流感臨床診斷與檢驗

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20260905

流感臨床診斷與檢驗

流感臨床診斷與檢驗

臨床表現

流感臨床診斷與檢驗

- 臨床表現
- 診斷工具
-

流感臨床診斷與檢驗

- 臨床表現
- 診斷工具
- 鑑別診斷

流感臨床診斷與檢驗

臨床表現

診斷工具

鑑別診斷

流感的潛伏期



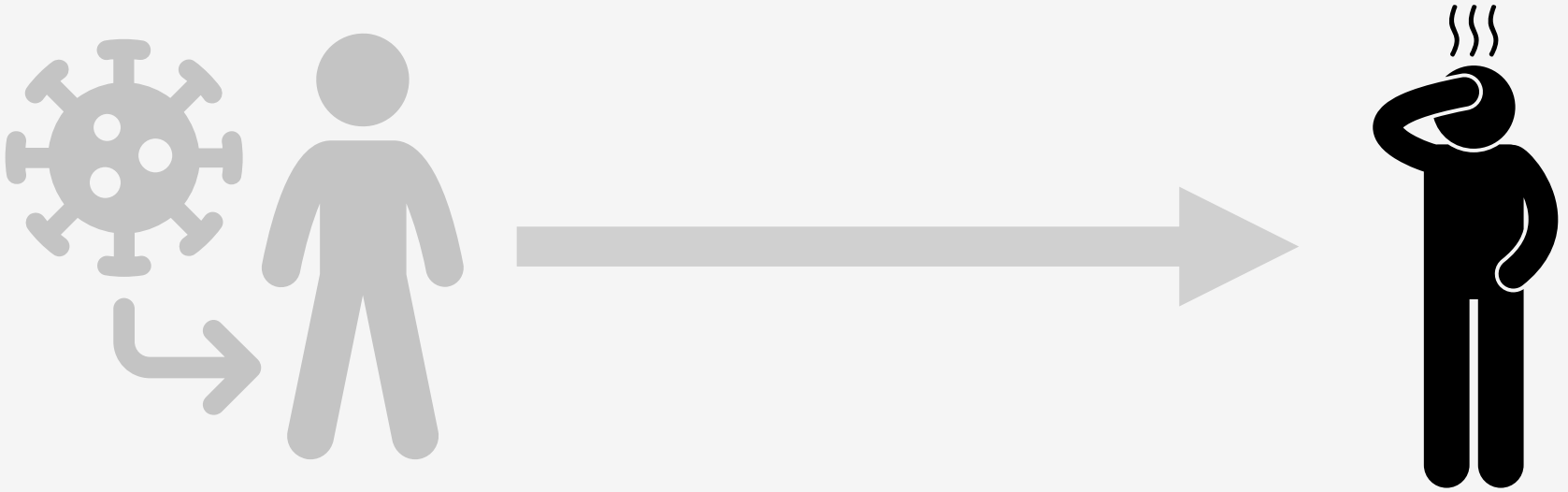
流感的潛伏期



群聚個案的時間間隔

大約是3～4天

流感的潛伏期



流感的臨床表現

-
-

流感的臨床表現

- Uncomplicated

流感的臨床表現

- Uncomplicated
- Complicated

流感的臨床表現

- Uncomplicated
- Complicated

Uncomplicated influenza – Typical symptom

- Respiratory symptom

Uncomplicated influenza – Typical symptom

- Respiratory symptom
- Systemic symptom

Uncomplicated influenza – Typical symptom

- Respiratory symptom
- Systemic symptom
- Non-respiratory symptom

Uncomplicated influenza – Typical symptom

- Respiratory symptom
- Systemic symptom
- Non-respiratory symptom

Respiratory symptom

- Dry cough

Respiratory symptom

- Dry cough
- Severe pharyngeal pain

Respiratory symptom

- Dry cough
- Severe pharyngeal pain
- Nasal obstruction and discomfort

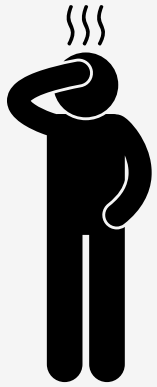
Respiratory symptom

- **Dry cough**
- Severe pharyngeal pain
- Nasal obstruction and discomfort

Uncomplicated influenza – Typical symptom

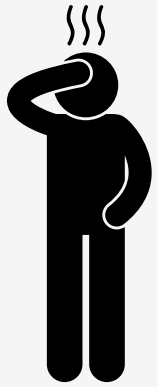
- Respiratory symptom
- Systemic symptom
- Non-respiratory symptom

Systemic symptom



Fever

Systemic symptom

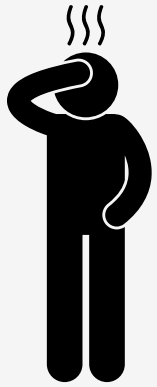


Fever



Chills

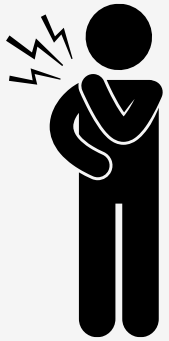
Systemic symptom



Fever

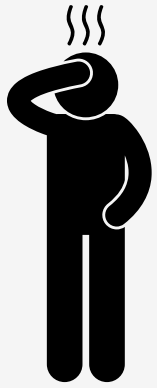


Chills



Myalgia

Systemic symptom



Fever



Chills

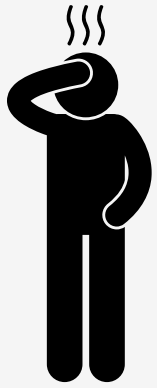


Myalgia



Headache

Systemic symptom



Fever



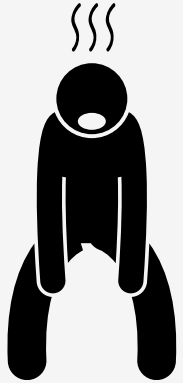
Chills



Myalgia

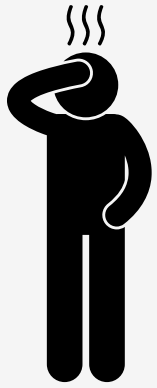


Headache



Malaise

Systemic symptom



Fever



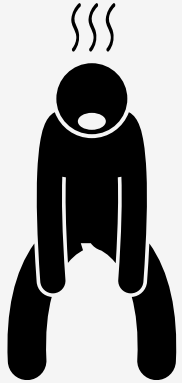
Chills



Myalgia



Headache



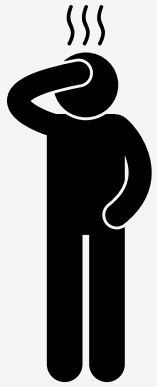
Malaise



Anorexia

Uncomplicated influenza – Typical symptom

Systemic symptom



Fever



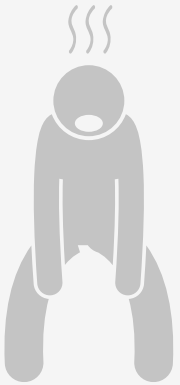
Chills



Myalgia



Headache



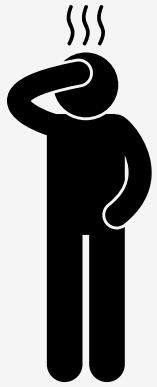
Malaise



Anorexia

Systemic symptom

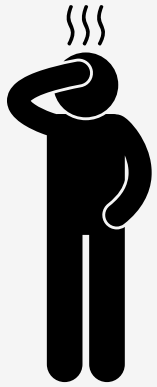
- Abrupt onset



Fever

Systemic symptom

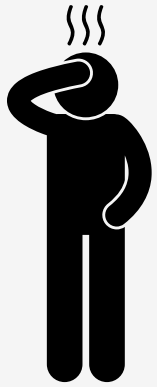
- Abrupt onset
  - 知道明確時間



Fever

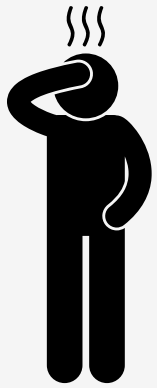
Systemic symptom

- Abrupt onset
  - 知道明確時間
- 37.8 ~ 40.0°C (41.1°C)



Fever

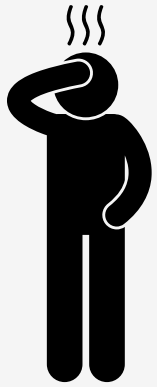
Systemic symptom



Fever

- Abrupt onset
  - 知道明確時間
- 37.8 ~ 40.0°C (41.1°C)
- Highest on D1

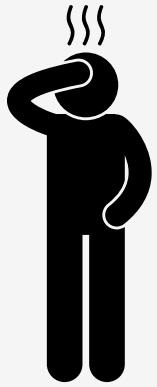
Systemic symptom



Fever

- Abrupt onset
  - 知道明確時間
- 37.8 ~ 40.0°C (41.1°C)
- Highest on D1
  - 0.3~0.6°C lower afterward

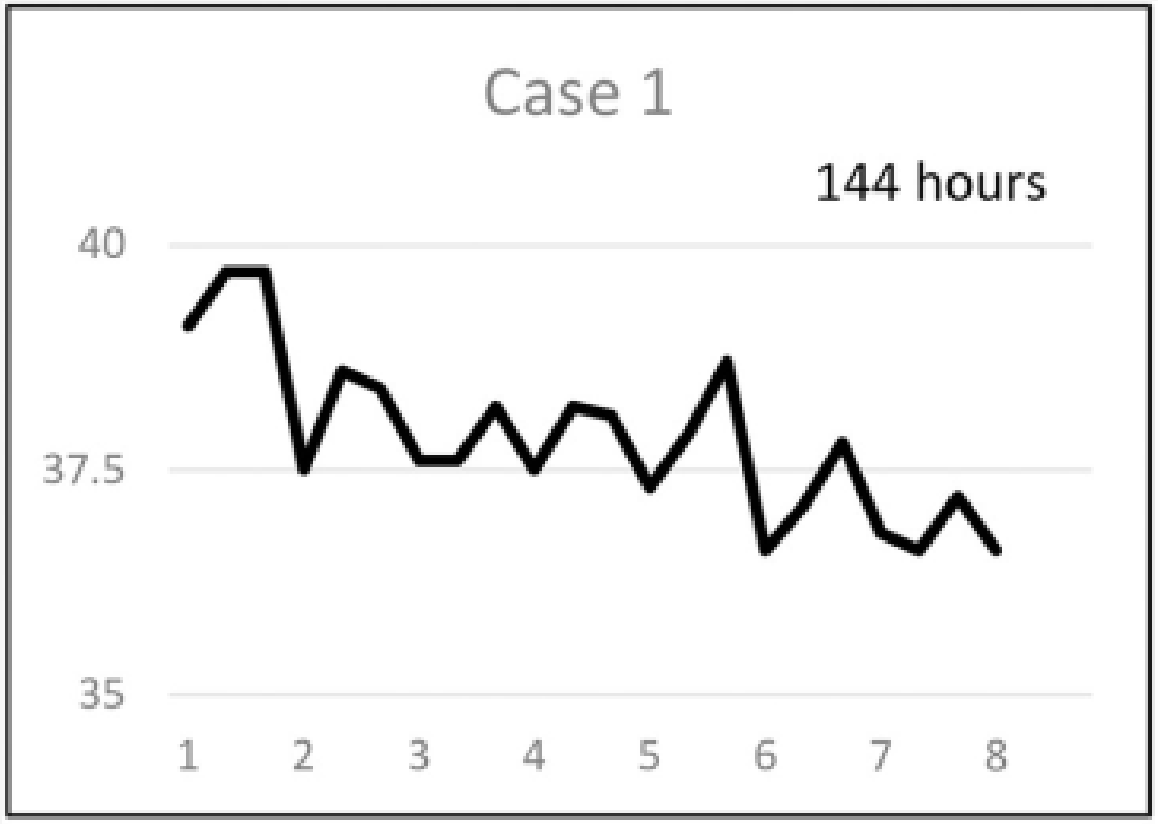
Systemic symptom

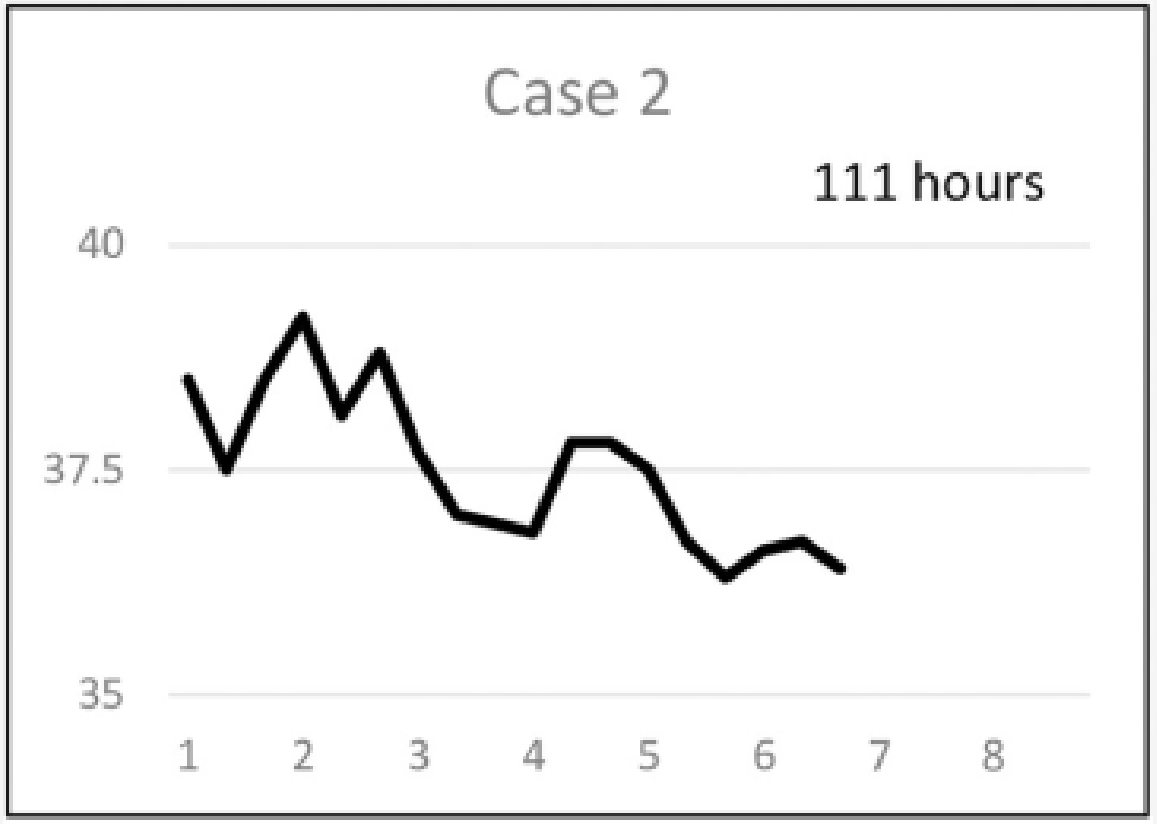


Fever

- Abrupt onset
  - 知道明確時間
- 37.8 ~ 40.0°C (41.1°C)
- Highest on D1
  - 0.3~0.6°C lower afterward
  - Duration: 3 days (4~8 days)

Fever curve of influenza





PLoS ONE 14(11): e0224683

Uncomplicated influenza – Typical symptom

Systemic symptom



Fever



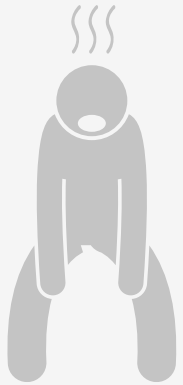
Chills



Myalgia



Headache



Malaise



Anorexia

Systemic symptom

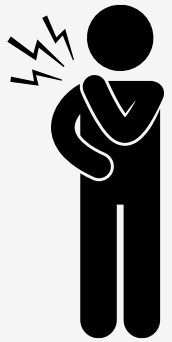
- Most troublesome



Myalgia

Systemic symptom

- Most troublesome
- Relate to height of fever



Myalgia

Systemic symptom

- Range



Myalgia

Systemic symptom

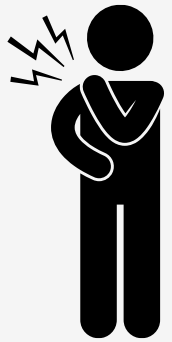
- Range
  - Extremities



Myalgia

Systemic symptom

- Range
  - Extremities
  - Long muscle of back



Myalgia

Systemic symptom

- Range
  - Extremities
  - Long muscle of back
  - Eye muscle



Myalgia

Systemic symptom

- Range
  - Extremities
  - Long muscle of back
  - Eye muscle
    - pain while gazing laterally



Myalgia

Systemic symptom

- Range
  - Extremities
  - Long muscle of back
  - Eye muscle
    - pain while gazing laterally



Myalgia



Uncomplicated influenza – Typical symptom

- Respiratory symptom
- Systemic symptom
- Non-respiratory symptom

Non-respiratory symptom

- Gastrointestinal symptom

Non-respiratory symptom

- Gastrointestinal symptom
  - Vomiting
  - Diarrhea

Non-respiratory symptom

- Gastrointestinal symptom
  - Vomiting
  - Diarrhea
- More in children (10~20%)

Uncomplicated influenza – Atypical symptom

Uncomplicated influenza – Atypical symptom

- Milder systemic symptom

Uncomplicated influenza – Atypical symptom

- Milder systemic symptom
  - No fever
  - No myalgia

Uncomplicated influenza – Atypical symptom

- Milder systemic symptom
  - No fever
  - No myalgia
- Only generalized symptom

Uncomplicated influenza – Atypical symptom

- Milder systemic symptom
  - No fever
  - No myalgia
- Only generalized symptom
  - Anorexia/Malaise/Weakness
  - Dizziness

Uncomplicated influenza – Atypical symptom

- Milder systemic symptom
  - No fever
  - No myalgia
- Only generalized symptom
  - Anorexia/Malaise/Weakness
  - Dizziness
  - Altered mental status (Older adults)

Who would have Uncomplicated influenza – Atypical symptom

-
-

Who would have Uncomplicated influenza – Atypical symptom

- Age > 65 years old

Who would have Uncomplicated influenza – Atypical symptom

- Age > 65 years old
- Immunocompromised

Some respiratory symptom would persist after systemic symptom diminish

Some respiratory symptom would persist after systemic symptom diminish

- Recurrent cough
- Hoarseness
- Dry/sore throat

Some respiratory symptom would persist after systemic symptom diminish

- Recurrent cough
- Hoarseness
- Dry/sore throat

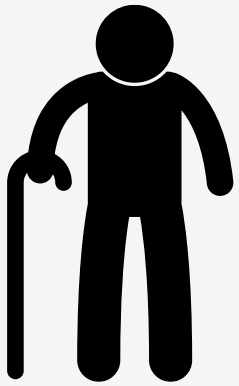
不是變嚴重

流感的臨床表現

- Uncomplicated
- Complicated

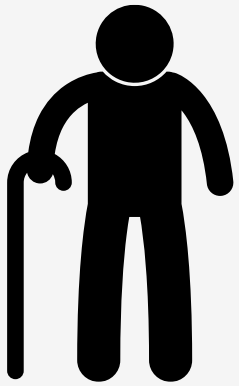
Risk of complication of influenza

Risk of complication of influenza



≥ 65 y/o

Risk of complication of influenza



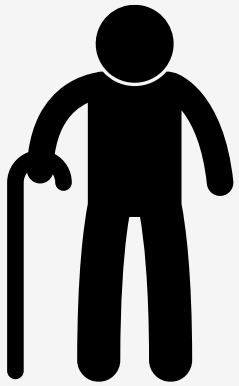
≥ 65 y/o



< 5 y/o

< 2 y/o

Risk of complication of influenza



≥ 65 y/o



< 5 y/o

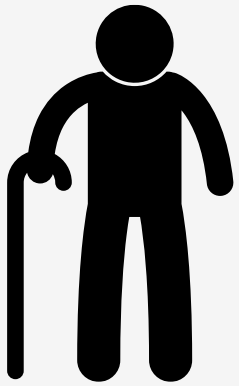
< 2 y/o



Pregnant

/2wk postpartum

Risk of complication of influenza



≥ 65 y/o



< 5 y/o

< 2 y/o



Pregnant

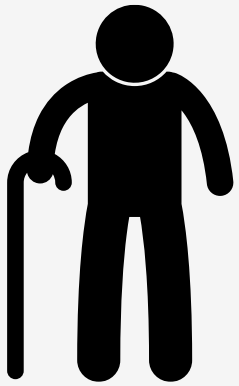
/2wk postpartum



Nursing home

Long term care

Risk of complication of influenza



≥ 65 y/o



< 5 y/o

< 2 y/o



Pregnant
/2wk postpartum



Nursing home
Long term care



Medical
condition

Risk of complication of influenza



≥ 65 y/o



< 5 y/o

< 2 y/o



Pregnant
/2wk postpartum



Nursing home
Long term care



Medical condition

Medical condition associated with complication of influenza

- Neurological and neurodevelopmental conditions
- Asthma
- Chronic lung disease
- Heart disease
- Kidney disorder
- Liver disorder
- Endocrine disorders
- Metabolic disorder
- BMI ≥ 40
- Blood disorder
- Weakened immune system
- Children<19 y/o under long-term ASA

Complication of influenza

-
-

Complication of influenza

- Respiratory

Complication of influenza

- Respiratory
- Extrapulmonary

Complication of influenza

- Respiratory
- Extrapulmonary

Respiratory complication of influenza

- Pneumonia

Symptom of pneumonia

- Cough with dyspnea
- Tachypnea
- Hypoxia
- Fever

Type of pneumonia in influenza

-
-
-

Type of pneumonia in influenza

- Primary influenza viral pneumonia

Type of pneumonia in influenza

- Primary influenza viral pneumonia
- Secondary bacterial pneumonia

Type of pneumonia in influenza

- Primary influenza viral pneumonia
- Secondary bacterial pneumonia
- Mixed viral and bacterial pneumonia

Type of pneumonia in influenza

- **Primary influenza viral pneumonia**
  - Persistent fever and symptom after 3-5 days of symptom

Type of pneumonia in influenza

- **Secondary bacterial pneumonia**
  - Improvement of influenza symptom
  - Relapse of fever and cough with purulent sputum

Type of pneumonia in influenza

- **Mixed viral and bacterial pneumonia**
  - Gradual progression
  - or Transient improvement followed by worsening

Complication of influenza

- Respiratory
- Extrapulmonary

Extrapulmonary complication of influenza

- Cardiac
- Central nervous system
- Myositis and rhabdomyolysis
- Multisystem organ failure
- Concomitant infection

Extrapulmonary complication of influenza

- Cardiac
- Central nervous system
- Myositis and rhabdomyolysis
- Multisystem organ failure
- Concomitant infection

Extrapulmonary complication of influenza

- **Cardiac**
  - Myocardial infarction
  - Myocarditis/Pericarditis

Extrapulmonary complication of influenza

- **Central nervous system**
  - Guillain-Barre syndrome

Guillain-Barre syndrome

- Clinical presentation
  - Progressive and symmetric muscle weakness
  - Absent or depressed deep tendon reflexes

Guillain-Barre syndrome

- Clinical presentation
  - Progressive and symmetric muscle weakness
  - Absent or depressed deep tendon reflexes
- Incidence of GBS after influenza
  - 30 days: 16.64 (95% CI: 9.37-29.54)
  - 90 days: 7.35 (95% CI: 4.36-12.38)

臨床表現

- 在流感流行期，臨床診斷的正確率高
- Uncomplicated influenza中，全身症狀，如發燒和肌肉痠痛等，是流感的特色
- Influenza complication中，肺炎是最常見的併發症，如果病程超出預期，要特別注意

流感臨床診斷與檢驗

臨床表現

診斷工具

鑑別診斷

Case



42 years old

Case



42 years old

Cough with sputum and rhinorrhea for one week
Fever with chillness for 4 days

Case



42 years old

Cough with sputum and rhinorrhea for one week
Fever with chillness for 4 days
- Diarrhea


Portable Chest AP
L

Case

42 years old

法定傳染病通報送檢檢驗報告
通報疾病: SARS-CoV-2病毒檢測
檢體種類: 鼻咽拭子/咽喉拭子
病原體檢驗方法:螢光定量聚合酶連鎖反應(real-time PCR)
檢驗結果: 陰性
綜合檢驗結果: 陰性
檢驗單位：國立成功大學醫學院附設醫院

Case



42 years old

法定傳染病通報送檢檢驗報告
通報疾病: SARS-CoV-2病毒檢測
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檢驗單位：國立成功大學醫學院附設醫院

Influenza virus type A+B antigen(酵素免疫法)(快診-流行感冒病毒A+B型抗原檢驗(酵素免疫法))
Influenza virus type A antigen Negative
Influenza virus type B antigen Negative

排除流感？

流感診斷工具

-
-
-
-

流感診斷工具

- Why to test

流感診斷工具

- Why to test
- Whom to test

流感診斷工具

- Why to test
- Whom to test
- What to test

流感診斷工具

- Why to test
- Whom to test
- What to test
- How to test

流感診斷工具

- Why to test
- Whom to test
- What to test
- How to test

Why to test

- Reduce unnecessary testing for other etiologies

Why to test

- Reduce unnecessary testing for other etiologies
- Reduce inappropriate antibiotic use

Why to test

- Reduce unnecessary testing for other etiologies
- Reduce inappropriate antibiotic use
- Improve the effectiveness of infection prevention and control measures

Why to test

- Reduce unnecessary testing for other etiologies
- Reduce inappropriate antibiotic use
- Improve the effectiveness of infection prevention and control measures
- Increase the appropriate use of antiviral medications

不能因為要等檢驗

而延遲抗病毒藥使用

流感診斷工具

- Why to test
- Whom to test
- What to test
- How to test

Principle about Whom to test

Principle about Whom to test

- If result will influence management

Principle about Whom to test

- If result will influence management
- Public health activity

Principle about Whom to test

- If result will influence management
- Public health activity

Principle about Whom to test

- If result will influence management
  - Antiviral or antimicrobial agents

Principle about Whom to test

- If result will influence management
  - Antiviral or antimicrobial agents
  - Further diagnostic evaluation

Principle about Whom to test

- If result will influence management
  - Antiviral or antimicrobial agents
  - Further diagnostic evaluation
  - Prophylaxis for high risk contacts

Principle about Whom to test

- If result will influence management
  - Antiviral or antimicrobial agents
  - Further diagnostic evaluation
  - Prophylaxis for high risk contacts
  - Infection control intervention

Principle about Whom to test

- If result will influence management
- Public health activity

Principle about Whom to test

- Public health activity
  - Interventions for outbreak management

Strategy about whom to test is based on the circulation of influenza

Strategy about whom to test is based on the circulation of influenza

- Influenza is circulating
- Influenza is not circulation

Strategy about whom to test is based on the circulation of influenza

- Influenza is circulating
- Influenza is not circulation

Influenza is circulating

- Present influenza-like illness
  - Immunocompromised
  - high risk of complication

Influenza is circulating

- Present influenza-like illness
  - Immunocompromised
  - high risk of complication
- Acute respiratory symptoms
  - Exacerbation of chronic medical condition
  - Influenza complication

Influenza is circulating

- Present influenza-like illness
  - Immunocompromised
  - high risk of complication
- Acute respiratory symptoms
  - Exacerbation of chronic medical condition
  - Influenza complication
- Hospitalized patients
  - Acute respiratory symptoms
  - Exacerbations of chronic medical condition

流行期間

有風險/症狀惡化可檢驗

Strategy about whom to test is based on the circulation of influenza

- Influenza is circulating
- Influenza is not circulation

Influenza is not circulating

- Relevant epidemiologic exposure

Influenza is not circulating

- Relevant epidemiologic exposure
  - Exposure to person with influenza

Influenza is not circulating

- Relevant epidemiologic exposure
  - Exposure to person with influenza
  - Outbreak of respiratory illness of uncertain cause

Influenza is not circulating

- Relevant epidemiologic exposure
  - Exposure to person with influenza
  - Outbreak of respiratory illness of uncertain cause
  - Recent travel in an area with influenza activity

非流行期間

要有曝觸才要驗

流感診斷工具

- Why to test
- Whom to test
- What to test
- How to test

What to test

-
-
-

What to test

- Molecular assay

What to test

- Molecular assay
- Antigen detection assay

What to test

- Molecular assay
- Antigen detection assay
- Others

What to test

- Molecular assay
- Antigen detection assay
- Others

What to test

Molecular assay is preferred if available

Molecular assay is preferred if available

- High sensitivity
- High specificity

What to test

Molecular assay is preferred if available

-
-
-

Molecular assay is preferred if available

- Conventional RT-PCR

Molecular assay is preferred if available

- Conventional RT-PCR
- Rapid molecular tests

Molecular assay is preferred if available

- Conventional RT-PCR
- Rapid molecular tests
- Multiplex RT-PCR

Molecular assay is preferred if available

- Conventional RT-PCR
- Rapid molecular tests
- Multiplex RT-PCR

Conventional RT-PCR

- Distinguish influenza A and B

Conventional RT-PCR

- Distinguish influenza A and B
- Influenza A subtype

Conventional RT-PCR

- Distinguish influenza A and B
- Influenza A subtype

- Turnaround time: 1-8 hours

Rapid molecular tests

- Distinguish influenza A and B

Rapid molecular tests

- Distinguish influenza A and B
- No influenza A subtype

Rapid molecular tests

- Distinguish influenza A and B
- No influenza A subtype

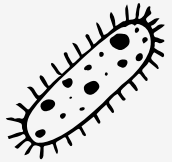
- Turnaround time: 15~30 min

Multiplex RT-PCR

- Several pathogens detection

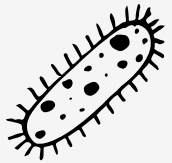
Filmarray respiratory panel





Filmarray respiratory panel



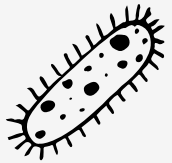


- Adenovirus
- Human Rhinovirus/ Enterovirus
- Influenza virus
- Respiratory syncytial virus
- Parainfluenza
- Human metapneumovirus
- Coronavirus
  - SARS-CoV-2

Filmarray respiratory panel



- Adenovirus
- Human Rhinovirus/ Enterovirus
- Influenza virus
- Respiratory syncytial virus
- Parainfluenza
- Human metapneumovirus
- Coronavirus
  - SARS-CoV-2



- Chlamydia pneumoniae
- Bordetella pertussis
- Bordetella parapertussis
- Mycoplasma pneumoniae

Multiplex RT-PCR

- 貴又容易被核刪

Multiplex RT-PCR

- 貴又容易被核刪
- 哪些族群建議檢測

Multiplex RT-PCR

- 貴又容易被核刪
- 哪些族群建議檢測
  - Immunocompromised

Multiplex RT-PCR

- 貴又容易被核刪
- 哪些族群建議檢測
  - Immunocompromised
  - Requiring hospitalization

Multiplex RT-PCR

- 貴又容易被核刪
- 哪些族群建議檢測
  - Immunocompromised
  - Requiring hospitalization
  - During period of influenza and COVID-19

What to test

- Molecular assay
- Antigen detection assay
- Others

Antigen detection assay is alternative

- Low to moderate sensitivity
- High specificity

Antigen detection assay is alternative

- Low to moderate sensitivity 50~70%
- High specificity

Antigen detection assay is alternative

- Interpret with caution

Antigen detection assay is alternative

- Interpret with caution
  - False negative result are common

Antigen detection assay is alternative

- Interpret with caution
  - False negative result are common
- Not used for hospitalized

Antigen detection assay is alternative

- Need molecular test recheck

Antigen detection assay is alternative

- Need molecular test recheck
  - Negative Ag in high community influenza, and indication for confirmation

Antigen detection assay is alternative

- Need molecular test recheck
  - Negative Ag in high community influenza, and indication for confirmation
  - Positive Ag in low community influenza

Antigen detection assay is alternative

- Need molecular test recheck
  - Negative Ag in high community influenza, and indication for confirmation
  - Positive Ag in low community influenza
  - Recent exposure to pigs or poultry

What to test

- Molecular assay
- Antigen detection assay
- Others

Others

- Viral culture

Others

- Viral culture
- Serological tests

Others

- Viral culture: public surveillance
- Serological tests

Others

- Viral culture: public surveillance
- Serological tests: not routine test

流感診斷工具

- Why to test
- Whom to test
- What to test
- How to test

不就這樣採?



How to test

- 檢測時間點

How to test

- 檢測時間點
- 採哪裡

How to test

- 檢測時間點
- 採哪裡
- 用什麼採檢

檢測時間點

- Within 4 days of symptom onset

採哪裡

- 首選為Nasopharynx

採哪裡

- 首選為Nasopharynx
- 其次是Nasal加上Throat swab

採哪裡

- 首選為Nasopharynx
- 其次是Nasal加上Throat swab
  - 若非要選一個，就選nasal swab

採哪裡

- Greater and prolonged respiration in lower respiratory tract

採哪裡

- Greater and prolonged respiration in lower respiratory tract
- Ventilated patients with negative upper respiratory tract
  - Endotracheal aspirate
  - Bronchoalveolar lavage fluid

用什麼採

https://www.thermofisher.com/order/catalog/product/R12566

用什麼採

- Flocked swab

https://www.thermofisher.com/order/catalog/product/R12566

用什麼採

- Flocked swab



https://www.thermofisher.com/order/catalog/product/R12566

Case



42 years old

法定傳染病通報送檢檢驗報告
通報疾病: SARS-CoV-2病毒檢測
檢體種類: 鼻咽拭子/咽喉拭子
病原體檢驗方法:螢光定量聚合酶連鎖反應(real-time PCR)
檢驗結果: 陰性
綜合檢驗結果: 陰性
檢驗單位：國立成功大學醫學院附設醫院

Influenza virus type A+B antigen(酵素免疫法)(快診-流行感冒病毒A+B型抗原檢驗(酵素免疫法))
Influenza virus type A antigen Negative
Influenza virus type B antigen Negative

Case

42 years old

Rapid molecular test-Flu A
Positive

Viral nucleic acid detection-influenza A virus(病毒核酸檢驗-A型流感病毒)
Positive (H1),請確認是否通報流感併發重症

診斷工具

- 當檢驗結果會影響後續決策或是要進行流病調查時，才需要進行流感的檢測
- 流感診斷以核酸檢測為原則，若是用抗原檢測，則需要小心判讀
- 在病程早期進行檢測的陽性率較高，最好是取鼻咽的檢體

流感臨床診斷與檢驗

臨床表現

診斷工具

鑑別診斷

Case



26 years old

- Rheumatoid arthritis

Case



26 years old

Cough since last night

- Fever
- Headache
- Chest pain
- Nausea/vomiting, diarrhea

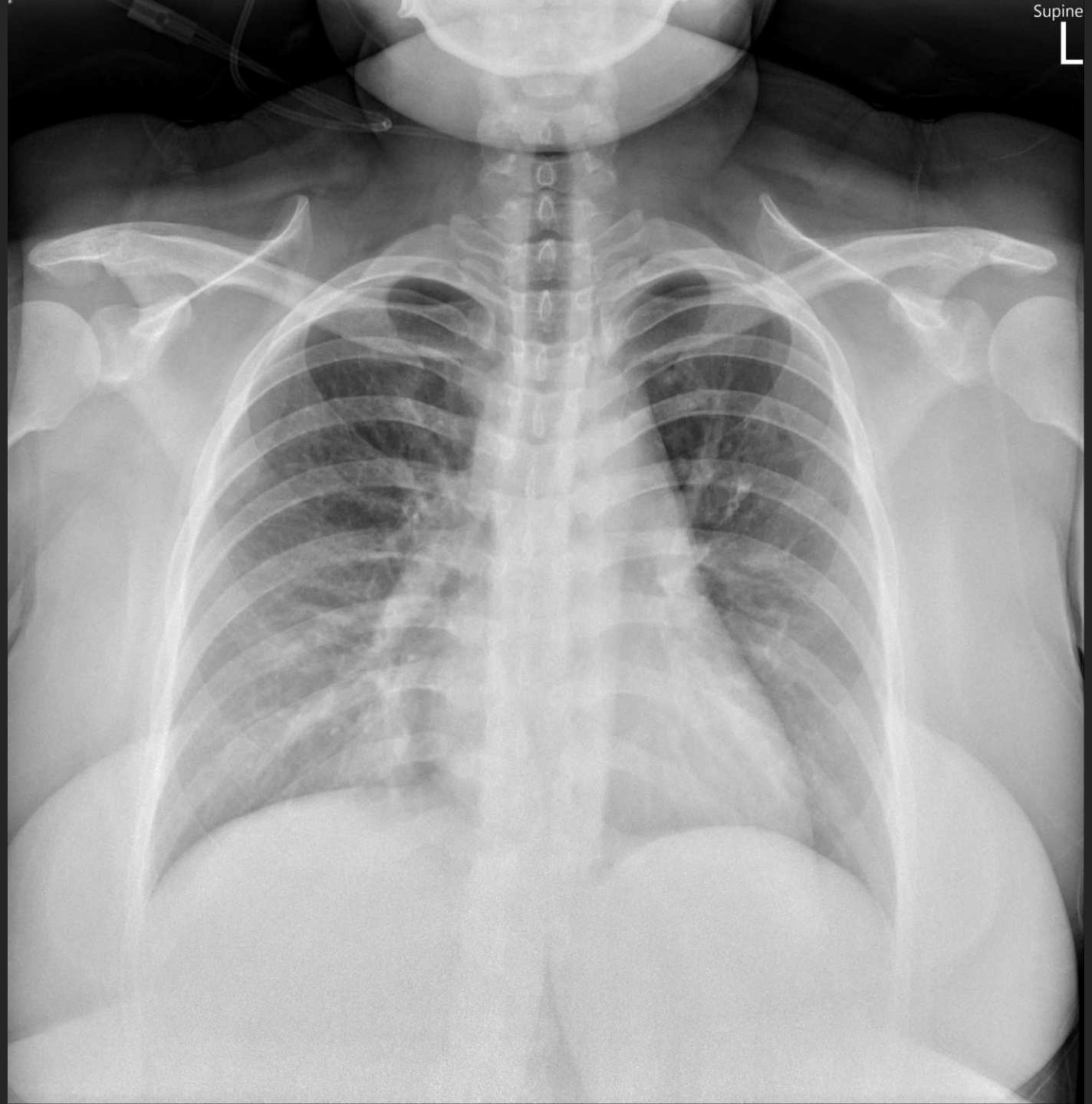
Case



26 years old

Cough since last night
- Fever
- Headache
- Chest pain
- Nausea/vomiting, diarrhea

Dyspnea with desaturation


Supine
L

是什麼診斷？

何時要考慮其它診斷

何時要考慮其它診斷

- Signs and symptom for pneumonia

何時要考慮其它診斷

- Signs and symptom for pneumonia
- Abnormal lung auscultation

何時要考慮其它診斷

- Signs and symptom for pneumonia
- Abnormal lung auscultation
- Persistent fever > 3~5 days

何時要考慮其它診斷

- Signs and symptom for pneumonia
- Abnormal lung auscultation
- Persistent fever > 3~5 days
- Fever after initial defervescence

何時要考慮其它診斷

- Signs and symptom for pneumonia
- Abnormal lung auscultation
- Persistent fever > 3~5 days
- Fever after initial defervescence
- Worsening symptom

其它鑑別診斷

其它鑑別診斷

- Respiratory viral infection

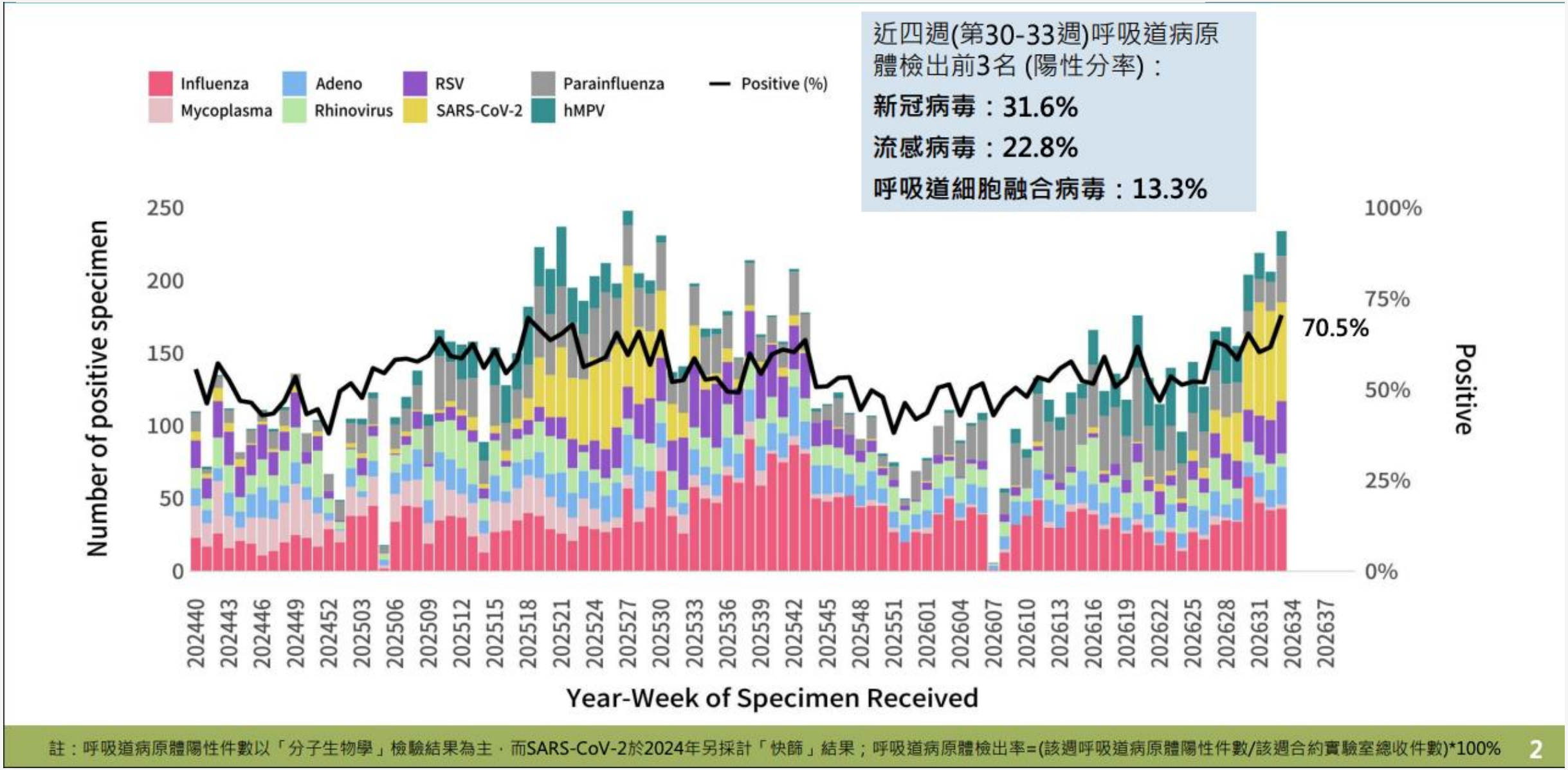
其它鑑別診斷

- Respiratory viral infection
- Bacterial pneumonia

其它鑑別診斷

- Respiratory viral infection
- Bacterial pneumonia

現在社區有許多病毒細菌在流行



註：呼吸道病原體陽性件數以「分子生物學」檢驗結果為主，而SARS-CoV-2於2024年另採計「快篩」結果；呼吸道病原體檢出率=(該週呼吸道病原體陽性件數/該週合約實驗室總收件數)*100%

cdc.gov.tw

其它鑑別診斷

Respiratory viral infection

- COVID-19
- Respiratory syncytial virus
- Common cold
- Human metapneumovirus
- MERS-CoV
- Novel influenza A virus infection

COVID-19

- Difficult to distinguish

COVID-19

- Difficult to distinguish
- More common in COVID-19
  - Fatigue
  - Diarrhea
  - Olfactory disorders
  - Taste disorders

COVID-19

- Diagnosed by antigen / PCR

Respiratory syncytial virus

- More common in children

Respiratory syncytial virus

- More common in children
- Also important in
  - Older adults
  - Immunocompromised

Common cold

- Mild symptom than influenza
- Nasal congestion milder
- Low risk of complication

Common cold

- Several virus
  - Rhinovirus
  - Parainfluenza
  - Common cold coronavirus

Common cold

- Diagnosis by clinical manifestation

Human metapneumovirus

- Mild, self-limited respiratory infection
  - Cough
  - Nasal congestion
  - Rhinorrhea
  - Dyspnea
  - Hoarseness
  - Wheezing

Human metapneumovirus

- Diagnosed by PCR test

MERS-CoV

- History of Arabian peninsula

MERS-CoV

- High risk of complication
  - Acute kidney injury
  - Disseminated intravascular coagulation

MERS-CoV

- Diagnosis by PCR

Novel influenza A virus

- Symptom not distinguish from seasonal influenza A

Novel influenza A virus

- Exposure history
- Travel history

Novel influenza A virus

- Exposure to
  - Poultry
  - Pigs
  - Ill person with animal associated influenza

Novel influenza A virus

- Travel to region with local transmission
  - H7N9: China
  - H5N1: Asia, Middle east

Novel influenza A virus

- Diagnosis by PCR

相關接觸史要去考慮新型A型流感

國內首例本土H7新型A型流感病例，痰液基因定序結果為H7N7，個案已於今日解除隔離，並出院返家休養

疾病管制署(下稱疾管署)今(3)日公布，日前檢出之國內首例本土人類感染H7亞型新型A型流感個案，經臨床治療後，個案病況持續好轉，且已連續檢驗均陰性，已於今日解除隔離並出院返家休養，相關接觸者將持續健康監測至4月6日。

疾管署表示，疾管署今日於個案3月27日採集的痰液檢體中，基因定序出型別為H7N7流感病毒，屬低病原性禽流感病毒(LPAI)，未發現抗藥性突變，對抗病毒藥物仍具敏感性，民眾無需恐慌。疾管署亦於今日再度依據國際衛生條例(IHR)，透過IHR聯繫窗口完成通報此例國內首例本土H7N7新型流感病例至世界衛生組織。

疾管署說明，全球自1959年以來已報告逾90例H7N7人類病例，並集中於2003年之前，以歐洲為主，其中僅1例死亡，絕大多數為結膜炎輕症，其後2013年義大利曾報告3例亦為結膜炎輕症，2013年後無新增人類病例，但持續於禽鳥傳播及演化，我國首例之H7基因分析顯示已與10-20年前的歐洲人類病例H7有顯著差異，而與國內多年來野鳥曾檢出的H7最相近，且未發現禽傳人能力增強之相關突變，研判屬於偶發事件，評估風險可控。

疾管署再次提醒，禽畜業相關工作者應遵守防疫規範，落實穿戴防護裝備及作業後清消。如出現呼吸道或眼部症狀，應儘速就醫並主動告知動物接觸史。民眾亦應遵守「5要6不」原則，避免接觸或購買不明來源禽畜產品，共同維護公共衛生安全。更多資訊可至疾管署全球資訊網(https://www.cdc.gov.tw/)，或撥打防疫專線1922洽詢。

Bacterial pneumonia

- Complication of influenza
- Infection alone

Bacterial pneumonia

- Complication of influenza
  - Initial improvement
  - Relapse of fever and productive cough

Bacterial pneumonia

- Fever
- Dyspnea
- Cough
- Sputum production

Case

26 years old

Influenza virus type A+B antigen(酵素免疫法)(快診-流行感冒病毒A+B型抗原檢驗(酵素免疫法))
Influenza virus type A antigen Positive
請確認是否通報流感併發重症
Influenza virus type B antigen Negative

SARS-CoV-2 Ag（公費快篩-有症狀/醫用）
Positive

鑑別診斷

- 各種會造成呼吸道感染的病原體都要考慮
  - Common cold以臨床診斷就可以
  - MERS-CoV和新型A流則需要利用核酸作診斷
- 除了病毒，細菌性肺炎也是需要思考

回到實際面

流感的診斷不容易

診斷呼吸道病毒感染時的考量

診斷呼吸道病毒感染時的考量

- 是否需要進一步介入

診斷呼吸道病毒感染時的考量

- 是否需要進一步介入
  - 是否需要治療(重症風險)

診斷呼吸道病毒感染時的考量

- 是否需要進一步介入
  - 是否需要治療(重症風險)
  - 是否需要預防傳播

診斷呼吸道病毒感染時的考量

- 是否需要進一步介入
  - 是否需要治療(重症風險)
  - 是否需要預防傳播

是否需要進一步介入

- 是否需要治療(重症風險)
  - 流感
  - COVID-19

是否需要進一步介入

- 是否需要預防傳播
  - 更強調手部衛生和呼吸道禮節的措施

Take home message

- 在只有流感流行時，臨床診斷的正確率可達80~90%，但現在有許多病毒的存在，會影響診斷準確性。
- 流感除了呼吸道症狀，全身性的症狀會特別明顯，像是發燒、頭痛、痠痛等
- 在流感非流行期，有相關的曝露史，再進行流感相關檢測
- 流感的檢測以核酸為原則，使用抗原時要謹慎解讀
- 除了流感，呼吸道相關的感染症也要考慮。
- 適時地診斷出流感，才能及時給予適當的治療