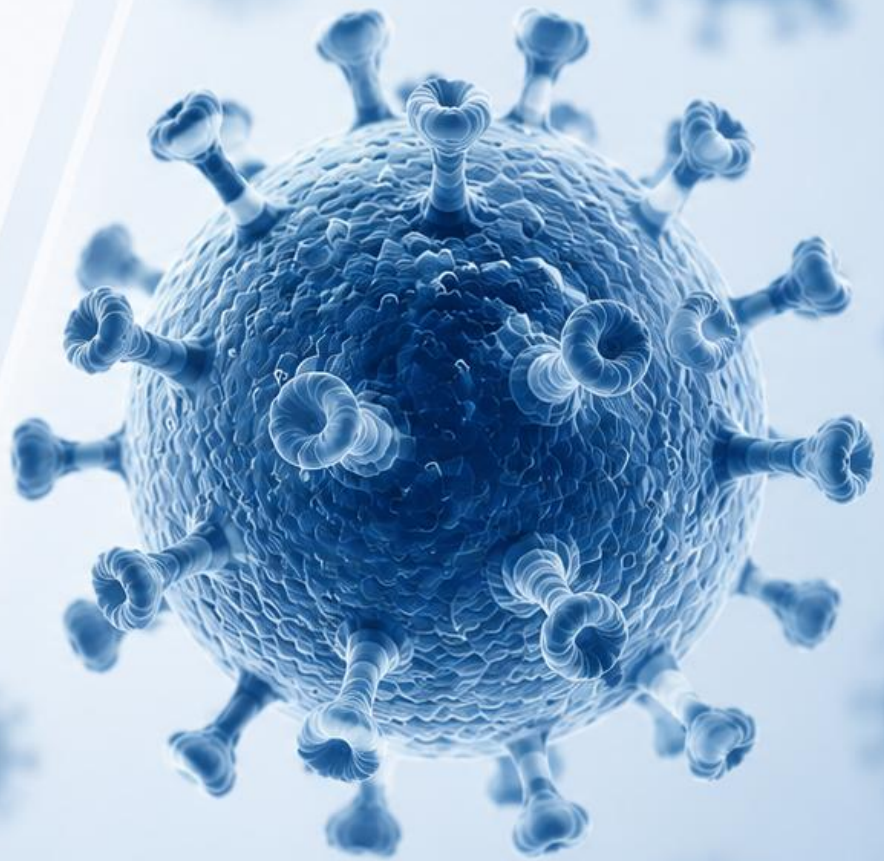
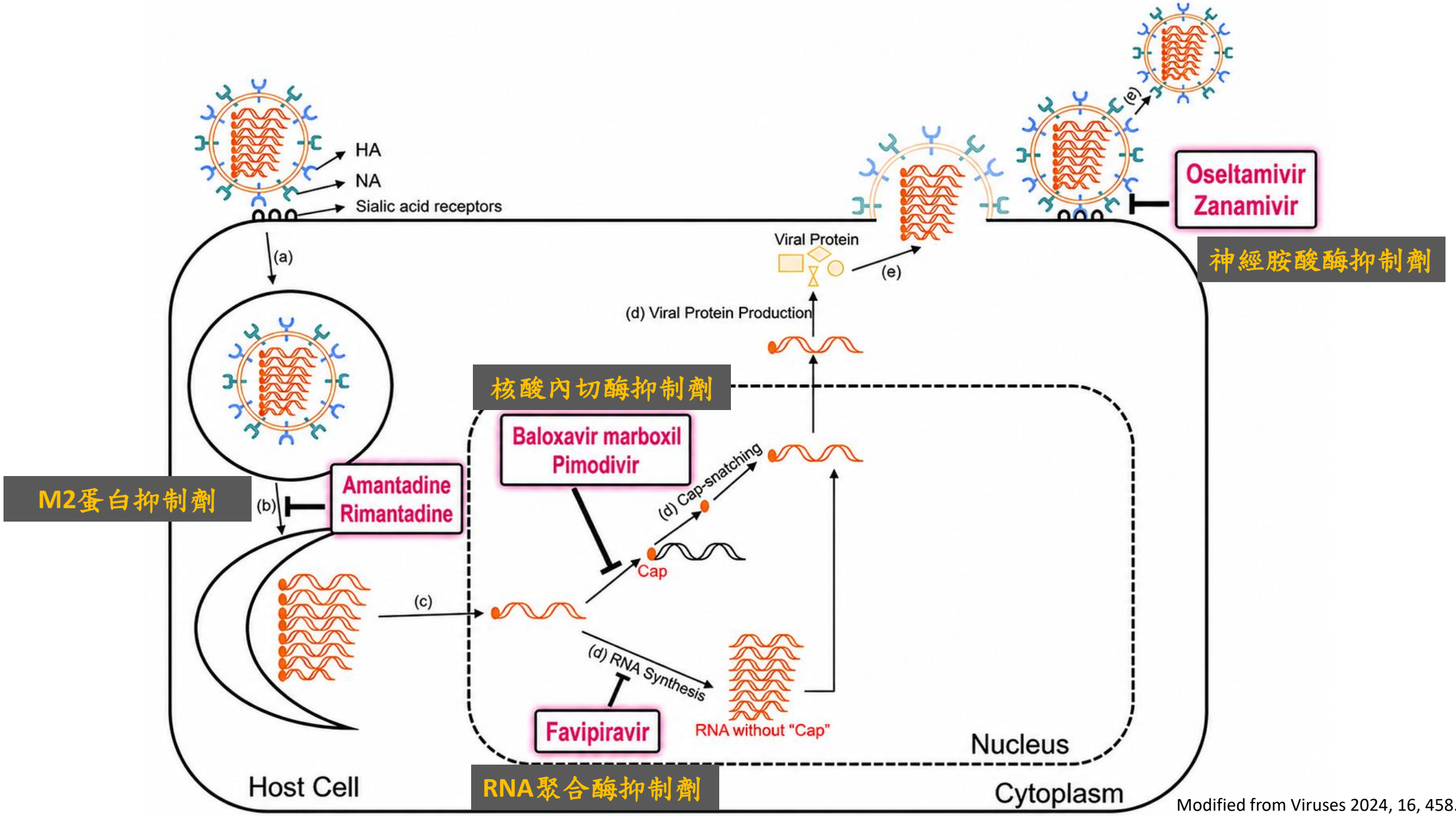
流感
藥物治療與抗藥性

Influenza Antiviral Therapy and Drug Resistance

中國附醫 感染科 蘇浤傑





Modified from Viruses 2024, 16, 458.

流感抗病毒藥物種類

1 M2 Protein Inhibitor

Amantadine / Rimantadine

- 因抗藥性問題嚴重，目前已不適宜用來治療流感病人。

2 Neuraminidase Inhibitor

Oseltamivir / Zanamivir / Peramivir

- 為目前流感抗病毒藥劑的主流。
- 藉由抑制病毒表面之神經胺酸酶，阻止複製完成之病毒自宿主細胞內釋出。
- 可預防疾病、減輕症狀、縮短病程。

3 RNA Polymerase Inhibitor

Favipiravir（Avigan）

- 干擾 RNA 病毒的複製過程，抑制感染細胞內的病毒基因複製以防止繁殖。
- 用於治療新型流感病毒感染（限於其他抗流感病毒藥劑無效或效力不足的情況）。
- 已取得日本藥證許可。

4 Cap-dependent Endonuclease Inhibitor

Baloxavir marboxil（Xofluza）

- 作用於流感病毒複製過程所必需的搶帽機制（Cap-snatching Mechanism），可抑制流感病毒的複製增生，亦可阻斷流感病毒的傳播。
- 已於 108 年間取得我國藥物許可證。

Clinical practice guidelines for influenza

September 2024, WHO

	Patient group		
	Non-severe, no risk-factor	**Non-severe, risk factor**	**Severe**
Baloxavir	Conditional against	Conditional recommendation	
Oseltamivir	Strong against		Conditional recommendation
Zanamivir	Strong against		Conditional against
Peramivir	Conditional against		Conditional against
Favipiravir	Strong against		

- **輕症病人：僅建議高風險族群使用Baloxavir。**
- **重症病人：建議在症狀出現48小時內給予Oseltamivir治療，並建議感染具有高致死率之新型A型流感病毒病人，或感染風險未知但可能導致重症之病人，即使這些病人未完全符合流感重症標準仍給予Oseltamivir治療。**

https://www.who.int/publications/i/item/9789240097759

流感抗病毒藥劑 使用建議（2024年版）

參考資料來源

1.

抗流感病毒藥物使用建議

台灣感染症醫學會

制定：2018 年 11 月 26 日
第一次修訂：2019 年 11 月 13 日
第二次修訂：2021 年 3 月 30 日
第三次修訂：2024 年 10 月 25 日

2.

Clinical practice guidelines for influenza
（WHO, 12 September 2024）



3.

兒童流感治療建議

Recommendations for the Use of Anti-influenza Agents in Children

台灣兒童感染症醫學會

Pediatric Infectious Diseases Society of Taiwan

制定：2012 年 2 月 20 日
第一次修訂：2018 年 6 月 30 日
第二次修訂：2019 年 11 月 11 日
第三次修訂：2024 年 8 月 25 日

輕症/門診病人之治療

- 若非屬重症高風險族群或高傳播族群，以支持性療法為主，大多數人可自行痊癒而不需使用抗流感病毒藥物
- 高風險族群建議於症狀出現48小時內儘速給予抗病毒藥物治療
- 高傳播族群可考慮於症狀出現48小時內給予抗病毒藥物治療

- 高風險族群之流感病人，僅建議給予Baloxavir治療

- 非高危因子的病人，醫師可以根據臨床判斷，考慮家庭接觸者是否為 6 個月以下或重症高危兒童等因素，在發作 48 小時內給予經驗性抗流感藥物
- 容易併發重症的高風險兒童，建議給予抗病毒藥物治療

並非所有輕症病人都需要抗病毒藥物治療

Table 5.1 Risk factors for hospitalization in non-severe influenza

Risk factor	Study results and measurements			
Age (per 10 years increase)	Odds ratio: 1.72 (95% CI 1.02 - 2.89) Based on data from 1 study	Hypertension	(	
HIV, immunodeficiency, or immunosuppression	**Odds ratio: 2.7 (95% CI 1.55 - 4.7) Based on data from 2 studies**	Any liver diseases	(	
Anaemia	Odds ratio: 1.39 (95% CI 0.88 - 2.19) Based on data from 2 studies	Malignancy	(	
Asthma	Odds ratio: 1.46 (95% CI 0.95 - 2.24) Based on data from 2 studies	**Any neurological diseases**	(	
Any cardiovascular diseases	**Odds ratio: 2.72 (95% CI 1.24 - 5.94) Based on data from 3 studies**	**Moderate Due to serious inconsistency**	**Any dise asso odd non**	
Diabetes	Odds ratio: 1.84 (95% CI 1.26 - 2.67) Based on data from 4 studies	**Moderate** Due to serious inconsistency	Dial asso odd non	
Obesity	Odds ratio: 1.02 (95% CI 0.98 - 1.07) Based on data from 1 study	**Moderate** Due to serious imprecision	Obesity is associated with little or no increase in hospitalization in non-severe patients.	
Pregnancy	Odds ratio: 1.88 (95% CI 1.73 - 2.05) Based on data from 1 study	**High**	Pregnancy is associated with increased odds of hospitalization in non-severe patients.	
Any renal diseases	Odds ratio: 1.66 (95% CI 1.54 - 1.79) Based on data from 2 studies	**High**	Any renal diseases are associated with increased odds of hospitalization in non-severe patients.	
Respiratory diseases (unspecified)	Odds ratio: 1.74 (95% CI 0.95 - 3.19) Based on data from 3 studies	**Very low** Due to serious inconsistency. Due to very serious imprecision	We are uncertain whether unspecified respiratory diseases are associated with increased odds of hospitalization in non-severe patients.	
Chronic respiratory diseases (unspecified)	**Odds ratio: 2.24 (95% CI 1.9 - 2.64) Based on data from 2 studies**	**High**	**Chronic respiratory diseases (unspecified) are associated with increased odds of hospitalization in non-severe patients.**	
Sex (male vs. female)	Odds ratio: 1.01 (95% CI 0.86 - 1.18) Based on data from 5 studies	**Low** Due to serious inconsistency. Due to serious imprecision	Males may have little or no increase in hospitalization compared with females in non-severe patients.	

Risk factors for hospitalization in non-severe influenza (sorted by risk level: high to low)

Risk level	Risk factor	Study results and measurements	Certainty of the evidence	Summary
High	**HIV, immunodeficiency, or immunosuppression**	Odds ratio: 2.7 (95% CI 1.55 - 4.7) Based on data from 2 studies	High	**HIV, immunodeficiency, or immunosuppression** is associated with increased odds of hospitalization in non-severe patients.
	Malignancy	Odds ratio: 1.75 (95% CI 1.12 - 2.75) Based on data from 3 studies	High	**Malignancy** is associated with increased odds of hospitalization in non-severe patients.
	Any neurological diseases	Odds ratio: 2.31 (95% CI 1.65 - 3.24) Based on data from 4 studies	High	**Any neurological diseases** are associated with increased odds of hospitalization in non-severe patients.
	Pregnancy	Odds ratio: 1.88 (95% CI 1.73 - 2.05) Based on data from 1 study	High	**Pregnancy** is associated with increased odds of hospitalization in non-severe patients.
	Any renal diseases	Odds ratio: 1.66 (95% CI 1.54 - 1.79) Based on data from 2 studies	High	**Any renal diseases** are associated with increased odds of hospitalization in non-severe patients.
	Chronic respiratory diseases (unspecified)	Odds ratio: 2.24 (95% CI 1.9 - 2.64) Based on data from 2 studies	High	**Chronic respiratory diseases (unspecified)** are associated with increased odds of hospitalization in non-severe patients.
Moderate	**Any cardiovascular diseases**	Odds ratio: 2.72 (95% CI 1.24 - 5.94) Based on data from 3 studies	Moderate Due to serious inconsistency	**Any cardiovascular diseases** are probably associated with increased odds of hospitalization in non-severe patients.
	Diobetes	Odds ratio: 1.84 (95% CI 1.26 - 2.67) Based on data from 4 studies	Moderate Due to serious inconsistency	**Diabetes** is probably associated with increased odds of hospitalization in non-severe patients.
	Age (per 10 years increase)	Odds ratio: 1.72 (95% CI 1.02 - 2.89) Based on data from 1 study	Moderate Due to serious imprecision	**Age** is probably associated with increased odds of hospitalization in non-severe patients.
	Asthma	Odds ratio: 1.46 (95% CI 0.95 - 2.24) Based on data from 2 studies	Moderate Due to serious imprecision	**Asthma** is probably associated with little or no increase in hospitalization in non-severe patients.
	Hypertension	Odds ratio: 1.61 (95% CI 0.92 - 2.83) Based on data from 2 studies	Moderate Due to serious imprecision	**Hypertension** is probably associated with little or no increase in hospitalization in non-severe patients.
	Obesity	Odds ratio: 1.02 (95% CI 0.98 - 1.07) Based on data from 1 study	Moderate Due to serious imprecision	**Obesity** is associated with little or no increase in hospitalization in non-severe patients.
	Anaemia	Odds ratio: 1.39 (95% CI 0.88 - 2.19) Based on data from 3 studies	Moderate Due to serious imprecision	**Anaemia** is probably associated with little or no increase in hospitalization in non-severe patients.
Low / Very low	**Sex** (male vs. female)	Odds ratio: 1.01 (95% CI 0.86 - 1.18) Based on data from 5 studies	Low Due to serious inconsistency. Due to serious imprecision	**Males** may have little or no increase in hospitalization compared with females in non-severe patients.
	Any liver diseases	Odds ratio: 1.87 (95% CI 0.89 - 3.94) Based on data from 3 studies	Very low Due to serious inconsistency. Due to very serious imprecision	We are uncertain whether any liver diseases are associated with increased odds of hospitalization in non-severe patients.
	Respiratory diseases (unspecified)	Odds ratio: 1.74 (95% CI 0.95 - 3.19) Based on data from 3 studies	Very low Due to serious inconsistency. Due to very serious imprecision	We are uncertain whether unspecified respiratory diseases are associated with increased odds of hospitalization in non-severe patients.

HIV
Malignancy
CNS disorder
Pregnancy
Kidney disease
Chronic respiratory diseases

Modified from Clinical practice guidelines for influenza [Internet]. WHO; 2024.

住院/重症病人之治療

- 建議立即給予抗病毒藥物治療
- 建議於症狀出現48小時內給予Oseltamivir治療
- 所有疑似流感住院兒童，均應立即給予抗病毒藥物治療

住院/重症病人，不需等待確診，不論發病時間，均應立即給予抗病毒藥物治療

預防性投藥

- 發生群聚之人口密集場所（醫療院所、護理之家或長照機構等），針對密切接觸者，可根據個別狀況（暴露時間長短、是否屬高風險族群、是否已接種當季流感疫苗等因素），評估投予流感預防性藥物之必要性

- 用於接觸流感病毒但尚未感染的人群，特別是在高風險族群，另亦適用流感患者密切接觸者、流感爆發地區的居民，並建議使用Baloxavir、Laninamivir、Oseltamivir、Zanamivir等抗病毒藥物來降低感染風險
- 另強調流感疫苗仍是最有效的預防方式，建議每年接種，以降低感染風險。

群聚時是否給予預防性投藥須個案評估

公費流感抗病毒藥劑儲備目的及使用原則

- 疾管署採購儲備之公費流感抗病毒藥劑（下稱公費藥劑），係依世界衛生組織（WHO）建議各國為因應新型A型流感大流行之準備策略，應儲備一定人口比例之流感抗病毒藥劑，以便於新型流感大流行發生且疫苗尚未普及前釋出使用，期能延緩疫情高峰與降低死亡率。
- 為善用國家資源，減少屆期銷毀，依衛生福利部傳染病防治諮詢會建議，目前平時參考WHO與先進國家用藥指引，提供季節性流感併發重症與感染流感後易併發重症之高風險族群治療使用，以及新型A型流感極可能/確定病例之密切接觸者、類流感群聚事件之高風險接觸者等預防性用藥使用；另於流感疫情高峰期間放寬公費藥劑使用條件，釋出效期最短之藥劑予當年度擴大對象使用。

公費流感抗病毒藥劑種類

藥物學名	Oseltamivir	Zanamivir	Peramivir
商品名	克流感/易剋冒	Relenza 瑞樂沙	Rapiacta
包裝	75 毫克膠囊10入之盒裝	盒裝有碟型吸入器1枚，及含4孔規則間隔之泡囊5入	點滴用注射袋300mg
使用方式	口服	吸入	注射
使用對象	成人及兒童（含足月新生兒）	5歲以上	成人及1個月大以上兒童
成人用法用量	每日2次，每次75mg，共5日	每日2次，每次吸2孔，共5日	每日300mg
小兒是否需調整劑量	是	否	是
腎功能不佳是否調整劑量	是	否	是
備註	可能出現輕微噁心及嘔吐，未成年病人需注意神經精神症狀	用於慢性呼吸系統病人時需特別注意支氣管痙攣及呼吸困難等症狀	提供新型A型流感通報病例使用，且需由醫院申請並經醫療網指揮官同意

全年適用

公費流感抗病毒藥劑使用對象一覽表

除法定傳染病外，應為本國籍人士或持有居留證
【18歲(含)以下孩童其雙親需一方為本國籍或持有居留證】

治療性用藥條件 經醫師評估符合條件者，無須快篩即可用藥

法定傳染病

需通報於法定傳染病通報系統及填寫法傳編號

- 「流感併發重症」通報病例
- 「新型A型流感」通報病例

住院病患

- 確診或疑似罹患流感住院(含急診待床)之病患

罹患流感因病況嚴重而需住院治療的病患，並不包括門診病人，依此條件使用公費藥劑者須備有「住院紀錄」或「急診待床紀錄」

門急診病患

- 未滿5歲及65歲以上之類流感患者
- 孕婦及產後兩週內之婦女經評估需及時用藥者
  領有國民健康署核發孕婦健康手冊之婦女
- 肥胖之類流感患者(BMI≧30或未滿18歲兒童青少年BMI超過同齡第95百分位)
  未滿18歲兒童青少年BMI第95百分位一覽表詳如附件
- 具重大傷病、免疫不全(含使用免疫抑制劑者)或流感高風險慢性疾病之類流感患者
  1.重大傷病：IC卡註記為重大傷病或持有重大傷病證明紙卡者
  2.流感高風險慢性疾病之ICD CODE：B20，Z21，D80-84，D86，D89，E08-13，E66，E85，G09，G20，G30-32，G35-37，G40，G45-46，G65，G70，G72，I00-02，I05-09，I11-13，I20-22，I24-25，I27-28，I34-37，I42-43，I44-45，I47-49，I50-51，I60-62，I63，I67-69，I70，I71，I72，I73-74，I77，I79，J40-45，J47，J60-70，J82，J84，J96，J98，J99，K70-72，K73-76，B18-19，M05-06，M30-31，M32-34，M35，M94.1，N00-01，N03，N05，N04，N18-19，N26-27，Q89.01，Z90.81

預防性用藥條件

需通報並經審核

需通報衛生局進行疫情調查，並經疾病管制署各區管制中心防疫醫師或傳染病防治醫療網區正/副指揮官或其授權人員同意後始可用藥

- 類流感等群聚事件經疾病管制署各區管制中心防疫醫師認定需用藥者
  需填寫群聚編號
- 「新型A型流感」極可能/確定病例之密切接觸者
  接觸者名冊經傳染病防治醫療網區正/副指揮官或其授權人員研判需給藥者;需填寫所接觸之個案的法傳編號
- 動物流感發生場所撲殺清場工作人員
  接觸者名冊經傳染病防治醫療網區正/副指揮官或其授權人員研判需給藥者；需填寫禽畜場名稱或編號

流感高峰期

擴大用藥條件

- 有類流感症狀，且具下列身分之流感高傳播族群：

1. 醫事單位之防疫相關人員(含具執業登記醫事人員及醫療院所非醫事人員)
2. 安養、長期照顧(服務)等機構之受照顧者及所屬工作人員
3. 幼兒園托育人員、托育機構專業人員及居家托育人員(保母)
4. 幼兒園、國小、國中、高中、高職、五專1至3年級學生
5. 與流感重症高風險族群同住或其照顧者
6. 禽畜養殖等相關行業工作人員、動物園工作人員及動物防疫人員
7. 其他人口密集機構(如軍營等)易發生群聚之人員

※擴大用藥期間依疾病管制署公告為主

全年適用

公費流感抗病毒藥劑使用對象一覽表

治療性用藥條件 經醫師評估符合條件者，無須快篩即可用藥

法定傳染病

需通報於法定傳染病通報系統及填寫法傳編號

- 「流感併發重症」通報病例
- 「新型A型流感」通報病例

住院病患

- **確診或疑似罹患流感住院(含急診待床)之病患**

  罹患流感因病況嚴重而需住院治療的病患，並不包括門診病人，依此條件使用公費藥劑者須備有「住院紀錄」或「急診待床紀錄」

門急診病患

- **未滿5歲及65歲以上之類流感患者**
- **孕婦及產後兩週內之婦女經評估需及時用藥者**
  領有國民健康署核發孕婦健康手冊之婦女
- **肥胖之類流感患者(BMI≧30或未滿18歲兒童青少年BMI超過同齡第95百分位)**
  未滿18歲兒童青少年BMI第95百分位一覽表詳如附件
- **具重大傷病、免疫不全(含使用免疫抑制劑者)或流感高風險慢性疾病之類流感患者**
  1.重大傷病：IC卡註記為重大傷病或持有重大傷病證明紙卡者
  2.流感高風險慢性疾病之ICD CODE：B20 , Z21 , D80-84 , D86 , D89 , E08-13 , E66 , E85 , G09 , G20 , G30-32 , G35-37 , G40 , G45-46 , G65 , G70 , G72 , I00-02 , I05-09 , I11-13 , I20-22 , I24-25 , I27-28 , I34-37 , I42-43 , I44-45 , I47-49 , I50-51 , I60-62 , I63 , I67-69 , I70 , I71, I72 , I73-74 , I77 , I79 , J40-45 , J47 , J60-70 , J82 , J84 , J96 , J98 , J99 , K70-72 , K73-76 , B18-19 , M05-06 , M30-31 , M32-34 , M35 , M94.1 , N00-01 , N03 , N05 , N04 , N18-19 , N26-27 , Q89.01 , Z90.81

流感高峰期

擴大用藥條件

- **有類流感症狀，且具下列身分之流感高傳播族群：**

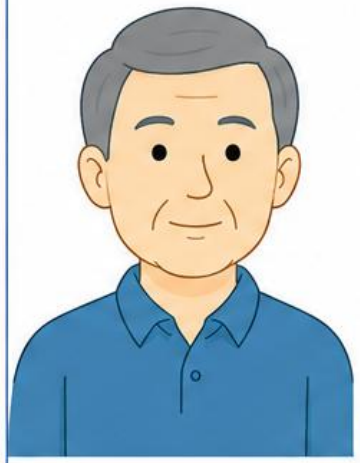
1. 醫事單位之防疫相關人員(含具執業登記醫事人員及醫療院所非醫事人員)
2. 安養、長期照顧(服務)等機構之受照顧者及所屬工作人員
3. 幼兒園托育人員、托育機構專業人員及居家托育人員(保母)
4. 幼兒園、國小、國中、高中、高職、五專1至3年級學生

※擴大用藥期間依疾病管制署公告為主

5. 與流感重症高風險族群同住或其照顧者
6. 禽畜養殖等相關行業工作人員、動物園工作人員及動物防疫人員
7. 其他人口密集機構(如軍營等)易發生群聚之人員

Cinical scenario 1

基本資料



男性，約 60 歲

慢性病史

- 高血壓
- 糖尿病
- CKD stage III

腎功能

CCR 約 45 mL/min

現病史

發燒（38.5°C）

咳嗽

肌肉痠痛

檢查結果

流感快篩：陽性

臨床情境

一位約 60 歲男性，具高血壓、糖尿病及 CKD stage III（CCR 約 45 mL/min）病史。

因發燒、咳嗽及肌肉痠痛至門診就醫，流感快篩檢測結果為陽性。

考量病患之腎功能（CCR 約 45 mL/min），
治療時應如何選擇並調整抗流感藥物劑量？

重點提示

本案例重點為腎功能不全（CCR 約 45 mL/min）之流感病患，
在選擇抗病毒藥物時需注意劑量調整，以兼顧療效與安全性。

Table 8.2 Dosing of oseltamivir for treatment in patients with renal impairment

Creatinine clearance (mL/min)	Dose of oseltamivir for treatment of influenza
> 60	75 mg twice daily
> 30 to 60	30 mg twice daily
> 10 to 30	30 mg once daily
≤ 10	Not recommended. No data available
Haemodialysis patients	30 mg after each haemodialysis session
Peritoneal dialysis patients	30 mg single dose

There is insufficient clinical data available in those under 13 years of age with renal impairment to be able to make any dosing recommendation.

Clinical practice guidelines for influenza [Internet]. WHO; 2024.

Table 3. Recommended Oseltamivir and Peramivir Dose Adjustments for Treatment or Chemoprophylaxis of Influenza in Adult Patients with Renal Impairment or End Stage Renal Disease (ESRD) on Dialysis*

	Creatinine Clearance	Recommended Treatment Regimen	Recommended Chemoprophylaxis Regimen
Oral Oseltamivir[1]	Creatinine clearance 61 to 90 mL/min	75 mg twice a day	75 mg once daily
	Creatinine clearance 31 to 60 mL/min	30 mg twice a day	30 mg once daily
	Creatinine clearance 11 to 30 mL/min	30 mg once daily	30 mg every other day
	ESRD Patients on Hemodialysis Creatinine clearance ≤10 mL/min	30 mg after every hemodialysis cycle. Treatment duration not to exceed 5 days[2]	30 mg after alternate hemodialysis cycles[3]
	ESRD Patients on Continuous Ambulatory Peritoneal Dialysis[4] Creatinine clearance ≤10 mL/min	A single 30 mg dose administered immediately after a dialysis exchange	30 mg once weekly immediately after dialysis exchange
Intravenous Peramivir (single dose)[5]	Creatinine clearance ≥50 mL/min	600 mg	N/A
	Creatinine clearance 30 to 49 mL/min	200 mg	N/A
	Creatinine clearance 10 to 29 mL/min	100 mg	N/A
	ESRD Patients on Hemodialysis	Dose administered after dialysis at a dose adjusted based on creatinine clearance	

U.S CDC, Influenza, Access on June 3, 2026

紓伏效® 膜衣錠20毫克

XOFLUZA® Tablets 20 mg

Baloxavir marboxil

6.7 腎功能不全

輕度或中度腎功能不全(CrCl ≥30 mL/min)的病人，不需要調整劑量。

目前尚無重度腎功能不全病人(CrCl<30 mL/min)投與本藥後的藥物動力學資料。(請參考「**11.藥物動力學特性**」)

Body weight	Dose of baloxavir
< 20 kg	2 mg/kg (as suspension)
20 kg to 79 kg	40 mg (tablet)
80 kg and over	80 mg (tablet)

Cinical scenario 2

40 歲男性，確診流感



基本資料

- 年齡：40 歲
- 職業：工程師
- 過去病史：無特殊病史
- 過敏史：無藥物過敏

臨床表現

- 發燒 39.1°C
- 咳嗽
- 喉嚨痛
- 全身肌肉痠痛
- 症狀持續 24 小時

就醫檢查

- Influenza A 快篩：陽性
- 血氧：98%
- 胸部 X 光：無肺炎證據

目前狀況

- 意識清楚
- 可正常進食
- 無呼吸困難
- 門診治療後返家休養

流感藥物怎麼選擇？

? Oseltamivir？ ? Peramivir？

Study results and measurements	Seasonal influenza				Zoonotic influenza			
	Absolute effect estimate per 1000 patients	Absolute difference per 1000 patients (95% CI)	Certainty in effect estimates	Summary	Absolute effect estimate per 1000 patients	Absolute difference per 1000 patients (95% CI)	Certainty in effect estimates	Summary

	Study results and measurements	Absolute effect estimates, mean duration in days	Mean difference (95% CI)	Certainty in effect estimates	Summary
Oseltamivir *vs* standard care or placebo	The lower the duration of hospitalisation, the better the	3·37 *vs* 5·00	−1·63 (−2·81 to −0·45)	Low*†	Oseltamivir might reduce duration of hospitalisation

In hospitalised patients with severe influenza, oseltamivir and peramivir might reduce duration of hospitalization compared with standard care or placebo, although the certainty of evidence is low.

The effects of all antivirals on mortality and other important patient outcomes are very uncertain due to scarce data from randomized controlled trials.

GRADE=Grading of Recommendations Assessment, Development and Evaluation. *Rating decreased by one level for risk of bias. †Rating decreased by one level for imprecision.

Table 3: **GRADE summary of findings for duration of hospitalisation for different comparisons**

with zanamivir is very uncertain | with zanamivir is very uncertain

GRADE=Grading of Recommendations Assessment, Development and Evaluation. RR=risk ratio. *Rating decreased by three levels for imprecision. †Rating decreased by one level for risk of bias. ‡Rating decreased by two levels for imprecision.

Table 2: **GRADE summary of findings for mortality for different comparisons**

Lancet. 2024;404(10454):753-763

參考文獻（3）

Antivirals for treatment of severe influenza: a systematic review and network meta-analysis of randomised controlled trials

Ya Gao [1], Gordon Guyatt [2], Timothy M Uyeki [3], Ming Liu [1], Yamin Chen [4], Yunli Zhao [5], Yanjiao Shen [6], Jianguo Xu [7], Qingyong Zheng [7], Zhifan Li [8], Wanyu Zhao [9], Shuyue Luo [9], Xiaoyan Chen [10], Jinhui Tian [7], Qiukui Hao [11]

Affiliations + expand

PMID: 39181595 PMCID: PMC11369965 DOI: 10.1016/S0140-6736(24)01307-2

Abstract

Background: The optimal antiviral drug for treatment of severe influenza remains unclear. To support updated WHO influenza clinical guidelines, this systematic review and network meta-analysis evaluated antivirals for treatment of patients with severe influenza.

Methods: We systematically searched MEDLINE, Embase, Cochrane Central Register of Controlled Trials, Cumulative Index to Nursing and Allied Health Literature, Global Health, Epistemonikos, and ClinicalTrials.gov for randomised controlled trials published up to Sept 20, 2023, that enrolled hospitalised patients with suspected or laboratory-confirmed influenza and compared direct-acting influenza antivirals against placebo, standard care, or another antiviral. Pairs of coauthors independently extracted data on study characteristics, patient characteristics, antiviral characteristics, and outcomes, with discrepancies resolved by discussion or by a third coauthor. Key outcomes of interest were time to alleviation of symptoms, duration of hospitalisation, admission to intensive care unit, progression to invasive mechanical ventilation, duration of mechanical ventilation, mortality, hospital discharge destination, emergence of antiviral resistance, adverse events, adverse events related to treatments, and serious adverse events. We conducted frequentist network meta-analyses to summarise the evidence and evaluated the certainty of evidence using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) approach. This study is registered with

Discussion

In this systematic review and network meta-analysis, we found that oseltamivir and peramivir might reduce duration of hospitalisation in patients with severe seasonal influenza compared with placebo or standard care, but the evidence was of low certainty due to scarce data from the small number of included randomised controlled trials. The effects of oseltamivir, peramivir, or zanamivir on mortality in patients with severe seasonal influenza or severe zoonotic influenza compared with placebo or standard care are very uncertain. Uncertainty also remains about the effects of oseltamivir, peramivir, and zanamivir on ICU admission. We did not find evidence of differences in any adverse events or serious adverse events among oseltamivir, peramivir, and zanamivir.

住院病患使用 Oseltamivir 或 Peramivir ，可能減少住院天數。

Gao Y, Guyatt G, et al. Antivirals for treatment of severe influenza: a systematic review and network meta-analysis of randomised controlled trials. The Lancet.2024;484(10454):753-63

Lancet. 2024;404(10454):753-763

參考文獻（1）

Antiviral Medications for Treatment of Nor Influenza: A Systematic Review and Networ Analysis

Ya Gao [1 2 3 4], Yunli Zhao [5 6], Ming Liu [3 4], Shuyue Luo [7 8], Yamin Chen [9 10], Qingyong Zheng [3], Jianguo Xu [3], Yanjiao Shen [4 12], Wanyu Zhao [7 8], Zhifan Li [1] Jie Huang [11], Jinhui Tian [3], Gordon Guyatt [4 14], Qiukui Hao [4 15]

Affiliations + expand

PMID: 39804622 PMCID: PMC11877164 DOI: 10.1001/jamainternmed.2024.719

Abstract

Importance: The optimal antiviral drug for treatment of nonsevere influenza rema

Objective: To compare effects of antiviral drugs for treating nonsevere influenza.

Data sources: MEDLINE, Embase, CENTRAL, CINAHL, Global Health, Epistemonikos ClinicalTrials.gov were searched from database inception to September 20, 2023.

Study selection: Randomized clinical trials comparing direct-acting influenza antiviral drugs to placebo, standard care, or another antiviral drug for treating people with nonsevere influenza.

Data extraction and synthesis: Paired reviewers independently performed data extraction and risk of bias assessment. A frequentist network meta-analysis was performed to summarize the evidence and the certainty of evidence was evaluated using the GRADE approach.

Main outcomes and measures: Mortality, admission to hospital, admission to the intensive care unit, duration of hospitalization, time to alleviation of symptoms, emergence of resistance, and adverse events.

Results: Overall, 73 trials with 34 332 participants proved eligible. Compared with standard care or placebo, all antiviral drugs had little or no effect on mortality for low-risk patients and high-risk

Conclusions

In patients with nonsevere influenza, compared with standard care or placebo, the RD in high-risk patients being admitted to hospital was greatest with baloxavir (−16 per 1000) compared with −4 per 1000 patients for oseltamivir and 4 per 1000 patients for zanamivir, but the wide CI suggests low certainty of this effect. Baloxavir likely reduces time to alleviation of symptoms by 1.02 days, does not increase adverse events related to treatment, but it may be associated with the emergence of resistance in approximately 10% of those treated. Oseltamivir was found to have little or no effect on mortality and admission to hospital, likely has no important effect on time to alleviation of symptoms, and likely increases risk of adverse events related to treatment. All other antiviral drugs are either likely not to be beneficial or have uncertain effects on patient-important outcomes.

輕症個案： 若於發病後48小時內使用，Oseltamivir 與 Baloxavir 均可能縮短症狀持續時間，分別可縮短0.74與1.02天。

Gao Y, Zhao Y, Liu M, et al. Antiviral Medications for Treatment of 72 Nonsevere Influenza: A Systematic Review and Network MetaAnalysis.JAMA, 2025;185(3):293-301

參考文獻（2）

Antiviral Medications for Treatment of Nonsevere Influenza: A Systematic Review and Network Meta-Analysis

Ya Gao [1 2 3 4], Yunli Zhao [5 6], Ming Liu [3 4], Shuyue Luo [7 8], Yamin Chen [9 10], Xiaoyan Chen [11], Qingyong Zheng [3], Jianguo Xu [3], Yanjiao Shen [4 12], Wanyu Zhao [7 8], Zhifan Li [13], Sha Huang [11], Jie Huang [11], Jinhui Tian [3], Gordon Guyatt [4 14], Qiukui Hao [4 15]

Affiliations + expand

PMID: 39804622 PMCID: PMC11877164 DOI: 10.1001/jamainternmed.2024.7193

Abstract

Importance: The optimal antiviral drug for treatment of nonsevere influenza remains unclear.

Objective: To compare effects of antiviral drugs for treating nonsevere influenza.

Data sources: MEDLINE, Embase, CENTRAL, CINAHL, Global Health, Epistemonikos, and ClinicalTrials.gov were searched from database inception to September 20, 2023.

Study selection: Randomized clinical trials comparing direct-acting influenza antiviral drugs to placebo, standard care, or another antiviral drug for treating people with nonsevere influenza.

Data extraction and synthesis: Paired reviewers independently performed data extraction and risk of bias assessment. A frequentist network meta-analysis was performed to summarize the evidence and the certainty of evidence was evaluated using the GRADE approach.

Main outcomes and measures: Mortality, admission to hospital, admission to the intensive care unit, duration of hospitalization, time to alleviation of symptoms, emergence of resistance, and adverse events.

對無重症風險因子的輕症個案，Oseltamivir 或 Baloxavir 無法降低住院或死亡率

Mortality

Forty-one trials including 23 892 patients reported mortality. High certainty evidence showed that, compared with standard care or placebo, 7 antiviral drugs (ie, baloxavir, favipiravir, laninamivir, oseltamivir, peramivir, umifenovir, zanamivir) had little or no effect on mortality in low-risk (RD varied from −0.12 to −0.02 per 1000) or high-risk (RD varied from −1.22 to −0.24 per 1000) patients (Table 1, Table 2, Table 3; eAppendix 11 in Supplement 1).

Admission to ICU

Two trials with 1626 patients provided data on admission to ICU for oseltamivir and peramivir. Compared with standard care or placebo, oseltamivir had little or no effect on admission to ICU (RD, −2 per 1000; 95% CI, −7 to 3; high certainty). We are uncertain whether peramivir reduced admission to the ICU (Table 3).

Time to Alleviation of Symptoms

Fifty-nine trials enrolling 24 086 patients reported time to alleviation of symptoms. Compared with standard care or placebo, baloxavir showed an MD in symptom duration of 1.02 days shorter (95% CI, −1.41 to −0.63; moderate certainty); umifenovir showed an MD in symptom duration of 1.10 days shorter (95% CI, −1.57 to −0.63; low certainty); whereas oseltamivir (MD, −0.75 days; 95% CI, −0.93 to −0.57; moderate certainty) and zanamivir (MD, −0.68 days; 95% CI, −0.93 to −0.43; moderate certainty) had a mean decrease in symptom duration of less than 1 day (Table 1, Table 2, Table 3; eAppendix 11 in Supplement 1).

Gao Y, Zhao Y, Liu M, et al. Antiviral Medications for Treatment of 72 Nonsevere Influenza: A Systematic Review and Network MetaAnalysis.JAMA, 2025;185(3):293-301

Cinical scenario 3

懷孕的媽媽，目前確診流感

基本資料

- 年齡：32 歲
- 孕期：懷孕 24 週（第二孕期）
- 過去病史：無慢性疾病
- 過敏史：無藥物過敏

臨床表現

- 發燒 38.5°C、畏寒
- 咳嗽、喉嚨痛、流鼻水
- 全身肌肉痠痛、疲倦
- 流感快篩：**陽性**

目前狀況

意識清楚，無呼吸困難，食慾下降，胎動正常。



流感藥物怎麼選擇？

- 懷孕婦女屬於流感重症高風險族群。
- 確診或高度懷疑流感時，應儘早開始抗病毒治療。
- 懷孕期間可使用哪些抗病毒藥物？
- 哪些藥物具有較完整的孕期安全性資料？
- 不同抗病毒藥物之間有何優缺點？



提醒：懷孕期間罹患流感可能增加併發症風險（如：肺炎、早產），應及早評估並給予適當治療。

Table 1. Influenza Antiviral Dosing for Treatment of Influenza A and B Virus Infections: Recommendations Including Pregnant Women and Women who Are up to 2 Weeks Postpartum[a]

Antiviral Therapy	Route of Administration	Indication	Dose	Duration	Recommendations for Women who Are Pregnant or Postpartum	Adverse Events	Groups for Which Antiviral Is Not Recommended
Oseltamivir[b]	Oral	Treatment	Patients 1 y to 17 y: ≤15 kg – 30 mg twice daily >15–23 kg – 45 mg twice daily >23–40 kg – 60 mg twice daily >40 kg–75 mg twice daily Patients ≥18 y: 75 mg twice daily	5 d; longer treatment may be required for severely ill patients per clinical judgment	Pregnant women and women who are up to 2 wk postpartum (including after pregnancy loss) of any age	Nausea, vomiting, headache; postmarketing reports of serious skin reactions and sporadic, transient neuropsychiatric events	N/A
Zanamivir[c]	Inhaled	Treatment	Patients ≥7 y: 10 mg (two 5-mg inhalations) twice daily	5 d	Pregnant women and women who are up to 2 wk postpartum (including after pregnancy loss) of any age	Risk of bronchospasm, sinusitis, dizziness; postmarketing reports of serious skin reactions and sporadic, transient neuropsychiatric events	People with chronic respiratory disease including asthma and COPD and patients with a history of allergy to milk protein
Peramivir[d]	Intravenous	Treatment	Patients 2–12 y of age: 12-mg/kg dose once; up to 600 mg maximum infused over a minimum of 15 min Patients ≥13 y: 600 mg infused once over a minimum of 15 min	1 d; longer treatment may be required for severely ill patients	Pregnant women and women who are up to 2 wk postpartum (including after pregnancy loss) of any age	Diarrhea; postmarketing reports of serious skin reactions and sporadic, transient neuropsychiatric events	N/A
Baloxavir[e]	Oral	Treatment	Patients ≥12 y: 40–<80 kg: one 40-mg dose; ≥80 kg: one 80-mg dose	1 d; longer treatment may be required for severely ill patients	Not recommended for use in pregnant women due to lack of safety and efficacy data	None more common than placebo in clinical trials	Not recommended for children aged <12 y, pregnant women, or for chemoprophylaxis

Open Forum Infect Dis. 2021 Mar 20;8(6):ofab138.

Table 1. Influenza Antiviral Dosing for Treatment of Influenza A and B Virus Infections: Recommendations Including Pregnant Women and Women who Are up to 2 Weeks Postpartum[a]

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Oseltamivir		Treatment	Patients 1 y to 17 y: ≤15 kg – 30 mg twice daily >15–23 kg – 45 mg twice daily >23–40 kg – 60 mg twice daily >40 kg–75 mg twice daily Patients ≥18 y: 75 mg twice daily	5 d; longer treatment may be required for severely ill patients per clinical judgment	Pregnant women and women who are up to 2 wk postpartum (including after pregnancy loss) of any age	Nausea, vomiting, headache; postmarketing reports of serious skin reactions and sporadic, transient neuropsychiatric events	N/A
Zanamivir		Treatment	Patients ≥7 y: 10 mg (two 5-mg inhalations) twice daily	5 d	Pregnant women and women who are up to 2 wk postpartum (including after pregnancy loss) of any age	Risk of bronchospasm, sinusitis, dizziness; postmarketing reports of serious skin reactions and sporadic, transient neuropsychiatric events	People with chronic respiratory disease including asthma and COPD and patients with a history of allergy to milk protein
Peramivir		Treatment	Patients 2–12 y of age: 12-mg/kg dose once; up to 600 mg maximum infused over a minimum of 15 min Patients ≥13 y: 600 mg infused once over a minimum of 15 min	1 d; longer treatment may be required for severely ill patients	Pregnant women and women who are up to 2 wk postpartum (including after pregnancy loss) of any age	Diarrhea; postmarketing reports of serious skin reactions and sporadic, transient neuropsychiatric events	N/A
Baloxavir		Treatment	Patients ≥12 y: 40–<80 kg: one 40-mg dose; ≥80 kg: one 80-mg dose	1 d; longer treatment may be required for severely ill patients	Not recommended for use in pregnant women due to lack of safety and efficacy data	None more common than placebo in clinical trials	N/A

Modified from Open Forum Infect Dis. 2021 Mar 20;8(6):ofab138.



懷孕期間使用抗流感病毒藥物：重點整理

懷孕婦女為
流感重症高風險族群

Pregnancy Category C

Oseltamivir
Zanamivir
Peramivir

目前沒有針對懷孕進行的對照臨床試驗。

多項觀察性研究顯示：懷孕期間使用這些藥物進行治療是安全的
- 不會增加不良事件的風險
- 不會增加不良懷孕結局的風險

Peramivir 在懷孕期間的人體安全性資料較少。

Baloxavir (Xofluza®)

CDC 不建議使用
於懷孕或哺乳期間

目前沒有任何針對懷孕期間之**療效或安全性資料**。

目前也沒有資料顯示：
- baloxavir 是否會出現在母乳中
- 對哺乳的嬰兒有何影響
- 對乳汁分泌有何影響

重點總結

藥物	Pregnancy Category	懷孕期間建議
Oseltamivir	Pregnancy Category C	有觀察性研究支持使用安全
Zanamivir	Pregnancy Category C	有觀察性研究支持使用安全
Peramivir	Pregnancy Category C	人體資料有限，仍可考慮使用
Baloxavir (Xofluza®)	Not Recommended	CDC 不建議於懷孕或哺乳期間使用

臨床提醒：懷孕婦女屬於流感重症高風險族群，如確診或高度懷疑流感，應儘早評估並給予適當抗病毒治療。

資料來源：U.S. CDC, Influenza, Access on June 3, 2026

Cinical scenario 4

中年男子確診流感後，服用 Oseltamivir 後病情急速惡化

Day 1
出現症狀



- 發燒、頭痛
- 咳嗽、喉嚨痛
- 肌肉痠痛、疲倦

Day 2
就醫確診



- 快篩結果：Influenza A 陽性
- 醫師診斷：流感
- 處方 Oseltamivir 75 mg
  每次 1 顆，每日 2 次



Day 3
開始服用 Oseltamivir



✅ **按時服藥**
(Oseltamivir 75 mg BID)

症狀未改善
- 持續發燒 38.5°C
- 咳嗽加重
- 全身無力

Day 4
病情惡化



症狀加劇
- 高燒 39.5°C
- 呼吸急促
- 意識不清
- 血壓下降

Day 5
緊急住院



診斷：重症流感併發敗血症
- 血氧下降，需要氧氣治療
- 血壓不穩，需要升壓劑
- 血液檢查：發炎指數升高
- 胸部 X 光：雙側肺浸潤

Baloxavir vs Oseltamivir：

Population-Level Impact and Resistance Risk

Strategy	Reduction in DALYs Lost	Risk of Widespread Resistance
Baloxavir (20% of symptomatic individuals >5 years)	**32.3%**	**26.4%**
Oseltamivir (same population)	**19.5%**	**5.4%**
Baloxavir + Oseltamivir	**33.5%**	**10.2%**

Disability-adjusted life-years (DALYs) Within-Host Influenza Viral Dynamic Model

Baloxavir provides the greatest reduction in influenza burden, but at the cost of a substantially higher risk of resistance emergence and community transmission.

J Infect Dis. 2025 Oct 17;232(Supplement_3):S299-S308

Table 1. Probability of Antiviral-Resistant Variant Emergence Following Treatment With Baloxavir, Oseltamivir, or the Combination of Both

Probability of Drug-Resistant Variant Emergence During Treatment[a]

Patient Age Group	Oseltamivir[b]		Baloxavir[b]		Combination Therapy[c] (Baloxavir Resistance)	
	A(H1N1)	A(H3N2)	A(H1N1)	A(H3N2)	A(H1N1)	A(H3N2)
0–4 y	16.1	7.7	14.1	23.8	6.0	10.1
5–17 y	2.8	2.1	6.6	11.1	2.8	4.7
≥18 y	1.7	0.8	2.2	9.7	0.9	4.1

limiting baloxavir to adults only or using it in a combined regimen with oseltamivir

Derived by scaling published estimates for baloxavir resistance risks by the risk reduction measured in a clinical trial of combination therapy in adults [30].

J Infect Dis. 2025 Oct 17;232(Supplement_3):S299-S308

World Health Organization (WHO) Global Influenza Surveillance and Response System (GISRS)

Table 2. The Proportion of Viruses With Reduced Susceptibility to Neuraminidase Inhibitors and Polymerase Acidic Endonuclease Inhibitor Analyzed by World Health Organization Collaborating Centres

	NAIs, % (No./Total)				PA Endonuclease Inhibitor Baloxavir, % (No./Total)			
Influenza Season	A(H1N1)pdm09	A(H3N2)	B/Victoria	B/Yamagata	A(H1N1)pdm09	A(H3N2)	B/Victoria	B/Yamagata
2017–2018	1.5 (58/3937)	0.4 (21/5591)	1.1 (16/1415)	0.6 (27/4466)	0.2 (7/2969)	0.05 (3/5781)	0 (0/1020)	0.03 (1/3753)
2018–2019	0.7 (69/10 371)	0.07 (4/6060)	0.7 (17/2364)	0.6 (7/1171)	0.3 (21/7015)	0.7 (51/7117)	0 (0/981)	0 (0/793)
2019–2020	1.3 (64/4827)	0.02 (1/5685)	0.6 (31/4820)	0 (0/250)	0.03 (2/5991)	0.2 (8/4431)	0.2 (8/4935)	0 (0/335)
2020–2021	0 (0/206)	0 (0/434)	0.07 (1/1375)	ND	0.6 (1/178)	0 (0/373)	0 (0/693)	ND
2021–2022	0.4 (4/1117)	0.05 (3/6067)	0.3 (7/2714)	ND	0 (0/748)	0.07 (3/4551)	0 (0/1216)	ND
2022–2023	0.5 (36/6913)	0.01 (1/8838)	0.4 (13/3278)	ND	0.06 (2/3388)	0.3 (19/5596)	0.5 (11/2188)	ND

Abbreviations: NAI, neuraminidase inhibitor; ND, not detected; PA, polymerase acidic.

Susceptibility to neuraminidase inhibitors (NAIs) is analyzed using neuraminidase activity-based assays with small synthetic substrates

Susceptibility to baloxavir is determined using replication-based assays.

Proportion of viruses with reduced susceptibility to NAIs and the PA endonuclease inhibitor baloxavir analyzed by WHO CCs since the 2017–2018 season.

J Infect Dis. 2025 Oct 17;232(Supplement_3):S273-S285.

Table 3. The Most Common Amino Acid Substitutions Associated With Antiviral Resistance and Their Impact on Susceptibility In Vitro

		Susceptibility (IC_{50}/EC_{50} Fold Change)					
			NAI[b]				PA Endonuclease Inhibitor[c]
Amino Acid Substitution	Type/Subtype	M2 Blocker[a] Amantadine	Oseltamivir	Zanamivir	Peramivir	Laninamivir	Baloxavir
M2-S31N	A	>100	…	…	…	…	…
NA-H275Y[d]	A(H1N1)pdm09	…	HRI (221–1637)	NI (1–6)	RI/HRI (50–751)	NI (1–2)	…
NA-E119V[d]	A(H3N2)	…	RI/HRI (18–2057)	NI (1–7)	NI (1–3)	NI (3–4)	…
NA-R292K[d]	A(H3N2)	…	HRI (>10 000)	NI/RI/HRI (3–134)	RI/HRI (14–719)	NI (2–3)	…
PA-I38T	A(H3N2)	…	…	…	…	…	20–614

Abbreviations: EC_{50}, 50% effective concentration; HRI, highly reduced inhibition; IC_{50}, 50% inhibitory concentration; NA, neuraminidase; NAI, neuraminidase inhibitor; NI, normal inhibition; PA, polymerase acidic; RI, reduced inhibition.

[a]Assessed by cell culture–based assays. IC_{50} fold changes were calculated compared to wild-type virus.

[b]Assessed by NA inhibition assays. IC_{50} fold changes relative to wild-type virus or type/subtype-specific median values are shown in parentheses.

[c]Assessed by cell culture–based assays. EC_{50} fold changes were calculated compared to matched control virus or type/subtype-specific median values.

[d]Numbering is based on the NA subtype.

J Infect Dis. 2025 Oct 17;232(Supplement_3):S273-S285.

流感季累積檢出克流感（Oseltamivir）抗藥性病毒株之分析結果

2025年第 42週 (2025/10/12– 2025/10/18)

流感型別	檢驗數	病毒抗藥性, n (%)
A (H1N1)	780	59 (7.6%)
A (H3N2)	234	0 (0.0%)
B	179	0 (0.0%)

2024 年第 42 週 (2024/10/13 – 2024/10/19)

流感型別	檢驗數	病毒抗藥性, n (%)
A (H1N1)	415	13 (3.1%)
A (H3N2)	499	2 (0.4%)
B	270	1 (0.4%)

2025 年第 44 週（2025/10/26 - 2025/11/1）

流感型別	檢驗數	病毒抗藥性, n (%)
A (H1N1)	4	0 (0.0%)
A (H3N2)	22	0 (0.0%)
B	1	0 (0.0%)

2023 年第 42 週（2023/10/15 - 2023/10/21）

流感型別	檢驗數(n)	病毒抗藥性, n (%)
		Oseltamivir
A (H1N1)	358	2 (0.6%)
A (H3N2)	675	0
B	24	0

2025年第 45 週（2025/11/2 - 2025/11/8）

流感型別	檢驗數	病毒抗藥性, n (%)
A (H1N1)	7	0 (0.0%)
A (H3N2)	33	0 (0.0%)
B	1	0 (0.0%)

Cinical scenario 5

A Real Scenario... What Should We Do Next?

YESTERDAY

Her husband
72-year-old man

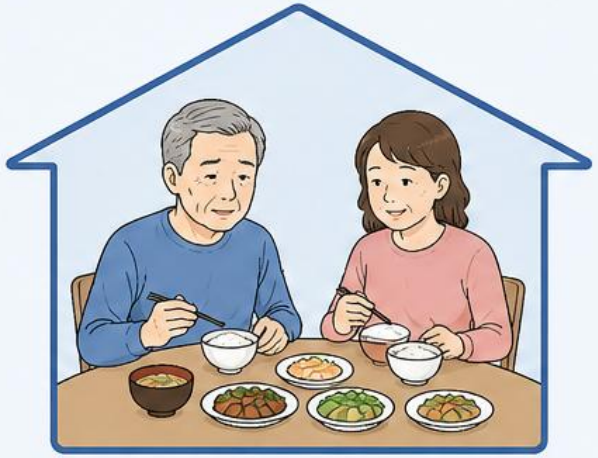


- Fever
- Cough
- Myalgia
- Fatigue

Rapid influenza test
Influenza A (+)

THEY LIVE TOGETHER

Close contact for > 24 hours



Same bedroom

Shared daily activities

TODAY

Her wife
72-year-old woman



I sleep, eat, and live with him... Will I get influenza?

Today
- ✓ No fever
- ✓ No cough
- ✓ No symptoms

Should I take medicine to prevent influenza?

Should she receive post-exposure prophylaxis (PEP)?

Exposure to influenza can happen at home.
The next step: Should we consider antiviral prophylaxis?

Persons exposed to seasonal influenza viruses

Prophylaxis should be administered as early as possible, and within 2 days of exposure.

Table 9.7 Dosing of oseltamivir for post-exposure prophylaxis of seasonal influenza

Age	Body weight	Dose of oseltamivir for post-exposure prophylaxis of seasonal influenza
Adults and those 13 years and over	> 40 kg	75 mg once daily for 10 days
Children from 1 year up to 13 years	10 kg to 15 kg	30 mg once daily for 10 days
	> 15 kg to 23 kg	45 mg once daily for 10 days
	> 23 kg to 40 kg	60 mg once daily for 10 days
	> 40 kg	75 mg once daily for 10 days
Children under 1 year		3 mg/kg once daily for 10 days

Clinical practice guidelines for influenza [Internet]. WHO; 2024.

Persons exposed to seasonal influenza viruses - Oseltamivir

Conditional recommendation against

For asymptomatic persons, who are NOT at extremely high risk of severe illness if they develop influenza and who are exposed to **seasonal influenza viruses** in the prior 2 days, we **suggest not administering oseltamivir** (conditional recommendation, moderate quality evidence).

Reduce the risk of developing laboratory-confirmed influenza by approximately 5%.

- Antiviral post-exposure prophylaxis does not replace vaccination.
- Extremely high-risk patients are considered those patients over 85 years old with or without risk factors for severe disease or younger patients with multiple risk factors.

Clinical practice guidelines for influenza [Internet]. WHO; 2024.

Persons exposed to seasonal influenza viruses - Zanamivir

Conditional recommendation for

For asymptomatic persons, who are at extremely high risk of severe illness if they develop influenza and who are exposed to **seasonal influenza viruses** in the prior 2 days, we **suggest administering zanamivir** (conditional recommendation, moderate quality evidence).



10 mg by inhalation daily for 10 days

- Antiviral post-exposure prophylaxis does not replace influenza vaccination.
- Extremely high-risk patients are considered those patients over 85 years old with or without risk factors for severe disease or younger patients with multiple risk factors.

Clinical practice guidelines for influenza [Internet]. WHO; 2024.

Persons exposed to seasonal influenza viruses - Baloxavir

Conditional recommendation for

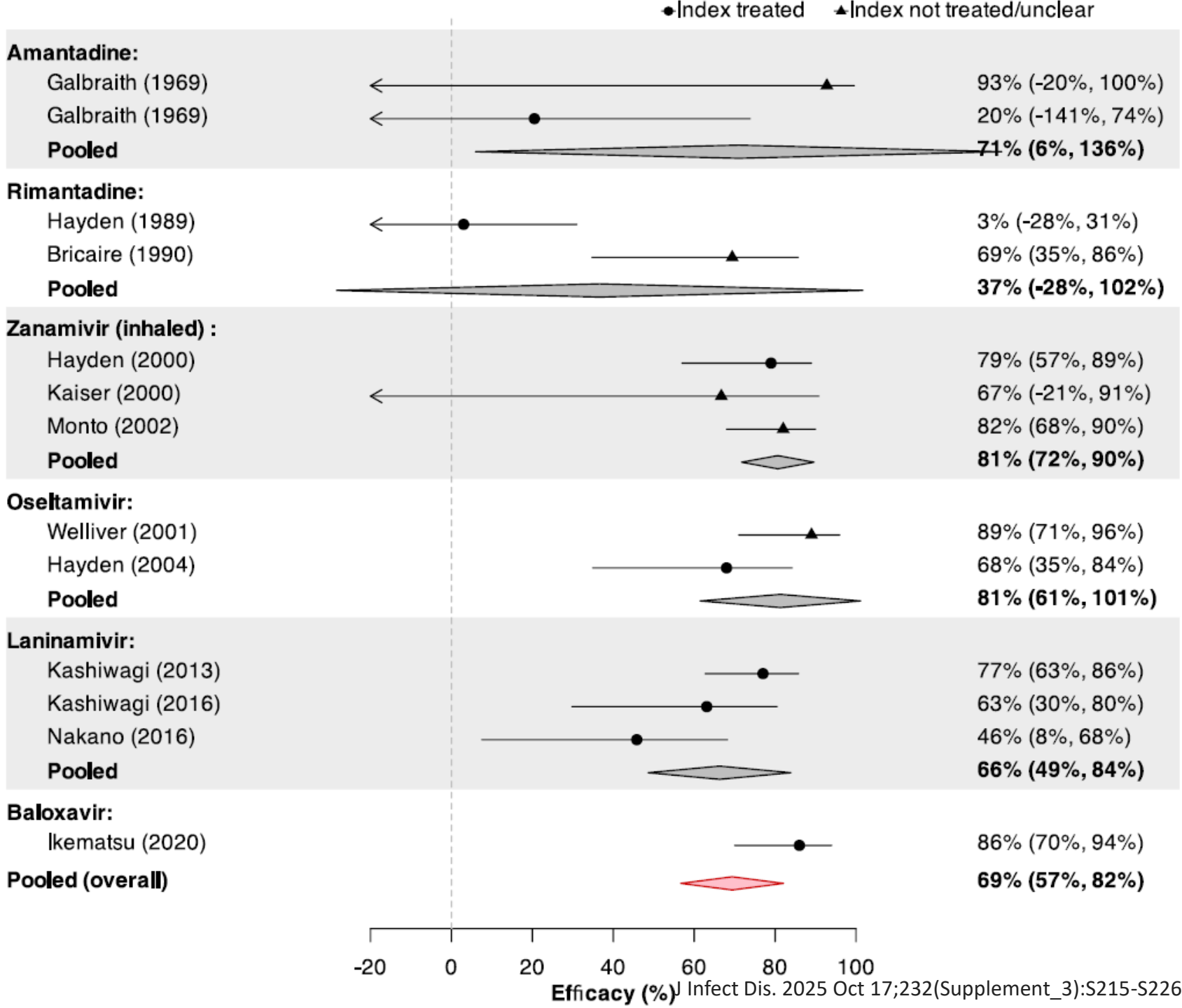
For asymptomatic persons exposed to **zoonotic influenza viruses associated with high mortality in humans or with an unknown risk of causing severe disease** in the prior 2 days, we **suggest administering baloxavir** (conditional recommendation, low-quality evidence).

- Zoonotic influenza A viruses that have l
  in humans when they become infected,
  A(H5N6) virus; and HPAI and LPAI A(H7
- It is likely there will be uncertainty with
  potential clinical consequences or virulence.
- It is likely that there is variable susceptibility of antiviral medications to novel influenza A viruses so *in vitro* and clinical studies will remain necessary.

Body weight	Dose of baloxavir
< 20 kg	2 mg/kg (as suspension)
20 kg to 79 kg	40 mg (tablet)
80 kg and over	80 mg (tablet)

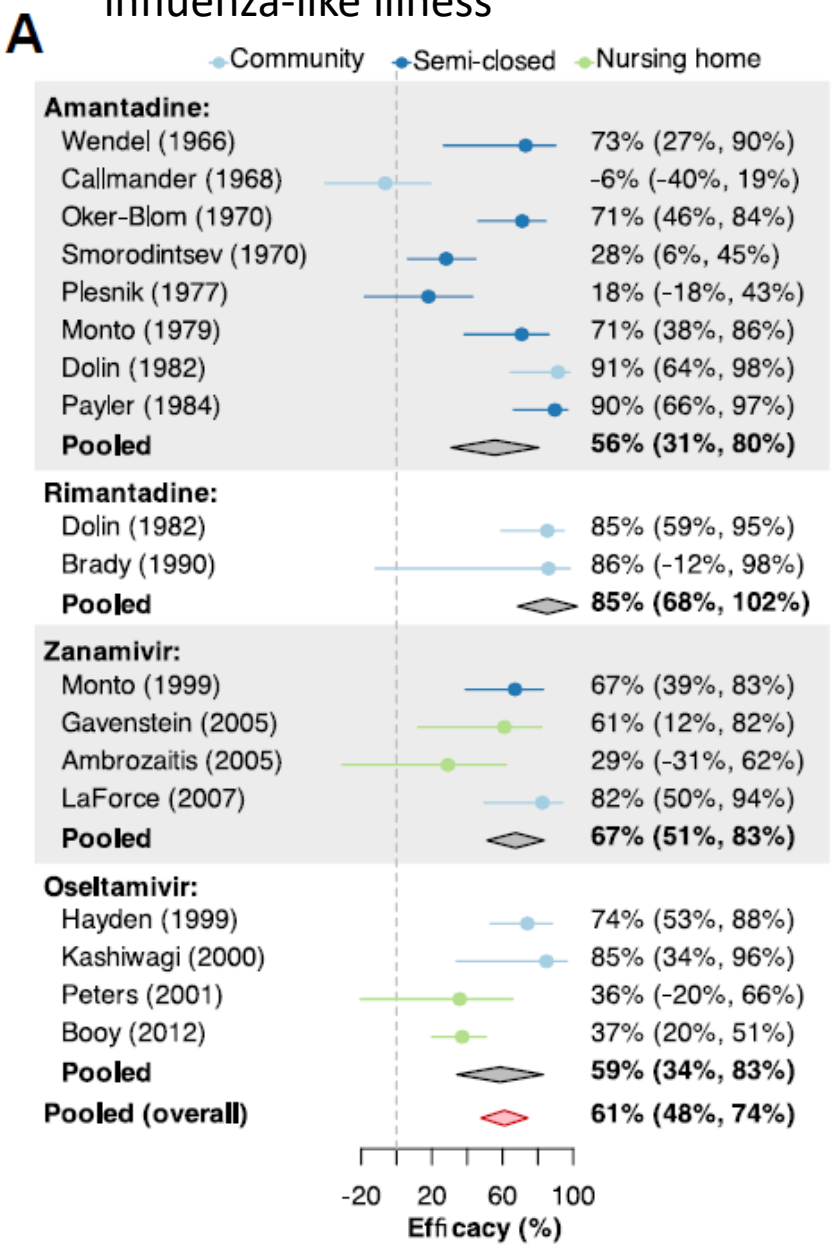
Clinical practice guidelines for influenza [Internet]. WHO; 2024.

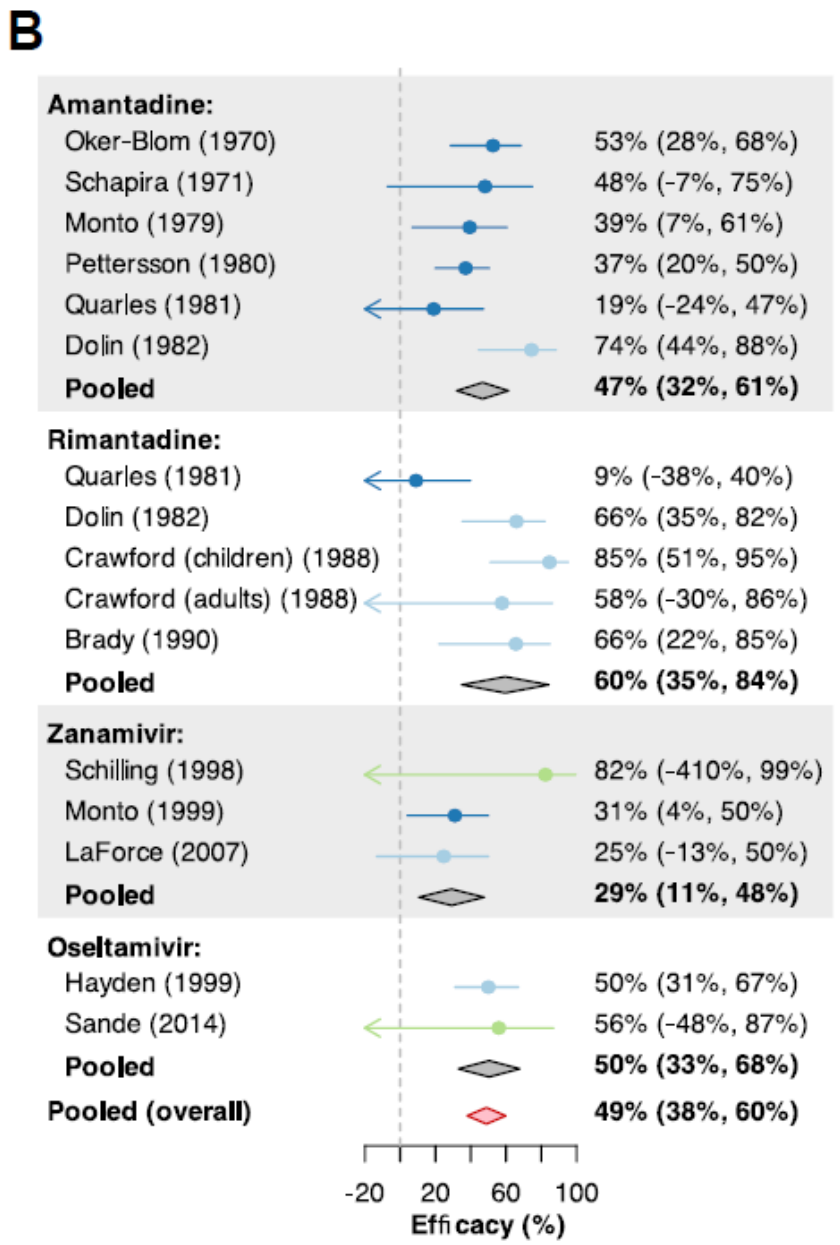
Influenza antivirals for post-exposure prophylaxis

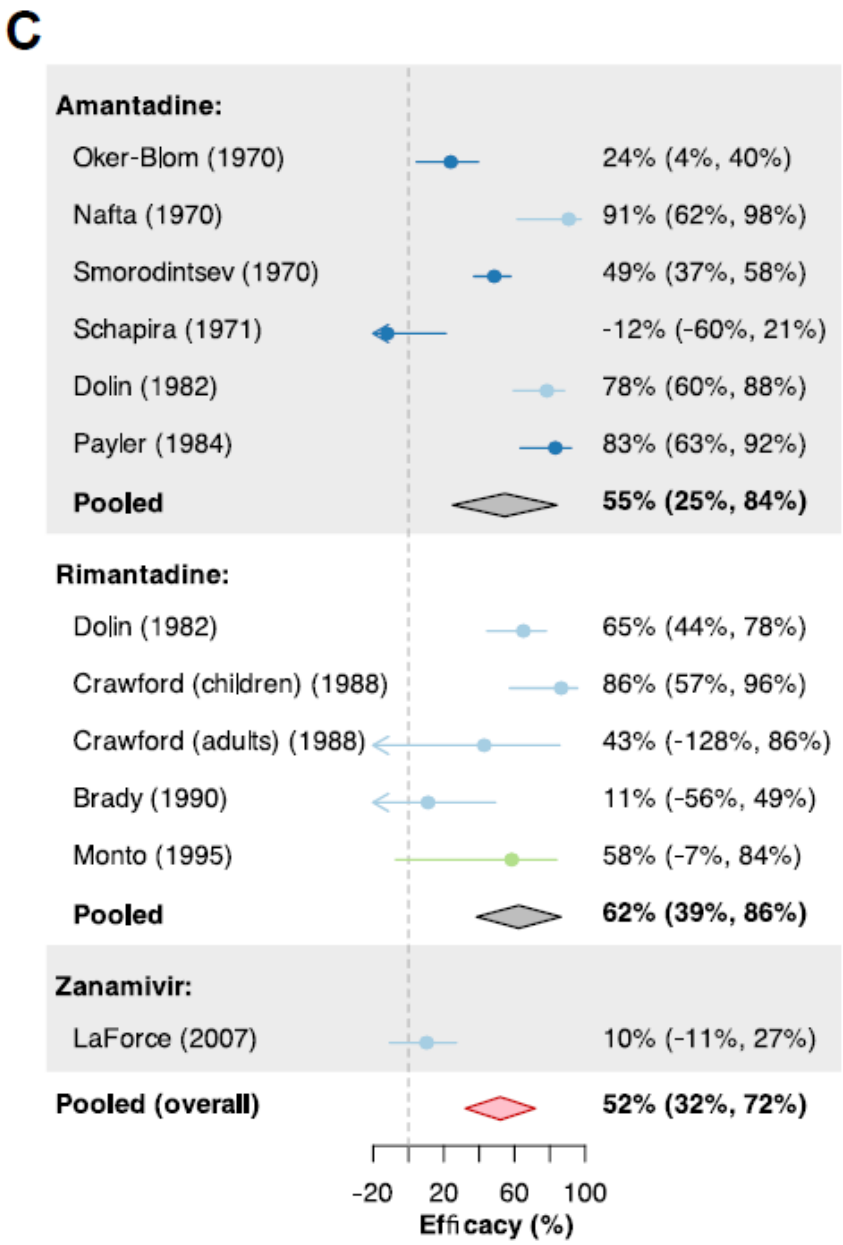


J Infect Dis. 2025 Oct 17;232(Supplement_3):S215-S226

(A) laboratory-confirmed influenza illness, (B) laboratory-confirmed influenza virus infection regardless of symptoms, (C) influenza-like illness







J Infect Dis. 2025 Oct 17;232(Supplement_3):S215-S226

Thanks for your audience

