



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Current Influenza Activity Levels:

- **Michigan:** Local activity
- **National:** During April 8-14, influenza activity was elevated in some areas of the U.S., but declined nationally and in most regions

Updates of Interest

- **International:** Bangladesh, Bhutan and China report avian influenza H5N1 poultry outbreaks

Table of Contents

| | |
|-------------------------------------|-----|
| Influenza Surveillance Reports | |
| Michigan..... | 1-3 |
| National..... | 3-4 |
| International..... | 4 |
| Novel Influenza and Other News | |
| WHO Pandemic Phase..... | 5 |
| Avian Influenza Surveillance..... | 5-6 |
| Avian Influenza H5N1 in Humans..... | 6 |

****Update: Novel A (H3N2) Guidance****

In December 2011, CDC asked all states to conduct surveillance for suspect human cases of a novel influenza A (H3N2) virus by increasing influenza testing. Subsequently, MDCH issued an interim guidance requesting all healthcare providers to forward all positive influenza specimens to MDCH for further testing. MDCH would like to thank the healthcare providers who contributed to this effort. Since no cases of novel influenza A (H3N2) have been identified in Michigan, MDCH is revising this guidance. For surveillance purposes, healthcare providers may now submit up to 5 representative specimens per week to MDCH Bureau of Laboratories, with priority on pediatric or severe cases. Please call the MDCH Division of Communicable Disease at 517-335-8165 with any questions.

Influenza Surveillance Reports

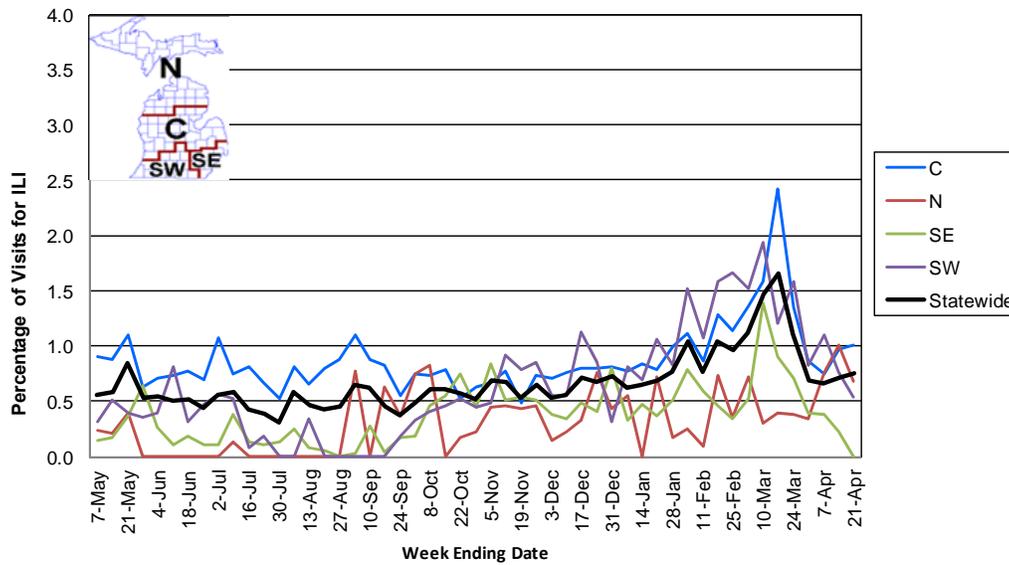
Michigan Disease Surveillance System: MDSS data for the week ending April 21st indicated that compared to levels from the previous week, individual reports increased. Aggregate reports increased slightly compared to the previous week but are below baseline levels. Individual reports are higher, while aggregate reports are similar, than levels seen during the same time last year.

Emergency Department Surveillance: Compared to levels from the week prior, emergency department visits from both constitutional and respiratory complaints slightly decreased. Both constitutional and respiratory complaints are similar to levels reported during the same time period last year. In the past week, there were five constitutional alerts in the SE(1), SW(1), and C(3) Influenza Surveillance Regions and three respiratory alerts in the C(2) and N(1) Regions.

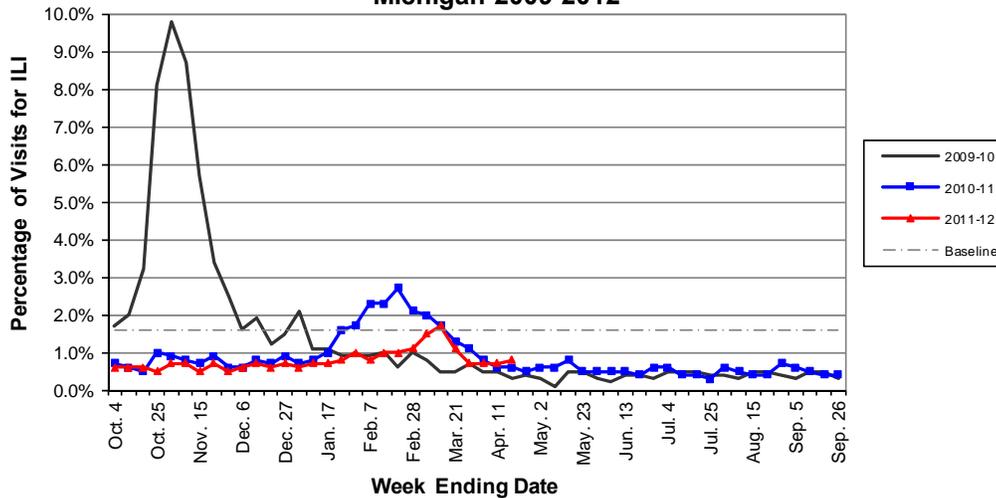
Sentinel Provider Surveillance (as of April 26): During the week ending April 21, 2012, the proportion of visits due to influenza-like illness (ILI) slightly increased to 0.8% overall; this is below the regional baseline of (1.6%). A total of 57 patient visits due to ILI were reported out of 7,523 office visits. Twenty-five sentinel sites provided data for this report. ILI activity remained the same in one surveillance region: Central (1.0%); and decreased in the remaining three surveillance regions: North (0.7%), Southwest (0.5%) and Southeast (0.0%). Please note these rates may change as additional reports are received.

As part of pandemic influenza surveillance, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Cristi Carlton at 517-335-9104 or CarltonC2@michigan.gov for more information.

**Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers, Statewide and Regions
2010-2011 and 2011-12 Flu Seasons**



**Percentage of Visits for Influenza-like Illness (ILI) Reported by the
US Outpatient Influenza-like Illness Surveillance Network (ILINet):
Michigan 2009-2012**



Hospital Surveillance (as of April 21): The Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness in Clinton, Eaton and Ingham counties. 1 lab-confirmed influenza hospitalization was reported during the week ending April 21, 2012. For the 2011-12 season, 27 influenza hospitalizations (9 adult, 18 pediatric) have been reported in the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 7 hospitals (SE, SW, C, N) reported for the week ending April 21, 2012. Results are listed in the table below. Total hospitalizations were adjusted to reflect amended reports from past weeks.

| Age Group | Hospitalizations Reported During Current Week | Total Hospitalizations 2011-12 Season |
|--------------|---|---------------------------------------|
| 0-4 years | 0 | 19 |
| 5-17 years | 1 | 19 |
| 18-49 years | 0 | 25 |
| 50-64 years | 1 | 25 |
| ≥65 years | 1 | 35 |
| Total | 3 | 123 |

Laboratory Surveillance (as of April 21): During April 15-21, 35 influenza A/H3 (23SE, 5SW, 5C, 2N), 2 influenza A/H1N1 2009pdm (1SE, 1SW) and 6 influenza B (4SE, 2C) results were reported by MDCH BOL. For the 2011-12 season (starting October 2, 2011), MDCH has identified 1077 influenza results:

- Influenza A(H3): 1005 (583SE, 82SW, 293C, 47N)
- Influenza A(H1N1)pdm09: 27 (17SE, 3SW, 5C, 2N)
- Influenza B: 45 (23SE, 13SW, 7C, 2N)
- Parainfluenza: 2 (1SE, 1C)
- Adenovirus: 3 (3SE)
- RSV: 4 (1SW, 1C, 2N)

13 sentinel labs (SE, SW, C, N) reported for the week ending April 21, 2012. 9 labs (SE, SW, C, N) reported influenza A activity, 2 of which had small increases in activity while 7 had decreasing numbers. 5 labs (SE, SW) had low influenza B positives. 6 labs (SE, SW, C) reported low or sporadic RSV activity. 1 lab (SE) saw low hMPV activity. Most testing volumes are decreasing but remain elevated at a few labs.

Michigan Influenza Antigenic Characterization (as of April 26): For the 2011-12 season, 37 Michigan influenza B viruses have been characterized at MDCH. 7 viruses are B/Brisbane/60/2008-like (included in the 2011-12 influenza vaccine). 30 are B/Wisconsin/01/2010-like (not included in the 2011-12 vaccine).

Michigan Influenza Antiviral Resistance Data (as of April 26): For the 2011-12 season, 19 Michigan influenza A(H1N1)pdm09 specimens and 83 influenza A(H3) specimens have been tested for antiviral resistance at MDCH Bureau of Laboratories; all have tested negative for oseltamivir resistance. 11 Michigan influenza A(H3N2), 2 influenza A(H1N1)pdm09, and 4 influenza B specimens have been tested for antiviral resistance at the CDC; all have tested negative for oseltamivir and zanamivir resistance.

CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza, which are available at <http://www.cdc.gov/flu/professionals/antivirals/index.htm>.

Influenza-associated Pediatric Mortality (as of April 26): No pediatric influenza-associated influenza mortalities have been reported to MDCH for the 2011-12 season.

CDC requires reporting of flu-associated pediatric deaths (<18 yrs), including pediatric deaths due to an influenza-like illness with lab confirmation of influenza or any unexplained pediatric death with evidence of an infectious process. Contact MDCH immediately for proper specimen collection. The MDCH protocol is at www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of April 26): One influenza A/H3 outbreak in a C Region long-term care facility was reported to MDCH during the past week. 27 respiratory outbreaks (6SE, 2SW, 18C, 1N) have been reported to MDCH during the 2011-12 season; testing results are listed below.

- Influenza A/H3: 13 (4SE, 9C)
- Influenza A: 2 (2C)
- Human metapneumovirus: 1 (SW)
- Negative or not tested: 11 (1SE, 1SW, 8C, 1N)

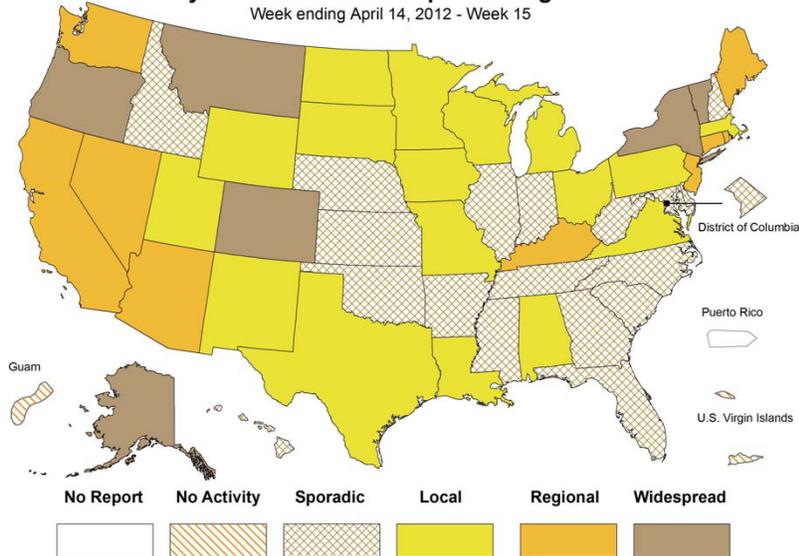
National (CDC [edited], April 20): During week 15 (April 8-14, 2012), influenza activity was elevated in some areas of the United States, but declined nationally and in most regions. Of the 3,730 specimens tested by U.S. WHO and NREVSS collaborating laboratories and reported to CDC/Influenza Division, 653 (17.5%) were positive for influenza. The proportion of deaths attributed to P&I was below the epidemic threshold. Two influenza-associated pediatric deaths were reported. One was associated with a 2009 H1N1 virus and one was associated with a seasonal influenza A (H3) virus. The proportion of outpatient visits for influenza-like illness (ILI) was 1.5%, which is below the national baseline of 2.4%. Region 10 reported ILI above its region-specific baseline level. Two states experienced low ILI activity; New York City and 48 states experienced minimal ILI activity, and the District of Columbia had insufficient data to calculate ILI activity. Six states reported widespread geographic activity; 9 states reported regional influenza activity; 17 states reported local activity; the District of Columbia and 18 states reported sporadic activity; Guam and the U.S. Virgin Islands reported no activity, and Puerto Rico did not report.

The Influenza Surveillance Network conducts population-based surveillance for laboratory-confirmed influenza-related hospitalizations in children younger than 18 years of age (since 2003-04) and adults (since 2005-06). Between October 1, 2011 and April 14, 2012, 1,926 lab-confirmed influenza-associated hospitalizations were reported at a rate of 7.0 per 100,000 population. Among cases, 1,692 (87.9%) were influenza A, 215 (11.2%) were influenza B, and 4 (0.2%) were influenza A and B co-infections; 15 (0.8%) had no virus type information. Among those with influenza A subtype information, 664 (73.3%) were H3N2 and 238 (26.3%) were 2009 H1N1. The most commonly reported underlying medical conditions among adults were chronic lung diseases, obesity and metabolic disorders. The most commonly reported underlying medical conditions in children were chronic lung diseases, asthma and neurologic disorders. However, half of hospitalized children had no identified underlying medical conditions.

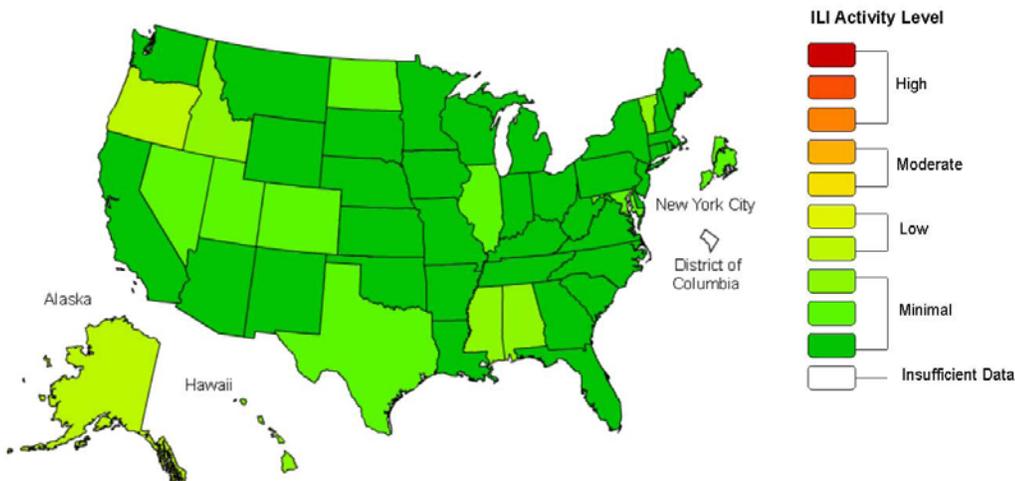
The entire weekly report is available online at <http://www.cdc.gov/flu/weekly/fluactivity.htm>.

**Weekly Influenza Activity Estimates Reported
by State & Territorial Epidemiologists***

Week ending April 14, 2012 - Week 15



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2011-12 Influenza Season Week 15 ending Apr 14, 2012**



This map uses the proportion of outpatient visits to healthcare providers for influenza-like illness to measure the ILI activity level within a state. Therefore, outbreaks occurring in a single city could cause the state to display high activity levels. Data collected in ILINet may disproportionately represent certain populations within a state, and therefore, may not accurately depict the full picture of influenza activity for the whole state. Data displayed on this map are based on data collected in ILINet, whereas the State and Territorial flu activity map are based on reports from state and territorial epidemiologists.

International (WHO [edited], April 13): In most areas of the northern hemisphere temperate regions, influenza activity appears to have peaked and is declining. In North America, influenza indicators have remained elevated in some areas of the United States of America, but declined in the last couple of weeks. Although, activity remains elevated across several regions in Canada, declining trends have started to be observed. Similarly, in Europe and northern Asia, nearly every country has now passed its peak of transmission and has reported declining activity. The most commonly detected virus type or subtype throughout Europe and North America (except Mexico) has been influenza A(H3N2), although the proportion of influenza B detection has been increasing toward the end of the season in North America. In Mexico influenza A(H1N1)pdm09 has been the most common influenza virus circulating; China and the surrounding countries of northern Asia are still reporting a predominance of influenza type B virus. Increasing genetic and antigenic diversity has been noted in H3N2 viruses in the later part of the influenza season. No significant change in antiviral resistance has been reported so far this season.

The entire WHO report is available online at www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance/en/index.html.

MDCH reported **LOCAL ACTIVITY** to the CDC for the week ending April 21, 2012.

For additional flu vaccination and education information, the MDCH *FluBytes* newsletter is available at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--,00.html.

Novel Influenza Activity and Other News

WHO Pandemic Phase: Post-pandemic – Influenza disease activity has returned to levels normally seen for seasonal influenza. It is expected that the pandemic virus will behave as a seasonal influenza A virus. It is important to maintain surveillance and update pandemic preparedness/response plans accordingly.

International, Human (ProMed [edited], April 23): CDC confirms positive test for H5N2 antibodies. Source: Centers for Disease Control, ROC (Taiwan) press release [in Chinese, trans. Rupiah; edited]

Three poultry workers tested positive for H5N2 antibodies; workers did not have flu-like symptoms; cross reaction following H5N1 influenza vaccination could not be excluded.

Following the recent H5N2 avian influenza outbreak in 5 poultry farms, Taiwan Centers for Disease Control (CDC) tested 141 poultry workers and animal quarantine personnel. All 141 persons' throat swabs were negative for viruses, but 3 persons tested positive for antibodies. Investigations showed that, to date, none had influenza-like symptoms.

All 3 persons testing positive for [H5N2] antibodies received seasonal influenza vaccine last year (2011) and 2 doses of a human avian influenza H5N1 vaccine in March and April 2012. Therefore, these 3 asymptomatic healthy persons with positive antibodies might have cross reactivity caused by seasonal [human] or avian influenza vaccination.

South Africa and Japan investigated poultry contacts following outbreaks in 2004 and 2005-2006, respectively. They also found that some people had antibodies to H5N2. None of these people had influenza-like symptoms. Furthermore, literature review did show that seasonal and avian influenza H5N1 vaccinations may result in positive tests of H5N2 antibodies.

Taiwan CDC urges poultry workers to use personal protective gear to prevent being infected by avian influenza. The public should avoid unnecessary contact with poultry, wash hands, and eat fully cooked poultry and egg products.

The complete posting is available online at <http://www.promedmail.org/direct.php?id=20120423.1111010>.

International, Poultry (OIE [edited], April 20): Highly pathogenic avian influenza H5N1; Bhutan
Outbreak: Yangbari, Gongdue, Mongar, Mongar
Date of start of the outbreak: 27/03/2012; Outbreak status: Continuing; Epidemiological unit: Village
Species: Birds; Susceptible: 265; Cases: 70; Deaths: 70
Affected population: Backyard free-ranging chicken in two villages, Yangbari and Patong

International, Poultry (OIE [edited], April 22): Highly pathogenic avian influenza H5N1; Bangladesh
All outbreaks were at commercial poultry farms.

Outbreak 1: Government poultry farm, Savar, Dhaka, DHAKA
Date of start of the outbreak: 19/03/2012; Outbreak status: Resolved
Susceptible: 5163; Cases: 3350; Deaths: 3350; Destroyed: 1813

Outbreak 2: Jamai shashur poultry farm, Ghoshkhola, New bacter char, Keranigonj, Dhaka, DHAKA
Date of start of the outbreak: 16/03/2012; Outbreak status: Resolved
Susceptible: 3000; Cases: 38; Deaths: 38; Destroyed: 2962

Outbreak 3: Proshika Bagadipara Agriculture farm, Kaitra, Satura, Manikgonj, DHAKA
Date of start of the outbreak: 16/03/2012; Outbreak status: Resolved
Susceptible: 5700; Cases: 1708; Deaths: 1708; Destroyed: 3992

Outbreak 4: Rafid poultry farm, Daskhin Joypara, Dohar, Dhaka, DHAKA
Date of start of the outbreak: 17/03/2012; Outbreak status: Resolved
Susceptible: 1358; Cases: 390; Deaths: 390; Destroyed: 968

Outbreak 5: Government poultry farm, Jessore, Jessore, KHULNA
Date of start of the outbreak: 23/03/2012; Outbreak status: Resolved
Susceptible: 2328; Cases: 414; Deaths: 414; Destroyed: 1914

Outbreak 6: Jahangir alam poultry farm, Kuthipara, Pabna sadar, Pabna, RAJSHAHI
 Date of start of the outbreak: 28/03/2012; Outbreak status: Resolved
 Susceptible: 1200; Cases: 37; Deaths: 37; Destroyed: 1163

Outbreak 7: Nandini poultry farm, Malibag, Musapur, Barpara, Bandar, Narayangonj, DHAKA
 Date of start of the outbreak: 28/03/2012; Outbreak status: Resolved
 Susceptible: 4849; Cases: 290; Deaths: 290; Destroyed: 4559

Outbreak 8: Azgar Ali poultry farm, Chhoto baira, Khulna, KHULNA
 Date of start of the outbreak: 24/03/2012; Outbreak status: Resolved
 Susceptible: 420; Cases: 172; Deaths: 172; Destroyed: 248

Outbreak 9: Gautam poultry farm, Maishala, Pangsha, Rajbari, DHAKA
 Date of start of the outbreak: 04/04/2012; Outbreak status: Resolved
 Susceptible: 1384; Cases: 515; Deaths: 515; Destroyed: 869

International, Poultry (OIE [edited], April 24): Highly pathogenic avian influenza H5N1; China
 Outbreak: Zhongshan District, Dalian, LIAONING
 Date of start of the outbreak: 18/04/2012; Outbreak status: Continuing; Epidemiological unit: village
 Species: Birds; Susceptible: 282; Cases: 5; Deaths: 5; Destroyed: 277

Michigan Wild Bird Surveillance (USDA, as of April 21): For the 2011 season (April 1, 2011-March 31, 2012), highly pathogenic avian influenza H5N1 has not been recovered from 7 Michigan samples or 448 samples tested nationwide. For more information, visit <http://www.nwhc.usgs.gov/ai/>.

To learn about avian influenza surveillance in Michigan wild birds or to report dead waterfowl, go to Michigan's Emerging Disease website at <http://www.michigan.gov/emergingdiseases>.

International Poultry and Wild Bird Surveillance (OIE): Reports of avian influenza activity, including summary graphs of avian influenza H5N1 outbreaks in poultry, can be found at the following website: http://www.oie.int/download/AVIAN%20INFLUENZA/A_AI-Asia.htm.

For questions or to be added to the distribution list, please contact Susan Peters at peterss1@michigan.gov

Contributors

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Table. H5N1 Influenza in Humans – As of April 12, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20120412CumulativeNumberH5N1cases.pdf. Downloaded 4/13/2012. Cumulative lab-confirmed cases reported to WHO. Total cases includes deaths.

| Country | 2003-2005 | | 2006 | | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | | Total | |
|------------|-----------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths | Cases | Deaths |
| Azerbaijan | 0 | 0 | 8 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 5 |
| Bangladesh | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 0 | 6 | 0 |
| Cambodia | 4 | 4 | 2 | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 8 | 8 | 2 | 2 | 20 | 18 |
| China | 9 | 6 | 13 | 8 | 5 | 3 | 4 | 4 | 7 | 4 | 2 | 1 | 1 | 1 | 1 | 1 | 42 | 28 |
| Djibouti | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Egypt | 0 | 0 | 18 | 10 | 25 | 9 | 8 | 4 | 39 | 4 | 29 | 13 | 39 | 15 | 9 | 5 | 167 | 60 |
| Indonesia | 20 | 13 | 55 | 45 | 42 | 37 | 24 | 20 | 21 | 19 | 9 | 7 | 12 | 10 | 5 | 5 | 188 | 156 |
| Iraq | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 |
| Lao PDR | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Myanmar | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Nigeria | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Pakistan | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| Thailand | 22 | 14 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 17 |
| Turkey | 0 | 0 | 12 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 |
| Vietnam | 93 | 42 | 0 | 0 | 8 | 5 | 6 | 5 | 5 | 5 | 7 | 2 | 0 | 0 | 4 | 2 | 123 | 61 |
| Total | 148 | 79 | 115 | 79 | 88 | 59 | 44 | 33 | 73 | 32 | 48 | 24 | 62 | 34 | 24 | 15 | 602 | 355 |