

# Weekly Evidence Report



Health Technology Assessment Philippines

26 November - 02 December 2022

## Overview

The following report presents summaries of evidence the Department of Health (DOH) - Health Technology Assessment (HTA) Division reviewed for the period of **26 November - 02 December 2022** on current public health emergency concerns, COVID-19 and monkeypox. The HTA Division reviewed a total of **13** studies for COVID-19 and **5** studies for monkeypox.

For COVID-19, evidence includes **5** studies on Epidemiology; **3** studies on Vaccines; **3** studies on Drugs; **0** studies on Transmission; **0** studies on Equipment and Devices; **1** study on Medical and Surgical Procedures; **0** study on Traditional Medicine; **0** studies on Preventive & Promotive Health; and **2** studies on Other Health Technologies.

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

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Medical & Surgical Procedures

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Traditional Medicine

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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\\_CscykID7xZv4zqlXG5vm9PM2xoC27QQAvD\\_BwE](https://doh.gov.ph/2019-nCoV?gclid=CjwKCAjwjtOTBhAvEiwASG4bCOmLzFMQljh8DX_VVSGA-Hm00Pt5_CscykID7xZv4zqlXG5vm9PM2xoC27QQAvD_BwE)

| Date             | Author/s                                | Title  | Journal/ Article Type                                     | Summary  |
|------------------|---|--|---|--|
| 30 Nov 2022      | <a href="#">WHO Global</a>              | Weekly epidemiological update on COVID-19 - 30 November 2022                       | <i>WHO Global Situation Report</i>                        | <ul style="list-style-type: none"> <li>Globally, the number of new weekly cases remained stable (+2%) during the week of 21 to 27 November 2022, as compared to the previous week, with just under 2.7 million new cases reported.</li> <li>The number of new weekly deaths decreased by 5%, as compared to the previous week, with about 8400 fatalities reported. As of 27 November 2022, 637 million confirmed cases and 6.6 million deaths have been reported globally.</li> </ul>   |
| 28 November 2022 | <a href="#">Degenhardt et al., 2022</a> | Detailed stratified GWAS analysis for severe COVID-19 in four European populations | <i>Journal of Human Molecular Genetics/ Meta-Analysis</i> | <ul style="list-style-type: none"> <li>The researchers performed an annotation of 35 mutations in the spike protein of the SARS-CoV-2 Omicron variant. Their analysis of the mutations indicates that Omicron has gained prominent immune evasion and potential for enhanced transmissibility.</li> <li>Previous modeling study has revealed that continued evolution in both immune evasion and enhanced transmissibility by SARS-CoV-2 would compromise vaccines as tools for the pandemic control. To combat the future variants of SARS-CoV-2, the world needs novel antiviral drugs that are effective at curb viral spreading without introducing additional selective pressure towards resistant variants.</li> </ul> |

# COVID-19

## Evidence on Epidemiology

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| Date                  | Author/s                               | Title   | Journal/ Article Type   | Summary   |
|-----------------------|--|---|---|---|
| 1<br>December<br>2022 | <a href="#">Matsumoto &amp; Prowle</a> | COVID-19-associated AKI   | <i>Current Opinion in Critical Care/ Narrative Review</i>           | <ul style="list-style-type: none"> <li>Large observational studies and meta-analyses report an AKI incidence of 28-34% in all inpatients and 46-77% in intensive care unit (ICU). The incidence of more severe AKI requiring renal replacement therapy (RRT) in ICU appears to have declined over time, in data from England and Wales RRT use declined from 26% at the start of the pandemic to 14% in 2022. The majority of survivors apparently recover their kidney function by hospital discharge; however, these individuals appear to remain at increased risk of future AKI, estimated glomerular filtration rate (eGFR) decline and chronic kidney disease. Importantly even in the absence of overt AKI a significant proportion of survivors of COVID-19 hospitalisation had reduced eGFR on follow-up.</li> </ul>   |
| 2<br>December<br>2022 | <a href="#">Crocker et al.</a>         | The impact of COVID-19 on the mental health workforce: A rapid review | <i>International Journal of Mental Health Nursing/ Rapid Review</i> | <ul style="list-style-type: none"> <li>Mental healthcare workers worldwide experienced a range of work-related and personal adversities during the pandemic. Key work-related outcomes included increased workload, changed roles, burnout, decreased job satisfaction, telehealth challenges, difficulties with work-life balance, altered job performance, vicarious trauma and increased workplace violence. Personal outcomes included decreased well-being, increased psychological distress and psychosocial difficulties. These outcomes differed between inpatient, outpatient and remote settings.</li> <li>The COVID-19 pandemic significantly altered the delivery of mental healthcare and MHWs experienced both work-related and personal adversities during the COVID-19 pandemic. With the continuation of changes introduced to healthcare in the initial stages of the pandemic, it will be important to maintain efforts to monitor negative outcomes and ensure supports for MHWs, going forward.</li> </ul> |

# COVID-19

## Evidence on Epidemiology

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| Date            | Author/s                      | Title   | Journal/ Article Type                   | Summary  |
|-----------------|-------------------------------|---|---|--|
| 2 December 2022 | <a href="#">Hoover et al.</a> | HIV Services and Outcomes During the COVID-19 Pandemic — United States, 2019–2021 | <i>CDC MMWR/ Epidemiological Report</i> | <ul style="list-style-type: none"> <li>The HIV prevention and care service system was resilient during the COVID-19 pandemic. Although HIV testing and PrEP services were disrupted in the spring of 2020, these services started to rebound by summer 2020; ART services for treatment remained unchanged because of interventions such as telehealth and ART home delivery. HIV testing and PrEP provision using self-test kits and nonclinical delivery models are needed to ensure robust prevention services during public health emergencies. Data on the impact of disrupted services and outcomes during the pandemic, along with risk behavior change data, can be used in models to predict the impact on HIV transmission and delays in achieving goals of the EHE initiative. Communities can use this information to assess resources and activities needed to offset decreased prevention services during the pandemic.</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   |
|------------------|-------------------------------|--|---|---|
| 28 November 2022 | <a href="#">Furgan et al.</a> | COVID-19 Vaccine-Related Myocardial and Pericardial Inflammation | <i>Current Cardiology Reports/ Narrative Review</i> | <ul style="list-style-type: none"> <li>COVID-19 mRNA vaccines are safe and effective. Systemic side effects of the vaccines are usually mild and transient. The incidence of acute myocarditis/pericarditis following COVID-19 vaccination is extremely low and ranges 2-20 per 100,000. The absolute number of myocarditis events is 1-10 per million after COVID-19 vaccination as compared to 40 per million after a COVID-19 infection. Higher rates are reported for pericarditis and myocarditis in COVID-19 infection as compared to COVID-19 vaccines.</li> </ul> |

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

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## Evidence on Vaccines

| Date                   | Author/s                       | Title  | Journal/ Article Type                                      | Summary   |
|------------------------|--------------------------------|--|--|---|
| 28<br>November<br>2022 | <a href="#">Furgan et al.</a>  | COVID-19 Vaccine-Related Myocardial and Pericardial Inflammation (cont.) | <i>Current Cardiology Reports/ Narrative Review</i>        | <ul style="list-style-type: none"> <li>COVID-19 vaccine-related inflammatory heart conditions are transient and self-limiting in most cases. Patients present with chest pain, shortness of breath, and fever. Most patients have elevated cardiac enzymes and diffuse ST-segment elevation on electrocardiogram. Presence of myocardial edema on T2 mapping and evidence of late gadolinium enhancement on cardiac magnetic resonance imaging are also helpful additional findings. Patients were treated with non-steroidal anti-inflammatory drugs and colchicine with corticosteroids reserved for refractory cases. At least 3-6 months of exercise abstinence is recommended in athletes diagnosed with vaccine-related myocarditis. COVID-19 vaccination is recommended in all age groups for the overall benefits of preventing hospitalizations and severe COVID-19 infection sequela.</li> </ul>  |
| 1<br>December<br>2022  | <a href="#">Edwards et al.</a> | A Community-Based COVID-19 Vaccine Education Initiative                  | <i>American Academy of Pediatrics/ Advocacy Case Study</i> | <ul style="list-style-type: none"> <li>Pediatric resident physicians subsequently partnered with Boston Medical Center to establish an accompanying education program entitled "Ask-a-Doc" to help improve health literacy and address vaccine hesitancy that focused on Black and Latinx adolescents. In partnership with multidisciplinary stakeholders, including Boston Public School leaders, Ask-a-Doc pediatric resident physicians staffed 46 community vaccine events in 15 zip codes. At these events, 1521 vaccine doses were administered, with most administered to Black and Latinx community members. As of January 1, 2022, 67% of 51 first-year pediatric resident physicians had participated. Ask-A-Doc is an example of a community-based intervention that directly targets health inequities and misinformation and demonstrates that pediatric resident physicians can meaningfully engage in community outreach with sufficient protected time, resources, and institutional support. The resulting connections may lead to greater trust and credibility within systematically oppressed communities.</li> </ul> |

## Evidence on Vaccines (cont.)

| Date                  | Author/s                       | Title   | Journal/ Article Type                  | Summary  |
|-----------------------|--------------------------------|---|--|--|
| 2<br>December<br>2022 | <a href="#">Muhindo et al.</a> | COVID-19 vaccine acceptability, and uptake among people living with HIV in Uganda | <i>PLoS One/ Cross-sectional Study</i> | <ul style="list-style-type: none"> <li>767 participants of whom 485 (63%) were women. The median age was 33 years [interquartile range (IQR) 28-40] for women and 40 years [IQR], (34-47) for men. Of the respondents 534 (69.6%, 95% confidence interval [CI]: 66.3%-72.8%) reported receiving at least one vaccine dose, with women significantly more likely than men to have been vaccinated (73% vs. 63%; <math>p = 0.003</math>). Among the unvaccinated 169 (72.7%, 95% CI: 66.6%-78.0%) were willing to accept vaccination, had greater vaccine confidence (85.9% had strong belief that the vaccines were effective; 81.9% that they were beneficial and 71% safe for PLWH; 90.5% had trust in health care professionals or 77.4% top government officials), and believed that it would be easy to obtain a vaccine if one decided to be vaccinated (83.6%). Vaccine acceptability was positively associated with greater vaccine confidence (adjusted prevalence ratio [aPR] 1.44; 95% CI: 1.08-1.90), and positive perception that it would be easy to obtain a vaccine (aPR 1.57; 95% CI: 1.26-1.96).</li> <li>vaccine acceptance was high among this cohort of PLWH, and was positively associated with greater vaccine confidence, and perceived easiness (convince) to obtained the vaccine. Building vaccine confidence and making vaccines easily accessible should be a priority for vaccination programs targeting PLWH.</li> </ul> |

## Evidence on Drugs

| Date                   | Author/s                     | Title  | Journal/<br>Article Type   | Summary   |
|------------------------|------------------------------|--|--|---|
| 2<br>December<br>2022  | <a href="#">Azizi et al.</a> | COVID-19 in Patients with Rheumatic Disease Using Immunomodulatory Drugs: Imaging Findings and Predictors of Hospitalization | <i>Rheumatology and Therapy/ Cross-sectional study</i>           | <ul style="list-style-type: none"> <li>CT findings showed lung involvement in 87 patients with chest CT-scan severity score (C-ss) of less than 8 in 59 (33%) and more than 8 in 28 (16%) of our patients. Of all patients, 76 (43%) were hospitalized. Hospitalized patients were significantly older and had more comorbidities (P = 0.02). On multivariate analysis, older age [odds ratio (OR) 1.90, 95% confidence interval (CI) 1.31-3.08] and comorbidity (OR 2.75, 95% CI 1.06-3.66) were significantly associated with higher odds of hospitalization (P = 0.03). On multivariate analysis, older age (OR 1.15, 95% CI 0.94-2.01), pulmonary diseases (OR 2.05, 95% CI 1.18-3.32), and treatment with csDMARDs (OR 1.88, 95% CI 0.37-1.93) were associated with higher C-ss (P = 0.039).</li> <li>This study found that advanced age and comorbidities, similar to the general population, are risk factors for hospitalization in patients with COVID-19 with rheumatic disorders. Administration of csDMARDs, older age, and pulmonary disorders were linked to increased risk of COVID-19 pneumonia in these individuals.</li> </ul>  |
| 30<br>November<br>2022 | <a href="#">Nandi et al.</a> | Repurposing of chemotherapeutics to combat COVID-19  | <i>Current Topics in Medical Chemistry/ Pharmaceutical Study</i> | <ul style="list-style-type: none"> <li>Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a novel strain of SARS coronavirus. The COVID-19 disease caused by this virus was declared a pandemic by the World Health Organization (WHO). SARS-CoV-2 mainly spreads through droplets sprayed by coughs or sneezes of the infected to a healthy person within the vicinity of 6 feet. It also spreads through asymptomatic carriers and has negative impact on the global economy, security and lives of people since 2019. Numerous lives have been lost to this viral infection; hence there is an emergency to build up a potent measure to combat SARS-CoV-2. In view of the non-availability of any drugs or vaccines at the time of its eruption, the existing antivirals, antibacterials, antimalarials, mucolytic agents and antipyretic paracetamol were used to treat the COVID-19 patients. Still there are no specific small molecule chemotherapeutics available to combat COVID-19 except for a few vaccines approved for emergency use only. Thus, the repurposing of chemotherapeutics with the potential to treat COVID-19 infected people is being used.</li> </ul> |



## Evidence on Drugs (cont.)

| Date                   | Author/s                     | Title   | Journal/<br>Article Type   | Summary  |
|------------------------|------------------------------|---|--|--|
| 30<br>November<br>2022 | <a href="#">Nandi et al.</a> | Repurposing of<br>chemotherapeu<br>tics to combat<br>COVID-19<br>(cont.)  | <i>Current Topics<br/>in Medical<br/>Chemistry/<br/>Pharmaceutical<br/>Study</i>               | <ul style="list-style-type: none"> <li>The antiviral activity for COVID-19 and biochemical mechanisms of the repurposed drugs are being explored by the biological assay screening and structure-based in silico docking simulations. The present study describes the various US-FDA approved chemotherapeutics repositioned to combat COVID-19 along with their screening for biological activity, pharmacokinetic and pharmacodynamic evaluation.</li> </ul>   |
| 28<br>November<br>2022 | <a href="#">Meng et al.</a>  | Corticosteroid<br>treatment in<br>severe patients<br>with<br>SARS-CoV-2<br>and chronic<br>HBV<br>co-infection: a<br>retrospective<br>multicenter<br>study | <i>BioMed Central<br/>infectious<br/>diseases/<br/>Retrospective<br/>Multicenter<br/>study</i> | <ul style="list-style-type: none"> <li>The prevalence of HBV co-infection in COVID-19 patients was 4.1%. There were 105 patients with severe COVID-19/HBV co-infections (median age 62 years, 57.1% male). Fifty-five patients received corticosteroid treatment and 50 patients did not. In the multivariable analysis, corticosteroid therapy (OR, 6.32, 95% CI 1.17-34.24, P = 0.033) was identified as an independent risk factor for 28-day mortality. With IPTW analysis, corticosteroid treatment was associated with delayed SARS-CoV-2 viral RNA clearance (OR, 2.95, 95% CI 1.63-5.32, P &lt; 0.001), increased risk of 28-day and in-hospital mortality (OR, 4.90, 95% CI 1.68-14.28, P = 0.004; OR, 5.64, 95% CI 1.95-16.30, P = 0.001, respectively), and acute liver injury (OR, 4.50, 95% CI 2.57-7.85, P &lt; 0.001). Methylprednisolone dose per day and cumulative dose in non-survivors were significantly higher than in survivors.</li> <li>In patients with severe COVID-19/HBV co-infection, corticosteroid treatment may be associated with increased risk of 28-day and in-hospital mortality.</li> </ul> |



## Evidence on Medical and Surgical Procedures

| Date            | Author/s                            | Title  | Journal/ Article Type                                     | Summary   |
|-----------------|-------------------------------------|--|---|---|
| 2 December 2022 | <a href="#">Avella &amp; Bharat</a> | Lung transplantation in patients with lung disease secondary to coronavirus disease 2019 infection | <i>Current Opinion in Critical Care/ Narrative Review</i> | <ul style="list-style-type: none"> <li>Lung transplants for patients with lung disease secondary to infection from COVID-19 have been performed successfully in over 200 patients in the United States. The preoperative course of these patients is somewhat atypical in comparison with patients who have had lung transplants related to chronic lung diseases, where there are more traditional indications for lung transplants. COVID-19 patients have more severe pulmonary disease often requiring mechanical ventilation and extracorporeal mechanical ventilation (ECMO), frequent nosocomial infections, and renal and cardiac dysfunction. The intraoperative course of these COVID-19 patients is often longer and requires increased transfusions of blood products in comparison with non-COVID-19 patients. Additionally, in the postoperative period, COVID-19 patients more frequently require mechanical ventilation and ECMO support. However, the survival rate of such patients at 6 months is greater than 90%.</li> <li>Patients with respiratory failure secondary to COVID-19 infection that require a lung transplant generally have a complicated preoperative course and the operations are more complex, but the long-term outcomes are excellent.</li> </ul> |

## Evidence on Other Health Technologies

| Date             | Author/s                       | Title   | Journal/ Article Type                       | Summary   |
|------------------|--------------------------------|---|---|---|
| 30 November 2022 | <a href="#">Scuotto et al.</a> | What makes us more susceptible to false memories in the era of COVID-19? A focus on vaccines and Green Pass | <i>Brain and Behavior/ Narrative Review</i> | <ul style="list-style-type: none"> <li>Data from 289 respondents (198 females) from the general population were analyzed. Participants with positive attitude reported a greater fear that their loved ones contracted the COVID-19, a more frequent use of traditional media, and a higher PK when compared with respondents with negative attitude. On the whole sample, participants reported higher confidence levels when required to judge their memory of true than fake news; however, participants with positive attitude reported a higher confidence for both true and fake news. The relationship between attitude and TM confidence was mediated by the PK, whereas the relationship between attitude and FM confidence was probably affected by OK.</li> <li>Attitude can modulate individual behaviors in the context of health issues. The PK and OK may interact with attitude in the memory formation.</li> </ul> |

## Evidence on Other Health Technologies

| Date             | Author/s                       | Title   | Journal/ Article Type                       | Summary   |
|------------------|--------------------------------|---|---|---|
| 28 November 2022 | <a href="#">Scuotto et al.</a> | What makes us more susceptible to false memories in the era of COVID-19? A focus on vaccines and Green Pass (cont.) | <i>Brain and Behavior/ Narrative Review</i> | <ul style="list-style-type: none"> <li>Acute lung injury (ALI) is a serious respiratory disease, which can lead to acute respiratory failure or death. It is closely related to the pathogenesis of New Coronavirus pneumonia (COVID-19). Many researches showed that traditional Chinese medicine (TCM) had a good effect on its intervention, and network pharmacology could play a very important role. In order to construct "disease-gene-target-drug" interaction network more accurately, deep learning algorithm is utilized in this paper. Two ALI-related target genes (REAL and SATA3) are considered, and the active and inactive compounds of the two corresponding target genes are collected as training data, respectively. Molecular descriptors and molecular fingerprints are utilized to characterize each compound. Forest graph embedded deep feed forward network (forgeNet) is proposed to train. The experimental results show that forgeNet performs better than support vector machines (SVM), random forest (RF), logical regression (LR), Naive Bayes (NB), XGBoost, LightGBM and gcForest. forgeNet could identify 19 compounds in Erhuang decoction (EhD) and Dexamethasone (DXMS) more accurately.</li> </ul> |

## 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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### Evidence on Personal Measures

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

| Date | Author/s | Title | Journal/ Article Type | Summary |
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## Evidence on Transmission

| Date | Author/s | Title | Journal/ Article Type | Summary |
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## Evidence on Other Health Technologies

| 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   |
|------------|---------------------|--|--|---|
| 1 Dec 2022 | <a href="#">WHO</a> | 2022 Monkeypox Outbreak: Global Trends | <i>WHO/Global Epidemiological Report</i> | <ul style="list-style-type: none"> <li>As of November 27 2022, a total of 81,107 laboratory-confirmed cases and 55 deaths have been reported to WHO.</li> <li>The number of weekly new cases reported globally declined by 46% in week 47 compared to week 46 , with the largest proportional decrease observed in the Region of the Americas (-48%) and the European Region (-15%), the two regions with the highest cumulative number of cases.</li> <li>In the past seven days,10 countries reported an increase in the weekly number of cases, with the highest increase reported in Peru. Overall, 71 countries have not reported new cases for over 21 days, the maximum incubation period of the disease; eight more countries since the last report.</li> </ul> |

No Updated Technical Report from US CDC

## Evidence on Vaccines

| Date             | Author/s                           | Title  | Journal/ Article Type               | Summary  |
|------------------|------------------------------------|--|-------------------------------------|--|
| 28 November 2022 | <a href="#">Taube et.al., 2022</a> | The global landscape of smallpox vaccination history and implications for current and future orthopoxvirus susceptibility: a modelling study | <i>The Lancet / Modelling Study</i> | <ul style="list-style-type: none"> <li>Smallpox vaccination cessation dates and vaccination coverage pre-eradication were distributed in WHO documents and in the landmark book, Smallpox and its Eradication. However, no single source provided this historical data for all countries.</li> <li>The study found substantial global spatial heterogeneity in the landscape of smallpox vaccination, with vaccination coverage estimated to range from 7% to 60% within admin-1 regions (ie, regions one administrative level below country) globally, with negligible uncertainty (99.6% of regions have an SD less than 5%).</li> <li>The study identified that geographical variation in vaccination coverage was driven mostly by differences in subnational demography.</li> </ul> |

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

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## Evidence on Vaccines

| Date             | Author/s                                    | Title   | Journal/ Article Type                                    | Summary  |
|------------------|---|---|--|--|
| 28 November 2022 | <a href="#">Taube et al. 2022</a> (cont.)   | The global landscape of smallpox vaccination history and implications for current and future orthopoxvirus susceptibility: a modelling study                                      | <i>The Lancet / Modelling Study</i>                      | <ul style="list-style-type: none"> <li>• Additionally, the study found that susceptibility for orthopoxviruses was highly age specific based on age at cessation and age-specific coverage; however, the age profile was consistent across vaccine effectiveness values.</li> <li>• The legacy of smallpox eradication can be observed in the current landscape of smallpox vaccine protection. The strength and longevity of smallpox vaccination campaigns globally, combined with current demographic heterogeneity, have shaped the epidemiological landscape today, revealing substantial geographical variation in orthopoxvirus susceptibility.</li> </ul>  |
| 28 November 2022 | <a href="#">Kovačić and Salihović, 2022</a> | Multi-epitope mRNA Vaccine Design that Exploits Variola Virus and Monkeypox Virus Proteins for Elicitation of Long-lasting Humoral and Cellular Protection Against Severe Disease | <i>Journal of Medical Science / Vaccine Design Study</i> | <ul style="list-style-type: none"> <li>• The cross-continental spread of monkeypox has reaffirmed the need for devoting attention to human poxviruses in general, as they represent potential bioterrorism agents. Currently, smallpox vaccines are utilized in immunization efforts against monkeypox, an unsurprising fact considering their genomic and phenotypic similarities.</li> <li>• Though it offers long-lasting protection against smallpox, its protective effects against human monkeypox continue to be explored, with encouraging results</li> <li>• In theory, a vaccine that offers cross-protection against variola and monkeypox would also protect against related viruses, at least in severe clinical manifestation. Herein, the study introduced a novel multi-epitope mRNA vaccine design that exploits these two viral proteomes to elicit long-lasting humoral and cellular immunity.</li> <li>• Immune system simulations and physicochemical and safety analyses characterize our vaccine candidate as antigenically potent, safe, and overall stable. The protein product displays high binding affinity towards relevant immune receptors</li> </ul> |

## Evidence on Transmission

| Date             | Author/s                   | Title  | Journal/ Article Type  | Summary  |
|------------------|----------------------------|--|--|--|
| 26 November 2022 | <a href="#">Qui et.al.</a> | How to recognize and respond to monkeypox 2022 outbreak in non-endemic countries: a narrative review | <i>European Review for Medical and Pharmacological Sciences / Narrative Review</i> | <ul style="list-style-type: none"> <li>It is common among students, housekeepers, hunters, farmers and housewives. It is more common in males than females, occurs below middle age, and is more common in children under 10.</li> <li>The incubation period is 5 to 21 days, and the rash usually appears within 1 to 3 days after the onset of fever. Clinical manifestations include fever, rash, swollen lymph nodes, headache, muscle pain and unusual weakness. Most patients have mild symptoms that last from 2 to 4 weeks.</li> <li>The source of the sudden outbreak in Europe and the United States is currently unknown and occurs mostly in homosexuals who have sex with men (MSM).</li> </ul> |

## Evidence on Other Health Technologies

| Date       | Author/s                     | Title  | Journal/ Article Type      | Summary   |
|------------|------------------------------|--|----------------------------|---|
| 1 Dec 2022 | <a href="#">Yang et. al.</a> | Aicom-Mp: An Ai-Based Monkeypox Detector For Resource-Constrained Environments | <i>aRxiv / AI Research</i> | <ul style="list-style-type: none"> <li>Clinical diagnoses for Monkeypox can be conducted through a biopsy or a polymerase chain reaction (PCR) laboratory test. However, these tests are expensive, and LDCs may not be able to afford mass-scale PCR testing. In contrast, utilizing AI for monkeypox screening is cost efficient and can be deployed in mass-scale in LDCs.</li> <li>AI has shown great potential to carry out productive monkeypox diagnosis. Multiple research groups have trained monkeypox classification machine learning models.</li> </ul> |

**Evidence on Equipment and Devices**

| Date | Author/s | Title | Journal/ Article Type | Summary |
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**Evidence on Drugs**

| 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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**Evidence on Personal Measures**

| Date | Author/s | Title | Journal/ Article Type | Summary |
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**Evidence on Community Measures**

| Date | Author/s | Title | Journal/ Article Type | Summary |
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**Evidence on Traditional Medicine**

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