COVID-19 and Mpox

Situational Report in the ASEAN Region

ASEAN BioDiaspora Virtual Center (ABVC)

December 5, 2022 | Issue No. 422

Table of Contents

COVID-19 ..... **1**
Highlights and Situation Overview 1
Global Update 1
Regional Update 1
Research Update 1
COVID-19 Cases and Deaths Table 3
COVID-19 Cases in ASEAN Region Table 3
COVID-19 Cases in Asia-Pacific Region Table 3
Epi curve Among ASEAN Countries 5
ASEAN Weekly New Cases and New Deaths 6
Vaccination Status in ASEAN 7
ASEAN Outlook Assessment 8
Mpox 9
Map of Mpox Cases Globally 9
Highlights and Situation Overview 10
Mpox Cases in ASEAN Region Table 10
Mpox Cases in Asia-Pacific Region Table 10
Top 5 Countries with Most Mpox Cases Globally 10
Mpox Cases per Region 11
Research Update 11
References **12**

COVID-19: Highlights and Situation Overview

Global Update

- **Worldwide**, there have been over 642 million cases and over 6 million deaths attributed to COVID-19.

Regional Update

- **Philippines:** Dr. Rontgene Solante, an infectious diseases expert, stated on Sunday that one of the reasons the country's state of public health emergency has not yet been abolished is the threat of COVID-19 variations of concern.[6] Solante told Super Radyo dzBB that COVID-19 infections in the country are now "extremely steady," and that hospitals are no longer overburdened with new cases.[6] The state of public health emergency was announced by then-President Rodrigo Duterte in March 2020, when the outbreak began.[6] [Full Article]

- **Singapore:** More COVID-19 infections and a new coronavirus wave are predicted when people travel for the holidays, but it will not be something Singapore has not seen before, according to Health Minister Ong Ye Kung.[7] He noted that in 2022, Singapore experienced three COVID-19 waves: the BA.2 Omicron subvariant in April, the BA.4 and BA.5 subvariants in July, and the latest XBB variant.[7] He also stated that the administration will keep an eye on developments in other countries.[7] One thing people should be aware of, according to Ong, is a potential new variety of concern that may emerge as winter approaches in the Northern Hemisphere.[7] He also mentioned China's COVID-19 situation.[7] [Full Article]

Research Update (Published and peer-reviewed studies)

- The traditional Japanese (Kampo) medicine, kakkonto with shosaikotokakikyosekko, has antiviral and anti-inflammatory effects.[2] In this randomized trial, ***Multicenter, randomized controlled trial of traditional Japanese medicine, kakkonto with shosaikotokakikyosekko, for mild and moderate coronavirus disease patients,*** 161 patients were randomly allocated to the control group (80) receiving conventional treatment for symptom relief such as antipyretics and antitussives or the Kampo group (81) receiving mixed extract granules of kakkonto (2.5 g) and shosaikotokakikyosekko (2.5 g) three times a day for 14 days in addition to conventional treatment.[2] The results from Kaplan–Meier estimates of symptom relief showed that there are no significant differences between the groups.[2] However, covariate-adjusted cumulative incidence of fever relief considering competitive risk showed that the recovery was significantly faster in the Kampo group than in the control group (HR 1.76, 95% CI 1.03–3.01).[2] Additionally, the risk of disease progression to moderate COVID-19 requiring oxygen inhalation was lower in the Kampo group than in the control group (Risk Difference −0.13, 95% CI −0.27–0.01).[2] No significant drug-related side effects were observed.[2] Kakkonto with shosaikotokakikyosekko is effective for fever relief with suppression of disease progression in COVID-19 patients.[2] [Full Text]

- This cohort study, ***Association of Initial SARS-CoV-2 Test Positivity with Patient-Reported Well-being 3 Months After a Symptomatic Illness***, described patient-reported physical, mental, and social well-being at 3 months after symptomatic illness among those who tested positive vs negative for SARS-CoV-2 infection.[3] 1,000 adults (aged≥18 years) with acute symptoms suggestive of SARS-CoV-2 infection were enrolled from December 11, 2020, to September 10, 2021.[3] Poor well-being scores at follow-up were common in both those who tested positive and negative for SARS-CoV-2 infection.[3] Despite some improvements over time, 39.6%of COVID-19–positive and 53.5%of COVID-19–negative

patients reported residual symptoms.[3] These findings emphasize the importance of including a concurrent control group when studying sequelae of COVID-19 illness.[3] [Full Text]

- The study, ***COVID-19 in Europe: from outbreak to vaccination*** described the COVID-19 prevalence one year after the beginning of the pandemic (about December 2020) and one year after beginning of mass vaccination (about February 2022) in 30 European countries.[4] The total number of deaths (per million inhabitants) was the variable that most differentiated the countries in 2020.[4] Case fatality rate was used to describe mortality by COVID-19 than total number of deaths.[4] By February 2022, about one year after the beginning of mass vaccination, a strong improvement was found in country status. When evaluating the association of case fatality rate with non-epidemiological variables, the outcomes revealed that primary vaccination (two doses) seems to be the most important to reduce case fatality rate.[4] The non-significant effect of the booster variable does not entail the irrelevance of administrating booster shots.[4] It instead suggests that providing everyone with primary vaccination can be more effective in reducing case fatality rate than alternatively proceeding with the administration of a third or even a fourth dose to people already vaccinated.[4] [Full Text]

- Singapore embarked on the COVID-19 National Vaccination Programme in early 2021. The main modality employed to achieve the mass vaccinations has been the Vaccination Centres (VCs).[5] Chow et al described ***A strategy to make COVID-19 vaccination more accessible to the elderly.[5]*** The first Mobile Vaccination Team (MVT) was formed in December 2020 under the purview of the Ministry of Health (MOH), Singapore.[5] An MVT is led by a registered medical practitioner, with a full team of 4 registered nurses and 3 support staff, and a subteam of 1 registered nurse and 1 support staff.[5] A fully configured MVT can vaccinate up to 150 individuals per day.[5] The Home Vaccination Team (HVT) is a small vaccination team that can be deployed directly to individual residencesto prvide vaccination services to even the most vulnerable persons.[5] A HVT comprises only 2 team members: a registered medical practitioner and a registered nurse.[5] The vaccination capacity of a HVT is extremely limited, and is usually reserved for individuals who are homebound or have significant mobility issues.[5] A HVT can be deployed to up to 12 different residences per day, and the number of persons vaccinated will depend on the number of eligible persons per household visited.[5] Records showed that the elderly primarily benefited from the mobile team deployments (in particular. persons aged ≥80 years).[5] For the period 30 December 2020 to 30 March 2022 and for all persons aged ≥60 years, the HVTs and MVTs contributed to 1.1–9.1% of all doses administered, inclusive of primary series and first booster doses.[5] The percentage of individuals vaccinated by the HVTs and MVTs largely corresponds with the national vaccination rate.[5] While the overall fraction of the elderly vaccinated by the mobile HVTs and MVTs is not very large, these individuals are at the highest risk of complications from COVID-19 infection.[5] Each elderly person vaccinated contributes to the protection of one at-risk person from hospitalisation and severe disease.[5] The HVTs and MVTs have brought vaccinations closer to the elderly and will continue to play an integral role in their vaccination capabilities going forward.[5] [Full Text]

COVID-19 Cases and Deaths as of 05 December 2022

- As of 05 December 2022 (2PM, GMT+8), worldwide, there were **642,964,474** confirmed cases, including **6,631,577** deaths. Globally, Case Fatality Rate (CFR) was **1.2%.**
- **35,340,221 confirmed cases** of COVID-19 have been reported in the **ASEAN Region.**
- The Case Fatality Rate in the **ASEAN** Region is range between **0.1 to 3.1%.**

COVID-19 cases in ASEAN region

REGION	COUNTRY	FIRST CONFIRMED CASE(S)	LATEST REPORT ON CONFIRMED CASE(S)	TOTAL CONFIRMED CASES	NEW CASES	TOTAL DEATHS	NEW DEATHS	CUMULATIVE CASES/ 100,000	CUMULATIVE VACCINATED	CUMULATIVE FULLY VACCINATED	CUMULATIVE BOOSTERED	FULLY VACCINATED/ 100
ASEAN REGION	Brunei Darussalam	10 Mar 20	04-Dec-22	241,044	-	225	-	55,632	450,404	445,929	338,987	99.3
	Cambodia	27 Jan 20	04-Dec-22	138,142	11	3,056	-	838	15,226,312	14,590,810	10,358,897	87.0
	Indonesia	02 Mar 20	04-Dec-22	6,677,655	-	159,953	-	2,467	203,715,848	174,119,714	66,624,569	63.2
	Lao PDR	24 Mar 20	04-Dec-22	216,824	14	758	-	3,024	5,888,649	5,222,417		69.4
	Malaysia	25 Jan 20	04-Dec-22	5,000,332	1,502	36,713	3	15,651	28,115,718	27,526,549	16,858,423	81.1
	Myanmar	23 Mar 20	04-Dec-22	633,318	22	19,488	-	1,172	34,777,314	27,545,329	2,227,351	50.8
	Philippines	30 Jan 20	04-Dec-22	4,039,978	-	64,701	-	3,737	78,196,194	73,738,568	20,946,059	63.8
	Singapore	23 Jan 20	04-Dec-22	2,168,167	1,052	1,705	-	38,014	5,156,279	5,113,405	4,440,289	90.7
	Thailand	13 Jan 20	04-Dec-22	4,707,244	-	33,180	-	6,761	57,005,497	53,486,086	32,143,431	74.6
	Vietnam	23 Jan 20	04-Dec-22	11,517,517	-	43,177	-	11,940	90,156,999	84,690,714	56,988,856	86.3
	ASEAN COUNTRIES			**35,340,221**	**2,601**	**362,956**	**3**	**139,235**	**518,689,214**	**466,479,521**	**210,926,862**	

*There have been no tests reported in the last 14 days in the **ASEAN** Region.

COVID-19 cases in Asia-Pacific region

REGION	COUNTRY/ TERRITORY	FIRST CONFIRMED CASE(S)	LATEST REPORT ON CONFIRMED CASE(S)	TOTAL CONFIRMED CASES	NEW CASES	TOTAL DEATHS	NEW DEATHS	CUMULATIVE CASES/ 100,000	CUMULATIVE VACCINATED	CUMULATIVE FULLY VACCINATED	CUMULATIVE BOOSTERED	FULLY VACCINATED/ 100
ASIA-PACIFIC REGION	Afghanistan	24-Feb-20	04-Dec-22	206,206	61	7,834	-	542	11,292,816	10,587,076		25.7
	Australia	25-Jan-20	30-Nov-22	10,646,942	-	16,090	-	41,509	22,236,983	21,656,235	19,567,150	82.7
	Bangladesh	08-Mar-20	03-Dec-22	2,036,622	-	29,434	-	1,249	148,052,616	125,109,629	58,882,275	73.1
	Bhutan	05-Mar-20	30-Nov-22	62,503	-	21	-	8,191	699,116	677,669	634,641	86.6
	People's Republic of China*		04-Dec-22	10,854,693	17,222	30,509	0	64,456	1,333,991,561	1,300,784,416	209,850,696	89.0
	Cook Islands	17-Feb-22	14-Sep-22	6,389	-	1	-	29,872	15,084	14,708	10,206	86.4
	Fiji	18-Mar-20	25-Nov-22	68,375	-	878	-	7,683	711,256	639,933	169,174	68.8
	French Polynesia	12-Mar-20	30-Nov-22	76,899	-	649	-	27,534	190,765	186,059	112,237	60.8
	Guam	15-Mar-20	02-Dec-22	59,424	-	409	-	35,521	157,961	143,409		85.1

Return to table of contents

	India	30-Jan-20	02-Dec-22	44,672,913	-	530,624	-	3,269	1,027,054,462	950,797,037	221,456,770	67.1
	Japan	16-Jan-20	19-Oct-22	21,858,528	-	46,014	-	17,312	104,409,189	103,001,366	143,420,541	83.1
	Kiribati	25-Jan-22	25-Jul-22	3,430	-	13	-	2,917	96,184	73,888	23,419	56.3
	Maldives	07-Mar-20	29-Nov-22	185,618	-	311	-	34,959	399,146	385,076	167,176	73.5
	Marshall Islands	26-Oct-20	26-Nov-22	15,541	-	17	-	26,434	42,920	34,305		44.1
	Micronesia	11-Jan-21	31-Oct-22	22,203	-	55	-	19,508	83,455	69,808		68.2
	Mongolia	10-Mar-20	03-Dec-22	993,372	-	2,179	-	30,801	2,272,965	2,175,617	1,044,337	64.0
	Nepal	24-Jan-20	03-Dec-22	1,000,903	-	12,019	-	3,499	27,398,529	23,857,858	8,674,375	78.1
	New Caledonia	17-Mar-20	29-Nov-22	76,051	-	314	-	26,425	191,660	184,116	93,983	63.5
	New Zealand	28-Feb-20	28-Nov-22	1,945,117	-	3,297	-	39,559	4,298,557	4,135,113	3,409,421	79.8
	Niue	03-Sep-21	03-Dec-22	169	-	-	-	7,802	1,255	1,227	1,153	62.9
	Northern Mariana Islands	28-Mar-20	01-Nov-22	13,212	-	41	-	23,091	46,340	43,770		84.4
	Pakistan	26-Feb-20	04-Dec-22	1,575,291	17	30,632	-	727	139,628,133	132,278,468	48,517,567	56.1
	Palau	31-May-21	29-Nov-22	5,785	-	7	-	32,125	20,699	18,445		85.7
	Papua New Guinea	21-Mar-20	30-Nov-22	45,917	-	668	-	523	364,090	303,884	30,383	3.0
	Samoa	18-Nov-20	25-Nov-22	15,967	-	29	-	8,101	191,130	177,651	78,912	79.9
	Solomon Islands	03-Oct-20	24-Nov-22	24,575	-	153	-	3,669	343,821	254,352	27,783	35.1
	Republic of Korea**	20-Jan-20	04-Dec-22	27,308,090	15,733	30,729	16	52,811	45,131,168	44,701,454	41,309,393	86.3
	Sri Lanka	27-Jan-20	04-Dec-22	671,711	8	16,805	-	3,081	17,143,761	14,752,827	8,220,002	67.6
	Timor Leste	21-Mar-20	02-Dec-22	23,354	-	138	-	1,806	872,617	779,475	291,233	58.1
	Tonga	05-Nov-21	06-Sep-22	16,182	-	12	-	15,486	91,949	77,464	38,331	72.5
	Türkiye	10-Mar-20	23-Nov-22	17,004,130	-	101,395	-	20,381	57,941,051	53,176,961	41,425,329	62.3
	Vanuatu	11-Nov-20	02-Nov-22	11,952	-	14	-	3,986	144,824	131,697	16,996	40.3
	Wallis et Futuna	17-Oct-20	28-Jul-22	761	-	7	-	4,749	7,136	6,794	3,742	58.6
			ASIA PACIFIC	**141,508,825**	**33,041**	**861,298**	**16**	**599,577**	**2,945,523,199**	**2,791,217,787**	**807,477,225**	

*Includes cases from Hong Kong (SAR), Macau (SAR), and Taiwan (Province of China).
**Republic of Korea – South Korea

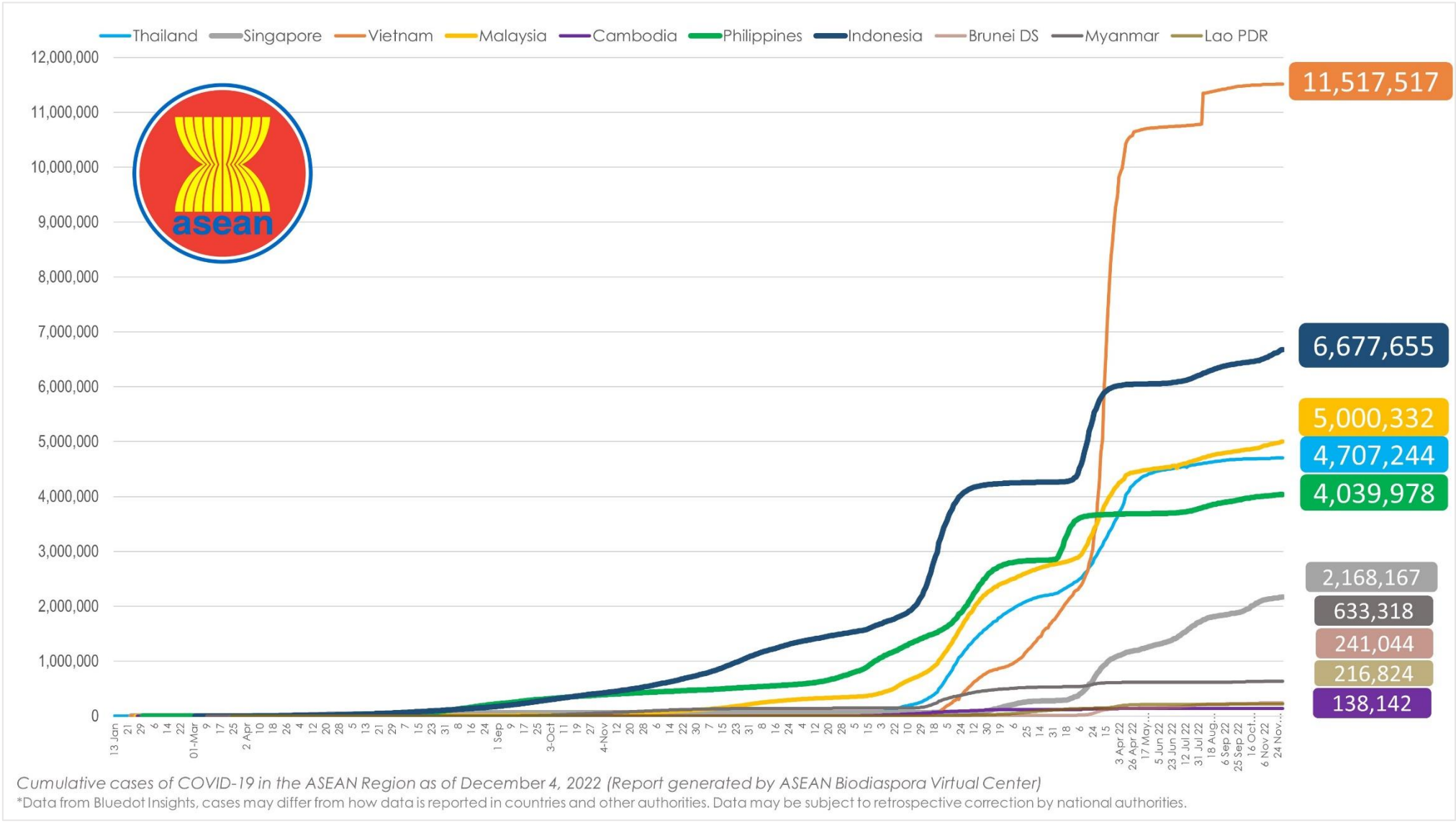
- **465,388,153 confirmed cases** of COVID-19 have been reported in other **4 regions** (other than ASEAN and Asia-Pacific countries):

REGION	TOTAL CONFIRMED CASES	NEW CASES	TOTAL DEATHS	NEW DEATHS	CUMULATIVE CASES/ 100,000	CUMULATIVE VACCINATED	CUMULATIVE FULLY VACCINATED	CUMULATIVE BOOSTERED
AFRICA	12,976,028	235	259,085	-	246,337	452,063,981	364,655,946	58,534,229
AMERICAS	185,628,316	7,409	2,907,282	31	1,215,392	832,540,382	732,197,093	484,470,535
EUROPE	244,911,185	47,524	2,021,237	70	2,065,395	568,494,592	539,845,195	374,923,927
MIDDLE EAST	22,599,899	2,293	238,644	16	214,360	144,456,928	129,779,457	59,694,800
TOTAL	**466,115,428**	**57,461**	**5,426,248**	**117**	**3,741,484**	**1,997,555,883**	**1,766,477,691**	**977,623,491**

Return to table of contents

COVID-19 Epi curve among ASEAN Countries:

From January 1, 2021 to December 4, 2022



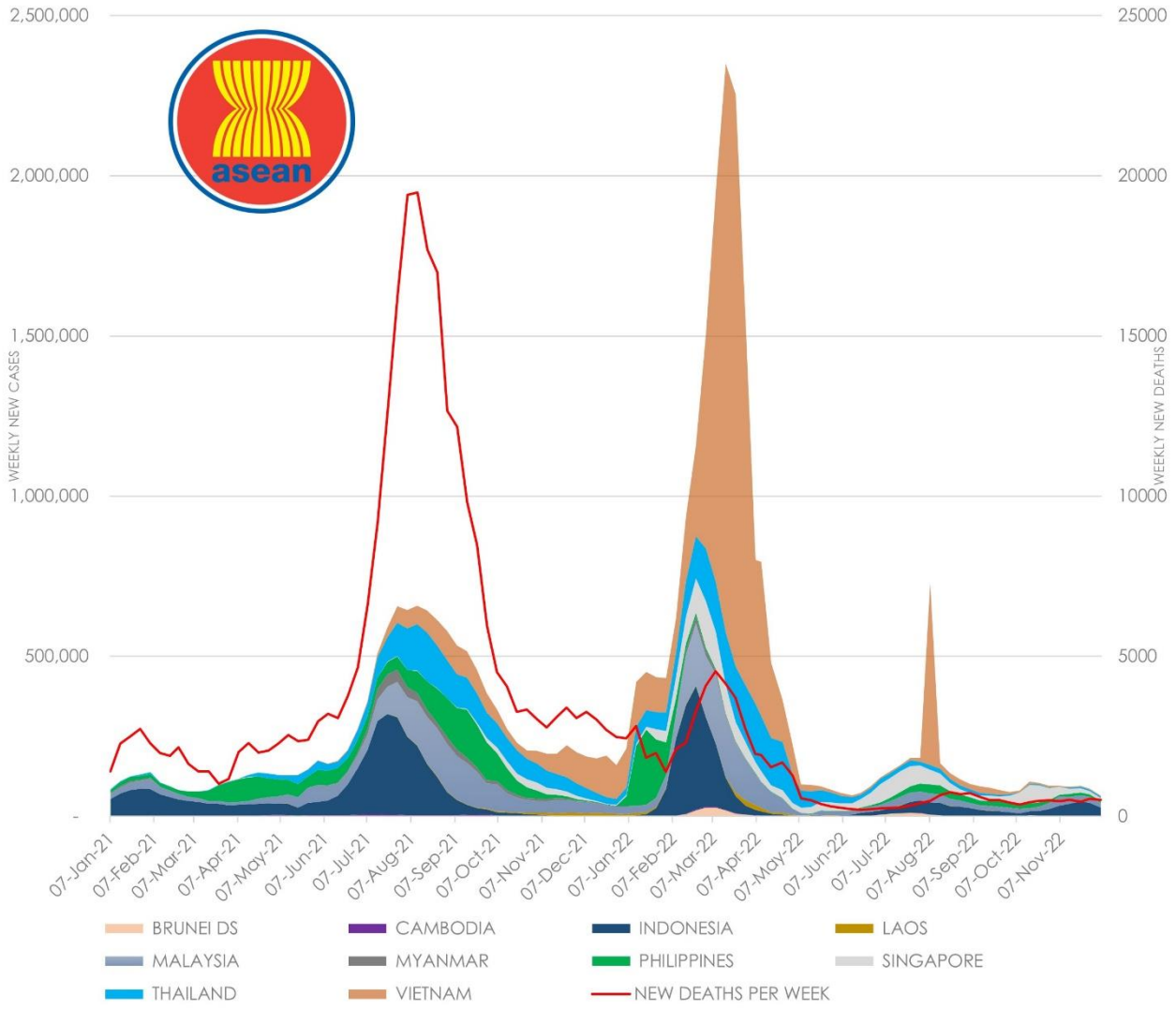
Cumulative cases of COVID-19 in the ASEAN Region as of December 4, 2022 (Report generated by ASEAN Biodiaspora Virtual Center)

*Data from Bluedot Insights, cases may differ from how data is reported in countries and other authorities. Data may be subject to retrospective correction by national authorities.

Return to table of contents

ASEAN Weekly COVID-19 New Cases and New Deaths

From January 1, 2021 to December 4, 2022

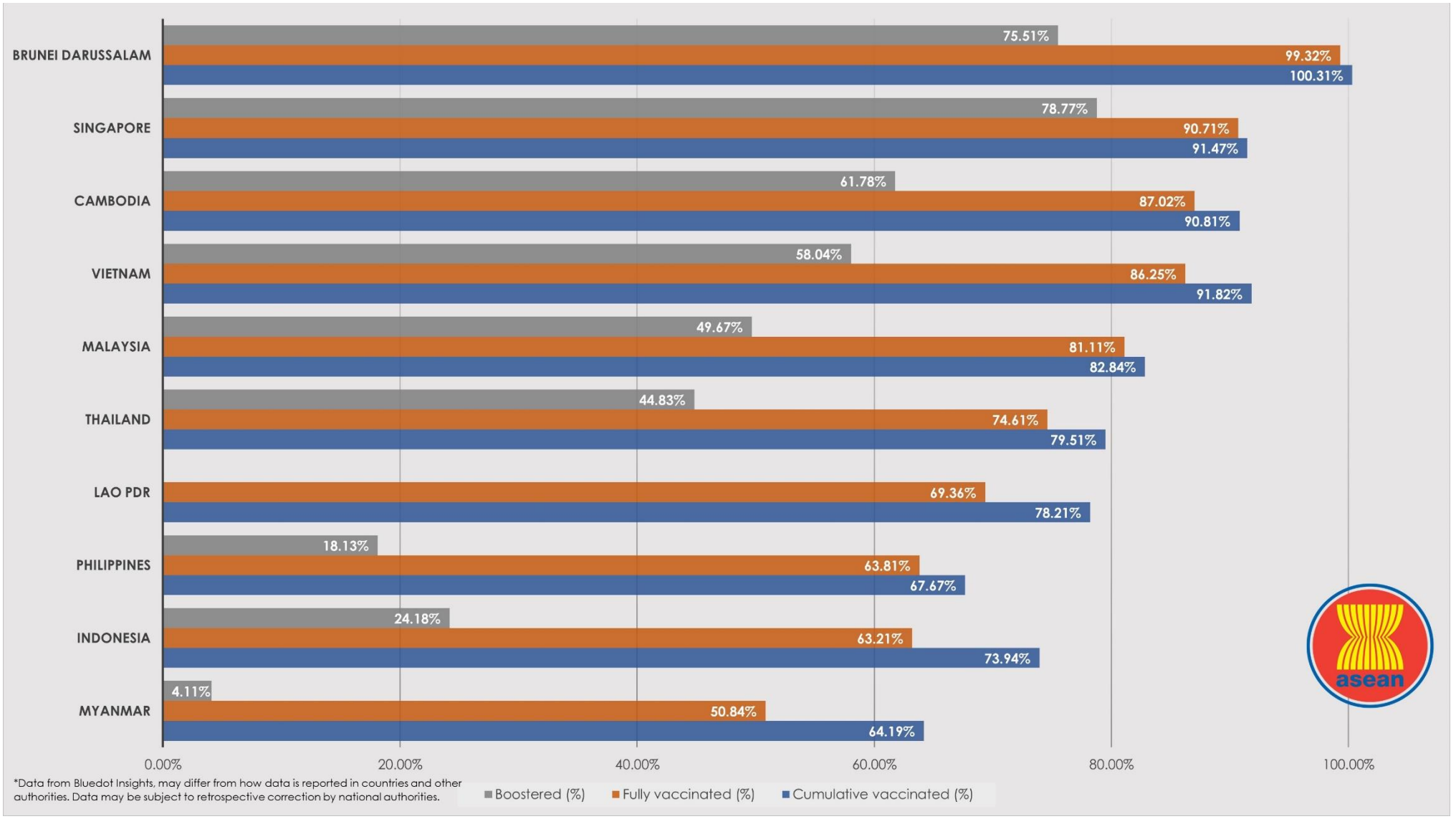


ASEAN Country	Weekly New Cases November 28-December 4, 2022	Weekly New Deaths November 28-December 4, 2022
Brunei Darussalam	0	0
Cambodia	79	0
Indonesia	27,411	277
Lao PDR	213	0
Malaysia	14,038	61
Myanmar	151	0
Philippines	6,296	106
Singapore	8,587	3
Thailand	4,914	74
Vietnam	2,985	7

Return to table of contents

ASEAN COVID-19 Vaccination Status

as of 04 December 2022



Return to table of contents

ASEAN COVID-19 Outlook Assessment

as of 02 December 2022

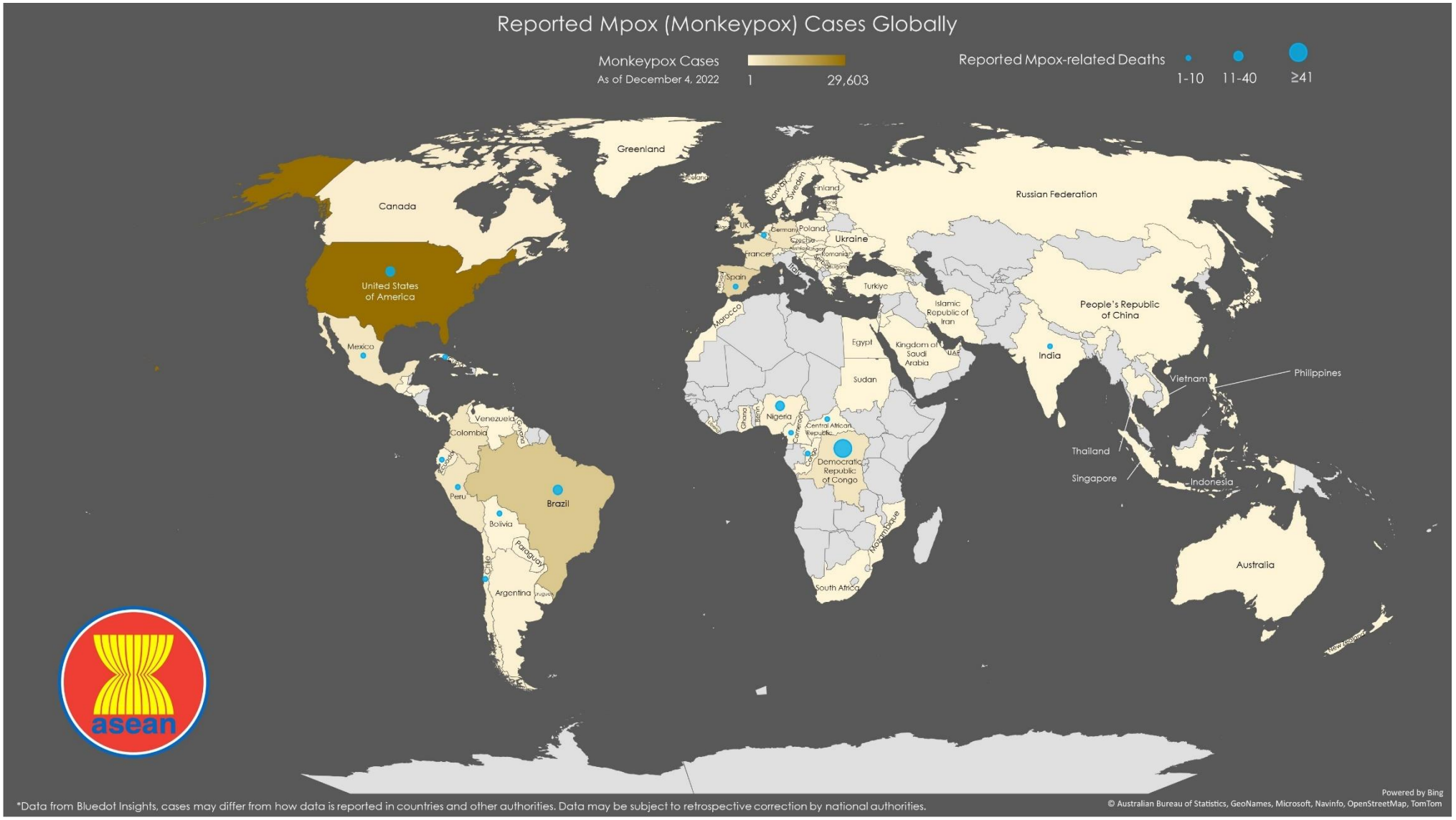
ASEAN MEMBER STATE	At least **65% of the total population has a level of immunity** to COVID-19; either recovered from COVID-19 or have been vaccinated with at least one dose of a COVID-19 vaccine.		**Case levels are generally low** (a 7-day rolling average number of daily new cases that is <10 cases per 100,000, with each day's past-14-day test positivity is consistently <5%).	**Government Policy** on containment and health (strictness and comprehensiveness in COVID-19 related government policies)
	% of Total population fully vaccinated / boostered	Population vaccinated/ day *(7-day average)*	Daily cases/ 100,000	Containment and health index score - *Oxford COVID-19 Government Response Tracker (OxCGRT)*
Brunei Darussalam	≥90.0/75.5	Unknown	0.00	31.0/100
Cambodia	≥90.0/61.8	Unknown	0.06	31.5/100
Indonesia	66.7/24.2	Unknown	1.66	54.2/100
Lao PDR	77.3/ND	Unknown	0.43	61.6/100
Malaysia	84.5/49.7	0%/day	6.51	51.8/100
Myanmar	52.1/4.1	Unknown	0.04	69.1/100
Philippines	71.4/18.1	Unknown	1.01	55.4/100
Singapore	≥90.0/78.8	0%/day	22.10	58.9/100
Thailand	77.7/44.8	Unknown	1.00	31.5/100
Vietnam	≥90.0/58.0	Unknown	0.49	43.5/100

All of the countries have achieved the Population vaccinated/ day (7-day average) except Vietnam.

Return to table of contents

Mpox (Monkeypox) Cases Reported Globally

as of December 4, 2022



*Monkeypox data is now automatically collected by Bluedot from Our World in Data. Adjustments were made to correct the data.

Return to table of contents

Mpox: Highlights and Situation Overview

- As of 05 December 2022 (2PM, GMT+8), worldwide, there were **86,919** confirmed cases, including **210** deaths. Globally, Case Fatality Rate (CFR) was **0.24%.**
- **40 confirmed cases** in the ASEAN region, with CFR of **0%.**
- **86,879 confirmed cases** of Mpox have been reported in other **5 regions** (other than ASEAN region):

Mpox cases in ASEAN region

Country	Total Cases	New Cases	Deaths	Case Fatality Rate (CFR)
Indonesia	1	-	-	0.00%
Philippines	4	-	-	0.00%
Singapore	19	-	-	0.00%
Thailand	12	-	-	0.00%
Vietnam	4	-	-	0.00%
ASEAN Total	**40**	**-**	**-**	**0.00%**

Mpox cases in Asia-Pacific region

Country/Territory	Total Cases	New Cases	Deaths	Case Fatality Rate (CFR)
Australia	143	-	-	0.00%
Hong Kong (SAR)	1	-	-	0.00%
India	20	-	1	5.00%
Japan	7	-	-	0.00%
New Caledonia	1	-	-	0.00%
New Zealand	36	-	-	0.00%
People's Republic of China*	9	-	-	0.00%
Republic of Korea*	4	-	-	0.00%
Sri Lanka	2	-	-	0.00%
Asia-Pacific Total	**223**	**-**	**1**	**0.45%**

*People's Republic of China – including Hong Kong (SAR), Macao (SAR), and Taiwan (Province of China)

Top 5 countries with most mpox cases globally

Country	Total Cases	New Cases	Deaths	Case Fatality Rate (CFR)
United States of America	29,603	355	17	0.05%
Brazil	10,004	46	14	0.14%
Spain	7,408	3	3	0.04%
France	4,110	3	-	0.00%
Colombia	3,803	-	-	0.00%

Mpox cases per region

REGION	TOTAL CONFIRMED CASES SINCE JANUARY 1, 2022	NEW CASES SINCE THE PREVIOUS REPORT	TOTAL DEATHS	CASE FATALITY RATE
AFRICA	5,079	-	160	3.15%
AMERICAS	55,305	525	44	0.08%
ASEAN	40	-	-	0.00%
ASIA PACIFIC	223	-	1	0.45%
EUROPE	25,953	5	4	0.02%
MIDDLE EAST	319	-	-	0.00%
TOTAL	**86,919**	**530**	**210**	**0.24%**

Research Update

- Thornhill et al described the epidemiological and clinical characteristics of monkeypox virus infection in cisgender (cis) and transgender (trans)women and non-binary individuals assigned female sex at birth to improve identification and understanding of risk factors in the study, ***Human monkeypox virus infection in women and non-binary individuals during the 2022 outbreaks: a global case series***.[1] International collaborators in geographical locations with high numbers of diagnoses of monkeypox virus infection were approached and invited to contribute data on women and non-binary individuals with confirmed monkeypox virus infection.[1] Data from 136 individuals with monkeypox virus infection who presented between May 11 and Oct 4, 2022, across 15 countries, were analyzed.[1] Overall median age was 34 years (IQR 28–40; range 19–84).[1] The cohort comprised 62 trans women, 69 cis women, and five non-binary individuals (who were, because of small numbers, grouped with cis women to form a category of people assigned female at birth for the purpose of comparison). 121 (89%) of 136 individuals reported sex with men.[1] 37 (27%) of all individuals were living with HIV, with a higher proportion among trans women (31 [50%] of 62) than among cis women and non-binary individuals (six [8%] of 74).[1] Sexual transmission was suspected in 55 (89%) trans women and 45 (61%) cis women and non-binary individuals; non-sexual routes of transmission (including household and occupational exposures) were reported only in cis women and non-binary individuals.[1] Overall, among individuals with available data, rash was described in 124 (93%) of 134 individuals and described as anogenital in 95 (74%) of 129 and as vesiculopustular in 105 (87%) of 121.[1] Vaginal and anal sex were associated with lesions at those sites. Monkeypox virus DNA was detected by PCR from vaginal swab samples in all 14 samples tested.[1] 17 (13%) individuals were hospitalized, predominantly for bacterial superinfection of lesions and pain management.[1] 33 (24%) individuals were treated with tecovirimat and six (4%) received post-exposure vaccinations. No deaths were reported.[1] [Full Text]

References

1. Thornhill, John P, et al. "Human Monkeypox Virus Infection in Women and Non-Binary Individuals during the 2022 Outbreaks: A Global Case Series." *The Lancet*, vol. 400, no. 10367, 17 Nov. 2022, pp. 1953–1965., https://doi.org/10.1016/s0140-6736(22)02187-0.

2. Takayama, Shin, et al. "Multicenter, Randomized Controlled Trial of Traditional Japanese Medicine, Kakkonto with Shosaikotokakikyosekko, for Mild and Moderate Coronavirus Disease Patients." *Frontiers in Pharmacology*, vol. 13, 9 Nov. 2022, https://doi.org/10.3389/fphar.2022.1008946.

3. Wisk, Lauren E., et al. "Association of Initial SARS-COV-2 Test Positivity with Patient-Reported Well-Being 3 Months after a Symptomatic Illness." *JAMA Network Open*, vol. 5, no. 12, 1 Nov. 2022, https://doi.org/10.1001/jamanetworkopen.2022.44486.

4. Vicente, Paula, and Abdul Suleman. "Covid-19 in Europe: From Outbreak to Vaccination." *BMC Public Health*, vol. 22, no. 1, 2 Dec. 2022, https://doi.org/10.1186/s12889-022-14454-5.

5. Chow, Soon Hoong, and Si Jack Chong. "A Strategy to Make Covid-19 Vaccination More Accessible to the Elderly." *Annals of the Academy of Medicine, Singapore*, vol. 51, no. 11, 25 Nov. 2022, pp. 745–746., https://doi.org/10.47102/annals-acadmedsg.2022277.

6. OMBAY, GISELLE. "Public Health Emergency Remains Due to Covid-19 Variants Threat – Health Expert." *GMA News Online*, GMA News Online, 4 Dec. 2022, https://www.gmanetwork.com/news/topstories/nation/853479/public-health-emergency-remains-due-to-covid-19-variants-threat-health-expert/story/.

7. "Singapore Braces for Fresh Covid Wave, 'New Variants of Concern' from China." *South China Morning Post*, 5 Dec. 2022, https://www.scmp.com/news/asia/southeast-asia/article/3202049/singapore-braces-fresh-covid-wave-new-variants-concern-china.

Report generated by
ASEAN Biodiaspora Virtual Center (ABVC)
in collaboration with **Bluedot Inc.**
Email: support@biodiaspora.org
Facebook: https://facebook.com/ASEANBiodiaspora

In partnership with Canada