Weekly Evidence Report

Health Technology Assessment Philippines

01 - 07 October 2022

Overview

The following report presents summaries of evidence the Department of Health (DOH) - Health Technology Assessment (HTA) Division reviewed for the period of 01-07 October 2022 on current public health emergency concerns, COVID-19 and monkeypox. The HTA Division reviewed a total of 39 studies for COVID-19 and 13 studies for monkeypox.

For COVID-19, evidence includes 3 studies on Epidemiology; 9 studies on Vaccines; 7 studies on Drugs; 5 studies on Transmission; 6 studies on Equipment and Devices; 1 study on Medical and Surgical Procedures; 2 studies on Traditional Medicine; 5 studies on Preventive & Promotive Health; and 1 study on Other Health Technologies.

For monkeypox, evidence includes 1 study on Epidemiology; 1 study on Vaccines; 1 study on Drugs; 3 studies on Transmission; 1 study on Equipment and Devices; 0 studies on Medical and Surgical Procedures; 0 study on Traditional Medicine; 2 studies on Preventive & Promotive Health; and 0 studies on Other Health Technologies.

Sections

Epidemiology

Vaccines

Drugs

Transmission

Traditional Medicine

Equipment & Devices

Medical & Surgical Procedures

Preventive & Promotive Health

Other Health Technologies

COVID-19

Evidence on Epidemiology

Local COVID-19 Case Tracker:

https://doh.gov.ph/2019-nCoV?gclid=CjwKCAjwjtOTBhAvEiwASG4bCOmLzFMQljh8DX_VVSGA-HmO0Pt5_CscykID7xZv4zqlXG5vm9PM2xoC27QQAvD_BwE

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	WHO	Weekly epidemiological update on COVID-19 - 05 October 2022	*WHO/Situation Report*	• Globally, the number of new weekly cases decreased by 6% during the week of 26 September to 2 October 2022 as compared to the previous week, with over 2.9 million new cases reported. The number of new weekly deaths decreased by 12% as compared to the previous week, with over 8300 fatalities reported. As of 2 October 2022, over 615 million confirmed cases and over 6.5 million deaths have been reported globally. • There continues to be increased diversity within Omicron and its descendent lineages. A number of these Omicron descendent lineages are under monitoring. During epidemiological week 36 (5 to 11 September 2022), as samples from more recent weeks may have not been reposited, BA.5 descendent lineages continued to be dominant accounting for 80.8% of sequences, followed by BA.4 descendent lineages (including BA.4.6) which accounted for 7.8%, and BA.2 descendent lineages (including BA.2.75) which accounted for 3.1% of sequences. During the same week (5 to 11 September), unassigned sequences (presumed to be Omicron) accounted for 8.3% of sequences submitted to GISAID.
07 Oct 2022	European Centre for Disease Prevention and Control (ECDC)	Country overview report: week 39 2022	*ECDC/Situation Report*	• The pooled EU/EEA notification rate of COVID-19 cases among people aged 65+ years increased by 14% compared with the previous week. Increases were observed in 19 of the 26 countries reporting data on this indicator. The pooled rate has been increasing for two weeks. • Pooled EU/EEA rates of hospital or ICU indicators have increased for 1-2 weeks. Of the 26 countries reporting data on these indicators, 15 observed an increasing trend in at least one indicator compared with the previous week. • The pooled EU/EEA COVID-19 death rate decreased by 10% and constituted 4.5% of the pandemic maximum for this indicator which has been decreasing for seven weeks.

Evidence on Epidemiology

Date	Author/s	Title	Journal/ Article Type	Summary
01 Oct 2022	Daitch et al.	Characteristics of long COVID among older adults: a cross-sectional study	*International Journal of Infectious DIseases/ Prospective cohort*	• Long COVID has been reported to affect a substantial portion of COVID-19 survivors, including those who suffered mild acute disease. Recent longer-term follow-up studies show that many individuals do not experience full recovery even at one-year post-infection. • Older adults are more likely to report on long COVID symptoms with more pronounced pulmonary impairment. The most common long COVID symptoms among older adults are fatigue and dyspnea.

Evidence on Vaccines

Bloomberg Vaccine Tracker: https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/

WHO COVID-19 Vaccine Tracker:
https://www.who.int/publications/m/item/draft-landscape-of-covid-19-candidate-vaccines

WHO SAGE Vaccine Recommendations:
https://www.who.int/groups/strategic-advisory-group-of-experts-on-immunization

Local COVID-19 Vaccine Updates: https://doh.gov.ph/vaccines

Date	Author/s	Title	Journal/ Article Type	Summary
03 Oct 2022	WHO	Evaluation of COVID-19 vaccine effectiveness in a changing landscape of COVID-19 epidemiology and vaccination	*WHO/ Interim Guidance*	• Assessing VE against Omicron severe disease using hospital admission as a measure of severe disease has become more challenging because of Omicron's attenuated intrinsic severity and the high prevalence of infection in many populations. • Using more specific definitions for severe respiratory COVID-19 disease (i.e. indicators of respiratory distress such as oxygen requirement, mechanical ventilation and admission to the intensive care unit) is likely to better reflect protection against severe disease and, in the case of Omicron, results in an increased VE compared to protection against hospitalization. • Test-negative design (TND) studies minimize the misclassification bias of assuming persons without a positive test result are negative since all persons should meet an enrollment case definition. • In using a vaccinated comparison group, persons vaccinated with one brand of vaccine should not be compared to persons not vaccinated with that specific brand of vaccine. Because those vaccinated with another brand of vaccine probably have some vaccine-induced protection, this would lead to artificially low VE estimates. • If possible, investigators should report both the absolute and relative VE results of the dose being evaluated. • In variant-specific estimates, a time gap should be considered whereby cases that occur during this period of co-circulation may be: 1) excluded, or 2) analysed separately or 3) included as part of a sensitivity analysis.

Evidence on Vaccines

Date	Author/s	Title	Journal/ Article Type	Summary
03 Oct 2022	Watanabe et al., 2022	Peripartum Outcomes Associated With COVID-19 Vaccination During Pregnancy: A Systematic Review and Meta-analysis	*JAMA Pediatrics/ Systematic Review & Meta-analysis*	• This study evaluated the risk and benefits of COVID-19 vaccination during pregnancy. • COVID-19 vaccination during pregnancy was not associated with an increase in the risk of peripartum outcomes, was associated with a decreased risk of NICU admission, intrauterine fetal death (IFD), and maternal SARS-CoV-2 infection. Thus, COVID-19 vaccination should be encouraged for pregnant individuals.
03 Oct 2022	López et al.	Humoral Response Following SARS-CoV-2 Vaccination in Kidney Transplant Recipients. Role of Immunosuppression Therapy	*Translation Proceedings/ Prospective cohort*	• This study aimed to evaluate the specific humoral response to SARS-COV-2 after vaccination of mRNA vaccines in a kidney-transplant population and assess the main factors associated with a lack of response. • The humeral response to the COVID-19 vaccine in kidney transplant recipients is poor. Factors related with this lack of immunity are recipient age and diabetes, plus teroids+tacrolimus+ mycophenolate (MMF) therapy.
04 Oct 2022	Zhong et al.	Risk for uveitis relapse after COVID-19 vaccination	*Journal of Autoimmunity/ Retrospective cohort*	• Several studies suggested COVID-19 vaccination may lead to uveitis, a vision-threatening condition often associated with a variety of autoimmune or autoinflammatory diseases. • The primary analysis included 438 non-COVID-19 participants. A total of 39 episodes of uveitis relapse events occurred in 34 patients after the receipt of a dose of COVID-19 vaccine within 30 days. • Concomitant use of systemic glucocorticoids at the time of vaccination was independently associated with a decrease in risk of relapse after vaccination
05 Oct 2022	Tauzin et al.	A boost with SARS-CoV-2 BNT162b2 mRNA vaccine elicits strong humoral responses independently of the interval between the first two doses	*Cell Reports/ Prospective cohort*	• This study analyzed humoral responses induced after the second and third doses of mRNA vaccine in naïve and previously-infected donors who received their second dose with an extended 16-week interval. • Extended interval elicits robust humoral responses against VOCs, but this response is significantly diminished 4 months after the second dose. Administering a booster to these individuals brings back the humoral responses to the same levels obtained after the extended second dose. • Administering a booster to individuals that initially received a short 3-4 weeks regimen elicits humoral responses similar to those observed in the long interval regimen. • Humoral responses elicited by the booster in naive individuals do not reach those present in previously-infected individuals.

Evidence on Vaccines

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	Bates et al.	BNT162b2 induced neutralizing and non-neutralizing antibody functions against SARS-CoV-2 diminish with age	*Cell Reports/ Retrospective cohort*	• This study assessed neutralization against SARS-CoV-2 wildtype virus (WA.1) and five clinical variants: Alpha (B.1.1.7), Beta (B.1.351), Gamma (P.1), Delta (B.1.617.2) and Omicron (BA.2), using measures of vaccine specific antibody Fc features of isotype, Fc receptor binding, Fc121 effector functions and IgG glycosylation. Immune sera from uninfected healthcare workers aged 21-82 years who received two doses of BNT162b2 were assessed. • This study found that both antibody Fab and Fc mediated breadth and potency diminished with age. Thus, titers correlated with neutralizing activity and vaccine induced neutralizing responses decreased with age.
06 Oct 2022	Lim et al.	A comparative characterization of SARS-CoV-2-specific T cells induced by mRNA or Inactive virus COVID-19 Vaccines	*Cell Reports Medicine/ Comparative analysis*	• This study performed a comparative analysis of SARS-CoV-2 specific T cells in healthy individuals following vaccination with inactivated SARS-CoV-2 or mRNA vaccine. • Relative to Spike mRNA vaccination, inactivated vaccines elicit a lower magnitude of Spike-specific T cells, but the combination of Membrane, Nucleoprotein and Spike-specific T cell response is quantitatively comparable to the sole Spike T cell response induced by mRNA vaccine, and they efficiently tolerate the mutations characterizing the Omicron lineage.
06 Oct 2022	Lenart et al.	A third dose of the unmodified COVID-19 mRNA vaccine CVnCoV enhances quality and quantity of immune responses	*Molecular Therapy: Methods & Clinical Development / Clinical animal study*	• This study investigated the impact of three 8 µg doses of CVnCoV, CureVac's SARS-CoV-2 vaccine candidate containing sequence-optimized unmodified mRNA encoding spike (S) glycoprotein, administered at 0, 4 and 28 weeks on immune responses in rhesus macaques. • Following the third dose S-specific binding and neutralizing antibodies increased 50-fold compared with post-dose 2 levels, with increased responses also evident in the lower airways and against the SARS-CoV-2 B.1.1.7 (Alpha), B.1.351 (Beta), P.1 (Gamma) and B.1.617.2 (Delta) variants. • Administration of low dose mRNA led to fewer cells expressing antigen in vivo at the injection site and in the draining lymph nodes compared with a tenfold higher dose. When immune memory is established, a third dose efficiently boosts the immunological responses as well as improves antibody affinity and breadth.

Evidence on Vaccines

Date	Author/s	Title	Journal/ Article Type	Summary
07 Oct 2022	Tartof et al.	Effectiveness and durability of BNT162b2 vaccine against hospital and emergency department admissions due to SARS-CoV-2 omicron sub-lineages BA.1 and BA.2 in a large health system in the USA: a test-negative, case-control study	*The Lancet Respiratory Medicine/ Test-negative case control study*	• This study aimed to evaluate the effectiveness and durability of BNT162b2 (Pfizer–BioNTech) against hospital and emergency department admissions for BA.1 and BA.2. • Two doses of BNT162b2 provided only partial protection against BA.1-related and BA.2-related hospital and emergency department admission, which underscores the need for booster doses against omicron. Although three doses offered high levels of protection (≥70%) against hospitalisation, variant-adapted vaccines are probably needed to improve protection against less severe endpoints, like emergency department admission, especially for BA.2.

Evidence on Drugs

Date	Author/s	Title	Journal/ Article Type	Summary
03 Oct 2022	Wu et al..	Low-dose versus high-dose dexamethasone for hospitalized patients with COVID-19 pneumonia: A randomized clinical trial	*PLoS One/ Randomized clinical trial*	• Dexamethasone 6 mg daily for 10 days is the recommended treatment for patients with severe or critical coronavirus disease 2019 (COVID-19), but the evidence on the benefit of high-dose dexamethasone (20mg daily) is limited. • Dexamethasone 20 mg daily did not result in better clinical outcome improvement, and was probably associated with higher 28-day mortality in patients on high-flow oxygen or noninvasive ventilation, compared with dexamethasone 6 mg daily.
04 Oct 2022	Shokri et al.	Efficacy of drug regimen with and without oseltamivir in hospitalized patients with COVID-19: A retrospective study	*Vacunas/ Retrospective cohort*	• This study aimed to evaluate the use and therapeutic outcomes of oseltamivir, an antiviral drug for patients with COVID-19. • Kaplan–Meier and logrank test showed no significant reduction in hospitalization time and survival rate following treatment with oseltamivir. However, a significant increase in lymphocytes count and reduction of C-reactive protein (CRP) level were detected.
05 Oct 2022	Whitehead et al.	Effects of Purinergic Receptor Deletion or Pharmacologic Modulation on Pulmonary Inflammation in Mice	*ACS Pharmacology & Translational Science/ Clinical animal study*	• Excessive production of cytokines during COVID-19 disease leads to acute lung injury (ALI), which consequently compromises alveolar exchange of O2 and CO2. • To mimic the effects of SARS-CoV-2-specific RNA accumulation in mice, the investigators administered progressively increasing daily doses of a viral mimetic, polyinosinic:polycytidylic acid [poly(I:C)] into the airways of mice over the course of 1 week. • The study results suggest that pharmacologic modulation of select purinergic receptors might be therapeutically useful in treating COVID-19 and other pulmonary infections.

Note. Studies that have not been peer-reviewed are highlighted in red.

Back to Sections page

Evidence on Drugs

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	Wai et al.	Association of Molnupiravir and Nirmatrelvir-Ritonavir with preventable mortality, hospital admissions and related avoidable healthcare system cost among high-risk patients with mild to moderate COVID-19	*The Lancet Regional Health - Western Pacific/ Retrospective cohort*	• This study aims to evaluate the clinical and cost effectiveness of Molnupiravir and Nirmatrelvir-ritonavir use in reducing mortality in this population. • Cox model estimated that Molnupiravor and Nirmatrelvir-Ritonavir were significantly associated with a reduced mortality hazard. In the outpatient cohort, both antiviral prescriptions were associated with reduced odds for unplanned hospital admissions. Among hospitalized patients, both were associated with significant reductions in the odds ratio for 28 days readmiission. • Molnupiravir and Nirmatrelvir-Ritonavir prescriptions were associated with reduced all-cause mortality and significant cost savings among high-risk patients with mild to moderate COVID-19 in Hong Kong.
05 Oct 2022	Suzuki et al.	Real-world clinical outcomes of treatment with molnupiravir for patients with mild-to-moderate coronavirus disease 2019 during the Omicron variant pandemic	*Research Square/ Retrospective cohort*	• This study evaluated the efficacy of molnupiravir in patients with mild-to-moderate coronavirus disease 2019 (COVID-19) during the Omicron variant surge in Fukushima Prefecture, Japan. • Clinical deterioration rate and disease severity were significantly lower in molnupiravir users compared to the non-users. • Although further investigation is still required, combination use of molnupiravir and sotrovimab may not be superior to mono use of molnupiravir for high-risk SARS-CoV-2 patients infected with the Omicron variant, especially the BA.2 subvariant.
06 Oct 2022	Jeong et al.	Combination therapy with nirmatrelvir and molnupiravir improves the survival of SARS-CoV-2 infected mice	*Antiviral Research/ Clinical animal study*	• This study evaluated the therapeutic potency of nirmatrelvir, remdesivir, and molnupiravir and their combinations in SARS-CoV-2-infected K18-hACE2 transgenic mice. • Systemic treatment of mice with each drug resulted in slightly enhanced antiviral efficacy and yielded an increased life expectancy of only about 20–40% survival. • However, combination therapy with nirmatrelvir (20 mg/kg) and molnupiravir (20 mg/kg) in lethally infected mice showed profound inhibition of SARS-CoV-2 replication in both the lung and brain and synergistically improved survival rates up to 80% compared to those with nirmatrelvir and molnupiravir administered alone. • Combination therapy effectively reduced clinical severity score, virus-induced tissue damage, and viral distribution compared to those in animals treated with monotherapies.

Note. Studies that have not been peer-reviewed are highlighted in red.

Back to Sections page

Evidence on Drugs

Date	Author/s	Title	Journal/ Article Type	Summary
07 Oct 2022	Liang et al.	Acriflavine and Proflavine Hemisulfate as potential antivirals by targeting M^{pro}	*Bioorganic Chemistry/ Immunoassay analysis*	• This study performed an enzymatic assay using a fluorogenic substrate to screen the inhibitors of Mpro. Acriflavine (ACF) and Proflavine hemisulfate (PRF) were identified as micromolar-range inhibitors. • Acriflavine and proflavine hemisulfate showed an encouraging inhibitory effect with IC50 values of 5.60 μM and 2.07 μM, respectively. • The results of the enzymatic assay implied that ACF and PRF could be developed as anti-SARS-CoV-2 reagents.These two drugs were determined to be non-competitive inhibitors.

Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
01 Oct 2022	Ransome et al.	Evaluating the transmission risk of SARS-CoV-2 from sewage pollution	*Science of the Total Environmental/ Ecological analysis*	• This study investigated if untreated sewage discharges provide a pathway for environmental transmission of SARS-CoV-2. • No evidence of SARS-CoV-2 RNA or infectious virus was found in UK samples, in contrast to RNA positive samples from Serbia. • While some viral particles may remain infectious long enough to reach surface waters, they are unlikely to accumulate over time. Dilution of wastewater likely limits environmental transmission,
04 Oct 2022	Cao et al.	Characterization of the enhanced infectivity and antibody evasion of Omicron BA.2.75	*Cell Host & Microbe/ Molecular structural analysis*	• Recently emerged SARS-CoV-2 Omicron subvariant, BA.2.75, displayed a growth advantage over circulating BA.2.38, BA.2.76 and BA.5 in India. • BA.2.75 shows substantially higher ACE2-binding affinity than BA.4/BA.5. • Structural analyses of BA.2.75 spike suggest enhanced endosomal pathway usage. • BA.2.75 significantly evades plasma from Delta and BA.4/BA.5 convalescents. • BA.2.75 strongly escapes BA.5-effective RBD/NTD-targeting antibodies
05 Oct 2022	Altarawneh et al.	Protective Effect of Previous SARS-CoV-2 Infection against Omicron BA.4 and BA.5 Subvariants	*The New England Journal of Medicine/ Test-negative case control*	• This study estimated the effectiveness of previous SARS-CoV-2 infection in preventing reinfection with BA.4 and BA.5 subvariants. • Protection from a previous SARS-CoV-2 infection against BA.4 or BA.5 reinfection was modest when the previous infection had been caused by a pre-omicron variant but strong when it had been caused by a post-omicron subvariant. • Protection of a previous infection against reinfection with a BA.4 or BA.5 subvariant was lower than that against reinfection with a BA.1 or BA.2 subvariant because of more waning of immune protection over time and a greater capacity for immune-system evasion with the BA.4 and BA.5 subvariants.

Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	Djordjevic et al.	Understanding risk factors of a new variant outburst through global analysis of Omicron transmissibility	*Environmental Research/ Ecological study*	• Due to the near-exponential rate of initial expansion, the new strain may not be detected at its true geographical origin but in the area with the most favorable conditions leading to the fastest exponential growth. • Data analysis revealed that a younger population, increased mobility, low natural immunity, and low booster prevalence are associated with higher average Omicron effective reproduction number values.
07 Oct 2022	Wee et al.	Nosocomial SARS-CoV-2 transmission in multi-bedded hospital cubicles over successive pandemic waves: lower mortality but wider spread with Omicron despite enhanced infection-prevention measures	*Infection, Disease, & Health/ Prospective cohort*	• This study contrasted nosocomial transmission amongst hospitalized inpatients across successive pandemic waves attributed to the Delta- and Omicron variants, over a 9-month period in which enhanced infection prevention measures were constantly maintained. • A surge of hospital-onset COVID-19 cases was encountered during the Omicron-wave, despite continuation of enhanced infection-prevention measures; mortality amongst hospital-onset cases was reduced. The Omicron variant poses an infection-control challenge in contrast to Delta; surveillance is important especially in settings where infrastructural limitations make room-sharing unavoidable, despite the high risk of transmission.

Evidence on Equipment and Devices

Date	Author/s	Title	Journal/ Article Type	Summary
01 Oct 2022	Jin et al.	Ischemic stroke and intracranial hemorrhage in extracorporeal membrane oxygenation for COVID-19: A systematic review and meta-analysis	*Perfusion/ Systematic Review & Meta-analysis*	• This study describes the ischemic stroke, intracranial hemorrhage (ICH) and overall in-hospital mortality in COVID-19 patients receiving ECMO and summarize the anticoagulation regimens. • The prevalence of ICH was significantly higher in COVID-19 patients supported with ECMO than non-COVID-19 patients requiring ECMO. • Unfractionated heparin was the most commonly used anticoagulant. Individualized anticoagulation regimens may be a good choice to balance thrombosis and bleeding.
05 Oct 2022	Patel et al.	Recent Advances in Biosensors for Detection of COVID-19 and Other Viruses	*IEEE Reviews in Biomedical Engineering/ Systematic review*	• Current virus detection techniques take a long time, are costly, and complex. Some of them generates false negative or false positive results. • Biosensors are emerging as efficient and economical analytical diagnostic instruments for early-stage illness detection.

Evidence on Equipment and Devices

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	Azza & Nurmalasari	Recording and Reporting of COVID-19 Vaccination with the Vaccination PCare Application at Puskesmas Seputih Many	*Journal of Medical Records & Health Information Management/ Descriptive analysis*	• This study aims to determine the implementation of recording and reporting of COVID-19 vaccination using the Vaccination PCare application. • The results showed that the application provided efficiant recording and reporting of COVID-19 vaccination, but the application could not be thoroughly supported due to the unavailability of wifi and printers.
05 Oct 2022	Tchatchueng-Mbougua et al.	Improving the management and security of COVID 19 diagnostic test data with a digital platform in resource-limited settings: The case of PlaCARD in Cameroon	*PLoS Digital Health/ Prospective cohort*	• The use of laboratory information management systems (LIMS) to streamline all phases of laboratory testing (preanalytical, analytical, and postanalytical) has become inevitable. • This study described the architecture, implementation, and requirements of PlaCARD, a software platform for managing patient registration, medical specimens, and diagnostic data flow, as well as reporting and authentication of diagnostic results during the 2019 coronavirus pandemic (COVID -19) in Cameroon. • 71% of samples tested for COVID 19 by molecular diagnostics in Cameroon from 05 March 2020 to 31 October 2021 were entered into PlaCARD. The median turnaround time for providing results was 2 days [0–2.3] before April 2021 and decreased to 1 day [1– 1] after the introduction of SMS result notification in PlaCARD. • The integration of LIMS and workflow management into a single comprehensive software platform (PlaCARD) has strengthened COVID 19 surveillance capabilities in Cameroon.
05 Oct 2022	Guo et al.	A photoelectrochemical immunosensor based on magnetic all-solid-state Z-scheme heterojunction for SARS-CoV-2 nucleocapsid protein detection	*Sensors and Actuators: B. Chemical/ Instrument validation study*	• Signal-off photoelectrochemical (PEC) immunosensor was constructed for SARS-CoV-2 nucleocapsid (N) protein detection based on a magnetic all-solid-state Z-scheme heterojunction. • FSTCA possessed excellent magnetic response that can simplify the separation and washing process, while allowing immune recognition to be performed in the liquid phase. • The fabricated PEC immunosensor demonstrated strong anti-interference, easy operation and high sensitivity, showing enormous potential in clinical diagnosis of SARS-CoV-2.

Evidence on Equipment and Devices

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	Yasui et al.	Rapid, high-sensitivity detection of biomolecules using dual-comb biosensing: application to the SARS-CoV-2 nucleocapsid protein	*Research Square/ Instrument validation study*	• Reverse-transcription polymerase chain reaction (RT-PCR) is the current standard for COVID-19 testing; however, it is hampered by the long testing process. Simplifying and shortening the testing process while achieving its high sensitivity would facilitate sooner quarantine and thus presumably prevent the spread of SARS-CoV-2. • This study aims to achieve the rapid and sensitive detection of SARS-CoV-2 by enhancing the performance of optical biosensing. Optical biosensing is demonstrated based on a dual configuration of optical frequency combs (OFCs), enabling detection of the SARS-CoV-2 nucleocapsid protein. • The dual-comb biosensing technique has the potential to reduce COVID-19 testing time to 10 min, which is considerably shorter than RT-PCR, while maintaining sensitivity close to that of RT-PCR. Furthermore, this system can be applied for sensing of not only viruses but also various biomolecules for medical care, food inspection, and environmental monitoring.

Evidence on Medical and Surgical Procedures

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	Lupu et al.	The added predictive role of echocardiography in patients with mild or moderate Coronavirus Disease 2019	*International Journal of Cardiology/*	• This study aimed to evaluate echocardiographic features that may aid in risk stratification for patients with mild/moderate COVID-19. • In patients presenting with mild/moderate COVID-19, multiple echocardiographic parameters at presentation are predictors of mortality or respiratory failure. • A very limited echocardiographic examination is sufficient to develop an improved strategy for risk stratification in patients presenting with mild/moderate COVID-19 infection. • In contrast to LV dysfunction, all indexes of RV dysfunction were poorer in COVID-19 patients, especially with elevated troponin, worsening disease grade, or clinical deterioration. The most common abnormal echocardiographic patterns in deteriorating patients were RV dilatation and dysfunction and shortened AT, while LV systolic and diastolic functions were normal.

Evidence on Traditional Medicine

Date	Author/s	Title	Journal/ Article Type	Summary
02 Oct 2022	Babalghith et al.	The role of berberine in Covid-19: potential adjunct therapy	*Inflammopharmacology/ Review article*	• One of the most used herbal medicines is berberine (BBR), which has anti-inflammatory, antioxidant, antiviral, and immune-regulatory effects; thus, BBR may be a prospective candidate against SARS-CoV-2 infection. • This review found that BBR has anti-SARS-CoV-2 effects with mitigation of associated inflammatory changes. BBR also reduces the risk of acute lung injury (ALI)/ acute resiratory distress syndrome (ARDS) in Covid-19 patients by inhibiting the release of pro-inflammatory cytokines and inflammatory signaling pathways. • BBR can be utilized as a possible anti-SARS-CoV-2 agent because it inhibits the proliferation of SARS-CoV-2 and attenuates the associated inflammatory disorders linked by the activation of inflammatory signaling pathways.
04 Oct 2022	Xuedong et al.	Shugan Jieyu capsule improve sleep and emotional disorder in coronavirus disease 2019 convalescence patients: a randomized, double-blind, placebo-controlled trial	*Journal of Traditional Chinese Medicine/ Randomized Controlled Trial*	• This study evaluated the efficacy of the Shugan Jieyu capsule on improving sleep and emotional disorder during Coronavirus disease 2019 (COVID-19) convalescence. • After 6-week treatment, there were statistically significant differences in the rate of reduction as well as efficiency in HAMD-17 scores, HAMA Total Scores, PHQ-15 Score, ISI Score from baseline in the experimental group and control group (< 0.05). There were 4 adverse events in the experimental group and 1 in the control group. • Shugan Jieyu capsule could significantly improve sleep and emotional disorder in patients during COVID-19 convalescence.

Evidence on Preventive & Promotive Health

Evidence on Screening

Date	Author/s	Title	Journal/ Article Type	Summary
04 Oct 2022	Erben et al.	Neurofilament light chain and vaccination status associate with clinical outcomes in severe COVID-19	*iScience/ Immunoassay analysis*	• SARS-CoV-2 infections can cause neurological symptoms. Given these neurological manifestations, blood neurofilament light chain (NFL) which is used as a marker for neurodegenerative diseases could serve as an estimate of disease severity in hospitalized patients with COVID-19. • NFL concentrations in plasma collected from 880 patients with COVID-19 within 5 days of hospital admission were elevated compared to controls. Higher plasma NFL associated with worse clinical outcomes including the need for mechanical ventilation, intensive care, prolonged hospitalization, and greater functional disability at discharge.

Evidence on Preventive & Promotive Health

Evidence on Screening

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	Alemu et al.	The temporal positivity rate of SARS-CoV-2 in different clinical samples	*Research Square/ Diagnostic analysis*	• Laboratory diagnostic testing is one of the crucial measures for curbing the spread of COVID-19. However, the quality of a laboratory test result is dependent upon the type of specimen used and the choice of diagnostic methods. • The aim of this study is to evaluate the diagnostic value of different clinical samples from humans such as blood/serum, stool, and urine as compared to the routinely used nasopharyngeal swab (NPS) samples for the detection of SARS-CoV2 in COVID-19 patients. • NPS has a 64% positivity rate, followed by stool, urine, and serum, 38%, 18%, and 17%, respectively. This implies that NPS is the most appropriate clinical specimen, and stool is the most preferred specimen next to NPS.

Evidence on Community Measures

Date	Author/s	Title	Journal/ Article Type	Summary
02 Oct 2022	Khan et al.	A Systematic Review of Whether the Use of N95 Respirator Masks Decreases the Incidence of Cardiovascular Disease in the General Population	*Cureus/ Systematic Review*	• The usage of masks such as the N95 has increased exponentially worldwide due to the COVID-19 pandemic. This systematic review aims to answer the question of whether the N95 respirator can improve cardiovascular health. • N95 mask usage led to increased reports of dyspnea. However, no significant effect was seen on blood pressure. N95 masks also showed improvement in aortic parameters. There is evidence that N95 masks can reduce aortic augmentation pressure.

Evidence on Personal Measures

Date	Author/s	Title	Journal/ Article Type	Summary
01 Oct 2022	Krishnamoorthi et al.	Impact of conducting hand hygiene audit in COVID-19 care locations of India—A large scale national multicentric study – HHAC study	*Indian Journal of Medical Microbiology/ Prospective cohort*	• A nationwide multicenter study was conducted in India, involving public, private, teaching and non-teaching COVID healthcare facilities (COVID-HCFs) using the IBhar mobile application based on WHO's hand hygiene audit tool. • The hand hygiene complete adherence rate (HHCAR) was poor among all zones of India, irrespective of type of facility (private, public, teaching, non-teaching), type of HCWs (20–40% considered as poor), gender, shifts and COVID care vs non-COVID care areas. The hand hygiene adherence is poor when considering the complete steps and duration recommended by WHO but it is good when considering the partial adherence rate.

Evidence on Preventive & Promotive Health

Evidence on Personal Measures

Date	Author/s	Title	Journal/ Article Type	Summary
07 Oct. 2022	Afriyanii et al.	Factors Related to CTPS (Washing Hands with Soap) Behavior as an Effort to Prevent Covid-19 in Children at TPQ Roudhotut Tolibin	*Indonesian Journal of Midwifery/ Prospective cohort*	• Covid-19 confirmed cases are currently declining, but vigilance efforts must still be made to prevent transmission. One of them is Handwashing With Soap (CTPS). • The purpose of this study is to find out what factors are related to CTPS behavior. • The results showed that there was no relationship between knowledge and CTPS behavior. However, there was a relationship between family roles and CTPS behavior, as well as the role of friends and CTPS behavior.

Evidence on Other Health Technologies

Date	Author/s	Title	Journal/ Article Type	Summary
05 Oct 2022	Seid et al..	Effectiveness and feasibility of telerehabilitation in patients with COVID-19: a systematic review and meta-analysis	*BMJ Open/ Systematic Review & Meta-analysis*	• This study aims to determine the pooled effectiveness and feasibility of telerehabilitation in patients with COVID-19. • The findings showed that telerehabilitation interventions could improve functional capacity and exercise perception among patients affected by COVID-19 and can be implemented with a high completion rate and minimal adverse events. The most common reason for withdrawal after randomisation was lost to follow-up or uncooperativeness. • More studies are required to investigate the effects on cardiopulmonary function, quality of life, anxiety, depression and other variables.

MONKEYPOX

Evidence on Epidemiology

Monkeypox Case Tracker:

WHO: https://extranet.who.int/publicemergency/#

US CDC: https://www.cdc.gov/poxvirus/monkeypox/response/2022/index.html

Date	Author/s	Title	Journal/ Article Type	Summary
05 October 2022	ECDC & WHO	Joint ECDC-WHO Regional Office for Europe Monkeypox Surveillance Bulletin	*Situation Report*	• A total of 24,833 cases of monkeypox have been identified from 44 countries and areas throughout the European region • The majority of cases were between 31 and 40 years-old (9,725/24,638 - 39%) and male (24,235/24,616 - 98%). Of the 10,6729 male cases with known sexual orientation, 96% self-identified as men who have sex with men. Among cases with known HIV status, 38% (3,773/10,014) were HIV-positive. The majority of cases presented with a rash (14,677/15,372 - 96%) and systemic symptoms such as fever, fatigue, muscle pain, chills, or headache (10,417/15,372 - 68%). • There were 724 cases hospitalised (6%), of which 238 cases required clinical care. Five (5) cases were admitted to ICU, and four cases (5) of monkeypox were reported to have died.

Evidence on Vaccines

Date	Author/s	Title	Journal/ Article Type	Summary
07 Oct 2022	Payne et al.	Incidence of Monkeypox Among Unvaccinated Persons Compared with Persons Receiving ≥1 JYNNEOS Vaccine Dose — 32 U.S. Jurisdictions, July 31–September 3, 2022	*US CDC Morbidity and Mortality Weekly Report (MMWR) / Observational study*	• To examine the incidence of monkeypox among persons who were unvaccinated and those who had received ≥1 JYNNEOS vaccine dose, 5,402 reported monkeypox cases occurring among males aged 18-49 years during July 31-September 3, 2022, were analyzed by vaccination status across 32 U.S. jurisdictions. • Average monkeypox incidence (cases per 100,000) among unvaccinated persons was 14.3 (95% CI = 5.0-41.0) times that among persons who received 1 dose of JYNNEOS vaccine ≥14 days earlier. • This early finding suggests that a single dose of JYNNEOS vaccine provides some protection against monkeypox infection. The degree and durability of such protection is unknown, and it is recommended that people who are eligible for monkeypox vaccination receive the complete 2-dose series.

Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
04 Oct 2022	Branda et al.	Monkeypox: EpiMPX surveillance system and open-data with a special focus on European and Italian epidemic	*Journal of Clinical Virology Plus / Epidemiologic survey*	• Preliminary calculation of the study estimated reproduction number Rt in European countries with more than 28 days of observed incidence, assuming that the Serial Interval (SI) early estimate in Italy is valid for other countries too. • The proposed EpiMPX surveillance system provides an overview of the European and Italian Monkeypox epidemiological situation with an open-access database to support epidemiological understanding of the origins and transmission dynamics of the disease with informative graphical outputs. • These data confirmed the prevalent expression of Monkeypox within males, both in Europe and Italy. European MSM patients were affected by Monkeypox in a high percentage, confirming close sexual contact and possible sexual transmission.
06 Oct 2022	Eisenstadt et al.	Recognizing Minimal Cutaneous Involvement or Systemic Symptoms in Monkeypox	*JAMA Dermatology / Case Report*	• Clinicians should be aware that patients during this outbreak have presented in an atypical manner. Few or single cutaneous lesions may precede instead of follow mild systemic symptoms. Lesions may be asymptomatic, painful, or minimally pruritic. • In patients with umbilicated or ulcerated lesions, particularly localized to the anogenital region, clinicians should perform a thorough social history and maintain a high index of suspicion for monkeypox, even in those with mild constitutional symptoms, who report a new sexual partner in the preceding 2 weeks.
06 Oct 2022	Ladhani et al.	Very low risk of monkeypox among staff and students after exposure to a confirmed case in educational settings, England, May to July 2022	*Eurosurveillance / Surveillance Study*	• A secondary school (11-16 year-olds), a primary school (5-11 year-olds), reception year (4-5 year-olds) and a nursery (2-5 year-olds) were investigated following confirmed monkeypox in an adult in each educational setting during June and July 2022. • MVA-BN ((Modified Vaccinia Ankara - Bavarian Nordic)) vaccine was offered up to 14 days post exposure to 186 children < 12 years and 21 were vaccinated. • No secondary cases occurred among at least 340 exposed students and more than 100 exposed staff during the 28-day follow-up period.

Evidence on Preventive & Promotive Health

Evidence on Screening

Date	Author/s	Title	Journal/ Article Type	Summary
--	--	--	--	--

Evidence on Personal Measures

Date	Author/s	Title	Journal/ Article Type	Summary
07 Oct 2022	Samaranakaye and Anil	The Monkeypox Outbreak and Implications for Dental Practice	*International Dental Journal / Narrative review*	• MPX appears to be a significant travel-related disease. Dental care workers should note that premonitory signs of the disease usually appear on the oral mucosa as macules and ulcers prior to the characteristic skin lesions. Implementing standard, contact, and droplet infection control measures, patient isolation, and referral are important, particularly during a local outbreak. A vaccine specific for MPX is under development, although the smallpox vaccine appears to be effective.

Evidence on Community Measures

Date	Author/s	Title	Journal/ Article Type	Summary
06 Oct 2022	Ladhani et al.	Very low risk of monkeypox among staff and students after exposure to a confirmed case in educational settings, England, May to July 2022	*Eurosurveillance / Surveillance Study*	• A secondary school (11-16 year-olds), a primary school (5-11 year-olds), reception year (4-5 year-olds) and a nursery (2-5 year-olds) were investigated following confirmed monkeypox in an adult in each educational setting during June and July 2022. MVA-BN vaccine was offered up to 14 days post exposure to 186 children < 12 years and 21 were vaccinated. No secondary cases occurred among at least 340 exposed students and more than 100 exposed staff during the 28-day follow-up period.

Evidence on Drugs

Date	Author/s	Title	Journal/ Article Type	Summary
04 Oct 2022	Desai et al.	Compassionate Use of Tecovirimat for the Treatment of Monkeypox Infection	*JAMA* / *Case series*	• Tecovirimat treatment was given to eligible patients following laboratory confirmation of orthopoxvirus infection from skin lesions by polymerase chain reaction • Oral treatment with tecovirimat for adults was weight-based, administered every 8 or 12 hours, and was taken within 30 mins of a meal containing moderate to high fat content.The duration of therapy was 14 days but could be extended depending on the clinical status. Clinical data were collected on day 7 and day 21 following initiation of therapy. • One patient received 21 days of therapy while the other 24 who completed the regimen were treated for 14 days. Complete resolution of lesions was reported in 10 patients (40%) on day 7 of therapy while 23 (92%) had resolution of lesions and pain by day 21. Treatment was generally well tolerated with no patient discontinuing therapy. The most frequently reported adverse events on day 7 of therapy included the following: fatigue in 7 patients (28%), headache in 5 (20%), nausea in 4 (16%),itching in 2 (8%), and diarrhea in 2 (8%). • No control group was included, limiting conclusions of antiviral efficacy pertaining to duration of symptoms or severity. Time from symptom onset to presentation was variable among patients, and conclusions related to antiviral usevs natural evolution of disease should be made with caution.

Evidence on Equipment and Devices

Date	Author/s	Title	Journal/ Article Type	Summary
02 Oct 2022	Allan-Blitz et al.	Laboratory Validation and Clinical Performance of a Saliva-Based Test for Monkeypox Virus	Journal of Medical Virology / Systematic review	• The study describe a saliva-based polymerase chain reaction (PCR) assay for monkeypox virus, *in vitro* test performance, and clinical implementation of that assay testing sites in Los Angeles, San Francisco, and Palm Springs, California. • The assay showed in silico inclusivity of 100% for 97 strains of monkeypox virus, with an analytic sensitivity of 250 copies/mL, and 100% agreement compared to known positive and negative specimens. • Clinical testing identified 22 cases of monkeypox among 132 individuals (16.7%), of which 16 (72.7%) reported symptoms, 4 (18.2%) without a rash at the time of testing. Of an additional 18 patients with positive lesion tests, 16 (88.9%) had positive saliva tests. • The systematic review identified 6 studies; 100% of tests on oropharyngeal specimens from 23 patients agreed with the PCR test result of a lesion.

Evidence on Traditional Medicine

Date	Author/s	Title	Journal/ Article Type	Summary
--	--	--	--	--

Evidence on Medical and Surgical Procedures

Date	Author/s	Title	Journal/ Article Type	Summary
--	--	--	--	--

Evidence on Other Health Technologies

Date	Author/s	Title	Journal/ Article Type	Summary
--	--	--	--	--