



Preface

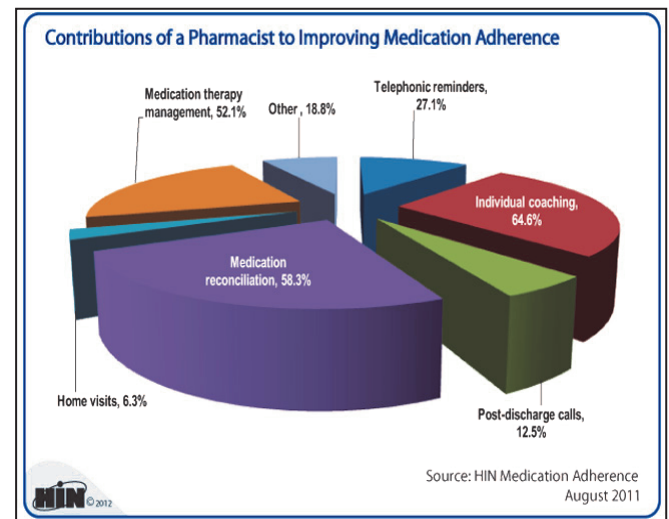
This issue addresses yet another effort in expanding clinical pharmacy benefits for targeted patients, specifically through our medication adherence program. Why targeted? The best way for me to describe this is so as to optimize between the pharmacists' enthusiasm and dedication with the sense of satisfaction achieved through this venture by targeting on patients on multiple medications, with chronic diseases, and recent hospital discharges.

Needless to say, direct consequence of poor adherence is suboptimal clinical benefit. It leads to medical and psychosocial complications of disease, reduction in patients' quality of life, and wastage of health care resources, which ultimately may impair the ability of health care systems anywhere to achieve their health goals. Contributions of pharmacists has been summarized as captured in the attached chart based on survey respondents to Healthcare Intelligence Network / HIN's second annual e-survey on how 162 healthcare organizations are improving medication adherence and compliance in their population.

And our CKD-MAP would fulfill "Individual Coaching" which contributes to the largest slice of the pie-chart. Credit should be given to both our drug information pharmacists Noor Shufiza Ibrahim and Noorhasliza Ramlee at Unit Kajian & Maklumat Drug Jabatan Farmasi, Hospital USM for their painstaking time and effort to realize unique modules customized to our spectrum of patients before actually commencing the CKD-MAP service among our patients undergoing dialysis. Keep up the good work.

We hope to be addressing on a couple of our MAP which has followed suit thereon, namely our Diabetes-MAP and Warfarin-MAP in the forthcoming issues.

By : Noor Aini Abu Samah



Whats interesting?

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HALL OF FAME 4

Formulary Update

new drugs included in HUSM Formulary

Ciclesonide Nasal Spray 50 mcg/dose

Cyproterone acetate tablet 50 mg

Levamisole tablet 50 mg

Ranibizumab injection 10 mg/ml

Ticagrelor tablet 90 mg

Fenofibrate Penta tablet 145 mg

Pentamidine isethionate injection 300 mg

Olopatadine HCl eye drops 0.2%

Methadone syrup 5mg/ml

Ertapenem injection 1g

Nilotinib capsule 200mg

DPP IV inhibitors (Sitagliptin 50mg,100mg ; Vildagliptin 50mg; Saxagliptin 2.5 mg, 5 mg; Linagliptin 5mg)

Leuprolide injection 3.75 mg & 11.25 mg

Bimatoprost ophthalmic solution 0.03%

Human growth hormone (somatropin) 10 mg

Telmisartan / Amlodipine 80/5mg & 80/10 mg

CHRONIC KIDNEY DISEASE- MEDICATION ADHERENCE PROGRAMME (CKD-MAP)

Medication adherence is a growing concern to healthcare professionals, healthcare system and stakeholders. Medication adherence is not merely a matter of how many times does a patient need to take their medication in a day. In fact, adherence as defined by WHO is the extent to which a person's behaviour in taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider. Thus, many countries are now providing medication adherence services albeit under various tags. Be it Pharmacist-Managed Adherence Clinic in Canada, Pharmacist-Operated Adherence Clinic in the U.S or Medication Therapy Adherence Clinic among hospitals under the Malaysian Ministry of Health, the aim remains of addressing this concern and improving adherence among patients. The Department of Pharmacy in the vicinity of Hospital USM, has sparked off a similar service for chronic kidney disease (CKD) patients known as CKD-Medication Adherence Programme (CKD-MAP) initiated by pharmacists from its Unit Kajian dan Maklumat Drug (UKMD) in collaboration with CKD Resource Center and Hemodialysis Unit. Commencing in July 2012, a series of discussions were held between Deputy Director (Pharmacy) and UKMD pharmacists with Assoc. Prof Zainal Darus, Dr. Azreen Syazril Adnan, nurses and medical assistants from the CKD Resource Center. In November 2012, the programme was executed at Hemodialysis Unit of Hospital USM.

To date, 24 sessions have been carried out involving 10 patients. Each session will generally comprise of verification on adherence progress, review of laboratory investigation results, and explanation on the disease including treatment options. We have developed several modules pertinent to enhance the effectiveness of the care process. On top of that our program also entails :

- ◆ Regular discussions with doctors and nurses to address on patients' problems with their medications,
- ◆ Participation in CKD talk sessions held twice monthly where the CKD-MAP pharmacists shall emphasize on proper techniques of taking medications commonly prescribed for patients with CKD Stage 3 and 4.

Our hope for the future is that we will be able to expand our service to patients who attend the CKD Resource Center and do research in this area. Indeed, this program has increased our level of job satisfaction by giving us a great chance to implement our knowledge and serve patients directly besides improving communication skills.



Did you know??

Erythromycin which is a widely used and considered safe antibiotic can increase the risk of cardiac arrest especially when taken in combination with some antimicrobial and antihypertensive drugs. According to a study conducted by Dr Wayne Ray (Vanderbilt University School of Medicine, Nashville, TX) and colleagues, combination of erythromycin and drugs which are classified as CYP3A inhibitors (e.g. verapamil, diltiazem and fluconazole) is associated with a fivefold increase in sudden cardiac death. Given that there are alternatives to erythromycin and to most CYP3A inhibitors, the use of this combination should be avoided in clinical practice.

For further reading, please refer:

Ray, W. A., K. T. Murray, et al. (2004). "Oral Erythromycin and the Risk of Sudden Death from Cardiac Causes." New England Journal of Medicine **351**(11): 1089-1096.

Q & A WORTH SHARING

Could metoclopramide be combined with erythromycin as prokinetic agents?

Yes, both agents can be combined to act as prokinetic agents with doses as below:

- IV Metoclopramide 10 mg QID
- IV Erythromycin 200 mg BD

* Delay in gastric emptying is common in the critically ill for a variety of reasons. Prokinetic agents increase the rate of luminal transit as well as the force of contraction, thus, improve gastric emptying in critically ill patients.

References:

1. Nguyen NQ and Swee LCYM Current Issues on Safety of Prokinetics in Critically Ill Patients With Feed Intolerance, Ther Adv in Drug Safe. 2011;2(5):197-204.
2. Nguyen NQ, Erythromycin is more effective than metoclopramide in the treatment of feed intolerance in critical illness. Crit Care Med. 2007 Feb;35(2):483-9.
3. Grant K and Thomas R, Prokinetic drugs in the intensive care unit: reviewing the evidence J. of Int. Care Society, Vol.10, Nu. 1, Jan. 2009

What are the choices of oral drugs available to treat urinary tract infections in adults?

The choices are :

i) Ciprofloxacin

acute uncomplicated cystitis : 250 mg every 12 hours for 3 days
complicated (including pyelonephritis) : 500 mg every 12 hours for 7-14 days.

ii) Nitrofurantoin : 50-100 mg every 6 hours for 7 days or at least 3 days after obtaining sterile urine

iii) Sulfamethoxazole and trimethoprim (Bactrim®) : One double strength tablet every 12 hours for 10-14 days.

(*N.B: Single strength contain Trimethoprim 80mg and Sulfamethoxazole 400mg)

iv) Cefuroxime :

Uncomplicated : 125-250 mg every 12 hours for 7-10 days

References:

Micromedex Healthcare series 2013
Drug Information handbook

DRUG ALLERGY

WHAT IS DRUG ALLERGY?

Drug allergy is a condition that occurs when you have a harmful reaction to a medication you use. Your immune system fight back by setting off an allergic reaction. Most drug allergies are mild, and the symptoms resolve within a few days after you stop using the medication. However, some drug allergies can be very severe.

WHAT ARE THE MEDICATIONS COMMONLY ASSOCIATED WITH ALLERGIC PRESCRIPTIONS

- Penicillins (such as ampicillin or amoxicillin)
- Sulfa medicines
- Vaccine
- Hyperthyroid drugs
- Insulin
- Barbiturates
- Anticonvulsant

CAN DRUG ALLERGY POSE A RISK TO YOUR LIFE?

Symptoms of allergy include; itching, skin rashes, hives, swelling of lips, tongue, or face, and wheezing. Some drug allergies can be very serious and lead to anaphylaxis which is rare. Anaphylaxis, a life-threatening reaction start within minutes after exposure to a drug. Signs and symptoms of anaphylaxis include:

- Tightening (constriction) of the airways and throat, causing trouble breathing
- Shock, with a severe drop in blood pressure
- Weak, rapid pulse

TOPIC AT GLANCE

- Nausea, vomiting or diarrhea
- Dizziness, lightheadedness or loss of consciousness

WHAT SHOULD I DO WHEN I KNOW I HAVE ALLERGY SYMPTOMS?

Upon appearance of drug allergy symptoms:

- Stop taking the drug that triggered the reaction.
- See a doctor immediately after symptoms of drug allergy appeared.
- Control itching and rash by antihistamine (OTC) and calamine lotion.

WHAT SHOULD YOU DO WHEN YOU KNOW YOU HAVE DRUG ALLERGY?

- √ Inform relatives and friends
- √ Inform your doctor
- √ Carry 'drug allergy' card at all time

In November 2012, Department of Pharmacy has introduced 'Makluman Alahan Ubat' booklet and currently being distributed by Unit Farmasi Satelit and Unit Farmasi Pesakit Luar for use in wards and clinics. This booklet is very useful for prescribers to document patient's drug allergy. In the immediate future, we will be introducing the 'Allergy Alert' sticker to increase awareness.

References:

1. <http://www.webmd.com/allergies/tc/drug-allergies-topic-overview>
2. <http://www.mayoclinic.com/health/drug-allergy/DS01148>

Contributor: Wan Izzati Mariah Wan Hassan (PRP)

Hall of Fame *We would like to congratulate ...*

VANCOMYCIN-INDUCED NEUTROPENIA IN A PATIENT WITH POSITIVE c-ANTINEUTROPHIL CYTOPLASMIC ANTIBODIES

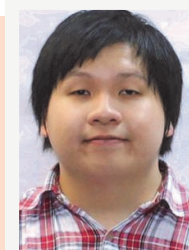
By : **Noor Shufiza Ibrahim***¹, Azreen Syazril Adnan²,

Khor Kah Loong. **Poster Presentation in 8th Kelantan Health Conference, 5-6th June 2013**

A 39-year-old lady with end-stage renal failure (ESRF) secondary to c- Antineutrophil Cytoplasmic Antibodies (ANCA) associated glomerulonephritis was admitted due to acute pulmonary edema with symptomatic anemia. Baseline white blood cell (WBC) count was 6.67×10^9 cells/L (absolute neutrophil count; ANC was 5.72×10^9 cells/L). The first episode of leukopenia was noted the next day but resolved prior Vancomycin was started 1 gram immediately on day 4 due to *Methicillin Resistance Staphylococcus aureus* (MRSA) catheter-related blood stream infection (CRBSI). The patient had received multiple medications which had potential of inducing leukopenia during admission. However, after a brief recovery of leukopenia, the event recurred when vancomycin was readministered with the dose of 1 gram immediately. The event became worsen after another 2 doses were given every alternate day. Vancomycin was stopped when the WBC count decreased to 2.48×10^9 cells/L. The assessment using Naranjo probability scale, we found that the score of drug induced leukopenia for vancomycin was 7 over 10 which was the highest score in comparison with other drugs thus, leading to a probable association between vancomycin and leukopenia. The exact mechanism of vancomycin induced leukopenia can be multifactorial; immunological induced, prolong vancomycin exposure, and comorbid conditions. Discontinuation of vancomycin and use other therapeutic options for MRSA CRBSI are the treatment of leukopenia. Avoidance of drugs which are potentially causing leukopenia is warranted in patient with autoimmune disease in addition with meticulous approach be practiced by WBC count monitoring with differential counts.

MY BLUE BOOK

By : **Goh Man Fye**, Pea Nai Hui, K.Heygaajivan A/L Kernas, **Yeoh Jia Lim**
 Presented at **Konvensyen Inovasi dan Kreativiti (2013), 10-13th June 2013.**



Introduction : My Blue Book is the first smartphone application which integrates the MOH Drug Formulary (Blue Book) to provide an accurate, and timely references for healthcare professionals.

Problem before Innovation: Limited access to information available in the MOH formulary leads to repeated inquiries by healthcare professionals to pharmacists to confirm certain indications, doses or dosage forms. Productivity is decreased as approximately 5 minutes are wasted to attend to these avoidable questions.

Pre-Innovation: In the wards, hardcopies of the MOH Formulary is used as a main reference. However this may lead to medication errors as the edition at hand may not be updated. Information is also available in excel format accessible through computers. This is thought to be time consuming for wards with limited ICT capability.

Innovation Project: My Blue Book integrates the MOH formulary which can be downloaded from the website pharmacy.gov.my. The integrated data included Generic name, Trade name, Drug category, MDC code, drug indication and Dosage which is tailored to the current practices of healthcare professionals in Malaysia. Users can search for a specific medication simply by searching the generic or trade name. Available in Google Play Store by searching the keyword "My Blue Book".

Post Innovation: Officially launched on 29th October 2012. Currently there are 2422 active users. Will be updated with the updated release of the updated edition of the MOH formulary. (The current version is v1.4). The average speed of acquiring information of a medication is reduced from approximately 3 minutes to less than 10 seconds. (95% reduction)

Benefits: Provide easy to use, accurate, detailed and timely references for all healthcare professionals. Accessibility of the formulary is improved as it can be simply downloaded into the Smartphone. It is environmentally friendly and cost efficient as it reduces the need for manual copies of the formulary and enables quick access.

Cost : Cost for developer account is RM 75 (Android) and RM300 per year (I-phone). Cost of downloading My Blue Book into a smart phone is free for users in Malaysia.

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