

# IBM Watson Health: 臨床決策支持系統

—

## IBM Micromedex

## IBM Micromedex® With Watson™

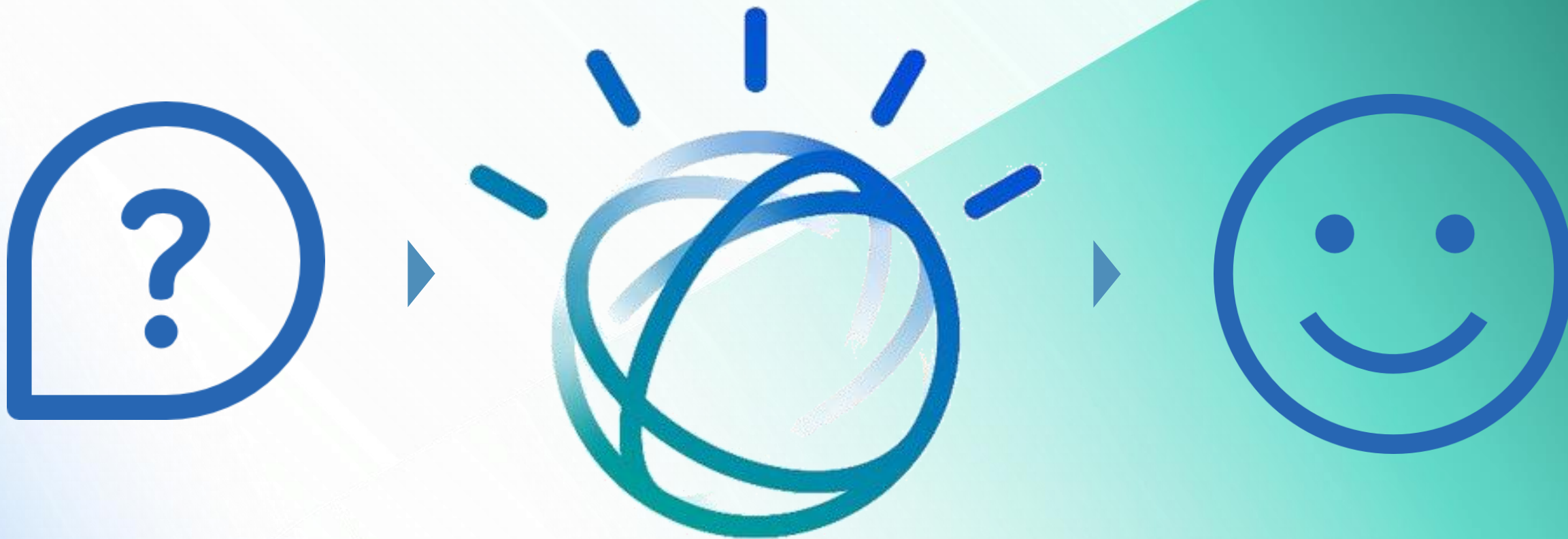
## 操作說明

# IBM Micromedex 為何需要華生?



資料太多眼昏花

# IBM Micromedex 為何需要華生?



華生相助精準查

# 怎麼找華生?

## IBM Micromedex®

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相互作用

IV 相容性

藥物  
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NeoFax / Pediatrics

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全部

藥物

疾病

毒理學

搜尋藥物、疾病、毒理學及其他資訊

搜尋 Micromedex



Ask Watson about drug information



[Learn more](#)

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- Altreno(TM) Lotion for Acne Vulgaris
- Micromedex with Watson
- Oxervate(TM) for Neurotrophic Keratitis
- Takhzyro(TM) for HAE Prevention

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- Clinical Consulting & Services
- Integrated Content Options for MU & More
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- Training Center
- User Guide

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### 資源

- 黑框警告
- Comparative Tables
- Do Not Confuse Drug List
- Drug Classes
- Drug Consults
- REMS




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# 怎麼問華生？



Ask Watson about drug information



Learn more 

點按華生即顯示  
**問題範例**

## Watson Assistant





Hello! What can I help you find?

Sample drug information questions you can ask:

What is the adult dose of lisinopril for hypertension?  
Can I push cefazolin?

You can also ask a series of questions about the same drug:

What is the adult dose of digoxin for heart failure?  
Renal dosing?  
Contraindications?  
Adverse effects?

Was this helpful?  

Type something...

# 怎麼問華生？



Ask Watson about drug information →

Learn more ?

點按 Learn more 即顯示  
智能檢索說明

## About IBM Cognitive Search

### Cognitive Search:

Micromedex with Watson uses cognitive computing in the IBM cloud to gather search intent through conversation, provide specific clinical answers, and guide clinicians to relevant evidence.

### How Micromedex with Watson Works:

Ask questions in a natural way, the way clinicians ask clinicians. The more specific the question, the more specific the answer. Examples:

- What's the adult dose of lisinopril for hypertension?
- What are approved uses for pristiq?
- What are the adverse effects of digoxin?
- Can cefazolin be given IV push?
- How fast can Daptomycin be given?

### Micromedex with Watson Understands:

Watson is in medical residency and can answer many drug information questions. The system learns from interaction with users and will be able to answer more sophisticated questions over time. For now, answers are limited to:

- Drug Information (e.g. Drug Classes, Dosing, Administration, Medication Safety, Mechanism of Action, Pharmacokinetics, About)
- Drug Interactions (guides users to interaction evidence for a single drug)

### Micromedex with Watson does NOT Understand:

關閉 X

# 怎麼問華生？

像同事之間一樣問問題

華生現在知道：

**藥物資訊** 藥物分類、劑量、給藥、  
藥物安全性、作用機制、  
藥物動力學、關於  
**藥物交互作用** 單一藥物

華生還不知道：

IV相容性（即將推出）  
NeoFax / Pediatrics , Toxicology , Disease ,  
Lab , Alternative Medicine , Reproductive  
Risk  
第三方內容（例如Martindale, Index Nominum）

## About IBM Cognitive Search

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- What's the adult dose of lisinopril for hypertension?
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- Drug Information (e.g. Drug Classes, Dosing, Administration, Medication Safety, Mechanism of Action, Pharmacokinetics, About)
- Drug Interactions (guides users to interaction evidence for a single drug)

### Micromedex with Watson does NOT Understand:

關閉 X

# Demo Slides



# 對話式檢索範例

就像跟你的同事問問題一樣，

對話檢索結果將提供**簡要解答**內容

- Dosing and adjustments 劑量與調整
- Adverse effects 不良反應
- Contraindications 禁忌症
- Precautions 注意事項
- Administration 管理
- More 更多

提問範例：

“What’s the adult dose of warfarin for Atrial fibrillation?”

The screenshot shows the Watson Assistant interface. At the top, there are search filters: "Warfarin ...", "Atrial fibr...", and "adult", along with a "Clear" button. Below the filters, there are several suggested questions: "What is the adult dose of digoxin for heart failure?", "Renal dosing?", "Contraindications?", and "Adverse effects?". A dark speech bubble contains the user's question: "What's the adult dose of warfarin for Atrial fibrillation". The assistant's response begins with "Here is the adult dosing for warfarin sodium:" followed by two sections: "Atrial fibrillation - Thromboembolic disorder" and "Atrial fibrillation - Thromboembolic disorder; Prophylaxis". Each section contains a list of dosing instructions. At the bottom, there is a button labeled "Adult Dosing for Warfarin Sodium" and a feedback prompt "Was this helpful?" with thumbs up and thumbs down icons. A text input field at the very bottom says "Type something..."

# 對話式檢索介面

## 智能過濾器

Warfarin ... x Atrial fibr... x adult x Clear

Here is the adult dosing for warfarin sodium:

### Atrial fibrillation - Thromboembolic disorder

- Initial, 2 to 5 mg orally once a day; adjust dose based on the results of INR; usual maintenance, 2 to 10 mg orally once a day
- Following an ischemic stroke or transient ischemic attack, target an INR of 2.5 (range, 2 to 3). Initiation of therapy within 14 days is reasonable, but initiation may be delayed beyond 14 days in presence of high risk for hemorrhagic conversion (guideline dosing)

### Atrial fibrillation - Thromboembolic disorder; Prophylaxis

- Initial, 2 to 5 mg orally once a day; adjust dose based on INR; usual maintenance, 2 to 10 mg orally once a day

Adult Dosing for Warfarin Sodium

Was this helpful?  

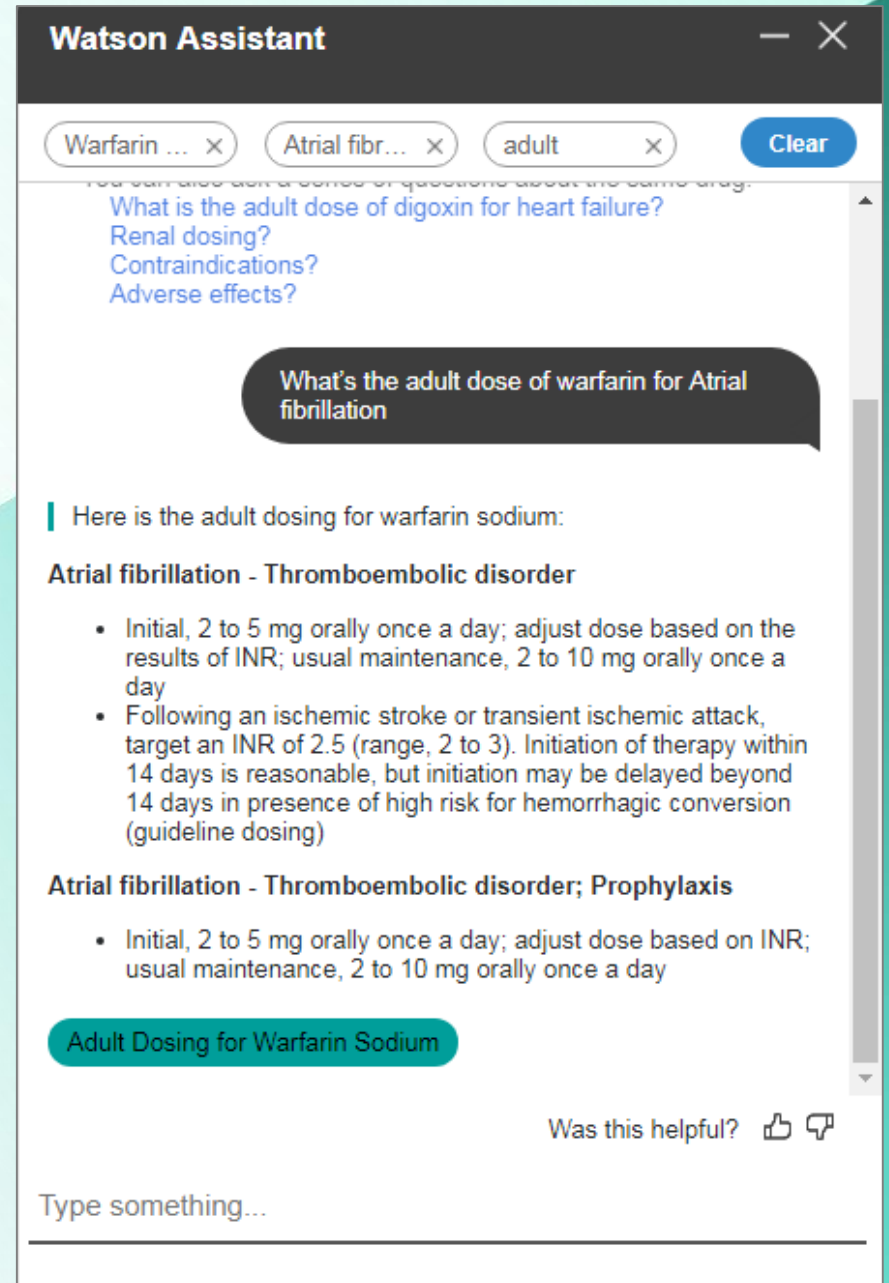
Type something...

## 提問回覆

## 簡要解答連結

## 意見回饋

## 對話檢索框



**Watson Assistant** [Close]

Warfarin ... x Atrial fibr... x adult x Clear

What is the adult dose of digoxin for heart failure?  
Renal dosing?  
Contraindications?  
Adverse effects?

What's the adult dose of warfarin for Atrial fibrillation

Here is the adult dosing for warfarin sodium:



### Atrial fibrillation - Thromboembolic disorder

- Initial, 2 to 5 mg orally once a day; adjust dose based on the results of INR; usual maintenance, 2 to 10 mg orally once a day
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### Atrial fibrillation - Thromboembolic disorder; Prophylaxis

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Adult Dosing for Warfarin Sodium

Was this helpful?  

Type something...

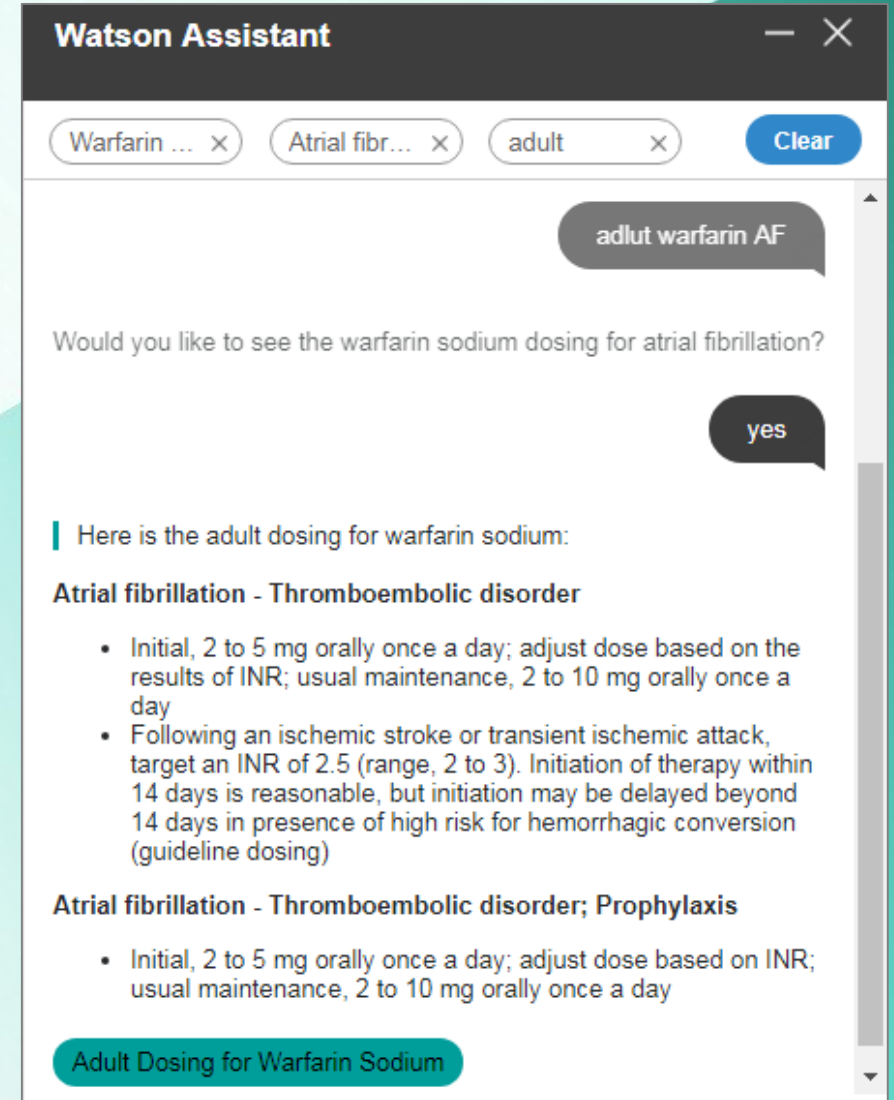
# 對話式檢索範例

無論是手滑打錯、語意不明、病名縮寫都沒關係，華生會再次確認，提供你正確答案

提問範例：  
adlut warfarin AF

Would you like to see the warfarin sodium dosing for atrial fibrillation?

yes



The screenshot shows the Watson Assistant interface. At the top, there are search filters for 'Warfarin ...', 'Atrial fibr...', and 'adult', along with a 'Clear' button. The chat history shows the user input 'adlut warfarin AF'. The assistant responds with the question 'Would you like to see the warfarin sodium dosing for atrial fibrillation?'. The user replies 'yes'. The assistant then provides the following information:

Here is the adult dosing for warfarin sodium:

**Atrial fibrillation - Thromboembolic disorder**

- Initial, 2 to 5 mg orally once a day; adjust dose based on the results of INR; usual maintenance, 2 to 10 mg orally once a day
- Following an ischemic stroke or transient ischemic attack, target an INR of 2.5 (range, 2 to 3). Initiation of therapy within 14 days is reasonable, but initiation may be delayed beyond 14 days in presence of high risk for hemorrhagic conversion (guideline dosing)

**Atrial fibrillation - Thromboembolic disorder; Prophylaxis**

- Initial, 2 to 5 mg orally once a day; adjust dose based on INR; usual maintenance, 2 to 10 mg orally once a day

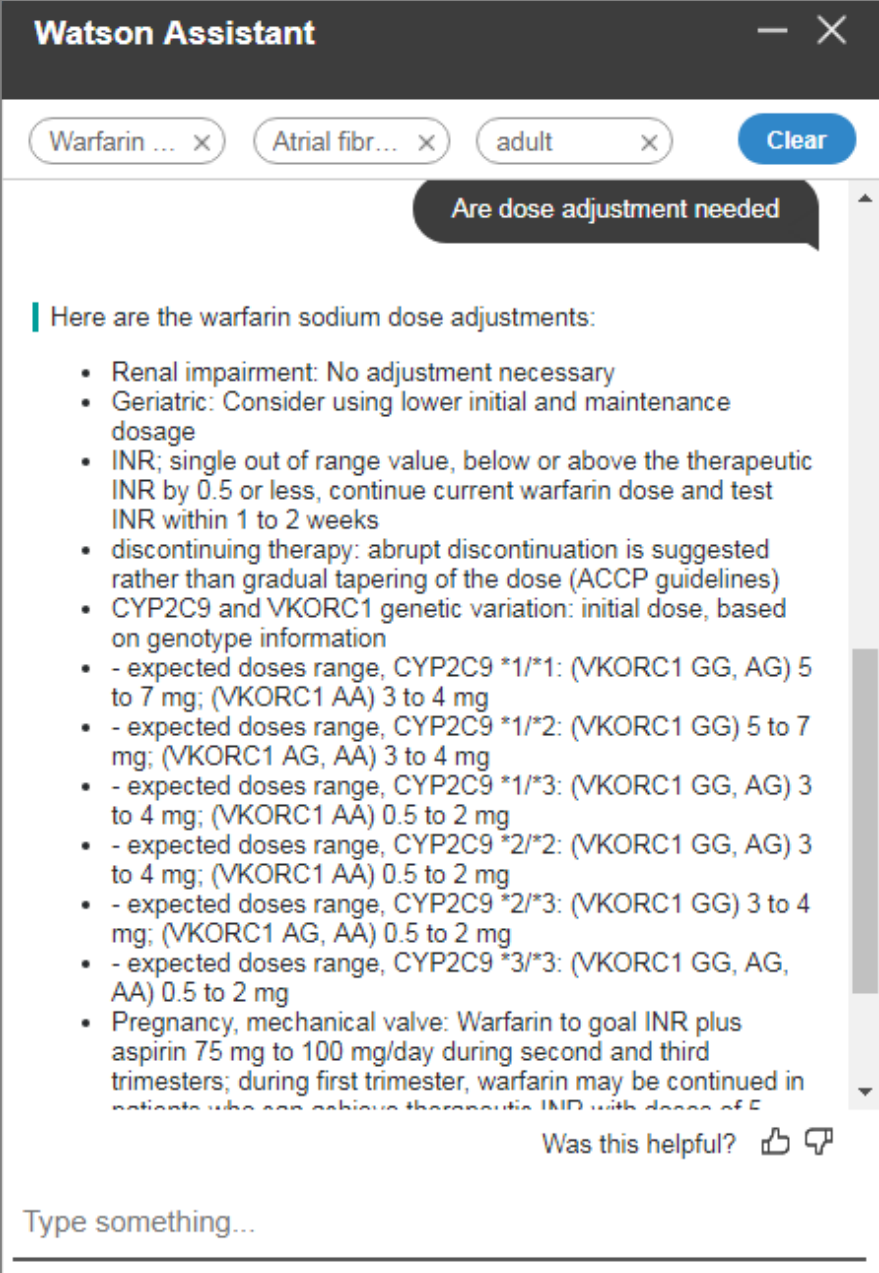
At the bottom, there is a button labeled 'Adult Dosing for Warfarin Sodium'.

# 對話式檢索範例

您可延續前面問題繼續發問，智慧過濾器將根據前面提出的問題，提供與前述病患相關背景的解答

提問範例：

“Are dose adjustment needed?”



The screenshot shows the Watson Assistant interface. At the top, there are search filters: "Warfarin ...", "Atrial fibr...", and "adult", along with a "Clear" button. A chat bubble contains the question "Are dose adjustment needed". The response is a list of warfarin sodium dose adjustments:

- Renal impairment: No adjustment necessary
- Geriatric: Consider using lower initial and maintenance dosage
- INR; single out of range value, below or above the therapeutic INR by 0.5 or less, continue current warfarin dose and test INR within 1 to 2 weeks
- discontinuing therapy: abrupt discontinuation is suggested rather than gradual tapering of the dose (ACCP guidelines)
- CYP2C9 and VKORC1 genetic variation: initial dose, based on genotype information
  - expected doses range, CYP2C9 \*1/\*1: (VKORC1 GG, AG) 5 to 7 mg; (VKORC1 AA) 3 to 4 mg
  - expected doses range, CYP2C9 \*1/\*2: (VKORC1 GG) 5 to 7 mg; (VKORC1 AG, AA) 3 to 4 mg
  - expected doses range, CYP2C9 \*1/\*3: (VKORC1 GG, AG) 3 to 4 mg; (VKORC1 AA) 0.5 to 2 mg
  - expected doses range, CYP2C9 \*2/\*2: (VKORC1 GG, AG) 3 to 4 mg; (VKORC1 AA) 0.5 to 2 mg
  - expected doses range, CYP2C9 \*2/\*3: (VKORC1 GG) 3 to 4 mg; (VKORC1 AG, AA) 0.5 to 2 mg
  - expected doses range, CYP2C9 \*3/\*3: (VKORC1 GG, AG, AA) 0.5 to 2 mg
- Pregnancy, mechanical valve: Warfarin to goal INR plus aspirin 75 mg to 100 mg/day during second and third trimesters; during first trimester, warfarin may be continued in patients who can achieve therapeutic INR with doses of 5

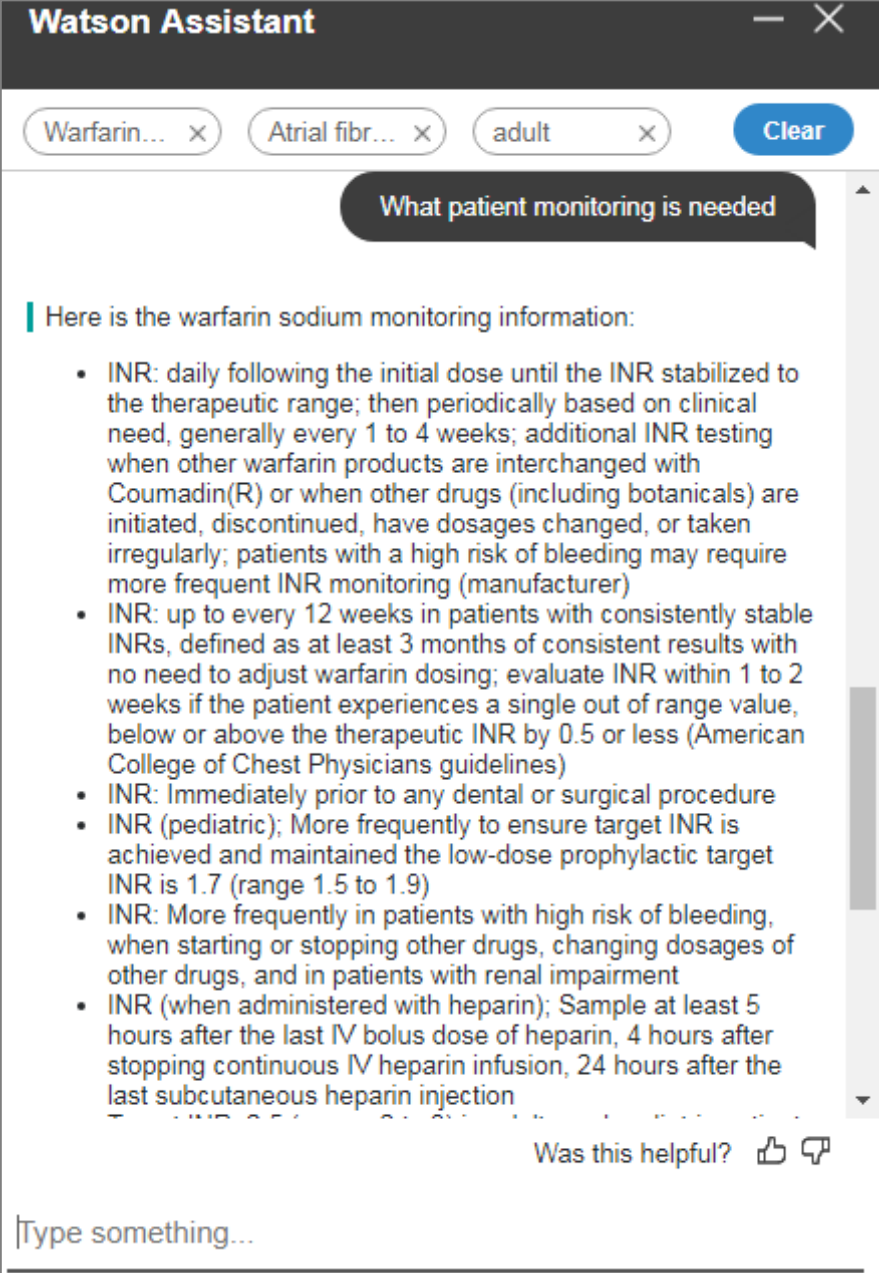
At the bottom, there is a feedback prompt "Was this helpful?" with thumbs up and thumbs down icons, and a text input field "Type something..."



# 對話式檢索範例

您可延續前面問題繼續發問，智慧過濾器將根據前面提出的問題，提供與前述病患相關背景的解答

提問範例：  
“What patient monitoring is needed?”



The screenshot shows the Watson Assistant interface. At the top, the title bar reads "Watson Assistant". Below it, there is a search bar with three filters: "Warfarin...", "Atrial fibr...", and "adult", along with a "Clear" button. The main content area displays the question "What patient monitoring is needed" in a dark bubble. Below the question, the response begins with "Here is the warfarin sodium monitoring information:" followed by a bulleted list of monitoring guidelines. At the bottom right of the response area, there is a "Was this helpful?" prompt with thumbs up and thumbs down icons. A text input field at the very bottom contains the placeholder text "[Type something...]".



Watson Assistant

Warfarin... x Atrial fibr... x adult x Clear

What patient monitoring is needed

Here is the warfarin sodium monitoring information:

- INR: daily following the initial dose until the INR stabilized to the therapeutic range; then periodically based on clinical need, generally every 1 to 4 weeks; additional INR testing when other warfarin products are interchanged with Coumadin(R) or when other drugs (including botanicals) are initiated, discontinued, have dosages changed, or taken irregularly; patients with a high risk of bleeding may require more frequent INR monitoring (manufacturer)
- INR: up to every 12 weeks in patients with consistently stable INRs, defined as at least 3 months of consistent results with no need to adjust warfarin dosing; evaluate INR within 1 to 2 weeks if the patient experiences a single out of range value, below or above the therapeutic INR by 0.5 or less (American College of Chest Physicians guidelines)
- INR: Immediately prior to any dental or surgical procedure
- INR (pediatric); More frequently to ensure target INR is achieved and maintained the low-dose prophylactic target INR is 1.7 (range 1.5 to 1.9)
- INR: More frequently in patients with high risk of bleeding, when starting or stopping other drugs, changing dosages of other drugs, and in patients with renal impairment
- INR (when administered with heparin); Sample at least 5 hours after the last IV bolus dose of heparin, 4 hours after stopping continuous IV heparin infusion, 24 hours after the last subcutaneous heparin injection

Was this helpful?  

[Type something...]

# 對話式檢索範例

如在前述問題下接續詢問前述藥物與特定藥物的交互作用，結果將提供連結引導您到藥物交互作用的頁面

提問範例：  
“Are there interactions  
With TAMOXIFEN?”

The screenshot displays the Watson Assistant interface. At the top, the title bar reads "Watson Assistant". Below it, the main content area is titled "Drug Interaction Results" and includes a "修改相互作用" (Modify Interaction) button. The "細化方式" (Refinement) is set to "Drug Tamoxifen Citrate", and the "嚴重性" (Severity) is set to "All". A "文件" (File) dropdown is also visible. Below this, a navigation bar shows "跳轉到" (Jump to) with links for "Drug-Drug (111)", "過敏症狀 (0)", "食物 (0)", "乙醇 (0)", "實驗室 (0)", "抽煙 (0)", "懷孕 (1)", and "哺乳期 (1)".

The main results section is titled "Drug-Drug 相互作用 (111)" and contains a table with the following data:

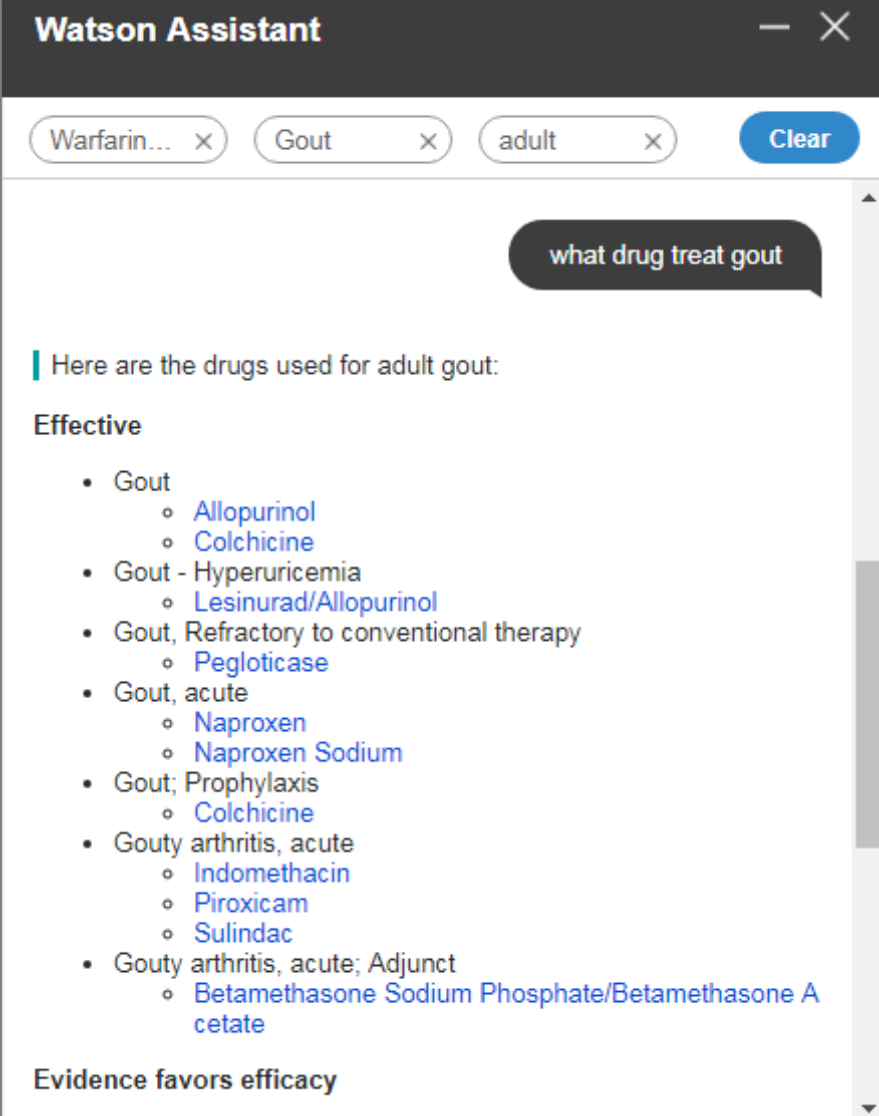
藥物:	嚴重性:	文件:
MESORIDAZINE -- QT INTERVAL PROLONGING DRUGS	Contraindicated	Excellent
WARFARIN [Systemic] -- TAMOXIFEN [Systemic]	Contraindicated	Good
ZIPRASIDONE -- QT INTERVAL PROLONGING DRUGS	Contraindicated	Fair
SAQUINAVIR -- QT INTERVAL PROLONGING DRUGS	Contraindicated	Fair

Below the table, a chat window shows the user's question: "Are there interactions with TAMOXIFEN". The assistant's response is: "Here are the drug interactions for tamoxifen citrate: Drug Interactions for Tamoxifen Citrate". A blue button labeled "Drug Interactions for Tamoxifen Citrate" is visible below the response.

# 對話式檢索範例

若您提出新藥或新病患問題繼續發問，華生將為您重置問題情境並提供相關解答，您無須自行清除前述提問

提問範例：  
“What drug treat gout?”



The screenshot shows the Watson Assistant interface. At the top, there are three search filters: "Warfarin...", "Gout", and "adult", each with a close button (x). To the right is a "Clear" button. Below the filters, a speech bubble contains the query "what drug treat gout". The response area shows the following text:

Here are the drugs used for adult gout:

**Effective**

- Gout
  - [Allopurinol](#)
  - [Colchicine](#)
- Gout - Hyperuricemia
  - [Lesinurad/Allopurinol](#)
- Gout, Refractory to conventional therapy
  - [Pegloticase](#)
- Gout, acute
  - [Naproxen](#)
  - [Naproxen Sodium](#)
- Gout; Prophylaxis
  - [Colchicine](#)
- Gouty arthritis, acute
  - [Indomethacin](#)
  - [Piroxicam](#)
  - [Sulindac](#)
- Gouty arthritis, acute; Adjunct
  - [Betamethasone Sodium Phosphate/Betamethasone A cetate](#)

Evidence favors efficacy

# 對話式檢索範例

若您提出新藥或新病患問題繼續發問，華生將為您重置問題情境並提供相關解答，或是追問細節以釐清問題，您無須自行清除前述提問

提問範例：

what are the drugs that treat AF

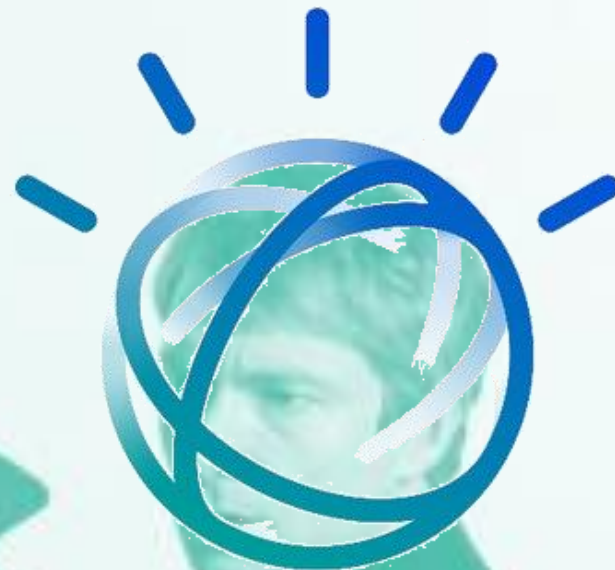
Is it for Adult or Pediatric?

adult

The screenshot shows the Watson Assistant interface with a search bar containing "Atrial fibr..." and "adult". The chat history includes the following messages:

- System: You can also ask a series of questions about the same drug:
  - What is the adult dose of digoxin for heart failure?
  - Renal dosing?
  - Contraindications?
  - Adverse effects?
- User: what are the drugs that treat AF
- System: Is it for Adult or Pediatric?
- User: adult
- System: Here are the drugs used for adult atrial fibrillation:  
**Effective**
  - Atrial fibrillation - Thromboembolic disorder
    - Heparin Sodium
    - Warfarin Sodium
  - Atrial fibrillation - Thromboembolic disorder; Prophylaxis
    - Dabigatran Etexilate Mesylate
    - Warfarin Sodium
  - Atrial fibrillation and flutter
    - Dofetilide
    - Propafenone Hydrochloride
    - Verapamil Hydrochloride





學會問華生，你也可以是 ~~夏洛克~~  
Micromedex 達人

# Attributions

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