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Dear fellow health providers

Welcome to the first issue of SJRUM. Health is God’s greatest gift to man and we are only asked to be thankful and sanctify it. Money can’t buy health.

Illnesses and diseases may need medical attention and in some cases medicines to be taken. Medicines are vital to health problems and diseases; they could have a negative outcome if not used rationally. Inappropriate utilization of medicines by the health care as well as the community at large is not very uncommon.

We are a group of healthcare professionals appointed by the Directorate of Pharmacy and the WHO (country office in Sudan) to promote rational use of medicines through publications. Our aim is to educate ourselves, our patients and citizens on Rational Use of Medicine (RUM). Please don’t take the word for what the abbreviation means.

We need to appreciate the rationale behind RUM, join hands and collaborate as one team. Only then, we will succeed to ensure proper use of medicines, reduce irrational use, save money and even SAVE LIVES. If we are devoted and I believe we are… we will make it work. Let us all get inspired and start now from this first issue of SJRUM. Our road map is as follows:

Fellow members of health team This is an invitation for all of you to join and participate in using medicines rationally.

God bless you.
The need for a national strategy and plan for Rational Use of Medicine (RUM) is obvious and much needed for offering safe evidence-based quality care to patients, reducing medicine resistance and adverse events and providing cost effective quality health services at all levels of health care.

The importance of this publication for advocacy and updating the professionals in the field can't be over emphasized. We congratulate the editing group and contributors and support their efforts.

The Sudan Medical Council commends the effort of the Directorate General of Pharmacy and is fully supportive of the initiative.

Prof. Zein A. Karrar
FRCP, FRCPCH
President of Sudan Medical Council
What is RUM?

It is simply prescribing the right medicine at the right dose for a sufficient time according to the actual clinical needs of the patient at the lowest cost to the individual and community at large. It is the appropriate use of medicines and when we say appropriate we refer to indications, medicine quantity, efficacy, safety, suitability and cost. Appropriate also includes the right dosage and its administration, correct dispensing, and proper patient information in addition to patient adherence to treatment.

Why do we need RUM....?

Many reasons have led to Irrational Use of Medicines (IRUM) over the past few decades. The recent "drug explosion", lack of appropriate information, inadequate education and training of healthcare professionals and patient demand are some of these reasons. The situation was worsened by the poor communication between health team members and patients in addition to promotional activities of the pharmaceutical firms with some exaggerated claims on their products efficacy and safety.

Examples of Irrational Use of Medicines (IRUM)

The use of antibiotics to treat viral infection (and even simple diarrhea), taking medicines without proper diagnosis, taking medicines via the wrong route of administration, taking medicines for a shorter or a longer duration than needed and unnecessary use of expensive medicines.

What do we need to do to reach our target?

This ultimate target may be achieved if the following available:

- Active drug and therapeutics committees in hospitals in which members of the health team are actively involved.
- Up-to-date standard treatment guidelines for different kinds of diseases.
- Active pharmacovigilence activities.
- Drug information centers with state-of-the-art information technology.
- Continuing professional development facilities and activities.
- Up-to-date list for essential medicines.
- Good regulatory systems for procurement and supply management.
Cancer is a growing problem in developing countries and is the fourth cause of death in countries of the Eastern Mediterranean Region (EMR)\textsuperscript{1}. In Sudan, more than 75\% of cancers present in advanced state requiring the use of multimodality treatment that includes chemotherapy\textsuperscript{2}. The WHO advocates the use of standardised chemotherapy protocols in the management of cancer\textsuperscript{3}. An undergraduate research project was carried out at the leading cancer centre in Sudan (The Radiation and Isotope Centre Khartoum RICK) which indicated that chemotherapy is not used appropriately in the wards.

RICK’s Chief Executive recommended the development of chemotherapy protocols in 2007 and established a multidisciplinary protocol development group consisting of; two oncologists, one oncology nurse and two oncology pharmacists. The group met initially to prioritize the tumor areas that need to be developed according to complexity of treatment and frequency of presentation. Protocols were developed using evidence based guidelines produced by renowned groups such as the National Comprehensive Guideline Network and the European Society of Medical Oncology. During 2008, meetings were conducted with the medical team to develop protocols and chemotherapy administration sheets for breast cancer, lung cancer, gynecological cancer and cancers of the head and neck.

A review was carried out in March 2011 and it was decided to incorporate more disease areas and print a chemotherapy protocols booklet. The review process involved all members of the medical team and the clinical pharmacy team. Names of doctors were identified from the pay roll and doctors were invited to participate in a protocol development workshop. Three clinical guidelines from renowned oncology organisations were extracted from Medline and used to identify chemotherapy protocols that are applicable to Sudan and Sudanese patients. At the end of each workshop, a list of the agreed protocols was presented and discussed. The discussion and protocol lists were used to inform a standardised chemotherapy protocol booklet which is currently in print.

References:
**Introduction**

The present study was carried out to investigate current prescribing and dispensing practices in the largest two teaching hospitals in Sudan and compare them with those of published studies in developing countries.

**Methods**

This is a descriptive, quantitative and cross-sectional survey designed to describe the prescribing and dispensing practices at two teaching hospitals. This study was carried out in Khartoum and Omdurman teaching hospitals because they represent the largest two national referral teaching hospitals located in Khartoum.

Systematic random sampling was used for the sample selection. In each hospital, 100 patient's encounters were collected, the consultation time was counted for 100 patients, the dispensing time was counted for 100 patients, and 100 patients were interviewed upon exit to investigate the dispensing practices.

The WHO prescribing and dispensing indicators, along with others, were used in this study. The final versions of the pretested indicators are described below.

The prescribing indicators that were measured included:

1. Necessary information that should be written in the prescription (date, name of patient, strength of medicine/s, directions for use, quantity of medicine to be dispensed and signature of the prescriber).
2. Number of medicines prescribed: to quantify the degree of polypharmacy.
3. Number of medicines prescribed by generic name: to measure the tendency for prescribing by generic name.
4. Prescribing of an antibiotic and/or an injection: to measure the overall level of use of two important, but commonly overused and costly forms of medicine therapy.
5. Consultation time, measured in minutes, from the time the patient entered the consultation room until he/she left it.

The dispensing indicators that were measured included: 1. Number of medicines prescribed and medicines actually dispensed: to assess the extent to which teaching hospitals are able to provide the prescribed medicines. Patients were asked for an explanation when medicines were not dispensed.
2. Dispensing time, measured in seconds, from the time the patient gave the prescription to the dispenser until the patient left the dispensary window.
3. Medicine labelling: the medicine packages of the dispensed medicines were examined for adequate labelling with medicine name, quantity to be taken and when to be taken. The absence of any of these three points on the dispensed medicine’s package indicated inadequate labelling.
4. Patient knowledge: patients were interviewed and evaluated for their knowledge about necessary information in relation to each dispensed medicine (indication, quantity to be taken, when it should be taken and duration of use for each medicine). Failure of the patient to know any of the four points about any of the medicines dispensed resulted in patient knowledge being scored as inadequate.
Data collection
Two well-trained health-care providers collected data on both prescribing and dispensing indicators prospectively from each hospital due to the inadequate sources of retrospective records.

Results
The results show that essential elements of prescription were missing in both Khartoum and Omdurman hospitals in up to 91% of the records reviewed (Figure 1). The name of patient was available in most prescription with a few omitted (2% vs. 3%), and similarly directions to use medicine and signature of prescribers was missing in 3% and 8% vs. 14% of prescriptions, respectively. The strength of medicine was missing in 59% vs. 56% and date of prescription omitted in 23% vs. 18% of prescriptions.

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Discussion
The current findings highlight the existence of suboptimal prescribing and dispensing practices at the two largest teaching hospitals in Sudan and show that rational medicine use is poorly practiced. Thus, cost-effective multifaceted interventions that are effective in changing suboptimal prescribing and dispensing practices are highly desirable within existing resources in order to improve medicine-use practices.

References:
The Impact of Drug Promotion Practices on Health Professional Prescribing in Teaching Hospitals, Khartoum State

Liela Hussein¹, Habab k. Elkheir²

Introduction

Rational use of medicines is one of the essential elements in achieving quality of health and medical care for patients and the community. Improving medicine use improves the quality of life and frequently lowers cost. Scientific knowledge about medicines is very important for health of the patient and rational use of medicine. It saves time and medications cost¹.

Although there are many sources of medicine information, drug promotion has become a matter of interest over the recent years. It is very important to understand the effects that drug promotion has on prescribing and the use of medication given the growing amounts of money companies are devoting to this activity. Doctors are the main targets for the promotional activities of pharmaceutical companies in developing countries. With the power to prescribe and a high status in society their opinion of a pharmaceutical product very often determines its sales success¹.

The purpose of the study was to identify the impact of drug promotion practices on prescribing habits of health professional in a teaching hospital in khartoum state. It also aimed at assessing the knowledge of prescribers about ethical criteria of pharmaceutical promotion.

Methods

A descriptive, hospital based study was carried out at one of the Khartoum State teaching hospitals, study duration was two months from Aug. to Sep. 2011. The study covered all doctors available during the study period. Sample size was 550 doctors. Pre-tested direct interview form was used for data collection. Prescriptions containing the top three items according to ABC analysis, 2009 (amoxicillin + clavulinic acid 1g tablet, cefuroxime 750 mg injection, ceftraixone 1g injection) were analyzed and generic prescription percent was recorded. Data was analyzed using Microsoft Excel, 2007.

Results

The results indicate that 91.6% of the interviewed doctors believed that information provided by medical representatives are valuable. 99.5% of them stated that they use this information particularly for newly registered medicines. 57.5% used this information for low risk medicines. 79.1% of doctors stated that they are influenced by discussion with medical representatives, 98.6% of these stated that they are positively influenced (Figure1). 82% of doctors stated that the most un-ethical method of promotion is giving financial incentives to doctors. Only 6.5% of doctors have good knowledge about the ethical criteria of medical promotion (Figure 1). 95% of analyzed prescriptions of the top three items in ABC analysis were in trade name (Table 1); all were imported by the same local agent. This clearly reflects the impact of promotion on prescribing habits of doctors.

1: Khartoum North Teaching Hospital
2: University of Science and Technology, Epi lab.
Conclusion and Recommendations

Information provided by medical representatives was valuable to most of doctors included in the study. Exposure to promotion influenced doctor’s prescribing. WHO information on ethical standards for medical drug promotion was not known to most of doctors.

There is a great need for the formulation of a Sudanese code of ethics. There is a need to develop a law governing the practice of medicines promotion according to WHO ethical standards, and the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA) code of marketing practice.

References:

Table 1 Frequency of prescribing by generic name for the top three items in ABC analysis

<table>
<thead>
<tr>
<th>Description</th>
<th>Frequency of prescribing by generic name</th>
<th>Frequency of prescribing by trade name</th>
<th>Total number of prescriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin+clavulenic acid 1g tabs</td>
<td>0 (0%)</td>
<td>1549 (100%)</td>
<td>1549 (100%)</td>
</tr>
<tr>
<td>Cefuroxime 750 mg inj</td>
<td>38 (1.6%)</td>
<td>2322 (98.4%)</td>
<td>2360 (100%)</td>
</tr>
<tr>
<td>Ceftraixone 1g inj</td>
<td>275 (11.6%)</td>
<td>2088 (88.4%)</td>
<td>2363 (100%)</td>
</tr>
<tr>
<td>Total (100%)</td>
<td>313 (5%)</td>
<td>5959 (95%)</td>
<td>6272 (100%)</td>
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Prescribing Patterns of Statins in Sudanese Patients

Mahmoud M. El tahir1,2, Asma M. Gamil2, Hala A. DaffAllah2, Ahmed M. Musa3

Introduction

Statins are lipid lowering medicines that with the help of diet can reduce cholesterol, fats and triglyceride1. However, statins have many drug interactions when administered concomitantly with other drugs and with some foods2. These drug and food interactions may increase incidence and severity of side effects associated with statins3. Therefore, prescribing and dispensing of statins should be accompanied by careful patients counseling and education. The purpose of this study was to evaluate the prescribing pattern of statins among health providers and to assess prescribers’ and patients’ awareness about side effects, drug and food interactions of statins.

Methods

This was a cross-sectional study conducted in hospitals and health care centers in Khartoum State, Sudan.

One hundred and twenty patients using statins were included in this study. A pre-designed questionnaire was used for data collection. Ethical consideration: Permission was obtained from the hospital’s medical managers and informed consents were obtained from patients using statins to participate in this study.

Results and Discussion

In this study 95% of the prescriptions contained atorvastatin, and 86.7% of the doses were 20 mg simvastatin.

Five percent (5%) of the patients were using long term therapy such as verapamil, fibrate and amiodarone (Table 1) and 36% of the patients were using short term medications such as proton pump inhibitors, macrolide antibiotics and cyclosporine (Table 2), alongside statins. Both long and short term therapies interact with atorvastatin and simvastatin by inhibiting their metabolism leading to an increase in their concentration in the blood stream and consequently rising probability of serious side effects. Baseline lipid profile was not performed for (95%) of the patients. The decision to start statins was based on ischemic heart disease risk only.

Almost ninety-seven percent (96.7%) of patients in this study were advised by their physicians to avoid fat and their derivatives, but 95% of the total patients in this study were not advised by their physicians to avoid taking...
certain foods and drinks while on statins medication. As a result 50% of patients in this study were found to have taken grapefruit. It was reported that “High-dose grapefruit juice” increases the concentration of simvastatin and atorvastatin in the blood. On the other hand, fifty-four percent (54%) of the patients were exposed to heart problems and 77% of the patients who used statins for less than one year were also exposed to heart problems and that may be due to inadequate levels of statins.

**Conclusion and Recommendations**

Knowledge of patients about food interactions of statins was alarmingly poor. Some of patients in this study received medicines which interact with statins medication making them more susceptible to development of serious side effects. Physicians and pharmacists must advice their patients to avoid food and drugs that may interact with their medications. Physicians and clinical pharmacists must take into account that statins may be responsible for any muscle problems and it can progress to rhabdomyolysis and consequently renal failure if it is misdiagnosed.

**Acknowledgement**

This work was supported by the faculty of pharmacy, International University of Africa, Sudan.

**References:**

News

Medications may raise blood pressure
Published: March 20, 2012, AJM

A study published in the American Journal of Medicine found that many common over-the-counter and prescription medications are underlying causes of hypertension. Oral contraceptives, antidepressants, anti-inflammatory pills to control pain and antibiotics to treat bacteria could cause drug-induced hypertension. Although high-blood pressure is a known side effect of many of these medications, doctors do not always account for them in their treatment plans, and they don’t inform patients of the potential risks associated with these medications.

Herbal remedies toxic component links to kidney failure
Published: Apr. 9, 2012, Science Daily

Aristolochic acid (AA) is a component of a plant used in herbal remedies since ancient times (In Sudan Known as Om Jalajil or ErigAlagrab). It leads to kidney failure and upper urinary tract cancer (UUC) in individuals exposed to the toxin.

This finding, reported in the proceedings of the National Academy of Science, holds broad implications for global public health, as individuals treated with herbal preparations available worldwide that contain Aristolochia are at significant risk of developing chronic kidney disease or UUC.

Certain food can help asthmatic patients
Published: Apr. 11, 2012, EDT

Diet is certainly not a replacement for medication used to treat and prevent asthma symptoms, but certain foods and nutrients may help manage the condition. In fact, many experts believe a reason behind rising asthma rates in North America is related to diet. Higher intake of fruits and vegetables not only linked with a lower risk of developing asthma in the first place, studies found that asthma sufferers who eat plenty of fruits and vegetables also tend to have the condition under better control. Omega-3 fats in fish, vitamin E-rich foods e.g. vegetable oils, and minerals like magnesium e.g. Nuts, seeds, leafy green vegetables, may also help improve asthma symptoms.

The Participation of Drug Information Center (DIC), Directorate of Pharmacy, Ministry of Health Khartoum State, in Khartoum International Fair 2012

The DIC/KH participated in Khartoum International Fair; which was held during the period from the 25\textsuperscript{th} of January to the 1\textsuperscript{st} of February 2012 in Burri Fair Grounds. The objective of the participation was to introduce the center and the services it provides in addition to the dissipation of the education of the rational use of medicines (RUM) among the citizens.

The Fair contained educational and promotional messages which were broadcasted through the boards and television screens in addition to the brochures designed to promote a culture of RUM. The focus of the participation in the fair this year was on the issue of skin-whitening creams and the medications that increase the body weight and to explain their health hazards.
and the reason behind their prohibition. Also the public were informed about cosmetics which were prohibited by the National Medicines and Poisons Board (NMPB) because their containment of compounds such as mercury, hydroquinone, and cortisone derivatives.

**Sudan RUM national policy**

DGoP/FMoH – RUM unit

The Directorate General of Pharmacy – FMoH, supported by the WHO, worked to set and implement strategies for improving use of medicines. A WHO consultant and expertise in the field of RUM was recruited for this assignment during the period 24 Feb. – 9 Mar. 2012. A survey was conducted through interviewing stakeholders in 21 different health facilities, to put hands on the medicines use problem and underlying causes. The consultant also facilitated a workshop that was held during the period from 5 to 7 March 2012, in CPD-FMoH to develop a national RUM policy. The attendees were 47 representative pharmacists and physicians from different health sectors in Khartoum and other states.

The workshop discussed the main problem behind the irrational use of medicines in Sudan and suggested the most suitable interventions to address them. According to the consultant, the discussion was fruitful which will enable proceeding with the finalization of the policy draft that came up as a result of the workshop.

**EMRO/WHOPatient safety curriculum guide – Workshop**

EMRO/WHO – Programmes and projects

The particularly health and education authorities of member states Mediterranean WHO Region (more than 100 policy and decision makers) produced recommendations aiming at promoting patient safety. The main recommendation was to implement a multi-professional Patient Safety Curriculum Guide in all educational curricula of all health and medical educational institutes, to promote this concept at all formal, senior, leadership and strategy makers level in order to be included in the national policies to raise awareness and give effect and power to Patient Safety Program in coordination with country offices of the WHO.

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**UPDATES**

**Professionalism**

Prof. Abdalla Elkhawad
University of Medical Science and Tecnology Sudan

As health providers we are committed to the health and well-being of individuals, patients and society through ethical practice, profession-led regulation, and high personal standards of professional behavior. These are the key elements of professionalism

Professionalism necessitates the teaching of basic and advanced courses throughout the undergraduate and professional practice of health providers. These courses include ethics, professional behavior and communication and counseling skills. The commitment of all health providers to these skills and behaviors will bring about the right outcomes of our health delivery system as well as bring a lot of mutual trust, and respect from the individuals and society alike. The Sudan Medical Council (SMC) has already undertaken the necessary measures to advocate the idea to all medical institutions. It has agreed to launch workshops to intate the introduction of a medical professionalism course in all medical, pharmacy, dental and allied heath schools in Sudan.
Rational treatment requires a logical approach and common sense. You should select your personal medicines because you are responsible for your patient and should not pass it to others; like colleagues, superiors or medical representatives.

Personal medicines are your own selection from guidelines, National List of Essential Medicines, and formularies. You should judge each medicine and evaluate major and minor pharmacological features. When you select your personal medicines you can easily find alternatives when your first choice is contraindicated or unavailable.

**Steps of rational prescribing**

1. **Define patient’s problem.**
   this can be:
   - Disease or disorder.
   - Sign of underlying disease.
   - Psychological or social problems.
   - Non adherence to treatment.
   - Request for preventive treatment.
   - Adverse effect of a medication.
   - Or a combination of two or more of the above.

2. **Set therapeutic objectives.**

3. **Choose treatment ; your personal treatment, and personal medicines.**
   How to select your personal medicine
   Make a list of all medicine groups for the given indication
   - Choose effective groups.
   - Weigh groups according to their efficacy, safety, suitability and cost, and give them scores.
   - The group with the highest score is your personal medicine.
   - Select a suitable dosage form; determine doses and duration of treatment.

4. **Write a prescription.**
   You are legally required to write legibly and clearly. A Prescription must include:
   - Name and address of prescriber.
   - Date of prescribing.
   - Diagnosis.
   - Medicine name (use generic names).
   - Strength, dosage form and total amount of the medicine.
   - Instructions and information.
   - If a refill is required it should be stated.
   - Signature.

5. **Give information and instructions.**
   About 50% of patients do not take prescribed medicines correctly; take them irregularly or not at all. This is because symptoms disappear, or side effects occur or the medicine is perceived as ineffective by the patient or the treatment is complicated like inhalers or the patient is an elderly.
You need to take time to give information. There is no point in prescribing good medicines when the patient fails to understand how to use them.

The following information is important for the patient, and helps to improve adherence to treatment:

- **Effects of the medicine:** which symptoms will disappear, and when, how important it is to take the medicine, what happens if not taken.
- **Side effects:** which side effects will occur, how to recognize them, how long will they remain, and what to do if they occur.
- **Instructions:** when to take, how to store, how long to continue treatment, what to do in case of problems.
- **Warnings:** what not to do, maximum dose, need to continue treatment (refill/discard the rest)
- **Next appointment:** when to come back (or not), when to come earlier, what information will be needed.

Prescribe well-chosen treatment

- Create good doctor-patient relationship
- Take time to give information and instructions

6. **Monitor and evaluate treatment.** Monitoring should be documented in patient records as a reference to future care.

7. **Keep up to date.** You should be careful about information from pharmaceutical industry and medical representatives.

When visited by medical representatives, remember to ask them about side effects, contraindications and cost. Many medicines promoted are just “me too” medicines.

*Don’t judge medicines by free medical sample you have used on some patients or family members. Use scientific data and evidence to judge and select medicines.*

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**Patient demand**

Patient demand is one of the causes of irrational prescribing. Patients may demand treatment with specific medicines, giving prescribers a hard time. You may find it difficult to convince patients that a disease is self-limiting.

To deal with patient demand, take time to engage in real dialogue with the patient and give careful explanation.

Remember patients are partners in therapy; always take their point of view seriously and discuss the rationale of your treatment.
Useful Tips

Oral Syringe

An oral syringe is a measuring device used to accurately measure small doses of liquid medicine, which are then given to children by mouth. Children and babies are often prescribed doses of liquid medicine that are very small or hard to measure using a normal 5 ml medicine spoon. In addition, babies and small children may not be able to take the medicine from a spoon.

Instructions on how to use the oral syringe:
(www.safemedication.com)

Prescribers and pharmacists should advice the co-patient to:
1. Wash both hands properly.
2. Shake the medicine bottle thoroughly upside down.
3. Open lid and withdraw correct amount. (pharmacist should label the syringe at the correct level).
4. Slowly and gently push the plunger down to gently squirt a small amount of medicine, at a time, into the inside of child's cheek. Allow them to swallow it. DO NOT forcefully push down the plunger, or squirt the medicine to the back of the child's mouth or throat, as your child may choke. DO NOT close their nose to force swallowing they might choke and/or cough and may vomit the medicine.
5. Rinse the bung and syringe in warm water and leave to dry.
Instructions to Authors

Scope of the Journal: Rational use of medicines related to health care providers and patients.

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. (nmicrfl@gmail.com)

Avoid plagiarism How to submit materials:
Manuscripts can be handed over directly to the editor-in-chief as soft copy or by e-mail (nmicrl@gmail.com).

Types of papers
1. Research papers
2. Case reports

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 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.

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. Words count should not exceed 400 words.

NOTE: Ethical clearance is a requirement for all researches from 2012 onward.
The National Medicine Information Centre and Reference Library (NMICRL)

The National Medicine Information Centre and Reference Libarary (NMICRL), established to provide technical support, offering its service through the General Directorate of Pharmacy which is operated under the auspices of Federal Ministry of Health.

The vision of the NMICRL is in accord with the current Quarter-Century Pharmaceutical Strategy (2005-2029) and the National Medicines Policy (2012-2016).

The mission of the NMICIRL is to promote the use of evidence-based medicine, improve medication safety, and enhance patient-centred pharmaceutical care in Sudan. Its main objective is to disseminate accurate health information to the community and to provide expert assistance to healthcare professionals on all matters pertaining to medicines information country-wide.

The NMICRL is striving to provide current, unbiased and comprehensive quality medicines information capitalizing on it highly skilled personnel coupled with the latest editions of reference books, electronic media and internet facility.