carers or significant social contacts to acquire and apply the knowledge; confidence; practical, problem-solving and coping skills needed to manage their life with diabetes to achieve the best possible outcomes within their own unique circumstances”

Diabetes education should have a documented curriculum with specific aims and learning objectives and should be delivered by a trained educator. Many international guidelines advocate the involvement of physicians (e.g. primary care, endocrinologist, obstetrician-gynecologist, ophthalmologist), registered nurses, dietitians and pharmacists as key primary educators. **Diabetic patients education should be individualized and focus on each patient needs. It should be structured for each patient according to his/her level of education.**

**Structured diabetes patient education should focus on indicators and clinical outcomes that include**
- Knowledge
- Self-management and behavior change
- Dietary habits
- Physical activity
- Foot care
- Adherence to medical treatment and care
- Self monitoring of blood glucose
- Smoking

**Clinical outcomes**
- Glycaemic control - HbA1c
- Lipid
- Blood pressure
- Body weight

**Psychological adjustment and self-determination**
- Well-being
- Quality of life
- Depression and anxiety
- Empowerment
- Self-efficacy

**Long-term outcomes**
- Mortality
- Complications (cardiovascular, end stage renal failure and retinopathy, foot

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Proper patient education should include the basic elements of knowledge and skills as shown in figure 1.

**Key Messages All Health Care Providers Can Reinforce**

- Emphasize the importance of metabolic control and the control of other cardiovascular risk factors such as the ABCs.
- Promote a healthy lifestyle that includes physical activity, healthy eating, and coping skills.
- Explain the benefits of diabetes comprehensive team care.
- Recommend routine checkups to prevent complications: a dental exam, a comprehensive foot exam, and a complete dilated eye exam.
- Reinforce self-exams for foot care and dental care, and others as appropriate.
- Recognize the danger signs for foot and dental problems and seek help from a health care provider.
- Promote the pharmacist’s role in drug therapy management.

**References:**

1. WHO, Therapeutic Patient Education Continuing Education Programmes for Health Care Providers in the Field of Prevention of Chronic Diseases.

2. National Evidence Based Guideline For Patient Education in Type 2 Diabetes Prepared by: The Diabetes Unit Menzies Centre for Health Policy The University of Sydney For the: Diabetes Australia Guideline Development Consortium, 2009.
Teaching Mothers How to Administer Medications for Local Infections at Home

Ali M. Arabi

Imparting appropriate information and making sure that the message is understood is a fundamental requirement to ensure compliance. Effective communication and patient teaching are very useful skills for health professionals. In this educational material we encourage healthcare providers to teach mothers how to treat local infections at home.

Generally, when teaching mothers/care givers ensure that you:

• Give information: explain to the mother what the treatment is and why it should be given. Describe the treatment steps.

• Ask the mother to demonstrate: watch the mother as she does the first treatment in the clinic. Comment on her performance and repeat the important pieces of information e.g. how often to do the treatment at home.

• Check the mother’s understanding before she leaves the clinic.

1. How to Treat Eye Infection

Both eyes should be cleaned three times daily (morning, midday and evening). Cleaning should be continued until the redness has cleared (infection cleared). It is important not to put anything other than the prescribed medication on the eye. The optimum amount of the medicine is the size of a rice grain to be placed on the lower lid. Both eyes should be treated to prevent transfer of infection. The medication might sting the eyes. If after two days of treatment the eyes are still red the child should be brought back to the doctor.

After imparting the above information, the following steps should be explained, demonstrated, and check their understanding:

• Wash hands before and after treating the eye.

• Have someone (the mother) hold the child still.

• Clean the child’s eyes Lust before applying the medicine, by using a clean cloth to wipe the eye.

• Hold down the lower lid. Care should be taken so that the tube does not touch the eye or lid.

• Squirt the ointment (or other) onto the lower lid.

2. How to Treat Ear Infection

Drying the infected ear by wicking assists healing and increases the benefit of medication. The ears should be dried three times a day (morning, midday and evening). Clean absorbent cotton cloth or soft strong tissue paper should be rolled to wick. Do not use ear swaps, sticks or flimsy paper for wicking. The ears should be dried until the ears are no

1. Director General Dr. Gafar Ibnouf Paediatric Tertiary Hospital Khartoum, Sudan.
longer wet. It is important to tell the mother not to put anything in the ear like oil, water or else. It is necessary not to allow water to enter the ear, avoid activities like swimming.

**Steps to dry/wick the ear:**
- Roll clean absorbent cloth or soft, strong tissue paper into a wick.
- Place the wick in the child’s ear, allow it to absorb, and then remove the wick when wet.
- Replace the wick with a clean one and repeat these steps until the ear is dry.

3. **How to treat mouth ulcers**
The importance of the treatment/intervention can never be underestimated. Cleaning mouth ulcers allows the child to eat and drink, and to heal sooner. The mouth should be cleaned twice daily (morning and evening) for five days. The gentian violet (half strength) will kill germs that cause the ulcers.

The following are the steps to clean mouth ulcers:
- Wrap a clean soft cloth around the finger.
- Dip it in salt water. Wipe the mouth.
- Use a clean cloth or a cotton-tipped stick to paint gentian violet on the mouth ulcers.

Put a small amount of gentian violet on the cloth or stick. Do not let the child drink the gentian violet.

4. **How to soothe the throat and relief cough**
To soothe the throat or relieve cough, use a safe remedy, this can be homemade, given at the clinic, or bought from the pharmacy. It is important that they are safe. Homemade remedies are as effective as those bought in a pharmacy. Safe remedies to recommend include: breastmilk for exclusively breastfed infant, karkadeh, lemon juice, bee honey, and ginger. Use of chemical remedies (cough medicines) and harmful practices (removal of the uvula, and use of oil as nasal drops) should be strictly discouraged.

Never use remedies that contain atropine, codeine or its derivatives, or alcohol. These substances may sedate the child, and may interfere with the child’s feeding as well as the interference with child’s ability to cough up secretions from the lungs. Medicated nasal drops (that contain anything other than salt) should also not be used.

**Adapted From:**
Smartphone Medical Applications at your Hand

Sarah A. Kareem

A cell phone or smartphone can do so much more than make calls, send text messages, and surf the internet. Over the past decade, smartphones have radically changed many aspects of our everyday lives; medical practice is also on board.

Health care providers all over the world are increasingly relying on smartphones as a “pocket brain” for quick, easy access to information they need.

Numerous applications (apps) are now available to assist healthcare providers with many important tasks, such as: information and time management; health record maintenance and access; communications and consulting; reference and information gathering; patient management and monitoring; clinical decision-making; and medical education and training.

Here we will present some of the freely available medical apps that are frequently used by healthcare providers for your information.

Epocrates
- Epocrates enables physicians to review medicines prescribing and safety information, perform calculations like BMI and GFR and access medical news and research.
- Copatable with Android and iPhone.

Medscape
- Medscape offers prescribing and safety information for medicines, procedure videos and medical calculator. It can retrieve news articles from 34 different health fields.
- Copatable with Android and iPhone

WebMD
- WebMD app allows users to research conditions, check symptoms in a very easy way and review prescription medications side effects, interactions with other products and overdose symptoms.
- Copatable with Android, iPhone and iPad.

There are also health apps that are dedicated for patients. The majority of these apps focused mainly on presenting simple disease and medications information. It also provides tools for enhancing patients’ adherence and interaction checker.

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Health care providers may try such apps themselves. Once satisfied they can encourage their patients to use these apps and educate them to do so. Below are some apps examples:

**Drug index**
- Drug Index delivers frequently updated, comprehensive, practical information on over 2000+ generic medicines. It includes information on dosing and administration, safety, interactions and patient teaching.
- Copatatable with Android.

**Drug.com**
- Drug.com is a comprehensive database of medicines information. It provides drug interactions checker, plus food, allergy and medical condition interactions. It is also a tool for medication management and adherence.
- Copatatable with Android and iPhone

**WebTeb**
- WebTeb app presents comprehensive health and life style information in arabic. It provides diseases, medicines, remedies and daily tips on health.
- Copatatable with Android, iPhone and iPad.

References:
Patient education is an integral part of health care provision. Despite that verbal communication is an important element in education, it is not enough by itself. It is recommended to use combination of methods to ensure optimal education by patients and their families.

Public education is an effective strategy to promote the rational use of medicines among patients and the society. Development of printed patient education material such as pamphlets, posters and flip chart is a useful tool to educate the community about the proper use of medicines and to raise their awareness. Unlike TV and radio program, printed materials could be kept and patients could always refer to them when needed.

Writing different health messages to a wide range of audiences can be challenging. Diversities among audiences make it difficult to develop effective health communication materials that are easy to read, understand and use by everyone. Creating successful materials is not an easy task and involves many steps.

Steps for developing patient effective and user friendly education material:

1- Establish a working group:
Production of educational materials is a collaborative process that needs teamwork. It is important to engage all relevant health care providers and administrators who will provide input or review the material during development.

2- Identify the intended audience:
It is an essential step to identify and describe the intended audience in order to determine their information needs or wants. Moreover, understanding of the targeted audience will lead the decisions about the vocabulary, writing style, content, and format needed for the material.

3- Identify the purpose:
The purpose should be determined in early steps in the development process. It is important to clarify why the educational material is needed e.g. increase knowledge, change a specific health behavior or promote rational use of medicines.

4- Assess available materials:
Before making a new material, it is recommended to check what is already out there inside your organization or from other sources of health information such as reputable health information websites or health associations. After that you have to decide whether to re-use the material, adapt it to meet your needs or produce your own materials. It is crucial to have permission before use or adapt information from other sources.

5- Decide on the content and determine key concepts and messages:
Health messages must be clear, relevant, and appropriate for the intended audience. Give the most important information first, limit the number of messages, clearly state the actions you want your audience to take, and tell them what they will gain from understanding and using the material.

6- Write the information in plain language:
Write the content in your own words and communicate as if you are talking to a patient. Choose your words carefully and use familiar words in a conversational style.

7- Apply a clear design:
Decide on a suitable format using clear and attractive design. Illustrations and pictures could have a better impact on delivering the messages especially for the illiterates.
8- Obtain feedback from the health care providers:
Once you have developed a draft of your material, be sure to review it by health care providers. This step will help to make sure that the written information supports what is taught by the health care team and reflects current clinical practice.

9- Obtain feedback from patients and families:
The next step is to pretest the final draft with the intended audience. Pretesting is the best way to validate the developed material is readable, culturally acceptable, and achieves its purpose. It also ensures that the message you send is clearly understood. Make the changes to the material according to the feedback that has been received.

10- Publish and distribute materials:
Once the last draft got the final approval, you will need to decide on whether the documents will be available in print or electronic formats or both. Also you will need to decide on the printing specifications, and how to distribute the materials to the targeted audience.

11- Evaluate the published material:
The final step is to re-evaluate the published material over time, through community survey, to ensure its effectiveness in communicating key messages to the targeted audience in addition to confirm that your material still meet patients’ needs and comply with current treatment guidelines and protocols.

References:
Antimicrobial Policy
Part One

Introduction
Infections due to antibiotic resistant bacteria are rising and the pipeline of new classes of antibiotics is diminishing. The global increase in antimicrobial resistance is a direct result of antibiotic overuse. The problem of antimicrobial resistance has led to more expensive treatment and longer hospitalization and increase in morbidity and mortality. Control of antibiotic prescribing is a crucial part of the strategy to limit the development of resistance and as we are faced with an increasing challenge posed by drug resistant bacteria and ineffective antimicrobials in Sudan. It is imperative to establish a policy to control the use of antimicrobials and to promote antimicrobial stewardship.

Antimicrobial overuse
The problem of antimicrobial resistance linked to widespread antimicrobial prescribing is evident in Sudan. Several studies from Khartoum state have shown that antibiotics, particularly cephalosporins are overused. Ahmed and co-workers analysed 600 prescriptions from four paediatric hospitals in Khartoum and found that 61.2% to 98.8% of these prescriptions contained antibiotics \(^1\). Another study from six hospitals in Khartoum showed that 43.3% to 63.3% of 180 prescriptions, 30 from each hospital, contained antibiotics \(^2\).

Antimicrobial Resistance
Overuse of third generation cephalosporins has resulted in a wide scale antibiotic resistance in our hospitals. Kheder showed that 90% to 100% of \( Enterobacteriaceae\) isolates were resistant to third generation cephalosporins \(^4\). Resistance of \( Escherichia\) coli and \( Klebsiella\) spp. to ceftriaxone and ceftazidime in hospitals ranged from 56.5% - 79% respectively \(^5\). Further research has shown that 78% and 80% of \( Escherichia\) coli and \( Klebsiella\) pneumoniae respectively were ESBL producers and that 51% of \( Staphylococcus\) aureus were MRSA\(^3\). Records of the National Health Laboratory, in 2013, showed that the prevalence of MRSA ranged between 29% - 80%. Furthermore, 3% - 5% of \( Pseudomonas\) spp. were resistant to carbapenems. The prevalence of vancomycin-resistant \( S.\) aureus was found to be 2% in Soba Hospital, while vancomycin resistant enterococcus ranged from 21% in Soba Hospital to 33% in National Health Laboratory \(^7\).

The Sudanese Antimicrobial List
The Sudanese antimicrobial list in the Essential Medicines list (EML) is deficient in essential injectable antibiotics necessary for the treatment of common and serious infections and is overwhelmed by several injectable cephalosporins that promote collateral damage \(^8\). Therefore, clinicians have no choice, but to use these. Recent EML revisions have added standard medicines needed for the treatment of common and life threatening infections, based on recent developments on antimicrobial therapy and novel mechanisms of antimicrobial resistance \(^9\). The revised EML has been officially approved and endorsed by the FMoH and WHO, but unfortunately for no logical reasons it is not yet implemented.

Antimicrobial Stewardship
A core component of antimicrobial policy is antimicrobial stewardship \(^10\). Which is a set of measures to optimize antimicrobial use among patients in order to improve patient's outcome, ensure cost effective therapy and reduce adverse sequelae of antimicrobial overuse(development of resistance and

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toxicity). These measures are evidence based standards for antimicrobial use, educational programs, communication to stakeholders on antimicrobial issues, audit and optimizing outcome of antimicrobial therapy. Targets for antimicrobial stewardship include decision to start antimicrobial therapy, selection of the antimicrobial, the dose, route of administration and duration of therapy as well as principles of surgical prophylaxis.

References:
1. Ahmed AM et al. Medicine use practices at paediatric hospitals of Khartoum state, Sudan. SJRUM. 2014 issue 8
Pharmacovigilance and Patient Education

Randa A. Almahdi

The specific aims of pharmacovigilance are to advance patient care and safety in relation to use of medicines, by focusing on the patient safety through provision of patient education that promote rational use of medicines.

Healthcare providers, can effectively communicate with patients and educate them about precautions in using medicines.

Patient education about medicines involves detection, assessment, understanding and prevention of adverse drug reactions of medicines, which is considered now an integral strategy for pharmacovigilance. Pharmacovigilance system should include all resources that protect the public from medicines related harms, both in private healthcare or public health services.

A good functioning pharmacovigilance system requires that patients become aware about ADR reporting. Patients should be encouraged to report ADRs to their doctors to enable the doctor to report them on turn, to the pharmacovigilance centre. They should be educated to report all the experienced adverse medicine reactions, adverse medicine events, poor quality medicines and lack of efficacy of medicines, whenever the patient has thought, it was related to the use of the accused medicine. Even the observations and reports that are made by a healthcare professional, related to the use of a certain medicine, are usually an interpretation of a description originally provided by the patient, together with the other objective measurements. Based on that understanding, patient awareness should be raised about the importance of pharmacovigilance, through provision of patient education.

Recently, the pharmaceutical industry have made some technological advances in medicine developments that have improved the safety of new medicines. Among these practices; continuing professional education, patient education, and sponsorship by industry of medicines information activities which have also contributed to safer uses of medicines.

* Detailed information about how to report, what to report and to whom were mentioned in previous issues of SJRUM

References:

Guide for authors

Scope of the journal:
Rational use of medicines (RUM) issues directed to health care providers and medical students.

Suitability of publication:
All topics related to the different aspects of RUM will be evaluated by the editorial board. Prospective authors with a subject(s) or questions about the suitability of their papers or materials are invited to request an opinion from the Editorial Board. (sjrum@khmic.org).

Avoid plagiarism

How to submit materials:
Manuscripts can be handed over directly to the Directorate General of Pharmacy as soft copy or by e-mail (sjrum@khmic.org).

Types of manuscripts:
1. Research papers.
2. Case reports.
3. Thematic topics.
4. Success stories.

Preparation of manuscripts
All manuscripts must be typed in Arial font size 12, with 1.5 line spacing. Manuscripts must be in Word. Page margins on all sides must be at least 2.5 cm wide. You can use either English or American spelling but not both on the same manuscript.

1. Research papers
Original research will have the priority of publications. Author(s) name and affiliations should be clearly written. Contact person, telephone number and e-mail address should be included.
Total words count should not exceed 800 words including references, tables, table captions, figure legends, and footnotes. Maximum of three tables and figures are accepted.
The manuscript should be divided into sections. Each section should have a separate heading. Subheadings take the form of paragraph lead-ins (should be bold case), indented and run in with the text, separated by a period.
Introduction: This section should provide the reader with sufficient background information to evaluate the results of the research. An extensive review of the literature is not needed in this section. It should also give the rationale for and objectives of the study that is being reported.
Methods: Sufficient information must be provided so that the reader will understand the methodology and be able to repeat the experiment.
Results: The results section should be written in such a manner to provide information by means of text, tables and figures. Results and discussion may be combined or there may be a separate discussion section. If a discussion section is included, place extensive interpretations of results in this section. Do not repeat the results. Give numbers to figures and tables in the order in which they are mentioned in the text. All figures and tables must be cited in the text.
Conclusions and recommendations: Acknowledge personal, financial and institutional assistance at the end of this section.
References: Use the Vancouver reference system. Cite 6 references maximum.
Ethical clearance is a requirement for all researches from 2012 onward.

2. Case reports
Any case that is related to RUM will be considered. The manuscript should include the following setting: complete description of the case, consequences and outcome and finally follow up if applicable. Suggestions for solutions should be included.
Words count should not exceed 400 words.

3. Thematic topics
Any topic related to rational medicine use is considered. The manuscript should not exceed 400 words.

4. Success stories
Any story that reflects rational use of medicine and positive changes towards rational medicines use is welcomed. The manuscript should not exceed 400 words.

NOTE: Accepted manuscripts may be subjected to minor/appropriate changes prior to publishing. Please check the website for previous issues and updates www.sjrum.sd
National Medicines and Poisons Board (NMPB) has been established in 2007 with the mandate of ensuring the safety, quality and effectiveness of medicines, medical devices and cosmetics.

It is the national authority that is authorized to set and implement the standards, guidelines and conditions related to importation, manufacturing, surveillance, storage, pricing, transportation and utilization of medicines, cosmetics and all medical devices and pharmaceutical products in accordance with the approved standards and measurements.

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