



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories



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Current Influenza Activity Levels:

- **Michigan:** Sporadic activity
- **National:** During December 11-17, influenza activity remained low in the United States

Updates of Interest

- **National:** Two new novel influenza infections in humans, an A/H1N1v from Wisconsin and an A/H3N2v from West Virginia, are reported

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****Notice to Readers****

Twelve human cases of a novel influenza A (H3N2) virus have recently been reported by CDC. There are no known cases in Michigan to date, but recent investigations in those states with cases have suggested some instances of limited human-to-human transmission. CDC has asked all states to conduct surveillance for suspect cases of this novel virus by increasing influenza testing. Therefore, the Michigan Department of Community Health is requesting all healthcare providers, hospitals and laboratories to assist in this effort. Influenza testing for all patients with an influenza-like illness is highly recommended, and all positive influenza specimens should be forwarded to the MDCH Bureau of Laboratories for additional confirmation. Please call the MDCH Division of Communicable Disease at 517-335-8165 with questions or to report suspect cases. Additional guidance is available at www.michigan.gov/flu.

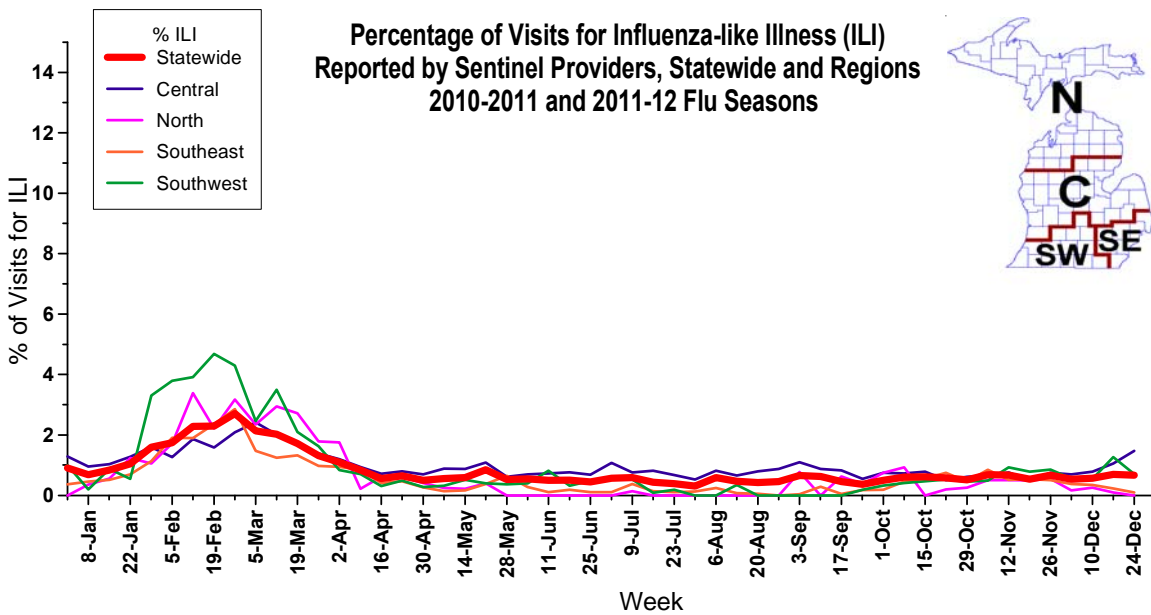
Influenza Surveillance Reports

Michigan Disease Surveillance System: MDSS data for the week ending December 24th indicated that individual influenza cases remained at levels similar to the previous week. Aggregate reports decreased, most likely due to the holiday school breaks. Both individual and aggregate reports are similar to levels seen during the same time last year.

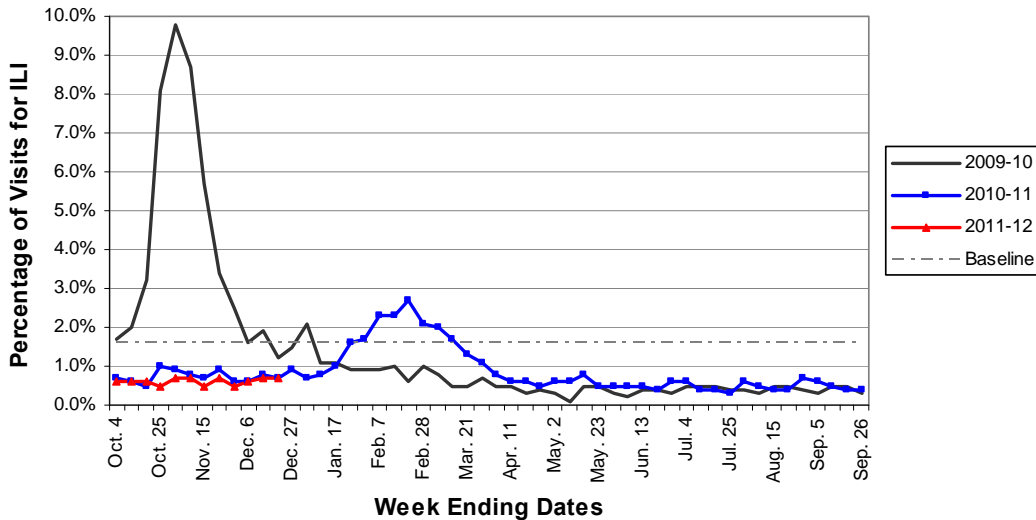
Emergency Department Surveillance: Compared to levels from the prior week, emergency department visits from constitutional complaints increased slightly, while visits due to respiratory complaints remained steady. Constitutional complaints are similar to levels reported during the same time period last year, while respiratory complaints are slightly higher. In the past week, there were twelve constitutional alerts in the SE(3), SW(2) and C(7) Influenza Surveillance Region and eight respiratory alerts in the SE(1), SW(1), C(4) and N(2) Regions.

Sentinel Provider Surveillance (as of December 29): During the week ending December 24, 2011, the proportion of visits due to influenza-like illness (ILI) remained at 0.7% overall; this is below the regional baseline of 1.6%. A total of 46 patient visits due to ILI were reported out of 6,917 office visits. Twenty-three sentinel sites provided data for this report. Activity increased in one surveillance region: Central (1.5%); and decreased in the remaining three surveillance regions: Southeast (0.1%), North (0.0%) and Southwest (0.7%). 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 the US Outpatient Influenza-like Illness Surveillance Network (ILINet): Michigan 2009-2011



Hospital Surveillance (as of December 24): The Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness in Clinton, Eaton and Ingham counties. No influenza hospitalizations were reported during the week ending December 24, 2011. For the 2011-12 season, there has been one adult lab-confirmed influenza hospitalization in the catchment area.

The MDCH Influenza Sentinel Hospital Network monitors influenza-associated hospitalizations reported voluntarily by hospitals statewide. Five hospitals (SE, SW, C) reported for the week ending December 24, 2011. Results are listed in the table below.

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

Laboratory Surveillance (as of December 24): During December 18-24, one influenza A/H3 positive result was reported by the MDCH Bureau of Laboratories. For the 2011-12 influenza season (starting October 2, 2011), MDCH has identified 4 influenza results:

- Influenza A/H3: 3 (2SE, 1C)
- Parainfluenza: 2 (1SE, 1C)
- Influenza B: 1 (SE)
- Adenovirus: 1 (SE)

12 sentinel labs (SE, SW, C, N) reported for the week ending December 24, 2011. 2 labs (SE) reported sporadic influenza A positives. No influenza B positives were reported. 7 labs (SE, SW, C, N) reported low RSV activity. Testing volumes are low to moderate but increasing.

Michigan Influenza Antigenic Characterization (as of December 29): For the 2011-12 season, one Michigan influenza B specimen has been characterized as B/Brisbane/60/2008-like at MDCH BOL; this strain matches the influenza B component for the 2011-12 Northern Hemisphere influenza vaccine.

Michigan Influenza Antiviral Resistance Data (as of December 29): No Michigan influenza specimens have been tested for antiviral resistance at this time for the 2011-12 season.

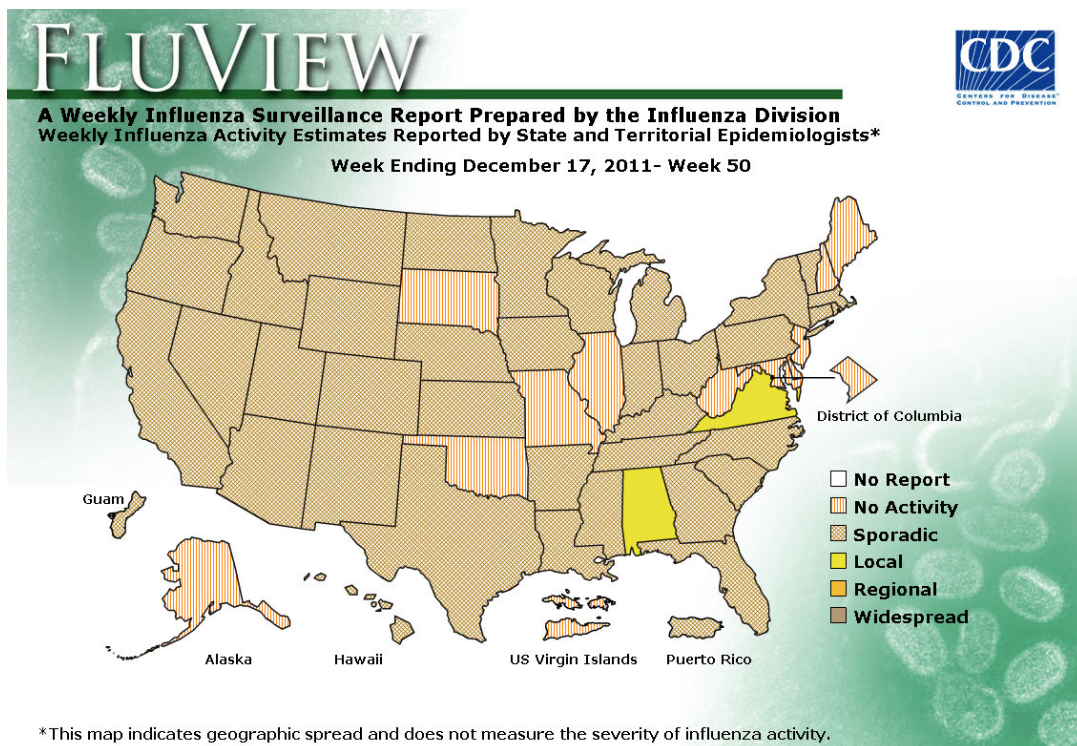
CDC has made recommendations regarding the use of antivirals for treatment and prophylaxis of influenza, which are available at <http://www.cdc.gov/flu/professionals/antivirals/index.htm>.

Influenza-associated Pediatric Mortality (as of December 29): No pediatric influenza-associated influenza mortalities have been reported to MDCH for the 2011-12 season.

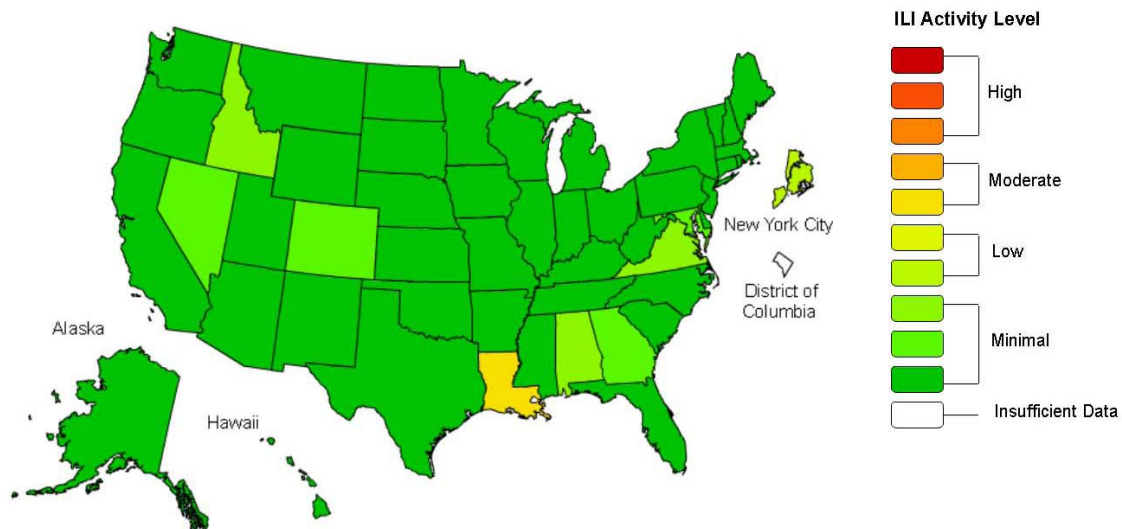
CDC requires reporting of flu-associated pediatric deaths (<18 yrs), including pediatric deaths due to an influenza-like illness with lab confirmation of influenza or any unexplained pediatric death with evidence of an infectious process. Contact MDCH immediately for proper specimen collection. The MDCH protocol is at www.michigan.gov/documents/mdch/ME_pediatic_influenza_guidance_v2_214270_7.pdf.

Influenza Congregate Settings Outbreaks (as of December 29): No new outbreaks were reported to MDCH during the past week. One respiratory outbreak (C) has been reported during the 2011-12 season.

National (CDC [edited], as of December 23): During week 50 (December 11-17, 2011), influenza activity remained low in the U.S. Of the 2,993 specimens tested by U.S. World Health Organization and National Respiratory and Enteric Virus Surveillance System collaborating laboratories and reported to CDC/Influenza Division, 64 (2.1%) were positive for influenza. Two human infections with novel influenza A virus were reported. The proportion of deaths attributed to P&I was below the epidemic threshold. No flu-associated pediatric deaths were reported. The proportion of outpatient visits for influenza-like illness (ILI) was 1.4%, which is below the national baseline of 2.4%. All 10 regions reported ILI below region-specific baseline levels. One state experienced moderate ILI activity, New York City experienced low ILI activity, 49 states experienced minimal ILI activity, and the District of Columbia had insufficient data. The geographic spread of influenza in two states was reported as local; Guam, Puerto Rico, and 37 states reported sporadic activity; the District of Columbia, U.S. Virgin Islands, and 11 states reported no activity.



**Influenza-Like Illness (ILI) Activity Level Indicator Determined by Data Reported to ILINet
2011-12 Influenza Season Week 50 ending Dec 17, 2011**



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 epidemiologist.

Two human infections with novel influenza A viruses were detected in two states (West Virginia and Wisconsin). One patient was infected with an influenza A (H1N1)v variant virus with genes from human, swine, and avian lineages (A(H1N1)v) and reported close contact with pigs prior to illness onset. The other patient was infected with an influenza A (H3N2)v variant virus with genes from human, swine, and avian lineages (A(H3N2)v) and did not have contact with pigs prior to illness onset, but did have contact with another confirmed case of A(H3N2)v. Both patients have recovered from their illnesses. Additional information on the Wisconsin case can be found in the CDC Have You Heard posting and additional information on the West Virginia case can be found in the related MMWR article.

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

International (WHO [edited], December 16): Influenza activity in the temperate regions of the northern hemisphere remains at low levels, with sporadic activity reported in Canada, the United States of America, and some European countries. Countries in the tropical zone mostly reported low influenza activity except Costa Rica, primarily influenza A(H3N2), and Cameroon, which is experiencing transmission of A(H3N2) following on recent peaks of A(H1N2)pdm09 and type B. Influenza activity in the temperate countries of the southern hemisphere is at inter-seasonal levels.

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

MDCH reported **SPORADIC ACTIVITY** to CDC for the week ending December 24, 2011.

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.

National, Human (CDC [edited], December 23): An influenza A (H1N1) virus that is known to circulate in U.S. swine but not humans has been detected in an adult in the state of Wisconsin. The patient reported occupational contact with swine prior to illness onset. No human-to-human transmission with this virus has been identified. CDC laboratory testing has confirmed that this is a new reassortant influenza A H1N1 virus as it has acquired the matrix [M] gene from the 2009 H1N1 pandemic virus. Laboratory testing shows that the virus is susceptible to the influenza antiviral medications, oseltamivir and zanamivir. Surveillance for additional human cases in the area has been enhanced. Providers are being asked to collect specimens for influenza virus testing from any patient presenting with influenza-like illness.

The virus identified in Wisconsin has genes from avian, swine and human influenza viruses, making it a so-called “triple reassortant” (tr) virus. Triple reassortant viruses have been circulating in U.S. swine since the 1990s. However the virus detected in Wisconsin is different from earlier triple reassortant influenza A H1N1 viruses in swine (tr-H1N1) in that it has acquired the matrix [M] gene from the 2009 influenza A (H1N1) virus. A review of publicly posted influenza genome sequence web sites indicates this reassortment (the tr-H1N1 virus common in swine with the 2009 H1N1 M gene) has been found in U.S. swine since 2010. However, this is the first time this genetic sequence has been detected in a human. Gene sequences of the virus detected in Wisconsin have been posted to publicly available web sites.

A recently adopted naming convention for viruses that commonly circulate in swine uses a “v” (for “variant”) when these viruses infect humans, regardless of whether the virus contains the 2009 H1N1 M gene. Following this convention, the Wisconsin virus will be called H1N1v. This genetic change (acquisition of the 2009 H1N1 virus matrix [M] gene) has been seen in triple reassortant H3N2 viruses that have infected 12 people since August 2011. (These cases occurred in West Virginia (2), Indiana (2), Pennsylvania (3), Maine (2), and Iowa (3).) These variant H3N2 viruses are being called “H3N2v.”

The 2009 H1N1 virus was likely transmitted to swine from humans during and after the 2009-2010 pandemic and now is commonly spreading in both humans and in swine. Given that, and the ability of influenza viruses to change, it is not surprising to see influenza viruses that normally circulate in swine acquire gene segments from the 2009 H1N1 virus. In fact, monitoring of influenza viruses circulating in swine has indicated that the 2009 influenza A (H1N1) virus has reassorted (swapped genes) with other swine influenza A viruses as well.

The full CDC post is online at http://www.cdc.gov/media/haveyouheard/stories/Influenza_A_Variant.html.

National, Human (MMWR, December 23): Update: Influenza A (H3N2)v Transmission and Guidelines — Five States, 2011

This report describes the cases of influenza A(H3N2)v in an adult male in Indiana with occupational exposure to swine and two children in West Virginia who regularly attended the same day care, and swine influenza virus surveillance being conducted by the U.S. Department of Agriculture.

The full report is available online at <http://www.cdc.gov/mmwr/pdf/wk/mm60e1223.pdf>.

International, Nomenclature (OIE, FAO, WHO, December 23): FAO, OIE and WHO continue working closely together to address influenza issues related to public health and animal health.

Since July 2011, twelve human cases of infection with a variant influenza A(H3N2) virus have been detected in the United States. To date, no report has been received from elsewhere in the world. This virus has different virological characteristics from current circulating seasonal influenza viruses in humans, and has a new gene constellation: 7 genes from the triple reassortant A(H3N2) viruses known to have been circulating in pigs in the North America and the M gene from an A(H1N1)pdm09 virus, a seasonal virus currently circulating in humans.

In order to improve communications and avoid confusion, FAO, OIE and WHO have established a working group of experts to standardize the terminology for variant influenza viruses. The joint recommendation for the above mentioned A(H3N2) virus is: **A(H3N2)v**, where “v” stands for “variant”.

An example of use of the terminology: Sporadic human cases of infection with a variant influenza A(H3N2) virus **A(H3N2)v** have been reported in the USA. The **A(H3N2)v** virus is different from seasonal viruses currently circulating in humans.

International, Wild Birds (OIE [edited], December 23): Highly pathogenic avian influenza H5N1
Country: Hong Kong (SAR - PRC); Date of start of the event: 17/12/2011
Province: HONG KONG; District: Tin Shui Wai; Location: 5 Tin Wu Road
Species: Wild species; Cases: 1; Deaths: 1; Destroyed: 0; Slaughtered: 0
Affected Population: An Oriental Magpie Robin (*Copsychus saularis*) was collected on 17 December 2011 at Tin Shui Wai. The Oriental Magpie Robin is a common local resident in Hong Kong.

Province: HONG KONG; District: Cheung Sha Wan; Location: 4 Hing Wah Street
Species: Birds; Susceptible: 19452; Cases: 1; Deaths: 1; Destroyed: 19451; Slaughtered: 0
Affected Population: A chicken carcass tested positive for highly pathogenic H5N1 avian influenza virus during regular surveillance on 20 December 2011.

Epidemiological comments: An intensive surveillance system is in place for all poultry farms, poultry markets and pet bird shops in Hong Kong. The H5N1 infected wild bird was detected in ongoing surveillance program on wild birds. The date of the outbreak concerning wild birds ended is the same as the date the bird was found (17 December 2011). A total of 19,451 poultry, including 15,569 chickens, 810 pigeons, 1,950 pheasants and 1,122 silky fowls were culled in the Cheung Sha Wan Temporary Wholesale Poultry Market on 21 December 2011. Importation of live poultry and movement of poultry in local farms is banned for 21 days. Surveillance and monitoring of local chicken farms has been stepped up. So far, no H5 virus was detected in samples taken from the 30 chicken farms in Hong Kong.

Michigan Wild Bird Surveillance (USDA, as of December 29): For the 2011 season (April 1, 2011-March 31, 2012), highly pathogenic avian influenza H5N1 has not been recovered from 7 Michigan samples or 408 samples tested nationwide. For more information, visit <http://wildlifedisease.nhii.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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MDCH Bureau of Laboratories – A. Muvombwe, PhD; V. Vavricka, MS

Table. H5N1 Influenza in Humans – As of December 21, 2011. http://www.who.int/influenza/human_animal_interface/EN_GIP_20111221_CumulativeNumberH5N1casesN.pdf. Downloaded 12/22/2011. Cumulative lab-confirmed cases reported to WHO. Total cases includes deaths.

Country	2003-2004		2005		2006		2007		2008		2009		2010		2011		Total	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Azerbaijan	0	0	0	0	8	5	0	0	0	0	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	3	0
Cambodia	0	0	4	4	2	2	1	1	1	0	1	0	1	1	8	8	18	16
China	1	1	8	5	13	8	5	3	4	4	7	4	2	1	0	0	40	26
Djibouti	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	18	10	25	9	8	4	39	4	29	13	37	14	156	54
Indonesia	0	0	20	13	55	45	42	37	24	20	21	19	9	7	11	9	182	150
Iraq	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	3	2
Lao PDR	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	3	1
Thailand	17	12	5	2	3	3	0	0	0	0	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	12	4	0	0	0	0	0	0	0	0	0	0	12	4
Vietnam	32	23	61	19	0	0	8	5	6	5	5	5	7	2	0	0	119	59
Total	50	36	98	43	115	79	88	59	44	33	73	32	48	24	60	32	574	337