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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Welcome to the 10th issue of SJRUM.

It is my pleasure to send my warm welcome to all of our honorable readers. I am delighted to present to you our issue number 10 of SJRUM, and I hope that our editorial decisions are reflecting our sincere desire to cover most of your interests. The issue at hand will be discussing the dispensing of medicines and patient counseling.

Dispensing of medications was, and continues to be, the central traditional role of pharmacists, while extending the medication dispensing process to include patient counseling and patient education in both institutional and community pharmacies, has become an integral part of the pharmacist’s responsibility as a pharmaceutical care provider.

The process of patient counseling is centered on identification of patient's problems related to therapy and provision of consultation about the therapeutic regimen. To meet the requirements for this new role, pharmacy education should be modified to include experiential education. This means to expose pharmacy students to patient care in different practice settings for patient therapy optimization before they graduate. Parallel modifications in the pharmaceutical practice may be needed as well to advocate and support this change.

In this issue you will find different topics on dispensing and counseling, research findings about prescribing practices in Sudan and barriers to counseling in our healthcare setting. In addition to interesting real patients’ case scenarios, the issue focus is about bridging the gap in the current provided community pharmacy services. The issue also includes news about medications misadventures and tailored educational materials.

Randa AlSadig AlMahdi
The extended of how rational is medicines use in a country can be measured through the drug use indicators recommended by the World Health Organization (WHO). These indicators fall within three general areas related to the rational use of drugs in primary care: prescribing practices, patient care and facility specific indicators. Hereby we are presenting two studies that measured some of these indicators in comparison with WHO ones.

References:

1. Planning and Policies Directorate, Directorate General of Pharmacy, Federal Ministry of Health
Dispensing and Counseling

Randa A. Almahdi

The practice of dispensing remains central to the professional role of the pharmacist, even in the era of pharmaceutical care where the pharmacy profession has shifted from product to patient-oriented practice. Dispensing is defined as the preparation, packaging, labeling, recording, keeping, and transferring a prescription into medication to a patient or an intermediary, who is responsible for administration of the medicine.

Dispensing requires that the pharmacist prepares and produces labels before taking medications from the shelf. The pharmacist should refer to the original prescription when selecting medication items and not the labels.

With regard to good dispensing practice, the organization of pharmacy practice goes through four major roles. It state that pharmacists must prepare, obtain, store, secure, distribute, administer, dispense and dispose medical products. The other roles are; to provide effective medication therapy management, to maintain and improve professional performance and to contribute to improve effectiveness of the health-care system and public health.

• It is recommended that the prescription to be prepared and dispensed by two different Pharmacy staff. For the pharmacist to dispense a prescription, it should be a legal prescription. Legal prescription is described as written instructions designating the preparation and use of substances to be administered, and should include certain elements.

• Legal elements of a prescription are determined in hospitals by the pharmacy and therapeutic committee, while for noninstitutional pharmacies this is done by the health authorities. Rational use of medicines recommends that names of medicines should be written in generics.

• Dispensing must be regulated always to minimize any potential for medication errors to occur. Medication errors may take place at any level of medication handling; Pharmaceutical manufacturing, Medicines prescribing, Dispensing or Administration. Dispensing have been reported to account for 21% of all medication errors.

• It is most important that dispensaries should be kept as free from disturbance as possible and benches clear from all materials other than necessary for the operation to be carried out. Dispensing involves both interpretation of the prescribers’ instructions and the technical knowledge required to carry out these instructions with accuracy and safety to the patient.

To ensure minimization of dispensing errors the following strategies are useful:

• Ensure correct entry of the prescription by using reliable methods to verify information about the patient, age, diagnosis, allergies, and contraindications.

• Confirm that the prescription is correct and complete. Clarify any doubt and do not dispense ambiguous prescriptions, with nonstandard abbreviations or acronyms.

• Be aware of Look Alike, Sound Alike medicines.

• Be careful with zeros and abbreviations. Misplaced zeros, decimal points, and faulty units are common causes of medication errors due to misinterpretation.

• Organize the workplace, work space, work

1. Lecturer of pharmacy practice, Faculty of Pharmacy, University of Sciences and Technology
environment, and workflow has been shown to markedly reduce dispensing errors.

- Reduce distraction when possible. Avoid multitasking during dispensing.
- Focus on reducing stress and balancing heavy workloads.
- Take the time to store medicines properly. Medication bottles should be properly organized with labels facing forward. It is also a good idea to routinely check all medications on the shelves and discard any expired medications.
- Thoroughly check all prescriptions.
- Always provide thorough patient counseling.

So patient counseling should be part and parcel of good dispensing practice. Counseling is required to minimize medication related problems, since it was estimated that approximately 83% of errors are discovered during counseling and are corrected before the patient leaves the pharmacy. The process of counseling requires that the pharmacists have appropriate knowledge and skills; knowledge of pharmacotherapy and skills of good communication and effective listening to the patient by using open ended questions in a language appropriate to the patient. Patient counseling must include every aspect and all information about the prescribed medicine, the precautions during using the medicine, the common potential adverse effects of the medicine and methods to reduce their occurrence and techniques for self monitoring of the pharmacotherapy

References:
2. The International pharmaceutical federation website from: https://www.fip.org/fip_home
A young lady entered the pharmacy. Seeing that the pharmacist was a female she became confident and approached her saying that she needs a private consultation. She waited till the pharmacy was empty and spoke to the pharmacist. She had sore lumps around her anus that were becoming painful, and bleed on defecation. She finds it hard to sit down, and kept her awake last night. She has been diagnosed before by her doctor with hemorrhoid.

The pharmacist gave her an ointment to apply locally. The lady took the medication thankfully.

Problems

• Lack of private area for consultation within the pharmacy. This inhibits patients/clients to ask about intimate issues and thus reduces the benefit from pharmacists’ advice or available medications/solutions.

• Lack of counseling. Piles usually cause constipation, the patient should be advised on how to resolve and avoid this condition.

• Dispensing “pharmacy medicines” without proper investigation; i.e. inquiring about other health conditions and medicines taken.

• Missing an opportunity to inform the patient about life style changes that may help.

Solutions

• The pharmacist should recognize patient with intimate request and provide a reasonable level of privacy to allow easy communication.

• Advice giving and counseling an important part of dispensing prescriptions or sale of pharmacy products. All clients require advice and counseling. This is not possible certain patient/client groups and certain medications should never be dispensed without proper advice.

• Availability of private areas for counseling, training and commitment to advice giving makes the process efficient, comprehensive and less time consuming.

1. Lecturer of pharmacology, Faculty of Dentistry, University of Khartoum
Muna Elamin, a 39 years old diabetic lady, entered a community pharmacy near a public health clinic. The pharmacist, busy with her phone, slowly responded. At the same time, a young man entered with his elderly mother, shouting and nagging about not finding the medication for his mother at the Health Insurance pharmacy, and requested the medicine. The pharmacist dispensed medications for both Muna and the old lady simultaneously.

Two days later Muna returned to the clinic complaining from headache, dizziness and fatigue. Her random blood glucose level was 320mg/dl. Confirming that she used her medicines as prescribed; the doctor added metformin and scheduled her for a visit next week. She was assured that her symptoms were due to diabetes.

The next day Muna presented to the emergency room, disoriented in time and place, blood pressure was 85/50, pulse rate 102 beat/min. Her sister brought the medicines she was taking, and told the doctor that Muna became unwell since she started the new treatment and showed the package. It was an antihypertensive agent; nifidipine 20 mg. This was strange because Muna has no hypertension!

The drug was dispensed to her by mistake; she remembered that the old lady’s son was asking about an antihypertensive medication.

Muna was treated, and discharged in good health.

**Problems**

- None professional attitude e.g. pharmacists talking over the PHONE while receiving patients/clients.
- Poor communication between the pharmacist and the patient.
- Dispensing two prescriptions at the same time.
- Faulty dispensing process i.e. not following the proper dispensing steps.
- No counseling was performed.
- Pharmacists being unaware about the **SERIOUS** legal implications of this malpractice.
- What happened to the old lady is still unknown!

**Solutions**

- Pharmacist should be attentive; PHONES and other distractors (watching TV, playing games, chatting, etc.) should be discouraged while receiving patients/clients.
- Pharmacists SHOULD act professionally.
- Pharmacist should give time to the patient and ask checking questions.
- Pharmacist should dispense each prescription individually.
- Communication and counseling skills for pharmacists should be included as an essential element in both undergraduate and CPD programs.
- Proper patient counseling should be performed thoroughly for each medication.
- Raise the pharmacists' awareness about their role in preventing dispensing errors.

Feedback system should be in place to enable tracing back dispensed prescriptions and dispensing errors.
Mustafa Ali is a 32 year old worker; who lives in Giad district, had an ulcer in the right border of the tongue of 3 weeks duration. He went to the nearest pharmacy where a pharmacist gave him Solcoseryl® dental adhesive paste and an antibiotic. Mustafa finished his antibiotic course and used the paste for 6 weeks but the condition got worse. He then decided to go to Khartoum Teaching Dental Hospital. At the hospital, a biopsy was taken and the result came as poorly differentiated squamous cell carcinoma.

**Problems**

- Ulcer is not a simple ailment; the pharmacist should not have dispensed medication blindly.
- No diagnosis and no prescription were presented to the pharmacist.
- Lack of proper counseling.
- Medications given were unnecessary and presented a financial burden to the patient not to mention deterioration of his health state.
- No advice was given to the patient with regard to the duration of therapy neither what to do in case there is no or poor response.

**Solutions**

- Pharmacists should not diagnose.
- Pharmacist should not dispense prescription-only medicines without a prescription.
- Pharmacist should have advised the patient to see a doctor.

**Lesson learnt**

- Even though oral ulcers are sometimes minor and simple like aphthous ulcers, sometimes they may be indicative of diseases such as oral cancer, leukemia and HIV.
- If there is no obvious clinical cause for an oral ulcer it should be immediately referred to a dental surgeon.

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1. Head department of oral and maxillofacial surgery, Faculty of Dentistry, University of Khartoum
Problems

• Failure of taking proper patients history by the junior doctor.
• Pharmacist failed to recheck the prescription for the suitability of the prescribed medicine. The patient is among risk group.
• Even though the abortion may be due to other undetected factors, it is well known that ciprofloxacin is usually contraindicated in pregnancy.

Solutions

• Proper history taking is the cornerstone for defining the patient’s problem and proper treatment.
• Verifying the suitability of the drug to be prescribed is one of the most important steps in prescription writing.
• Pharmacists should check the prescriptions and exclude any contraindications before dispensing the medicine.
Introduction

Acute tonsillitis is an acute infection of the parenchyma of the palatine tonsils which can occur as an isolated episode or in association with upper respiratory illness including generalized pharyngitis. The clinical distinction between tonsillitis and pharyngitis is unclear in the literature, and the condition is often referred to simply as "acute sore throat", which is a common reason for presentation to the primary care physician especially among pediatrics and young adult population. The socioeconomic impact is significant due to antibiotic abuse, poor school performance and associated morbidity of the disease and its complications.

Tonsillitis is usually viral; it is most commonly caused by the rhinovirus. In tonsillitis associated with infectious mononucleosis, the most common infective agent is the Epstein-Barr virus. Common bacterial pathogens include beta-hemolytic and other streptococci, with the most common being group A beta-hemolytic streptococci (GABHS). In the literature GABHS is responsible for 15% to 30% of all cases of acute tonsillitis in children aged between 5 and 15 years and for 5% to 10% of all tonsillitis in adults while Group C beta-hemolytic streptococci are the cause in about 5% of patients.

Tonsillitis is an infectious condition and can be spread by exposure to an infected person. Differential diagnosis includes infectious mononucleosis, diphtheria, agranulocytosis and malignancy (leukemia, lymphoma and carcinoma) (Take drug history).

Signs, Symptoms and History

The symptoms for tonsillitis are pain on swallowing, fever (>38°C [>100.5°F]) and tonsillar exudates. Other diagnostic factors include: sudden onset of sore throat, headache, abdominal pain, nausea and vomiting, presence of cough or runny nose, tonsillar erythema, tonsillar enlargement, enlarged anterior cervical lymph nodes. The following tables list differential signs and symptoms for viral and bacterial tonsillitis.

<table>
<thead>
<tr>
<th>Clinical Picture in Viral and Bacterial Tonsillitis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bacterial</strong></td>
</tr>
<tr>
<td>sudden onset of sore throat</td>
</tr>
<tr>
<td>swollen, painful anterior cervical lymph nodes</td>
</tr>
<tr>
<td>tonsillar exudates</td>
</tr>
<tr>
<td>fever (&gt;38°C [&gt;100.5°F])</td>
</tr>
<tr>
<td>a raised WBC count with neutrophilia</td>
</tr>
<tr>
<td>tonsillar erythema</td>
</tr>
<tr>
<td>tonsillar enlargement</td>
</tr>
</tbody>
</table>

Investigations

The first tests to order must include: microbiology investigations and rapid streptococcal antigen test. A White Blood Cell count with differential and urine analysis may be considered.

Non Pharmacological Management

Used solely for viral infections

- Avoid overcrowding.
- Avoid patient contact.
- Use warm salt water gargles.
Pharmacological Management

Acute:

1. Analgesics:
   
   1.1. Paracetamol:
   
   Adult: 500mg- 1000mg every 4 hours (maximum of 8 tablets in 24 hours)
   
   Child: 3–6 months 60 mg, 6 months–2 years 120 mg, 2–4 years 180 mg, 4–6 years 240 mg, 6–8 years 240–250 mg, 8–10 years 360–375 mg, 10–12 years 480–500 mg, 12–16 years 480–750 mg; these doses may be repeated every 4–6 hours when necessary (maximum of 4 doses in 24 hours)

   1.2. Diclofenac:
   
   Adult: 25-50mg by mouth three times daily.

   1.3. Ibuprofen:
   
   Adult: 200-600mg by mouth three to four times a day up to a maximum of 1200mg in 24 hours.
   
   Child: over 5 kg body-weight 20–30 mg/kg daily in divided doses or 3–6 months (body-weight over 5 kg) 50 mg 3 times daily, 6 months–1 year 50 mg 3–4 times daily, 1–3 years 100 mg 3 times daily, 4–6 years 150 mg 3 times daily, 7–9 years 200 mg 3 times daily, 10–12 years 300 mg 3 times daily.

   2. Antibiotic therapy – To be used for bacterial infections only

   2.1. Phenoxymethylpenicillin potassium:
   
   children ≤27 kg: 250 mg orally two to three times daily for 10 days;
   
   children >27 kg and adults: 500 mg orally two to three times daily for 10 days.

   2.2. Procaine penicillin:
   
   children ≤27 kg: 600,000 units intramuscularly as a single dose; children >27 kg and adults: 1.2 million units intramuscularly as a single dose.

   2.3. Amoxicillin: children: 50 mg/kg/day orally given in 2 divided doses for 10 days, maximum 1000 mg/day, Adults: 875 mg orally twice daily for 10 days.

   2.4. Erythromycin base: children: 25-50 mg/kg/day orally given in divided doses every 6 hours For 10 days, maximum 2000 mg/day; adults: 250-500 mg orally four times daily for 10 days

   3. Corticosteroids:

   3.1. Dexamethasone sodium phosphate:
   
   children >12 years of age and adults: 10 mg IM/IV as a single dose. To be used in severe and exudative group A β-hemolytic streptococcus–positive acute pharyngitis.

Follow up

Criteria for referral:

Otitis media, Obstructive sleep apnoea, Peritonsillar abscess (quinsy), Rheumatic fever (strept), Post streptococcal golmerulonephritis,

Indications for referral and surgery: Recurrent episodes of tonsillis, Hypertrophy (sleep apnoea), Peritonsillar abscess, Streptococcal carrier, unilateral enlargement.

Indications for adenoidectomy alone: Recurrent acute otitis media or chronic otitis media with effusion (serous otitis media).

Prevention

• There are no accepted strategies for the primary prevention of acute tonsillitis.
• Avoid overcrowding

Patient Education

• Immediate treatment of any sore throat.
• Improve patient and family understanding about the disease.

Reference:

Sudan National Standard Treatment Guidelines, Directorate General of Pharmacy, Federal Ministry of Health, Sudan, 2014
Introduction

Rational medicine use has been defined by the WHO as use in which “patients receive medications appropriate to their clinical needs, in doses that meet their individual requirements for an adequate period of time and at the lowest cost to them and their community.” Rational medicine use is a crucial part of national health policies, particularly since more than 50% of national and 60-80% of individual health-care spending goes toward medicines in developing countries.

Several studies from developing countries have described medicine use problems. Such practices result in a waste of resources, inappropriate patient demand, antimicrobial resistance, and increased medicine-related morbidity and mortality.

This study was designed to assess the current medicine use practices in the outpatient settings of the pediatric teaching hospitals in Khartoum State, Sudan.

Methods

A comparative, cross-sectional study was carried out in 4 major pediatric hospitals in Khartoum State. Data was collected from general illness prescriptions, using WHO indicators (600 prescriptions in total, 150 from each hospital). Data were entered into SPSS version 17 (SPSS, Inc., Chicago, IL) and a descriptive analysis was conducted.

Results and Discussion

Table (1): Mean of key indicators from 4 major pediatric hospitals in Khartoum State, Sudan

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Pediatric Hospitals</th>
<th>Results</th>
<th>Al-Buluk</th>
<th>Gafar Ibn Auf</th>
<th>Military</th>
<th>Omdurman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicines prescribed per prescription n (mean)</td>
<td>2.0</td>
<td>1.9</td>
<td>2.2</td>
<td>1.9</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Prescribing per generic name, %</td>
<td>49.3</td>
<td>45.0</td>
<td>51.8</td>
<td>50.6</td>
<td>49.9</td>
<td></td>
</tr>
<tr>
<td>Prescriptions with an antibiotic, %</td>
<td>81.3</td>
<td>82.0</td>
<td>96.7</td>
<td>69.3</td>
<td>77.3</td>
<td></td>
</tr>
<tr>
<td>Prescription with an injection, %</td>
<td>3.5</td>
<td>5.0</td>
<td>3.0</td>
<td>4.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Prescribing from EML, %</td>
<td>57.2</td>
<td>66.9</td>
<td>50.7</td>
<td>47.5</td>
<td>63.6</td>
<td></td>
</tr>
<tr>
<td>Consultation time, minutes, (mean)</td>
<td>4.7</td>
<td>4.3</td>
<td>3.9</td>
<td>3.7</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Dispensing time, seconds (mean)</td>
<td>28.2</td>
<td>24.9</td>
<td>36.8</td>
<td>29.9</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>Medicines actually dispensed, %</td>
<td>80.1</td>
<td>88.5</td>
<td>58.2</td>
<td>84.8</td>
<td>88.8</td>
<td></td>
</tr>
<tr>
<td>Parents with dosage knowledge, %</td>
<td>83.5</td>
<td>86.7</td>
<td>78.7</td>
<td>84.0</td>
<td>84.0</td>
<td></td>
</tr>
<tr>
<td>Availability of key medicines,%</td>
<td>81.3</td>
<td>100</td>
<td>50.0</td>
<td>100</td>
<td>75.0</td>
<td></td>
</tr>
</tbody>
</table>

EML = essential medicines list.

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2. Associate Professor, Department of Pharmacy Practice, Faculty of Pharmacy, Kuwait University.
3. Pharmacy Practice Education Co-coordinator at NHS Education for Scotland, Aberdeen, UK.
There was a significant difference ($p < 0.05$) between the hospitals with regard to all indicators, except for generic and injection prescribing and parent knowledge of correct dosage.

The study findings indicate absence of polypharmacy, as it has been proposed that the average number of medicines per prescription should be about (2).

Generic prescribing was found to be low (49.3%). It was similar to percentages reported by the previous local studies, but was lower than those reported by other studies. The low rate of generic prescribing may be attributed to the influence of marketing activities of medicine companies, the nonexistence of independent continuing education and the unavailability of the EML or hospital formulary. A substantial overuse of antibiotics (81.3%) was identified. It was far higher than the recommended value of (<30%). Prescribing of antibiotics observed was the highest compared with all local previous studies. Factors leading to antibiotic overuse are complex, involving physician beliefs, lack of knowledge about the accurate use of antibiotics, diagnostic uncertainty, and meeting patients’ demands. The overall percentage of prescriptions for injections in the present study was far lower than what had been reported by previous local studies and the 35 developing countries WHO study. The mean consultation time observed was (4.7 minutes), while an even shorter mean dispensing time (28.2 seconds) was detected. The opinion of WHO is that this time of (4.7) minutes are too short to conduct a complete patient evaluation and prescribe therapy. Furthermore the short dispensing time would not be expected to allow for the provision of adequate counseling and may indicate less attention to details and greater potential for errors. Only (55.7%) of medicines were adequately labeled, which was far less than that reported by other local studies. This could be attributed to the short dispensing time observed, moreover, there might be a lack of awareness about the importance of adequate medicine labeling.

**Conclusion and Recommendations**

Substantial overuse of antibiotics, low generic prescribing, low prescribing from the EML, very short dispensing time, and inadequate medicine labeling are the major medicine use problems identified. Further in-depth research to identify cost-effective multifaceted interventions to improve current medicine use practices is highly needed.

Abstracted from:

Introduction

The Pharmacists role is to evaluate, formulate, and dispense medications to patients and counsel them on the proper use and adverse effects, and thus ensure safe and effective use of medications. It is well documented that safe and effective drug therapy occurs when patients are well educated about their medications.

In Hospital outpatient pharmacies, the patient/client receives medications through small window or over the counter, with very little communication or none! The same practice is seen in a number of community pharmacies. Although this irrational practice is not universal, it is fairly common.

As a consequence patients do not get enough information about the use of the medication including how and when to take the medication, how long to take and what to do if side effects occur or a dose is missed, how to store drugs especially those that need special storage conditions. Lack of essential information usually leads to failure of taking medications in the correct way. This in turn results in therapeutic failure, and additional expenditure on investigation and treatment.

Methods

This is a descriptive cross-sectional community based study conducted in Khartoum city center. This area was chosen because there are the largest Federal referral hospitals; Khartoum Teaching Hospital, Dermatology Hospital, Pediatrics’ Referral Hospital and Ear, Nose and Throat Hospital, Radiation and Isotope Centre, as well as some important private hospitals/clinics and medical practices. There are many pharmacies in their vicinity. Patients come to those health facilities from all over the country.

A total of 362 patients selected by convenience sampling technique, were interviewed immediately after leaving pharmacies, by a structured questionnaire to assess information received from pharmacists. Also 50 pharmacists were selected by the same method and interviewed to assess their perceptions of their practice regarding information giving and counseling.

Results and Discussion

A considerable number of participants (53%) were males and 47% were females, with the majority aged 20-35 years. All participants received some sort of education; 43.1% were university graduates, and 32.9% had secondary school education. Respondents receiving pharmaceutical service from public, private, and health insurance pharmacies at the following percentages respectively: 37%, 30%, and 33%.

The information provided by pharmacists to the clients was found variable. The majority of the pharmacists focused on the dose and the dose regimen, while taking disease history was the least to ask about (Figure 1).

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2. University of Medical Sciences and Technology, Sudan
When the clients were asked about who mostly provide more medication information among doctors and pharmacists, they provided different answers. Clients who received services from health insurance and public pharmacies thought that doctors provide more information than pharmacists. On the other hand clients from private pharmacies thought the opposite (Table 1). The nature of the pharmacy (public, health insurance, private) might affect the service provided; this can due to variation in the work load and the number of clients.

Table 1: Association of type of pharmacy visited against who is providing more information about medications (n=362)

<table>
<thead>
<tr>
<th>Type of pharmacy visited by the clients</th>
<th>Who is providing more information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Doctors</td>
<td>Pharmacists</td>
</tr>
<tr>
<td>Private</td>
<td>42</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>38.5%</td>
<td>50.5%</td>
</tr>
<tr>
<td>Public</td>
<td>64</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>48.1%</td>
<td>36.1%</td>
</tr>
<tr>
<td>Health insurance</td>
<td>73</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>60.8%</td>
<td>26.7%</td>
</tr>
</tbody>
</table>

P value = 0.000
On the contrary; pharmacists perceived that they always provide enough information (62%). All the pharmacists investigated mentioned that sometimes there are barriers to the effective counseling process. Some of the pharmacists considered there were more than one barrier, while the others summarized the barriers as; patients’ disinterest, information already provided by the doctor, high workload, pharmacy owner restrictions, and even incompetency (Figure 2).

![Figure 2: barriers to effective counseling process as suggested by the pharmacists (n=50)](image)

**Conclusion and Recommendations**

Patients highly valued the information they receive about their therapy. However, pharmacists are lacking certain skills in their practice; they need to develop some competencies that are required for effective counseling process. More time and dedication to effective information giving is recommended.

**References:**


2. Schommer J C. Patients’ expectations and knowledge of patient counseling services that are available from pharmacists. Am.J of Pharma. Educ, 1997; 61, 402406-.

Dementia Associated with Continuous Use of Some Anticholinergic Medications

Shelley et al JAMA Intern Med. 2015

A study published in JAMA has shown an association between the use of higher cumulative doses of anticholinergics and dementia. Shelley and colleagues recruited 3434 participants aged 65 years and older in 1994 and 2000 and followed them up every two years over the course of a 10 year period. Data for dose and length of use of anticholinergic was extracted from pharmacy records. During follow up, 797 participants developed dementia or Alzheimer’s disease. The odds for developing dementia were higher among participants who took higher doses of anticholinergic for longer duration of time. The drugs implicated were the older antihistamines, tricyclic antidepressants and drugs used for urinary incontinence. The study estimated that people taking at least 10 mg/day of doxepin, 4 mg/day of chlorpheniramine, or 5 mg/day of oxybutynin for more than three years would be at greater risk for developing dementia. The authors conclude that prescribers and pharmacist should be aware of this link and use drugs with less anticholinergic effects such as Selective Serotonin Receptors Inhibitors (SSRI’s) for depression and newer antihistamines for hay fever. This is the first large study to find a dose link between dementia and the use of anticholinergics.

Paracetamol may Blunt Feelings as Well as Relieve Pain

NHS choices, 15/April/2015

A study carried out at Ohio State University randomized 167 college students to receive 1000 mg of paracetamol or placebo in liquid form. They waited 60 minutes for the drug to take effect and asked the participants to view 40 photographs from the International Affective Picture System, a database used to elicit emotional responses. Results showed that participants who took paracetamol viewed the pictures less intensely. The authors concluded that the drug may have an effect on neurochemical stimuli in the brain and may reduce both negative and positive emotions. The drug has also been found to blunt feelings of hurt in social relationships and reduce the discomfort felt in making decisions.

Medication Adherence Interventions for Heart Failure Have Shown Success in Studies


A recent met-analysis of 29 studies that examined the effect of interventions on improving adherence to heart failure medication against a control group was published in the Journal of Cardiovascular Nursing. The study has confirmed that adherence to heart failure medication can be increased by training healthcare workers to become more patient-centered. Interventions should also include a behavioral component and adherence outcomes should be measured and reported.

1. Head of clinical pharmacy services, Radiation and Isotope Centre Khartoum
The current community pharmacy practice in Sudan is deficient in many areas; the mere observer can identify many short comings at a glance. Researches evaluating different aspects of the practice like, screening prescriptions for medication errors, dispensing, counseling, over-the-counter OTC sales, responding to symptoms, time spent with the client/patient, has provided objective description of the defaults. The need for change and improvement of pharmacy services and practice is compelling.

Good planning is needed to enforce changes, the stakeholders should understand the problem and come up with proper solution using the results of research and the successful experiences of others to induce change. This document tries to look into this serious issue, the author put the problems into three parts; the personnel, the facility, and the community.

1. Personnel: the pharmacist is responsible for all activities that take place in the pharmacy; procuring, storing, dispensing and selling medicines and OTC products. They are to ensure that quality products and sound service is being provided. Pharmacists are in charge of accessory personnel, especially pharmacy assistants. To enable pharmacist to shoulder their responsibilities they should be adequately trained to perform to the optimum. No doubt undergraduate education is very important, it should aim to graduate professionals that practice up to the standard. Exposing students to the actual work environment, training them to perform the various activities of the community pharmacist, teaching them the skill of identifying (work) problems and setting proper solutions are important domains in the instruction of pharmacists and should compose a significant volume of their education.

The pharmacist education and training should be continued during their practice, through continuous professional development CPD programmes. To ensure compliance and benefit from training, it should be linked to licensure. Invigilation of performance and practice is also important, it should be comprehensive, including all aspect of practice with the objective of enforcing practioners to improve and practice to standards and not the mere punishment of pharmacist or collections of fines.

Pharmacy assistants, with institutional training and education, can perform simple tasks under the direct supervision of the pharmacist. This will allow more time for pharmacists to deliver pharmaceutical care. Pharmacy assistants should be subjected to continuous education, invigilated and licensed.

2. The facility: The pharmacies should allow the pharmacist to perform his duties optimally. The Majority of the pharmacy settings in Sudan does not provide a quite area for checking medication, dispensing, advising and counseling patients/clients, and certainly does not reflect an aspect of professional medical care. Different pharmacy settings have been adopted worldwide to ease the provision of pharmacy service. Local

1. Lecturer of pharmacology, Faculty of Dentistry, University of Khartoum
pharmacies should adapt a “setting” that suits our local environment and give the pharmacist better background to practice. Simple solutions can make great changes, for example putting chairs for clients to wait for their turns, to allow one client at the counter with a reasonable level of privacy. The work of the pharmacy should be arranged to allow the pharmacist to spend time on (medical care) i.e. screening for medication errors and counseling. Software for computers and smart phones can be utilized to help the pharmacist screen prescriptions, label, advice and counsel patients in a comprehensive manner and save time and efforts. Services like monitoring chronic diseases (e.g. hypertension, asthma, diabetes), health promotion and screening are difficult to introduce at the current way of practice, community pharmacies should group and device ways of providing such services and expand their spectra of service. Researches on compliance have shown that acquiring medicines is a major cause of noncompliance; community pharmacies can develop a method of locating medicines, or availing them for their clients.

3. Community: Need enforces action/change. Raising the awareness of the community about their rights, the service a pharmacist/pharmacy can offer makes them demand such service. This would drive pharmacist to provide quality service, and pharmacist care. The community should know and then demand proper and comprehensive advice, counseling, and health promotion services as part of their patient rights. Various means could be employed, like the media, brochures, and posters.

Health authorities and policy makers (Ministry of Health, Medical Council, Directorate General of Pharmacy, National Medicines and Poisons Board, ……) are the responsible bodies to plan, make legislations, implement, evaluate and invigilate community pharmacy practice. To ensure success all stakeholders should be involved, and research finding taken into account.
Lozenges are solid preparations that are intended to be dissolved slowly in the mouth to lubricate and soothe the irritated tissues of the throat. Lozenges are an effective therapy in viral throat infection and can help in rationalizing the overuse of antibiotic in such types of infections. They contain one or more active ingredient usually in a flavored, sweetened base. Lozenges’ simplicity encourages some people to overuse them while others would not consider them as an effective therapy.

It is therefore of high importance for professionals to explain the following information to their patients:

• Lozenges are to be sucked slowly, not to be chewed or swallowed.
• Different brands have different active ingredient/s and therefore different administration routines.
• Lozenges are not recommended for use in children under 3 years.
• Most of the lozenges contain sugar. Diabetes patients need be warned about possible hyperglycemia.
• If the symptoms do not get better in 2 days, patients should contact their doctor.
• Overuse of lozenges can cause diarrhea.

The table below presented some of the most common brand used in Sudan:

<table>
<thead>
<tr>
<th>Brand</th>
<th>Ingredients</th>
<th>Frequency of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strepsils®</td>
<td>2,4-Dichlorobenzyl alcohol, Amylmetacresol, sucrose, glucose syrup, honey, tartaric acid, peppermint oil, lemon oil</td>
<td>Every 2 to 3 hours</td>
</tr>
<tr>
<td>Nice®</td>
<td>Menthol, acesulfame potassium, Citric acid, Eucalyptus oil, Isomalt, Lemon oil, Sodium citrate</td>
<td>Every 2 hours</td>
</tr>
<tr>
<td>Halls Plus®</td>
<td>Menthol, carrageenan, glucose syrup, glycerin, partially hydrogenated cottonseed oil, pectin, soy lecithin, sucrose.</td>
<td>Every 2 hours</td>
</tr>
<tr>
<td>Zeal plus®</td>
<td>Vitamin C, Ginger, Glycyrrhiza glabra, Emblica officinalis, peppermint, pineapple flavour</td>
<td>Not more than 10 lozenges per day</td>
</tr>
</tbody>
</table>

Reference:

1. Planning and Policies Directorate, Directorate General of Pharmacy, Federal Ministry of Health
Q. What is the difference between dispensing and counseling?

A. Dispensing is often portrayed as merely the process of a pharmacist giving a pharmaceutical product to a patient, representing a mechanical physical process. On the other hand, counseling is a one-to-one interaction between pharmacist and patient/caregiver. Counseling is interactive in nature and should ensure that the patient understands the provided information to grantee positive therapeutic outcomes. Assessment of whether or not the information was received as intended is the cornerstone of this process.

Q. What are the steps of the dispensing process?

• Receive the prescription
• Check the prescription and screen for medication errors
• Assemble the medicine/s
• Accuracy checking: ensure that step 2&3 are correct
• Label the medicines appropriately
• Counsel and supply

Q. What are the elements of patient counseling process?

• Building relationship with the patient/caregiver
• Assessment of patients’ knowledge about the medicine to be dispensed and provide the information needed
• Explaining to patient how to use and handle his medication
• Closing the counseling process and ensuring that the patient understands well his medication. Important instructions should be repeated.

Q. What are the benefits/outcomes from counseling?

A. Improved patient understanding of their medication results in increased compliance and therefore better health outcomes. Improved pharmacist-patient relationships and trust, patient respect toward pharmacist, and improved job satisfaction for pharmacists.

Q. When and who should you counsel?

A. Ideally, the pharmacist should counsel all patients at every interaction e.g. new and refill prescriptions. The amount and type of information provided to the patient will vary based on the patient’s needs.

Q. What are the factors that may prevent counseling?

A. Many factors pause barriers to counseling include work load, under staffing, inappropriate work environment that may not be conducive, lack of counseling area, incompetency, and poor communication skills. In addition to language, cultural and educational barriers.

Privacy: Pharmacists may need to counsel patients on sensitive issues. This necessitates the availability of counseling areas to ensure patient privacy.

Q. Now, what do you think of your practice? Are you satisfied?

1. Medicines’ Information Center and Reference Library, Directorate General of Pharmacy, Federal Ministry of Health
Sharing an Experience of Success
Clinical Pharmacy at Bahri Teaching Hospital

Mahdiah E. Dafala¹

In Sudan, pharmacists are still providing traditional pharmaceutical services in which they are not using their pharmaceutical knowledge and skills at full capacity. Today, pharmacists from the different sectors embrace the concept of pharmaceutical care and are looking forward to make a shift towards a more patient-oriented practice.

A study in one of the main teaching hospitals in Khartoum state explored the opinions of doctors from different specialties about Clinical Pharmacy services. The majority of doctors were positive about the concept, although, the exact role of the clinical pharmacist was not well understood and unclear to them.

The fact that a large number of doctors had no previous exposure to clinical pharmacy practice before, may explain the difference in doctors' perception of clinical pharmacy.

Khartoum North Teaching Hospital (Bahri) witnessed a successful experience in clinical pharmacy that is worth mentioning. This project was an individual initiative of the author. Therefore, the project met many obstacles at the beginning to reaching what it is now. The author at this point would like to mention the great support of the late Dr. Mutasim Nadeem who stood by me fully and helped me push this project forward. We fought for a long period before we managed to establish tangible clinical pharmacy services in selected

Figure 1: The types of clinical pharmacy interventions provided.

1. MSc in Clinical Pharmacy, Clinical Pharmacist at Bahri Teaching Hospital.
departments of the hospital, namely, medicine, pediatrics and the Intensive Care Unit (ICU).

Since the establishment of our department in 2010, a number of services were offered. Beside the routine revision of medications records which was well documented in specifically designed forms, our work included coaching the clerkship for clinical pharmacy students from Alnilain University and supervising clinical pharmacy postgraduate research.

Extending the clinical pharmacy services to the intensive care department was a worthy experience, that deserve to be mentioned.

We started the provision of clinical pharmacy services in the ICU in 2014. In a period of 9 months, we screened 100 cases admitted to ICU with different diagnoses (Table 1). On revision of the patients medical records interventions were done in 54% of the cases. Of these interventions, 89 % were accepted and, for different reasons, only 11% were refused.

The outcome of the provided therapeutic services was the improvement of 51 cases, one case deteriorated and three patients have passed away. The interventions included the change of medication, change of doses, monitoring for drug safety, deletion of an unnecessary prescribed drug, and suggestion for adding a new medication. However, the largest intervention dealt with the change in dose or interval as shown in Figure 1.

These interventions had a good impact on the patients’ health outcomes. Moreover, the doctors started to accept the role of clinical pharmacist as a member of their team.

From this little experience at Bahri Hospital ICU Department we found that clinical pharmacy services are well appreciated and accepted by doctors. This goes with the findings of previous surveys carried in this area. However, the challenge of resistance remains but mainly from doctors who are not aware about clinical pharmacy and its role.

The introduction of new concepts has always been a challenge that faces a lot of resistance. Nevertheless, with persistence change can be made. At Bahri Teaching Hospital we tried, we suffered but at the end we did it! If we can do it, so can you!

Table 1: Show examples of Patient admitted to ICU from March till November 2014

<table>
<thead>
<tr>
<th>Pt.name</th>
<th>Pt.diagnosis</th>
<th>Therapy</th>
<th>Clinical pharmacist Intervention</th>
<th>Acceptance</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. H.A</td>
<td>27years 31-3-2014</td>
<td>Hypertention, Prostule enlargement, Massive PE</td>
<td>Maxil 750mg I.V TDs, Pantodac 40mg Od, Warfarin 1mg Od, Oral intake 2hr, 200mg dobutamine +250mg dobamm in 50ml N.S 5ML/HR</td>
<td>File revision and no intervention</td>
<td>Improve</td>
</tr>
<tr>
<td>2. F.A</td>
<td>31-3-2014</td>
<td>NESTMI, Pulmonary edema renal impirement</td>
<td>Aspirin 100mg Od, Atorvastatin 40mg Od, Lasix 40mg Od, Losartan 40mg od, Clexane 600 I.U B.d, Mixstard insulin 10mg- manage of us stable</td>
<td>Un fractured heparin is beterr than low Mwt heparin in case of renal impairement</td>
<td>accept Improve</td>
</tr>
</tbody>
</table>
How to Reduce Dispensing Errors

The Code of Ethics and professional conduct says that pharmacists must “make the care of patients, their first concern”. It is their responsibility to apply this principle to their daily work, using their judgment. Therefore the practicing pharmacist must provide a proper standard of practice and care to those they provide services to.

Researches uncovered that dispensing errors are frequent, and have grave consequences. How can we reduce dispensing errors? Well, simply by applying guidelines and setting standard operating procedures, this reduces mistakes and allows timely discovery of wrong actions. Moreover the prescription should be processed by two pharmacists or a pharmacist and an “assistant” but never without the input and clinical judgement of a pharmacist. Small business might be run by one pharmacist but great care must be taken to screen for mistakes.

The following table displays common dispensing errors and the reasons behind them:

<table>
<thead>
<tr>
<th>Common dispensing errors</th>
<th>Reason for error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misreading the prescription</td>
<td>Maybe due to a large number of prescriptions, illegible handwriting, careless attitude of pharmacist, or a bad dispensing environment.</td>
</tr>
<tr>
<td>Errors during verbal communication</td>
<td>Due to sound-alike names. E.g. Listerine (mouthwash)/ Listril (Lisinopril)</td>
</tr>
<tr>
<td>Picking error - picking the next medicine on the shelf</td>
<td>Due to similar packing or not being attentive or due to some distractions.</td>
</tr>
<tr>
<td>Dispensing the wrong quantity of medicines</td>
<td>Due to interruption during counting or because of work overload/ rush hours</td>
</tr>
<tr>
<td>Expiry error i.e., dispensing expired medicines</td>
<td>Regular shelf checking for expiry is not done. Each strip/bottle is not checked for date of expiry while dispensing.</td>
</tr>
<tr>
<td>Similarity error</td>
<td>Improper attention/careless attitude while dispensing, not checking carefully. The letters or writing on the strip are not easy to read. Strip or cut strip may accidentally be put in a box of similar looking product</td>
</tr>
</tbody>
</table>

In addition to causing serious morbidity and mortality, dispensing errors increase the economic burden on society.

To avoid such errors a dispensing process should be followed.

**The Dispensing Process:**

1. **Accept prescription and invigilate.**
   - The Pharmacists have a professional obligation to ensure that “every” prescription is clinically assessed to determine its suitability for the patient and screen it for medication errors. To provide appropriate
Where necessary, the patients should be provided with sufficient information to assess the patient's needs. This can only be performed by the pharmacist; no other staff member is legally accountable to do this. Under no condition should any staff member handle the prescription alone or hand the items to the patient/client. It should be referred to other health or social care professionals or other relevant organizations.

2. Drug Assembly: The requested items should be retrieved from shelves in the correct dosage form, and amount. For busy pharmacies, small baskets can be used to prevent mixing different prescriptions. Assembly of prescription medicines can be performed by members other than the pharmacist.

3. Labeling: The label of dispensed products must be written in the native language of the patient, clear and readable and where appropriate it may include cautionary and advisory labeling. If the information is more than the container could hold, then use a supplementary paper.

The label should include the following:

- Name of the medicine, the strength, the dosage form and the quantity supplied (already provided in medicine container)
- Specific directions for use, including frequency and dose.
- The patient's name.
- The name, address and telephone number of the pharmacy and the dispenser.

4. Accuracy check. The retrieved items should be checked again against the prescription and label. When this check is performed by a person other than the one who assembled the medications mistakes are reduced, especially in busy settings.

5. Advice and counseling. The pharmacist should encourage the proper/rational use of medicines and ensure that patients, or caregivers, know how to use their medicines. Effective communication skills are very important at this stage. However, it is important to allow enough time for clients to understand the information about their medication and express their concerns.

More detailed advice is especially important when certain drugs are supplied, and in certain circumstances. Examples include the use of: sedatives, drugs with narrow therapeutic index, drugs with unusual dosage forms, drugs with unusual frequency of use (e.g. alendronate, methotrexate), and new medicines. Examples also include change in the dose or frequency of administration, or when the brand of medicine has changed.

Staff

Technical and/or assistant staff if trained, they can supervise the sales of over the counter (OTC) products. They can fill the prescription (assembly) after being checked by the pharmacist. The pharmacist in charge is responsible for ensuring that the assistants' activities are limited to those functions that do not require them to exercise professional judgment. An individual pharmacist must not supervise more than two assistants engaged in the dispensing process.

References:

2. Australia Guidelines for Dispensing of Medicines
3. Ashcroft DM, Quinlan P, Blenkinsopp A. Prospective study of the incidence, nature and causes of dispensing errors
Guide to Good Dispensing

Ghada O. Shouna 1

Introduction

Dispensing is an important part of pharmacy practice. It includes all the activities that occur between the time a prescription is presented to the pharmacist until the medicine is issued to the patient.

Previously the primary role of pharmacists was revolved around dispense medications. To date, circumstances are very different. In addition to ensuring an accurate supply of appropriate products, the pharmacist’s professional activities also cover counseling of patients at the time of dispensing of prescription and non-prescription medications. This expanded role of the pharmacist allows for quality interactions, which proved to be a key component in patient compliance (Figure 1).

Good Dispensing Practices

Good dispensing practices ensure that an effective form of the correct medicine is delivered to the right patient, in the correct dosage and quantity, with clear instructions and proper counseling, and in a package that maintains the potency of the medicine. 1

Good dispensing practice starts with the dispensing environment. Staff members involved in dispensing must maintain good personal hygiene and should wear a clean white coat. The physical surroundings must be kept free of dust and dirt, adequately lit, well ventilated and cool. To ensure proper dispensing the prescription counter must be clean, organized and systematically arranged to ease flow of services.

Dispensing is NOT merely a process of supplying goods to a patient on the basis of a written order! It is a process that - in addition to reading, writing, counting - needs good knowledge about medicines, specific skills, and attitudes. Figure 2 illustrates the attributes of the dispensing pharmacist.

The pharmacist plays an important role in promoting and ensuring the appropriate use of medicine by patients. People are more likely to adhere to treatment and to follow advice when they have a clearer understanding about its importance.

1. BPharm, Diploma Clinical Pharmacy, Fellowship Pharmaceutical Services and Management

Figure 1: The Extended Role of the Pharmacist

Figure 2: Characteristics of the dispensing pharmacist
The dispensing process

The dispensing process starts by receiving and welcoming the patient, maintaining a professional attitude to gain the patient’s trust, respect is crucial at this point. The pharmacist should stop whatever s/he is doing the moment s/he is approached by the patient. This sends a message of respect and care. Greeting the patient with a smile and creating good eye contact helps in establishing the rapport needed for effective consultation. Figure 3

On receiving the prescription, the pharmacist must check it for validity, screen it for medication errors, understand it and interpret it correctly before interacting with the patient. The pharmacist might need to consult the patient to know if s/he is familiar with the prescribed medicines. It is also important to take good medication history to avoid any possible drug interactions.

Once this is done, the pharmacist should collect the medicines from the shelf and double check to ensure that it is the right medicine. Besides checking the name of the medicine, the pharmacist should check the strength, as many drugs are available in different concentrations. The next important step is the drug labeling. The pharmacist has to write all instructions necessary about using the medicine. The pharmacist should write the information and instructions very clearly and preferably on a sticker or a piece of paper made specifically for that purpose. These instructions are to be repeated again verbally to the patient.

It is pertinent that the pharmacist ensures that the patient understood well his medications before leaving the counter, and this is achieved through effective counseling. The pharmacist must use a systematic approach and applying language that the patient understands. Clarifying any uncertainties and giving advice in a simple, straightforward manner is recommended.

The closing act of a consultation is needed as a safety gage for both parties. For good closing; the pharmacist must summarize the instructions again. S/he must state the most important things that the patient needs to remember.

When leaving the pharmacy, the patient should be very clear about the use of the medication, when to stop, when to seek advice, how to store it and overall the importance of adherence and compliance.

References:

BE CLEAN, GET ORGANISED!! GIVE THE PHARMACY A PROFESSIONAL LOOK!
The role of the pharmacist continued to expand and move towards a more inclusive focus on patient care rather than its original focus on medicine products. The supply of medicines to a community must be balanced by access to impartial information which supports patients’ needs. The pharmacist is responsible to provide appropriate, understandable, reliable and relevant information to patients about their medication. Patient counseling is essential to optimize the use of medicines.

What is patient counseling?

Patient counseling is the two-way communication between a pharmacist and a patient about the medication. The purpose of the process is optimizing use of medications and to improve therapeutic outcomes. Efficient communication and counseling is the cornerstone of health promotion efforts. Pharmacists are easily reachable health professionals, so they can play a very proactive role in promoting health as well as providing pharmaceutical care. Counseling is an important element in providing chronic patient care; hence it is an effective tool in the disease management either by providing advice on self-care or education on proper medication use and lifestyle modification. Patient counseling can be done in different settings such as community pharmacy, hospitals or special programs treatment centers e.g. HIV program.

Who and when to counsel?

The pharmacist MUST counsel patients during the dispensing process. All patients should be counseled specially those who are receiving their medicines for the first time. Special attention should be taken when advising the following:

- Patients who are taking many medicines.
- Patients on narrow therapeutic index medicines.
- Patients with chronic diseases.
- Patients with co-morbidities.
- Patients known to have visual, hearing, literacy problems, etc.

Counseling process has to be repeated during dispensing of repetitive medication even for the same person. In this case, follow-up may take place to identify patient problems with medication i.e. adverse drug interactions and treatment failure.

What to counsel?

The pharmacist has to provide clear information using understandable language to patients. It is important to develop a counseling process according to individual patients’ needs. Patient counseling may include direction for use of medicines, suitable storage conditions, patient’s allergies and health conditions, common adverse effects and precautions, potential drug interactions and desirable changes in lifestyle.

Assessing and prioritizing needs

The pharmacist must adapt the counseling session according to patient characteristics and needs. Information to be obtained from patients that will help to customize the counseling includes:

- Educational and cultural background (by observation).
- Clinical and medication history.
- Special Patient Populations (e.g. pediatrics, geriatrics, patients with chronic diseases, pregnancy and breast feeding, etc.).
Format of counseling provided

The counseling process entails both verbal and non-verbal communication. Also, it should be complemented by written materials when appropriate.

Counseling area

Ideally, provision of patient counseling ought to be in private area away from other people to ensure confidentiality and to guarantee that both parties are focused on the discussion and to minimize interruptions and distractions. Anyway, counseling should be done even if there is no private area available.

Conclusion

The provision of counseling on medicines improves the desired therapeutic outcomes as well as medications safety. It requires clinical expertise, knowledge, professional attitude, and effective communication which improve understanding the patient counseling.

Medication Counseling Tips

- Building relationship.
- Recognizing the need for counseling using questioning and listening skills.
- Opening the medication containers and show the patient what the medication looks like.
- Demonstrating the use of unusual dosage forms.
- How, when and for how long to take the medication.
- What to do if a dose is missed.
- Any special precautions to follow.
- How to store the medication.
- Verify the patients’ understanding of the information provided
- Ask the patient if s/he has any questions.

References:

Inappropriate Counseling Can Result In Failure of Therapy

Abdalla O. Elkhawad¹

Medicines are cornerstone in achieving therapeutic goals, therefore they should be used effectively. Doctors, pharmacists and patients need to know about medicines to reach positive therapeutic outcomes. Knowledge about the category/class of the medicine, dose, route, frequency and duration of use, what to do if a dose is missed, storage and how to get rid of the unused medicine is vital. Conveying this knowledge to the patient assures benefit from therapy, therefore effective communication is a valuable tool. Misunderstanding can produce drastic outcomes. In this short article I would like to stress some important counseling points and present some real life examples of failures.

1. **Taking the medication at the right time is important!** The main reason is to maintain the optimum concentration of the medicine in plasma to produce the required effect that is needed to cure or prevent the symptoms. Therefore it is an important counseling point, and the doctors/pharmacist must make sure that the patient understands this. So, when you tell your patient to take the medicine every eight hours, it should be clear that each dose should be eight hours apart from the next. Most people think that as long as they take their medicines within the day (at the correct frequency), it doesn’t matter about the spacing of doses.

We have seen patients who take the three tablets together; this is how they perceive the instructions. Others will take them at different times as long as they will take them during the day. Remember some patients think the day has 12 hours! The waking hours. One patient was prescribed three medicines and instructed to take each every eight hours. The patient took all the first medicine, then after eight hours he took the second medicine. The patient was taken to the emergency room before he got to the last medicine suffering from overdosing!

¹. Dean Graduate College, University of Medical Science and Technology, Sudan
Hence, it is essential for all health care providers to give both verbal and written instructions to patients and confirm that they understood the instructions clearly.

2. **Is it important to tell patients when the medicine will start working?** Patients are typically anxious; they want immediate effects to relieve their misery. It is important to tell the patient when to expect change in the condition. This is necessary to know whether the medicine is working or not, and accordingly appropriate changes in the regimen can be done.

Some medicines will have immediate effects, like vasodilators given by sublingual route. Analgesics might give a relief within half an hour. Medicines like antibiotics will start working within days may be equal to the number of days the patient had the infection. In the case of antibiotics this explanation is essential, since the medication might seem to be ineffective. The patient must continue with therapy to reduce the development of resistance.

Other medications might take up to a month to start working, including medicines like antidepressants and antipsychotics. One other medicine, namely beta-histidine (vertigo therapy) will start working after six months. All these are some examples of medications which need special care when counseling patients.

3. **Is it important to tell patients how long to take medicines?** It is important to adhere to the full time course of therapy to achieve the desired outcome/s. Taking medicines for shorter periods will lead to therapeutic failure. On the other hand, taking medicines for longer time might lead to serious complication. I know two cases of patients who unnecessarily continued the medication for long periods of time. One was a patient who took metronidazole for six months and consequently suffered some serious side effects. When asked why she continued with the medicine; she answered nobody told me to stop! The other case was a patient who used eye drops for an infection for two years. He continued because it did him good and no one told him to stop!

To conclude, counseling patients is an integral part of the pharmacist and doctor’s job. Misunderstanding of the instructions can lead to inappropriate use of medications and the outcome will be therapeutic failure and more cost to the patient and the health system. Further serious consequences can be the development of resistance to antimicrobial agents.
Routine use of antibiotics that lead to development of antibiotic resistance and collateral damage is the main cause behind the rising antibiotic resistance in our hospitals and shall undoubtedly lead to treatment failures and increased patients’ morbidity and mortality. This irrational antibiotic formulary deliberately subjects patients and the environment to collateral damage, so this defective formulary we have in our country must be revised in line with the approved essential medicines list. In the absence of specific antibiotics to treat infections such as those caused by *Staphylococcus aureus* and *Enterococcus spp.*, clinicians use cephalosporins particularly oxyimino, cephalosporins, fluoroquinolones or vancomycin, being the most available injectable antibiotics probably unaware of the serious implications of the overuse of these medicines in hospitals and the unavailability of standard injectable antibiotics for treating common infections. Standard medicines needed for the treatment of common and life threatening infections should be added to the formulary.

Damaging antibiotics must be reduced to the absolute minimum and their use must be controlled. Meanwhile, it is necessary to launch an active educational programme for healthcare professionals on appropriate antibiotic use and antimicrobial stewardship. Some measures need to be considered when selecting a suitable antibiotic for treating infections:

- Glycopeptide intermediate *S. aureus* (GISA), was first described in 1997 is insusceptible to glycopeptides. GISA produce excessive peptidoglycan cell wall material that traps vancomycin (glycopeptide) molecules. Infections with such strains do not respond to vancomycin. We reported such strain from Oman and have recently identified three strains in Soba university hospital. Infection with GISA can be treated with linezolid or daptomycin, which are not registered in Sudan.
- Treatment of enterococcal infection is limited to ampicillin, co-amoxiclav and vancomycin. Being least costly and associated with least side effects, ampicillin should be the preferred antibiotic in treating all infections with susceptible enterococci. Alteration in the glycopeptide binding site in the cell wall renders *Enterococcus* spp. fully resistant to glycopeptides (vancomycin).
- Penicillin resistance of *Staphylococcus* was first reported in 1940. Penicillin-resistant strains of *Streptococcus pneumoniae* have ranged from 20% to 78% in the region. However, in Sudan, the incidence of invasive pneumococcal disease or the prevalence of penicillin-resistant *Streptococcus pneumonia* is unknown, because of difficulties in performing culture and MICs for *Streptococcus pneumonia*. Having such high level of resistance among *Streptococcus pneumoniae* in the neighbouring countries and elsewhere, we advise our clinicians not to treat pneumococcal meningitis with penicillin.
- Eighty-seven percent of *Pseudomonas aeruginosa* and related organisms (non-fermenters) were isolated in Soba hospital and found to be susceptible to cotrimoxazole. Since patients infected with these organisms are usually treated in
special care units, they require injectable cotrimoxazole, which is currently, not available in Sudan.

Initial treatment of meningitis should include high dose of cefotaxime or ceftriaxone with vancomycin. This is one of the few situations where the use of a third generation cephalosporin is justified.

Although the obvious association between overuse of third generation cephalosporins and development of antibiotic resistance has limited the use of third generation cephalosporins in many centres, Sudan licence five different brands of third generation cephalosporins, a practice that should be discouraged to avoid.

High prevalence of resistance of *Escherichia coli* and *Klebsiella spp.* to ceftriaxone and ceftazidime has ranged from 56.5% to 79%.

Earlier reports from Khartoum have also shown high prevalence of ESBL-producers among *Enterobacteriaceae*. We analysed the antibiotic susceptibilities of common isolates from the national health laboratory (Stack), Khartoum teaching hospital and Soba university hospital during 2013. The prevalence of MRSA ranged between 29% in Stack to 80% in Khartoum hospital. Resistance of *Enterobacteriaceae* to oximino cephalosporins ranged from 61% to 88% in the three centres. 3% to 5% of *Pseudomonas spp.* and non-fermenters were resistant to carbapenems. The prevalence of vancomycin-resistant *S. aureus* ranged from 2% in Soba hospital to 25% in Khartoum hospital.

References:
8. Microbiology Records. Soba University Hospital.; Khartoum, Sudan.
Pharmacovigilance is a pharmacological science concerned with monitoring the safety of medicines. It is defined by the World Health Organization (WHO) as the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other possible drug-related problems (WHO, 2009).

Post-marketing surveillance - or phase IV clinical studies which are other names of pharmacovigilance, represent an ongoing vigilance on medicine actions on real patients from different ethnical and genetic makeup backgrounds to ensure long term safety and rational use of medications. The core activity of pharmacovigilance is the spontaneous adverse drug reaction reporting, which is considered the main method and major source of information.

Reported adverse drug reactions should include all the needed information which comprises patient demographics, date of reaction, name of medicine (generic and brand), dose, diagnosis, the prescribing physician's contact information, medical history, medications use history, full description of the reaction, how did the reaction resolved, outcome of reaction, and causality and severity of the reaction.

Spontaneous Adverse Drug Reaction (ADR) reports may or may not rise up a signal. Signals are further confirmed by other pharmacovigilance methods, including different study designs like observational and/ or interventional studies. These can be further combined in systematic reviews or meta-analyses to enhance their power of evidence, so that they become more reliable and generalizable. Which method to choose depends on the medicinal product, its indication, the population being treated, the type of risk (identifiable risk, potential risk or missing information) and the issue to be addressed.

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Reference:

1. Lecturer of pharmacy practice, Faculty of Pharmacy, University of Sciences and Technology
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).

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Conclusions and recommendations: Acknowledge personal, financial and institutional assistance at the end of this section.

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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.

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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
Highlights on some of the NMICRL activities in 2014

Participation of NMICRL in the 2nd Sudan Pharmacy Students’ Federation Conference at Friendship Hall, April 2014

One month capacity building course for South Darfur Medicines’ Information Center pharmacists, June 2014

NMICRL Staff attended Rational Use of Medicines workshop, Western Cape University, South Africa, July 2014

One month capacity building course for South Darfur Participation of NMICRL in The Diabetes World Day, Khartoum, November 2014

NMICRL presented a series of TV and radio session to raise public awareness on different aspects of Rational Medicines Use

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