Volume 1/2016

PHARMACY BULETIN HOSPITAL PERMAI

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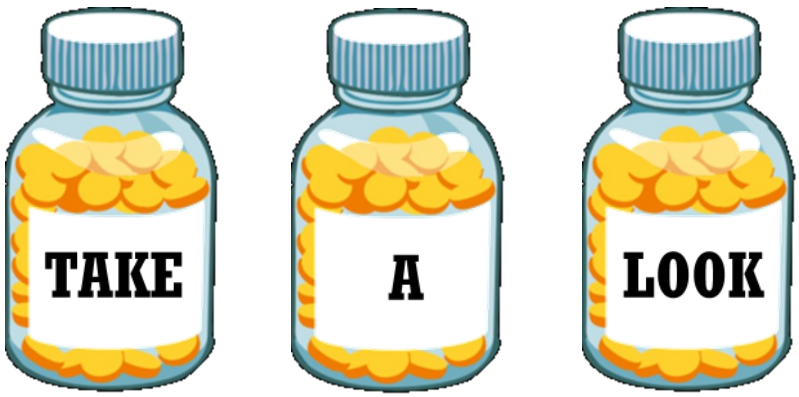


WHAT IS HIGH ALERT MEDICATION (HAM) ?

By : Nurul Syahirah

High-alert medications (HAM) are drugs that bear a high risk of causing significant patient harm when they are used in error. These medications are also most likely to cause significant patient harm, even when used correctly. The harm they produce is likely to be more serious and leads to patient suffering and additional costs associated with care of these patients.

Top 5 High Alert Medication Classified By ISMP

A study was conducted by the Institute for Safe Medication Practices (ISMP) during 1995 and 1996 to determine the drugs and situations most likely to cause harm to patients. **These are the top five HAM identified by ISMP:**

- **Insulin**
- **Opiates and narcotics**
- **Injectable potassium chloride concentrate**
- **Intravenous anticoagulants (heparin)**
- **Sodium chloride solution > 0.9%**

" PATIENT SAFETY IS OUR PRIORITY "

Log on to www.pharmacy.gov.my to download the Guideline on Safe Use of HAM

How to Reduce Risk of Errors in HAM ?

- Standardizing storage
- Standardizing preparation
- Standardizing administration of HAM
- Limiting access to HAM
- Using auxiliary labels and automated alerts
- Employing redundancies (eg; automated or independent double-checks)

Strategies to avoid errors involving High Alert Medications

1. ***High Alert Medications*** will be prescribed, dispensed and administered using practices that are proven safe.
2. Label all the containers used for storing High Alert Medications as " ***HIGH ALERT MEDICATION*** "
3. Do not use abbreviations when prescribing ***High Alert Medications***
4. Use Tall Man Lettering to emphasize differences in medication names (e.g ***DOPA***mine and ***DOBUT***amine)
5. ***High Alert Medications*** must be double checked before they are prepared, dispensed and administered to patients. A system shall be established whereby one healthcare provider prepares the drug and another counterchecks it.
6. All ***High Alert Medications*** issued from the pharmacy must be counterchecked and verified by another pharmacy staff prior to dispensing for the purpose of medication safety and accuracy.
7. Any changes of brand/color/preparation of High Alert Medications must be informed to the users as soon as possible.
8. All equipment or devices used in the preparation and/or administration of medications shall be calibrated and maintained according to Standard Operating Procedure (SOP).
9. All staff involved should be educated in the handling of ***High Alert Medications***
10. Encourage patient and family involvement by Asking what and why medications are being given.

List of High Alert Medications available in Hospital Permai

CATEGORIES OF MEDICATION	MEDICATIONS AVAILABLE
Adrenergic agonist, IV	Adrenaline acid (Epinephrine) Tartrate 1mg/ml inj Noradrenaline 4mg/4ml inj
Adrenergic antagonist, IV	Labetalol HVL 25mg/5ml inj
Anesthetic agents, general, inhaled and IV	Propofol 1% 10mg/ml (20ml) inj Lignocaine HCL 2% inj (10ml) with preservative IM only
Antiarrythmias IV	Lignocaine HCL 2% 100mg/5ml preservative-free Adenosine 6mg/2ml inj Amiodarone 150mg/3ml
Antithrombotic agents	Heparin inj 5000IU/ml
Dextrose, Hypertonic, 20% or greater	Inj Dextrose 50% w/v (10ml)
Glyceryl Trinitrate Inj	Glyceryl Trinitrite 5mg/ml inj (5ml & 10ml)
Inotropic medications IV	Dobutamine 250mg/20 inj Dopamine HCL 40mg/ml inj
Insulin, subcutaneous and IV	Insulin recombinant neutral human short acting 100IU/ml (Actrapid)
Magnesium sulphate injections	Magnesium sulphate 50% inj
Moderate sedation agents, IV	Diazepam 10mg/2ml inj Midazolam 5mg/ml inj
Neuromuscular blocking agents	Suxamethonium CL 100mg/2ml inj
Potassium salt injections	Potassium Chloride 10% 10ml inj
Sodium Chloride Solution (greater than 0.9%)	Sodium Chloride 20%

(Updated on 24 May 2016)

REFFERENCES :

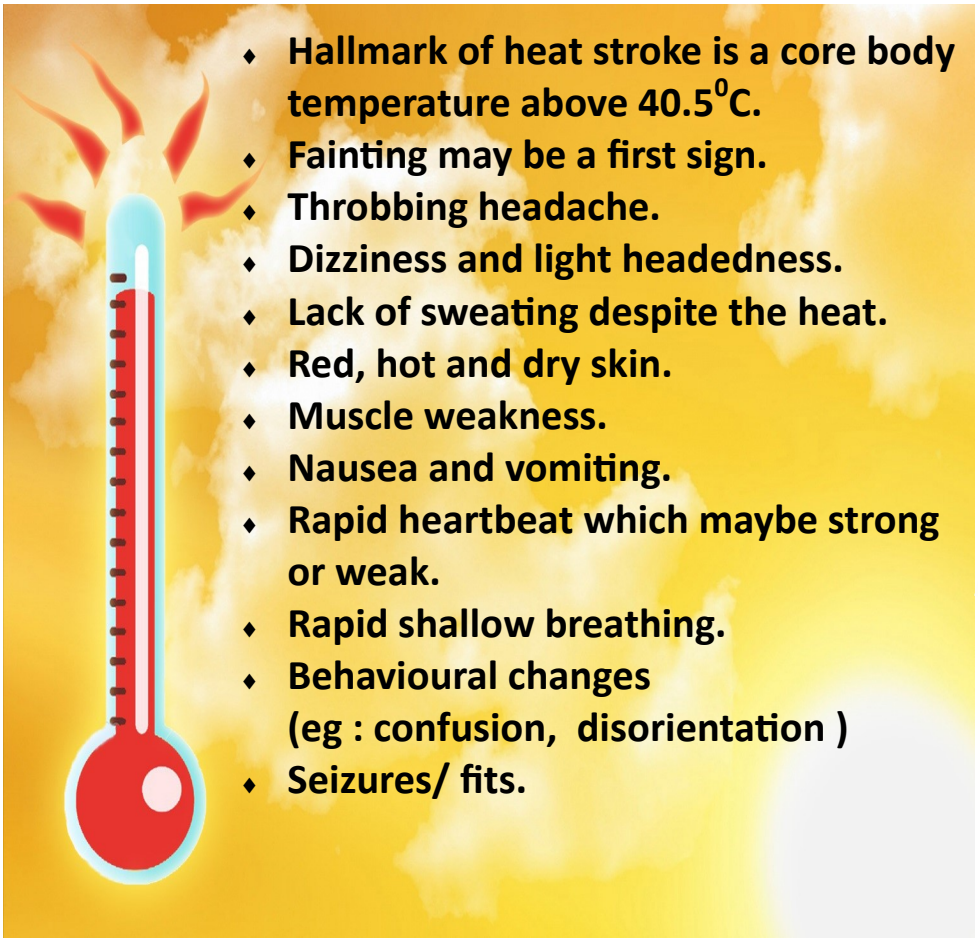
1. www.ismp.org/tools/

HEAT STROKE

By : Yap Nyuk Kar

HEAT STROKE is a medical emergency. It is a serious form of heat injury. If there is suspicion of heat stroke please call for an ambulance. While waiting for the ambulance please start **First Aid**. Heat stroke can kill or damage brain cells and other internal organs particularly in the **age group above 65 and children below 4 years**. Heat stroke often occurs as a progression from milder heat related illnesses such as heat cramps, syncope (fainting) due to heat, and heat exhaustion. However it can also occur even if

Symptoms



- **Hallmark of heat stroke is a core body temperature above 40.5^{0}C.**
- **Fainting may be a first sign.**
- **Throbbing headache.**
- **Dizziness and light headedness.**
- **Lack of sweating despite the heat.**
- **Red, hot and dry skin.**
- **Muscle weakness.**
- **Nausea and vomiting.**
- **Rapid heartbeat which maybe strong or weak.**
- **Rapid shallow breathing.**
- **Behavioural changes (eg : confusion, disorientation)**
- **Seizures/ fits.**

HOW and WHY does heat stroke occur ?

HEAT STROKE results from prolonged exposure to high temperatures, usually in combination with dehydration which leads to failure of the body's temperature control system. It normally occurs after exposure to high temperatures.

"a core body temperature greater than 40.5^{0}C, with complications involving the central nervous system".

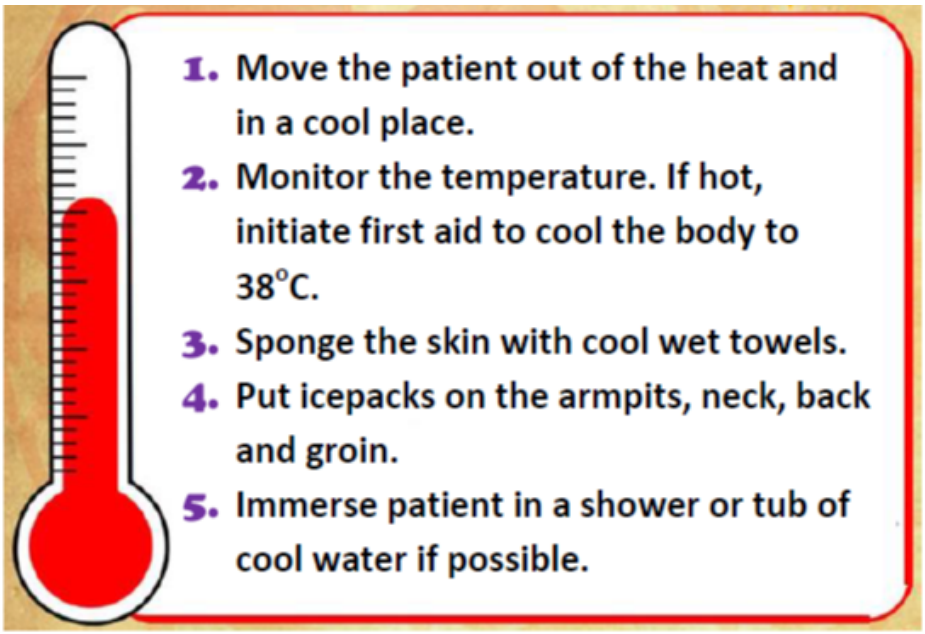
WHAT ARE THE RISK FACTORS ?

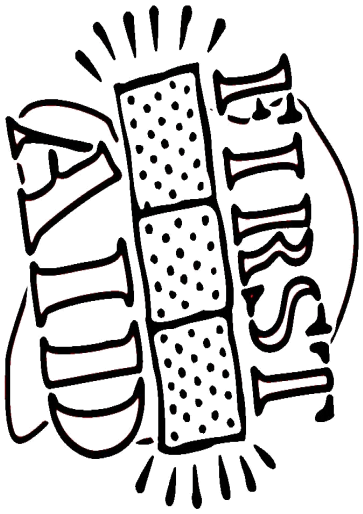
- **Most likely to affect older people** due to lacking of good airflow.
- **Other high risk groups** include people of any age who don't drink enough water, have chronic diseases or who drink excessive alcohol.
- **People live in a town area** may be prone to develop heat stroke during a prolonged heat wave, particularly if there are stagnant atmospheric conditions (tar and concrete store heat during the day and only gradually release it at night resulting in higher temperatures at night).
- **When the heat index climbs to 32^{0}C or more,** especially during heat waves. Pay attention to the reported heat index .

- **Infants and children** below 4 years of age and adults above 65 years because they adjust to heat more slowly as compared to other age groups.
- **People with health conditions** such as heart, lung or kidney diseases as well as those who are obese or underweight, hypertensive and diabetics are more vulnerable as well.
- **Those who on medications** such as antihistamines (cold and allergy pills), diet pills, diuretics, sedatives,tranquilizers,stimulants, anticonvulsants, heart and blood pressure medications (beta blockers and vasoconstrictors), medications for psychiatric illnesses (antidepressants and antipsychotics).

WHAT CAN WE DO FOR PREVENTION ?

- Wear loose or light clothing. If possible wear a hat.
- Apply sunscreen (SPF 30 or more).
- Drink extra fluids (at least 2L).
- Avoid heavy exertion midday.
- Reschedule or cancel outdoor activities. Shift to coolest time of day .
- Avoid fluids containing caffeine or alcohol.
- Do not take salt tablets without consulting your doctor.
- Stay in a cool environment or air-conditioned at least 2 hours each day.
- Take precautions with certain drugs.
- Open windows at night on both sides of your building to create cross ventilation.





REFFERENCES :

1. WebMD, Heat Stroke: Symptoms and Treatments, retrieved 02 June 2016 (http:// www.webmd.com/a-to-z-guides/heat-stroke-symptoms-and-treatment)

2. Ministry of Health Malaysia, retrieved 02 June 2016 (http:// kementeri-ankesihatanmalaysia/posts/heatstroke)

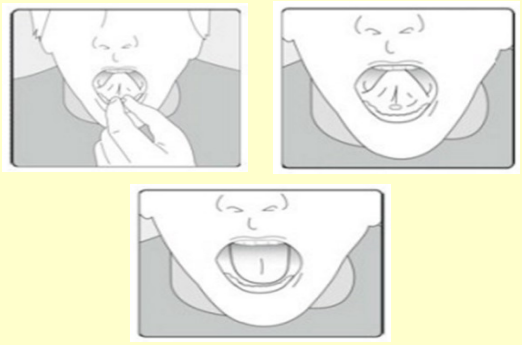
OPIOD REPLACEMENT THERAPY

By : Puteh Masfirah

WHAT IS OPIOD REPLACEMENT THERAPY ?

Opioid replacement therapy involves replacing an illegal *opioid*, such as *heroin*, with a longer acting but less euphoric*opioid*; methadone or buprenorphine are typically used and the drug is taken under medical supervision

	METHADONE	BUPRENORPHINE/NALOXONE
Similarities	Synthetic opioid Opioid, activates mu (μ) receptor on nerve cells Help opioid dependence patient (morphine, heroin, oxycodone) Long half-lives (long acting medication)	
Effects	Unlimited effect (full agonist on μ receptor)	Limited effects (partial agonist on μ receptor)
Indication	Used as an analgesic prescribed for the relief of moderate to severe pain, and is used in detoxification treatment of opioid (codeine, morphine and heroin) dependence and maintenance in narcotic addiction	Tricks the brain into thinking that a full opioid like oxycodone or heroin is taken, and suppresses the withdrawal symptoms and cravings associated with opioid.
Frequency of dose	Once daily dosing (initial dose 20-25mg)	Once daily dosing/alternate day dosing
Pharmacodynamics	Long acting μ opioid receptor agonist with potent central analgesic, sedative, and antitussive actions.	Interacts predominately with the opioid μ receptor. These μ binding sites are discretely distributed in the human brain, spinal cord, and other tissues. Buprenorphine exerts its principal pharmacologic effects on the central nervous system. Its primary actions of therapeutic value are analgesia and sedation.
Risk of overdose	High due to no ceiling effect	Low due to ceiling effect of medication

	METHADONE	BUPRENORPHINE/NALOXONE
Dosage form	Syrup (oral liquid)	Sublingual tablet
Common side effects	Sweating, difficulty in passing urine, loss of appetite, abdominal cramps, constipation, nausea and vomiting and respiratory depression	Nausea and vomiting, headache, sweating, numb mouth, constipation, painful tongue and redness of the mouth
Administration	Methadone is administered orally with water. Residual remains can be rinsed with water. The dose received by patient is normally well-diluted. Avoid from taking dose on empty stomach.	• If mouth is dry, take a sip of water to moisten it. Spit out or swallow the water. • Dry hands if they are wet before handling buprenorphine tablets. • As soon as the tablet is removed from the blister unit, place it on the floor of mouth, under the tongue, as far back of the tongue.  • Let the tablet dissolve completely. • Do not suck, chew or swallow the tablet. • You should not drink or eat anything until the tablet has completely dissolved under your tongue and you can no longer feel it in your mouth. • Avoid driving or operating heavy machinery after administration.

REFERENCE:

1. Whelan, P.R. (2012). Buprenorphine vs methadone treatment: A review of evidence in both developed and developing worlds. J Neurosci Rural Pract, 45-50.

AGOMELATINE

By : Azri Safwan

Introduction :

Agomelatine (Valdoxan FC) is a new antidepressant indicated for the treatment of major depressive disorder in adults.

Mechanism of action :

It is a melatonin receptor (MT_1 and MT_2) agonist and $5HT_{2C}$ receptor antagonist.

Dosage:

25 mg once daily at bedtime. May be increased to 50 mg once daily after 2 week if there is no improvement of symptoms. Treatment duration: at least 6 months.

Dosage Adjustment :

Renal Impairment	Use with caution
Hepatic Impairment	Contraindicated

Pharmacokinetics :

Absorption	Agolematine is well absorbed rapidly (>80%) after oral administration.
Bioavailability	Low (<5% at the therapeutic oral dose
Protein bound	95%
Elimination half-life	2.3 hours
Metabolism	Metabolized mainly by the hepatic cytochromes CYP1A2 (90%) and CYP2C9/CYP2C19 (10%).

Precaution :

Monitoring of Liver Function	At initiation of treatment and then periodically after around 3 weeks, 6 weeks (end of acute phase), after around 12 and 24 weeks (end of maintenance phase) and thereafter when clinically indicated
Bipolar]Disorder/Mania/	Use with caution. Discontinued if develops manic symptoms
Combination with CYP1A2 Inhibitors	Contraindicated. May result in increased exposure of agomelatine.

ADVERSE EFFECTS:

Usually mild to moderate and occurred within the first 2 weeks of treatment. Most common are nausea and dizziness, were usually transient and did not generally lead to cessation of therapy. Patient might get some other side effects such as anxiety, headache, somnolence, insomnia, migraine, diarrhea, constipation, abdominal pain, vomiting, increased ALAT &/or ASAT, hyperhidrosis, back pain, fatigue.

REFERENCE:

1. Kapur S, Paton C, & Taylor D 2012, The Maudsley Prescribing Guidelines in Psychiatry Eleventh Edition, Wiley-Blackwell, United Kingdom.

DESVENLAFAXINE

By : Azri Safwan

Introduction :

Desvenlafaxine is indicated for the treatment of major depressive disorder in adults.

Pharmacokinetics :

Absorption	Well absorbed
Bioavailability	80% (Oral).
Protein bound	(30%)
Elimination half-life	Approximately 10-11 hr.
Metabolism	Hepatic, via conjugation (major pathway), and oxidation by CYP3A4 (minor pathway).

Dosage Adjustment :

Renal Impairment	**CrCl (mL/min)**	**Dosage**
	<30 or ESRD	25 mg daily or 50 mg every other day. Supplemental doses should not be given after dialysis.
	30-50	Max: 50 mg once daily.
Hepatic Impairment	Moderate to severe: 50 mg daily. Max: 100 mg once daily	

Mechanism of action :

Desvenlafaxine, the major active metabolite of venlafaxine, is selective serotonin and norepinephrine reuptake inhibitor. The clinical effect of desvenlafaxine is thought to occur via potentiation of serotonin and norepinephrine in the central nervous system.

Dosage:

Adult: 50 mg once daily. Doses up to 400 mg once daily have been studied and shown to be effective, but no additional benefit was observed with doses >50 mg once daily.

ADVERSE EFFECTS:

Some of the common side effects form taking this medication are Nausea (22% to 41%), dry mouth (11% to 25%), dizziness (10% to 16%), and sweating (10% to 21%). Apart from that, less common side effects such as constipation, decrease in appetite, insomnia, blurred vision, anxiety, and fatigue are also reported.

REFERENCES:

1. Kapur S, Paton C, & Taylor D 2012, The Maudsley Prescribing Guidelines in Psychiatry Eleventh Edition, Wiley-Blackwell, United Kingdom.
2. Ministry of Health 2015, Ministry of Health Medicines Formulary—2/2015, Available from http://www.pharmacy.gov.my/V2/sites/default/files/document-upload/ministry-health-

ADVERSE DRUG REACTION (ADR)

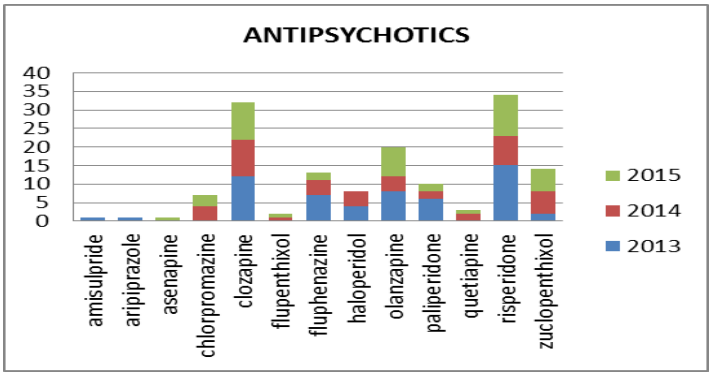
By : Ng Ee Hon

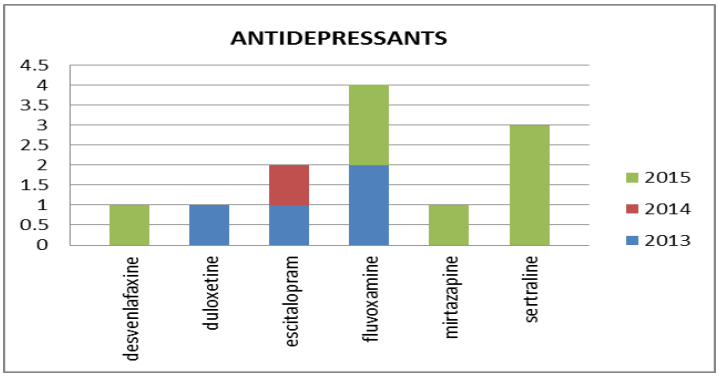
Adverse drug reactions can be considered a form of toxicity, however, toxicity is most commonly applied to effects of over ingestion (accidental or intentional) or to elevated blood levels or enhanced drug effects that occur during appropriate use (eg, when drug metabolism is temporarily inhibited by a disorder or another drug). Most adverse drug reactions are dose-related. Others are allergic or idiosyncratic. Dose-related ADRs are usually predictable while ADRs unrelated to dose are usually unpredictable. The objectives of ADR are as follows:

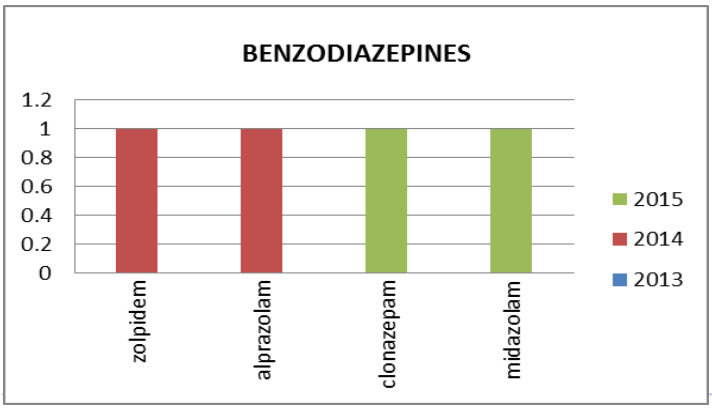
- **To detect ADR as early as possible, especially for serious, rare or unknown reactions.**
- **To establish the frequency and incidence of adverse reactions for both well-recognized and newly discovered reactions.**
- **To identify risk factors that may predispose / induce / influence the development, severity and incidence of adverse reactions.**
- **To maintain a local database for sharing of information with regard to drug safety.**
- **To implement preventive measures to reduce the risks associated with drug use.**

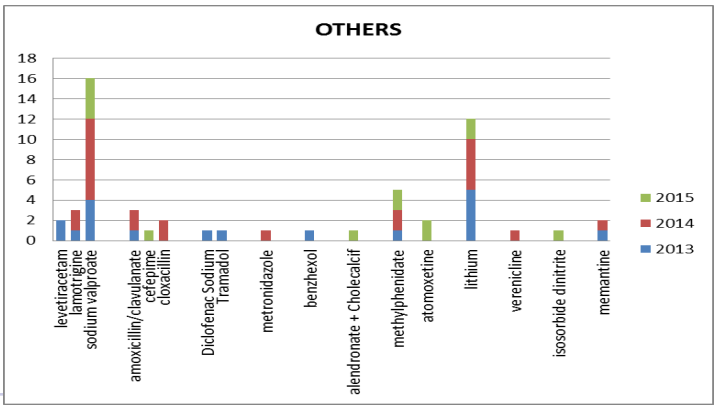
ADR REPORTING FOUND IN HOSPITAL PERMAI 2013-2015

The highest number of reports in Hospital Permai for 2013-2015 was Risperidone (34 cases), followed by Clozapine (32 Cases) as shown in graph below.









Could AMLODIPINE BESYLATE cause blurred vision (ADR) ?

Amlodipine Besylate it is often used in ***hypertension.*** Blurred vision has been reported by people with hypertension, multiple sclerosis, depression, pain, rheumatoid arthritis, osteoporosis and its found among people who take Amlodipine Besylate, especially female > 60 years old on medication for 1 - 6 months. FDA studies showed 18,767 people experienced side effects while taking Amlodipine Besylate and among them, 178 (38.46%) had blurred vision.

Cardiovascular adverse events related to DICLOFENAC SODIUM

Diclofenac Sodium (tablets and suppositories) particularly at higher doses 150 mg per day is associated with an increased risk of serious cardiovascular adverse events (such as myocardial infarction, stroke or thrombotic events which can be fatal) Evidence suggests that the risk may increase with the dose and duration of use.

The maximum recommended daily dose of systemic diclofenac sodium has been reduced from 150 mg per day to 100 mg per day for all indications. To minimize the potential risk for an adverse cardiovascular event, the lowest effective dose should be used for the shortest possible duration. In 2012, the TGA conducted a review into the cardiovascular safety of non-steroidal anti-inflammatory drugs (NSAIDs). It emerged from this review that diclofenac sodium demonstrated a worse cardiovascular risk profile than the other traditional NSAIDs.

To report an Adverse Drug Reaction :

1. Visit www.bpfk.gov.my
2. Click on the red box "reporting medicinal problem"
3. Go to report as a healthcare professional online or via hardcopy.
4. Submit the form once complete

REFFERENCES :

1. Amlodipine besylate: FDA - http://www.ehealthme.com/drug/amlodipine besylate
2. Safety review of diclofenac. Australian Government, Department of Health, Therapeutic Goods Administration. Version 2.1, Ocrober 2014.

SUPPLY OF PSYCHOTROPIC DRUGS TO WARD

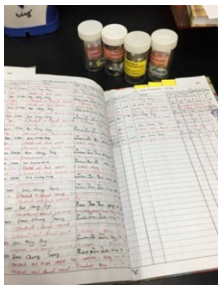
By : Kavitha Sree Kannaya

Supply of psychotropic drugs to ward is one of the service under in-patient pharmacy. According to poisons (psychotropic substances) regulations 1989, under control of dispensing, no person shall dispense, compound or mix any psychotropic substance with any other substance, for the purpose of it being used for medical, dental or animal treatment unless he/she is a licensed pharmacist or a pharmacist in the public service.

According to poisons (psychotropic substances) regulations 1989, under control of administration, no person shall administer any psychotropic substance unless he is a registered medical practitioner, registered dentist Division 1, veterinary surgeon and the psychotropic substance is administered for medical or dental purposes.

According to poisons (psychotropic substances) regulations 1989 under control of storage of psychotropic substance, any person who possesses any psychotropic substance for the purposes of manufacturing, dispensing, compounding, mixing, sale, or supply shall store such psychotropic substance in a room, cabinet, safe or receptacle which shall remain lockers and the keys to the cabinet shall be kept by him/her only.

Besides that, according to poisons (psychotropic substances) regulations 1989 under control on labeling of psychotropic substance, the psychotropic substance should be kept in a container labeled the name of the psychotropic substance and the word "poison" in Bahasa Malaysia, English, Chinese and Tamil printed in red or on red background.



PICTURE:

Psychotropic drug cupboard and record book

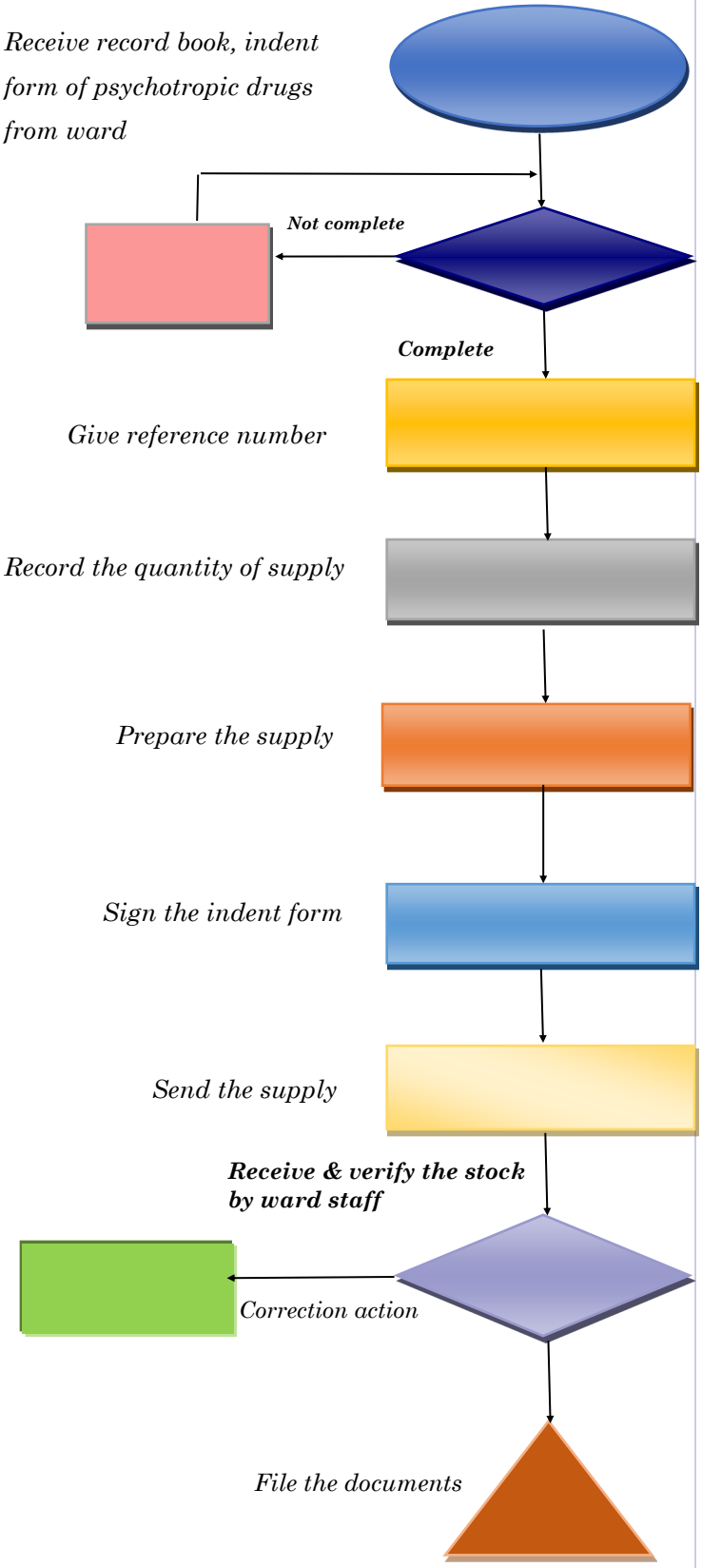


FIGURE : Psychotropic drugs supply workflow

KURSUS & BENGKEL (JANUARI — JUN 2016)

OBJEKTIF KURSUS :

- **Memberi kefahaman tentang pengurusan ubat di wad.**
- **Memberi kefahaman tentang pengurusan ubat di sub-stor.**
- **Memberi maklumat terkini tentang isu-isu berkenaan farmasi.**

Kursus Pengurusan Ubat di Wad & Stor

Tarikh:
16 Mei 2016
(Isnin)

Bengkel Proposal Pembentangan Kajian Pegawai Farmasi Provisional (PRP) 1 & 2

Tarikh:

a. 13 Januari 2016 (Rabu)
b. 17 Mei 2016 (Selasa)