



# Micromedex在加護病房藥師 工作與教學之應用

姚淑惠 資深藥師

中國醫藥大學附設醫院 藥劑部

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# Outline



- 教學目標

- 1.讓學員學會如何從micromedex找到實用資料
- 2.讓學員學會如何引導藥學生查詢micromedex與應用藥物資訊

- 綱要說明

- 1.以Micromedex為首選參考資料庫的優點
- 2.查Micromedex對加護病房藥師的方便性與參考價值以外科與兒科為例
- 3.如何以臨床問題引導學生查資料及給予教學回饋

1.



# 以Micromedex為 首選參考資料庫的優點

快速與方便

# 藥物資料庫



- 一級資料庫
  - Trial report  
(original paper)
- 二級資料庫
  - MicroMedex
  - Medline, PubMed
  - UptoDate
- 三級資料庫
  - Textbook
- 時效性
  - 一(新) > 二 > 三(舊)
- 完整性
  - 三 > 二 > 一(少)
- 依據問題選擇最適合的資料庫

# 藥物資料庫之分級及各級特性



分級	三級資料庫 Tertiary Resources	二級資料庫 Secondary Resources	一級資料庫 Primary Resources
內容	教科書 回顧性文章(review articles) 網路上或資料庫的一般性資料	提供一級文獻的目錄或摘要 Medline Up to date MicroMedex	研究報告 controlled trials cohort studies case series or reports
優點	大部份的資料都找得到 對題材提供簡要及全面的介紹 使用便利、容易、較為人熟悉	可協助快速尋找所需的一級文獻	資料最新 說明深入 可親自評估研究的可用性
缺點	1. 資料不夠新 2. 資料不夠深入完整，原因包括 編幅受限 作者搜尋的資料不全 3. 資料錯誤，包括 轉錄或翻譯錯誤 作者偏見或專業性不足	1. 要學會使用適當的關鍵字及搜尋方式 2. 不同二級資源的使用方式會有所不同	1. 需要有評估一級文獻之能力 2. 單一研究的結果不夠全面，要閱讀及評估大量文獻則需花不少時間

時效性：1(新) > 2 > 3(舊)      完整性：3 > 2 > 1(少)

# e-book

Update有時候也很快!



Home Textbooks Core Curriculum Multimedia Q&A Drugs & Supplements Updates & EBPP Dx Tests Calculators Cases & Care Plans My AccessPharmacy

All AccessPharmacy  [disable autosuggest](#) [advanced search](#)

[< Back](#)



Pharmacotherapy: A Pathophysiologic Approach, 8e

[How to Cite This Update](#)

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## Update

### 7/5/2012: CRIZOTINIB: A NEW THERAPEUTIC OPTION FOR SELECT PATIENTS WITH NON-SMALL CELL LUNG CANCER

Jill E. Robertson, Susanne E. Liewer

Department of Pharmaceutical and Nutrition Care, The Nebraska Medical Center; University of Nebraska Medical Center, College of Pharmacy, Omaha

Related To: [Chapter 137. Lung Cancer](#)

[View in chapter](#)

**Topic:** The U.S. Food and Drug Administration approved crizotinib in August 2011 for treatment of locally advanced or metastatic anaplastic lymphoma kinase-positive (ALK-positive) non-small cell lung cancer (NSCLC).<sup>1</sup>



## 資料庫快速選單

- › Cochrane Library
- › Ebscohost
- › JCR Web
- › MDConsult
- › MicroMedex
- › Procedures Consult
- › PubMed
- › UpToDate
- › Web of Science
- › 華藝線上圖書館(CEPS+CETD)
- › 臺灣期刊論文索引系統
- › 中國期刊全文數據庫
- › 校外連線設定方法



中國醫藥大學圖書館  
China Medical University Library

### 電子資源查詢系統 E-Resources Gateway

帳號:   
密碼:

同意使用規範並登入

### 使用規範

#### 1. 認證說明:

##### 帳號:

學校教師職員及醫院員工為**身分證號(英文字母須大寫)**; 學生為學號。

##### 密碼:

學校教師職員及醫院員工未曾修改過者預設值為**身分證號(英文字母須大寫)**; 學生未曾修改過者預設值為**身分證號(僑生為民國出生日期 6 位數)**。

2. 所有資料庫均可自本校校園及醫院院區網域使用。Web版及全文資料庫請先完成[讀者遠端認證設定](#)，即可自校外連線使用。

3. 嚴禁大量、連續及利用任何軟體，系統化下載及列印全文內容，並僅限個人學術研究使用，請勿流通及進行商業營利；違反上述規定，致損及本校使用權，一經查證屬實，將處以停權處分，並由讀者自行負擔相關法律責任。

4. 請尊重智慧財產權，不得將檢索所得之資料內容，如文字、圖表或版權聲明加以編輯、引伸，或以任何形式與其他資料組合。

5. 因部份資料庫有上線人數限制，使用完畢請務必立即離線。

資料庫查詢使用問題，請洽讀者服務組。

學校分機：1560；醫院分機：2967

## Micromedex 的形成

### 資料來源

世界醫學文獻  
臨床醫生  
藥廠  
藥物資訊中心  
毒物控制中心

### 提供使用者

診斷  
治療  
相關論文  
教育訓練  
研究

### 請專家評估

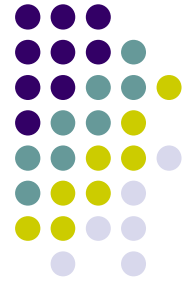
毒物學家  
藥理學家  
臨床藥劑師  
醫師  
護士

### 編輯,整合,發表 更新資訊 刊登

(by CD-ROM,  
Intranet,  
Internet, PDA )



# Micromedex Home page



# Five tools available in the Micromedex 2.0



- **Drug Interactions** - allows you to check for interacting drug ingredients, their effects, and their clinical significance. Interaction information can be calculated for a single drug or between multiple drugs.
- **Trissel's™ 2 IV Compatibility** - provides easy access to proven Trissel's 2 data to assist with accurate IV compatibility decisions
- **Drug Identification** - finds drugs based on their imprint code or physical description
- **Tox & Drug Product Lookup** - to find product, manufacturer contact, and related toxicologic management information on: drugs, commercial/household products and chemicals, plants and animals, and slang terms/street names for drugs or substances
- **Drug Comparison** - provides a side-by-side drug information comparison
- **Calculators** - includes: antidote and dosing calculators and nomograms, lab values, dosing tools, clinical calculators, and measurement calculators.

# 以藥名 病名或 症狀搜尋



## Amphotericin B

### Amphotericin B

Intravenous, Oral, Topical

360° 檢視儀錶板 | [跳轉到 235 其他搜尋結果](#)

#### MICROMEDEX 藥物綜述資訊

#### 藥物綜述資訊

- Adult Dosing
- Pediatric Dosing
- Dose Adjustments
- FDA-Labeled Indications
- Non-FDA Labeled Indications
- Black Box Warning
- Do Not Confuse
- Contraindications
- Precautions
- Pregnancy Category
- Breast Feeding
- Drug Interactions (single)
- Adverse Effects - Common
- Adverse Effects - Serious
- IV Compatibility (single)
- US Trade Names
- Class
- Regulatory Status
- Generic Availability
- Mechanism of Action/Pharmacokinetics
- Administration/Monitoring
- How Supplied
- Toxicology - Clinical Effects
- Toxicology - Treatment
- Toxicology - Range of Toxicity
- Clinical Teaching
- References

[檢視綜述文件](#) ▶

[檢視詳細文件](#) ▶

#### 檢視詳細文件

#### 藥物工具

- [步步驗證比較 Amphotericin B 與...](#)

#### PRODUCT LOOKUP

- Tox & Drug: [Amphotericin B](#)

#### DRUG CONSULTS (11 結果)

- ANTIBIOTICS - SUBCONJUNCTIVAL USE IN INTRAOCULAR INFECTIONS
- IN-LINE INTRAVENOUS FILTERS - GUIDELINES FOR USE
- PREVENTION AND TREATMENT OF ASPERGILLOSIS INFECTION IN HIV-INFECTED PERSON...
- PREVENTION AND TREATMENT OF CANDIDIASIS INFECTION IN HIV-INFECTED PERSONS ...

[更多](#) ▶

#### COMPARATIVE EFFICACY (11 結果)

- Amphotericin B Cholesteryl Sulfate Complex
- Amphotericin B Lipid Complex
- Amphotericin B Liposome
- Caspofungin

[更多](#) ▶

Amphotericin B 同時在以下項中找到...

▶ **Toxicology and Exposure Information (1)**

▶ **Disease Information (7)**

235 找到以下項的結果: "Amphotericin B"

# DrugPoint (summary)



## DOSING & INDICATIONS

Adult Dosing  
Pediatric Dosing  
Dose Adjustments  
FDA-Labeled Indications  
Non-FDA Labeled Indications

## BLACK BOX WARNING

## CONTRAINDICATIONS/WARNINGS

Do Not Confuse  
Contraindications  
Precautions  
Pregnancy Category  
Breast Feeding

## DRUG INTERACTIONS (SINGLE)

## ADVERSE EFFECTS

Common  
Serious

## IV COMPATIBILITY (SINGLE)

## NAME INFO

US Trade Names  
Class  
Regulatory Status  
Generic Availability

## MECHANISM OF ACTION/PHARMACOKINETICS

## ADMINISTRATION/MONITORING

## HOW SUPPLIED

## TOXICOLOGY

Clinical Effects  
Treatment  
Range of Toxicity

## CLINICAL TEACHING

- Dose & Indications
  - 肝、腎不全劑量調整
  - 其它疾病劑量調整
- Contraindications/Warning
  - Do Not Confuse, .....
- Drug Interactions(single)
- Adverse Effects
- IV compatibility
- Name info
- Mechanism of action/Pharmacokinetics
- Administration/Monitoring
- How Supplied
- Toxicology
- Clinical teaching
- References

# DrugDex

## OVERVIEW

### DOSING INFORMATION

- Drug Properties
- Storage and Stability
- Adult Dosage
- Pediatric Dosage

### PHARMACOKINETICS

- Drug Concentration Levels
- ADME

### CAUTIONS

- Black Box Warning
- Contraindications
- Precautions
- Adverse Reactions
- Teratogenicity/Effects in Pregnancy/Breastfeeding
- Drug Interactions

### CLINICAL APPLICATIONS

- Monitoring Parameters
- Patient Instructions
- Place In Therapy
- Mechanism of Action / Pharmacology
- Therapeutic Uses
- Comparative Efficacy / Evaluation With Other Therapies

### REFERENCES

#### REFERENCES

[403] Canada JR: USP dictionary of USAN and international drug names, U.S. Pharmacopeial Convention, Inc, Rockville, MD, 1998.

關閉 X



### DOSING INFORMATION

#### ▼ Drug Properties

- A) Information on specific products and dosage forms can be obtained by referring to the Tradename List (Product Index)
- B) Synonyms
  - Amphotericin B
- C) Physicochemical Properties
  - 1) Molecular Weight
    - a) 924.1 [403]

#### ▼ Storage and Stability

- A) Oral route
  - 1) Suspension
    - a) Amphotericin B oral suspension should be stored at 15 to 30 degrees Celsius (59 to 86 degrees F) and away from direct sunlight (Prod Info Fungizone(R) suspension, 2001).
- B) Parenteral route
  - 1) Although amphotericin B vials should be refrigerated, if left unrefrigerated it is stable for 2 weeks to 1 month at room temperature [225].
  - 2) Fungizone intravenous (Squibb) is available as a sterile cake containing sodium desoxycholate as a dispersing agent and sodium phosphates for buffering [226]. Solutions of 100 micrograms/milliliter in 5% dextrose generally raise the pH of the 5% dextrose from 4.5 to approximately 6.7 [227]. The manufacturer recommends using the following buffer solution for 5% dextrose solutions with a pH less than 4.2:
    - Dibasic sodium phosphate (anhydrous)-----1.59 g

# IV 相容性

在搜尋欄位鍵入藥物名稱（品牌或學名藥）  
選擇藥物並按一下（新增）按鈕



單一藥品

## IV 相容性

在搜尋欄位鍵入藥物名稱（品牌或學名藥）。選擇藥物並按一下（新增）按鈕。

輸入搜尋詞:

相符的藥物名稱: (1)

Dopamine hydrochloride

要檢查的藥物:

Amphotericin B liposome (AmBisom...  
Dopamine hydrochloride  
Potassium chloride

清除 提交

多項藥品

## IV 相容性結果

修改相容性

Selected Drug: Amphotericin B liposome (AmBisome)

Solution Y-Site Admixture Syringe TPN/TNA

### 常用溶液

D5W (D5W-Dextrose 5%)	✓	相容
D10W (Dextrose 10%)	✓	相容
D5LR (Dextrose 5% in lactated Ringers)	✗	未測試
D5NS (Dextrose 5% in sodium chloride 0.9%)	✗	未測試
D5W - 1/2 NS (Dextrose 5% in sodium chloride 0.45%)	✗	未測試
NS (Normal saline- Sodium chloride 0.9%)	✗	不相容
1/2 NS (Sodium chloride 0.45%)	✗	未測試

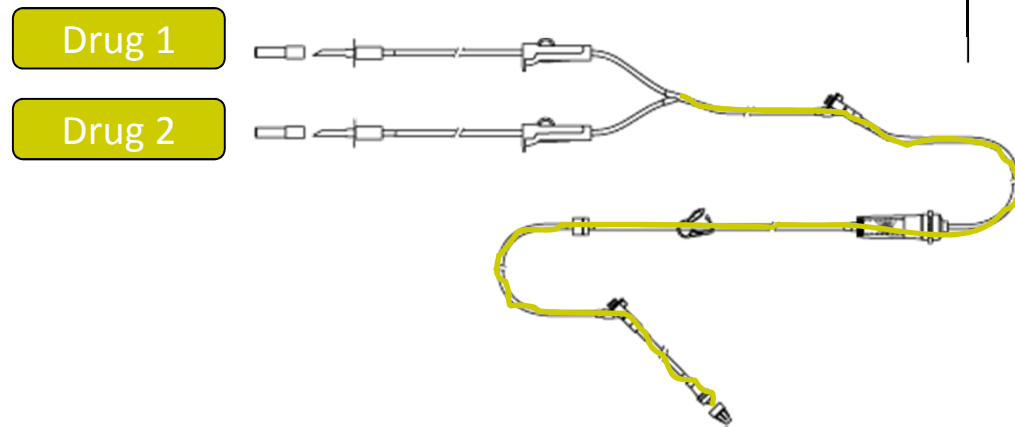
### 其他溶液

Dextrose 20%	✓	相容
--------------	---	----

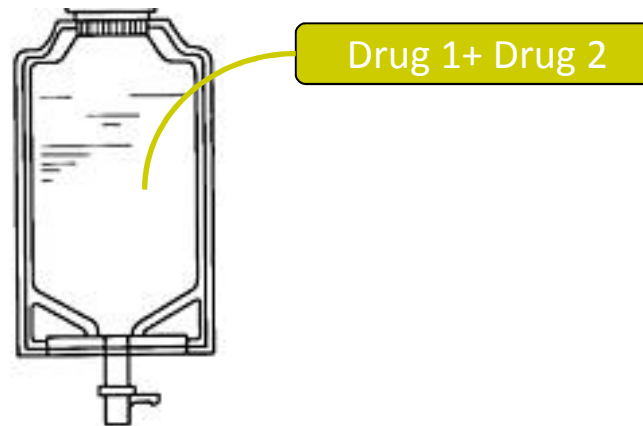
# IV compatibility



- Y-site





- Admixture





## IV COMPATIBILITY DETAIL

Drug 1	Drug 2	狀態	資訊	測試參數
<b>Amphotericin B liposome (AmBisome)</b> 1mg/mL in D5W-Dextrose 5%  Fujisawa Pharmaceutical	<b>Dopamine hydrochloride</b> 3.2mg/mL in D5W-Dextrose 5%  Abbott Laboratories	 不相容  	<b>物理相容性</b> : Physically incompatible. Substantial increase in measured turbidity occurred immediately upon mixing and persisted over 4 hours.  <b>存放</b> : Room temperature near 23 °C exposed to fluorescent light.	<b>參考</b> : : 9189  <b>試驗期</b> : 4 hours.  <b>方法</b> : Visual observation and electronic measurement of haze and particulates. The methods used in this testing have been described in the published articles cited below and have also been used in numerous other published drug compatibility studies: 1. Trissel LA, Martinez JF. Physical compatibility of melphalan with selected drugs during simulated Y-site administration. Am J Hosp Pharm 1993; 50:2359-63. 2

Drug 1  
藥名、濃度、廠商名稱

物理、化學相容性  
貯藏資訊

列印  關閉 

參考文獻、容器資訊  
研究時間、方法



# Drug interactions

## 藥物相互作用

在搜尋欄位鍵入藥物名稱（品牌或學名藥）。選擇藥物並按一下 ➤ （新增）按鈕。

輸入搜尋詞:

相符的藥物名稱: (92)

- Aspirin
- Aspirin & Caffeine w/Propoxyphene
- Aspirin & Carisoprodol
- Aspirin Adult Low Strength (Aspirin)
- Aspirin Children's
- Aspirin CR
- Aspirin Delayed Release
- Aspirin Delayed-Release
- Aspirin E.C.
- Aspirin EC
- Aspirin Extra Strength
- Aspirin Fast Relief

要檢查的藥物:

- Aspirin
- Clopidogrel
- Omeprazole

添加過敏 ➤

帶有星號 (\*) 的字母大寫項目表示過敏。

清除 提交

## Drug-Lactation

### Drug-哺乳期 相互作用 (3)

藥物:	嚴重性:	文件:	綜述:
ASPIRIN [Systemic]	<span>S</span> Major	Unknown	According to the American Academy of Pediatrics, Aspirin should be given with caution during breast-feeding.
CLOPIDOGREL HYDROGEN SULFATE [Systemic] [Clopidogrel]	<span>S</span> Major	Unknown	Infant risk cannot be ruled out: Available evidence and/or expert consensus is inconclusive or is inadequate for determining infant risk when Clopidogrel is used during breast-feeding. Weigh the potential benefits of treatment against potential risks before prescribing Clopidogrel during breast-feeding.
OMEPRAZOLE [Systemic]	<span>S</span> Major	Unknown	Infant risk cannot be ruled out: Available evidence and/or expert consensus is inconclusive or is inadequate for determining infant risk when Omeprazole is used during breast-feeding. Weigh the potential benefits of treatment against potential risks before prescribing Omeprazole during breast-feeding.

## Drug-Drug

### Drug-Drug 相互作用 (2)

藥物:	嚴重性:	文件:	綜述:
CLOPIDOGREL HYDROGEN SULFATE [Systemic] [Clopidogrel] -- OMEPRAZOLE [Systemic]	<span>S</span> Major	Excellent	Concurrent use of CLOPIDOGREL and OMEPRAZOLE may result in reduction in clinical efficacy of clopidogrel and increased risk for thrombosis.
ASPIRIN [Systemic] -- CLOPIDOGREL HYDROGEN SULFATE [Systemic] [Clopidogrel]	<span>M</span> Minor	Fair	Concurrent use of CLOPIDOGREL and ASPIRIN may result in an increased risk of bleeding.

複方 (未找到)

Drug-過敏症狀 相互作用 (未找到)

Drug-食物 相互作用 (未找到)

### Drug-懷孕 相互作用 (3)

藥物:	嚴重性:	文件:	綜述:
ASPIRIN [Systemic]	<span>S</span> Major	Unknown	Aspirin is rated as US FDA Category D. Studies, adequate well-controlled or observational, in pregnant women have demonstrated a risk to the fetus. However, the benefits of therapy may outweigh the potential risk.
CLOPIDOGREL HYDROGEN SULFATE [Systemic] [Clopidogrel]	<span>!</span> Moderate	Unknown	Clopidogrel is rated as US FDA Category B. Animal studies have revealed no evidence of harm to the fetus, however, there are no adequate and well-controlled studies in pregnant women. (OR) Animal studies have shown an adverse effect, but adequate and well-controlled studies in pregnant women have failed to demonstrate a risk to the fetus.
OMEPRAZOLE [Systemic]	<span>!</span> Moderate	Unknown	Omeprazole is rated as US FDA Category C. Animal studies have shown an adverse effect and there are no adequate and well-controlled studies in pregnant women. (OR) No animal studies have been conducted and there are no adequate and well-controlled studies in pregnant women.

## Drug-Pregnancy

2.



## 查Micromedex對加護病房 藥師的方便性與參考價值 以兒科與外科為例

快速入門與資料參考性高

# Optimal Medication Therapy

American College of Clinical Pharmacy Commentary



- **Meeting Patients' Needs in an Evolving Health Care System-- Critical care**
- **Optimal medication therapy results**
  - safety
  - effective
  - efficient
  - culturally sensitive medication ordering
  - order fulfillment, administration, and monitoring
- **which achieves desired clinical outcomes for a specific patient**

(Pharmacotherapy 2010;30(11):350e–359e)

# The process should be influenced by



- best evidence/practices
- based on knowledge of pathophysiology, pharmacology (including pharmacokinetics and pharmacodynamics), pharmacotherapy, other therapeutic modalities, pharmacogenomics, pharmacoeconomics, quality-of-life issues,
- principles of patient safety, and ethical/legal considerations

—————> Medication therapy plans



## 查房前準備工作 – 使用藥物

查詢與確認每一項藥品，以確認符合下列查核事項：

- 適應症、劑量、途徑、頻次….
- 過敏史
- 疾病現況與用藥是否相符合
- 是否出現藥物過敏或不良反應與監測參數
- 是否有重複用藥
- 是否有藥物交互作用
- 給藥方式是否恰當
- .....

# 從電子病歷中查詢病患資料



## 1. 用藥記錄(**medication profile**)

- 記錄在何處
- 藥物使用狀況

## 2. 使用藥物之適應症

- 使用適應症
- 使用於何種臨床症狀(**symptom and/or sign**)

## 3. 病患用藥物相關檢驗數據

- 藥物治療成效
- 藥物副作用或毒性反應

## 4. 實證醫學參考資料

- 查詢藥物使用是否依據實證或建議準則



# 查詢病人用藥資訊-1

住院醫囑系統【正式版】 系統時間:101/07/06 11:55 系統操作者:M [redacted] 淑惠

醫藥囑 查詢 病歷記載 其他功能 病患清單 團隊照護 個人設定 醫教&病安 離開 待機:8

說明 使用者 M [redacted] 淑惠 密碼 [redacted] 密碼確認 [redacted]

護理站SICU 病患清單 護理站選擇- 病患主治 林

duty	床號	姓 名	病歷號碼	住院日	
審危※	SIC			1010705	thoracic aneurysm, ruptured
審危※	SIC			1010624	3V coronary artery disease p
審危※	SIC			1010629	Type A aortic dissection with
審危※	SIC			1010616	Hepatocellular carcinoma wit
審危※	SIC			1010630	Pseudoaneurysm of Rt popli

學生回饋作業

教師評分作業

科部主任評核

教學文件

Up To Date

MicroMedex

MUSE

中國醫藥大學圖書館



## 查詢病人用藥資訊-2

醫藥欄 查詢 病歷記載 其他功能 病患清單 團隊照護 個人設定 醫教&病安 離開 待機:5秒

說明 使用者 M06 患者 密碼 密碼確認 印表機 H5

護理站PICU 病患清單 護理站 病患科別 新生兒科

duty	床號	姓名	病歷號碼	住院日	診斷	始	未核檢驗	預出	轉診	訂床	血型
審危※	PICU			1010702	Unspecified gastritis and						A+
危※	PICU			1010707	Diplegic infantile cerebral						B+
審危※	PICU			1010624	Tetralogy of fallot		A				O+
審危※	PICU			1010627	Anomalies of pulmonary						O+
審危※	PICU			1010626	Common ventricle		I				AB+
危※	PICU			1010708	Abdominal pain, unspecif						

- 醫藥欄
- 查詢
- 病歷記載
- 治療處置收費單
- 病患清單
- 其他
- 藥事服務
  - 藥歷轉檔
  - 報告查詢
  - 現行醫藥欄查詢
  - 用藥評估記錄單
- 列印
- Primary Care
- Primary Care List
- 特殊註記維護

住院用藥  
門/急/住 整合查詢



# Component of a FARM Note and a SOAP Note



PWDT	FARM Note	SOAP Note
Findings	The identified or suggestive patient-specific information that gives a basis for or leads to the recognition of a pharmacotherapy problem or indication for pharmacist intervention	
	Findings (F) Subjective and Objective data incorporate into same section	Subjective data (S) Separated from Objective data (O)
Desired outcomes	Assessment (A)  The pharmacist's clinical judgment based on his or her findings-thus it is no better than the database(the findings); the assessment forms the basis for the intervention plan	
Desired endpoints		
Drug-related problems		
Therapeutic selection	Resolutions/Recommendation (R)	Plan (P)
Monitoring parameters	Monitoring (M)	
Follow-up		
Ref: Comprehensive Pharmacy Review 7 <sup>th</sup> edition		

**PWDT:** pharmacist's workup of drug therapy

Ref: Comprehensive Pharmacy Review 7<sup>th</sup> edition  
p467 table 20-2 Lippincott Williams & Wilkins  
2010

# PICU case

## phytonadione dosage and route



8 months old male infant admitted from ER to PICU due to

1. Acute hepatic failure
2. Failure to thrive
3. Volume depletion
4. Jaundice

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我的訂閱 | MICROMEDEX 開道

藥物	Trissel's™2	藥物	Tox 和藥物	藥物
工具: 相互作用	IV 相容性	鑒定	產品查找	比較

範例搜尋

Underline problems:

- (1).VLBW preterm infant, GA 28wks, BW 1060gm, NSD, A/S 8->9
- (2).Respiratory distress syndrome Gr III s/p Survanta x 1 dose
- (3).Fetal and neonatal intraventricular hemorrhage IVH III
- (4).ileal perforation s/p ileostomy (8/29) and revision (10/26)
- (5).posthemorrhagic hydrocephalus s/p EVD then s/p VP shunt
- (6).PDA s/p ibuprofen x 4 doses and PDA ligation
- (7).bacterial meningitis (K.P and MDRAB)
- (8).Bronchopulmonary dysplasia
- (9).Stage III ROP with plus disease s/p operation

# Pediatric dose of phytonadione



工具: 藥物相互作用 | Trissel's™<sup>2</sup> IV 相容性 | 藥物鑒定 | Tox 和藥物產品查找 | 藥物比較 | 計算器

输入一个或多个搜索条件

搜索

範例搜尋

## DOSING & INDICATIONS

Adult Dosing  
Pediatric Dosing  
FDA-Labeled Indications

## BLACK BOX WARNING

## CONTRAINDICATIONS/WARNINGS

Do Not Confuse  
Contraindications  
Precautions  
Pregnancy Category  
Breast Feeding

## DRUG INTERACTIONS (SINGLE)

## ADVERSE EFFECTS

Common  
Serious

## IV COMPATIBILITY (SINGLE)

## NAME INFO

Drug Images  
US Trade Names  
Class  
Regulatory Status  
Generic Availability

## MECHANISM OF ACTION/PHARMACOKINETICS

## Phytonadione

DrugPoint® 綜述

其他來源

顯示整個文件 | 列印

全部展開 | 全部折疊 | 頁1

## DOSING & INDICATIONS

### Adult Dosing

### Pediatric Dosing

檢視 DRUGDEX 中的詳細資訊

- use IV or IM only when unavoidable; severe reactions, including fatalities, have occurred with IV and IM [2]; however, the intramuscular route is recommended for neonates and preterm infants for treatment and prevention of hemorrhagic disease [5][2]
- Hemorrhage of newborn: 1 mg SUBQ or IM [2]
- Hemorrhage of newborn; Prophylaxis: (term infants), 1 mg IM soon after birth [5]
- Hemorrhage of newborn; Prophylaxis: (preterm infants) body weight at least 1 kg at birth, 0.5 mg IM soon after birth [5]
- Hemorrhage of newborn; Prophylaxis: (preterm infants) body weight less than 1 kg at birth, 0.3 mg/kg IM soon after birth [5]
- Hemorrhage of newborn; Prophylaxis: (when IM unavailable) 1 to 2 mg ORALLY at birth, 1 to 2 weeks of age, and 4 weeks of age [5] OR 2 mg at birth followed by 1 mg ORALLY once weekly for 3 months OR 25 micrograms ORALLY daily for 3 months [6]

### FDA-Labeled Indications

# SICU case

## Amphotericin dosage



56 Y/O female 165/64.9kg, liver transplant in 廣州 under immunosuppression agent use. Surgical wound infection s/p wound debridement.

Laboratory data: wbc 14.46, Hb 7.4, platelet 546, Creatinine 2.15, GFR 25, K3.3, bilT/D 3.29/1.89, Tacrolimus drug level 6.3

Doctor want to know the dosage regimen for her ?

# Amphotericin B

## DrugPoint and/or DrugDex



### Amphotericin B

Intravenous, Oral, Topical

360° 檢視儀錶板 | [跳轉到 235 其他搜尋結果](#)

#### MICROMEDEX 藥物綜述資訊

- |                               |                              |  |
|-------------------------------|------------------------------|--|
| ■ Adult Dosing                | ■ Pregnancy Category         | ■ Generic Availability                 |
| ■ Pediatric Dosing            | ■ Breast Feeding             | ■ Mechanism of Action/Pharmacokinetics |
| ■ Dose Adjustments            | ■ Drug Interactions (single) | ■ Administration/Monitoring            |
| ■ FDA-Labeled Indications     | ■ Adverse Effects - Common   | ■ How Supplied                         |
| ■ Non-FDA Labeled Indications | ■ Adverse Effects - Serious  | ■ Toxicology - Clinical Effects        |
| ■ Black Box Warning           | ■ IV Compatibility (single)  | ■ Toxicology - Treatment               |
| ■ Do Not Confuse              | ■ US Trade Names             | ■ Toxicology - Range of Toxicity       |
| ■ Contraindications           | ■ Class                      | ■ Clinical Teaching                    |
| ■ Precautions                 | ■ Regulatory Status          | ■ References                           |

[檢視綜述文件](#) | [檢視詳細文件](#)

#### 藥物工具

- [步步驗證比較 Amphotericin B 與...](#)

#### PRODUCT LOOKUP

- [Tox & Drug: Amphotericin B](#)

#### DRUG CONSULTS (11 結果)

- [ANTIBIOTICS - SUBCONJUNCTIVAL USE IN INTRAOCULAR INFECTIONS](#)
- [IN-LINE INTRAVENOUS FILTERS - GUIDELINES FOR USE](#)
- [PREVENTION AND TREATMENT OF ASPERGILLOSIS INFECTION IN HIV-INFECTED PERSON...](#)
- [PREVENTION AND TREATMENT OF CANDIDIASIS INFECTION IN HIV-INFECTED PERSONS ...](#)

[更多](#)

#### COMPARATIVE EFFICACY (11 結果)

- [Amphotericin B Cholesteryl Sulfate Complex](#)
- [Amphotericin B Lipid Complex](#)
- [Amphotericin B Liposome](#)
- [Caspofungin](#)

[更多](#)

# Adult doseing



## Amphotericin B

 顯示整個文件 |  3

DrugPoint® 綜述 

其他來源 ▶

### ▶ DOSING & INDICATIONS

 全部展開 |  全部折疊 | 

#### ▼ Adult Dosing

檢視 DRUGDEX 中的詳細資訊 ▶

- test dose: 1 mg in 20 mL D5W IV over 20 to 30 min
- American mucocutaneous leishmaniasis: 0.25 to 1 mg/kg/day IV over 2 to 6 hours; MAX of 1.5 mg/kg when given on alternate days [2]
- Aspergillosis, Invasive: 0.25 to 1 mg/kg/day IV over 2 to 6 hours; MAX of 1.5 mg/kg when given on alternate days; duration has ranged up to 11 months and a total dose up to 3.6 grams [2]
- Aspergillosis, Invasive - HIV infection: 1 mg/kg IV once daily [3]
- Blastomycosis: (moderately severe to severe pulmonary or disseminated disease) 0.7 to 1 mg/kg/day IV for 1 to 2 wk, followed by step-down therapy with oral itraconazole for 6 to 12 months (guideline dosing) [4]
- Blastomycosis: 0.25 to 1 mg/kg/day IV over 2 to 6 hr; MAX of 1.5 mg/kg when given on alternate days (manufacturer dosing) [2]
- Candidiasis: (candidemia; nonneutropenic patients) alternative therapy, 0.5 to 1 mg/kg/day IV; treat for 14 days after the first negative blood culture result and resolution of signs and symptoms related to candidemia (guideline dosing) [5]
- Candidiasis: (endophthalmitis) primary therapy, 0.7 to 1 mg/kg/day IV WITH flucytosine 25 mg/kg ORALLY four times daily for at least 4 to 6 wk [5]

# Different options for user



## 其他來源

- 轉至 DRUGDEX® 中有關該藥物的詳細文件 [AMPHOTERICIN B](#)
- 轉至 360° 檢視有關以下項的儀錶板 [Amphotericin B](#)
- 執行 Tox 和藥物產品查找 [Amphotericin B](#)

關閉 X

# Tox & Drug Product Lookup



## Ambisome

POISINDEX® 產品 

### 產品文件資訊

<b>POISINDEX® 管理:</b>	AMPHOTERICIN B
<b>DRUGDEX® 評價:</b>	AMPHOTERICIN B LIPOSOME
<b>監管狀態:</b>	RX

### 成分

<b>活性成分:</b>	Amphotericin B Liposome - 50 MG/Vial
<b>輔料:</b>	d-alpha tocopherol 0.64 MG/Vial Sucrose 900 MG/Vial Sodium Succinate (HEXAHYDRATE) 27 MG/Vial
<b>pH 值:</b>	5 - 6 (reconstituted)

### 可用性 & 製造

<b>可用性:</b>	United States
<b>可用容器大小:</b>	50 MG Vial, package of 10
<b>製造商:</b>	Fujisawa
<b>地址:</b>	Parkway North Center Three Parkway North Deerfield, IL 60015-2548
<b>聯絡資訊:</b>	Business Hours: <a href="http://www.fujisawausa.com">www.fujisawausa.com</a> (Web Site) Business Hours: (800) 888-7704 (Phone) (Medical Information)





# Evidence summary of original article

## Systemic mycosis

a) Intravenous amphotericin B liposome was less toxic and increased survival when compared to conventional amphotericin B in 20 bone-marrow and organ-transplant recipients with systemic mycoses. In this retrospective comparison, differences in survival rates upon hospital discharge were 10% and 51% for kidney/pancreas and bone marrow/liver transplant recipients, respectively, in favor of amphotericin B liposome. Increased survival in these patients in favor of amphotericin B liposome was also observed during a 2.5-year follow-up period. Statistical significance was not reported. Conventional amphotericin B was significantly more toxic than amphotericin B liposome. In patients receiving conventional amphotericin B, nephrotoxicity occurred in 8 of 10 patients; and 3 other patients developed gastrointestinal hemorrhage requiring transfusion. In patients receiving amphotericin B liposome, 1 patient developed cholestasis [244][245].



conventional amphotericin B in 20 bone-marrow and organ-tra

## REFERENCES

[245] Tollemar J & Ringden O: Lipid formulations of amphotericin B: less toxicity but at what economic cost?. Drug Saf 1995; 13:207-218.

關閉 ×

3.



如何以臨床問題引導學生  
查資料及給予教學回饋

延伸繼有知識及強化學習  
者的查閱及判讀能力

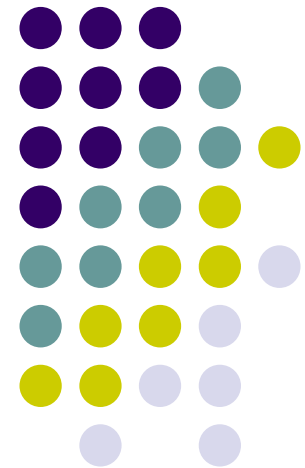
# ADR- Skin Rash

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報告藥師：林○○ 藥師

指導藥師：姚淑惠 藥師

報告日期：101年03月01日



# Problem list



- 檢視現行用藥中，何者藥物可能會產生1/30 Skin rash on torso?

O:

	1/28	1/29	1/30	1/31	2/1	2/2	2/3
MoxiFloxacin(針劑) 400mg/250ml/BT	400mg QD						
OMEPRAZOLE (F) Inj 40mg/VI	40mg QD						
Ranitidine 50mg/2ml/Amp	50mg q8h						
KCL 10meq in 0.33% G/S 500ml/Bag			3BT QD				
Metoclopramide 10mg/2cc/Am				10mg q12h			
Ultracet Tab (複方)					1# QID		
Mosapride 5mg/T							5mg TID



**A :**

- Which drugs could be the cause of skin rash?
  - Candidate: Moxifloxacin or Omeprazole

**P :**

Sugg. DC of Moxifloxacin & Omeprazole

F/u skin rash condition

# Moxifloxacin –induced skin rash

MICROMEDEX®



- Incidence: oral/IV, 0.1% to less than 2%
- Some of the adverse events were due to hypersensitivity and usually occurred after the administration of **multiple doses**.
- Discontinue moxifloxacin hydrochloride if a patient experiences rash or if any hypersensitivity reaction is suspected and initiate appropriate supportive measures



# Omeprazole –induced skin rash

- 1) Incidence: 1.5%[181]
- 2) In worldwide clinical trials (n=3096), rash was reported in 1.5% of omeprazole-treated patients [181].
- 3) In a study of 104 assessable patients, only 1 patient reported an adverse drug reaction which was a rash. This study was evaluating the efficacy of omeprazole for treating gastroesophageal reflux disease in intellectually disabled patients





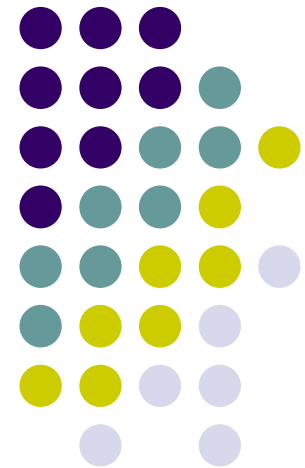
## Metoclopramide - Rash

- In postmarketing experience, a few cases of rash and urticaria have been reported with the use of metoclopramide tablets. A causal relationship to drug exposure has not been established .
- Metoclopramide has occasionally been reported to cause **urticaria** or **maculopapular rashes**.

# Chronic Heart Failure in a 44 year-old female with HTN And DM

---

報告藥師：林 〇 〇  
指導藥師：姚淑惠 林玟玲





# Medication Therapy - 2

- **NITROGLYCERIN(新劑型) 5mg/10ml/Amp**
- 可原液輸注或以NS, D5W或LR, 稀釋至0.05-0.5 mg/ml。
- 此藥會被polyvinyl chloride吸附(15-80%不等), 建議使用玻璃, 聚乙烯(polyethylene)或聚丙烯(polypropylene)製成的容器盛裝藥物。
- **Peripheral and coronary venous and arterial vasodilation** resulting in decreased preload and afterload and increased coronary blood flow, thus increasing myocardial oxygen supply and decreasing myocardial oxygen demand. Clinical investigation has also suggested that organic nitrates **interrupt platelet hyperactivity**.
- $0.6\text{cc/hr} = (0.6\text{cc} \times 5\text{mg}/10\text{ml})/60 \text{ mg/min} = 0.005\text{mg/min}$   
 $= 5\mu\text{g/ml} - \text{CHF initial dose}$

# Ultract (Actainophen + Tramadol) - Rash



- **Rash**

- 1) Incidence: **1%** or greater
- 2) Rash was reported in at least 1% of patients receiving tramadol/acetaminophen in **single-dose** or **repeated-dose** clinical studies

- **Pruritus**

- 1) Incidence: **1% to 2%**
- 2) Pruritus occurred in 2% of patients receiving tramadol/acetaminophen for **5 days** (average of at least 6 tablets/day) in clinical trials (n=142) .
- 3) Pruritus was reported in at least 1% of patients receiving tramadol/acetaminophen in single-dose or repeated-dose clinical studies.

- **Stevens-Johnson syndrome**

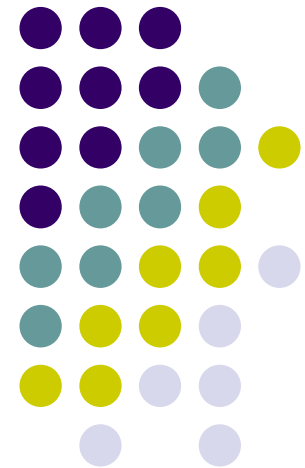
- 1) Stevens-Johnson syndrome has been reported in patients receiving tramadol in clinical trials .

# Case Report

**A 45years old male with NSTEMI,  
hypertension and Type II Diabetes Mellitus**

報告藥師：王 〇 〇

指導藥師：姚淑惠林玟玲



# Presentation outlines



- Patient general information
  - Basic data
  - Chief complaint
  - Past and Other history
  - Physical Examination
  - Lab. data
  - Images
  - Diagnosis
- Medication Therapy
- Disease review – NSTEMI (Non ST elevated myocardial infarction)
- SOAP note of drug evaluation

# Medication Therapy-ER



藥品名	劑量	頻率	途徑	用法
Heparin 25000u/5ml/VI**	0.2vial	stat	lv	Loading 50cc/hr (2500u)
Heparin 25000u/5ml/VI**	1vial	stat	lv	16cc/hr(800u)
ASpirin 300mg/T	1#	stat	po	外院 100mg
Clopidogrel 75mg/T	4#	stat	po	外院 300mg



# Reference

- **2011ACCF/AHA Focused Update Incorporated Into the ACC/AHA 2007 Guidelines for the Management of Patients With Unstable Angina/Non-ST-Elevation Myocardial Infarction. A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol. 2011;57:1920–59.**
- <http://www.vghks.gov.tw/icu/doc09.htm>
- J Am Coll Cardiol. 2011 May 10;57 ( 19 ) :e215-367.
- **2010 高血壓治療指引** | <http://www.tsoc.org.tw/db/Jour/2/20101231/14.pdf>
- MICRMEDEX
- PHARMACOTHERAPY
- UP TO DATE
- [Yusuf S, Zhao F, Mehta SR, Chrolavicius S, Tognoni G, Fox KK; Clopidogrel in Unstable Angina to Prevent Recurrent Events Trial Investigators. Effects of clopidogrel in addition to aspirin in patients with acute coronary syndromes without ST-segment elevation. N Engl J Med 2001;345:494-502.](#)



# Micromedex 2:

## A fast track for drug information search



Clopidogrel Hydrogen Sulfate

顯示整個文件 | 列印

DrugPoint® 綜述 [其他來源](#)

全部展開 | 全部折疊 |

### › DOSING & INDICATIONS

- Acute ST segment elevation myocardial infarction - Percutaneous coronary intervention - Thrombosis; Prophylaxis: maintenance, 75 mg ORALLY plus aspirin once daily [4][3]
- Acute ST segment elevation myocardial infarction - Percutaneous coronary intervention - Thrombosis; Prophylaxis: bare metal stents: duration of therapy for at least 12 months [3]
- Acute ST segment elevation myocardial infarction - Percutaneous coronary intervention - Thrombosis; Prophylaxis: drug-eluting stents: duration of therapy for at least 12 months; continuation of therapy beyond 15 months may be considered [3]
- Acute ST segment elevation myocardial infarction - Thrombosis; Prophylaxis: optional loading dose of 300 mg ORALLY [2], followed by 75 mg ORALLY once daily in combination with aspirin 75 to 325 mg, with or without thrombolytics [4][2]
- Cerebrovascular accident, Recent - Thrombosis; Prophylaxis: 75 mg ORALLY once daily [5][2]
- Myocardial infarction, Recent - Thrombosis; Prophylaxis: 75 mg ORALLY once daily [4][2]
- Non-ST segment elevation myocardial infarction, acute - Percutaneous coronary intervention - Thrombosis; Prophylaxis: initial loading dose, 300 mg to 600 mg with aspirin 75 to 325 mg as soon as possible [6][2]; maintenance, 75 mg ORALLY plus aspirin 75 to 325 mg once daily [4][6][2]

### REFERENCES

[6] Wright RS, Anderson JL, Adams CD, et al: 2011 ACCF/AHA Focused Update of the Guidelines for the Management of Patients With Unstable Angina/Non-ST-Elevation Myocardial Infarction (Updating the 2007 Guideline) A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol 2011; Epub:Epub.  
PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>  
PubMed Article: <http://www.ncbi.nlm.nih.gov/...>



關閉 X

### REFERENCES

[4] Vandvik PO, Lincoff AM, Gore JM, et al: Primary and Secondary Prevention of Cardiovascular Disease: Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines. Chest 2012; 141(2 suppl):e637S-e668S.  
PubMed Abstract: <http://www.ncbi.nlm.nih.gov/...>  
PubMed Article: <http://www.ncbi.nlm.nih.gov/...>

關閉 X

# Knowledge of pharmacotherapy groundwork



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## PRACTICE GUIDELINE

### 2011 ACCF/AHA Focused Update of the Guidelines for the Management of Patients With Unstable Angina/ Non–ST-Elevation Myocardial Infarction (Updating the 2007 Guideline)

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## Table 2. Recommendations for Early Hospital Care Antiplatelet Therapy

6. A loading dose of thienopyridine is recommended for UA/NSTEMI patients for whom PCI is planned. Regimens should be 1 of the following:
- Clopidogrel 300 to 600 mg should be given as early as possible before or at the time of PCI (13,27–31) (*Level of Evidence: A*) or

New recommendation  
(included to be concordant  
with 2009 STEMI and PCI  
Focused Update (32),



The End

Thank you