# Weekly Evidence Report

Health Technology Assessment Philippines

17– 23 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 17 – 23 September 2022 on current public health emergency concerns, COVID-19 and monkeypox. The HTA Division reviewed a total of 23 studies for COVID-19 and 11 studies for monkeypox.

For COVID-19, evidence includes 2 studies on Epidemiology; 5 studies on Vaccines; 7 studies on Drugs; 1 study on Transmission; 1 study on Equipment and Devices; 0 studies on Medical and Surgical Procedures; 2 studies on Traditional Medicine; 5 studies on Preventive & Promotive Health; and 0 studies on Other Health Technologies.

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

## Sections

# COVID-19

## Evidence on Epidemiology

### Local COVID-19 Case Tracker:

https://doh.gov.ph/2019-nCoV?gclid=CjwKCAjwjtOTBhAvEiwASG4bCOmLzFMQIjh8DX_VVSGA-HmO0Pt5_CscykID7xZv4zqlXG5vm9PM2xoC27QQAvD_BwE

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 18 Sep 2022 | WHO Global | Weekly epidemiological update on COVID-19 - 18 September 2022 | *WHO Global Situation Report* | • Globally, the number of new weekly cases remained stable during the week of 12 to 18 September 2022 as compared to the previous week, with over 3.2 million new cases reported.<br>• The number of new weekly deaths decreased by 17% as compared to the previous week, with over 9800 fatalities reported.<br>• As of 18 September 2022, over 609 million confirmed cases and over 6.5 million deaths have been reported globally. |
| 22 Sep 2022 | Alhinai et al, | A global epidemiological analysis of COVID-19 vaccine types and clinical outcomes | *International Journal of Infectious diseases/ Longitudinal Study* | • After adjustment for country differences, stringency of nonpharmaceutical interventions and dominant SARS-CoV-2 variant types, populations that received mRNA and/or ADVV had significantly lower rates of cases and deaths over time ($P$<0·001 for each analysis). Populations vaccinated with IVV, among others, had significantly higher rates of cases and deaths over time ($P$<0·05 for each analysis).<br>• Real-world effectiveness of IVV may be inferior to mRNA and/or ADVV, and prospective comparative studies are needed to critically evaluate the role of IVV in the context of contemporary SARS-CoV-2 variants. |

## 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 |
|---|---|---|---|---|
| 23 Sep 2022 | WHO | COVID-19 vaccine tracker and landscape | *WHO/ Tracker and landscape* | • As of 16 September 2022, there are 177 vaccines in clinical development and 199 vaccines in pre-clinical development worldwide.<br>• Among the candidates in clinical phase, 11 vaccines are in phase 4 of the development, 46 vaccines are in the phase 3, while the rest of the candidate vaccines are in phase 1-⅔ of their development. |
| 17 Sep 2022 | Chen at al, | A randomized controlled trial of heterologous ChAdOx1 nCoV-19 and recombinant subunit vaccine MVC-COV1901 against COVID-19 | *Nature Communications/ Randomized Controlled trial* | • At day 28 post-boosting, the neutralizing antibody geometric mean titer against wild-type SARS-CoV-2 in MVC-COV1901 recipients (236 IU/mL) was superior to that in ChAdOx1 recipients (115 IU/mL), with a GMT ratio of 2.1 (95% CI, 1.4 to 2.9). Superiority in the neutralizing antibody titer against Delta variant was also found for heterologous MVC-COV1901 immunization with a GMT ratio of 2.6 (95% CI, 1.8 to 3.8).<br>• Both spike-specific antibody-secreting B and T cell responses were substantially enhanced by the heterologous schedule. Heterologous boosting was particularly prominent at a short prime-boost interval. No serious adverse events occurred across all groups. The findings support the use of heterologous prime-boost with ChAdOx1 and protein-based subunit vaccines. |
| 20 Sep 2022 | Kumar et al, | Plant-derived immuno-adjuvants in vaccines formulation: a promising avenue for improving vaccines efficacy against SARS-CoV-2 virus | *Springer Pharmacological Reports/ A Systematic Review* | • The use of adjuvants derived from plants may increase the effectiveness of vaccines, resulting in the proper immunological response required to combat COVID-19. A few have been widely used in epidemic outbreaks, including SARS and H1N1 influenza, and their use could also improve the efficacy of COVID-19 vaccines.<br>• In this review, the immunological adjuvant properties of plant compounds as well as their potential application in anti-COVID-19 therapy are thoroughly discussed. |

## Evidence on Vaccines

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**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 |
|---|---|---|---|---|
| 22 Sep 2022 | Buchan et al. | Estimated Effectiveness of COVID-19 Vaccines Against Omicron or Delta Symptomatic Infection and Severe Outcomes | *JAMA Network/Case-control study* | • In this test-negative case-control study of 134 435 adults in Ontario, Canada, the estimated effectiveness of 2 doses of COVID-19 vaccine was high against symptomatic Delta infection and severe outcomes and was lower against symptomatic Omicron infection. After a third dose, estimated vaccine effectiveness against Omicron was 61% for symptomatic infection and 95% for severe outcomes.<br>• The findings suggest that 3 doses of COVID-19 vaccine may protect against symptomatic Omicron infection and severe outcomes, but other measures are also likely needed to prevent Omicron infection. |
| 23 Sep 2022 | Yankowski et al. | Inactivated rabies-vectored SARS-CoV-2 vaccine provides long-term immune response unaffected by vector immunity | *NPJ VAccines/ Randomized Trial* | • The authors followed the humoral immune response to CORAVAX in mice with pre-existing rabies virus immunity and saw no significant differences compared to naive mice. They followed the immune response to CORAVAX over several months and 1-year post-immunization.<br>• Mice maintained high antigen-specific serum antibody titers as well as long-lived antibody-secreting cells in the spleen and bone marrow. They believe this rabies-vector strategy combats the problem of waning immunity of other COVID-19 vaccines. These results together support CORAVAX's potential during the ongoing COVID-19 pandemic. |

## Evidence on Drugs

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 19 Sep 2022 | Are et al. | Possible Role of Ivermectin Mucoadhesive Nanosuspension Nasal Spray in Recovery of Post-COVID-19 Anosmia | *Infection and Drug Resistance/ Randomized Controlled trial* | • Patients with persistent post COVID-19 anosmia were randomly divided into two groups, the first group "ivermectin group" included 49 patients treated by ivermectin nanosuspension mucoadhesive nasal spray (two puffs per day).<br>• The second group included 47 patients "placebo group" who received saline nasal spray. Follow-up of anosmia [using Visual analogue scale (VAS)] in all patients for three months or appearance of any drug related side effects was done.<br>• In the small number of patients treated, local Ivermectin exhibited no side effects. In persistent post-COVID-19 anosmia, it could be used for one week at the most as the treatment was extended to one, two and three months, with no difference in recovery compared to the placebo treatment. |
| 19 Sep 2022 | Pringle et al. | Thiopurines inhibit coronavirus Spike protein processing and incorporation into progeny virions | *Plos Pathogen/ In vitro experimental study* | • By contrast, the broad GTPase agonist ML099 countered the effects of 6-TG, suggesting that the antiviral activity of 6-TG requires the targeting of an unknown GTPase. Overall, these findings suggest that small GTPases are promising targets for host-targeted antivirals. |
| 19 Sep 2022 | Zaqout et al. | Effectiveness of the neutralizing antibody sotrovimab among high-risk patients with mild to moderate SARS-CoV-2 in Qatar | *International Journal of Infectious diseases/Case-control study* | • A total of 3,364 individuals were eligible for sotrovimab treatment during the study period, of whom 519 individuals received the treatment while the remaining 2,845 constituted the controls. Adjusted odds ratio of progression to severe, critical, or fatal COVID-19 comparing the treatment group to the control group was 2.67 (95% CI: 0.60-11.91). In the analysis including only the subgroup of patients at higher risk of severe forms of COVID-19, the adjusted odds ratio was 0.65 (95% CI: 0.17-2.48).<br>• There was no evidence for a protective effect of sotrovimab in reducing COVID-19 severity in a setting dominated by the BA.2 subvariant. |

## Evidence on Drugs

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 20 Sep 2022 | Boesing et al. | Inhaled aviptadil for the possible treatment of COVID-19 in patients at high risk for ARDS: study protocol for a randomized, placebo-contr olled, and multicenter trial | *BMC Trials/ Randomized Controlled trial* | • Aviptadil, a synthetic form of human vasoactive intestinal peptide, might be beneficial for COVID-19 patients at high risk of developing ARDS because of its ability to influence the regulation of exaggerated pro-inflammatory proteins and orchestrate the lung homeostasis. Aviptadil has recently been shown to considerably improve the prognosis of ARDS in COVID-19 when applied intravenously.<br>• An inhaled application of aviptadil has the advantages of achieving a higher concentration in the lung tissue, fast onset of activity, avoiding the hepatic first-pass metabolism, and the reduction of adverse effects. The overall objective of this project is to assess the efficacy and safety of inhaled aviptadil in patients hospitalized for COVID-19 at high risk of developing ARDS. |
| 22 Sep 2022 | Gomaa et al. | Glycyrrhizin and boswellic acids, the golden nutraceuticals: multitargeting for treatment of mild–moderat e COVID-19 and prevention of post-COVID cognitive impairment | *Inflammoph armacology Experimenta l and Therapeutic Studies/ Systematic Review* | • Ten studies were used primarily for in vitro and in vivo assays and six used molecular docking studies. However, the antiviral activity of BAs against SARS-CoV-2 was determined in only five studies using molecular modeling and bioinformatics. All these studies confirmed that GR n and BAs have strong antiviral activity and can be used as a therapeutic agent for COVID-19 and as a protective agent against SARS-CoV-2.<br>• It warrants further studies with a larger randomized sample size to ensure that the studies have sufficient evidence of benefits against COVID-19 and post-COVID-19 symptoms. |
| 21 Sep 2022 | Chober et al. | Improved survival in ICU in severe COVID-19 associated with amantadine use – retrospective study. | *International Journal of Infectious diseases/ Retrospectiv e study* | • Overall mortality was 72.6%, being notably lower among amantadine treated patients (59.5%, n=84) compared to controls (91%, n=91), p= 0.001. In multivariate models administration of amantadine was independently associated with lower mortality rate [HR: 0.220 (CI: 0.146 – 0.333), p = 0.001)].<br>• Survival was improved in patients who received amantadine late - administration of amantadine after 5th day was independently associated with lower mortality [HR: 0.560 (CI: 0.313 – 0.999), p = 0.050). |

## Evidence on Drugs

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 22 Sep 2022 | Pfizer | Pfizer to Supply Global Fund Up to 6 Million PAXLOVID™ Treatment Courses for Low-and-Middle-Income Countries | *Pfizer/ Press Release* | • Treatment courses will be available for procurement by 132 Global Fund-eligible low-and-middle-income countries in all regions of the world beginning in 2022, subject to local regulatory approval or authorization<br>• The agreement is part of Pfizer's comprehensive strategy to work toward worldwide equitable access to COVID-19 oral treatments |

## Evidence on Equipment and Devices

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 20 Sep 2022 | Arabi et al, | Effect of Helmet Noninvasive Ventilation vs Usual Respiratory Support on Mortality Among Patients With Acute Hypoxemic Respiratory Failure Due to COVID-19 The HELMET-COVID Randomized Clinical Trial | *JAMA Network/ Randomized Clinical Trial* | • In this randomized clinical trial that included 320 adults with acute hypoxemic respiratory failure related to COVID-19, randomization to helmet use compared with usual respiratory support resulted in mortality within 28 days in 27.0% vs 26.1%, respectively. This difference was not statistically significant.<br>• Helmet noninvasive ventilation did not significantly reduce 28-day mortality compared with usual respiratory support among patients with acute hypoxemic respiratory failure due to COVID-19 pneumonia; however, interpretation of the findings is limited by imprecision in the effect size estimate. |

## Evidence on Preventive & Promotive Health

### Evidence on Screening

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 20 Sep 2022 | Lin et al. | Utilization of the Abbott SARS-CoV-2 IgG II Quant Assay To Identify High-Titer Anti-SARS-CoV-2 Neutralizing Plasma against Wild-Type and Variant SARS-CoV-2 Viruses | *Microbiology Spectrum/ Cross-sectional study* | • Sixty-three specimens were available for analysis. Abbott SARS-CoV-2 IgG II Quant assay values in BAU per milliliter were significantly different between high- and low-titer specimens for wild-type (Mann-Whitney U = 42, $P < 0.0001$), Alpha (Mann-Whitney U = 38, $P < 0.0001$), Beta (Mann-Whitney U = 29, $P < 0.0001$), Gamma (Mann-Whitney U = 0, $P < 0.0001$), and Delta (Mann-Whitney U = 42, $P < 0.0001$).<br>• A conservative approach using the highest 95% confidence interval (CI) values from wild-type and variant of concern (VOC) SARS-CoV-2 experiments would identify a potential Abbott SARS-CoV-2 IgG II Quant assay cutoff of ≥7.1 × 103 BAU/mL. |
| 20 Sep 2022 | Srithong et al. | A novel delayed lateral flow immunoassay for enhanced detection of SARS-CoV-2 spike antigen | *Microchimica Acta/ Experimental Study* | • A novel delayed lateral flow immunoassay was successfully developed for rapid and enhanced detection of SARS-CoV-2 spike antigen. The d-LFIA device was modified using a trimethylsilyl cellulose barrier to delay the movement of RBD-conjugated AuNPs and allow the antigen to advantageously form immunocomplex with the antibody.<br>• As a result, the sensitivity and detectability of this platform were significantly improved as compared to the conventional LFIA. The applicability of the proposed method was demonstrated through a satisfactory screening of SARS-CoV-2 antigen in clinical samples. We believe that the proposed device can be used to gain analytical advantage in other competitive LFIA applications as well, particularly when higher sensitivity is required. |
| 20 Sep 2022 | Tsang et al. | Performance of saline and water gargling for SARS-CoV-2 reverse transcriptase PCR testing: a systematic review and meta-analysis | *European Respiratory Review/ systematic review and meta-analysis* | • This review systematically assessed the performance of saline and water gargling for SARS-CoV-2 RT-PCR testing in the settings of diagnosing and monitoring viral shedding.<br>• Our results supported the use of gargling as a sampling approach for SARS-CoV-2 RT-PCR testing, which achieved a high sensitivity for both diagnosis and viral shedding monitoring purposes. Further investigation on the comparative performance of different gargling mediums is needed to draw a definitive conclusion. |

## 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 |
|---|---|---|---|---|
| 19 Sep 2022 | Nagy et al | The Influence of Manual Diaphragm Release Technique Combined with Inspiratory Muscle Training on Selected Persistent Symptoms in Men with Post-Covid-19 Syndrome: A Randomized Controlled Trial | *Journal of Rehabilitation Medicine (JRM) / Prospective, randomized-controlled trial.* | • Addition of manual diaphragm release to an inspiratory muscle training programme potentiates the role of inspiratory muscle training in the management of men with symptomatic post-COVID-19 syndrome.<br>• Fifty-two men with post-COVID-19 syndrome were allocated randomly to the study and control groups.<br>• The study group underwent diaphragm release plus inspiratory muscle training, whereas the control group received inspiratory muscle training only. |
| 23 Sep 2022 | Whyte et al, | Impact of washing parameters on bacterial filtration efficiency and breathability of community and medical facemasks | *Nature scientific Reports/ Experimental study* | • The performance of the new and washed masks was characterized from the bacterial filtration efficiency (BFE) and the differential pressure (DP). The tests on the new masks showed that the MFM had always better BFE than CFMs. Although two of the CFMs showed a BFE value exceeding 95%, only one can be classified as type I MFM based on both BFE and DP requirements.<br>• The DP of masks were not impacted by the washing. The results clearly show that even though a compromise has to be made between the BFE and breathability, it seems possible to manufacture CFMs with performances similar to a type I MFM, without achieving type II requirements. |

## Evidence on Traditional Medicine

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 17 Sep 2022 | WHO | WHO affirms support for COVID-19 traditional medicine research | *WHO Newsletters* | • The World Health Organization (WHO) has reiterated its continuous support to the the Government of Nigeria in its goal of achieving self-sufficiency in the local production of traditional medicine.<br>• "The ongoing scientific research projects in the National Institute for Pharmaceutical Research & Development and other higher institutions, highlights the interest of the Government of Nigeria to develop and promote African Traditional Medicines. These are in line with the theme of this year commemoration; The potential contribution of Traditional Medicine to COVID-19 Response. |
| 21 Sep 2022 | Sharma et al, | Therapeutic Options for the SARS-CoV-2 Virus: Is There a Key in Herbal Medicine? | *Natural Product Communications/ Systematic Review Study* | • The aim of this review article is to summarize some selected phytoconstituents which have been traditionally used to treat various infectious diseases, so that their application may be explored for the effective management of SARS-CoV-2 infection.<br>• However, clinical studies of some phytoconstituents, such as hesperidin, emodin, artemisinin, lycorine, and lianhuaqingwen, have shown exciting anti-SARS-CoV efficacy. However, still more phytoconstituents should be studied through proper clinical trials to find more effective anti-SARS-CoV treatments. |

## Evidence on Transmission

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 22 Sep 2022 | Richardson et al, | Tracking changes in SARS-CoV-2 transmission with a novel outpatient sentinel surveillance system in Chicago, USA | *Nature Communications/ Retrospective Study* | • Patients tested at community-based diagnostic testing sites between September 2020 and June 2021, and reporting symptom onset within four days preceding their test, formed the sentinel population. $R(t)$ calculated from sentinel cases agreed well with $R(t)$ from other indicators. Retrospectively, trends in sentinel cases did not precede trends in COVID-19 hospital admissions by any identifiable lead time.<br>• In deployment, sentinel surveillance held an operational recency advantage of nine days over hospital admissions. The promising performance of opportunistic sentinel surveillance suggests that deliberately designed outpatient sentinel surveillance would provide robust early warning of increasing transmission. |

## Evidence on Other Health Technologies

| Date | Author/s | Title | Journal/ Article Type | Summary |
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## Evidence on Medical and Surgical Procedures

| Date | Author/s | Title | Journal/ Article Type | Summary |
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# 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 |
|---|---|---|---|---|
| 21 Sep 2022 | WHO | WHO Multi-country Outbreak of Monkeypox | *WHO Situation Report* | • A total of 61,753 monkeypox cases have been reported globally; 4 of which are from the Philippines. |
| 20 Sep 2022 | European CDC | Monkeypox situation update as of 20 September 2022 | *CDC Monkeypox Situation Report* | • Since the start of the monkeypox outbreak, and as of 20 September 2022, 19 827 confirmed cases of monkeypox (MPX) have been reported from 29 EU/EEA countries. The five countries that have been reported with most cases are Spain, France, Germany, the Netherlands and Portugal |
| 17 Sep 2022 | Tianyu Lu et al. | The current emergence of monkeypox: the recurrence of another smallpox | *Biosafety and Health/ Review Article* | • This article reviewed virology, epidemiology, clinical features, experimental diagnosis, prevention, and disease intervention and compared the current and historic outbreaks between monkeypox and smallpox.<br>• Current epidemiological features revealed a non-negligible possibility of sexual transmission, especially homosexuality, via bodily fluids, seminal fluids, or other fluids through a damaged mucous membrane. This hypothesis was supported by a case series study containing 528 confirmed cases from 16 countries between 27 April and 24 June.<br>• Further observation is needed; although notable features like accelerated evolutions and new-emerging variants, transmission through close contact, the rapid expansion of confirmed cases in several countries, and limited anti-MPXV specific agents in clinics, the susceptible population are mainly limited to homosexuals. |

## Evidence on Vaccines

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 17 Sep 2022 | Tibor Spath et al | Modelling the protective effect of previous compulsory smallpox vaccination against human monkeypox infection: from hypothesis to a worst scenario | *International Journal of Infectious Diseases/ Prospective cohort study* | • Smallpox vaccination, compulsory in Austria until 1981, was reported to confer 85% cross-protection against monkeypox.<br>• To assess the impact of smallpox vaccine-induced protection, the age-dependent vaccine-induced immunity against human monkeypox and the probability of infection according to age in the general population of Vienna, Austria, were determined employing a modified Susceptible-Infected-Removed model.<br>• In the population born before 1981, the average vaccine-induced protective effect was calculated at 50.4%, whereas in the population born thereafter protection is lacking. The overall probability of infection after exposure to an infected patient was calculated at 73.8%, which exceeds the threshold value of 46.9% for an index patient to infect at least one other person (R≥1.0). |
| 22 Sep 2022 | Fierce Pharma | Bavarian Nordic nabs up to $470M in monkeypox vaccine purchase orders from Canada | *Fierce Biotech/ Press release* | • Bavarian Nordic—on a global supply pact tear with its monkeypox shot Jynneos—has locked in a deal with Canada that could keep sales rolling for years.<br>• Canada's public health agency has amended an earlier contract from June, laying out $234 million more for an undisclosed number of Jynneos doses, which bear the name Imvamune in Canada.<br>• The vaccine accord includes another $180 million in options for Canada to acquire even more doses of BN's smallpox/monkeypox shot each year through 2032. The vaccine specialist says it'll deliver the majority of Canada's vaccine order in 2023. Canada can continue to buy additional doses each year after that for the next 10 years. |

## Evidence on Transmission

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 17 Sep 2022 | Gandrakota et al. | Monkeypox coinfection with neurosyphilis in a transgender with HIV in Atlanta, USA | *Travel Medicine and Infectious Disease/ Case study* | • The case report describes the concurrent infection of Monkeypox and Neurosyphilis in a patient with HIV.The patient's course was complicated by presentation with multiple systemic infections with overlapping symptom presentations, which may have delayed identifying pertinent symptoms and earlier diagnosis.Because no skin lesions were initially reported, the patient's clinical presentation for monkeypox may have been obscured by symptoms of Neurosyphilis.<br>• The initial days of illness are critical to identify monkeypox and institute proper isolation procedures to prevent further transmission. It is known that symptomatology with the highest sensitivity (≥80%) for monkeypox are lymphadenopathy, fatigue, and the characteristic rash, while symptoms with high specificity include nausea, conjunctivitis, and genital lesions.<br>• Suspecting monkeypox during the prodromal stage is necessary, especially in high-risk populations. Screening for co-infections is also highly beneficial, as sometimes the co-infections could mask the symptoms of monkeypox. Further studies are needed to determine the need for routine screening for monkeypox in high-risk populations. |
| 22 Sep 2022 | El Eid et al | Human Monkeypox: A Review of the literature | *PLOS Pathogens/ Review Article* | • Observations from emergent cases have reported that the manifestations of the disease were sometimes atypical from what has been previously described. Young men who have sex with men seem to be the population most vulnerable to infection.<br>• Furthermore, the fact that it occurred in multiple countries during the same period of time suggests multiple sources of introduction and transmission. More thorough investigations are needed to answer these questions associated with this outbreak. |

## Evidence on Preventive & Promotive Health

### Evidence on Screening

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 20 Sep 2022 | Lieberman et al. | Clinical Performance and Trends During the First Two Months of Monkeypox Virus PCR Testing at Two United States Reference Labs | *medRxiv/ Retrospective cohort study* | • Results from both laboratories support public health data showing a high positivity rate in men (>30%) and those ages 30-49 (25-35%).<br>• There was a significant difference in Ct values between laboratories (ARUP 23.86 vs. UW 25.40) and collection method (22.79 for dry swab vs. 24.44 for VTM).<br>• These results provide an early snapshot of testing in the US during the monkeypox virus outbreak and support restricting the number of swabs collected per individual. |
| 19 Sep 2022 | Ubals et al | Evaluating the accuracy of self-collected swabs for the diagnosis of monkeypox | *medRxiv/ Prospective study* | • It was evaluated that the accuracy of patient-collected skin lesions, pharyngeal, and rectal swabs amongst 50 individuals enrolled in a study of monkeypox viral dynamics.<br>• It has been found that the performance of self-collected samples was similar to that of physician-collected samples, suggesting that self-sampling is a reliable strategy for diagnosing monkeypox. |

### Evidence on Personal Measures

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### Evidence on Community Measures

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 22 Sep 2022 | Diaz et al. | The Disease Ecology, Epidemiology, Clinical Manifestations, Management, Prevention, and Control of Increasing Human Infections with Animal Orthopoxviruses | *Wilderness Environmental Medicine/ Review Article* | • Case isolation and administration of the recently approved, nonreplicating modified Ankara vaccinia vaccine and new antivirals, such as tecovirimat, may limit community contact and person-to-person transmission of orthopoxviruses after outbreaks<br>• Although intravenous cidofovir has proven effective in the postexposure prophylaxis of monkeypox in monkeys, no data exist on the use of either VIG or cidofovir for prophylaxis or treatment of monkeypox |

## Evidence on Drugs

| Date | Author/s | Title | Journal/ Article Type | Summary |
|---|---|---|---|---|
| 19 Sep 2022 | US CDC | Patient's Guide to Monkeypox Treatment with TPOXX | US CDC *Guidance Document* | • The antiviral drug tecovirimat (TPOXX) has been approved by the US Food and Drug Administration (FDA) to treat smallpox in adults and children. Drugs developed to treat smallpox may be used to treat monkeypox.<br>• On the contrary, the FDA has not yet approved TPOXX for treatment against monkeypox. Under the expanded access investigational new drug (EA-IND) protocol, CDC, in partnership with FDA, has made TPOXX easier for healthcare providers to prescribe to people with monkeypox who have or who are at high risk of severe disease. |

## Evidence on Traditional Medicine

| Date | Author/s | Title | Journal/ Article Type | Summary |
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## 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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