COVID-19 疫情與職場安全

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Sep. 29, 2022

醫院因應院內發生 COVID-19 確定病例之
應變處置建議

110 年 5 月 22 日訂定

111 年 8 月 29 日修訂

因應 COVID-19 疫情於全球迅速擴散，醫院可能發生病人在入院後才被通報確診為 COVID-19 個案，或是被通報確診的工作人員於可傳染期有出勤等情形，為降低病毒在醫院內傳播的風險，爰訂定本應變處置建議，提供醫院據以參考訂定院內應變計畫，並進行相關演練，以確保於狀況發生時能即時因應，保障病人及工作人員的健康。考量醫院若發生確定病例時，可能會有多樣性的情境，故除依據本應變處置建議參考應用外，得依醫院轄屬傳染病防治醫療網區指揮官或衛生主管機關裁示處理。

https://www.cdc.gov.tw/File/Get/pK3SanDHvCCiE1GEc5ZunQ

Agenda

- US CDC guideline for infection control of COVID-19 (Aug. 2022)
- Personal protection equipment (PPE)
- New challenges in the healthcare setting

US CDC updated guidance: Aug. 2022

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

Risk evaluation

- Person's risk for exposure to SARS-CoV-2
  - nonpharmaceutical interventions,
  - improving ventilation,
  - use of masks or respirators indoors,
  - testing
- Risk for developing severe illness
  - age, disability status, and underlying medical conditions

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

Risk evaluation

- CDC recommends the use of three indicators to measure COVID-19 Community Levels:

1) new COVID-19 hospital admissions per 100,000 population in the last 7 days;

2) percentage of staffed inpatient beds occupied by patients with confirmed COVID-19 (7-day average); and

3) new COVID-19 cases per 100,000 population in the last 7 days.

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

Risk evaluation

low	• staying up to date with vaccination, • improving ventilation, • testing persons who are symptomatic and those who have been exposed • isolating infected persons
medium	• adding protections for persons who are at high risk for severe illness (e.g., use of masks or respirators that provide a higher level of wearer protection)
high	• all persons wearing masks indoors in public and further increasing protection to populations at high risk

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CDC updated guidance: Aug. 2022

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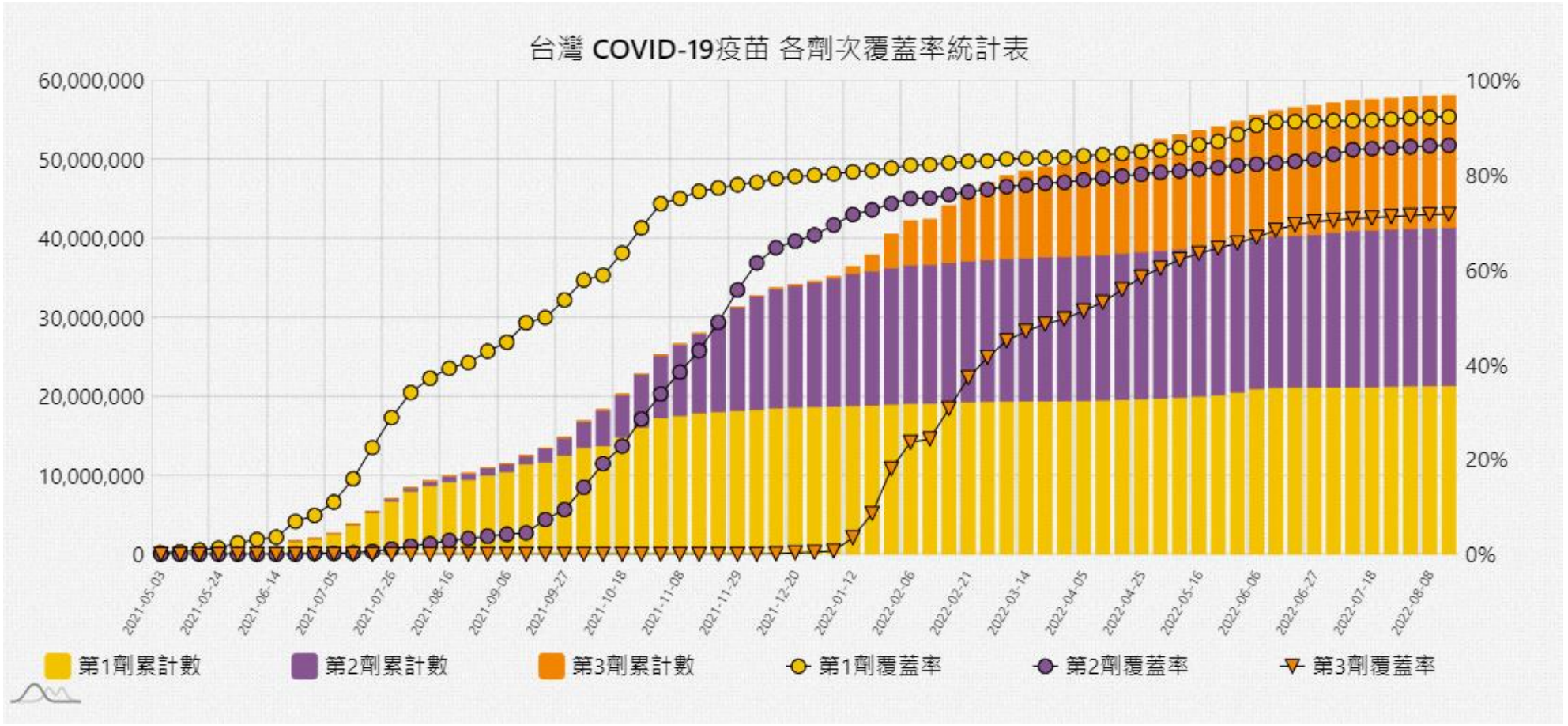
Vaccination



https://covid-19.nchc.org.tw/dt_002csse_covid_19_daily_reports_vaccine_city2.php?language=en

Business
Prognosis

‘Next Generation’ Moderna Coronavirus Booster Jab Approved for Use in Adults

THE PRESS ASSOCIATION (Laura Parnaby, PA)
2022年8月15日 下午6:38 [GMT+8]

A "next generation" coronavirus booster jab which may only need administering once a year has been approved for use in adults.

The Medicines and Healthcare products Regulatory Agency (MHRA) has authorised Moderna's bivalent vaccine, which targets the original Covid strain and the Omicron variant.

https://www.bloomberg.com/news/articles/2022-08-15/-next-generation-moderna-coronavirus-booster-jab-approved-for-use-in-adults

What to expect?

- Moderna: bivalent booster
  - Spikevax bivalent Original/Omicron: half of the vaccine (25 micrograms) targets the original virus strain from 2020 and the other half (25 micrograms) targets Omicron
  - Moderna vaccine triggers a strong immune response against both Omicron (BA.1) and the original 2020 strain
  - also found to generate a good immune response against the Omicron sub-variants BA.4 and BA.5
- The Pfizer/BioNTech: bivalent vaccine (August 26, 2022)
  - completed a submission to the European Medicines Agency (EMA) for a booster dose of an Omicron BA.4/BA.5-adapted bivalent COVID-19 vaccine for individuals 12 years of age and older.

https://www.gov.uk/government/news/first-bivalent-covid-19-booster-vaccine-approved-by-uk-medicines-regulator

https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-complete-submission-european-medicines

CDC updated guidance: Aug. 2022

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

COVID-19 exposure

- CDC now recommends case investigation and contact tracing only in healthcare settings and certain high-risk congregate settings
- Public health efforts can focus on case notification and provision of information and resources to exposed persons about access to testing

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

Testing

- Individual:
  - All persons should seek testing for active infection when they are symptomatic or
  - if they have a known or suspected exposure to someone with COVID-19
- Facilities:
  - When implemented, screening testing strategies should include all persons, irrespective of vaccination status.
  - Screening testing might not be cost-effective in general community settings, especially if COVID-19 prevalence is low

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

CDC updated guidance: Aug. 2022

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

Isolation infected

- Infected persons should remain in isolation for ≥5 days
- wear a well-fitting and high-quality mask if they must be around others
- Infected persons may end isolation after 5 days, only when
  - they are without a fever for ≥24 hours without the use of medication, AND
  - all other symptoms have improved, and
  - they should continue to wear a mask or respirator around others at home and in public through day 10

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

Isolation infected

- Persons who have access to antigen tests and who choose to use testing to determine when they can discontinue masking should wait to take the first test
  - until at least day 6, and
  - they are without a fever for ≥24 hours without the use of fever-reducing medication, and
  - All other symptoms have improved
- Use of two antigen tests with ≥48 hours between tests provides more reliable information because of improved test sensitivity

MMWR Morb Mortal Wkly Rep. ePub: 11 August 2022. DOI: http://dx.doi.org/10.15585/mmwr.mm7133e1

Isolation infected

- If either test result is positive, persons should continue to wear a

mask around others and continue testing every 48 hours until they have two sequential negative results.

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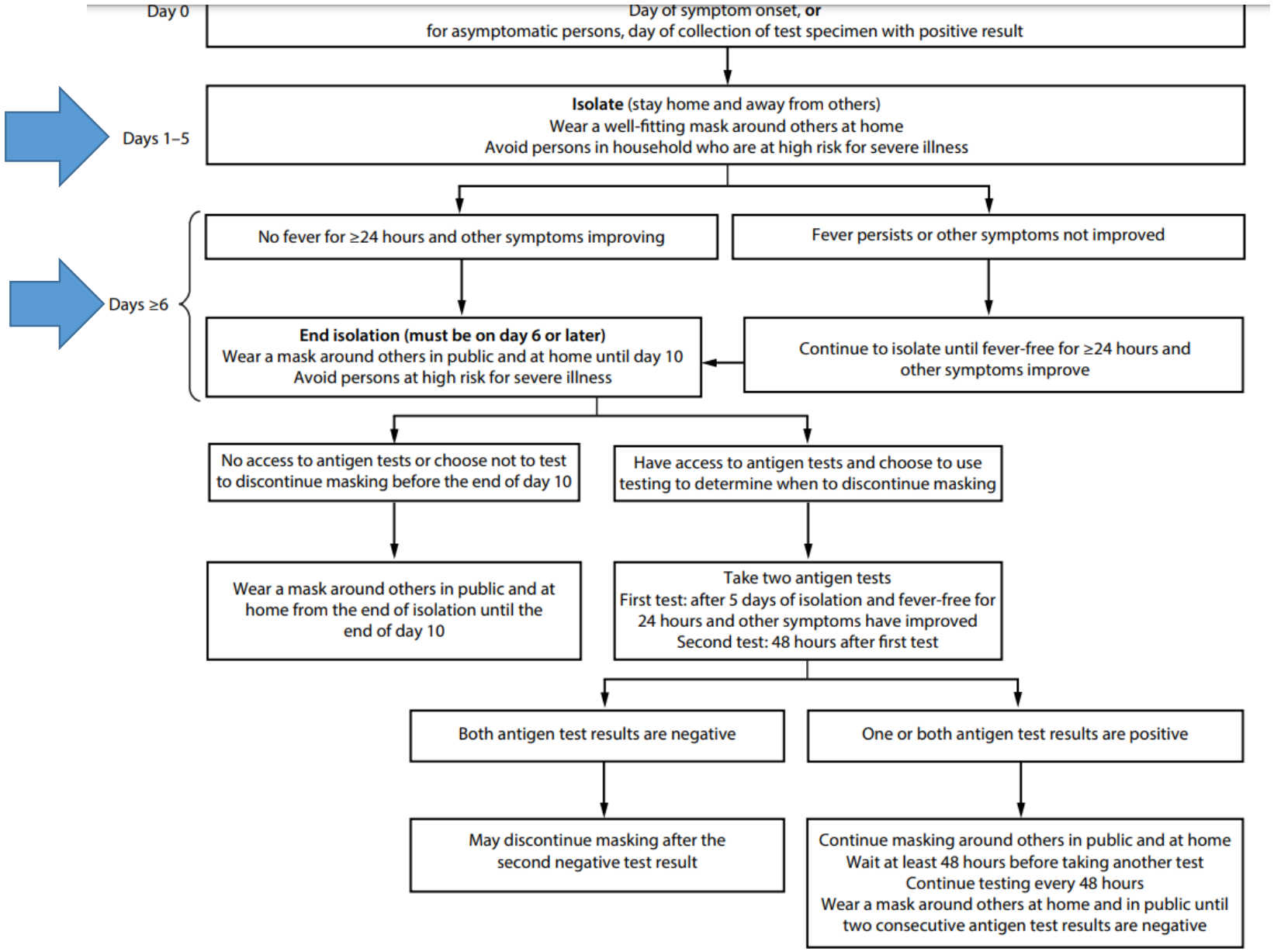

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Agenda

- CDC guideline for infection control of COVID-19 (Aug. 2022)
- Personal protection equipment (PPE)
- New challenges in the healthcare setting

PPE suggestion

衛生福利部疾病管制署

醫療照護工作人員個人防護裝備建議

場所	處置項目	呼吸防護		手套	隔離衣		護目裝備（A護目鏡 B全面罩）	髮帽
		醫用/外科口罩	N95或相當等級（含）以上口罩		一般隔離衣 (fluid repellent)	防水隔離衣 (fluid resistant)		
公共區域	入口服務人員、掛號、批價、傳送等	V						
一般門診	詢問相關主訴及TOCC	V						
急診檢傷區	詢問相關主訴及TOCC	V						
病人轉送	病室到院內其他單位		V	V	V			
分流看診區或收治病室（如：具負壓或獨立檢查室）	一般性接觸病人之醫療照護行為（如：量體溫、血壓、照X光）		V	V	V註1		V(A)	V
	執行發藥、更換輸液等未直接接觸病人之醫療照護行為		V	V	V註1		V(A)	V
	接觸病人血液、體液、排泄物等風險之醫療照護行為		V	V		V	V(B)	V
	呼吸道檢體採集(如：咽喉拭子)		V	V		V	V(B)	V
	執行可能產生飛沫微粒 (aerosol) 的醫療處置		V	V		V	V(B)	V
	環境清潔消毒		V	V		V	V(B)	V

註1：診治重症個案除依上表之建議外，可視病人狀況及所需執行之醫療處置等情形，調整個人防護裝備。
註2：若無防水隔離衣，建議可使用一般隔離衣外加防水圍裙替代。

Taiwan CDC
http://www.cdc.gov.tw

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https://www.cdc.gov.tw/Category/MPage/I92jtldmxZO_oolFPzP9HQ, version 1100621

PPE

為能提供使用者最安全的保護作用，應：

– 選擇適合個人臉部構造的口罩，並執行密合度測試（Fit Test）確定口罩的合適性

– 每次應依據正確的方式佩戴N95，且都應該執行密合度檢點(Fit Check)

https://www.cdc.gov.tw/Category/MPage/I92jtldmxZO_oolFPzP9HQ, version 1100621

密合度測試(fit test)

- 密合度測試的對象：

–建議醫院可自行依據風險評估結果，例如挑選高風險單位(如：氣管鏡室、肺功能室、胸腔科病房、負壓隔離病房、急診)，或參考文獻資料研訂工作人員暴露風險分級方式，決定施測對象的優先順序

https://www.cdc.gov.tw/Category/MPage/I92jtldmxZO_oolFPzP9HQ, version 1100621

密合度測試(fit test)

密合度測試（Fit Test）檢測的狀況：

–執行定性及定量檢測時，要求受測者模擬執行勤務時，臉部可能會有的活動及發生的一些狀況來進行密合度測試（Fit Test），依據標準步驟執行各項的測試活動：

- 正常呼吸
- 深呼吸
- 頭部一側轉到另一側
- 頭部上抬與低頭
- 大聲說話
- 做一些臉部的表情(如打哈欠）
- 向前彎腰
- 正常呼吸

https://www.cdc.gov.tw/Category/MPage/I92jtldmxZO_oolFPzP9HQ, version 1100621

密合度測試(Fit Test)

- 密合度測試(Fit Test)可分為「定性」和「定量」兩種方式

–「定性」檢測方法：使用hood method；測試原理係依靠受測者對測試物質的味覺、嗅覺等自覺反應。假如受測者在測試過程任何時間，感覺偵測到測試物質，即表示呼吸防護具未達到適當的密合。

- 優點：成本低廉；使用工具容易製造；便於攜帶。
- 缺點：測試結果易隨受測者主觀感受而影響；測試過程可能令受測者感到不舒服。

https://www.cdc.gov.tw/Category/MPage/I92jtldmxZO_oolFPzP9HQ, version 1100621

種子教師制度 (as a reference)

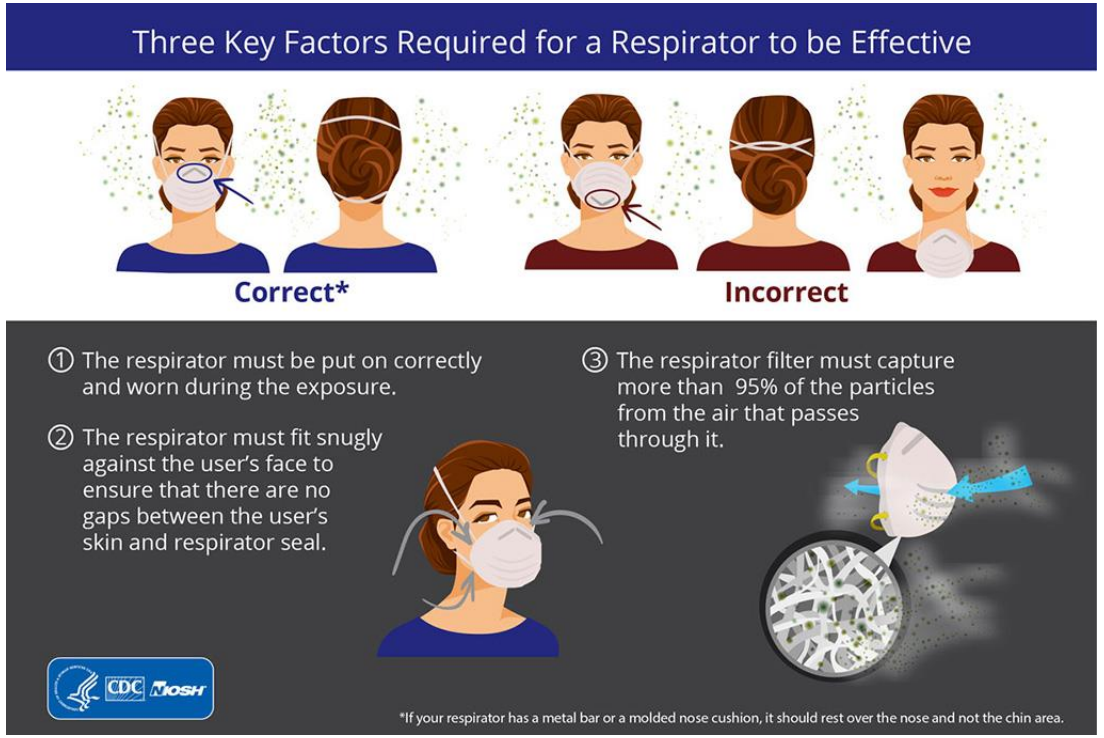
	每人	西址專責病房(內科醫師*10)
測試材料費	50 NTD	500 NTD
執行人時	20 mins	200 mins
total		3小時20分

密合度檢點(fit check)

- 每次佩戴N95時都應該執行密合度檢點(Fit Check)
- 執行密合度檢點時

– 吸氣，此時可感覺到口罩有微微的塌陷

– 吐氣，重點需注意觀察口罩邊緣是否有漏氣情形



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Agenda:

- CDC guideline for infection control of COVID-19 (Aug. 2022)
- Personal protection equipment (PPE)
- New challenges in the healthcare setting
  - Viral rebound
  - New variant
  - Vaccination benefit for re-infection?
  - Long COVID
  - Infection control for special groups

New challenge:

- Viral rebound
- New variant
- Vaccination benefit for re-infection?
- Long COVID
- Infection control for special groups

Scenario 1

- 26 years old woman
- COVID-19, D0 = 2022/07/24, antigen positive
- Two close contact family member(公婆) were diagnosed as COVID-19 by antigen test on 7/21. Fever was then noted on 7/24 with mild exertional dyspnea and waist soreness.
- status post 3-day Remdesivir
- COVID-19 risk factors
- Age ≧65yr (-), DM(-), CKD(-), CVD other than HTN(-), Chronic lung diseases(-), TB(-), Chronic liver diseases(-), Disability(-), Psychiatric disorder or dementia(-), smoke(-), pregnancy(+), BMI ≧30(-), immunocompromised status(-)

解隔條件

本條件適用對象：檢驗陽性日為5/8起之確診者，不回溯適用5/8前檢驗陽性者

場所	解隔條件修訂摘要
居家照護	距發病日或採檢日已達7天，無須採檢直接解隔，並進行7天自主健康管理
醫院 加強版集檢所 加強版防疫旅館	**輕症確診隔離條件：**無症狀或症狀緩解，且： 1. 兩次快篩陰性，或距發病/採檢達5天一次快篩陰性 2. 距發病日或採檢日已達7天，無須採檢直接解隔 符合以上任一條件，解隔並進行7天自主健康管理 註： ◆ 上述快篩限醫事人員執行，醫事人員得自採 ◆ 輕症解隔以快篩爲原則，因故無法快篩則以PCR採認
中重症住院患者	**解隔改1次PCR：** 症狀緩解且追蹤1次(原爲2次且須滿10天)PCR陰性或Ct≥30，可轉出隔離/專責病房

詳細內容請見最新版「嚴重特殊傳染性肺炎確診個案處置及解除隔離治療條件」(更新中)

2022/05/07 中央流行疫情指揮中心

https://www.cdc.gov.tw/Category/MPage/h9PeajPVhunxDs5Y-Cinjw

Scenario 1

- COVID 19 infection, day 8
- Admitted for NSD on Aug. 1, 2022
- SARS-CoV-2 RNA PCR Positive Ct:21.9 (Roche Cobas Liat system)

Scenario 1

- COVID 19 infection, day 8
- Admitted for NSD on Aug. 1, 2022
- SARS-CoV-2 RNA PCR Positive Ct:21.9 (Roche Cobas Liat system)

Viral rebound

- remdesivir (Veklury)
- highly effective in decreasing the risk of hospitalization of people with mild to moderate COVID-19
- Selection for RDV resistance

Nature Communications volume 13, Article number: 1547 (2022)

Viral rebound

- Paxlovid: Nirmatrelvir-ritonavir
- reduce hospitalization in high-risk patients with early-stage
- US FDA issued emergency use authorization (EUA) in December 2021
- individuals have reported finishing the five-day treatment, feeling better, and testing negative on an at-home rapid test. But then, their Covid-19 symptoms return, and they test positive again a few days later.

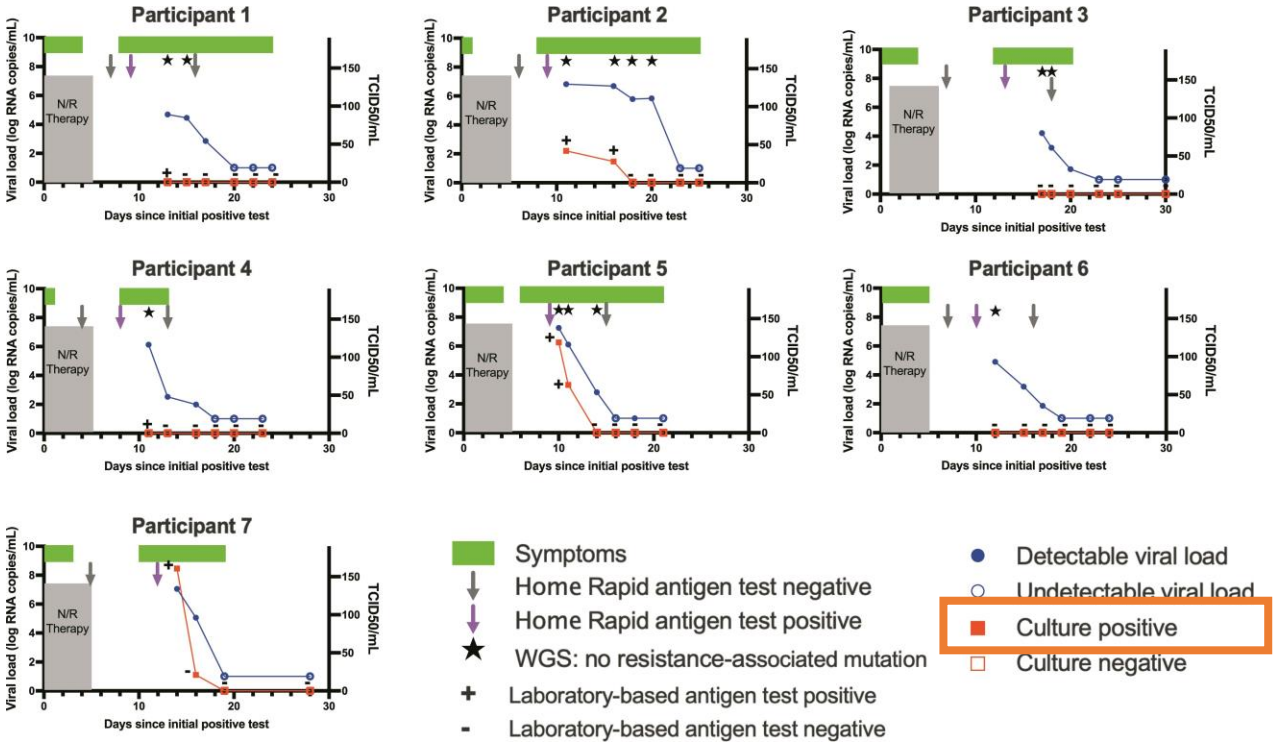
https://www.advisory.com/daily-briefing/2022/05/26/cdc-paxlovid

Viral rebound after Paxlovid

- Six of 7 had symptoms recurred
- Symptoms re-onset: a median of 9 days after initial positive test or 4 days after completion of the nirmatrelvir-ritonavir course.
- A detectable viral load was identified for a median of 12 days (range 9–15) after completion of nirmatrelvir-ritonavir.
- Cultures were positive until 5, 11, and 11 days after completion of the course of nirmatrelvir-ritonavir, respectively. (n=3)

Clinical Infectious Diseases, ciac512, https://doi.org/10.1093/cid/ciac512

Figure 1. Virologic and clinical course of individuals with rebound of COVID-19 following nirmatrelvir-ritonavir ...



Clin Infect Dis, ciac512, https://doi.org/10.1093/cid/ciac512

Because live viral shedding can occur at the time of relapse, restarting monitoring and isolation from the time of relapse may be warranted.

Clinical Infectious Diseases, ciac512, https://doi.org/10.1093/cid/ciac512

Viral rebound

- CDC on May, 2022 issued a warning saying that patients who complete a five-day course of Paxlovid and experience a return of Covid-19 symptoms should isolate for an additional five days.

https://www.advisory.com/daily-briefing/2022/05/26/cdc-paxlovid

Scenario 1

- COVID 19 infection, day 8, s/p 3 days remdesivir
- Admitted for NSD on Aug. 1, 2022
- SARS-CoV-2 RNA PCR Positive Ct:21.9 (Roche Cobas Liat system)
- Suggest single room or isolation room use

New challenge:

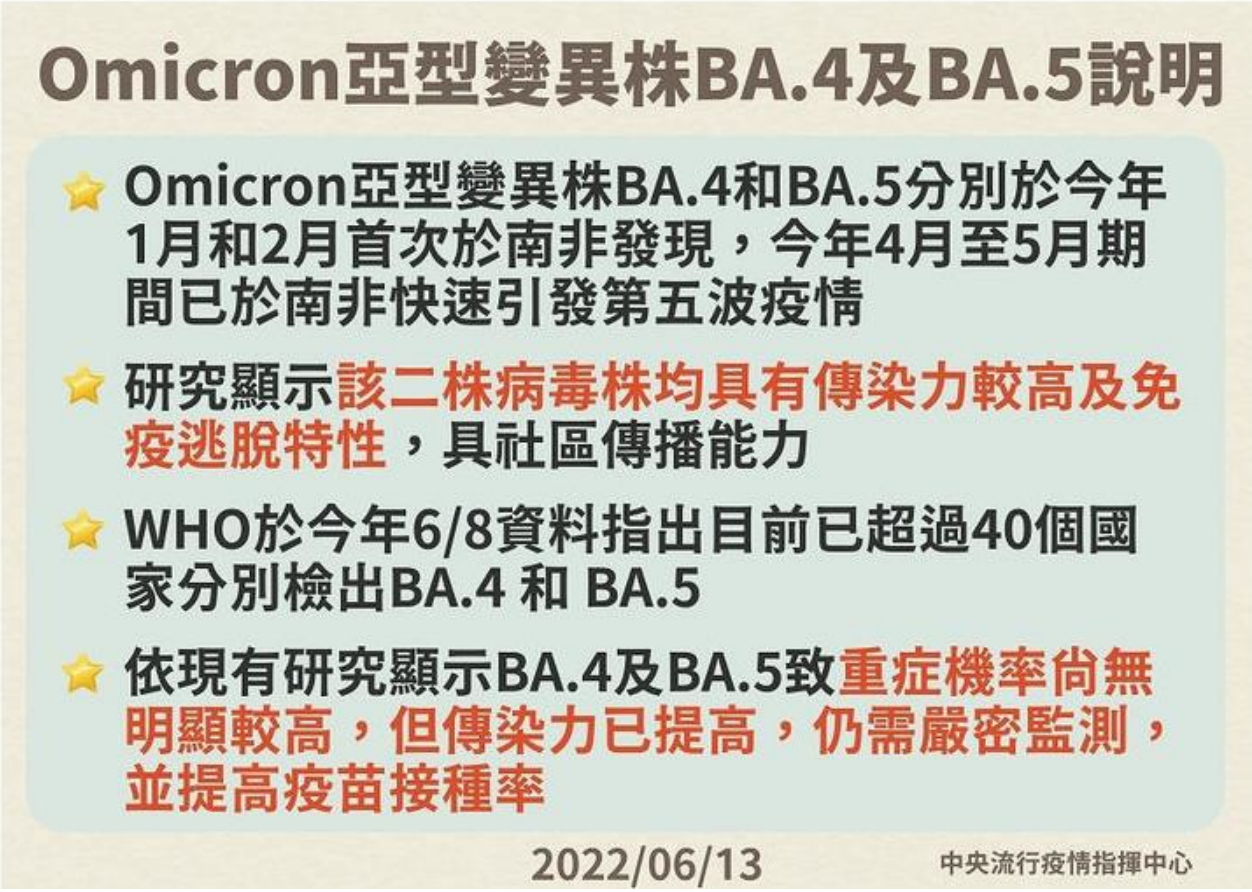
- Viral rebound
- New variant
- Vaccination benefit for re-infection?
- Long COVID
- Infection control for special groups

Variant of concern

WHO label	Lineage + additional mutations	Country first detected (community)	Spike mutations of interest	Year and month first detected	Impact on transmissibility	Impact on immunity	Impact on severity	Transmission in EU/EEA
Omicron	BA.1	South Africa and Botswana	(x)	November 2021	Increased (v) (1, 2)	Increased (v) (3-5)	Reduced (v) (6-8)	Community
Omicron	BA.2	South Africa	(y)	November 2021	Increased (v) (1, 9)	Increased (v) (3)	Reduced (v) (10, 11)	Dominant
Omicron	BA.4	South Africa	L452R, F486V, R493Q	January 2022	No evidence	Increased (12, 13)	No evidence	Community
Omicron	BA.5	South Africa	L452R, F486V, R493Q	February 2022	No evidence	Increased (12, 13)	No evidence	Community

https://www.ecdc.europa.eu/en/covid-19/variants-concern. Accessed August. 3, 2022

Variant of concern



Impact of BA.4 and BA.5

- their capacity to infect people who were immune to earlier forms of Omicron and other variants
- antibodies triggered by vaccination are less effective at blocking BA.4 and BA.5 than they are at blocking earlier Omicron strains, including BA.1 and BA.2
- South Africa's BA.4 and BA.5 wave lead to
  - similar rate of hospitalization
  - slightly lower death rate when compared with the country's earlier Omicron wave

Nature 606, 848-849 (2022)

Incubation period

Incubation period	
Alpha variant	5 days
Beta	4.5
Delta	4.41
Omicron	3.42

- estimation of the duration of follow-up for contact tracing and secondary case detection

JAMA Network Open: "Incubation Period of COVID-19 Caused by Unique SARS-CoV-2 Strains."

New challenge:

- Viral rebound
- New variant
- Vaccination benefit for re-infection?
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Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination — Kentucky, May–June 2021

- Among Kentucky residents infected with SARS-CoV-2 in 2020, vaccination status of those re-infected during May–June 2021 was compared with that of residents who were not reinfected
- Kentucky residents aged ≥18 years with SARS-CoV-2 infection confirmed by positive nucleic acid amplification test (NAAT) or antigen test results† reported in Kentucky's National Electronic Disease Surveillance System (NEDSS) during March–December 2020 were eligible for inclusion

MMMR/ August 13, 2021 / 70(32);1081-1083

Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination — Kentucky, May–June 2021

- Case-patients and controls were matched on a 1:2 ratio based on sex, age (within 3 years), and date of initial positive SARS-CoV-2 test (within 1 week)
- fully vaccinated if a single dose of Janssen (Johnson & Johnson) or a second dose of an mRNA vaccine (Pfizer-BioNTech or Moderna) was received ≥14 days before the reinfection date

MMMR/ August 13, 2021 / 70(32);1081-1083

Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination — Kentucky, May–June 2021

TABLE 2. Association of SARS-CoV-2 reinfection* with COVID-19 vaccination status — Kentucky, May–June 2021

Vaccination status	No. (%)		OR (95% CI)†
	Case-patients	Control participants	
Not vaccinated	179 (72.8)	284 (57.7)	2.34 (1.58–3.47)
Partially vaccinated¶	17 (6.9)	39 (7.9)	1.56 (0.81–3.01)
Fully vaccinated§	50 (20.3)	169 (34.3)	Ref
Total	**246 (100)**	**492 (100)**	—

Abbreviations: CI = confidence interval; NAAT = nucleic acid amplification test; OR = odds ratio; Ref = referent group.

*All case-patients (reinfected) and control participants (not reinfected) had previous SARS-CoV-2 infection documented by positive NAAT or antigen test results during March–December 2020. Reinfection was defined as receipt of positive NAAT or antigen test results during May 1–June 30, 2021.

† Estimated based on conditional logistic regression.

§ Case-patients were considered partially vaccinated if ≥1 dose of vaccine was received, but the vaccination series was either not completed or the final dose was received <14 days before their reinfection date. For control participants, the same criteria were applied, using the matched case-patient's reinfection date.

¶ Case-patients and control participants were considered fully vaccinated if a complete COVID-19 vaccine series was received ≥14 days before the case-patient's reinfection date.

MMMR/ August 13, 2021 / 70(32);1081-1083

Vaccination to prevent re-infection

- The duration of immunity resulting from natural infection, although not well understood, is suspected to persist for ≥90 days in most persons.

What to expect?

- Moderna: bivalent booster (UK)
  - includes the original "ancestral" virus strain and elements of the Omicron.
- The Pfizer/BioNTech: bivalent vaccine (August 22, 2022)
  - sent an application to the FDA for emergency use authorization of its updated COVID-19 booster vaccine
  - The vaccine, which is adapted for the BA.4 and BA.5 Omicron variants, would be meant for ages 12 and older.
  - original SARS-CoV-2 spike protein, which is present in the original Pfizer-BioNTech COVID-19 Vaccine, together with mRNA encoding the spike protein of the Omicron BA.4/BA.5 variant

https://www.europeanpharmaceuticalreview.com/news/173650/uk-approves-modernas-bivalent-covid-19-vaccine/

https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-biontech-submit-application-us-fda-emergency-use

New challenge:

- Viral rebound
- New variant
- Vaccination benefit for re-infection?
- Long COVID
- Infection control for special groups

Long COVID

- Prevalence

50-90%	• Earlier studies • Focus on hospitalized patients
30-70%	• Included both hospitalized and non-hospitalized patients

Sci Rep **12,** 11647 (2022). https://doi.org/10.1038/s41598-022-15727-0

Long COVID

- Symptoms

Respiratory abnormality

Pain

Hair loss

Neurocognitive problems

Cardiovascular system

Tiredness

Flu-like symptoms

Change in smell or taste

Sci Rep **12,** 11647 (2022). https://doi.org/10.1038/s41598-022-15727-0

Long COVID

- Understanding America Study (UAS) COVID-19 National Sample
- 9,000 non-institutional U.S. adults administered by the Center for Economic and Social Research (CESR)
- biweekly from March 10, 2020 to March 31, 2021

- Study aims

(1) estimate the baseline-symptom-adjusted prevalence of long COVID,

(2) show the most commonly reported long COVID symptoms, and

(3) identify the risk factors of becoming a COVID long hauler.

Sci Rep **12,** 11647 (2022). https://doi.org/10.1038/s41598-022-15727-0

Long COVID

- UAS COVID-19 National Sample
- Prevalence:
  - 132 had symptoms>12 weeks after COVID-19 infection (N=308)
  - 40%

Sci Rep **12,** 11647 (2022). https://doi.org/10.1038/s41598-022-15727-0

Long COVID

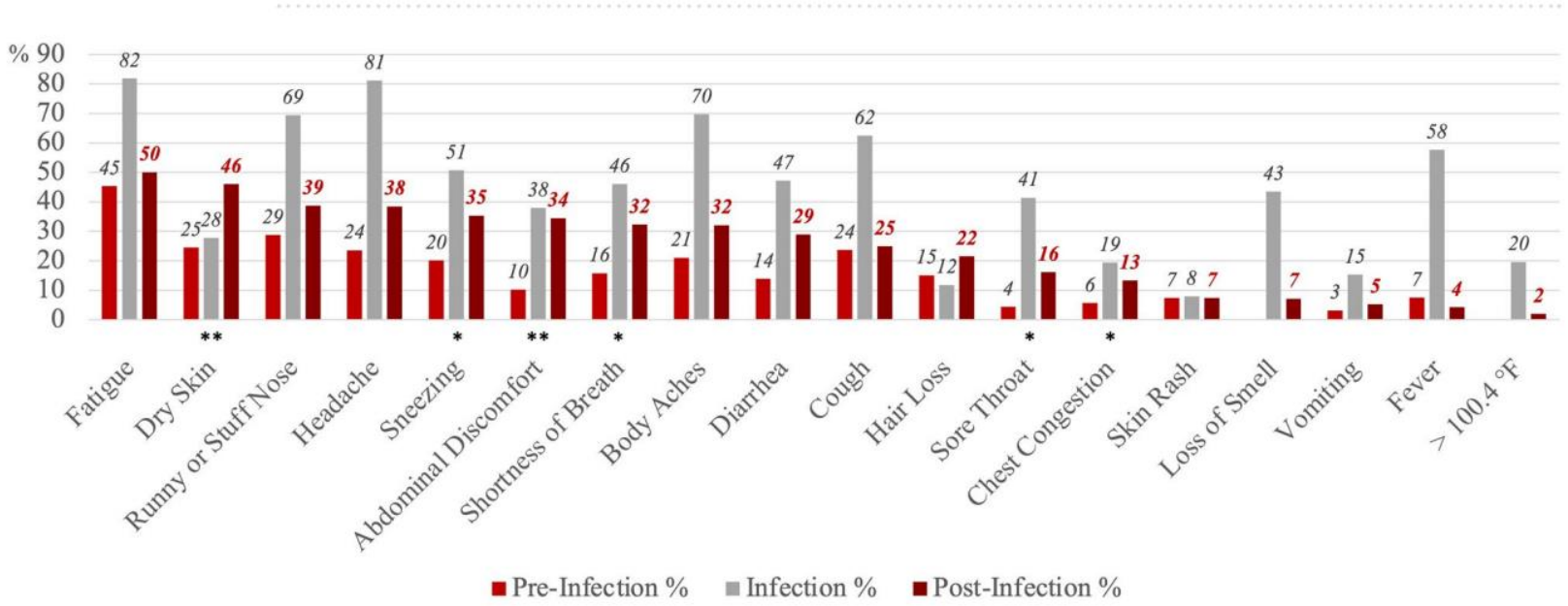

Figure 2. Percent with self-reported symptoms at pre-infection, infection, and post-infection stages among COVID long haulers (n = 74). The pre-infection stage is 4 weeks before the COVID diagnosis or positive test. The infection stage is the time of COVID diagnosis or positive test. The post-infection stage is 12 weeks after the COVID diagnosis or positive test. Symptoms were listed based on the proportion reported at the post-infection stage. Wald (χ^2) tests were used to determine statistically significant differences in symptoms at the pre-infection stage and post-infection stage, and standard errors were clustered at the individual level. *p < 0.05, **p < 0.01, ***p < 0.001.

Sci Rep **12,** 11647 (2022). https://doi.org/10.1038/s41598-022-15727-0

Long COVID

神經科

復健科

胸腔科

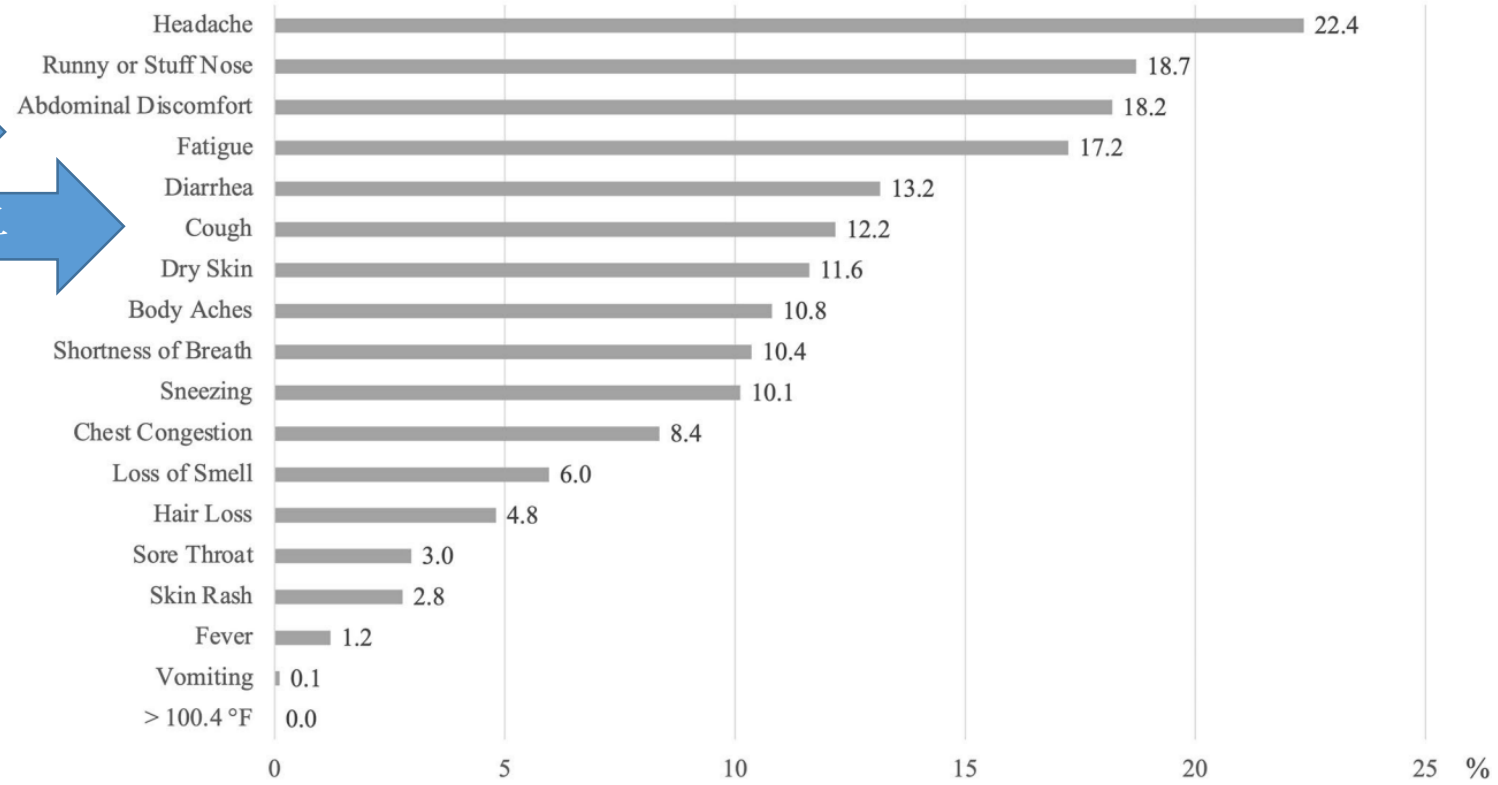

Figure 3. Prevalence of new-onset persistent COVID symptoms among those with long COVID 12 weeks after infection.

Sci Rep **12,** 11647 (2022). https://doi.org/10.1038/s41598-022-15727-0

Risk factors for Long COVID

Current Smoker	0.74	[0.28, 1.94]
Existing conditions		
Obesity	5.44***	[2.12, 13.96]
Diabetes	1.03	[0.30, 3.48]
Cancer	0.10	[0.01, 1.16]
Heart disease	0.21	[0.03, 1.48]
High blood pressure	1.38	[0.55, 3.43]
Asthma	0.96	[0.26, 3.62]
Chronic lung disease	3.05	[0.18, 52.77]
Kidney disease	1.28	[0.19, 8.68]
Autoimmune disorder	1.83	[0.51, 6.62]
New-onset symptoms at infection stage		
Body aches	1.25	[0.42, 3.74]
Fatigue	0.46	[0.15, 1.45]
Cough	0.54	[0.19, 1.52]
Headache	3.37*	[1.18, 9.60]
Fever	1.06	[0.40, 2.83]
Runny or stuffy nose	1.38	[0.49, 3.84]
Loss of smell	1.58	[0.72, 3.50]
Diarrhea	1.02	[0.46, 2.27]
Sore throat	3.56*	[1.21, 10.46]
Shortness of breath	1.70	[0.52, 5.58]
Chest congestion	0.09***	[0.02, 0.35]
Sneezing	1.56	[0.58, 4.24]
Abdominal discomfort	1.26	[0.54, 2.93]
Dryskin	1.10	[0.29, 4.18]
Vomiting	0.75	[0.22, 2.64]
Skin rash	0.53	[0.11, 2.55]
Hairloss	6.94*	[1.03, 46.92]

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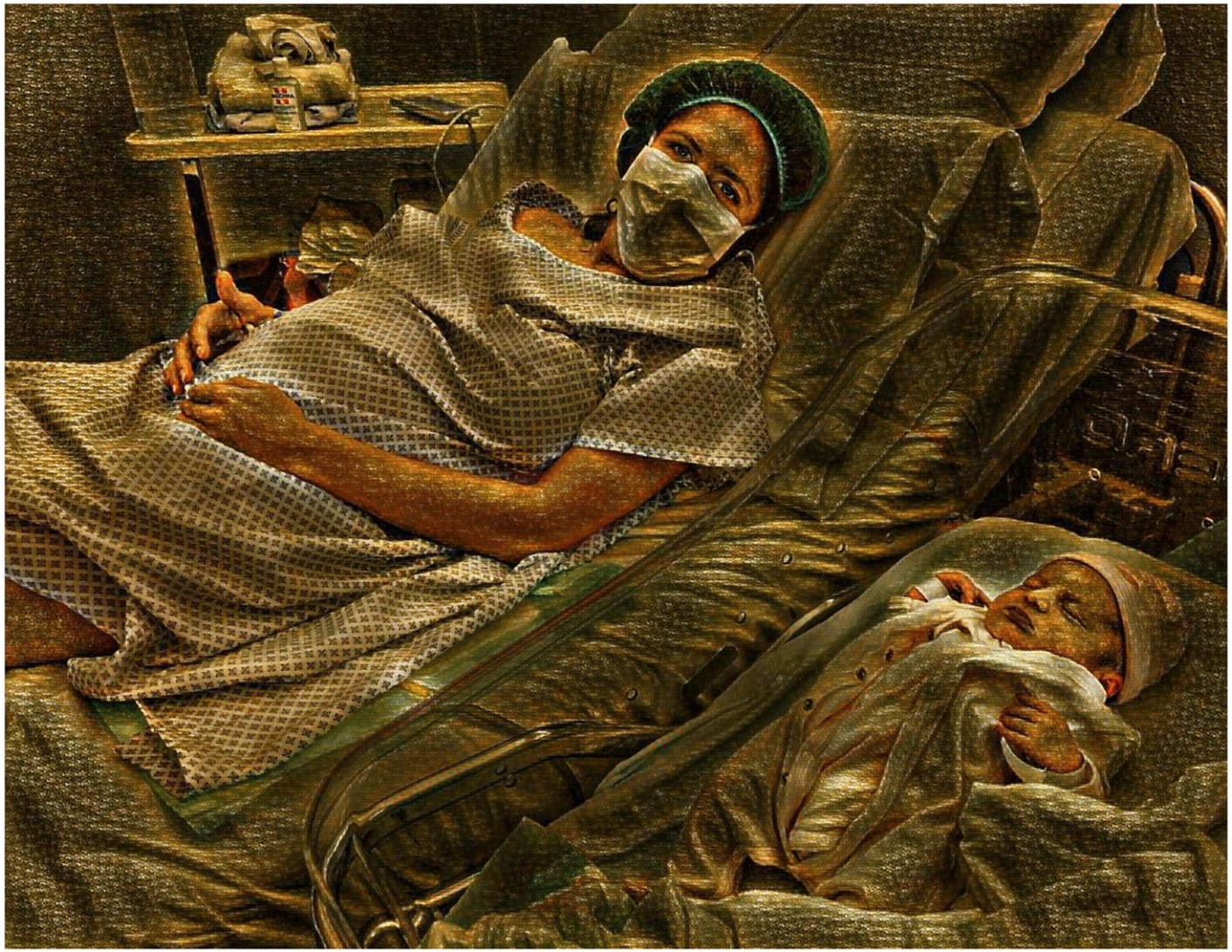
New challenge:

- Re-infection
- New variant
- Vaccination benefit for re-infection?
- Long COVID
- Infection control for special groups

Breastfeeding and coronavirus disease-2019: Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies



Maternal & Child Nutrition, Volume: 16, Issue: 3, First published: 03 April 2020, DOI: (10.1111/mcn.13010)

Infection control for neonatal in the COVID-19 pandemic

- Two case reports describing isolation of SARS-CoV-2 from amniotic fluid and placental tissue
- Isolation of SARS-CoV-2 from the nasopharynx of the two neonates within 48 h of life

Prenat Diagn 2020; published online April 17. https://doi.org/10.1002/pd.5713
CMAJ 2020; publised onlineMay 14. https://doi.org/10.1503/cmaj.200821

NEONATAL CARE

- observational cohort study
- We identified all neonates born between March 22 and May 17, 2020, at New York Presbyterian(長老會)—Komansky Children's Hospitals to mothers who tested positive for SARS-CoV-2 from a nasopharyngeal swab sample at the time of deliver
- Universal screening of all pregnant women presenting in labour was implemented in our Labour and Delivery units on March 25, 2020

The Lancet Child & Adolescent Health, Issue 10,2020, Pages 721-727,

NEONATAL CARE

- Mothers who were positive for SARS-CoV-2 could practice skin-to-skin care and breastfeed in the delivery room with some modifications to usual processes.
- Modification:
  - mothers donned a surgical mask when near their neonate
  - practiced proper hand hygiene before skin-to-skin contact, breastfeeding, and routinecare
- All neonates who roomed in with their mothers were kept in a closed Giraffe isolette (General Electric Healthcare, Chicago, IL) , 6 feet [1·83 m] apart from their mother unless feeding.

The Lancet Child & Adolescent Health,Issue 10,2020, Pages 721-727,

NEONATAL CARE

- There were 1,481 deliveries, with 116 (8%) mothers testing positive for SARS-CoV-2 and 120 neonates identified.

	24 h of life (N=120)	5–7 days of life (N=82)	14 days of life (N=82)
rtPCR done			
Yes	120 (100%)	79 (96%)	72 (88%)
No	0	3 (4%)	10 (12%)
Result			
Positive	0	0	0
Negative	119/120 (99%)	79/79 (100%)	70/72 (97%)
Invalid*	1/120 (<1%)	0	2/72 (3%)

Data are n (%) or n/N (%). rtPCR=real-time PCR. *No reaction to any of the targets, including the internal control.

Table 3: Serial rtPCR testing results

The Lancet Child & Adolescent Health,Issue 10,2020, Pages 721-727,

NEONATAL CARE

- There were 1,481 deliveries, with 116 (8%) mothers testing positive for SARS-CoV-2 and 120 neonates identified.
  - Self-reported use of masks and hand hygiene practices were done always by 62 (85%) of 73 parents, frequently or sometimes by six (8%), and never by three (4%).
  - At 5–7 days of life, 18 (22%) of 82 neonates were exclusively formula fed, where as the remaining 64 (78%)were receiving breastmilk, through direct latching or bottle administration.

The Lancet Child & Adolescent Health,Issue 10,2020, Pages 721-727,

Pros and Cons of 母嬰同室under COVID-19 infected mother

Pros

- Skin-skin contact
- Breast feeding

Cons

- 不建議Baby 推回嬰兒室
- Compliance of hand hygiene and mask?
- adequate staff?

Agenda

- US CDC guideline for infection control of COVID-19 (Aug. 2022)
- Personal protection equipment (PPE)
- New challenges in the healthcare setting
  - Viral rebound
  - New variant
  - Vaccination benefit for re-infection?
  - Long COVID
  - Infection control for special groups

Questions and answers