Weekly Evidence Report

Health Technology Assessment Philippines

24– 31 December 2022

Overview

The following report presents summaries of evidence the Department of Health (DOH) - Health Technology Assessment (HTA) Division reviewed for the period of 24 - 31 December 2022 on current public health emergency concerns, COVID-19 and monkeypox. The HTA Division reviewed a total of 20 studies for COVID-19 and 13 studies for monkeypox.

For COVID-19, evidence includes 0 studies on Epidemiology; 3 studies on Vaccines; 6 studies on Drugs; 3 studies on Transmission; 2 studies on Equipment and Devices; 1 study on Medical and Surgical Procedures; 1 studies on Traditional Medicine; 3 studies on Preventive & Promotive Health; and 1 study on Other Health Technologies.

For monkeypox, evidence includes 1 study on Epidemiology; 2 studies on Vaccines; 3 studies on Drugs; 4 studies on Transmission; 0 studies on Equipment and Devices; 0 studies on Medical and Surgical Procedures; 1 study on Traditional Medicine; 2 studies on Preventive & Promotive Health; and 0 studies on Other Health Technologies.

Sections

COVID-19

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
26 Dec 2022	Zhan et al.	Booster shot of inactivated SARS-CoV-2 vaccine induces potent immune responses in people living with HIV	Medical Virology/ Research Article	• The study aimed to investigate the immunogenicity to SARS-CoV-2 and evasive sub-variants BA.4/5 in people living with HIV (PLWH) following a third booster shot of inactivated SARS-CoV-2 vaccine. • Results of the study showed that the serum levels of IgG anti-RBD and inhibition rate of NAb were significantly elevated at the “post-third dose” sampling time compared with the pre-third dose in PLWH, but were relatively decreased relative to those of HCs. Induced humoral and cellular responses attenuated over time after triple-dose vaccination. The neutralizing capacity against BA.4/5 was also intensified but remained below the positive inhibition threshold. Seropositivity of SARS-CoV-2-specific antibodies in PLWH was prominently lower than that in HC. The study also identified age, CD4 cell counts, time after the last vaccination, and WHO staging type of PLWH as independent factors associated with the seropositivity of antibodies.
30 Dec 2022	US CDC	Early Estimates of Bivalent mRNA Vaccine Effectiveness in Preventing COVID-19–Associated Emergency Department or Urgent Care Encounters and Hospitalizations Among Immunocompetent Adults	CDC/Morbidity and Mortality Weekly Report	• The study discussed that data from the multistate VISION Network during September–November 2022, when the BA.5 and other Omicron sub-lineages were the predominant circulating SARS-CoV-2 variants in the United States, bivalent booster doses (after receipt of 2, 3, or 4 monovalent doses) were effective in preventing medically attended COVID-19 compared with no previous vaccination among immunocompetent adults and provided additional protection when compared with previous monovalent mRNA vaccine doses only. • Real-world data suggest that bivalent boosters provide a modest degree of protection against symptomatic infection among adults compared with receipt of 2, 3, or 4 doses of monovalent vaccines only.
31 Dec 2022	Mohammed et al.	The efficacy and effectiveness of the COVID-19 vaccines in reducing infection, severity, hospitalization, and mortality: a systematic review	Human Vaccines & Immunotherapeutics/ Systematic Review	• The systematic review compares the efficacy and effectiveness of seven COVID-19 vaccines • The full-dose regimen of the Pfizer/BioNTech vaccine is the most effective against infections with the B.1.1.7 and B.1.351 variants. Despite of the high effectiveness of some of the COVID-19 vaccines, more efforts are required to test their effectiveness against the other newly emerging variants.

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
26 Dec 2022	Hamada et al.	Prevalence and characteristics of antibiotic prescription for acute COVID-19 patients in Japan	*Scientific Report/ Cross-sectional study*	• The study determined prevalence and patient characteristics associated with antibiotic prescription in a large population with COVID-19.Results show that the antibiotic prescription rate in COVID-19 patients was lower than the prescription rate in patients with upper respiratory symptoms in Japan prior to the COVID-19 pandemic. • Physicians examining patients with respiratory symptoms in winter might have a higher tendency to suspect bacterial pneumonia. Indeed, winter has a higher incidence of bacterial pneumonia and common respiratory viral infections • Coinfection of bacteria and viruses, including SARS-CoV-2, may occur, however, cases of COVID-19 with coinfection of bacterial pneumonia have been reported in mostly late-stage ventilator-associated pneumonia and rarely early-stage community-acquired bacterial pneumonia.
27 Dec 2022	Farhadian et al.	Sotrovimab therapy in solid organ transplant recipients with mild to moderate COVID-19: a systematic review and meta-analysis	*Immunopharmacology and Immunotoxicology/Systematic Review and Meta-analysis*	• The study aimed to determine the effectiveness of sotrovimab among solid organ transplant recipients with COVID-19. Results from the meta-analysis indicated that SOTR outpatients with mild to moderate COVID-19 who received sotrovimab had lower likelihood of all-cause hospitalization (OR: 0.29, CI: 0.16, 0.52, $p < 0.001$), ICU admission (OR: 0.17, CI: 0.05, 0.64, $p = 0.009$) and mortality (OR: 0.15, CI: 0.03, 0.64, $p = 0.010$) within 30 days of drug infusion compared to controls. The study concluded that monoclonal antibody therapy with sotrovimab in SOTR is associated with better outcomes and consequently a reduced risk of disease progression in this high-risk population.
27 Dec 2022	Olczak-Pruc et al.	The effect of zinc supplementation on the course of COVID-19 – A systematic review and meta-analysis	*Annals of Agricultural and Environmental Medicine/ Systematic review and meta-analysis*	• In-hospital mortality in zinc supplementation patients, and patients treated without zinc, varied and amounted to 21.6% vs. 23.04% difference (OR=0.71; 95%CI: 0.62–0.81; p<0.001). 28-day to 30-day mortality in patients treated with zinc was 7.7%, compared to 11.9% for patients treated without zinc (OR=0.61; 95%CI: 0.35–1.06; p=0.08). In-hospital adverse events among patients treated with and without COVID-19 did not show any statistically significant differences in relation to acute kidney injury occurrence (12.8% vs. 12.4%, respectively; OR=0.63; 95%CI: 0.19–2.12; p=0.45, as well as need for mechanical ventilation (13.2% vs. 14.1%; OR=0.83; 95%CI: 0.52–1.32; p=0.43) • Zinc supplementation is associated with lower COVID-19 in-hospital mortality. Additionally, it is risk-free in COVID-19 patients since there have been no negative side effects, such as acute renal damage or the requirement for mechanical ventilation compared to patients without COVID-19. Due to scientific evidence and the role it represents in the human body, zinc supplementation should be taken into consideration for COVID-19 patients as an adjunct therapy.

Evidence on Drugs

Date	Author/s	Title	Journal/ Article Type	Summary
28 Dec 2022	Somersan-Karakaya et al.	Casirivimab and Imdevimab for the Treatment of Hospitalized Patients With COVID-19	*Infectious Diseases/ Phase 1/2/3, double-blind placebo-controlled trial*	• The results of the study showed that when added to standard-of-care treatment, CAS+IMD may reduce all-cause mortality. While the primary clinical endpoint of death or mechanical ventilation from day 6 to 29 in the high viral load population had a strong positive trend but did not reach significance, all clinical endpoints demonstrated numeric improvements, predominantly driven by results in the seronegative population. CAS + IMD also improved the rates of hospital discharge and death or readmission to hospital at day 29, which persisted through day 57, showing possible benefit to patients as well as the overburdened health care system. • CAS + IMD in patients on low-flow or no supplemental oxygen was well-tolerated and the safety profile was consistent with that observed previously, showing low rates of infusion-related and hypersensitivity reactions. The placebo group experienced a greater frequency of SAEs and adverse events leading to death than the CAS + IMD group, consistent with the clinical benefit of treatment.
31 Dec 2022	Badadhel et al.	Inhaled corticosteroids for the treatment of COVID-19	*European Respiratory Review/ Narrative*	• Evidence from clinical studies indicates that the inhaled corticosteroids (ICS) routinely taken for asthma and COPD could have had a protective role in preventing severe COVID-19 and, therefore, may be a promising treatment for COVID-19. Systemic corticosteroids alongside the Janus kinase inhibitor baricitinib or an interleukin (IL)-6 receptor blocker are currently the only drugs strongly recommended by the WHO for the treatment of severe COVID-19 • The evidence reviewed indicates that the use of ICS – specifically budesonide or ciclesonide – can improve outcomes of COVID-19. ICS could potentially benefit COVID-19 infected patients, particularly high-risk groups, if used ideally within days of symptoms starting. As the side effects of ICS are well known and reversible upon cessation, their favourable benefit-to-risk profile would suggest that ICS are a worthwhile consideration for treatment of COVID-19
31 Dec 2022	Cillóniz et al.	Remdesivir and survival outcomes in critically ill patients with COVID-19: A multicentre observational cohort study	*Journal of Infection/ Cohort Study*	• Multicentre, observational cohort study including consecutive COVID-19 patients admitted to 55 Spanish ICUs between 5 February 2020 and 21 December 2021. The study compared COVID-19 patients receiving remdesivir (RDV) versus those who did not receive RDV at • Among the overall population receiving RDV, there was significant association observed between early administration (<5 days since symptoms' onset) and the propensity-adjusted risk of 90-day mortality (HR 1.53, 95% CI 1.02 to 2.31, p=0.042). In contrast, there were no significant association between <7 days since symptoms' onset and the risk of 90-day mortality (HR 1.21, 95% CI 0.85 to 1.72, p=0.285). • In summary, treatment with RDV was not associated with improved outcomes in critically ill patients with severe COVID-19, neither overall nor when stratifying by clinically relevant variables such as age, illness severity, organ damage, laboratory findings, respiratory support or SARS-CoV-2 viral load in plasma.

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

Back to Sections page

Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
26 Dec 2022	Wan et al.	Transmission rate and control efficiency of COVID-19 was lower in warm and wet climate	*International Journal of Environmental Health Research/Retrospective study*	• This study investigated the transmission parameters and modeled human and climate effects on COVID-19 transmission. • The study found that the average transmission rate was lower in warm climate over the world and in wet climate (more precipitation) in Europe. The maximum transmission rate was lower in warm climate in the world, China and USA, and in wet climate in China. The control efficiency in the world, China, and USA was lower in warm and wet condition. In general, our results indicate that warm and wet climate do not favor transmission and human intervention of COVID-19, and COVID-19 transmission rate would be lower in warm and wet seasons or regions than in dry and cold ones.
27 Dec 2022	Schumm et al.	Lower SARS-CoV-2 household transmission in children and adolescents compared to adults	*Scientific Report/ Prospective seroprevalence study*	• This study analysed SARS-CoV-2-transmission in 300 households with confirmed index-cases to evaluate infectivity and susceptibility in a setting of close contact. • Results show that children and adolescents were less likely to infect both household contacts of the same age and adult household contacts (SAR 0.29), which indicates a lower infectivity in this age group. This is in line with several previous studies while some others found children to be more likely than adults to transmit the virus. However, overall, SARS-CoV-2 transmission rates from children seem to be lower in contrast to other respiratory viruses, for which children were found responsible for most of transmission clusters. In addition to the lower SAR in children and adolescents in our study, participants in this age group showed fewer symptoms during infection and were more often asymptomatic compared to adults which is very consistently described in literature. This indicates that an asymptomatic SARS-CoV-2-infection is associated with a reduced infectivity and contradicts the assumption that children quickly spread the virus because of asymptomatic and therefore undetected infections.

Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
29 Dec 2022	Koc and Dilli	How does COVID-19 affect maternal and neonatal outcomes?	*Perinatal Medicine/Research Article*	• According to the study, COVID-19 can be fatal, especially in pregnant women with accompanying chronic diseases. The timing and mode of delivery should be decided by the status of the mother and fetus instead of SARS-CoV-2 positivity in pregnant women. At the nursery, routine separation of SARS-CoV-2 positive mothers and their infants is not recommended. However, it is important to take preventive measures to reduce the risk of transmission. The advantages of breastfeeding seem to outweigh the potential dangers of viral transmission. Neonatal COVID-19 infections may cause different clinical pictures from asymptomatic infections to life-threatening diseases. International health authorities specifically recommend that pregnant and lactating women get vaccinated to diminish the risk of transmission of the virus to the mother and fetus, not giving preference to a certain vaccine. It is prudent to apply universal screening only in populations with a high prevalence of COVID-19.

Evidence on Equipment and Devices

Date	Author/s	Title	Journal/ Article Type	Summary
24 Dec 2022	Timilsina et al.	Rapid quantitation of SARS-CoV-2 antibodies in clinical samples with an electrochemical sensor	*Biosensors and Bioelectronics/ Serologic study*	• This study report a rapid, multiplexed, electrochemical (EC) device with on-chip control that enables detection of SARS-CoV-2 antibodies in less than 10 min using 1.5 µL of a patient sample. The EC biosensor demonstrated 100% sensitivity and specificity, and an area under the receiver operating characteristic curve of 1, when evaluated using 93 clinical samples, including plasma and dried blood spot samples from 54 SARS-CoV-2 positive and 39 negative patients. The EC biosensor platform enables simple, cost-effective, sensitive, and rapid detection of anti-SARS-CoV-2 antibodies in complex clinical samples, which is convenient for evaluating humoral-responses to vaccination or infection in population-wide testing, including applications in point-of-care settings. The study also demonstrate the feasibility of using dried blood spot samples that can be collected locally and transported to distant clinical laboratories at ambient temperature for detection of anti-SARS-CoV-2 antibodies which may be utilized for serological surveillance and demonstrate the utility of remote sampling.

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

Back to Sections page

Evidence on Equipment and Devices

Date	Author/s	Title	Journal/ Article Type	Summary
30 Dec 2022	Hemalatha, M.	A hybrid random forest deep learning classifier empowered edge cloud architecture for COVID-19 and pneumonia detection	*Public Health Emergency/ Machine learning study*	• The study proposes a MOMHTS algorithm-optimized HRFDL classifier for edge computing IoT-enabled medical environment. It was reported that the advantages offered by this model are cost-efficiency, higher accuracy, and minimized execution time which is very important when deploying the applications in an IoT-based edge environment. In this way, it allows the deep learning classifier to explore even further. The proposed model's majority voting system considerably enhances the outcome of the random forest and MLP classifier. After the disease classes (COVID-19/Pneumonia) are identified the results obtained are transformed into the cloud server which can be later utilized by the healthcare professionals and government workers to aid in early diagnosis and notify the people in the surrounding location to be aware of this disease. The proposed work is simulated in real-time by conducting a series of experiments and the results are evaluated using different performance metrics such as sensitivity, specificity, accuracy, ROC curve, F1-score, confusion matrix, etc. The proposed methodology offers an accuracy of 99% for both the COVID19 lung CT scan dataset and Chest X-ray images (Pneumonia) datasets. The size of the developed application is 8 MB which is relatively lower than other models and a latency value of 0.076 is obtained for a total patient record of 1500. In the future, the study plan to optimize the security of the web services and also identify the different types of pneumonia.

Evidence on Medical and Surgical Procedures

Date	Author/s	Title	Journal/ Article Type	Summary
27 Dec 2022	Lee et al.	Efficacy and safety of prone position in COVID-19 patients with respiratory failure: a systematic review and meta-analysis	*European Journal of Medical Research/ Systematic Review and Meta-analysis*	• 9 randomized controlled trials (RCTs) and 23 nonrandomized studies (NRSs) were included in the systematic review. In the non-intubated patients, the prone position reduced the intubation rate compared with the non-prone position in 6 RCTs (n = 2156, RR 0.81, P = 0.0002) and in 18 NRSs (n = 3374, RR 0.65, P = 0.002). In the subgroup analysis according to the oxygen delivery method, the results were constant only in the high-flow nasal cannula/noninvasive ventilation subgroup. For mortality, RCTs reported no difference between prone and non-prone groups, but in NRSs, the prone position had a significant advantage in mortality [18 NRSs, n = 3361, relative risk (RR) 0.56, P < 0.00001] regardless of the oxygen delivery methods shown in the subgroup analysis. There was no RCT for intubated patients, and mortality did not differ between the prone and non-prone groups in NRSs. Adverse events reported in both the non-intubated and intubated groups were mild and similar between the prone and non-intubated groups. • For non-intubated patients with COVID-19, prone positioning reduced the risk of intubation, particularly in patients requiring a high-flow oxygen system. However, mortality was unclear between the prone and non-prone groups. There was insufficient evidence to support the beneficial effects of prone positioning in intubated patients.

Evidence on Traditional Medicine

Date	Author/s	Title	Journal/ Article Type	Summary
28 Dec 2022	Li et al.	Ginger supplement significantly reduced length of hospital stay in individuals with COVID-19	*Nutrition and Metabolism/r Randomized Control Trial*	• Results show that there is a significant improvement in hospitalization time was observed in response to the ginger supplement. One possible explanation for the observed beneficial effect of the ginger supplement on the length of stay in study participants could be the ginger-derived exosomal micro-RNA, which has been demonstrated to inhibit lung inflammation caused by COVID-19 in both in vitro and in vivo studies • Further, aging has been recognized as a critical risk factor for the severity and mortality of COVID-19], possibly due to age-related general decline in immune function. Therefore, the beneficial effect of the ginger supplement on the length of hospital stay could be less prominent in younger adults given their relatively quicker recovery compared to the elderly. • In patients with pre-existing medical conditions when infected with COVID-19, it was seen that supplementing with ginger significantly shortened the length of stay by about 40%, suggesting a strong protective effect of ginger supplement to this vulnerable group.

Evidence on Preventive & Promotive Health

Evidence on Screening

Date	Author/s	Title	Journal/ Article Type	Summary
27 Dec 2022	Rabil et al.	Author Correction: Effective screening strategies for safe opening of universities under Omicron and Delta variants of COVID-19	*Scientific Report/Retrospective study*	• Results demonstrate that the screening strategy that averts the highest number of infections per test depends on the booster coverage and the characteristics of the predominant variant. Comparing universal strategies with those that customize the screening population, the results indicate that, in most cases, universal screening is not the most efficient strategy in terms of infections averted per test when both Delta and Omicron variants are in circulation at similar rates, which may represent the U.S. during late December 2021. • Several factors, including the higher reproduction number of, and the lower vaccine efficiency against, Omicron, and the waning vaccine-induced immunity against both variants, contribute to this finding. Furthermore, the study noted in their observation that as the proportion of Omicron (versus Delta) decreases, the screening frequency needed to maximize the efficiency also decreases.

Evidence on Community Measures

Date	Author/s	Title	Journal/ Article Type	Summary
28 Dec 2022	Ratnayake et al.	Rapidly adapted community health strategies to prevent treatment interruption and improve COVID-19 detection for Syrian refugees and the host population with hypertension and diabetes in Jordan	*International Health/Cohort study*	• The remote strategy used in this study was refined by clinicians and the research team to fill gaps. It focused on mitigation of secondary impact on NCD outcomes due to the disruption to clinical care12 and infection prevention, surveillance and linkage to testing for COVID-19, as summarized using a predefined framework for primary care of NCDs. Formal counseling on diet and lifestyle was deemed too time-intensive, and biological monitoring was not possible without a household visit. For clinical questions, CHVs linked patients with clinic staff. • Although conducted over a short period, the strategy suggests benefit for continuity of care and filling gaps in the non-clinical components that are difficult to deliver in a busy clinic. Patient and providers perspectives highlighted that continuity was possible, with quantitative results showing high uptake, attendance and adherence. Alerts to stockouts, complications, psychosocial and referrals, and COVID-19 suspected cases were routinely detected and manageable. Disease control showed non-inferiority in that patients did not have worsening disease control while being maintained by the CHVs, without direct care.

Evidence on Preventive & Promotive Health

Evidence on Personal Measures

Date	Author/s	Title	Journal/ Article Type	Summary
30 Dec 2022	Candemir et al.	Relationship between exercise capacity and impulse oscillometry parameters after COVID-19 infections	*Respiratory Research/ Research article*	• The study investigated the correlation between impulse oscillometry (IOS) parameters and exercise capacity by using incremental and endurance shuttle walk tests (ISWT, ESWT) and investigate the factors and parameters which might have an effect on both IOS parameters and exercise capacity tests. • It was shown that exercise capacity was linked to pulmonary function in patients after COVID-19. It was suggested that decreased exercise capacity could be due to ventilatory limitation in these patients.Small airway disease with normal spirometric functions could be related with decreased exercise capacity in COVID-19 survivors regardless of concomitant disease, BMI, smoking history, time since COVID-19 diagnosis.

Evidence on Other Health Technologies

Date	Author/s	Title	Journal/ Article Type	Summary
27 Dec 2022	Zhu et al.	What can we learn from the Baduanjin rehabilitation as COVID-19 treatment?: A narrative review	*Nursing/Narrative review*	• The Baduanjin exercise is a COVID-19 rehabilitation exercise method recommended by the Chinese Rehabilitation Society. It has also been demonstrated to reduce depression and anxiety symptoms in patients with psychosomatic illnesses, which may be appropriate as an alternative therapy for rehabilitation in COVID-19 patients with these symptoms. During the outbreak of COVID-19, the nationwide lockdown imposed on the public led to a series of psychosocial problems, such as self-harm, domestic violence or aggression due to lockdown, grieving of family and friends who were infected or died due to COVID-19, separation from family and friends and social isolation. These conditions led to a higher incidence of anxiety and depression than before the COVID-19 pandemic. • Baduanjin has shown a statistically significant effect in improving patients' negative emotions. The Baduanjin training intervention improved patients' ability to focus attention while in isolation at the shelter hospital. In addition, the author stated that the patient's mental status improved, relieving their anxiety and depression and thus, increasing their confidence to overcome the disease. Performing regular Baduanjin exercise for at least 60 min per day, three times per week (720 MET-min per week) for 8 weeks showed a positive trend towards improving self-image and thus, reducing psychologic distress compared to the inactive controls. • Research has shown that a MET-min/week range of 500 to 1000 is the most beneficial to COVID-19 patients. These positive effects can be attained when coordination between breathing, body movement and mind is achieved harmoniously after several Baduanjin practice sessions. There are also fewer cognitive demands when practicing Baduanjin. Therefore, it is considered beneficial to the mental health of COVID-19 patients.

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
–	–	–	–	–

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
28 Sep 2022	ECDC & WHO	Joint ECDC-WHO Regional Office for Europe Monkeypox Surveillance Bulletin	*Situation Report*	• A total of 24,622 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 (9,643/24,435 - 39%) and male (24,039/24,416 - 98%). Of the 10,610 male cases with known sexual orientation, 96% self-identified as men who have sex with men. Among cases with known HIV status, 38% (3,730/9,887) were HIV-positive. The majority of cases presented with a rash (14,504/15,190 - 96%) and systemic symptoms such as fever, fatigue, muscle pain, chills, or headache (10,299/15,190 - 68%). • There were 710 cases hospitalised (6%), of which 232 cases required clinical care. Five (5) cases were admitted to ICU, and five cases (5) of monkeypox were reported to have died.

Evidence on Vaccines

Date	Author/s	Title	Journal/ Article Type	Summary
29 Sep 2022	Brooks et al.	Intradermal Vaccination for Monkeypox — Benefits for Individual and Public Health	*New England Journal of Medicine/ Narrative Article*	• Smallpox vaccination was developed by Jenner using something similar to intradermal vaccine administration: variolation, or the practice of scratching immunizing material into the skin. • Among the advantages of intradermal vaccination is that it can generate immune responses equivalent to those achieved with subcutaneously or intramuscularly administered vaccine but with as little as one fifth to one tenth the dose, while avoiding the rare risk of nerve, blood-vessel, or joint-space injury. • Despite limited clinical evidence, all available data suggest that intradermal administration of JYNNEOS will be as immunogenic as subcutaneous dosing for preventing monkeypox while being an option that can promote access and equity
30 Sep 2022	Hazra et al.	Human Monkeypox Virus Infection in the Immediate Period After Receiving Modified Vaccinia Ankara Vaccine	*JAMA Network/ Cohort study*	• During the study period, 400 patients tested positive for monkeypox, and 7339 individuals received their first dose of Modified Vaccinia Ankara-Bavarian Nordic vaccine (MVA-BN) at Howard Brown Health • Ninety patients tested positive for monkeypox at least 1 day after vaccination. The median time between vaccination and infection was 8.5 days (IQR, 4-13; range, 1-58 days) • The majority of post-vaccination monkeypox infections occurred within 2 weeks of receiving the first dose of MVA-BN, before full effectiveness was likely to have been achieved, in line with published immunogenicity data. • Of concern is that at least 2 breakthrough infections were observed in individuals at least 3 weeks after a second dose.

Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
27 Sep 2022	León-Figueroa et al	Epidemiological Situation of Monkeypox Transmission by Possible Sexual Contact: A Systematic Review	*Tropical Medicine and Infectious Diseases/ Systematic review*	• A total of 28 studies reporting sexually transmitted monkeypox infection were included • All reported patients had sexual risk behaviors, of which men who have sex with men (MSM) was the most prevalent. • The prevalence of STIs and the frequent occurrence of anogenital symptoms point to local inoculation during intimate skin-to-skin or mucosal contact during sexual activity
29 Sep 2022	Salvato et al.	Possible Occupational Infection of Healthcare Workers with Monkeypox Virus, Brazil	*Emerging Infectious Diseases/ Case report*	• On July 29, two HCWs visited the home of an infected patient to collect specimens and conduct an epidemiologic investigation interview. Upon entering the patient's home and during the entire visit, the HCWs wore personal protective equipment (PPE), including safety glasses, disposable isolation gowns, and N95 masks. The patient wore a cloth mask for the duration of the visit. • Five days after collecting samples, the HCWs showed typical monkeypox virus (MPXV) manifestations; quantitative PCR and whole-genome sequencing confirmed MPXV infection • Our report provides evidence supporting the hypothesis that both HCW infections observed in this study were transmitted through fomite exposure with surfaces in the patient's home, their own PPE, or outer surfaces of the specimen transport box. These findings highlight that MPXV might be acquired through contact with fomites.
29 Sep 2022	Murphy & Ly	The potential risks posed by inter- and intraspecies transmissions of monkeypox virus	*Journal of Virulence/ Narrative Review*	• MPXV is an orthopoxvirus of the family poxviridae and are known to infect humans and animals and then back again. Given the numerous animal species that can be infected with monkeypox, there is an increased probability for zoonotic and reverse zoonotic transmission events • The surveillance of monkeypox necessitates an approach where the impact of animals and the environment should be taken into account and this includes developing vaccine to vulnerable animals as well.
30 Sep 2022	Alonso-Cardenas et al	Monkeypox in a breastfeeding infant	*Journal of Pediatric Dermatology/ Case report*	• A previously healthy breastfed 7-month-old infant presented with several papulovesicular lesions, a hyperemic pharynx and a petechial enanthema. Skin-to-skin contact is the most likely mode of transmission of monkeypox. • Precautions to limit skin contact during activities such as breastfeeding are recommended if suspected skin lesions are present.

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
26 Sep 2022	Gagneux-Brunon et al	Attitudes toward Monkeypox vaccination among healthcare workers in France and Belgium: a part of complacency?	*Journal of Hospital Infection/ Acceptability report*	• Among the 690 responders, 397 were healthcare workers (HCWs) mean age 43.3 ± 12 years, 260/397 women) • Overall, only 220 HCWs (55.4 %) would accept vaccination. • In case of spread within the general population, 314 (79.1 %) of the responders would accept the vaccination. In the case of a specific vaccination recommendation for HCWs, 99 (30.5 %) of the 397 respondents would get the vaccine as soon as possible, 121 (24.9 %) would probably get vaccinated, 88 (22.2 %) were undecided, 49 (12.3%) would probably not get the vaccine, and 40 (10.1%) would certainly not get the vaccine. This observation suggested that there is little acceptable for MPX vaccine recommendations within HCWs. • Nurses and assistant-nurses were less inclined to get the vaccine than physicians and pharmacists. • Complacency is a possible reason for the low vaccine acceptance rate, where only forty-four (11 %) responders felt at-risk of MPX infection, and only 87 (21.9 %) expressed concerns about the current MPX epidemics. This is in contrast with the beginning of the COVID-19 pandemic, self-perceived risk for infection was one of the most important drivers of vaccine acceptability among HCWs

Evidence on Preventive & Promotive Health (cont.)

Evidence on Community Measures

Date	Author/s	Title	Journal/ Article Type	Summary
28 Sep 2022	Iliari, Restrepo, & Johnson	Losing the battle over best-science guidance early in a crisis: COVID-19 and beyond	*Journal of Science Advances/ Social media research*	• The study mapped out various interactions occurring in Facebook during the early period of the COVID-19 pandemic, from December 2019 until August 2020 by quantitatively analyzing the network of emitted and received COVID-19 guidance among online communities. Pages were transformed into 'nodes' in the map and were classified into *pro* or pages that promoted best-science health guidance, *anti* or pages that actively oppose this guidance, and *neutral* or those that focused on other topics. • Starting in early January 2020, the *anti* communities quickly generated COVID-19 guidance, which, when combined with the substantial number of links to them from parenting communities (*neutral*), generated the rapid rise in parenting communities' exposure from anti communities. This is followed by a rapid rise of exposure to guidance from other parenting communities, well before the official declaration of a pandemic, and a smaller rise in exposure from communities focused on preexisting, non-COVID-19 illnesses such as Asperger's syndrome and cancer (*neutral* pages). • Based on the findings of the prevaccine period, individuals in the *neutral* parenting and other mainstream communities became aware of COVID-19 guidance from anti communities early in January 2020. By mid-February, they felt in a position to produce and share their own COVID-19 guidance with communities like theirs. Meanwhile, they only received minimal best-science guidance from the pro communities. • In additional to the empirical analysis, the study authors generated a mathematical model that can be used to simulate scenarios of interventions strategies that can influence the spread of information.

Evidence on Drugs

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	Nadar, Khan, & Omri	Reemergence of monkeypox: prevention and management	*Expert Review of Anti-Infective Therapy/ Review Article*	• There are several new potential anti-poxvirus agents that are in development: *Nigericin*, a carboxylic ionophore, demonstrated a potent inhibitory action toward vaccinia virus replication. *Unmodified mRNA* encoding three monoclonal antibodies, c6C, c8A, and c7D11, was explored as counter treatment for poxvirus. *PV-866* (a phenothiazine derivative similar to methylene blue) a dye and its analogues showed inhibition of the vaccinia virus. *Adamantane analogues* inhibited replication of vaccinia virus by potent inhibitors of p37 protein of the poxvirus
27 Sep 2022	Pipito et al.	Monkeypox proctitis treated with doxycycline in an HIV MSM returning to Italy from France	*Journal of Travel Medicine and Infectious Diseases/ Case study*	• The study presents a case of monkeypox disease characterized by initial isolated anal lesion, inguinal lymphadenopathy, and rectal pain that occurred in August 2022 which was treated with doxycycline after being misdiagnosed by a specialist as lymphogranuloma venereum (LGV) • The clinical manifestations of the 2022 outbreak of monkeypox may differ from those previously described, and there are an increasing number of reports of isolated perianal lesions and proctitis where it is likely to be diagnosed as LGV • There is a possibility that doxycycline interferes with the pathogenesis of MPXV infection by promoting healing. Should further similar evidence emerge, a specific multi-center proof of concept study could be considered.
27 Sep 2022	Obeid et al.	Monkeypox: Emerging virus of concern; antivirals and vaccines therapeutic options	*Journal of Microbial Pathogenesis/ Review*	• There is an unmet need for new therapeutic approaches and agents for prophylaxis and treatment of acute Monkeypox infections • Tecovirimat was approved by European Medical Association for treatment of Monkeypox in 2022. Its effectiveness against Monkeypox in humans has not been approved yet. However, it was found to be effective in preclinical studies in Monkeypox infected animal models. • Cidofovir is another antiviral that can be used for Monkeypox. However, there are concerns about its toxicities. A lipid conjugate of Cidofovir known as Brincidofovir (TEMBEXA) developed as a pro-drug was approved for the treatment of smallpox in 2021. Brincidofovir can be tried in patients with complicated Monkeypox infections and it has improved safety profile compared to Cidofovir. • Vaccinia Immune Globulin Intravenous (VIGIV) is another treatment option that might be used in severe cases of Monkeypox infections. However, the effectiveness of VIGIV is still not established in patients with Monkeypo

Evidence on Drugs (cont.)

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	Nadar, Khan, & Omri	Reemergence of monkeypox: prevention and management	*Expert Review of Anti-Infective Therapy/ Review Article*	• Several antiviral drugs are being tested as potent candidates as monkeypox virus treatment including *CP-COV03* developed by Hyundai Bioscience, which is broad-spectrum antiviral agent also studied for the treatment of COVID-19 and *NIOCH-14*, which is a precursor of Tecovirimat that has proven to be effective in in vitro studies against VARV and MPXV

Evidence on Traditional Medicine

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	Nadar, Khan, & Omri	Reemergence of monkeypox: prevention and management	*Expert Review of Anti-Infective Therapy/ Review Article*	• *Ethnomedicines in Monkeypox infection*: A variety of medicinal plants are being explored as potential antiviral agents. Few medicinal herbs that can be potentially used in the treatment of monkeypox infection reported in literature include *Acacia nilotica (L.), Adansonia digitata L., Aframomum melegueta K. Schum, Allium sativum L., Anogeissus leiocarpus (DC.) Guill. & Perr., Azadirachta indica A. Juss., Boscia senegalensis (Pers.) Lam. ex Pior., Calotropis procera (Aiton) Dryand, Carica papaya L, Cassia singueana Delile, Cucurbita maxima Duchesne, Ficus polita Vahl, Nigella sativa L., Moringa oleifera Lam., Lawsonia inermis L, Sterculia setigera Delile, Tamarindus indica L.*

Evidence on Equipment and Devices

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
--	--	--	--	--