



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories



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New updates in this issue:

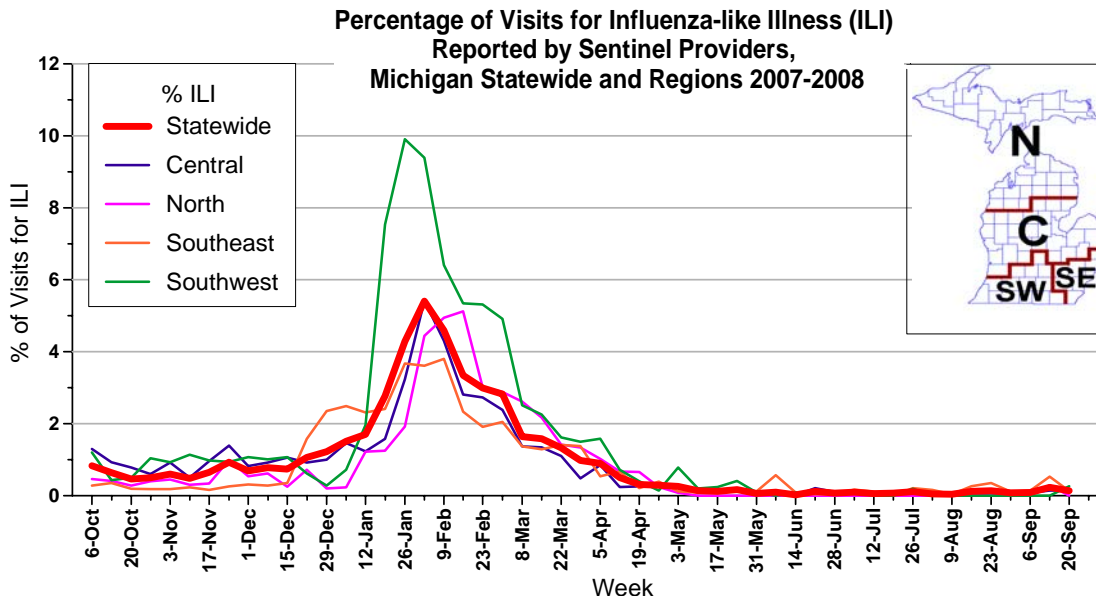
- **Michigan Surveillance:** Respiratory complaints continue to be elevated; no other influenza indicators.
- **National Surveillance:** MMWR published on national influenza data from the summer months.
- **Avian Influenza:** H9 avian influenza reported in northern Iraq.

Michigan Disease Surveillance System: The week ending September 20 saw individual influenza reports remain steady near last week's levels, while aggregate flu-like illness reports increased slightly. Increases in aggregate reports are expected to continue for the next few weeks as school reporting increases. Individual reporting levels are expected to have a more gradual increase as the influenza season approaches. Both aggregate and individual reports are consistent with levels seen last year.

Emergency Department Surveillance: Emergency department visits from constitutional complaints remained steady near last week's levels, while respiratory complaints increased. Constitutional complaints are consistent with numbers seen this time last year. Respiratory rates are higher but not inconsistent with numbers seen this time last year. While respiratory rates are high, no other surveillance methods indicate the beginning of the influenza season. Eight constitutional alerts in the C(7) and SE(1) Influenza Surveillance Regions and 25 respiratory alerts in the C(6), N(3), SE(10) and SW(4) Influenza Surveillance Regions, including two statewide alert, were generated last week.

Over-the-Counter Product Surveillance: Overall, OTC product sales were mixed last week. Children's electrolytes held steady near last week's levels and thermometer sales saw a slight drop towards the end of the week after a mid-week bump. Chest rubs and cough/cold medication saw a very slight increase and have been showing an overall upward trend in sales. Indicator levels are comparable to those seen at this time last year.

Sentinel Surveillance (as of September 25): During the week ending September 20, 0.1% of all office visits reported by Michigan influenza sentinel sites were due to influenza-like illness (ILI). This represents 6 cases out of 4318 total patients seen. Fifteen practices provided data for this report. Note that these rates may change as additional reports are received.



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 September 25): For the 2007-2008 influenza season, the MDCH Bureau of Laboratories has identified 249 influenza isolates:

- 190 A/H3N2: Central (58); Southwest (51); Southeast (49); North (32)
- 4 A/H1N1: Southeast (2); North (2)
- 2 A subtyping unable to be performed: Southeast (2)
- 53 B: Southeast (30); North (10); Southwest (6); Central (6); Indiana (1). 51 have been typed as B/Shanghai/361/2002-like and 2 were B/Malaysia/2506/2004-like (SE).

***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.

Influenza-Associated Pediatric Mortality (as of September 25): For the 2007-2008 season, MDCH has confirmed one influenza-related pediatric mortality in Michigan. The case was a 13 year-old from the Central region with an influenza A/H3N2 and MRSA co-infection; disease onset was in late February.

***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. See www.michigan.gov/documents/fluletter_107562_7.pdf for the complete protocol. Please immediately call MDCH to ensure that proper clinical specimens are obtained.

Congregate Settings Outbreaks (as of September 25): Congregate setting outbreaks have been reported in all regions of the state, peaking in the first two weeks of February. 7 outbreaks have been culture-confirmed at MDCH; 6 as influenza A/H3N2 and 1 as influenza B for the 2007-2008 season.

Michigan Influenza Season Summary: The 2007-2008 Michigan Influenza Season Summary is now available online at www.michigan.gov/influenza. Overall, this influenza season was moderate in activity with peak activity occurring in early February and was dominated by influenza A/H3N2.

National (CDC): To access the entire CDC weekly surveillance report throughout the influenza season, visit <http://www.cdc.gov/flu/weekly/fluactivity.htm>. The 2007-2008 national influenza season summary is available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5725a5.htm?s_cid=mm5725a5_e.

National and International (MMWR, September 25): Influenza Activity --- United States and Worldwide, May 18--September 19, 2008

During May 18--September 19, 2008, influenza A (H1), influenza A (H3), and influenza B viruses were detected worldwide and were identified sporadically in the United States. This report summarizes influenza activity in the United States and worldwide since the last update and reviews the new influenza vaccine recommendations for the upcoming season. Influenza viruses circulating this summer appear antigenically similar to the strains included in the 2008--09 influenza vaccine. Recent antiviral resistance data are limited, but oseltamivir resistance among influenza A (H1N1) viruses might persist during the 2008--09 influenza season.

United States

In the United States, CDC uses 10 different systems for national influenza surveillance (2). Seven of these systems are operated year-round and provided data for this report.

During May 18--September 19, 2008, World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System collaborating laboratories in the United States tested 19,774 specimens collected from the United States for influenza viruses; 147 (<1%) were positive. Of these, 81 (55%) were influenza A viruses, and 66 (45%) were influenza B viruses. Of the influenza A viruses, five (6%) were influenza A (H1) viruses, 17 (21%) were influenza A (H3) viruses, and 59 (73%) were not subtyped. Twenty-two states, representing the nine public health surveillance regions, reported influenza

viruses. Among positive tests, 66% were reported from Hawaii and Florida: 43 (29%) from Hawaii and 54 (37%) from Florida. The majority of the viruses were reported during late May through July. Only 28 viruses (20 influenza A and eight influenza B viruses) were reported in August and early September. During May 18--September 19, 2008, the weekly percentage of visits to U.S. sentinel providers for influenza-like illness remained below the national baseline of 2.2% (range: 0.5%--0.9%) according to data from the U.S. Influenza Sentinel Provider Surveillance Network. The weekly percentage of visits for acute respiratory illness to sentinel providers from the BioSense Surveillance System also remained below the national baseline of 3.2% (range: 1.3%--1.8%).

Data from the 122 Cities Mortality Reporting System indicate that the percentage of deaths attributed to pneumonia and influenza was below the epidemic threshold throughout the summer. A total of 86 influenza-associated deaths were reported during the 2007--08 influenza season; only one of these deaths occurred since May 18, 2008. No human cases of novel influenza A have been reported to the National Notifiable Diseases Surveillance System during the summer months.

Worldwide

During May 18--September 19, 2008, influenza A (H1), influenza A (H3), and influenza B viruses were detected worldwide. In Africa, influenza A (H1) viruses predominated. In Asia, influenza A (H1), A (H3), and B viruses were detected, and the predominant virus subtype varied by country. In South America, influenza A (H1) and influenza B viruses were detected. In North America, Europe, and Oceania, influenza A (H1), A (H3), and B viruses were detected sporadically.

Antigenic Characterization of Influenza Virus Isolates

The WHO Collaborating Center for Surveillance, Epidemiology, and Control of Influenza, located at CDC, analyzes influenza virus isolates received from laboratories worldwide. Of 55 influenza A (H1N1) viruses that were collected and analyzed during May 18--September 19, one came from the United States, 44 from South America, five from Europe, and five from Asia. Fifty-three (96%) were antigenically similar to A/Brisbane/59/2007, the H1N1 component of the 2008--09 influenza vaccine for the Northern Hemisphere. Of the 15 influenza A (H3) viruses that were characterized, one came from the United States, seven from Latin America, one from Europe, and six from Asia. All 15 were antigenically similar to A/Brisbane/10/2007, the H3N2 component of the 2008--09 influenza vaccine.

Circulating influenza B viruses can be divided into two antigenically distinct lineages that have been detected worldwide since March 2001, represented by B/Yamagata/16/88 and B/Victoria/02/87 viruses. Of the 28 influenza B isolates collected during May 18--September 19 and characterized at CDC, 23 (82%) (one from the United States, 19 from South America, one from Europe, and two from Asia) belong to the B/Yamagata lineage. All of the B/Yamagata-lineage viruses are similar to B/Florida/04/2006, the recommended influenza B component for the 2008--09 influenza vaccine for the Northern Hemisphere. The remaining five influenza B viruses (one from Europe and four from South America) belong to the B/Victoria lineage.

Resistance Profiles of Influenza Virus Isolates

During the 2007--08 influenza season (September 30, 2007--May 17, 2008), the prevalence of oseltamivir-resistant influenza A (H1N1) viruses was 10.9%; no resistance to oseltamivir was detected among influenza A (H3N2) or influenza B viruses during that season. During May 18--September 19, 2008, the WHO Collaborating Center for Surveillance, Epidemiology, and Control of Influenza at CDC, a member of the WHO Global Influenza Surveillance Network, received 187 isolates that were collected during this period and analyzed them for neuraminidase resistance. Of these isolates, 185 were sensitive to zanamivir, and two required additional testing. Of the 86 influenza A (H1N1) viruses received from 14 countries and analyzed for oseltamivir resistance, 40 (46.5%) were resistant. Only five of the influenza A (H1N1) viruses that were analyzed were from the United States; two of these viruses were resistant to oseltamivir. None of the 27 influenza A (H3) viruses analyzed for neuraminidase resistance were resistant to oseltamivir.

Human Infections with Avian Influenza A (H5N1) Viruses

During May 18--September 19, 2008, 12 persons with avian influenza A (H5N1), nine of whom died, were reported to WHO from Indonesia, Egypt, and Bangladesh (2). Since December 1, 2003, 387 human cases of avian influenza A (H5N1) have been reported from Asia and Africa. No human cases have been identified in North America or South America.

International (WHO, September 12): During the weeks 35–36, overall influenza activity in the southern hemisphere declined, except for Australia where local activity was reported and New Zealand where widespread outbreak was seen. Activity was low in the rest of the world.

Australia. Local influenza activity with co-circulation of A and B viruses detected.

China, Hong Kong Special Administrative Region. A decline in the activity of influenza A(H3) and A(H1) viruses was observed. Both B/Yamagata and B/Victoria lineage viruses were detected.

New Zealand. Influenza activity remained widespread with influenza B viruses predominating and A(H3) co-circulating. The majority of B viruses detected were from the B/Victoria lineage.

Between weeks 35 to 36, sporadic influenza activity was detected in Argentina (A,B), Brazil (A), Canada (A,B), Chile (B) Japan (H3).

Belgium, Cameroon, Honduras, Islamic Republic of Iran, Mongolia, Norway, Oman, Poland, Portugal, Russian Federation, Slovenia and Switzerland reported no influenza activity.

Seasonal influenza reporting to the CDC has ended for the 2007-2008 influenza season.

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, Poultry (CIDRAP, September 24): An agriculture ministry official in Indonesia who spoke yesterday at a pandemic planning conference for businesses said the number of poultry outbreaks caused by the H5N1 avian influenza virus is declining.

Muhammad Azhar, the agriculture ministry's avian influenza control coordinator, said only 2 of Indonesia's 31 provinces have not been hit by the virus, but pointed out that 9 provinces have gone 6 months without reporting any new outbreaks, the *Jakarta Post* reported today.

"Areas still at risk are those on Java Island, because it is the main producer of both pedigree and nonpedigree chickens," he said, according to the report.

In March, a representative from the United Nations Food and Agriculture Organization (FAO) warned that H5N1 virus levels in Indonesia's poultry are so high that conditions might be ripe for viral mutation that could start an influenza pandemic, according to previous reports. The FAO has said the disease is endemic in Java, Sumatra, and southern Sulawesi islands.

The FAO has said the country needs more resources and better coordination to improve surveillance and control of the virus, and that by June that organization hoped to train more than 2,000 response teams to work in more than 300 of Indonesia's 448 districts.

A health minister who spoke at the conference said the number of human H5N1 cases has also declined this year, the *Post* reported. Erna Tresnaningsih, the health ministry's director for animal-vector diseases, said Indonesia has recorded 20 H5N1 cases and 17 fatalities from the disease so far this year. She said the number appears to trail the numbers seen in 2006 (55 cases and 45 deaths) and 2007 (42 cases and 37 deaths).

"Praise be to God, with good partnership, we've been able to push the figures," Tresnaningsih told the group, according to the *Post* report.

International, Poultry (The Kurdish Globe [edited], September 25): A harmless form of bird flu was found in Duhok [northern Iraq]. After the discovery of a harmless strain of the bird flu in the province's poultry, procedures are being developed to prevent its spread.

"More than 50,000 chicks were destroyed at 2 poultries in Semel town because of the H9 strain of bird flu," said Luqman Tayeb Omer, general director of the Duhok veterinary office. He gave assurances that this type of bird flu is not dangerous to humans, but he also stressed that strict procedures must be taken to contain it.

The veterinary office is developing a plan with related sides, especially the health and agriculture directories in the province. Omer showed optimism and stressed that the owners of the 2 infected poultries have already shown cooperation in fighting the disease.

Mosul is suspected to be the source. "According to our information, this disease is found in Al-Hamdaniya, Talkef, and Shalalat districts near Mosul. It came from there. Thus, the government should take measures to prevent chicks from being brought here from those areas," said Omer.

The hatcheries in Duhok are clean from the infection, Omer stated. "There are 2 hatcheries in the province: one in Semel and the other in Miruna district. In every period of 21 days, the 2 hatcheries produce 24,000 to 26,000 chicks." They are now being supervised.

Regarding the danger of the H9 strain, Omer gave further assurances that "this type of disease is found in several world countries and does not affect humans if necessary procedures are taken."

Bassim Ali Askar, a student of veterinary medicine at Duhok University, said: "There must be protections and health procedures, but eating these chickens is not dangerous." He warned that this disease can spread through touch, but if the meat is boiled well, it can be safely consumed.

The danger of H9 is to poultries and their production, said Askar, and the disease has to be controlled to avoid economic damages.

The dangerous bird flu, known as H5, spread throughout parts of the Kurdistan Region in February 2006, killing 2 people. Thousands of chickens were destroyed as a result.

Michigan Wild Bird Surveillance (USDA, as of September 25): For the 2008 testing season, 731 Michigan samples have been taken so far, comprised of 246 live birds, 339 hunter-killed birds, 21 morbidity/mortality samples and 125 environmental samples.

HPAI subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 31,964 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 HPAI 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.

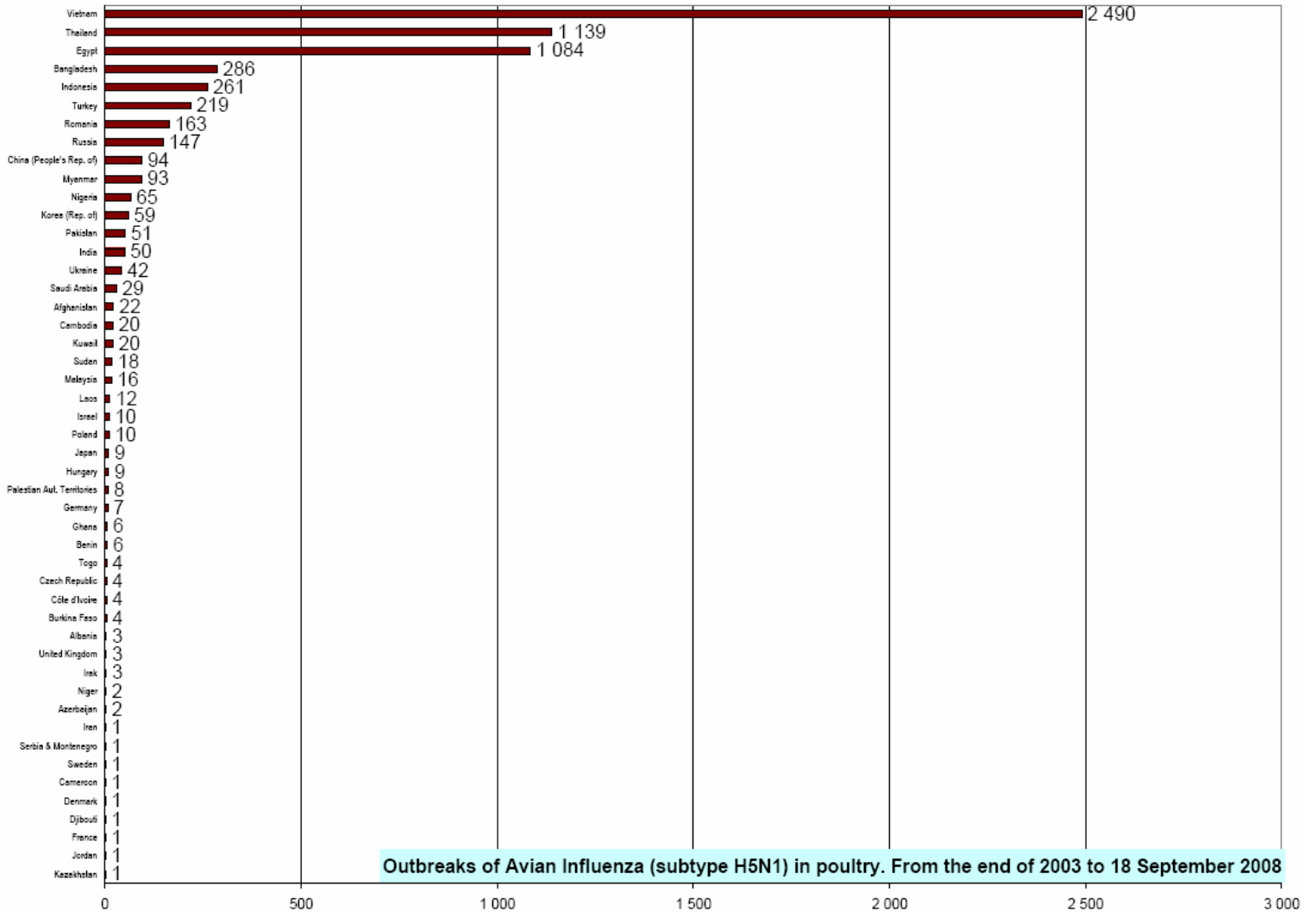
Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to September 18, 2008)

(Source: <http://www.oie.int/downld/AVIAN%20INFLUENZA/AI-Asia.htm> Downloaded 9/18/08)



Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 18 September 2008

Table 2. H5N1 Influenza in Humans (Cases up to September 10, 2008)

(http://www.who.int/csr/disease/avian_influenza/country/cases_table_2008_09_10/en/index.html Downloaded 9/10/2008)

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

Country	2003		2004		2005		2006		2007		2008		Total	
	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	8	5
Bangladesh	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Cambodia	0	0	0	0	4	4	2	2	1	1	0	0	7	7
China	1	1	0	0	8	5	13	8	5	3	3	3	30	20
Djibouti	0	0	0	0	0	0	1	0	0	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	25	9	7	3	50	22
Indonesia	0	0	0	0	20	13	55	45	42	37	20	17	137	112
Iraq	0	0	0	0	0	0	3	2	0	0	0	0	3	2
Lao PDR	0	0	0	0	0	0	0	0	2	2	0	0	2	2
Myanmar	0	0	0	0	0	0	0	0	1	0	0	0	1	0
Nigeria	0	0	0	0	0	0	0	0	1	1	0	0	1	1
Pakistan	0	0	0	0	0	0	0	0	3	1	0	0	3	1
Thailand	0	0	17	12	5	2	3	3	0	0	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	8	5	5	5	106	52
Total	4	4	46	32	98	43	115	79	88	59	36	28	387	245