# Weekly Evidence Report



Health Technology Assessment Philippines

19 - 25 November 2022

#### **Overview**

The following report presents summaries of evidence the Department of Health (DOH) - Health Technology Assessment (HTA) Division reviewed for the period of 19 - 25 November 2022 on current public health emergency concerns, COVID-19 and monkeypox. The HTA Division reviewed a total of 11 studies for COVID-19 and 5 studies for monkeypox.

For COVID-19, evidence includes 2 studies on Epidemiology; 3 studies on Vaccines; 2 studies on Drugs; 1 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.

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



#### **Sections**

Epidemiology
Vaccines
Drugs
Transmission
Equipment & Devices
Medical & Surgical Procedures
Traditional Medicine

Preventive & Promotive Health

Other Health Technologies

# COVID-19

# **Evidence on Epidemiology**

#### **Local COVID-19 Case Tracker:**

https://doh.gov.ph/2019-nCoV?gclid=CjwKCAjwjtOTBhAvEiwASG4bCOmLzFMQljh8DX\_VVSGA-HmO0Pt5\_Cscyk\_ID7xZv4zqlXG5vm9PM2xoC27QQAvD\_BwE

Date	Author/s	Title	Journal/ Article Type	Summary
23 Nov 2022	WHO Global	Weekly epidemiological update on COVID-19 - 23 November 2022	WHO Global Situation Report	<ul> <li>Globally, from 21 October to 21 November 2022, 95,447 through GISAID. Among these, 95,322 sequences were the Omicron variant of concern (VOC), accounting for 99.9% of sequences reported globally in the past 30 days.</li> <li>During epidemiological week 44 (31 October to 06 November 2022), among Omicron sister lineages, BA.5 and its descendent lineages continued to be dominant globally, accounting for 72.1% of sequences submitted to GISAID. A comparison of sequences submitted to GISAID during week 3 (4 to 30 October 2022) to week 44 shows a rise in sequence prevalence from 19.1% to 23.1% for BA.2 and its descendent lineages.</li> </ul>
22 November 2022	Link- Gelles et al, 2022	COVID-19-Associ ated Hospitalizations Among U.S. Infants Aged <6 Months — COVID-NET, 13 States, June 2021-August 2022	CDC / Surveillance Report	• Among persons aged ≥18 years reporting COVID-19–compatible symptoms, 360,626 tests were included; of these, 121,687 (34%) persons received positive test results. Among these case-patients, 28,874 (24%) reported being unvaccinated, 87,013 (72%) had received 2, 3, or 4 monovalent vaccine doses but no bivalent booster dose, and 5,800 (5%) had received a bivalent booster dose. Among 238,939 control-patients who received negative test results, 72,010 (30%) reported being unvaccinated, 150,455 (63%) had received 2, 3, or 4 monovalent vaccine doses but no bivalent booster dose, and 16,474 (7%) had received a bivalent booster dose. Median interval between receipt of the bivalent booster dose and SARS-CoV-2 testing was 1 month (range = 0−2 months) and did not vary by case status. Among persons who received ≥2 monovalent vaccine doses, vaccine effectiveness (VE) increased with time since the most recent monovalent vaccine dose in all age groups. At 2−3 months and ≥8 months after receipt of the most recent mRNA COVID-19 vaccine dose was 30% and 56% among persons aged 18–49 years, 31% and 48% among persons aged 50–64 years, and 28% and 43% among persons aged ≥65 years, respectively.

#### **Evidence on Vaccines**

Bloomberg Vaccine Tracker: <a href="https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/">https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/</a> 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

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Date	Author/s	Title	Journal/ Article Type	Summary
19 November 2022	<u>Vu et al</u> (2022)	Absence of antibody responses to SARS-CoV-2 N protein in COVID-19 vaccine breakthrough cases	Experimental Biology and Medicine / Prospective cohort study	<ul> <li>In this longitudinal prospective study (January 21–October 30, 2021), 90 naïve and 15 convalescent individuals were enrolled at the initiation of vaccination. Samples from 27 unvaccinated individuals with previous laboratory-confirmed COVID-19 diagnosis were collected at a single time point.</li> <li>Longitudinal serology profile (antibodies against severe acute respiratory syndrome coronavirus 2 [SARS-CoV-2] S and N proteins) and live-virus-based neutralization capacities were assessed while controlling for age.</li> <li>At 8 months postvaccination, male sex, individuals ≥65 years of age, and individuals who experienced noticeable side effects with the COVID-19 vaccine were at 5.47 (p-value = 0.0102), 4.33 (p-value = 0.0236), and 4.95 (p-value = 0.0159) fold greater risk of BC19 as compared to their peers, respectively.</li> <li>Importantly, every five-fold increase in viral neutralization capacities (by live-virus-based assays) was significantly associated with ~4-fold reduction in the risk occurrence of breakthrough COVID-19 (p-value = 0.045).</li> </ul>
21 November 2022	Elicabe et al (2022)	Assessing the long-stand antibody response induced by COVID-19 vaccines: A study in an educational cohort in San Luis, Argentina	Elsevier Public Health Emergency Collection / Retrospective Cohort	<ul> <li>Anti-SARS-CoV-2-Spike-RBD IgG and neutralising antibodies were assayed by ELISA in a total of 871 serum samples obtained from 376 volunteers from an educational staff. The individuals were vaccinated with BBIBP-CorV (Sinopharm), ChAdOx1 nCoV-19 (AstraZeneca/University of Oxford, AZ), Gam-COVID-Vac (Sputnik V, SpV) or combined vaccines (mostly SpV and mRNA-1273, Moderna). The antibody response was analysed several days after the initial vaccination (20, 40, 120 and 180 days).</li> <li>After receiving at least one dose of the COVID-19 vaccine, they detected 93.34% of seroprevalence. Previously SARS-CoV-2 infected showed higher antibody concentrations compared with naïve vaccinees. Six months after the initial vaccination, combined vaccination induced higher anti-SARS-CoV-2 antibody levels than the other vaccines in naïve volunteers. However, they did not find differences in the</li> </ul>

neutralising responses after any vaccine from naïve vaccines or between the naïve and previously infected volunteers on day 120 after

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vaccination.

# **Evidence on Vaccines (cont.)**

Date	Author/s	Title	Journal/ Article Type	Summary
22 November 2022	Borchering et al (2022)	Impact of SARS-CoV-2 vaccination of children ages 5–11 years on COVID-19 disease burden and resilience to new variants in the United States, November 2021–March 2022: A multi-model study	Lancet Regional Health / Retrospective Cohort	<ul> <li>Teams contributed state- and national-level weekly projections of cases, hospitalizations, and deaths in the United States from September 12, 2021 to March 12, 2022. Four scenarios covered all combinations of 1) vaccination (or not) of children aged 5–11 years (starting November 1, 2021), and 2) emergence (or not) of a variant more transmissible than the Delta variant (emerging November 15, 2021). Individual team projections were linearly pooled. The effect of childhood vaccination on overall and age-specific outcomes was estimated using meta-analyses.</li> <li>Vaccination of children 5–11 years old was associated with reductions in projections for all-age cumulative cases (7.2%, mean incidence ratio [IR] 0.928, 95% confidence interval [CI] 0.880–0.977), hospitalizations (8.7%, mean IR 0.913, 95% CI 0.834–0.992), and deaths (9.2%, mean IR 0.908, 95% CI 0.797–1.020) compared with scenarios without childhood vaccination.</li> </ul>

# **Evidence on Drugs**

Date	Author/s	Title	Journal/ Article Type	Summary
20 November 2022	Terada- Hirashima et al (2022)	Impact of inhaled ciclesonide on asymptomatic or mild COVID-19: A randomized trial	Drug Discoveries and Therapeutics / Open-Label Randomized Trial	<ul> <li>This multi-center, open-label randomized trial was conducted with patients recruited from 22 hospitals across Japan. Participants were patients admitted with mild or asymptomatic COVID-19 without signs of pneumonia on chest X-rays. Asymptomatic participants were diagnosed after identification through contact tracing. Trial participants were randomized to either the ciclesonide or control arm. Participants in the treatment arm were administered 400 µg of ciclesonide three times a day over seven consecutive days.</li> <li>The primary endpoint was exacerbated pneumonia within seven days. Secondary outcomes were changes in clinical findings, laboratory findings, and changes over time in the amount of the viral genome.</li> <li>In the treatment group, 16 patients (39.0%) were classified as having exacerbated pneumonia compared to 9 (18.8%) in the control group. The risk ratio (RR) was 2.08 (95% confidence interval (CI): 1.15-3.75), indicating a worsening of pneumonia in the ciclesonide group. Significant differences were noted in participants with a fever on admission (RR: 2.62, 90% CI: 1.17-5.85, 95% CI: 1.00-6.82) and individuals 60 years of age or older (RR: 8.80, 90% CI: 1.76-44.06, 95% CI: 1.29-59.99).</li> </ul>
22 November 2022	Rinaldi et al (2022)	Efficacy of interleukin-1 blockade with anakinra in the management of post-COVID-19 steroid-depende nt multisystem inflammatory syndrome: a case report	Scandinavian Journal of Rheumatology / Case Report	<ul> <li>In March 2020, an 82-year-old man symptomatic for fever and mild dyspnoea was diagnosed with COVID-19 after the positive result of a polymerase chain reaction (PCR) test for severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2).</li> <li>At anakinra start, CRP was 17.1 mg/L, despite PDN 15 mg daily. Anakinra introduction allowed tapering of the PDN dose with no recurrences of fever or increase in CRP levels. Three months later, PDN was suspended. Daily anakinra monotherapy was continued for an additional 3 months and then tapered until suspension, for a total of 12 months of treatment. Anakinra was well tolerated and no adverse events were recorded. At the last evaluation, the patient was not receiving any immunosuppressive treatment and was free of any symptoms, with no laboratory inflammatory features.</li> <li>Their report suggests that this drug might be considered in adult patients experiencing various grades of persistent inflammatory activation even after recovery from the infection. Replication of this preliminary observation in larger cohorts is required.</li> </ul>

# **Evidence on Equipment and Devices**

Date	Author/s	Title	Journal/ Article Type	Summary
19 November 2022	El Moghazy et al (2022)	Development and clinical evaluation of commercial glucose meter coupled with nanofiber based immuno-platform for self-diagnosis of SARS-CoV-2 in saliva	Talanta / Sensitivity Study	<ul> <li>A portable and easy-to-use immunosensing platform was developed and evaluated for a point-of-care and self-detection of SARS-CoV-2 spike protein without the need for extraction, separation, or amplification steps using clinically isolated samples (n = 40 samples).</li> <li>The fabrication of the immunoreaction vial using nylon nanofibrous membranes as a support matrix for the tethering of antibodies significantly improved the sensitivity of the detection platform in contrast to the use of conventional nylon casted membranes</li> <li>The sensitivity of the nanofibrous membrane attached antibody was at least an order of magnitude higher (~12 times) compared to the sensitivity of detection with regular casted membrane-based immunoreaction vial. The feasibility of the designed sensing platform was investigated using saliva as a non-invasive and self-administered sample for SARS-CoV-2.</li> <li>In addition, the developed platform depicted high agreement with RT-qPCR data in the analysis of the clinical samples with good stability over the storage time and reusability for three cycles with maintaining more than 95% of its original activity.</li> </ul>
21 November 2022	Chun- Hsiao et al (2022)	Simultaneous detection of antibody responses to multiple SARS-CoV-2 antigens by a Western blot serological assay	Applied Microbiology and Biotechnology / Specificity Study	<ul> <li>A single Western blot strip (WBS) coated with multiple Escherichia coli (E. coli)-expressed SARS-CoV-2 antigens was developed for comprehensive studies of antibody profiles in COVID-19 patient sera. The levels of specific antibodies directed to SARS-CoV-2 spike (S), S2, and nucleocapsid (N) proteins were gradually increased with the same tendency as the disease progressed after hospitalization. The signal readouts of S, S2, and N revealed by the multi-antigen-coated WBS (mWBS)-based serological assay (mWBS assay) also demonstrated a positive correlation with the SARS-CoV-2 neutralizing potency of the sera measured by the plaque reduction neutralization test (PRNT) assays.</li> <li>Surprisingly, the detection signals against the unstructured receptor-binding domain (RBD) purified from E. coli inclusion bodies were not observed, although the COVID-19 patient sera exhibited strong neutralizing potency in the PRNT assays, suggesting that the RBD-specific antibodies in patient sera mostly recognize the conformational epitopes.</li> <li>Furthermore, the mWBS assay identified a unique and major antigenic epitope at the residues 1148, 1149, 1152, 1155, and 1156 located within the 1127–1167 fragment of the S2 subunit, which was</li> </ul>

specifically recognized by the COVID-19 serum.

# **Evidence on Preventive & Promotive Health**

#### **Evidence on Personal Measures**

Date	Author/s	Title	Journal/ Article Type	Summary
24 November 2022	Lounis et al (2022)	Intention to get COVID-19 vaccination and its associated predictors: A cross-sectional study among the general public in Algeria	Vacunas / Cross-Sectional Study	<ul> <li>A self-administered online survey was distributed during August-September 2021 using a convenience-based sampling approach. Data were collected anonymously and analyzed using IBM SPSS v22.0 software.</li> <li>The study sample comprised a total of 656 participants, with 51.1% being in favor of COVID-19 vaccines while 18.5% and 30.5% were against or hesitant respectively. Only 38.6% among the study participants got vaccinated. The most common cited reasons for COVID-19 vaccine acceptance were the belief that vaccination is the only way to fight COVID-19 and the fear of getting infected by the virus. The most common reasons of rejection were lack of trust in proper vaccine testing and fear of side effects.</li> </ul>

# **Evidence on Community Measures**

Date	Author/s	Title	Journal/ Article Type	Summary
25 November 2022	de Araujo et al (2022)	Quantification of SARS-CoV-2 in wastewater samples from hospitals treating COVID-19 patients during the first wave of the pandemic in Brazil	Science of the Total Environment / Surveillance Study	<ul> <li>The study presented the relationship between the number of COVID-19 patients and the viral concentration in wastewater samples from 3 hospitals (A, B, and C) in the city of Belo Horizonte, Minas Gerais, Brazil.</li> <li>A positive and strong correlation between wastewater SARS-CoV-2 concentration and the number of confirmed cases was observed for Hospital B for both regions of the N gene (R = 0.89 and 0.77 for N1 and N2, respectively), while samples from Hospitals A and C showed low and moderate correlations. Even though the effects of viral decay and infiltration were minimized in our study, the variability of viral shedding throughout the infection period and feces dilution due to water usage for different activities in the hospitals could have affected the viral concentrations.</li> <li>These effects were prominent in Hospital A, which had the smallest sewershed population size, and where no correlation between the number of defecations from COVID-19 patients and viral concentration in wastewater was observed.</li> </ul>

#### **Evidence on Transmission**

Date	Author/s	Title	Journal/ Article Type	Summary
24 November 2022	Zheng et al (2022)	The rapid and efficient strategy for SARS-CoV-2 Omicron transmission control: analysis of outbreaks at the city level	Journal of Infectious Diseases of Poverty / Retrospective Cohort	<ul> <li>Epidemiological data on COVID-19 were extracted from the National Health Commission, People's Republic of China, and the population flow data were sourced from the Baidu migration data provided by the Baidu platform. Outbreak control was quantified by calculating the degree of infection growth and the time-varying reproduction number (<i>Rt</i>).</li> <li>Overall, 65 outbreaks occurred in 49 cities in China from January 2020 to June 2022. Of them, 66.2% were Omicron outbreaks and 33.8% were non-Omicron outbreaks.</li> <li>The intensity of the control measures was positively correlated with the degree of outbreak control (r = 0.351, P = 0.03). The degree of reduction in population mobility was negatively correlated with the Rt value (r = -0.612, P &lt; 0.01).</li> <li>Therefore, under the same control measure intensity, the number of new daily Omicron infections was 6.04 times higher than those attributed to non-Omicron variants, and the Rt value of Omicron outbreaks was 2.6 times higher than that of non-Omicron variants. In addition, the duration of non-Omicron variant outbreaks was shorter than that of the outbreaks caused by the Omicron variant (23.0 ± 10.7, 32.9 ± 16.3, t = 2.243, P = 0.031).</li> </ul>

# **Evidence on Traditional Medicine**

Date	Author/s	Title	Journal/ Article Type	Summary
19 November 2022	<u>Sun</u> (2022)	Promoting self- healing power and balancing immune response: a holistic, effective strategy of traditional Chinese medicine in treating COVID-19	Pharmacological Research - Modern Chinese Medicine / Narrative Review	<ul> <li>This review focuses on the essential components of host-pathogen interaction and performs an in-depth analysis of current literatures, including TCM theories and clinical studies as well as the most recent findings of tolerance (self-healing) mechanism in biomedical sciences.</li> <li>TCM treats COVID-19 through a holistic regulation of host responses, particularly by promoting patients' self-healing power and balancing immune responses. Compared to the pathogen-centered MM, the host-centered TCM does not require specific antivirals and has less side-effects and drug resistance.</li> <li>This review provides a scientific insight into the mechanism of TCM and sheds a light on the prospective integration of TCM and MM for future challenges.</li> </ul>

# **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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#### **Evidence on Preventive & Promotive Health**

# **Evidence on Screening**

Date	Author/s	Title	Journal/ Article Type	Summary
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# **MONKEYPOX**

# **Evidence on Epidemiology**

# **Monkeypox Case Tracker:**

WHO: <a href="https://extranet.who.int/publicemergency/#">https://extranet.who.int/publicemergency/#</a>

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

Date	Author/s	Title	Journal/ Article Type	Summary
25 November 2022	WHO	2022 Monkeypox Outbreak: Global Trends	WHO / Global Epidemiologic al Report	<ul> <li>Since January 1, 2022, cases of monkeypox have been reported to WHO from 110 Member States across all 6 WHO regions. As of November 24, 2022, at 17h CET, 81,095 laboratory-confirmed cases and 1,526 probable cases, including 55 deaths, have been reported to WHO.</li> <li>Since May 13, 2022, many of these cases have been reported from countries without previously documented monkeypox transmission. This is the first time that cases and sustained chains of transmission have been reported in countries without direct or immediate epidemiological links to West or Central Africa areas.</li> <li>With the exception of countries in West and Central Africa, the ongoing monkeypox outbreak primarily affects men who have sex with men who have reported recent sex with one or multiple partners. At present, there is no signal suggesting sustained transmission beyond these networks.</li> </ul>
25 November 2022	CDC	2022 Outbreak Cases and Data	CDC Epidemiologic al Report	<ul> <li>At this time, data suggest that gay, bisexual, and other men who have sex with men make up the majority of cases in the current monkeypox outbreak. However, anyone, regardless of sexual orientation or gender identity, who has been in close, personal contact with someone who has monkeypox is at risk.</li> </ul>

#### **Evidence on Vaccines**

Date	Author/s	Title	Journal/ Article Type	Summary
21 November 2022	Meo et al., 2022	Comparison of biological, Pharmacological Characteristics, Indications, Contraindications, And Adverse Effects of JYNNEOS and ACAM2000 Monkeypox Vaccines	MDPI/ Vaccines/ Narrative Review	<ul> <li>The data revealed that the JYNNEOS vaccine has been recommended to children, adults, females during pregnancy and people of all age groups with a dose of 0.5 mL, cost of USD 115. The mean titer of neutralizing antibodies was 153.5.</li> <li>However, the ACAM2000 vaccine is contraindicated in infants and pregnant females, and recommended to people over 18 years of age and older, with a single dose of 0.0025 mL, and a cost of USD 139. The mean titer of neutralizing antibodies was 79.3.</li> <li>The evidence supports the view that both vaccines are beneficial, but the overall impact of JYNNEOS is better than that of ACAM2000.</li> </ul>

# **Evidence on Other Health Technologies**

Date	Author/s	Title	Journal/ Article Type	Summary
21 Novemb er 2022	Khafaga et al., 2022	An Al-Biruni Earth Radius Optimization- Based Deep Convolutional Neural Network for Classifying Monkeypox Disease	Prime Pubmed / Specificity study	<ul> <li>This study created a a computer-aided approach for the automated diagnosis of monkeypox disease.</li> <li>As a first step in the proposed approach, the study used deep convolutional neural network-based models to learn the embedding of input images in Euclidean space. In the second step, an optimized classification model based on the triplet loss function was used to calculate the distance between pairs of images in Euclidean space and learn features that may be used to distinguish between different cases, including monkeypox cases.</li> <li>The proposed approach uses images of human skin diseases obtained from an African hospital.</li> <li>The experimental results of the study demonstrate the proposed framework's efficacy, as it outperforms numerous examples of prior research on skin disease problems.</li> </ul>

#### **Evidence on Preventive & Promotive Health**

# **Evidence on Community Measures**

Date	Author/s	Title	Journal/ Article Type	Summary
21 November 2022	Tao et al., 2022	Health system preparedness in infectious diseases: perspective of Malaysia, a middle-income country, in the face of monkeypox outbreaks	BMC Tropical Medicine and Health / Narrative review	<ul> <li>Malaysia's Health Ministry has developed a five-point strategy to prepare for the impending threat of the infectious disease, encompassing early detection of monkeypox, consolidation of laboratory diagnostic facilities, case management and treatment, cluster management, and strengthening public awareness.</li> <li>Crisis and disaster preparedness within a nation's health system is paramount to preventing disease spread. Various strategies for developing resilience in the face of global infectious disease spread were discussed.</li> <li>The current disease preparedness and response framework and guidelines in Malaysia have established a health system that is proactive and responsive to any potential infectious disease outbreaks. Despite this, the future remains unpredictable, and ongoing fortification is required as events unfold.</li> </ul>

#### **Evidence on Personal Measures**

Date	Author/s	Title	Journal/ Article Type	Summary			
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Ev	idence on Sc	reening					
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Evidence	Evidence on Medical and Surgical Procedures						
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# **Evidence on Drugs**

Date	Author/s	Title	Journal/ Article Type	Summary
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# **Evidence on Equipment and Devices**

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# **Evidence on Transmission**

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### **Evidence on Traditional Medicine**

Date	Author/s	Title	Journal/ Article Type	Summary
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