

# Weekly Evidence Report



Health Technology Assessment Philippines

24– 30 September 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 - 30 September 2022 on current public health emergency concerns, COVID-19 and monkeypox. The HTA Division reviewed a total of 21 studies for COVID-19 and 13 studies for monkeypox.

For COVID-19, evidence includes 2 studies on Epidemiology; 4 studies on Vaccines; 3 studies on Drugs; 3 studies on Transmission; 1 study on Equipment and Devices; 1 study on Medical and Surgical Procedures; 2 studies on Traditional Medicine; 4 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

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Epidemiology

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Vaccines

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Drugs

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Transmission

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Traditional Medicine

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Equipment & Devices

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Medical & Surgical Procedures

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Preventive & Promotive Health

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Other Health Technologies

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# COVID-19

## Evidence on Epidemiology

### Local COVID-19 Case Tracker:

[https://doh.gov.ph/2019-nCoV?gclid=CjwKCAjwjtOTBhAvEiwASG4bCOmLzFMQljh8DX\\_VVSGA-Hm00Pt5\\_CscykID7xZv4zqlXG5vm9PM2xoC27QQA vD\\_BwE](https://doh.gov.ph/2019-nCoV?gclid=CjwKCAjwjtOTBhAvEiwASG4bCOmLzFMQljh8DX_VVSGA-Hm00Pt5_CscykID7xZv4zqlXG5vm9PM2xoC27QQA vD_BwE)

Date	Author/s	Title	Journal/ Article Type	Summary
28 Sep 2022	<a href="#">WHO</a>	Weekly epidemiological update on COVID-19 - 28 September 2022	<i>WHO/Situation Report</i>	<ul style="list-style-type: none"> <li>Globally, the number of new weekly cases decreased by 11% during the week of 19 to 25 September 2022 as compared to the previous week, with over three million new cases reported. The number of new weekly deaths decreased by 18% as compared to the previous week, with just over 8900 fatalities reported. As of 25 September 2022, over 612 million confirmed cases and over 6.5 million deaths have been reported globally.</li> <li>There continues to be increased diversity within Omicron and within its descendent lineages. A number of these Omicron descendent lineages are under monitoring. Globally, and as of the epidemiological week 36 (5 to 11 September 2022), BA.5 descendent lineages continue to be dominant accounting for 81.2% of sequences, followed by BA.4 descendent lineages (including BA.4.6) which account for 8.1%, and BA.2 descendent lineages (including BA.2.75) which account for 2.9% of sequences. During the reporting week (5 to 11 September), unassigned sequences (presumed to be Omicron) account for 7.8% of sequences submitted to GISAID.</li> </ul>
30 Sep 2022	<a href="#">European Centre for Disease Prevention and Control (ECDC)</a>	Country overview report: week 38 2022	<i>ECDC/Situation Report</i>	<ul style="list-style-type: none"> <li>The pooled EU/EEA notification rate of COVID-19 cases among people aged 65+ years rose by 9% compared with the previous week, driven by recent increases in 14 of the 26 countries reporting data on this indicator. Increases in overall (all-age) pooled EU/EEA notification rates has been reported for two consecutive weeks, with 15 countries reporting an increasing trend. This is the first increase observed across the EU/EEA in these indicators since the most recent BA.5 wave.</li> <li>Pooled EU/EEA rates of hospital or ICU indicators decreased or remained stable. Of the 27 countries reporting data on these indicators, 14 observed an increasing trend in at least one indicator compared with the previous week.</li> <li>The pooled EU/EEA COVID-19 death rate fell by 20% to 3.9% of the pandemic maximum for this indicator, as part of an eight-week decreasing trend. A total of 926 deaths were reported in week 38.</li> </ul>

## 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
27 Sep 2022	<a href="#">WHO</a>	Interim recommendations for use of the Novavax NVX-CoV2373 vaccine against COVID-19	<i>WHO/Interim Guidance</i>	<ul style="list-style-type: none"> <li>The efficacy, immunogenicity and safety of NVX-CoV2373 in adolescents 12 to 17 years of age, was evaluated in an interim analysis of the paediatric expansion portion of the ongoing phase 3 study in United States.</li> <li>At the time of this analysis, the Delta (B.1.617.2 and AY lineages) variant of concern was the predominant variant circulating in the US and accounted for the cases from which sequence data are available (11/20, 55%). VE specifically against the Delta variant was 82% (95% CI: 32–95) (14). The SARS-CoV-2 neutralizing antibody response (GMT) 14 days after the second dose was 3859.6 (95%CI 3422.8–4352.1) and was 1.46 (1.25–1.71) times higher in comparison with the adult 18 to &lt;26-year-old population 2633.6 (95%CI 2388.6–2903.6), thus achieving non-inferiority (the lower bound of confidence interval was <math>\geq 0.67</math>). The difference in seroconversion rates also met non-inferiority criteria [<math>&gt; -10\%</math>, SCR difference 1.1.</li> <li>No reports of rare adverse events such as myocarditis or pericarditis were reported in the trial.</li> </ul>
28 Sep 2022	<a href="#">Marchese et al.</a>	With established safe and effective use, protein vaccines offer another choice against COVID-19	<i>Vaccine/Commentary</i>	<ul style="list-style-type: none"> <li>Global vaccine equity stands to benefit from protein-based vaccines, which typically only require refrigeration; other types of vaccines may need to be kept frozen (at temperatures as low as <math>-90^{\circ}\text{C}</math>) until use. Protein-based vaccines against COVID-19 are under investigation, several of which have been authorized globally in one or more countries including Corbevax (Biological E. Limited/Texas Children's Hospital/Baylor College of Medicine) that similarly utilizes spike RBD.</li> </ul>

## Evidence on Vaccines

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Date	Author/s	Title	Journal/ Article Type	Summary
28 Sep 2022	<a href="#">Moderna Inc.</a>	European Medicines Agency Accepts Moderna's Conditional Marketing Authorization Filing for its Omicron Ba.4/Ba.5 Targeting Bivalent Covid-19 Vaccine	<i>Moderna/News Article</i>	<ul style="list-style-type: none"> <li>The European Medicines Agency (EMA) has accepted a variation for the evaluation of a 50 µg booster dose of the Omicron-containing bivalent COVID booster candidate, mRNA-1273.222 (Spikevax bivalent Original/Omicron BA.4-5) in adults 12 years and older. Spikevax bivalent Original/Omicron BA.4-5 is a next-generation bivalent vaccine that contains 25 µg of mRNA-1273 (Spike Vax) and 25 µg of a vaccine candidate targeting the Omicron variant of concern (BA.4/BA.5).</li> <li>Moderna has received authorizations for Omicron-targeting bivalent boosters in the United States, Australia, Canada, Europe, Japan, South Korea, Switzerland, Singapore, Taiwan, and the UK to date and has submitted regulatory applications worldwide.</li> </ul>
26 Sep 2022	<a href="#">Pfizer Inc.</a>	Pfizer and BioNTech Submit Application to U.S. FDA for Emergency Use Authorization of Omicron BA.4/BA.5-Adapted Bivalent Vaccine Booster in Children 5 Through 11 Years of Age	<i>Pfizer/Press Release</i>	<ul style="list-style-type: none"> <li>Pfizer Inc. (NYSE: PFE) and BioNTech SE (Nasdaq: BNTX) submitted a request to the U.S. Food and Drug Administration (FDA) for the Emergency Use Authorization (EUA) of a 10-µg booster dose of the companies' Omicron BA.4/BA.5-adapted bivalent COVID-19 vaccine for children ages 5 through 11 years of age. The request for Emergency Use Authorization of the Omicron BA.4/BA.5-adapted bivalent vaccine in this age group is supported by safety and immunogenicity data from the companies' bivalent Omicron BA.1-adapted vaccine, non-clinical and manufacturing data from the companies' 10-µg bivalent Omicron BA.4/BA.5-adapted vaccine, and pre-clinical data from the companies' Omicron BA.4/BA.5-adapted vaccine in their decision. An application to extend the Omicron BA.4/BA.5-adapted bivalent vaccine marketing authorization to include children ages 5 through 11 years will be submitted to the European Medicines Agency (EMA) in the coming days.</li> </ul>

## Evidence on Drugs

Date	Author/s	Title	Journal/ Article Type	Summary
30 Sep 2022	<a href="#">Wang et al.</a>	The safety and efficacy of melatonin in the treatment of COVID-19: A systematic review and meta-analysis	<i>Medicine (Baltimore)/ Systematic review and meta-analysis</i>	<ul style="list-style-type: none"> <li>The meta-analysis showed that melatonin had the beneficial effects for COVID-19 prevention and treatment as an adjunctive agent in combination with basic treatment for the treatment.</li> <li>There was no significant difference in C-reactive protein between the melatonin group and the control group. Significant difference was not existed in arterial oxygen saturation between the melatonin treatment group and the control group. In terms of white blood cell count, there was no significant difference between the two groups.</li> </ul>
30 Sep 2022	<a href="#">Bennett et al.</a>	An update on the considerations for patients with rheumatic disease being treated with rituximab during the COVID-19 pandemic and the potential drug treatment strategies	<i>BMC Trials/ Randomized Controlled trial</i>	<ul style="list-style-type: none"> <li>Rituximab is highly correlated with increased morbidity and mortality from COVID-19 across an array of studies in patients with rheumatic disease. Patients treated with rituximab often fail to mount an effective humoral response to both primary SARS-CoV-2 vaccination and booster programmes. SARS-CoV-2 vaccination nevertheless produces a T cell response even in patients who fail to seroconvert. Where disease activity allows, some patient groups may benefit from having rituximab delayed to allow full vaccination to take place. Neutralising antibody therapies may be used in treatment and prophylaxis of COVID-19.</li> </ul>
24 Sep 2022	<a href="#">Mahdian et al.</a>	Effectiveness of Remdesivir in Comparison with Five Approved Antiviral Drugs for Inhibition of RdRp in Combat with SARS-CoV-2	<i>Iran J Sci Technol Trans Sci/Systematic review and meta-analysis</i>	<ul style="list-style-type: none"> <li>Five FDA-approved antiviral medications, including Elbasvir, Glecaprevir, Ledipasvir, Paritaprevir, and Simeprevir, had good interaction potential with RdRp. The results show that the number of H-bonds and contacts and <math>\Delta G</math> interactions between the protein and ligand in the Remdesivir complex is less than those of other complexes. According to the given data which shows the tendency of binding with RdRp for Paritaprevir, Simeprevir, Glecaprevir, and Ledipasvir and Elbasvir is more than Remdesivir and due to the fact that these five drugs have a high tendency to bind to other targets in the SARS-CoV-2, the use of Remdesivir as an antiviral drug in the treatment of COVID-19 should be considered more sensitively.</li> </ul>

## Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
30 Sep 2022	<a href="#">Ransome et al.</a>	Evaluating the transmission risk of SARS-CoV-2 from sewage pollution	The science of total environment /Surveillance study	<ul style="list-style-type: none"> <li>This study investigated if such discharges provide a pathway for environmental transmission of SARS-CoV-2. Samples of wastewater, surface water, and sediment collected close to six CSOs on the River Thames were assayed over eight months for SARS-CoV-2 RNA and infectious virus. Bivalves were also sampled as an indicator species of viral bioaccumulation. Sediment and water samples from the Danube and Sava rivers in Serbia, where raw sewage is also discharged in high volumes, were assayed as a positive control. No evidence of SARS-CoV-2 RNA or infectious virus was found in UK samples, in contrast to RNA positive samples from Serbia. Furthermore, this study shows that infectious SARS-CoV-2 inoculum is stable in Thames water and sediment for &lt; 3 days, while SARS-CoV-2 RNA is detectable for at least seven days. This indicates that dilution of wastewater likely limits environmental transmission, and that detection of viral RNA alone is not an indication of pathogen spill over.</li> </ul>
29 Sep 2022	<a href="#">Cohen et al.</a>	Methamphetamine use and adoption of preventive behaviors early in the COVID-19 pandemic among men who have sex with men in Los Angeles, California	<i>Drug alcohol dependence report/Cohort study</i>	<ul style="list-style-type: none"> <li>Compared to those who reported no methamphetamine use, MSM who reported weekly or more methamphetamine use in the past six months were significantly less likely to use COVID-19 protective behaviors of physical distancing, of avoiding public transportation and of avoiding traveling overall. Parallel findings were observed in analyses of past two-week reported methamphetamine use and COVID-19 protective behaviors.</li> <li>Findings highlight ways in which reported methamphetamine use frequency links with avoidance of reported preventive behaviors for COVID-19 in urban diverse MSM. Findings also provide evidence to guide public health interventions in future outbreaks of COVID-19 and other infectious diseases among MSM.</li> </ul>

## Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
28 Sep 2022	<a href="#">Zhang et al.</a>	Electron beam technology for Re-processing of personal protective equipment	<i>Virologica Sinica / Research article</i>	<ul style="list-style-type: none"> <li>The study performed a comprehensive analysis of a new B.1.617.2 Delta strain (Delta630) compared with the early WIV04 strain (WIV04) in vitro and in vivo, in terms of replication, infectivity, pathogenicity, and transmission in hamsters. When inoculated intranasally, Delta630 led to more pronounced weight loss and more severe disease in hamsters. Moreover, 40% mortality occurred about one week after infection with 104 PFU of Delta630, whereas no deaths occurred even after infection with 105 PFU of WIV04 or other strains belonging to the Delta variant. Moreover, Delta630 outgrew over WIV04 in the competitive aerosol transmission experiment. Taken together, the Delta630 strain showed increased replication ability, pathogenicity, and transmissibility over WIV04 in hamsters.</li> </ul>

## Evidence on Equipment and Devices

Date	Author/s	Title	Journal/ Article Type	Summary
28 Sep 2022	<a href="#">Huang et al.</a>	Increased pathogenicity and aerosol transmission for one SARS-CoV-2 B.1.617.2 Delta variant over the wild-type strain in hamsters	<i>Radiation Physics and Chemistry/Research article</i>	<ul style="list-style-type: none"> <li>This study evaluates the viability and efficacy of using FDA-approved electron beam (eBeam) sterilization technology (ISO 11137) to re-process used PPE. Several tests were then performed to examine surface properties, mechanical properties, functionality performance, discoloration phenomenon, and liquid barrier performance. The results show a reduction of filtration efficiency to about 63.6% in the N95 Respirator; however, charge regeneration may improve the re-processed efficiency.</li> <li>Additionally, mechanical degradation was observed in Proxima Sirius gown with increasing dose up to 100 kGy. However, no mechanical degradation was observed in the face shields after 10 times donning and doffing. Apart from the face shield, N95 Respirators and Proxima Sirius gown both show significant mechanical degradation with ebeam dose over sterilization doses (&gt;25 kGy), indicating that eBeam technology is not appropriate for the re-processing these PPEs.</li> </ul>

## Evidence on Medical and Surgical Procedures

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	<a href="#">Azzalini et al.</a>	Trends and outcomes of percutaneous coronary intervention during the COVID-19 pandemic in Michigan	PloS One/Cohort study	<ul style="list-style-type: none"> <li>There was a 15.2% reduction in overall percutaneous coronary intervention (PCI) volume from the pre-pandemic to the pandemic cohort, which was more pronounced for stable angina and non-ST-elevation acute coronary syndromes (ACS) presentations, and between February and May 2020. Patients in the two cohorts had similar clinical and procedural characteristics. Monthly mortality rates for primary PCI were generally higher in the pandemic period. There were no significant system delays in care between the cohorts. Risk-adjusted mortality was higher in the pandemic cohort, a finding that was only partially explained by worse outcomes in COVID-19 patients and was more pronounced in subjects with ACS. During the pandemic, COVID-19 positive patients suffered higher risk-adjusted mortality compared with COVID negative patients.</li> </ul>

## Evidence on Traditional Medicine

Date	Author/s	Title	Journal/ Article Type	Summary
30 Sep 2022	<a href="#">Parvizi et al.</a>	Prevalence and associated factors of complementary and integrative medicine use in patients afflicted with COVID-19	BMC Complementary Medicine and Therapies/Cross-sectional study	<ul style="list-style-type: none"> <li>Out of 453 patients diagnosed with COVID-19, 400 responded and agreed to participate in the study. Among them, 276 patients reported using Complementary and Integrative Medicine (CIM) to treat COVID-19. The most frequently used herbal medicine among COVID-19 patients was ginger (n = 273), thyme (n = 263), and black cumin (n = 205). Most of these patients were recommended to use herbal medicine by their families and friends. Univariable logistic regression revealed that age under 50 years old, residency in urban areas (including the capital of the province and small cities), employment, academic education, and being an outpatient were statistically significant factors resulting in CIM usage. Ultimately, only 9 Patients consulted with their doctors regarding these medications. No side effects due to CIM use were reported.</li> </ul>



## Evidence on Traditional Medicine

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	<a href="#">Al-Kuraishy et al.</a>	Traditional herbs against COVID-19: back to old weapons to combat the new pandemic	European Journal of Medical Research/Lite rature review	<ul style="list-style-type: none"> <li>• Traditional Chinese Medicine (TCM) has been a crucial measure for the treatment and/or the prevention of some outbreaks. The TCM attained remarkable therapeutic consequences during the SARS epidemic in 2003. Throughout the COVID- 19 retrieval era, the TCM program has been involved in the COVID- 19 analysis and treatment guidelines and TCM experts were employed in the whole rescue procedure.</li> <li>• Lianhua Qingwen (LHQW) shows a broad range of antiviral utilities, chiefly owing to its immunomodulatory and inhibitory effect on virus reproduction, and its inhibitory impact on the pro-inflammatory cytokines. The therapeutic effects of LHQW on COVID-19 is based on its powerful binding capability with ACE2 and Mpro; which are therapeutic targets of SARS-CoV-2. Accordingly, it is confirmed to be advantageous for COVID-19 as a supplement and synergetic treatment approach.</li> <li>• Further, the Qingfei touxie fuzheng recipe was recommended together with Western medicine for treating COVID-19. Combination therapy was more successful than Western medicine single-handedly. A possible approach could be the up-regulation of antiviral features and the down-regulation of pro-inflammatory mediators.</li> <li>• Likewise, in India, traditional medicine is utilized for the management of COVID-19 together with the recent medicine and vaccinations. Traditional Indian medicine is considered one of the oldest elements that have a vital role in the global healthcare system. These traditional rehearses involve siddha, unani, ayurveda, yoga, naturopathy, and homeopathy and they are efficiently practiced for curing various infections. These traditional practices use animal yields, plants, and minerals for the management of several ailments. Roughly, 25.000 herb-based preparations and extracts have been employed in traditional medicine in South Asia.</li> </ul>

## Evidence on Preventive & Promotive Health

### Evidence on Screening

Date	Author/s	Title	Journal/ Article Type	Summary
28 Sep 2022	<a href="#">Salu et al.</a>	Saliva sample for detection of SARS-CoV-2: A possible alternative for mass testing	PloS One/Cross-sectional study	<ul style="list-style-type: none"> <li>Based on these issues and others including the need for faster mass testing while managing limited resources, it is critical to find a safe, viable, and cost-effective sample collection method. Saliva seems to be a potentially viable substitute with comparable accuracy and reliability to pharyngeal swab collection which can easily be gotten from patients' passive drool into a sterile container. Aside from these benefits, saliva samples can be collected by the patients themselves without the intervention of any professional. With a self-sample collection structure, personal protective equipment which is increasingly scarce and expensive will only be needed in the direct provision of care. This reduces strain on available human and financial resources and increases capacity for testing</li> </ul>
27 Sep 2022	<a href="#">Agusti et al.</a>	Feasibility of an online antigen self-testing strategy for SARS-CoV-2 addressed to health care and education professionals in Catalonia (Spain). The TESTA'T-COVID Project	PloS One/Non-randomized prospective study	<ul style="list-style-type: none"> <li>Testing is a critical component of the overall prevention and control strategy for the COVID-19 pandemic. Screening of key populations implies many logistical and operational challenges, including the necessity of periodic testing in periods of high incidence (ex. twice a week) in order to be effective.</li> <li>The study showed high feasibility of the TESTA'T COVID both in healthcare and education professionals, although education professionals presented higher learnability with higher level of trust in having a correct interpretation of the obtained results; and, higher willingness to repeat the self-test in the future and to recommend it to a friend. In the event of a possible consolidation of the pilot intervention, the implementation of campaigns to increase the level of trust and acceptability of self-tests by healthcare professionals should be considered.</li> </ul>
26 Sep 2022	<a href="#">Harrington et al.</a>	Low rate of SARS-CoV-2 incident infection identified by weekly screening PCR in a prospective year-long cohort study	PloS One/Prospective cohort study	<ul style="list-style-type: none"> <li>The results suggest that weekly SARS2-CoV2 surveillance by rPCR did not efficiently detect pre-symptomatic infections in unvaccinated participants.</li> <li>Incident SARS2-CoV-2 infections were identified in 9/553 (1.6%) participants. Comparisons of SARS2-CoV-2(+) to SARS2-CoV-2(-) participants revealed significantly more close contacts outside the household (median: 5 versus 3; p = 0.005). The incidence of infection was higher among unvaccinated/partially vaccinated than among fully vaccinated participants (9/7,679 versus 0/6,845 person-weeks; p = 0.004). At notification of positive test result, eight cases were symptomatic and one pre-symptomatic.</li> </ul>

## Evidence on Preventive & Promotive Health

### Evidence on Community Measures

Date	Author/s	Title	Journal/ Article Type	Summary
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### Evidence on Personal Measures

Date	Author/s	Title	Journal/ Article Type	Summary
30 Sep 2022	<a href="#">Krishnamoor thi et al.</a>	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/ Large scale national multicentric study	<ul style="list-style-type: none"> <li>• The hand hygiene non-adherence is one of the important contributing factors which accounts for the majority of multidrug-resistant organisms and fungi related outbreaks in various ICUs and wards during COVID-19 pandemic</li> <li>• The overall hand hygiene complete adherence rate was higher in private institutes than public institutes and non-teaching institutes than teaching institutes. The less compliance in public sectors could be explained by following factors: more COVID-19 cases admitted in public sector than private sectors, low HCWs to patient ratio, limited resources and alcohol based hand rub supply. The high compliance in non-teaching institutes possibly explained by their primary focus in patient care than academic activities. The private non-teaching had high compliance rate due to better infrastructure, manpower and resources and administrative support.</li> </ul>

## Evidence on Other Health Technologies

Date	Author/s	Title	Journal/ Article Type	Summary
30 Sep 2022	<a href="#">Lai et al.</a>	Group tele-gaming through immersive virtual reality to improve mental health among adolescents with physical disabilities: pre and post trial protocol	JMIR Research Protocol/Single group, pre and post test designed trial	<ul style="list-style-type: none"> <li>Adolescents with physical disabilities have higher rates of mental health conditions and issues than adolescents without disabilities, and this disparity was exacerbated by the onset of the COVID-19 pandemic. In addition to concerns of poor mental health among adolescents with disabilities, health professionals are often concerned with maintaining or improving physical function or alleviating and preventing a variety of other health conditions that arise from sedentary behavior (e.g., pain, obesity, pressure ulcers, and low bone mineral density). There is evidence to suggest that physical health concerns can be addressed by combining health-enhancing interventions with the latest immersive VR technology, but, to the best of our knowledge, there is no peer-to-peer group-based intervention for improving mental health. The trial tests a peer-to-peer virtual reality tele-gaming program that includes a completely remote enrollment, assessment, and intervention protocol. This program is accessible and short in duration and frequency, allowing it to be integrated within other interventions. Knowledge obtained from this study will inform the development of a larger trial for improving the mental health and well-being of adolescents with physical disabilities.</li> </ul>

# 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	<a href="#">ECDC &amp; WHO</a>	Joint ECDC-WHO Regional Office for Europe Monkeypox Surveillance Bulletin	<i>Situation Report</i>	<ul style="list-style-type: none"> <li>• A total of 24,622 cases of monkeypox have been identified from 44 countries and areas throughout the European region</li> <li>• 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%).</li> <li>• 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.</li> </ul>

## Evidence on Vaccines

Date	Author/s	Title	Journal/ Article Type	Summary
29 Sep 2022	<a href="#">Brooks et al.</a>	Intradermal Vaccination for Monkeypox — Benefits for Individual and Public Health	<i>New England Journal of Medicine/ Narrative Article</i>	<ul style="list-style-type: none"> <li>• Smallpox vaccination was developed by Jenner using something similar to intradermal vaccine administration: variolation, or the practice of scratching immunizing material into the skin.</li> <li>• 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.</li> <li>• 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</li> </ul>
30 Sep 2022	<a href="#">Hazra et al.</a>	Human Monkeypox Virus Infection in the Immediate Period After Receiving Modified Vaccinia Ankara Vaccine	<i>JAMA Network/ Cohort study</i>	<ul style="list-style-type: none"> <li>• 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</li> <li>• 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)</li> <li>• 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.</li> <li>• Of concern is that at least 2 breakthrough infections were observed in individuals at least 3 weeks after a second dose.</li> </ul>

## Evidence on Transmission

Date	Author/s	Title	Journal/ Article Type	Summary
27 Sep 2022	<a href="#">León-Figueroa et al</a>	Epidemiological Situation of Monkeypox Transmission by Possible Sexual Contact: A Systematic Review	<i>Tropical Medicine and Infectious Diseases/ Systematic review</i>	<ul style="list-style-type: none"> <li>• A total of 28 studies reporting sexually transmitted monkeypox infection were included</li> <li>• All reported patients had sexual risk behaviors, of which men who have sex with men (MSM) was the most prevalent.</li> <li>• 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</li> </ul>
29 Sep 2022	<a href="#">Salvato et al.</a>	Possible Occupational Infection of Healthcare Workers with Monkeypox Virus, Brazil	<i>Emerging Infectious Diseases/ Case report</i>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Five days after collecting samples, the HCWs showed typical monkeypox virus (MPXV) manifestations; quantitative PCR and whole-genome sequencing confirmed MPXV infection</li> <li>• 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.</li> </ul>
29 Sep 2022	<a href="#">Murphy &amp; Ly</a>	The potential risks posed by inter- and intraspecies transmissions of monkeypox virus	<i>Journal of Virulence/ Narrative</i>	<ul style="list-style-type: none"> <li>• 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</li> <li>• 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.</li> </ul>
30 Sep 2022	<a href="#">Alonso-Cardenas et al</a>	Monkeypox in a breastfeeding infant	<i>Journal of Pediatric Dermatology/ Case report</i>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Precautions to limit skin contact during activities such as breastfeeding are recommended if suspected skin lesions are present.</li> </ul>

## Evidence on Preventive & Promotive Health

### Evidence on Screening

Date	Author/s	Title	Journal/ Article Type	Summary
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### Evidence on Personal Measures

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	<a href="#">Gagneux-Br unon et al</a>	Attitudes toward Monkeypox vaccination among healthcare workers in France and Belgium: a part of complacency?	<i>Journal of Hospital Infection/ Acceptability report</i>	<ul style="list-style-type: none"> <li>• Among the 690 responders, 397 were healthcare workers (HCWs) mean age 43.3 ± 12 years, 260/397 women)</li> <li>• Overall, only 220 HCWs (55.4 %) would accept vaccination.</li> <li>• 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.</li> <li>• Nurses and assistant-nurses were less inclined to get the vaccine than physicians and pharmacists.</li> <li>• 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</li> </ul>



## Evidence on Preventive & Promotive Health (cont.)

### Evidence on Community Measures

Date	Author/s	Title	Journal/ Article Type	Summary
28 Sep 2022	<a href="#">Iliari, Restrepo, &amp; Johnson</a>	Losing the battle over best-science guidance early in a crisis: COVID-19 and beyond	<i>Journal of Science Advances/ Social media research</i>	<ul style="list-style-type: none"> <li>• 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 <i>pro</i> or pages that promoted best-science health guidance, <i>anti</i> or pages that actively oppose this guidance, and <i>neutral</i> or those that focused on other topics.</li> <li>• Starting in early January 2020, the <i>anti</i> communities quickly generated COVID-19 guidance, which, when combined with the substantial number of links to them from parenting communities (<i>neutral</i>), 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 (<i>neutral</i> pages).</li> <li>• Based on the findings of the prevaccine period, individuals in the <i>neutral</i> 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.</li> <li>• In addition 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.</li> </ul>

## Evidence on Drugs

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	<a href="#">Nadar, Khan, &amp; Omri</a>	Reemergence of monkeypox: prevention and management	<i>Expert Review of Anti-Infective Therapy/ Review Article</i>	<ul style="list-style-type: none"> <li>There are several new potential anti-poxvirus agents that are in development: <i>Nigericin</i>, a carboxylic ionophore, demonstrated a potent inhibitory action toward vaccinia virus replication. <i>Unmodified mRNA</i> encoding three monoclonal antibodies, c6C, c8A, and c7D11, was explored as counter treatment for poxvirus. <i>PV-866</i> (a phenothiazine derivative similar to methylene blue) a dye and its analogues showed inhibition of the vaccinia virus. <i>Adamantane analogues</i> inhibited replication of vaccinia virus by potent inhibitors of p37 protein of the poxvirus</li> </ul>
27 Sep 2022	<a href="#">Pipito et al.</a>	Monkeypox proctitis treated with doxycycline in an HIV MSM returning to Italy from France	<i>Journal of Travel Medicine and Infectious Diseases/ Case study</i>	<ul style="list-style-type: none"> <li>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)</li> <li>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</li> <li>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.</li> </ul>
27 Sep 2022	<a href="#">Obeid et al.</a>	Monkeypox: Emerging virus of concern; antivirals and vaccines therapeutic options	<i>Journal of Microbial Pathogenesis/ Review</i>	<ul style="list-style-type: none"> <li>There is an unmet need for new therapeutic approaches and agents for prophylaxis and treatment of acute Monkeypox infections</li> <li>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.</li> <li>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.</li> <li>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</li> </ul>

### Evidence on Drugs (cont.)

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	<a href="#">Nadar, Khan, &amp; Omri</a>	Reemergence of monkeypox: prevention and management	<i>Expert Review of Anti-Infective Therapy/ Review Article</i>	<ul style="list-style-type: none"> <li>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</li> </ul>

### Evidence on Traditional Medicine

Date	Author/s	Title	Journal/ Article Type	Summary
26 Sep 2022	<a href="#">Nadar, Khan, &amp; Omri</a>	Reemergence of monkeypox: prevention and management	<i>Expert Review of Anti-Infective Therapy/ Review Article</i>	<ul style="list-style-type: none"> <li><i>Ethnomedicines in Monkeypox infection:</i> 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 <i>Acacia nilotica</i> (L.), <i>Adansonia digitata</i> L., <i>Aframomum melegueta</i> K. Schum, <i>Allium sativum</i> L., <i>Anogeissus leiocarpus</i> (DC.) Guill. &amp; Perr., <i>Azadirachta indica</i> A. Juss., <i>Boscia senegalensis</i> (Pers.) Lam. ex Pior., <i>Calotropis procera</i> (Aiton) Dryand, <i>Carica papaya</i> L., <i>Cassia singueana</i> Delile, <i>Cucurbita maxima</i> Duchesne, <i>Ficus polita</i> Vahl, <i>Nigella sativa</i> L., <i>Moringa oleifera</i> Lam., <i>Lawsonia inermis</i> L, <i>Sterculia setigera</i> Delile, <i>Tamarindus indica</i> L.</li> </ul>

### Evidence on Equipment and Devices

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### Evidence on Medical and Surgical Procedures

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### Evidence on Other Health Technologies

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