



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories



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New updates in this issue:

- **Michigan Surveillance:** Most surveillance indicators show a slow, steady increase in influenza activity.
- **National Surveillance:** Activity still slowly increasing; 7 states report widespread or regional activity.
- **Avian Influenza:** New human H5N1 avian influenza cases reported by China (3) and Egypt (1).

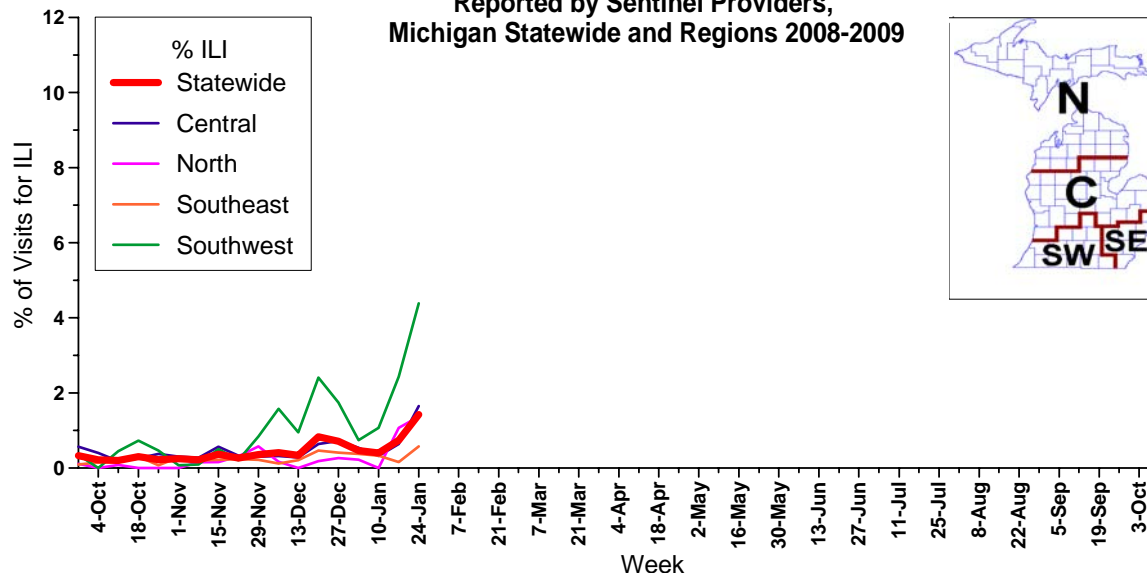
Michigan Disease Surveillance System: The week ending January 24 saw both individual influenza disease reports and aggregate flu-like numbers continue to increase slightly compared to what was seen last week. Both numbers are notably lower than levels seen at this time last year.

Emergency Department Surveillance: Emergency department visits from both constitutional and respiratory complaints increased slightly. Both of these numbers are slightly lower than those seen this time last year. Twelve constitutional alerts in the C(2), N(2), SE(5) and SW(2) Influenza Surveillance Regions along with one statewide alert and eleven respiratory alerts in the C(4), N(2) and SW(5) Influenza Surveillance Regions were generated last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were stable last week. All indicators remained near the levels seen last week. The only variation was a slight mid-week bump in thermometer sales. Indicator levels are comparable to those seen at this time last year.

Sentinel Provider Surveillance (as of January 29): During the week ending January 24, 2009, the proportion of visits due to influenza-like illness (ILI) remained at a low level, 1.4% overall; 128 patient visits due to ILI were reported out of 8,991 office visits. The level of ILI activity has increased for the second consecutive week, but is below that reported at this time during prior years' surveillance. Activity increased in all four surveillance regions: Central (1.7%), North (1.4%), Southeast (0.6%) and Southwest (4.4%). The Southwest region exhibited the largest increase, with a student health center reporting a majority of the ILI cases. Twenty-nine sentinels provided data for this report. Note that these rates may change as additional reports are received.

Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers,
Michigan Statewide and Regions 2008-2009



As part of pandemic influenza preparedness, CDC and MDCH highly encourage year-round participation from all sentinel providers. New practices are encouraged to join the sentinel surveillance program today! Contact Rachel Potter at 517-335-9710 or potterr1@michigan.gov for more information.

Laboratory Surveillance (as of January 29): During the past week, 19 new influenza A isolates were identified at the MDCH Bureau of Laboratories (BOL). For the 2008-2009 influenza season, MDCH BOL has identified 58 influenza isolates (followed by Influenza Surveillance Regions of origin):

- 42 A/H1N1 (15SE, 24SW, 1C, 2N)
- 1 A/H3N2 (C)
- 8 A subtype pending (1SE, 3SW, 1C, 3N)
- 7 B (1SE, 6SW). 1 isolate is B/Florida/4/2006-like (SE); 2 are B/Malaysia/2506/2004-like (2SW); 4 are pending characterization (4SW).

During the past week, 10 out of 12 sentinel laboratories reported influenza positive tests. Increasing levels of influenza A were reported by 5 labs in the SE and SW Surveillance Regions, while 5 labs in the SE, C and N Regions saw more sporadic influenza A activity. Influenza B activity is more variable, with some labs across the state reporting increasing activity and others reporting more sporadic activity.

***As a reminder, the positive predictive value of influenza rapid tests decreases during times of low influenza prevalence. MDCH suggests that during periods of low influenza activity in your community, all positive rapid tests results be confirmed by sending in a specimen for viral culture; this can be arranged through your local health department.

Michigan Antigenic Characterization (as of January 29): At this time, four influenza A/H1N1 isolates have been antigenically characterized by the CDC; results indicate all isolates are A/Brisbane/59/2007-like, which matches the influenza A/H1N1 component of this season's Northern Hemisphere vaccine. The one influenza B isolate has been characterized as B/Florida/4/2006-like, which matches the influenza B component of this season's Northern Hemisphere influenza vaccine.

Michigan Antiviral Resistance Data (as of January 29): Three influenza A/H1N1 viruses from the MDCH Bureau of Laboratories have been tested for antiviral resistance at CDC for the 2008-2009 season. All three viruses were resistant to oseltamivir (Tamiflu®) and sensitive to zanamivir, amantadine and rimantadine. These viruses were collected in the SE(2) and SW(1) Influenza Surveillance Regions.

It is difficult to draw any conclusions about antiviral resistance in Michigan influenza viruses at this time, as influenza activity has been low and there have been few positive specimens on which to perform additional testing. Antiviral resistance testing often takes several weeks to complete, and thus cannot be used to guide treatment of individual patients. However, CDC has made interim recommendations regarding the use of antiviral medications for the treatment of influenza and for prophylaxis. This guidance is available at <http://www2a.cdc.gov/HAN/ArchiveSys/ViewMsgV.asp?AlertNum=00279>.

Influenza-Associated Pediatric Mortality (as of January 29): No influenza-associated pediatric mortalities have been reported to MDCH for the 2008-2009 influenza season.

***The CDC has asked all states to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child (<18 years) resulting from a compatible illness confirmed to be influenza by an appropriate diagnostic test, but also any unexplained death with evidence of an infectious process in a child. Please immediately call MDCH to ensure that proper clinical specimens are obtained. View the complete MDCH protocol online at http://www.michigan.gov/documents/mdch/ME_pediatric_influenza_guidance_v2_214270_7.pdf.

Congregate Settings Outbreaks (as of January 29): One school outbreak due to influenza-like illness in the Northern Surveillance Region was reported to MDCH in the past week; specimens associated with the outbreak have been rapid-test positive but have not been confirmed at MDCH. Two congregated setting outbreaks due to influenza (one confirmed) have been reported to MDCH for the 2008-2009 influenza season.

National (CDC [edited], January 23): During week 2 (January 11-17, 2009), influenza activity continued to slowly increase in the United States. Four hundred nine (11.5%) specimens tested by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Two influenza-associated pediatric deaths were reported. The proportion of

outpatient visits for influenza-like illness (ILI) was below national and region-specific baseline levels. One state reported widespread influenza activity, six states reported regional activity; 11 states reported local influenza activity; the District of Columbia, Puerto Rico and 30 states reported sporadic influenza activity; and two states reported no influenza activity.

CDC has antigenically characterized 207 influenza viruses [142 influenza A (H1), 13 influenza A (H3) and 52 influenza B viruses] collected by U.S. laboratories since October 1, 2008.

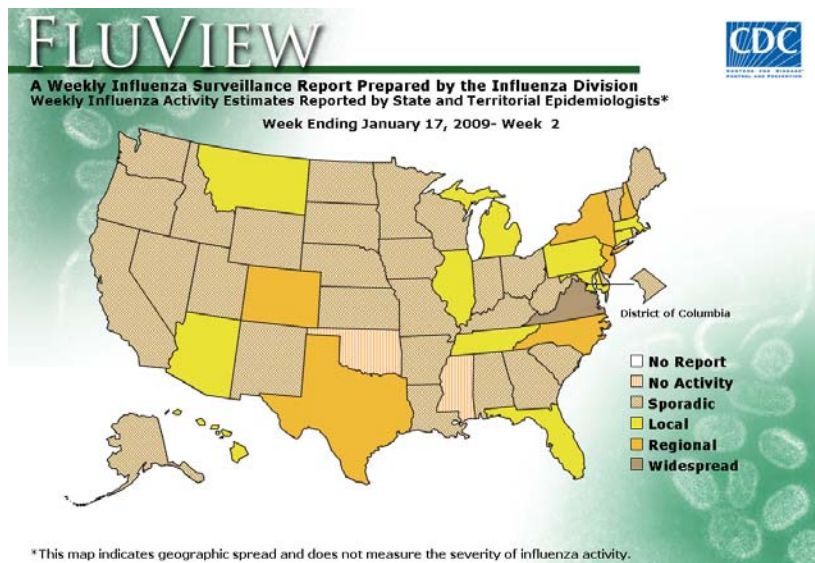
All 142 influenza A (H1) viruses are related to the influenza A (H1N1) component of the 2008-09 influenza vaccine (A/Brisbane/59/2007). All 13 influenza A (H3N2) viruses are related to the A (H3N2) vaccine component (A/Brisbane/10/2007).

Influenza B viruses currently circulating can be divided into two distinct lineages represented by the B/Yamagata/16/88 and B/Victoria/02/87 viruses. Seventeen influenza B viruses tested belong to the B/Yamagata lineage and are related to the vaccine strain (B/Florida/04/2006). The remaining 35 viruses belong to the B/Victoria lineage and are not related to the vaccine strain. Thirty of the 35 viruses belonging to the B/Victoria lineage were from two states.

Since October 1, 2008, 160 influenza A (H1N1), 30 influenza A (H3N2), and 66 influenza B viruses have been tested for resistance to the neuraminidase inhibitors (oseltamivir and zanamivir). One hundred thirty-three influenza A (H1N1) and 26 influenza A (H3N2) viruses have been tested for resistance to the adamantanes (amantadine and rimantadine). The results of antiviral resistance testing performed on these viruses are summarized in the table below.

	Isolates tested (n)	Resistant Viruses, Number (%)		Isolates tested (n)	Resistant Viruses, Number (%)
		Oseltamivir	Zanamivir		
Influenza A (H1N1)	103	101 (98%)	0 (0)	103	1 (1%)
Influenza A (H3N2)	23	0 (0)	0 (0)	23	23 (100%)
Influenza B	61	0 (0)	0 (0)	N/A*	N/A*

*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.



To access the entire CDC weekly surveillance report throughout the influenza season, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>

International (WHO [edited], January 23): During the weeks 1-2, the level of overall influenza activity in the world increased. In Europe, widespread influenza activity was reported in 14 countries, regional activity in two countries as well as Wales in the United Kingdom of Great Britain and Northern Ireland, local activity in two countries and sporadic activity in 5 countries and one part of the United Kingdom (Scotland). Eight of the nine countries reporting low influenza intensity are located in the eastern and

north-eastern part of Europe. The predominant influenza virus circulating in Europe is influenza A (H3). In Canada, Hong Kong Special Administrative Region of China and the United States of America overall influenza activity remained relatively low.

Sporadic influenza activity was observed in Brazil (A), Cameroon (H1, H3, B), China (H1, H3, B), China Hong Kong Special Administrative Region (H1,H3,B), Croatia (H1,H3,B), Czech Republic (H3), Estonia (H1,H3, B), Latvia (H1,H3, B), Mongolia (H1, H3, B), Romania (H1,H3, B), Russian Federation (H1,H3,B), Serbia (H1, H3, B).

Kazakhstan and Turkey reported no activity.

To access the entire report, visit <http://www.who.int/csr/disease/influenza/update/en/>

MDCH reported **LOCAL INFLUENZA ACTIVITY** to the CDC for the week ending January 24, 2009.

For stakeholders interested in additional information regarding influenza vaccination and education, the MDCH publication *Michigan FluBytes* is available online at http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40563-125027--00.html. *FluBytes* is published weekly during the influenza season.

End of Seasonal Report

Avian Influenza Activity

WHO Pandemic Phase: Phase 3 - Human infection(s) with a new subtype, but no human-to-human spread or rare instances of spread to a close contact.

International, Human (WHO, January 24): The Ministry of Health in China has announced the death of a previously confirmed case of H5N1 infection. The 16 year old male from Huaihua City, Hunan Province died on 20 January.

Of the 34 cases confirmed to date in China, 23 have been fatal.

International, Human (WHO, January 26): The Ministry of Health and Population of Egypt has announced a new human case of avian influenza A(H5N1) virus infection. The case is a 2-year-old female from Manofia Governorate, Shebin Elkom District. Her symptoms began on 23 January and she was immediately hospitalized. She remains in a stable condition. Infection with the H5N1 avian influenza virus was confirmed by the Egyptian Central Public Health Laboratory.

Investigations into the source of her infection indicate a recent history of contact with sick and dead poultry.

Of the 53 cases confirmed to date in Egypt, 23 have been fatal.

International, Human (WHO, January 27): The Ministry of Health in China has announced three new confirmed human cases of H5N1 infection. The first, a 31-year-old female from Urumqi, Xinjiang Autonomous Region had onset of symptoms on 10 January. She received treatment in hospital but died on 23 January. Investigations into the possible source of her infection indicate recent visits to a live poultry market. The local authorities are currently conducting epidemiological investigations and close contacts are being monitored. To date, no clinical symptoms have been reported among the contacts.

The second case is a 29-year-old male from Guiyang city, Guizhou. He had onset of symptoms on 15 January and remains in a critical condition. Investigations into the source of his infection indicate possible exposure at poultry market.

The third case is an 18-year-old male from Beiliu City, Guangxi Province. He had onset of symptoms on 19 January and died on 26 January. Investigations into the source of his infection indicate a recent history of exposure to sick and dead poultry. Close contacts of the case are being monitored and to date all remain well.

Of the 37 cases confirmed to date in China, 25 have been fatal.

International, Poultry (Canadian Food Inspection Agency, January 24): The Canadian Food Inspection Agency (CFIA) has confirmed the presence of H5 avian influenza virus in a commercial poultry operation in southern British Columbia.

Pathogenicity refers to the severity of the illness caused in birds. Tests to date indicate that the strain of AI in this case is low pathogenic. Further testing is underway to confirm pathogenicity and to determine the precise subtype and strain of the virus.

Avian influenza viruses do not pose risks to food safety when poultry and poultry products are properly handled and cooked. Avian influenza rarely affects humans, unless they have had close contact with infected birds. Nevertheless, public health authorities will take precautionary measures as warranted.

All birds on the infected premises will be humanely euthanized and disposed of, in accordance with provincial environmental regulations and internationally accepted disease control guidelines. Once all birds have been removed, the CFIA will oversee the cleaning and disinfection of the barns, vehicles, equipment and tools to eliminate any infectious material that may remain.

In order to limit any potential virus spread, the CFIA is applying restrictions on the movement of poultry and poultry products within three kilometres of the infected premises. The CFIA is relying on all backyard poultry owners to monitor their flocks and immediately report sick or dead birds. Poultry owners are urged to take an active role in protecting their flocks by employing strict biosecurity measures on their property.

The CFIA is investigating any recent movement of birds, bird products and equipment onto and off of the infected property.

Animal health and public health authorities from the Province of B.C., local poultry specialists and industry are actively collaborating in this response effort. The CFIA is conducting a thorough epidemiological investigation of the premises. A shared commitment by all involved has maximized the Agency's ability to contain and eliminate this situation as quickly as possible.

The CFIA is notifying the World Organisation for Animal Health (OIE) and international trading partners of this situation.

New information will be provided to the public as it becomes available.

Michigan Wild Bird Surveillance (USDA, as of January 29): For the 2008 testing season, 2166 Michigan samples have been taken so far, comprised of 327 live birds, 1282 hunter-killed birds, 32 morbidity or mortality samples and 525 environmental samples.

H5N1 subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 75,748 birds or environmental samples tested nationwide for the 2008 testing season, which will run from April 1, 2008 - March 31, 2009. For more information, visit the National H5N1 Early Detection Data System website at <http://wildlifedisease.nbio.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>.

Please contact Susan Vagasky at VagaskyS@Michigan.gov with any questions regarding this newsletter or to be added to the weekly electronic mailing list.

Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to January 29, 2008)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 1/29/08)

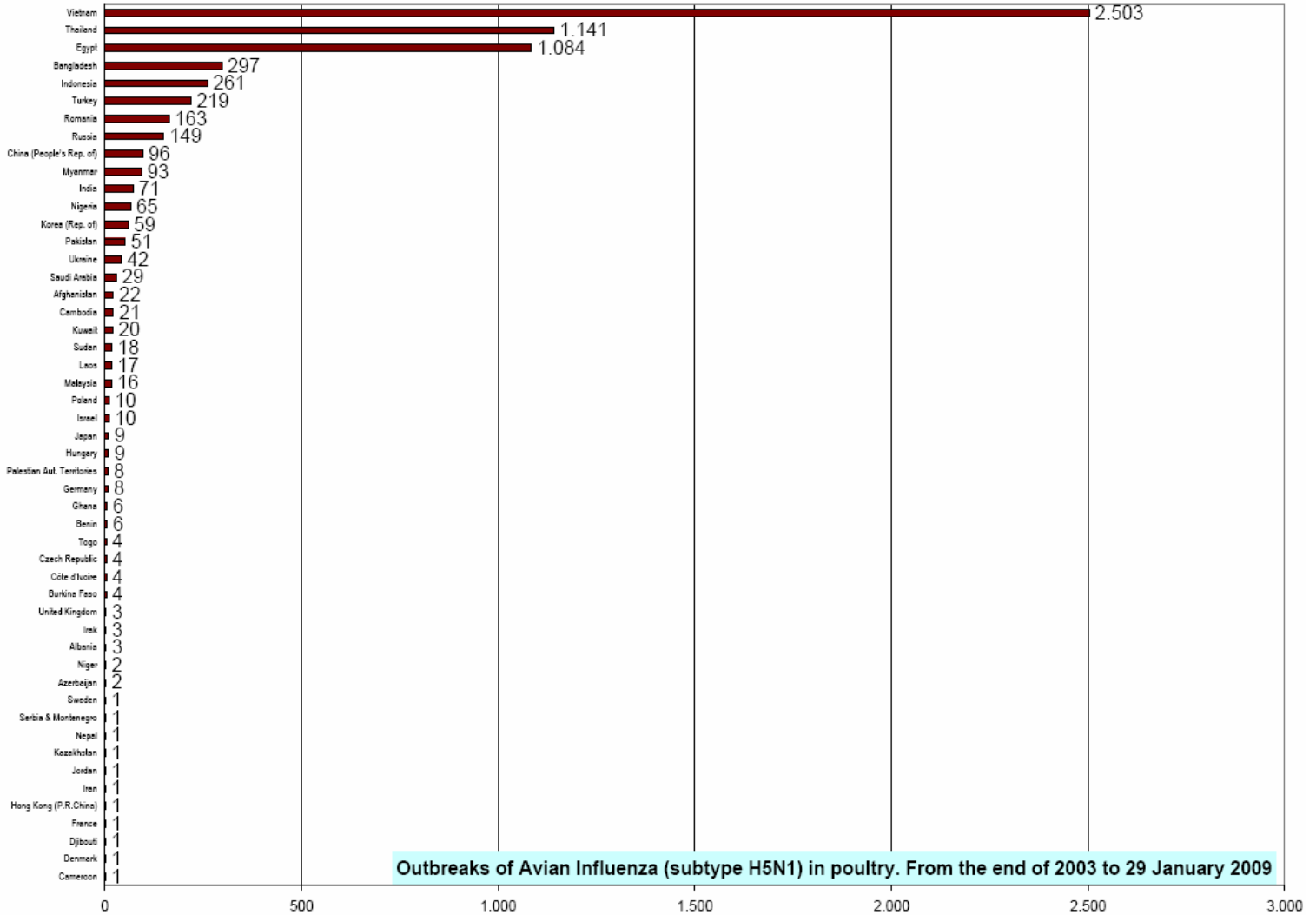


Table 2. H5N1 Influenza in Humans (Cases up to January 27, 2008)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2009_01_27/en/index.html Downloaded 1/27/2009)

Cumulative number of lab-confirmed human cases reported to WHO. Total number of cases includes deaths.

Country	2003		2004		2005		2006		2007		2008		2009		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	0	0	0	0	0	0	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	1	0	0	0	8	7
China	1	1	0	0	8	5	13	8	5	3	4	4	6	4	37	25
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	8	4	2	0	53	23
Indonesia	0	0	0	0	20	13	55	45	42	37	24	20	0	0	141	115
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	6	5	0	0	107	52
Total	4	4	46	32	98	43	115	79	88	59	44	33	8	4	403	254