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 15-21, influenza activity was elevated in some areas of the U.S., but declined nationally and in most regions

Updates of Interest

- **National:** Researchers report that antiviral use among hospitalized patients dropped during the 2010-11 season compared with 2009-10

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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

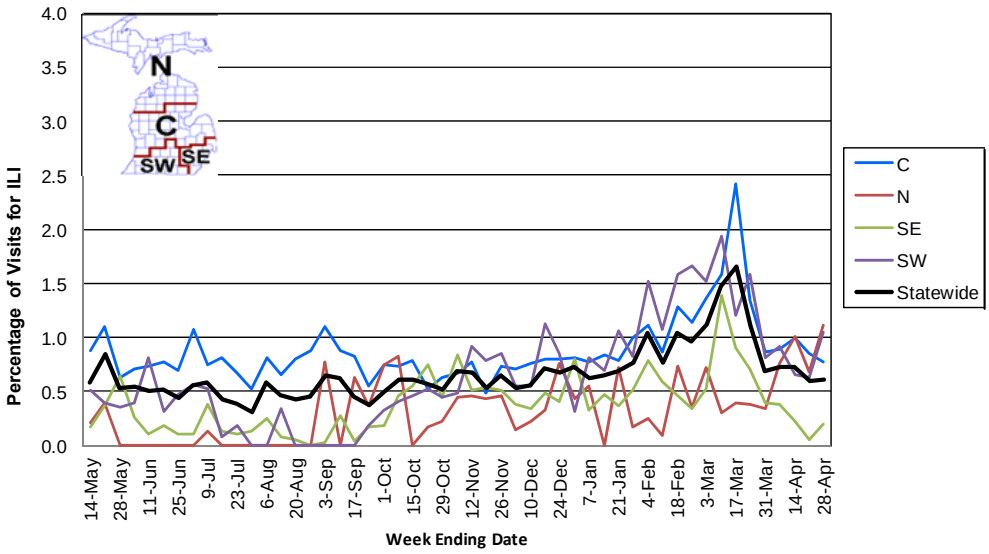
Michigan Disease Surveillance System: MDSS data for the week ending April 28th indicated that compared to levels from the previous week, individual reports decreased, while aggregate reports remained steady. Individual reports are higher, while aggregate reports are similar, than levels seen during the same time last year.

Emergency Department Surveillance: Compared to levels from the week prior, emergency department visits from constitutional complaints slightly decreased, while respiratory complaints remained steady. Constitutional complaints are similar to levels reported during the same time period last year, while respiratory complaints are slightly lower. In the past week, there were two constitutional alerts in the N Influenza Surveillance Region and four respiratory alerts in the C(2) and N(2) Regions.

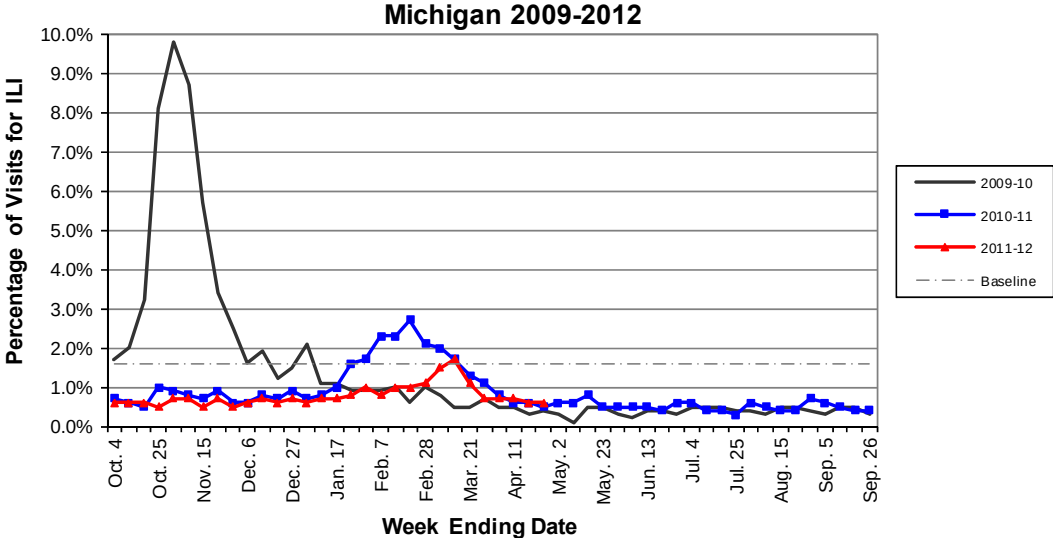
Sentinel Provider Surveillance (as of May 3): During the week ending April 28, 2012, the proportion of visits due to influenza-like illness (ILI) decreased to 0.6% overall; this is below the regional baseline of (1.6%). A total of 76 patient visits due to ILI were reported out of 12,634 office visits. Thirty-six sentinel sites provided data for this report. ILI activity increased in three surveillance regions: North (1.1%), Southwest (1.0%) and Southeast (0.2%); and decreased in the remaining surveillance region: Central (0.8%). 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 28): The Influenza Hospitalization Surveillance Project provides population-based rates of severe influenza illness in Clinton, Eaton and Ingham counties. No lab-confirmed influenza hospitalizations were reported during the week ending April 28, 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. 6 hospitals (SE, SW, C, N) reported for the week ending April 28, 2012. Results are listed in the table below.

Age Group	Hospitalizations Reported During Current Week	Total Hospitalizations 2011-12 Season
0-4 years	0	19
5-17 years	1	20
18-49 years	0	25
50-64 years	0	25
≥65 years	1	36
Total	2	125

Laboratory Surveillance (as of April 28): During April 22-28, 12 influenza A/H3 (8SE, 1SW, 3C), 2 influenza A/H1N1 2009pdm (2SE) and 1 influenza B (SE) results were reported by MDCH BOL. For the 2011-12 season (starting October 2, 2011), MDCH has identified 1092 influenza results:

- Influenza A(H3): 1017 (591SE, 83SW, 296C, 47N)
- Influenza A(H1N1)pdm09: 29 (19SE, 3SW, 5C, 2N)
- Influenza B: 46 (24SE, 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 28, 2012. 8 labs (SE, SW, C, N) reported influenza A activity, most of which had decreasing or low numbers. 4 labs (SE, SW) had low influenza B positives. 7 labs (SE, SW, C) reported low or sporadic RSV activity. 2 labs (SE, SW) saw continued low hMPV activity. Most testing volumes are decreasing but remain elevated at a few labs.

Michigan Influenza Antigenic Characterization (as of May 3): 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 May 3): 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 May 3): 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 May 3): No new outbreaks were 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 27): During week 16 (April 15-21, 2012), influenza activity was elevated in some areas of the United States, but declined nationally and in most regions. Of the 2,987 specimens tested by U.S. World Health Organization and National Respiratory and Enteric Virus Surveillance System collaborating laboratories and reported to CDC/Influenza Division, 662 (22.2%) were positive for influenza. The proportion of deaths attributed to P&I was below the epidemic threshold. Three influenza-associated pediatric deaths were reported. One was associated with a 2009 H1N1 virus, one was associated with a seasonal 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 1.3%, which is below the national baseline of 2.4%. Region 10 reported ILI above its region-specific baseline level. Four states experienced low ILI activity; New York City and 46 states experienced minimal ILI activity, and the District of Columbia had insufficient data to calculate ILI activity. Four states reported widespread geographic activity; 10 states reported regional influenza activity; 14 states reported local activity; the District of Columbia and 21 states reported sporadic activity; Guam, the U.S. Virgin Islands, and one state reported no influenza activity, and Puerto Rico did not report.

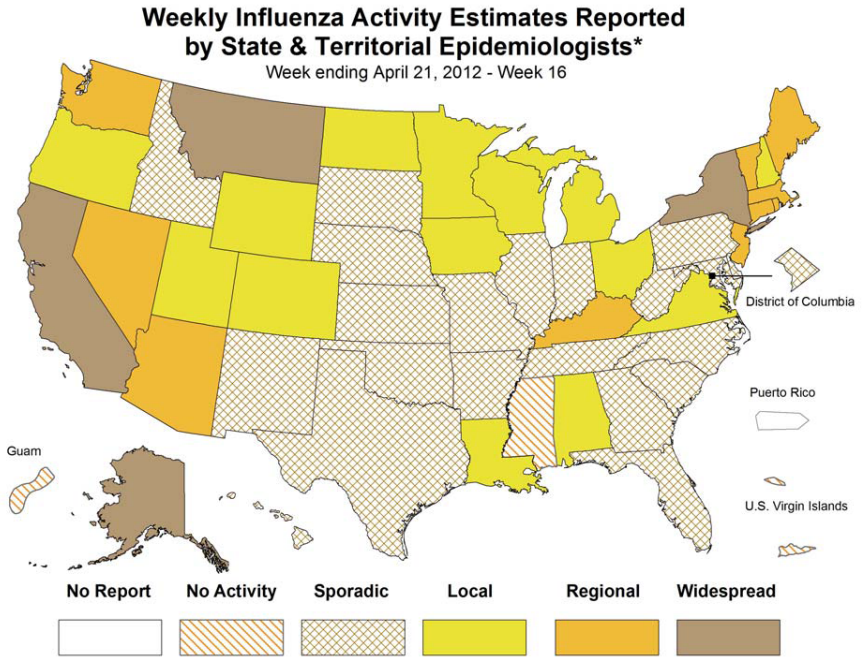
CDC has antigenically characterized 1,291 influenza viruses collected by U.S. labs since Oct. 1, 2011:

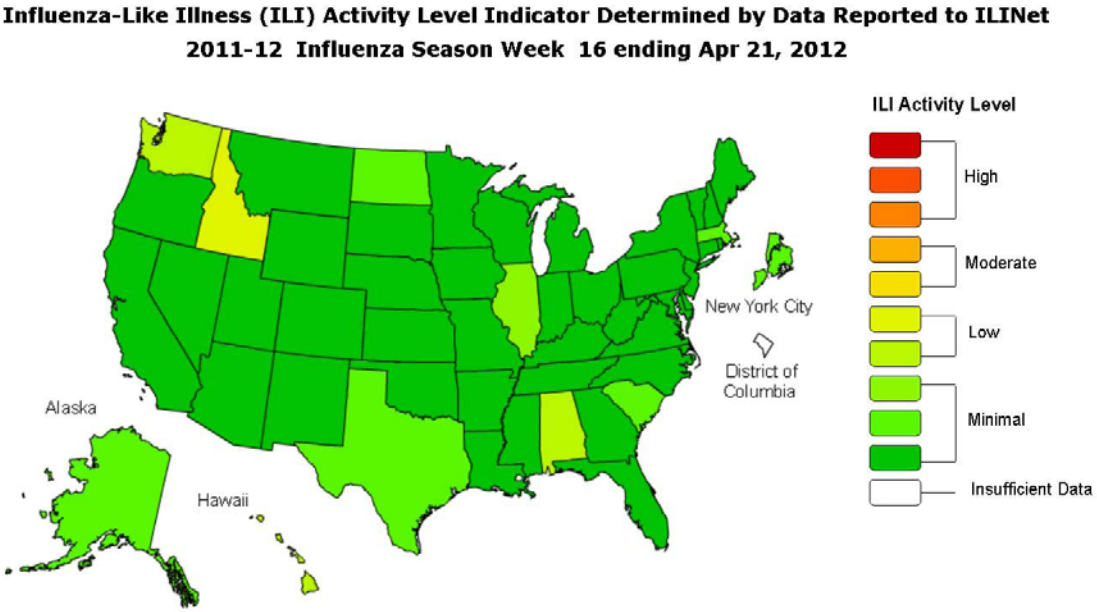
2009 H1N1 [343]
- 337 (98.3%) of the 343 viruses were characterized as A/California/7/2009-like, the influenza A (H1N1) component of the 2011-2012 influenza vaccine for the Northern Hemisphere.
- 6 viruses (1.7%) tested showed reduced titers with antiserum produced against A/California/7/2009.

Influenza A (H3N2) [745]
- 606 (81.3%) of the 745 viruses were characterized as A/Perth/16/2009-like, the influenza A (H3N2) component of the 2011-2012 influenza vaccine for the Northern Hemisphere.
- 139 (18.7%) tested showed reduced titers with antiserum produced against A/Perth/16/2009.

Influenza B (B/Victoria/02/87 and B/Yamagata/16/88 lineages) [203]:

- Victoria Lineage: 85 (41.9%) of the 203 influenza B viruses tested belong to the B/Victoria lineage.
  - 78(91.8%) of these 85 viruses were characterized as B/Brisbane/60/2008-like, the influenza B component of the 2011-2012 Northern Hemisphere influenza vaccine.
  - 7 (8.2%) of 85 viruses showed reduced titers with antisera produced against B/Brisbane/60/2008.
- Yamagata Lineage: 118 (58.1%) of the 203 B viruses tested belong to the B/Yamagata lineage.





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.

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

International (WHO [edited], April 27): Seasonal influenza activity has peaked in most countries in the temperate regions of the northern hemisphere. In North America, in general influenza transmission is low and decreasing for four consecutive weeks in the United States of America (USA) and for three weeks in Canada. Influenza A(H3N2) viruses have predominated during the current season nationally and in most regions of USA, whereas influenza B viruses continue to be the predominant in Canada. A(H1N1)pdm09 continued to co-circulate in Canada, USA and Mexico. In almost all European countries, their influenza

seasons have peaked for several weeks now showing a continuously decreasing incidence of ILI /ARI, and a reduction in the number of SARI cases. Influenza A(H3N2) viruses have been predominant this season with increasing proportion of influenza B virus detection. Influenza activity in the temperate countries of Asia has shown an overall decrease. The proportion of influenza A(H3N2) virus detection has increased over influenza B in both northern China and Mongolia, but for Japan, influenza A(H3N2) viruses have been the predominant subtype throughout the season. In the Republic of Korea, influenza B viruses are still predominant over influenza A viruses. Influenza A(H1N1)pdm09 viruses were screened for susceptibility to neuraminidase inhibitors in nine countries in western Europe, and all tested were susceptible. However, in the USA, a slight increase to 2% in levels of resistance to oseltamivir has been noticed for influenza A(H1N1)pdm09 isolates.

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 28, 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.

National, Antivirals (CIDRAP, April 30): Antiviral use among hospitalized patients dropped significantly nationwide during the 2010-11 flu season compared with during the pandemic the year before, US researchers reported in Clinical Infectious Diseases. Using statistics from the Centers for Disease Control and Prevention's Influenza Surveillance Network, they noted that data on antiviral use was available for 99% of hospitalized patients with lab-confirmed flu in both seasons. During the 2009 H1N1 pandemic, 2,341 (77%) of 3,047 children and 4,754 (82%) of 5,819 adults hospitalized with flu received antiviral treatment. In 2010-11 those percentages dropped to 56% and 77%, respectively, with 763 of 1,365 children and 3,600 of 4,675 adults hospitalized with flu receiving antivirals. Both drops were statistically significant, they reported. The authors note that antiviral drugs are recommended for all hospitalized flu patients.

The abstract is available online at http://cid.oxfordjournals.org/content/early/2012/04/27/cid.cis442.short.

International, Vaccine (CIDRAP, May 2): Vaccination against pandemic 2009 H1N1 flu (pH1N1) did not raise the risk of miscarriage or stillbirth, a Danish study of 54,585 pregnant women revealed. Writing in *BMJ* today, researchers said they analyzed data for 54,585 women who gave birth from November 2009 to September 2010, of whom 7,062 (12.9%) received the pH1N1 vaccine. All told, 1,818 pregnancies ended with fetal deaths—1,678 miscarriages and 140 stillbirths. The investigators found that receiving the pH1N1 vaccine did not increase the risk of fetal death (adjusted hazard ratio, 0.79; 95% confidence interval, 0.53-1.16). An accompanying editorial said the study "provides even clearer evidence that the benefits of immunisation against influenza outweigh the risks for pregnant women" but added that the authors' exclusion of women of less than 7 weeks' gestation and inclusion of a small number of women immunized in the first trimester were study weaknesses.

The abstract is available online at http://www.bmj.com/content/344/bmj.e2794.short.

International, Poultry (OIE [edited], May 2): Low pathogenic avian influenza H5N2; Chinese Taipei
Outbreak: Chu-Tang, CHANG-HUA
Date of start of the outbreak: 02/04/2012; Outbreak status: Continuing; Epidemiological unit: Farm
Species: Birds; Susceptible: 9000; Cases: 20; Deaths: 0; Destroyed: 0
Affected population: Ducks

Michigan Wild Bird Surveillance (USDA, as of April 28): 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/downld/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