

PHARMACY BULLETIN



HOSPITAL PERMAI JOHOR BAHRU

Volume 02/2021

This is a publication of the Pharmacy Unit, Hospital Permai Johor Bahru.

All enquiries are to be directed to the address below.

Unit Farmasi Maklumat Ubat

Hospital Permai Johor Bahru

Persiaran Kempas Baru,

Kempas Banjaran,

81200 Johor Bahru,

Johor, Malaysia.

Tel: 607-2311000 (Ext. 1709)

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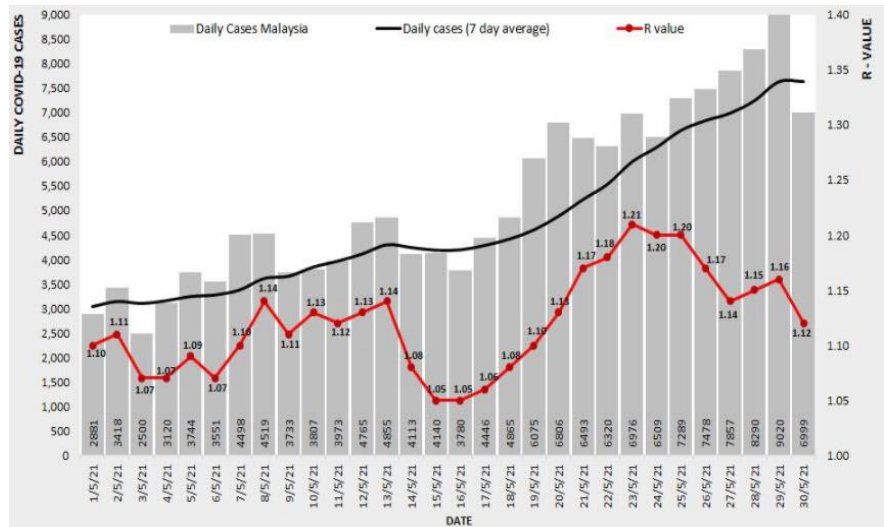


HIGHLIGHT:

Basic Reproduction Number, R Naught (R_0)

What R Naught (R_0) means?

For example:
Malaysia's COVID-19
estimated infectivity
rate based on 30 May
2021 daily cases was
1.12.



Reference:

COVID-19 Malaysia, Kementerian Kesehatan Malaysia. (2021) R-Naught Malaysia 30/5/2021. Retrieved May 31, 2021 from <http://covid-19.moh.gov.my/kajian-dan-penyelidikan/nilai-r-malaysia/0521/r-naught-malaysia-hari-ini-30052021>

1. R_0 naught (R_0), the basic reproduction number,

is one of the most fundamental and often-used metrics for the study infectious disease dynamics.

- The symbol R represents the actual transmission rate of a disease and stands for reproduction.
- Naught, or zero, stands for the zeroth generation (patient zero). It refers to the first documented patient infected by a disease in an epidemic.



2. R_0 is an indicator

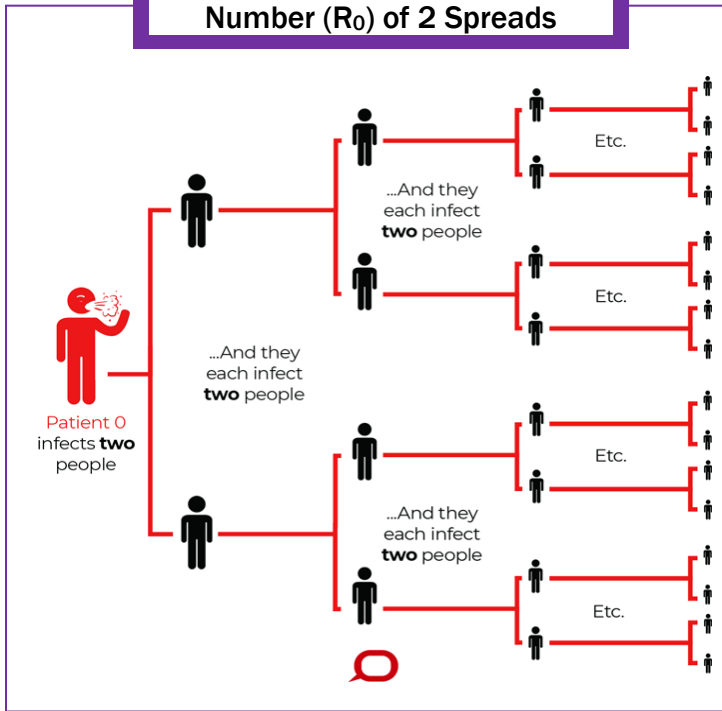
- contagiousness or transmissibility of infectious & parasitic agents
- represent the number of new infections estimated to stem from a single case in a population that has never seen the disease before.
- If the R_0 is 2, then one person is expected to infect, on average, two new people.

(Anastassopoulou et al., 2020).

3. To provide some perspective, seasonal strains of flu have R_0 s between 0.9 and 2.1. The R_0 value of the 1918 flu pandemic was estimated to be between 1.4 and 2.8, and for an extremely contagious disease such as the measles, R_0 is thought to lie between 12 and 18 (Healthline, 2020).

4. R_0 is one of the key values that can predict whether an infectious disease will spread into a population or die out. It is used to assess the severity of the outbreak, as well as the strength of the medical and/or behavioral interventions necessary for control (Breban et al., 2007).

How a Virus With a Reproduction Number (R_0) of 2 Spreads



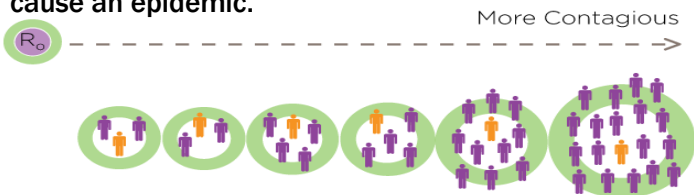
HOW R_0 IS USED

R_0 values indicate if a disease will spread or decline within a community and how far and how rapidly transmission will occur. It can also inform public health policy decisions used to mitigate spread.

The higher the R_0 , the more likely the disease will become an epidemic. There are three different possibilities that can be conveyed by R_0 (Healthline, 2020):

1. If R_0 is less than 1, the disease will not spread and will eventually die out.
2. If R_0 is 1, the disease will remain stable in the community but will not cause an epidemic.

If R_0 is greater than 1, the disease will spread and may cause an epidemic.



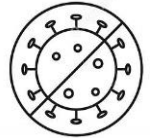
COVID-19 R_0 NAUGHT

- The R_0 originally estimated for COVID-19 was between 2.2 and 2.7, but data collected from case reports across China reported a much higher R_0 .
- Results showed that the doubling time early in the epidemic in Wuhan was 2.3 - 3.3 days. From this data, researchers calculated a median R_0 value of 5.7.
- This means that each person infected with the virus can transmit it to 5 to 6 people rather than only 2 to 3 as previously thought (Sanche et al, 2020).



Public Health Measures That Decrease R_0

When the R_0 of a newly emerged disease indicates that an epidemic may occur, it is important to understand the processes that can limit transmission (R) of a disease in totally susceptible people in order to prevent epidemics from starting (or to limit their size). Once a country realizes that a new virus exists, measures must be taken to interrupt the chain of infection until treatments and vaccines can be developed.



Measures used successfully in previous epidemics, which have been shown to reduce the R_0 of a disease are:

- Screening
- Social distancing
- Tracking and tracing of exposed & contacts
- Handwashing
- Masking
- Quarantining
- Providing healthcare workers with proper protective equipment
- Vaccination



References:

1. ATrain Education. (2021). COVID-19 Pandemic: A World in Turmoil. The Basic Reproduction Number, R Naught. Retrieved May 31, 2021 from <https://www.atrainceu.com/content/3-basic-reproduction-number-r-naught>
2. Anastassopoulou C, Russo L, Tsakris A, Siettos C. (March 31, 2020). Data-based analysis, modelling and forecasting of the COVID-19 outbreak. Retrieved May 31, 2021 from <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0230405>
3. Breban R, Vardavas R, Blower S. (2007). Theory versus data: How to calculate R_0 . PlosOne. Retrieved May 31, 2021 from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1804098/>
4. Sanche S, Lin YT, Xu C, et al. (2020). High contagiousness and rapid spread of severe acute respiratory syndrome coronavirus 2. Emerg Infect Dis. 2020 Jul. Retrieved May 31, 2021 from https://wwwnc.cdc.gov/eid/article/26/7/20-0282_article.Healthline. (2020).
5. Healthline. (2020). What Is R_0 ? Gauging Contagious Infections. Retrieved May 31, 2021 from <https://www.healthline.com/health/r-naught-reproduction-number>



MEDICATION SAFETY:

USING ANTIDEPRESSANTS FOR DEPRESSION IN PEOPLE WITH EPILEPSY

By: Ahmad Yuzaily bin Basrial

Choosing whether to prescribe at all

Antidepressants are **not contra-indicated** in stable epilepsy; however, the BNF advises caution when using antidepressants in people with epilepsy or a history of seizures, with very few exceptions.

Antidepressants can be used in people with epilepsy, although **NICE suggest specialist advice (e.g. neurologist) should be sought for those taking Anti-epileptic drugs (AEDs).**



Other considerations when making a choice

1. Drug interactions

- Complex drug interactions are possible
 - Some antidepressants can increase AED blood levels, affecting drugs with a narrow therapeutic range.
 - Some enzyme inducing AEDs can lower antidepressant blood levels, possibly leading to treatment failure.

2. Avoid using multiple antidepressants

- The risk of seizure increases with multiple concurrent antidepressants.

3. Consider the need for neurologist input

- Where the patient might benefit from an AED with mood stabilising properties (e.g. carbamazepine, gabapentin, lamotrigine, oxcarbazepine, valproate).

Monitoring epilepsy and AEDs

1. Monitoring seizure frequency.
2. If seizures occur or seizure incidence increases
 - Check sodium levels for hyponatraemia.
 - Consider the need for neurologist input.
 - Consider switching the antidepressant.
3. Monitoring blood levels of AEDs.

Choosing between antidepressants

Low to moderate risk antidepressants in epilepsy

Selective Serotonin Inhibitors (SSRIs)

Preferred options, in no order preference, are:

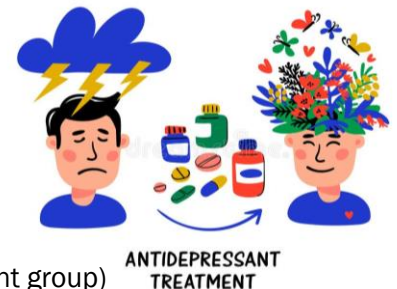
- Citalopram
- Escitalopram
- Fluoxetine
- Sertraline



Other antidepressants

- Selective and Noradrenaline Reuptake Inhibitors (duloxetine is preferred over venlafaxine)

- Mirtazapine
- Reboxetine
- Vortioxetine
- Agomelatine
- Doxepin (preferred option



- of the tricyclic antidepressant group)
- Monoamine Oxidase Inhibitors (preferred moclobemide)

High risk antidepressants to avoid in epilepsy

Tricyclic antidepressants (particularly amitriptyline and clomipramine) should be avoided as they lower the seizure threshold and are deemed the most pro-convulsive.

Initiating the antidepressants

Use a low dose first

- Initiate the chosen antidepressant at a low dose and increase gradually until a standard therapeutic dose is achieved.

Use the lowest therapeutic dose possible

- There is a dose dependent relationship between antidepressants and seizures.

Reference:

1. Specialist Pharmacy Service. (2021). Using antidepressants for depression in people with epilepsy. Retrieved 20 June 2021, from <https://www.sps.nhs.uk/articles/using-antidepressants-for-treating-depression-in-people-with-epilepsy/>



KNOW YOUR MEDICINE: INVEGA TRINZA (PALIPERIDONE PALMITATE)

By: Nur Alia binti Kamarol Zaman

DOSAGE AND ADMINISTRATION

- ▶ INVEGA TRINZA® should be administered once every 3 months.
- ▶ For intramuscular injection only.
- ▶ Needle selection is determined by injection area and patient weight.



If patient weighs less than 90 kg	If patient weighs less than 90 kg
Pink Hub 22G x 1"	Yellow Hub 22G x 1½"
If patient weighs 90 kg or more	If patient weighs 90 kg or more
Yellow Hub 22G x 1½"	Yellow Hub 22G x 1½"

USE IN SPECIFIC POPULATIONS

Pregnancy: May cause extrapyramidal or withdrawal symptoms in neonates with third trimester exposure.

Renal Impairment:

Crcl < 50 mL/min: not recommended.

Crcl ≥ 50 mL/min to < 80 mL/min:

Adjust dosage and stabilize the patient using INVEGA SUSTENNA®, then transition to INVEGA TRINZA®

ADVERSE REACTIONS

Injection site reaction, weight increased, headache, upper respiratory tract infection, akathisia, and parkinsonism.

INVEGA TRINZA® Doses for Adult Patients Adequately Treated with INVEGA SUSTENNA®

If the last INVEGA SUSTENNA® dose was	Initiate INVEGA TRINZA® at the following dose:
50 mg	175 mg
75 mg	263 mg
100 mg	350 mg
150 mg	525 mg

INDICATION AND USAGE

- ▶ Atypical antipsychotic indicated for the treatment of *schizophrenia* in patients after they have been adequately treated with INVEGA SUSTENNA®. (1-month paliperidone palmitate extended-release injectable suspension) for at least four months.

DOSAGE FORMS AND STRENGTHS

- ▶ Extended-release injectable suspension:
 - 175 mg/0.875 mL
 - 263 mg/1.315 mL
 - 350 mg/1.75 mL
 - 525 mg/2.625ml



MISSED DOSE

Missed Dose 3½ Months to 4 Months since Last Injection

- ▶ Dose should be administered as soon as possible, then continue with the 3-month injections following this dose.

Re-initiation regimen after missing 4 months to 9 months

If the last dose of INVEGA TRINZA® was:	Administer INVEGA SUSTENNA® 2 doses, 1 week apart (into deltoid muscle)	Then administer INVEGA TRINZA® (into deltoid or gluteal muscle)
	Day 1	Day 8
175 mg	50 mg	175 mg
263 mg	75 mg	263 mg
350 mg	100 mg	350 mg
525 mg	100 mg	525 mg

Missed Dose Longer than 9 Months since Last Injection

- ▶ Re-initiate treatment with the 1-month paliperidone palmitate extended-release injectable suspension
- ▶ INVEGA TRINZA® can then be resumed after the patient has been adequately treated with the 1-month paliperidone palmitate extended-release injectable suspension for at least 4 months.

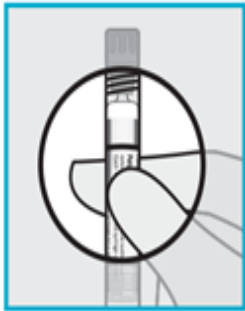
Instructions for Preparing an INVEGA TRINZA® Injection



1. SHAKE VIGOROUSLY for at least 15 seconds

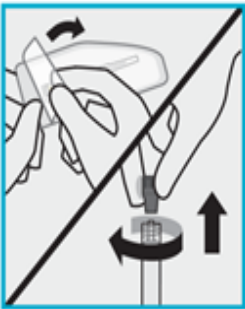
With the syringe tip pointing up, SHAKE VIGOROUSLY with a loose wrist for at least 15 seconds to ensure a homogeneous suspension.

IMPORTANT: Proceed to the next step immediately after shaking. If more than 5 minutes pass before injection, shake vigorously, with the syringe tip pointing up, again for at least 15 seconds to resuspend the medication.



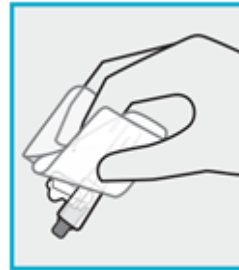
2. Check suspension

After shaking the syringe for at least 15 seconds, check the liquid in the viewing window. The suspension should appear uniform and milky white in color. It is also normal to see small air bubbles.



3. Open the INVEGA TRINZA® needle pouch and remove cap

First, open needle pouch by peeling the cover back halfway. Place on a clean surface. Then, holding the syringe upright, twist and pull the rubber cap to remove.



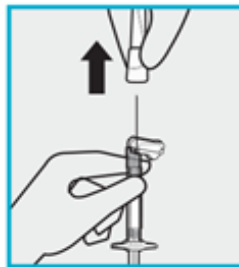
4. Grasp needle pouch¹

Fold back needle cover and plastic tray. Then, firmly grasp the needle sheath through the pouch, as shown.



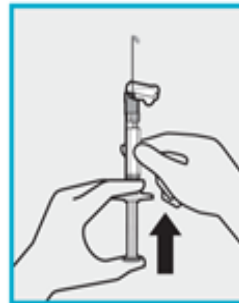
5. Attach needle

With your other hand, hold the syringe by the Luer connection and attach it to the safety needle with a gentle clockwise twisting motion.



6. Remove needle sheath

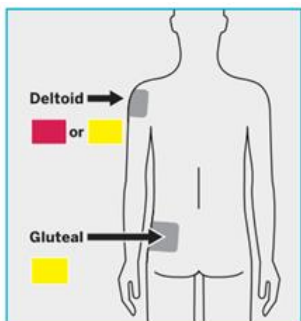
Pull the needle sheath away from the needle in a straight motion.



7. Remove air bubbles

Hold the syringe upright and tap gently to make any air bubbles rise to the top. Remove air by pressing the plunger rod upward carefully until a drop of liquid comes out of the needle tip.

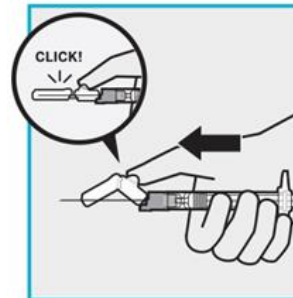
INVEGA TRINZA® Injection



Inject dose

Slowly inject the entire contents of the syringe intramuscularly, deep into the selected deltoid or gluteal muscle. *Do not administer by any other route.*

After INVEGA TRINZA® Injection



Secure needle



Dispose properly

Reference:

1. INVEGA TRINZA® (paliperidone palmitate) | HCP. (2021). Retrieved 17 June 2021, from <https://www.invegatrinzahcp.com/>



ADVERSE DRUG REACTION:

MIRTAZAPINE – RISK OF (I) AMNESIA AND (II) DRUG REACTION WITH EOSINOPHILIA AND SYSTEMIC SYMPTOMS (DRESS)

By: Fatin Nadiah Binti Mustafa

QUICK READ



A new causal association has been found between the risk of amnesia and the risk of DRESS with the exposure to mirtazapine.

→ Both of these reactions require prompt mirtazapine discontinuation.

→ NPRA has completed a review of this safety issue and a directive [\[Ruj. Kami: NPRA.600-1/9/13](#)

[\(22\)\]](#) has been issued for registration holders of mirtazapine-containing products to update the information on these two risks in the local package inserts and consumer medication information leaflet.

Mirtazapine is an antidepressant indicated for the treatment of major depression. In Malaysia, there are currently six registered oral products containing mirtazapine.

Background of Safety Issue

The National Pharmaceutical Regulatory Agency (NPRA) has received information from the European Medicines Agency (EMA) regarding the **risk of amnesia and the risk of drug reaction with eosinophilia and systemic symptoms (DRESS), both of which have been associated with mirtazapine use.** Based on all available evidence, EMA's Pharmacovigilance Risk Assessment Committee (PRAC) concluded that there is a causal association between the risk of amnesia and the risk of DRESS with the use of mirtazapine, and that the product information of all mirtazapine-containing products needs to be updated to incorporate information on these two risks.

(I) Amnesia

In pre-clinical studies, the postulated mechanisms for amnesia were thought to be related to mirtazapine's antagonistic effect on H1 receptors, as well as through the stimulation of serotonergic and noradrenergic neurotransmission. Based on a safety review, most of the patients recovered following mirtazapine discontinuation.

(ii) DRESS

DRESS is a rare, severe idiosyncratic, potentially fatal hypersensitivity reaction to a drug. An early diagnosis of DRESS and immediate discontinuation of the suspected drug are crucial for its treatment.



Adverse Drug Reaction (ADR) Report

NPRA has received a total of 96 ADR reports with 169 adverse events suspected to be related to mirtazapine-containing products.



To date, no ADR related to amnesia or DRESS has been reported to the NPRA.



Advice for Healthcare Professionals:

- Be alert on the risk of amnesia and the risk of DRESS associated with the use of mirtazapine-containing products.
- Counsel patients on the signs and symptoms of DRESS, such as widespread rash accompanied by high body temperature and enlarged lymph nodes.
 - Advise patients to stop taking mirtazapine and immediately seek medical attention if they develop any signs and symptoms of DRESS.
 - If the patient has developed DRESS reactions with the use of mirtazapine, treatment must not be restarted in this patient at any time.
- Please report all suspected adverse events associated with mirtazapine-containing products to the NPRA.

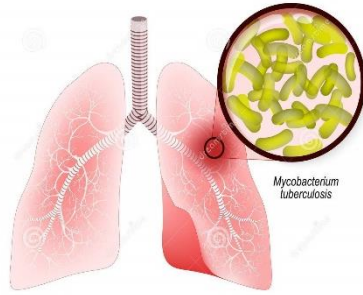


References:

1. National Pharmaceutical Regulatory Agency, Ministry of Health Malaysia. (April 20, 2021). Mirtazapine – Risk of (i) Amnesia and (ii) Drug reaction with eosinophilia and systemic symptoms (DRESS). Retrieved June 15, 2021 from: <https://www.npra.gov.my/index.php/en/health-professionals/recent-updates/426-english/safety-alerts-main/safety-alerts-2021/1527212-mirtazapine-risks-of-i-amnesia-and-ii-drug-reaction-with-eosinophilia-and-systemic-symptoms-dress.html>
2. National Pharmaceutical Regulatory Agency (NPRA). Malaysian Product Registration Database (Quest 3+). Remeron local package insert [Internet]. Last revision date: 2020 July. Available from <http://www.npra.gov.my>.

Tuberculosis

(TB) is a treatable infectious disease caused by bacteria of the *Mycobacterium tuberculosis* complex and is spread through respiratory droplets (e.g. cough, sneeze, sputum, saliva). TB infection predominantly involves the lungs (pulmonary) but may spread to other parts of the body (extrapulmonary).

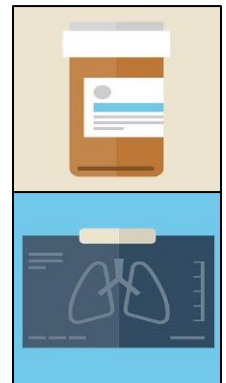


COUNSELLING POINTS: TUBERCULOSIS THERAPY SIDE EFFECTS




By: Rosalyn Chan Li Zhan







Antituberculosis Treatment Regimen:

- **Initial phase (2 months):**
Rifampicin (R), Ethambutol (E), Pyrazinamide (Z) and Isoniazid (H).
- **Continuation phase (4 months):**
Rifampicin (R) and Isoniazid (H).



Counselling Points for the Management of Side Effects of Anti-TB Drugs:

Side Effects	Counselling Points
<p>Nausea & Vomiting</p> <p>Offending drugs: R, E, Z, H</p> 	<ul style="list-style-type: none"> • These effects are transient & will decrease over time. • Drink small, frequent sips of water to avoid dehydration. • To help ease symptoms: <ul style="list-style-type: none"> ✓ Take medication (E, Z) after food. ✓ Try ginger tea, ginger biscuits or sweets. ✓ Try relaxation techniques or other comfort measures. • Inform the doctor if symptoms become troublesome or persist as Metoclopramide 10 mg TDS may be prescribed to help ease symptoms.
<p>Gastritis</p> <p>Offending drugs: R, E, Z, H</p> 	<ul style="list-style-type: none"> • To help ease symptoms of bloating, sour taste in the mouth, pain or burning sensation in the stomach or oesophagus: <ul style="list-style-type: none"> ✓ Try eating small, frequent meals. ✓ Try relaxation and/or distraction techniques. ✓ Avoid food & drinks that may worsen symptoms (e.g. acidic, fatty, spicy, caffeine, alcohol). • Inform the doctor if symptoms become troublesome or persist as antacids, H₂-blocker or proton-pump inhibitor may be prescribed to help ease symptoms.
<p>Fatigue</p> <p>Offending drugs: R, E, Z, H</p> 	<ul style="list-style-type: none"> • To help ease symptoms: <ul style="list-style-type: none"> ✓ Have an adequate sleep of 7 - 8 hours a day. ✓ Limit caffeine and alcohol intake. ✓ Exercise within physical limits. • Inform the Doctor as medication timing may be adjusted to be taken later in the day or in the evening to minimize the impact of fatigue.

<p>Hepatotoxicity</p> <p>Offending drugs: R, Z, H</p> 	<ul style="list-style-type: none"> • Avoid alcohol consumption to reduce the risk of hepatotoxicity. • Hepatic function would be checked before treatment & monitored in alcohol-dependent patients. • Inform the doctor immediately if symptoms of liver disorder e.g. persistent nausea, vomiting, abdominal pain fever, malaise or jaundice develop.
<p>Hypersensitivity</p> <p>Offending drugs: R, E, Z, H</p> 	<ul style="list-style-type: none"> • Mild rash and pruritus may be treated with emollient and antihistamine • Inform the doctor immediately if a generalized rash with mucosal involvement and fever lasting > 3 days develop.
<p>Headache</p> <p>Offending drugs: E, H</p> 	<ul style="list-style-type: none"> • Mild headaches are transient and will decrease over time. Inform the doctor if headaches persist or become severe. • To help ease symptoms: <ul style="list-style-type: none"> ✓ Drink plenty of water ✓ Try relaxation and/or distraction techniques.
<p>Peripheral neuropathy</p> <p>Offending drug: H</p> 	<ul style="list-style-type: none"> • Pyridoxine (Vitamin B6) 10 mg daily would be prescribed as prophylaxis for Isoniazid-induced peripheral neuropathy. Inform the doctor immediately if any numbness or tingling of extremities develops.
<p>Psychosis & depression</p> <p>Offending drugs: R, E, H</p> 	<ul style="list-style-type: none"> • Try grounding techniques as a distraction strategy. • Inform the doctor immediately if changes in mood and behaviour e.g. agitation, irritability, delusion, hallucination, insomnia, nightmare, severe mood swings or suicidal ideation develop.
<p>Optic neuritis</p> <p>Offending drug: E</p> 	<ul style="list-style-type: none"> • Inform the doctor immediately if symptoms of optic neuritis e.g. reduced visual acuity, changes in colour vision, orbital pain or pain with eye movement develops.

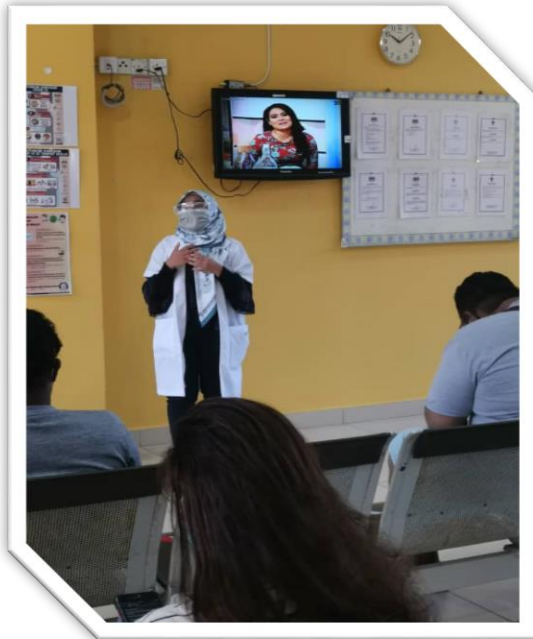
References:

1. Bahagian Perkhidmatan Farmasi Kementerian Kesihatan Malaysia. (2017). Panduan Pengurusan Pesakit Yang Dirawat dengan Anti-TB Untuk Pegawai Farmasi. Retrieved from <https://www.pharmacy.gov.my/v2/sites/default/files/document-upload/panduan-pengurusan-pesakit-dirawat-dengan-anti-tb-pegawai-farmasi.pdf>
2. International Council of Nurses and Curry International Tuberculosis Center. (2018). Nursing guide for managing side effects to drug-resistant TB treatment. Retrieved from https://www.currytbcenter.ucsf.edu/sites/default/files/citc_nursingguide_english_v13_web_spreads.pdf



KNOW YOUR MEDICINES: “PENGAMBILAN UBAT DI BULAN PUASA”

Name:	Nur Aqira binti Mohd Zain
Date:	9 March 2021
Time:	9.00 am – 10.00 am
Venue:	Outpatient Pharmacy, Hospital Permai



Pharmacist, Nur Aqira was giving a talk about the introduction and education on the intake of medication during the fasting month. A video showing session was conducted as well.



The presentation received a warm response from the audiences.



MEDICATION SAFETY ACTIVITY 2021: MEDICATION SAFETY POSTER EXHIBITION

Date:	12 April 2021
Time:	8.00 am - 14.00 pm
Venue:	Ruang hadapan, Bilik Seminar 1 & 2 Ixora, Hospital Permai

Objectives:

- 1) To improve patient care through medications safety among healthcare workers.
- 2) To promote the use of quality and safe medicines in patients.



*Medication Safety is
everyone's Responsibility.*



Questions

Questions		TRUE	FALSE
1	R_0 values indicate if a disease will spread or decline within a community and how far and how rapidly transmission will occur. The higher the R_0 , the more likely the disease will become an epidemic.		
2	Tricyclic antidepressants (particularly amitriptyline and clomipramine) should be avoided as they lower the seizure threshold and are deemed the most pro-convulsive.		
3	INVEGA TRINZA®, a 6-month injection, is an atypical antipsychotic indicated for the treatment of schizophrenia in patients after they have been adequately treated with INVEGA SUSTENNA® (1-month paliperidone palmitate extended-release injectable suspension) for at least four months.		
4	Patients should stop taking mirtazapine and immediately seek medical attention if they develop any signs and symptoms of DRESS with the use of mirtazapine.		
5	Pyridoxine (Vitamin B6) 100 mg daily would be prescribed as prophylaxis for Isoniazid-induced peripheral neuropathy.		

