

DIPHTERIA



What is Diphtheria?

Diphtheria is a serious disease caused by a bacterial toxin produced by *Corynebacterium diphtheria*, which primarily infects the throat and upper airways. It causes a thick coating in the back of the nose or throat that makes it hard to breathe or swallow. This disease can be fatal.

How it transmits?

- Through respiratory droplets due to coughing, sneezing or talking.
- Contact with infected object such as toys.

Who are at risks?

Children and adult with no up to date vaccination.

Signs and symptoms of Diphtheria

- Weakness
- Sore throat
- Fever
- Swollen glands in the neck
- Thick gray membrane coating the back of throat after 2-3 days of illness.

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Complication of Diphtheria

Blocking of the airway
Damage to the heart muscle (myocarditis)
Nerve damage (polyneuropathy)
Loss of the ability to move (paralysis)
Lung infection (respiratory failure or pneumonia)

Treatment of Diphtheria

Combination of antibiotic therapy and antitoxin (in severe case).

- **Antitoxin :**

Antitoxin must be administered early as it only effective before toxin enters the cells.

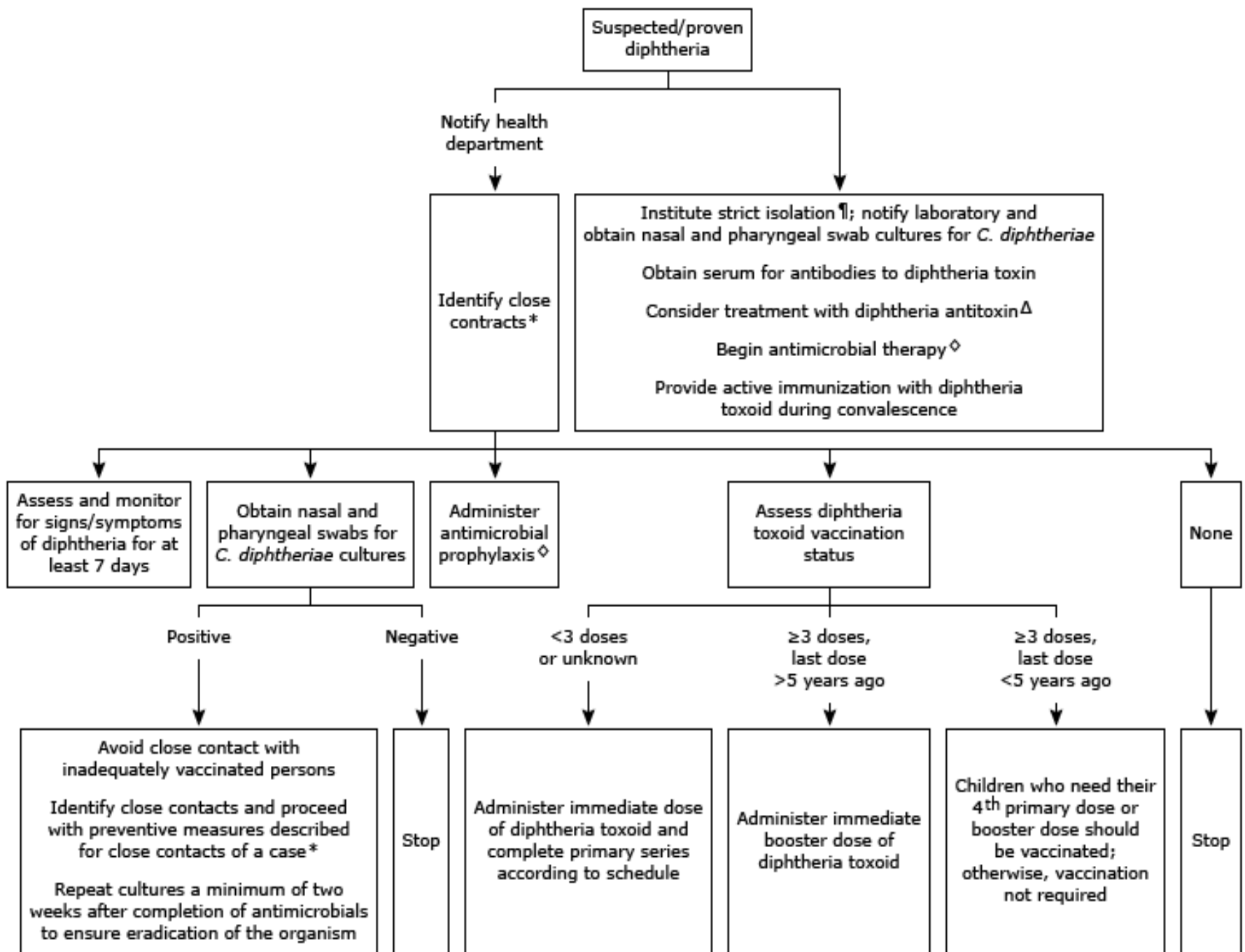
Table 1. Pediatric and Adult DAT Dose⁸

Diphtheria clinical presentation	DAT dose (units)
Pharyngeal or laryngeal disease of 2 days duration	20,000 – 40,000
Nasopharyngeal disease	40,000 – 60,000
Extensive disease of 3 or more days duration, or any patient with diffuse swelling of neck	80,000 – 100,000
Skin lesions only (rare case where treatment is indicated)	20,000 – 40,000

- **Antibiotic :**

Infection/condition & likely organism	Suggested treatment
Diphtheria Corynebacterium diphtheriae	Antitoxin PLUS IV Erythromycin Lactobionate 500mg q6h followed by PO Erythromycin Ethylsuccinate 800mg q12h for total of 14 days OR Benzylpenicillin 50000units/kg to maximum of 1.2MU IV q12h followed by Phenoxymethylpenicillin 250mg


Respiratory diphtheria: Recommendations for case management and investigation of close contacts



Prevention

Vaccine is the best way to prevent diphtheria.

**People of all ages need
DIPHTHERIA VACCINES**



DTaP
for young children


- ✓ 2, 4, and 6 months
- ✓ 15 through 18 months
- ✓ 4 through 6 years

Tdap
for preteens

- ✓ 11 through 12 years

Td
for adults

- ✓ Every 10 years



References:

1. Malaysian National Antibiotic Guideline 2014
2. Luis F.B & Samuel P S. (2018). Diphtheria: clinical manifestation, diagnosis and treatment, UpToDate. Retrieved from <http://www.uptodate.com/contents/clinical-manifestations-diagnosis-and-treatment-of-diphtheria>
3. Use of Diphtheria Antitoxin (DAT) for Suspected Diphtheria Cases. Retrieved from <http://www.cdc.gov/diphtheria/protocol>

Ceftriaxone: Disturbed consciousness, convulsions or involuntary movements

Background

The National Pharmaceutical Regulatory Agency (NPRA) received information from the Pharmaceuticals and Medical Devices Agency (PMDA), Japan, on reports of disturbed consciousness, convulsions or involuntary movements associated with the use of ceftriaxone.

PMDA has published important safety information regarding revision of the precautions in the package insert of ceftriaxone products. Disturbed consciousness (such as loss of consciousness and decreased level of consciousness), convulsions or involuntary movements (such as choreoathetosis and myoclonus) may occur with ceftriaxone use. These neuropsychiatric symptoms have been reported in numerous patients with severe renal disorder¹.

Based on a literature review by Hagiya H. *et al.* (2017), it was found that elderly patients with chronic kidney disease are at a particularly high risk for ceftriaxone-associated neurotoxicity. Of the 11 cases documented in the literature, 8 cases (72.7%) involved patients over 60 years of age. Four (4) of the patients had chronic kidney disease, and half of the patients were on either hemodialysis or peritoneal dialysis. A possible reason for the association between renal insufficiency and neurotoxicity is impaired biliary excretion in patients with renal dysfunction, due to the delayed elimination of ceftriaxone. This may subsequently lead to higher serum concentration of the drug, which can trigger its neurotoxic adverse events.

The pathophysiological mechanisms of cephalosporin-associated neurotoxicity have yet to be fully understood². It is believed that beta-lactam associated encephalopathy is related to the competitive inhibition of γ -aminobutyric acid in brain tissues. Considering that ceftriaxone penetrates efficiently into the central nervous system, it is thought that it may trigger increased neural excitability, even at normal dosages.

Local Scenario

Ceftriaxone is a widely used third-generation cephalosporin with a broad antimicrobial spectrum.

Adverse Drug Reaction Reports

Since year 2000, the NPRA had received a total of 1,747 reports with 3,106 adverse events suspected to be related to ceftriaxone-containing products. Of these, there were **six (6) reports involving loss of consciousness** and **five (5) reports involving seizure/convulsions**³.

Risk minimisation steps:

NPRA is currently monitoring this safety issue whilst in discussion with the product registration holder to evaluate the necessity of a product information update.

Advice for Healthcare Professionals:

- a) Patients receiving ceftriaxone, particularly those with severe renal disorder, should be carefully monitored for disturbed consciousness, convulsions, or involuntary movements.
- b) If any of these symptoms are observed, appropriate measures such as discontinuing administration should be taken.
- c) Please report all adverse events suspected to be related to the use of ceftriaxone-containing products to NPRA.



7 Strategies

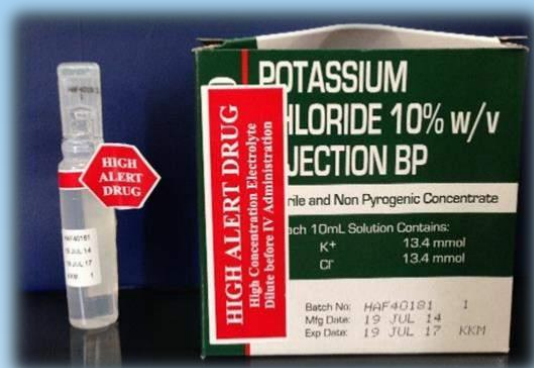
TO REDUCE POTASSIUM CHLORIDE INJECTION RELATED MEDICATION ERROR

Potassium chloride (KCL) injection has been identified as a high risk drug that implicated in fatal incidents. Generally, the types of error related to KCL injection are wrong ampoule and preparation error. Thus, implementing safeguard to prevent incidents with KCL injection is important to ensure patient safety. Recommendations below will serve as useful initiatives for system improvement to prevent injury with KCL injection in healthcare facilities.

- 1 Develop **CLEAR GUIDELINE** for the use of KCL injection by multidisciplinary team from pharmacy, therapeutic committee and patient care team.
- 2 Ensure the approved guidelines describing safe administration of KCL injection are readily available and accessible in all patient care units.
- 3 Add **CAUTIONARY LABEL** to KCL injection.
- 4 Ensure **COMPLETE PRESCRIBING INFORMATION** for KCL injection which specify the total dose, route, volume of dilution, rate of infusion etc. e.g. 0.5 gram in 50ml NSover 1 hour.
- 5 **INDEPENDENT COUNTER CHECK** KCL injection before administration- at least two healthcare personnel should check the correct product, dose dilution, labelling, route and rate before administration, as per safe on-site preparation protocol. **BE SURE, BE SAFE, READ THE LABEL.**
- 6 Choose a **DESIGNATED AREA/ CONTAINER** for storage of KCL injection only.

****CAUTION****
CONCENTRATED KCL
FATAL IF INJECTED UNDILUTED

HIGH CONCENTRATED ELECTROLYTE
DILUTE BEFORE IV ADMINISTRATION



- 7 Include the issue of KCL injury and preventive system safeguards as a topic of discussion during orientation programs for nurses, doctors and pharmacists, and as part of **CONTINUOUS EDUCATIONAL TRAINING.**

REFERENCES

1. Institute For Safe Medication Practices , US
2. Institute for Healthcare Improvement at <http://www.ihj.org>
3. Guideline on Safe Use of High Alert Medications, Pharmaceutical Services Division, Ministry of Health Malaysia.
4. Potassium Chloride: A High Risk Drug For Medication Error. Dilip K, Saroj K& Jitendra A; Indian Journal of Anaesthesia, Vol. 56, Issue 1, Jan-Feb 2012.
5. Medication Safety Alerts. David U & Sylvia H; The Canadian Journal of Hospital Pharmacy, Vol. 55, No. 4, September 2002.

PRODUCT BRAND CHANGES

Folic Acid 5mg Tablet



Previous Brand : Folic Acid
Manufacturer:
Royce Pharma Manufacturing Sdn. Bhd



Current Brand : Upha Folic
Manufacturer:
CCM Pharmaceuticals

Gliclazide 80mg Tablet

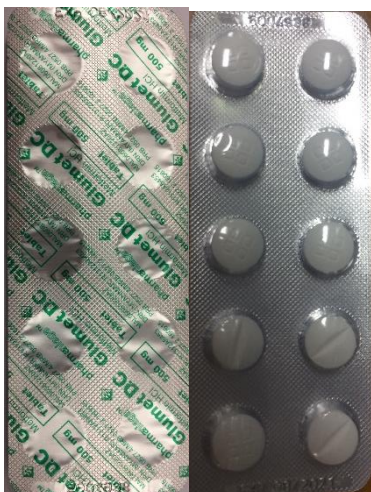


Previous Brand: Gliclazide
Manufacturer:
Pharmaniaga Manufacturing Berhad



Current Brand: Diamitex
Manufacturer:
CCM Pharmaceuticals

Metformin 500mg Tablet



Previous Brand: Glumet DC
Manufacturer:
Pharmaniaga Manufacturing Berhad



Current Brand: CCM Metformin
Manufacturer:
CCM Pharmaceuticals

Paracetamol 500mg Tablet



Previous Brand : Fepril
Manufacturer:

Idaman Pharma Manufacturing Sdn. Bhd



Current Brand : Redamol
Manufacturer:

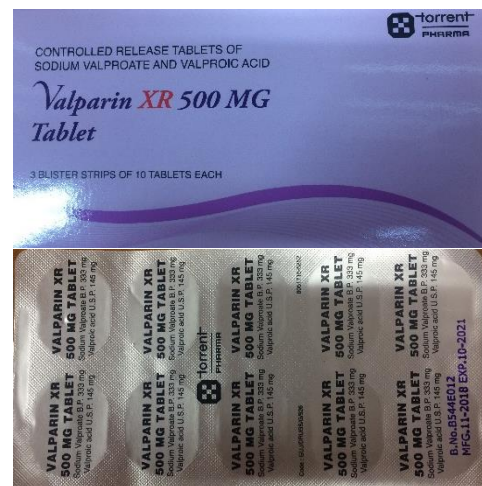
Royce Pharma Manufacturing Sdn. Bhd

Valproic acid and sodium valproate 500mg Tablet



Previous Brand: Epilim Chrono
Manufacturer:

Sanofi-aventis (Malaysia) Sdn Bhd



Current Brand: Valparin XR
Manufacturer:

Laboratories Torrent (Malaysia) Sdn Bhd

Pantoprazole 40mg Tablet



Previous Brand: Vencid
Manufacturer:

Xepa-Soul Pattinson (Malaysia) Sdn Bhd



Current Brand: Pantaz
Manufacturer:

Medley Pharmaceuticals Limited

Bromhexime 8mg Tablet



Previous Brand : Bromhexime
Manufacturer:
Chulia Pharma Sdn. Bhd



Current Brand :Dysolvon
Manufacturer:
Dynapharm (M) Sdn Bhd

Terazosin 2mg Tablet



Previous Brand: Terasin
Manufacturer:
Y.S.P. Industries (M) Sdn Bhd



Current Brand: Conmy
Manufacturer:
Taiwan Biotech Co., LTD.

Mefenamic Acid 250mg Tablet



Previous Brand: Pontacid
Manufacturer:
CCM Pharmaceuticals



Current Brand: Mefa Capsule
Manufacturer:
Royce Pharma Manufacturing Sdn. Bhd

Diclofenac sodium 50mg Tablet



Previous Brand : Voren
Manufacturer:
Y.S.P. Industries (M) Sdn Bhd



Current Brand :Dicloran
Manufacturer:
Unique Pharmaceutical Laboratories

Vitamin B Complex Tablet



Previous Brand: Vitamin B Complex
Manufacturer:
Pharmaniaga Manufacturing Berhad



Current Brand: CCM B Complex
Manufacturer:
CCM Pharmaceuticals

Frusemide 20mg Injection

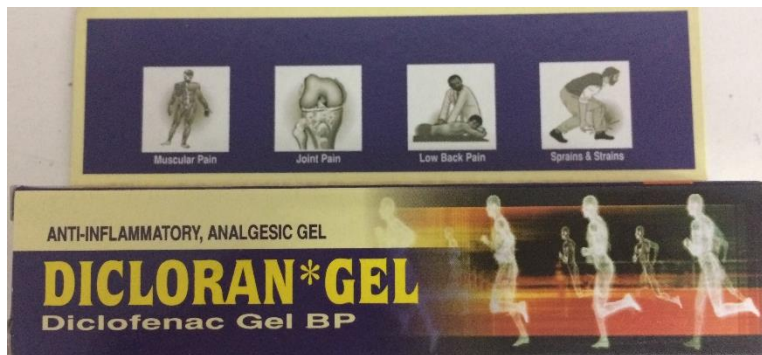


Previous Brand: Fusix
Manufacturer:
SM Pharmaceuticals Sdn Bhd

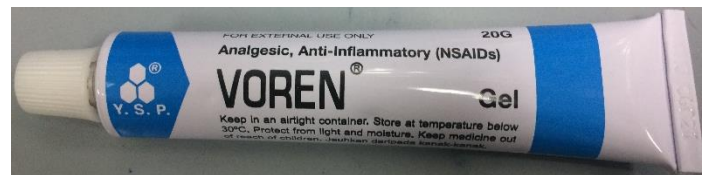


Current Brand: Furosemide
Manufacturer:
Pharmaniaga Manufacturing Berhad

Diclofenac Gel

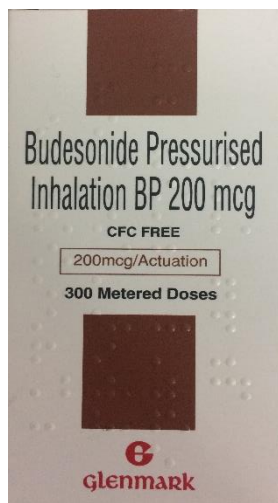


Previous Brand : Dicloran
Manufacturer:
Unimed Sdn. Bhd



Current Brand : Voren
Manufacturer:
Y.S.P. Industries (M) Sdn Bhd

Budesonide 200mcg/dose Inhalation



Previous Brand: Budesonide
Manufacturer:
Glenmark Pharmaceuticals (M) Sdn Bhd

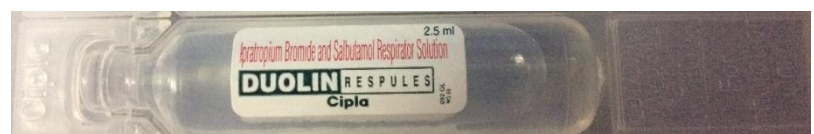


Current Brand: Budecort 200
Manufacturer:
Cipla Malaysia Sdn Bhd

Ipratropium Bromide and Salbutamol Respirator Solution



Previous Brand: Combineb
Manufacturer:
Ain Medicare Sdn Bhd



Current Brand: Duolin
Manufacturer:
Cipla Malaysia Sdn Bhd

SAMBUTAN MAULIDUR RASUL

(4 Jan 2019)



Penyertaan staf Farmasi dalam Sambutan Maulidur Rasul Hospital Segamat. Tahniah diucapkan kerana telah berjaya memenangi tempat pertama dalam Perarakan Maulidur Rasul.

LAWATAN KERJA TIMBALAN PENGARAH KESIHATAN NEGERI (FARMASI) KE JABATAN FARMASI, HOSPITAL SEGAMAT



Persidangan Farmasi Johor (6-7 April 2019)



4 penyertaan dari Jabatan Farmasi, Hospital Segamat:

1. Projek R&D iaitu Association between Knowledge and Medication Adherence in Hypertensive Patients in Hospital Segamat
2. Projek R&D iaitu Assessment of Knowledge on the Disease and Management among COPD patients in Hospital Segamat
3. Projek inovasi : MedD
4. Projek KIK : Peningkatan kos ubat dipulangkan di Farmasi Pesakit Luar

Program Kenali Ubat Anda Bersama Duta



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