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Topics:

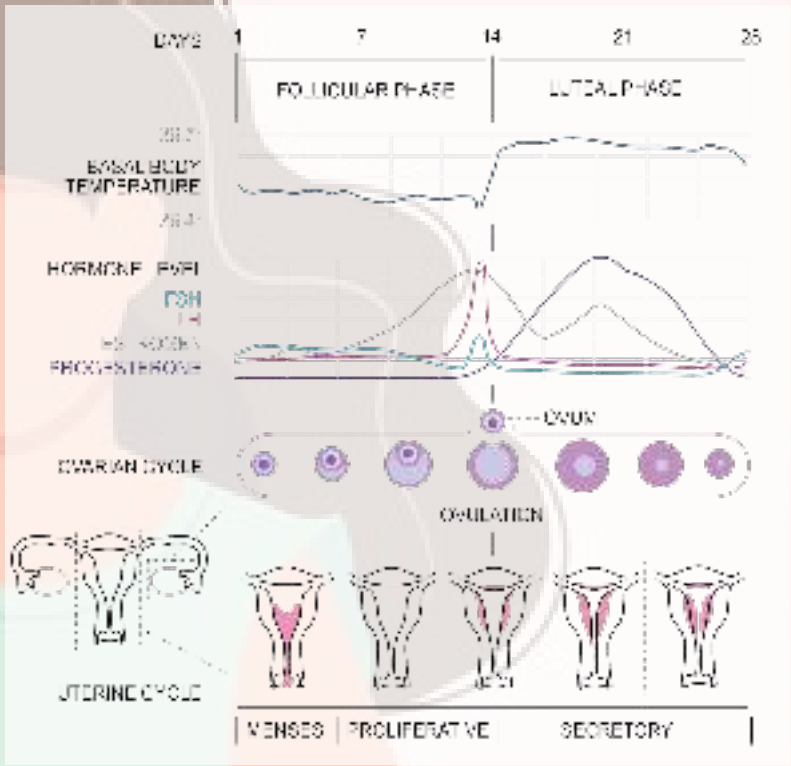
PROGESTERONE VS. DYDROGESTERONE

in treatment of Luteal Phase Defficiency

by: Cik Siti Farzana Hanis binti Mohd Yasin

LUTEAL PHASE DEFICIENCY

Luteal phase deficiency (LPD) is a condition of **insufficient progesterone exposure** to **maintain a normal secretory endometrium and allow for normal embryo implantation and growth**. The condition was first described by Georgiana Seegar Jones in 1949 and coined as a possible cause of infertility.



The study involved luteal phase of 206 ovulatory women with primary or secondary infertility. Some of these women were found to have a blunted rise in basal body temperature, decreased 48-hour urinary pregnanediol excretion, and/or endometrial biopsies with inadequate secretory changes, thus, labeled with LPD. Even after 65 years of research, the understanding of LPD is still incomplete and controversy continues to surround its pathogenesis and diagnosis.

LPD clinically manifest by a **shortened luteal phase** lasting less **than 9 days,** from the day of ovulation to menstrual bleeding. LPD is also suspected when spotting begins many days before menstruation without a structural or infectious cause. LPD has been implicated as a **cause of irregular menstrual bleeding, infertility and recurrent pregnancy loss.**

PROGESTERON (UTROGESTAN)

Generally, progesterone for Luteal Phase Support (LPS) is administered via a range of different routes including vaginal, intramuscular injection (IM), oral and rectal. Progesteron under a brand name Utrogestan is a micronized progesterone provided as a soft capsules and the only micronized progesterone available for both oral and intravaginal use. It is structurally identical to the endogenous progesterone produced by a woman's body and is used to support conception in normal cycles as well as being used in assisted reproductive technologies as luteal phase support.
Mechanism of action is it acts on the endometrium by converting the proliferating phase to the secretory phase and in particular gestagenic, antiestrogenic, slightly anti-androgenic and antialdosterone effects. Use it vaginally may have less side effects.

Oral route

On overage for progesterone insufficiency, the daily dose is *200-300mg/day* (one capsule after breakfast, and one to two capsule at bedtime). This medicinal product should be taken on an *empty stomach*

Duration:

10 days per cycle, usually from the 17th to the 26th day.

Vaginal route

The woman should insert each capsule deep into the vagina. On the average, the dosage is *200 mg* of progesterone daily distributed into two doses: one in the morning, another one in the evening.

Duration:
- Treatment should be carried out during 10 days per cycle, usually from the 17th to the 26th day.
- Supplementation of the luteal phase during IVF, *4-6 capsules (in 2 to 3 divided) doses* per day starting from the day of HCG injection until the *12th week of pregnancy.*

DYDROGESTERON (DUPHASTON)

Although micronized vaginal progesterone is the accepted norm for use in luteal phase support (LPS) in controlled ovarian stimulation that is used for in vitro fertilization (IVF) cycles, the importance of oral dydrogesterone 10mg has also got the attention in recent studies.

Dosage for infertility due to luteal deficiency:-
10 or 20 mg dydrogesterone daily starting with 14th to the 25th day of the cycle. Treatment should be maintained for at least three consecutive cycles.

Dydrogesterone		Progesterone
Has quick-effect onset (more rapid absorbed, reaching maximal level between 30 minutes - 2 hours after administration	absorption	Diffuses through the entire uterus by 4-5 hours, and then decrease concentration after 5 hours. Vaginal routes permits targeted drug delivery for a short period of time.
Easily can take orally, anywhere.	acceptability	Requires a private, clean room.
vaginal bleeding, headache, nausea, abdominal pain, irregular menstruation, breast pain and tenderness	Possible and common side effects	vaginal irritation, vaginal discharge, intense itching (pruritus), hot flashes
~ 95% Studies that compared oral versus vaginal formulations of non-progestogen drugs, showed that women preferred to use oral formulations compared with vaginal ones	Satisfaction with tolerability of treatment	~ 73% Administration side effect such as vaginal pain or perineal irritation were reported with intravaginal route.

Oral Bioavailability

28% dydrogesterone

<5% progesterone

Dydrogesterone is a selective progesterone receptor agonist, with better oral bioavailability compared with micronized progesterone, allowing for effective oral administration and circumventing the inconvenience and discomfort related to intravaginal or intramuscular progesterone

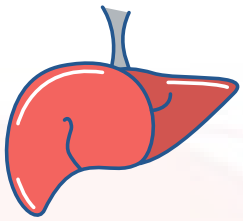
Oral Dose

10mg dydrogesterone

100 - 300mg progesterone

The dose of dydrogesterone required for an equivalent effect is 10–20 times lower than that of oral micronized progesteron, providing clear clinical benefits.

Safety and tolerability



Both oral and vaginal micronized progesterone are metabolized by the liver.

Progesterone group:

- Risk of cholestasis in pregnancy. Oral high doses (900-1200 mg/day) may increase the risk of intrahepatic cholestasis in predisposed women. To circumvent these issues, the main routes of administration for luteal phase support during IVF to date have been *i*ntravaginal and intramuscular. During pregnancy, Utrogestan should only be used during the first three months and only by the vaginal route. Prescription of progesterone beyond the first trimester of pregnancy may reveal gravidic cholestasis.

Dydrogesterone group :

It is estimated more than 10 million pregnancies have been exposed to progesterone. There have been no indications of a harmful effect of dydrogesterone use during pregnancy.

Conclusion

Oral dydrogesterone and vaginal progesterone capsules for luteal-phase supplementation in assisted reproduction technology (ART) cycles are shown to equally effective. Oral dydrogesterone might be a good option in clinical practice, since oral administration is more patient-friendly than the vaginal route. However, intravaginal route may be a good option to avoid side effects associated with oral dydrogesterone. The choice for either should be based mainly on tolerability, availability, cost, and side effects.

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CALFACTANT (INTRASURF) VS BERACTANT (SURVANTA)

IN PREVENTION AND TREATMENT OF RESPIRATORY DISTRESS SYNDROME IN PREMATURE INFANTS

By: CIK SITI FARHAH BINTI KAMALUDIN

Respiratory distress syndrome (RDS) is a lung failure that starts after birth, which clinically gets worse hours and days. The use of surfactant preparates that had been administered through intratracheal method had statistically eased RDS and its complications. There are two natural surfactant preparates that have been approved by Food and Drug Administration (FDA) for treatment of RDS.

Calfactant (Intrasurf)	Differences	Beractant (Survanta)
		
Demonstrated the expedite of gas transaction in the lung, shorten the disconnection time from a mechanical ventilator and ease air leak syndromes		
No significant differences in clinical outcomes		
No difference in bronchopulmonary dysplasia (BPD), necrotizing enterocolitis (NEC), intraventricular haemorrhage (IVH), air leak syndrome and mortality		
Derived from a bovine lung lavage surfactant extract that includes phospholipid, neutral lipids and hydrophobic surfactant associated with proteins B and C. Each millilitre contains 35 mg of phospholipids	**Composition**	Modified bovine minced lung surfactant extract, containing phospholipids, neutral lipids, fatty acids and surfactant-associated proteins. Each millilitre contains 25 mg of phospholipids.

Calfactant (Intrasurf)	Differences	Beractant (Survanta)
More efficient in the acute period of RDS (need for FiO_2 was decreased in first 48 hours and MAP was decreased)	**Efficacy**	Less efficient in the acute period of RDS
Longer efficiency time	**Efficiency Time**	Shorter efficiency time
3ml/kg, can be repeated every 12 hours for a total up to 3 doses (usually 1 vial per infant)	**Dosing**	4ml/kg, can be repeated every 6 hours up to a total of 4 doses (usually 1 vial per infant)
Demonstrated the need of more repeat doses	**Repeat Doses**	Demonstrated the need of less repeat doses
6 mL	**Volume per vial**	8 mL
RM 1400 per vial	**Price**	RM 1511.40 per vial

References:

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TREATMENT OF SCALP AND NON-SCALP PLAQUE PSORIASIS VULGARIS

Cik Lee Ke Qing

Plaque psoriasis vulgaris:

- A chronic skin disease affecting nearly 2% of world population.[1]
- It is due to interruption in immune system caused by reduction of skin cell growth time, from normal time of 21-28 days to 2-3 days. This rapid skin cell reproduction cause overproduction of outer layer and making skin appear as red spots with thick silvery plaque. The disease affects skin of the body and limbs, and may also affect the scalp and nails.[1]
- Psoriasis is a non-contagious disease.

Vitamin D3 analogue that commonly used are calcipotriol + betamethasone dipropionate (Daivobet ointment or Xamiol gel). It slows down the growth of skin cells, flattens lesion and removes psoriasis scales.[1]

Daivobet Ointment for body psoriasis lesions has been used in combination with **Xamiol Gel** for scalp psoriasis lesions.[3]

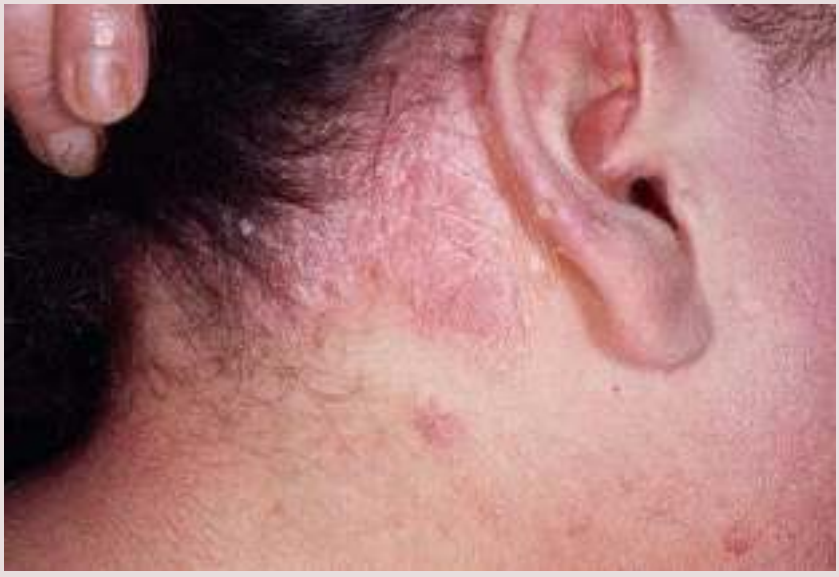

Figure 1: Scalp psoriasis. The scalp may have fine, dry, scaly skin or have heavily crusted plaque areas.[2]

XAMIOL GEL

Composition

- Active ingredients: Calcipotriol 50 microgram/g (as hydrate), betamethasone 0.5 mg/g (as dipropionate).
- Excipients: Liquid paraffin, Polyoxypropylene stearyl ether, hydrogenated castor oil.

Indications/Uses

- Topical treatment of scalp and non-scalp plaque psoriasis vulgaris in adults.

Dosage/ Direction for use

- Xamiol Gel should be applied to affected areas once daily. The recommended treatment period is **4 weeks for scalp areas** and **8 weeks for "non-scalp" areas.**
- If it is necessary to continue or restart treatment after this period, treatment should be continued after medical review and under regular medical supervision.
- When using calcipotriol containing medicinal products, the **maximum daily dose should not exceed 15 g.** The body surface area treated with calcipotriol containing medicinal products should not exceed 30%.

Method of administration

- Xamiol Gel **should not be applied directly to the face or eyes.**
- In order to achieve optimal effect, it is **not recommended to take a shower or bath**, or to wash the hair in case of scalp application, **immediately after application of Xamiol Gel**. Xamiol Gel should remain on the skin during the night or during the day.
- *When using the bottle:* The bottle should be **shaken before use** and Xamiol Gel applied to the affected area. The hands should be washed after use.

Contraindications

- Hypersensitivity to the active substances or to any of the excipients.
- Known disorders of calcium metabolism (due to the content of calcipotriol).
- Viral (e.g. herpes or varicella) lesions of the skin, fungal or bacterial skin infections, parasitic infections, skin manifestations in relation to tuberculosis, perioral dermatitis, atrophic skin, striae atrophicae, fragility of skin veins, ichthyosis, acne vulgaris, acne rosacea, rosacea, ulcers and wounds (due to the content of corticosteroid).
- Xamiol Gel is contraindicated in erythrodermic, exfoliative and pustular psoriasis

Figure 2: Xamiol gel. Topical gel (an almost clear, colourless to slightly off-white and is filled in polyethylene bottles) [3]

XAMIOL GEL

Common adverse effects:
- Pruritus
- Skin irritation
- Burning and stinging sensation

Paediatric population:
- The safety and efficacy of Xamiol Gel in children below 18 years have not been established.

Pregnancy:
- No adequate data in pregnant woman.
- Only be used when the potential benefit justifies the potential risk.

Breastfeeding:
- Betamethasone passes into breast milk, but risk of an adverse effect on the infant seems unlikely with therapeutic doses. **Patient should be instructed not to use Xamiol Gel on the breast when breastfeeding.**

AVOID:

→ Application under occlusive dressings
→ Application on large areas of damaged skin, or on mucous membranes or in skin folds

→ It increases the systemic absorption of corticosteroids.

⚠ **Hands must be washed after each application →** Avoid accidental transfer to these areas.

Storage:
- Do not refrigerate. Keep the bottle in the outer carton in order to protect from light. Do not store above 30°C.
- *Shelf-Life:* Unopened container: 2 years.
- Discard 3 months after first opening.

*Information obtained from product leaflet.

DAIVOBET OINTMENT

Composition

- Active ingredients: Calcipotriol 50 microgram/g (as hydrate), betamethasone 0.5 mg/g (as dipropionate).
- Excipients: Liquid paraffin, polyoxypropylene stearyl ether, all-rac-α-tocopherol, white soft paraffin.

Indications/Uses

- Initial topical treatment of stable plaque psoriasis vulgaris amenable to topical therapy.

*Information obtained from product leaflet.

Dosage/Direction for Use

- Daivobet should be **applied to affected areas once daily.**
- The **recommended treatment period is 4 weeks**. There is experience with repeated courses of Daivobet up to 52 weeks. If it is necessary to continue or restart treatment after 4 weeks, treatment should be continued after medical review and under regular medical supervision.
- When using calcipotriol containing medicinal products, the **maximum daily dose should not exceed 15 g.**
  The body surface area treated with calcipotriol containing medicinal products should not exceed 30%.

Method of administration

- Daivobet ointment should be applied to the affected area.
- In order to achieve optimal effect, it is **not recommended to take a shower or bath immediately after application of Daivobet ointment.**

Storage
Do not store above 30°C.
Shelf-Life: Unopened container: 2 years.
After first opening of container: 12 months.

Common adverse effects:
- Pruritus
- Skin irritation
- Burning and stinging sensation

Pregnancy and lactation data
- Same as Xamiol gel

Contraindications
- Same as Xamiol gel

Figure 3: Daivobet ointment. Off-white to yellow ointment.[3]

References:
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RALTEGRAVIR VS DOLUTEGRAVIR

BY : CIK YONG SUK FEN

- ✓ **Highly active antiretroviral therapy (HAART) usually consisting of three or more antiretroviral (ARV) drugs that act on different targets in the virus.**
- ✓ **ART has dramatically reduced opportunistic infection–related mortality among HIV infected persons, improved quality of life and survival.**

Nucleoside or nucleotide reverse transcriptase inhibitors (NRTI)	
Abacavir	ABC
Emtricitabine	FTC
Lamivudine	3TC
Stavudine	3TC
Tenofovir disoproxil fumarate	TDF
Zidovudine	AZT or ZDV
Non-nucleoside reverse transcriptase inhibitors (NNRTI)	
Efavirenz	EFV
Etravirine	ETV
Nevirapine	NVP
Rilpivirin	RPV
Protease Inhibitors (PI)	
Atazanavir	ATV
Darunavir	DRV
Lopinavir / ritonavir	LPV/r
Ritonavir	RTV
Integrase Inhibitors	
Raltegravir	RAL
Dolutegravir	DTG
CCR5 Antagonist	
Maraviroc	MVC
Fusion Inhibitor	
Enfuvirtide	T-20

Integrase strand transfer inhibitors (INSTI) are a newer class of drugs for HIV infection that inhibit HIV by preventing the virus from incorporating its DNA into the host genome.

ROLES IN HIV MANAGEMENT

Malaysian Consensus Guidelines on Antiretroviral Therapy 2017:
2 NRTI+1 NNRTIs are the preferred options.

Preferred first line ART	Alternative regimes
TDF + FTC + EFV	AZT + 3TC + EFV (or NVP) ABC + 3TC + EFV (or NVP) TDF + FTC + NVP
TDF + FTC + Raltegravir TDF + FTC + Dolutegravir (if intolerant to NNRTI)	TDF + FTC + ATV/r TDF + FTC + LPV/r

INSTI and PI/r Integrase strand transfer inhibitors (INSTI) or protease inhibitors (PI) may be considered as the third agent in first line ART regime if the patient is unable to tolerate the side effects of NNRTI.

Raltegravir (RAL)

- First approved INSTI. RAL was found to be noninferior to efavirenz (EFV) in treatment-naïve patients with a higher rate of viral suppression after 48 weeks (RAL: 86%, EVF: 82%, 95% confidence interval [CI]: −1.9 to 10.3) and fewer treatment-related severe adverse events (RAL: 44%, EVF: 77%, 95% CI: −40.2 to −25).
- RAL required twice-daily dosing for many years, but the FDA recently also approved once daily dosing.

Dolutegravir (DTG)

- (DTG alone or in combination with abacavir [ABC] and lamivudine [3TC]) has been shown to exhibit a higher barrier to resistance compared to Elvitegravir (EVG) and RAL, can be dosed once daily, has a low interaction potential and there are no food restrictions.
- DTG was associated with significantly more frequent virological suppression after 48 weeks compared to both EFV (DTG: 88%, EFV: 81%, 95% CI: 2%–12%, *P* = .003) and darunavir/ritonavir (DRV/r) (DTG: 90%, DRV/r: 83%, 95% CI: 0.9%–13.2%).
- In treatment-experienced patients, combination ART regimens based on once-daily DTG showed greater virological effect when compared to twice-daily RAL. [3]
- Dolutegravir demonstrated superiority when compared with raltegravir in treatment-experienced, integrase-naive patients and clinical efficacy in patients with resistance to first-generation INSTIs.
- Overall, dolutegravir has demonstrated excellent tolerability, limited drug interactions, minimal drug resistance and once-daily dosing for treatment-naive patients. [4]

WHO Updated recommendations on first-line and second-line antiretroviral regimens and post-exposure prophylaxis and recommendations on early infant diagnosis of HIV 2018 [2]:

Populations				Preferred first line regimen	Alternative first line regimen(s)	Special situations
Adult men and adolescent boys				TDF + 3TC (or FTC) + DTG	TDF + 3TC (or FTC) + EFV 600mg TDF + 3TC (or FTC) + EFV 400mg	AZT + 3TC + EFV 600mg TDF + 3TC (or FTC) + PI/r[b]
Adult women and adolescent girls	Pregnant or breastfeeding[a]					
	Not of childbearing potential					
	of child-bearing potential	Offered and using effective contraception				
		Offered but not using effective contraception or without access to contraception or want to become pregnant[g]	Choose to use DTG after informed choice			
			Choose to use EFV after informed choice	TDF + 3TC (or FTC) + EFV 600mg	TDF + 3TC(or FTC) + EFV 400mg TDF + 3TC (or FTC) + ATV/r[b]	AZT + 3TC + EFV 600mg TDF + 3TC (or FTC) + RAL
Children				ABC + 3TC + DTG[c]	ABC + 3TC + LPV ABC + 3TC + RAL[d]	ABC + 3TC + EFV[e] (or NVP) AZT + 3TC + EFV[e] (or NVP) AZT + 3TC + LPV/r (or RAL)
Neonates				AZT + 3TC + RAL	AZT + 3TC + NVP	AZT + 3TC + LPV/r[f]

- **A dolutegravir (DTG)-based regimen is recommended as the preferred first-line regimen for people living with HIV initiating ART.**
- **A raltegravir (RAL)-based regimen may be recommended as an alternative first-line regimen for infants and children for whom approved DTG dosing is not available.**
- **A RAL-based regimen is recommended as the preferred first-line regimen for neonates.**

Drugs	Raltegravir	Dolutegravir
Indications [5]	Treatment of HIV-1 infection in patients who are contraindicated to boosted Protease Inhibitor or who are intolerant to boosted Protease Inhibitor.	In combination with other antiretroviral medicinal products for the treatment of Human Immunodeficiency Virus (HIV) infected adults and adolescents above 12 years of age.
Dosage	400 mg twice daily [1,2]	i) HIV-1 patients without documented or clinically suspected resistance to the integrase class: 50 mg once daily *, orally. [1,2,5] ii) HIV-1 patients with resistance to the integrase class: 50 mg twice daily, orally. [5]
	Considerations for individuals receiving TB therapy in the presence of rifampicin, adjusted dose of DTG (50 mg twice daily) and RAL (800 mg twice daily), with close monitoring. In the presence of rifabutin, no dose adjustment required. * TLD (Tenofovir 300 mg, Lamivudine 300 mg, Dolutegravir 50 mg fixed dose combination) can be used once daily in adolescents living with HIV weighting at least 30 kg. [2]	
Adverse effect [1,2] **and management**	• Increased CK; muscle weakness and rhabdomyolysis • Rash (uncommon)	• Insomnia, headache
	➢ Stop ART. When symptoms are resolved, substitute with another therapeutic class (boosted PIs).	➢ Consider morning dose or substitute with EFV, boosted PI or RAL.
		• Hepatotoxicity (higher risk with underlying hepatitis B and C coinfetion and liver disease) • Hypersensitivity reactions (if hypersensitivity reaction, substitute with another class of ART)
		➢ Substitute with another therapeutic class: EFV or boosted PIs.

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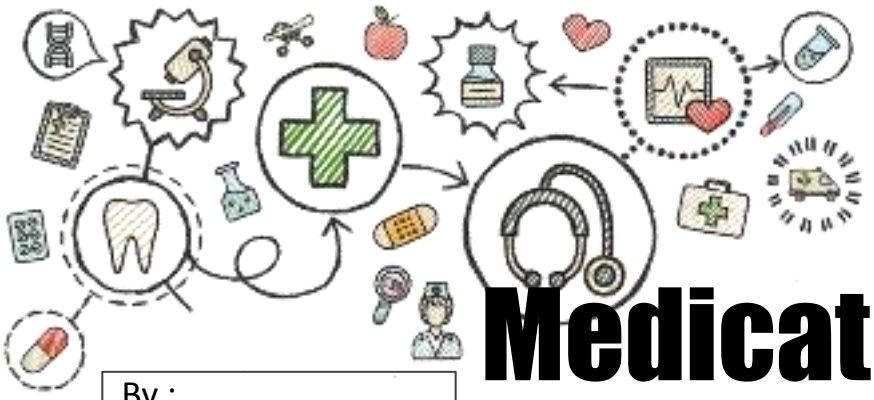

Medication ERROR

By :
- Cik Lai Kai Ling
- Cik Foo Yen Li
- Cik Amy Tan Szi Sze

Any preventable event that **may cause or lead to inappropriate medication use or patient harm** while the medication is in the control of the health care professional, patient, or consumer.

Such events may be related to professional practice, health care products, procedures, and systems, including prescribing, order communication, product labeling, packaging, and nomenclature, compounding, dispensing, distribution, administration, education, monitoring, and use"

[National Coordinating Council for Medication Errors Reporting and Prevention NCC MERP, 1998]

WAYS TO REDUCE MEDICATION ERRORS

It is important for all healthcare providers to become familiar with various strategies to prevent or reduce the likelihood of medication errors. Here are few strategies to help you do just that.

1. **Ensure the five rights of medication administration.**
2. **Follow proper medication reconciliation procedures.**
3. **Double check—or even triple check—procedures.**
4. **Consider using a name alert.**
5. **Place a zero in front of the decimal point.**
6. **Document everything.**
7. **Ensure proper storage of medications for proper efficacy.**

1. Ensure the five rights of medication administration.

Every healthcare workers must ensure the correct medication is prescribed for the correct patient, in the correct dosage, via the correct route, and timed correctly (also known as the five rights).

2. Follow proper medication reconciliation procedures.

Review and verify each medication for the correct patient, correct medication, correct dosage, correct route, and correct time against the transfer orders, or medications listed on the transfer documents. All the healthcare workers such as doctors, nurses/medical assistants and pharmacists must compare this to the medication administration record (MAR). Often not all elements of a medication record are available for easy verification, but it is of paramount importance to verify with every possible source.

3. Double check—or even triple check—procedures.
This is a process whereby another nurse on the same shift or an incoming shift reviews all new orders to ensure each patient's order is noted and transcribed correctly on the physician's order and the medication administration record (MAR) or the treatment administration record.

4. Consider using a name alert.
Some institutions use name alerts to prevent similar sounding patient names from potential medication mix up. Names such as Johnson and Johnston can lead to easy confusion on the part of nursing staff, so it is for this reason that name alerts posted in front of the MAR can prevent medication errors.

5. Place a zero in front of the decimal point.
A dosage of 0.25mg can easily be construed as 25mg without the zero in front of the decimal point, and this can result in an adverse outcome for a patient.

6. Document everything.
This includes proper medication labelling, legible documentation, or proper recording of administered medication. A lack of proper documentation for any medication can result in an error. Reading the prescription label and expiration date of the medication is also another best practice. A correct medication can have an incorrect label or vice versa, and this can also lead to a med error.

7. Ensure proper storage of medications for proper efficacy.
Medications that should be refrigerated must be kept refrigerated to maintain efficacy, and similarly, medications that should be kept at room temperature should be stored accordingly. Most biologicals require refrigeration, and if a multidose vial is used, it must be labelled to ensure it is not used beyond its expiration date from the date it was opened.

Utilizing any or all of the above strategies can help to prevent or reduce medication errors. One must never cease to remember that a medication error can lead to a fatal outcome and it is for this reason that med safety matters.

Actual Medication Error In HSM

Look Alike Medication		
Product 1 (Intended)	**Product # 1 (Error)**	**Description**
Paracetamol 120mg/5ml Syrup	**Diphenhydramine Hydrochloride 14mg/5ml Expectorant Syrup**	**Error :** Dispensed adult syrup diphenhydramine instead of paediatric syrup PCM **Contributing factors :** 1. Failure to adhere to work procedure. 2. Peak hour 3. Look alike medication and location of both medications. **Action to be taken :** – To emphasize on SOP of counter–checking before dispensed. – Separate the location of syrup diphenhydramine and syrup paracetamol further to prevent filling error.
		

Inappropriate Frequency		
Product # 1 (Intended)	**Product # 1 (Error)**	Description
Digoxin 0.125mg OD	**Digoxin 0.125mg BD**	**Error :** Patient was prescribed with T. Digoxin 0.125mg BD in PHIS system instead of intended dose 0.125mg OD causing patient developed bradycardia. **Contributing factors :** 1. Doctor prescribed wrongly on appointment card. 2. No available manual medication chart to counter-check at satelite pharmacy. 3. Peak hour. **Action taken :** – To create awareness among staff to prevent error from happening again. To check references before dispensed even though peak hour.
		

Sound Alike Medication		
Product # 1 (Intended)	**Product # 1 (Error)**	**Description**
Chlorpromazine HCl 100mg Tablet 	**Clozapine 100mg Tablet** 	**Error :** During home visit, mother informed that patient recently received new type of medication and has side effect of constipation. Patient was given T. Clozapine 50mg ON instead of T. Chlorpromazine 50mg ON. **Contributing factor :** 1. Sound alike medication 2. Peak hour 3. Lack of concentration due to tiredness from work. **Action taken :** To rotate staff working shift to reduce tirednessTo place red alert card to increase awareness of sound alike medication.

PHARMACY STAFF MOVEMENT (AUGUST – OCTOBER 2020)

Transferred In:

1.	Cik Nur Nadia Binti Noor Afandi	Pharmacist UF 44
2.	Cik Tan Lin Yuing	Pharmacist UF 41
3.	Cik Tan Swee Li	Pharmacist UF 41
4.	Cik Norzulaikha Binti Norahzan	Pharmacist UF 41

Transferred Out:

1.	Cik Tiang Chien Hui	Pharmacist UF 41
2.	Puan Syafina Syafawati Binti Mohamed Sukaini	Pharmacist UF 41

Published by:

Pharmacy Department
Hospital Seri Manjung
Perak Darul Ridzuan

05-6896600

farmasihsm@moh.gov.my