



MI Flu Focus

Influenza Surveillance Updates
Bureaus of Epidemiology and Laboratories

Michigan Department
of Community Health



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Current Influenza Activity Levels:

- **Michigan:** Widespread activity
- **National:** During week 1, activity remained elevated, but may be falling in some areas

Updates of Interest

- **National:** CDC releases summaries of recommendations for influenza antiviral medications for clinicians and pharmacies

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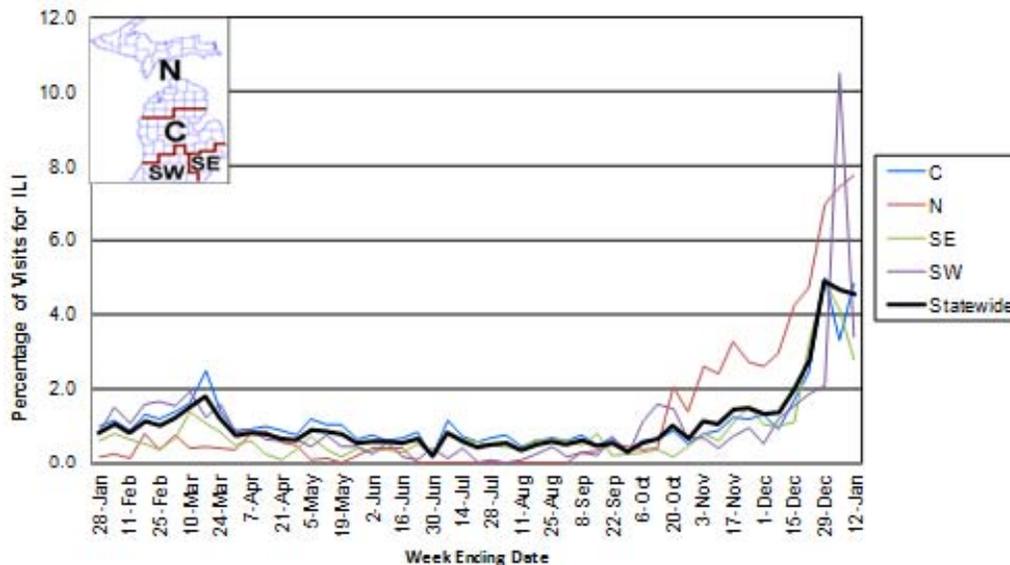
Influenza Surveillance Reports

Michigan Disease Surveillance System (as of January 17): MDSS data for the week ending January 12th indicated that compared to levels from the previous week, both individual and aggregate reports increased. Part of the increase in aggregate reports is most likely due to resumption of reporting after the school holiday breaks. Aggregate reports are slightly increased when compared to levels seen during the same time period last year, while individual reports are significantly increased.

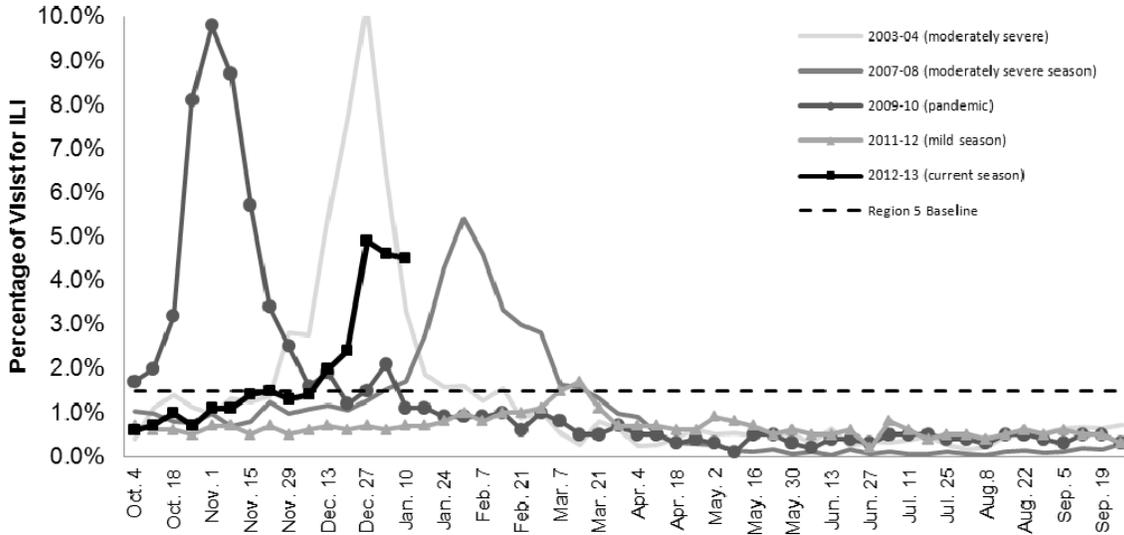
Emergency Department Surveillance (as of January 17): Compared to levels from the week prior, emergency department visits from constitutional complaints increased slightly, while respiratory complaints decreased. Both constitutional and respiratory complaints are notably higher than levels reported during the same time period last year and are above levels seen during the peak of the 2011-2012 influenza season. In the past week, there were 10 constitutional alerts in the SE(7), SW(1) and C(2) Influenza Surveillance Regions and no respiratory alerts.

Sentinel Provider Surveillance (as of January 17): During the week ending January 12, 2013, the proportion of visits due to influenza-like illness (ILI) slightly decreased to 4.5% overall; this is above the regional baseline (1.5%). A total of 510 patient visits due to ILI were reported out of 11,285 office visits. Data were provided by 38 sites from the following regions: C (14), N (8), SE (11) and SW (5). ILI activity increased in two regions: Central (4.8%) and North (7.7%); and decreased in two regions: Southwest (3.4%) and Southeast (2.8%). Please Note: these rates may change as additional reports are received.

Percentage of Visits for Influenza-like Illness (ILI)
Reported by Sentinel Providers, Statewide and Regions
2011-2012 and 2012-13 Flu Seasons



Percentage of Visits for Influenza-like Illness (ILI) Reported by the US Outpatient Influenza-like Illness Surveillance Network (ILINet): Michigan, Select Seasons



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.

Hospital Surveillance (as of January 12): The CDC Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness through active surveillance and chart review of lab-confirmed cases, starting on October 1, 2012, in the Clinton, Eaton, Genesee, and Ingham counties. 43 new cases were identified during the past week. As of January 12th, there have been 105 influenza hospitalizations (76 adult, 29 pediatric) within the catchment area. The incidence rate for adults is 11.16 hospitalizations per 100,000 population and for children is 13.88 hospitalizations per 100,000.

The MDCH Influenza Sentinel Hospital Network monitors influenza hospitalizations reported voluntarily by hospitals statewide. 10 hospitals (SE, SW, C, N) reported for the week ending January 12, 2013. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2012-13 Season
0-4 years	4 (4C)	14 (2SE, 11C, 1N)
5-17 years	3 (3C)	8 (2SE, 5C, 1N)
18-49 years	3 (3C)	14 (6SE, 7C, 1N)
50-64 years	5 (2SE, 1SW, 2N)	20 (9SE, 1SW, 6C, 4N)
≥65 years	18 (10SE, 4 SW, 1C, 3N)	92 (46SE, 11SW, 14C, 21N)
Total	43 (12SE, 5SW, 11C, 5N)	148 (65SE, 12SW, 43C, 28N)

Laboratory Surveillance (as of January 12): During January 6-12, 95 positive influenza A/H3 results (35SE, 31SW, 27C, 2N) and 13 influenza B (4SE, 1SW, 8C) results were reported by MDCH BOL. For the 2012-13 season (starting Sept. 30, 2012), MDCH has identified 445 influenza results:

- Influenza A(H3): 365 (111SE, 127SW, 99C, 28N)
- Influenza A(H1N1)pdm09: 6 (4SE, 2N)
- Influenza B: 74 (19SE, 17SW, 29C, 9N)
- Parainfluenza: 8 (3SW, 1C, 4N)
- RSV: 1 (1N)

14 sentinel labs (SE, SW, C, N) reported for the week ending January 12, 2013. 14 labs (SE, SW, C, N) reported flu A activity; activity at most was at moderate to high levels. 14 labs (SE, SW, C, N) had low or moderate flu B activity. 4 labs (SE, SW, C) had low parainfluenza activity. 12 labs (SE, SW, C, N) had RSV activity; most were at low to moderate levels with one site (SE) at high levels. 2 labs (SE) reported low HMPV activity. Testing volumes continue to be at high levels for most sites.

Michigan Influenza Antigenic Characterization (as of January 17): For the 2012-13 season, 41 Michigan influenza B specimens have been characterized at MDCH BOL. 29 specimens are B/Wisconsin/01/2010-like, matching the B component of the 2012-13 influenza vaccine. 12 influenza B specimens were characterized as B/Brisbane/60/2008-like, which is not included in the 2012-13 vaccine.

Michigan Influenza Antiviral Resistance Data (as of January 17): For the 2012-13 season, no influenza isolates have been tested for antiviral 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 January 17): 4 pediatric influenza-associated influenza mortalities (2 A/H3, 2B) have been reported for the 2012-13 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 January 17): During the previous week, 19 respiratory outbreaks were reported to MDCH (2SE, 6SW, 8C, 3N). These outbreaks were reported from long-term care facilities (14), schools (2) and assisted living centers (3). Out of the 16 outbreaks confirmed to be due to influenza, 2 were influenza A/H3, 12 were influenza A, and 2 were influenza B. 4 previously reported long-term care outbreaks (2SW, 2C) were confirmed as influenza A/H3. 1 previously reported correctional facility outbreak (C) was positive for influenza A/H3. 1 previously reported long-term care outbreak (SE) that was due to influenza B is now reclassified to be due to influenza A and B. 69 respiratory outbreaks (7SE, 22SW, 28C, 12N) have been reported to MDCH during the 2012-13 season; testing results are listed below.

- Influenza A/H3: 11 (5SW, 6C)
- Influenza A: 37 (3SE, 10SW, 15C, 7N)
- Influenza B: 5 (1SE, 2SW, 1C, 1N)
- Influenza A and B: 2 (1SE, 1SW)
- Influenza positive: 3 (1SW, 2C)
- Negative/no testing: 12 (2SE, 2SW, 4C, 4N)

National (CDC [edited], January 11): During week 1 (December 30-January 5), influenza activity remained elevated in the U.S., but may be decreasing in some areas. Of 12,876 specimens tested and reported by U.S. World Health Organization (WHO) and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories, 4,222 (32.8%) were positive for influenza. The proportion of deaths attributed to pneumonia and influenza (P&I) was slightly above the epidemic threshold. Two influenza-associated pediatric deaths were reported. One was associated with an influenza A (H3) virus and one was associated with an influenza A virus for which the subtype was not determined. The proportion of outpatient visits for influenza-like illness (ILI) was 4.3%; above the national baseline of 2.2%. Nine of 10 regions reported ILI above region-specific baseline levels. Twenty-four states and New York City experienced high ILI activity; 16 states experienced moderate ILI activity; 5 states experienced low ILI activity; 5 states experienced minimal ILI activity, and the District of Columbia had insufficient data. Forty-seven states reported widespread geographic influenza activity; 2 states reported regional activity; the District of Columbia reported local activity; 1 state reported sporadic activity; Guam reported no influenza activity, and Puerto Rico and the U.S. Virgin Islands did not report.

Antigenic Characterization: CDC has antigenically characterized 521 influenza viruses [Seventeen 2009 H1N1 viruses, 327 influenza A (H3N2) viruses, and 177 influenza B viruses] collected by U.S. laboratories since October 1, 2012. All seventeen 2009 H1N1 viruses tested were characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2012-2013 influenza vaccine for the Northern Hemisphere. 325 (99.4%) of the 327 H3N2 influenza viruses tested have been characterized as A/Victoria/361/2011-like, the influenza A (H3N2) component of the 2012-2013 Northern Hemisphere influenza vaccine. 2 (0.6%) of the 327 H3N2 viruses tested showed reduced titers with antiserum produced against A/Victoria/361/2011. Influenza B (B/Yamagata/16/88 and B/Victoria/02/87 lineages): Yamagata Lineage [118]: 118 (66.7%) of the 177 influenza B viruses tested so far this season have been characterized as B/Wisconsin/1/2010-like, the influenza B component of the 2012-2013 Northern Hemisphere influenza vaccine. Victoria Lineage [59]: 59 (33.3%) of 177 influenza B viruses tested have been from the B/Victoria lineage of viruses.

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

influenza viruses, it is expected that some deaths would occur with infection, in particular now when influenza season starts in Northern Hemisphere. These reports at times refer to this A(H1N1)pdm09 virus as “swine flu”, causing some confusion with other viruses that recently reported in the United States. A(H1N1)pdm09 virus has been circulating in humans for more than 3 years and now is a seasonal human influenza virus.

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

MDCH reported WIDESPREAD FLU ACTIVITY to CDC for the week ending January 12, 2013.

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, Clinicians and Pharmacists (CDC, January 15): CDC has released two documents: “Notice to Clinicians: Summary of CDC Recommendations for Influenza Antiviral Medications” and “Information for Pharmacists: 2012-2013 Influenza Season”.

The guidance for clinicians is available online at <http://emergency.cdc.gov/HAN/han00339.asp>.

The guidance for pharmacists is available online at <http://www.cdc.gov/flu/professionals/2012-2013-guidance-pharmacists.htm>.

National, Vaccine (MMWR, January 11): Early Estimates of Seasonal Influenza Vaccine Effectiveness — United States, January 2013

In the United States, annual vaccination against seasonal influenza is recommended for all persons aged ≥6 months. Each season since 2004–05, CDC has estimated the effectiveness of seasonal influenza vaccine to prevent influenza-associated, medically attended acute respiratory infection (ARI). This season, early data from 1,155 children and adults with ARI enrolled during December 3, 2012–January 2, 2013 were used to estimate the overall effectiveness of seasonal influenza vaccine for preventing laboratory-confirmed influenza virus infection associated with medically attended ARI. After adjustment for study site, but not for other factors, the estimated vaccine effectiveness (VE) was 62% (95% confidence intervals [CIs] = 51%–71%). This interim estimate indicates moderate effectiveness, and is similar to a summary VE estimate from a meta-analysis of randomized controlled clinical trial data; final estimates likely will differ slightly. As of January 11, 2013, 24 states and New York City were reporting high levels of influenza-like illness, 16 states were reporting moderate levels, five states were reporting low levels, and one state was reporting minimal levels. CDC and the Advisory Committee on Immunization Practices routinely recommend that annual influenza vaccination efforts continue as long as influenza viruses are circulating. Persons aged ≥6 months who have not yet been vaccinated this season should be vaccinated. However, these early VE estimates underscore that some vaccinated persons will become infected with influenza; therefore, antiviral medications should be used as recommended for treatment in patients, regardless of vaccination status. In addition, these results highlight the importance of continued efforts to develop more effective vaccines.

The entire article is available online at <http://www.cdc.gov/mmwr/pdf/wk/mm6202.pdf>.

International, Antiviral Resistance (Clinical Infectious Diseases abstract, January 10): Global Assessment of Resistance to Neuraminidase Inhibitors: 2008–2011. The Influenza Resistance Information Study (IRIS). RJ Whitley, CAB Boucher, B Lina, JS Nguyen-Van-Tam, A Osterhaus, M Schutten, and AS Monto. *Clin Infect Dis*. doi:10.1093/cid/cir1220 first published online January 10, 2013.

Background: Following emergence of naturally occurring oseltamivir-resistant A/H1N1 viruses, a global observational investigation, the Influenza Resistance Information Study (IRIS; [NCT00884117](http://www.cdc.gov/irris/)), was initiated in 2008 to study neuraminidase inhibitor (NAI) resistance and clinical outcome.

Methods: Patients with influenza-like illness and/or positive rapid test results agreed to swabs of the posterior nares that were assessed by real-time RT-qPCR for influenza type and subtype and NAI resistance. RT-qPCR-positive specimens were cultured, sequenced and phenotypically tested for NAI resistance. Treatment was at the physician's discretion.

Results: Of 1799 influenza-positive (RT-qPCR) patients, 1281 had influenza A (47 seasonal H1N1; 335 H3N2; 899 H1N1pdm2009) and 518 had influenza B. Antivirals were administered to 1041 (58%) patients (26, 245, 514 and 256, respectively). All seasonal H1N1 strains were genotypically (H275Y) and phenotypically resistant to oseltamivir. No genotypic resistance was detected in the Day 1 samples of any other viral subtypes. Mutation-specific (MS) RT-PCR detected resistance to oseltamivir in 19 patients post-baseline (17 H1N1pdm2009 [H275Y]; 2 H3N2 [R292K]), 14 of whom were children aged ≤5 years. In 12/19 patients, viral loads were too low to permit cell culture and 14/19 were RT-qPCR-negative by Day 10. In one other H1N1pdm2009 patient, H275Y was detected by sequencing but not MS RT-PCR. No emergent resistance was found in influenza B infections.

Conclusions: In years 1–3 of IRIS, emergent resistance to oseltamivir in influenza viruses during treatment was uncommon (2.2%) and mostly found in 1–5 year-olds. Viral loads were low in many cases and viral clearance rapid.

The abstract is available online at <http://cid.oxfordjournals.org/content/early/2013/01/10/cid.cis1220.short>.

National, Poultry (Washington Report, National Chicken Council, January 11): USDA's National Veterinary Services Laboratories has confirmed H5N1 (presumably low pathogenic) from a live bird market in New York. According to USDA's agreement with Taiwan, FSIS has been notified to amend the FSIS Export Library to state that the export of poultry meat and meat products from the State of New York to Taiwan is prohibited effective immediately.

This is also the situation for Japan. Japan's avian influenza bans cover product produced from birds from farms in the banned state, as well as from birds slaughtered/eggs laid in the state; product processed in the state; and product that was stored in or transited the state, except after final packaging for FSIS meat products and after official sealing for table shell eggs.

Japan has agreed to exempt product from poultry slaughtered (or eggs laid) and shipped out of (or packaged with final packaging for FSIS meat products or officially sealed for table shell eggs.) New York prior to December 12, 2012. Combined with previous "ineligible dates" from other bans, this means that the following dates are now ineligible for Japan (from New York):

- Products produced prior to February 22, 2008;
- Product produced on or after April 11, 2008, but before January 15, 2009;
- Product produced on or after February 11, 2009 but before December 25, 2009;
- Product produced on or after December 20, 2011 but before August 31, 2012; and
- Product produced on or after December 12, 2012.

The report is available online at <http://nccwashingtonreport.com/2013/01/11/avian-influenza-found-new-york-live-bird-market-japan-taiwan-halt-poultry-exports-new-york/>.

International, Poultry (OIE [edited], January 11): Highly pathogenic avian influenza H5N1; Bhutan Outbreak 1(BHT_HPAI_2012_01): Farm Goan, Lhamizingkha, Dagana, Dagana
Date of start of the outbreak: 19/12/2012; Outbreak status: Continuing; Epidemiological unit: Village
Species: Birds; susceptible: 970; Cases: 18; Deaths: 18; Destroyed: 952
Affected population: From 19 to 30 December 2012, 18 poultry died in a backyard. All the birds were free-ranging birds. Ten birds had died in the village about a month before, but it was not reported at that time. Seven samples were collected from the five houses in the vicinity which included 93 free-ranging birds and were sent to the National Centre for Animal Health (NCAH) for real-time PCR; two were positive.

International, Poultry (OIE [edited], January 17): Highly pathogenic avian influenza H7N3; Mexico Outbreak 1: Foco 1, Encarnacion de Diaz, Encarnacion de Diaz, JALISCO
Date of start of the outbreak: 12/01/2013; Outbreak status: Continuing; Epidemiological unit: Farm
Species: Birds; Susceptible: 191771; Cases: 10010; Deaths: 9077; Destroyed: 0

Outbreak 2: Foco 2, Encarnacion de Diaz, Encarnacion de Diaz, JALISCO

Date of start of the outbreak: 12/01/2013; Outbreak status: Continuing; Epidemiological unit: Farm
 Species: Birds; Susceptible: 205742; Cases: 10058; Deaths: 8932; Destroyed: 0

Michigan Wild Bird Surveillance (USDA, as of January 10): For the 2012 season (April 1, 2012-March 31, 2013), highly pathogenic avian influenza H5N1 has not been recovered from the 68 samples tested nationwide. For more information, visit <http://www.nwhc.usgs.gov/ai/>. To learn about avian influenza surveillance in wild birds or to report dead waterfowl, go to the 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 December 17, 2012. http://www.who.int/influenza/human_animal_interface/EN_GIP_20121217_CumulativeNumberH5N1cases.pdf. Downloaded 12/17/2012. Cumulative lab-confirmed cases reported to WHO. Total cases include 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	3	3	21	19
China	9	6	13	8	5	3	4	4	7	4	2	1	1	1	2	1	43	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	11	5	169	60
Indonesia	20	13	55	45	42	37	24	20	21	19	9	7	12	10	9	9	192	160
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	32	20	610	360