



MI FluFocus

Influenza Surveillance and Avian Influenza Update

Bureau of Epidemiology
Bureau of Laboratories

Michigan Department
of Community Health



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New updates in this issue:

- **Michigan Surveillance:** SE MI sees increase in individual reports and MDCH lab-confirmed isolates.
- **National Surveillance:** Influenza activity continues to increase; 14 states at regional or local levels.
- **Avian Influenza:** Bangladesh, China and Vietnam report new H5N1 avian influenza outbreaks.

Michigan Disease Surveillance System: The week ending January 5 saw aggregate flu-like illness reports hold near last week's lowered levels, which was expected to due holiday school closings. Individual influenza reports, however, saw a marked increase, with the majority of cases coming from the Southeast Influenza Surveillance Region. Aggregate flu-like illness reports are consistent with numbers seen this time last year, while individual influenza reports are higher.

Emergency Department Surveillance: Emergency department visits due to both respiratory and constitutional complaints leveled off this past week after several weeks of steady increases. Respiratory complaints are consistent with numbers seen this time last year, while constitutional complaints are slightly lower. Three constitutional alerts in the N(2) and SE(1) Influenza Surveillance Regions and three respiratory alerts in the C(2) and SE(1) Influenza Surveillance Regions were generated last week.

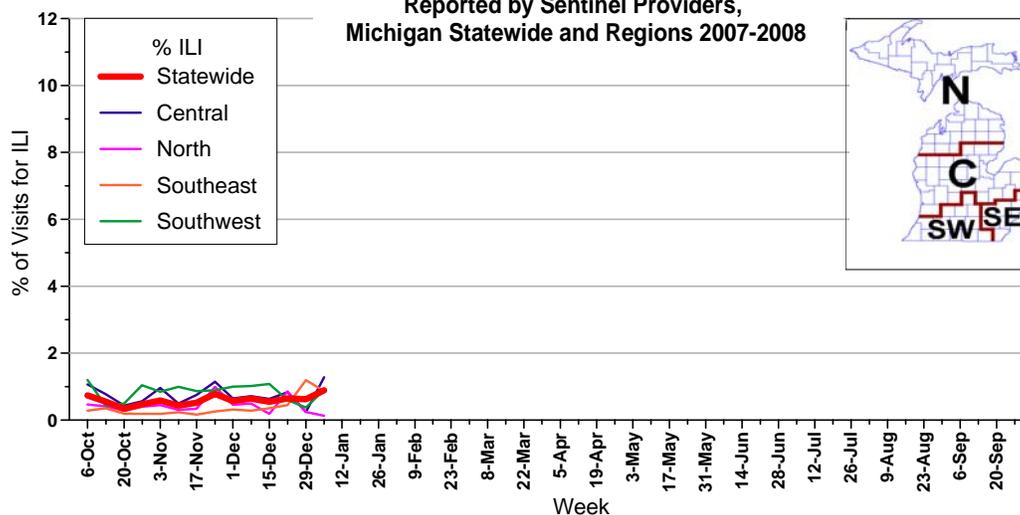
Over-the-Counter Product Surveillance: Overall, OTC product sales activity remained fairly steady this week with a slight upward trend seen in all products, except chest rubs, over the last few weeks. The indicators levels are comparable to those seen at this time last year, except for chest rubs, which are slightly higher, and thermometers, which are slightly lower.

Sentinel Surveillance (as of January 10): During the week ending January 5, 2008, the proportion of visits due to influenza-like illness (ILI) in Michigan was 0.9%. This represents 51 cases of ILI out of 5731 total patient visits; thirty sentinels provided data for this report.

Last week's report indicated 2.9% of visits due to ILI in the Southeast region for the week ending Dec. 29, according to 7 sites. However, now that more reports have been received, that proportion has decreased to 1.2% (13 sites) for the week ending Dec. 29, and 0.9% (10 sites) for the week ending Jan. 5.

For the other regions during the week ending Jan. 5, the proportion of visits due to ILI remained low in the North (0.1%) region, increased from 0.4% to 0.9% in the Southwest region, and increased from 0.2% to 1.3% in the Central region. 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 2007-2008



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 10): For the 2007-2008 influenza season, the MDCH Bureau of Laboratories has identified 29 influenza isolates:

- 11 A/H3N2: Southeast (8); Central (1); Southwest (1); North (1)
- 1 A/H1N1: North (1)
- 12 A subtype pending: Central (5); SE (4); Southwest (2); North (1)
- 5 B: Southeast (3); North (1); Central (1)

Sentinel laboratories are reporting low numbers of positive influenza A tests and rare influenza B positives, with some individual labs in the Southeast, Southwest and Central regions seeing an increase in influenza A positives over the past week. Low but increasing levels of RSV were reported statewide.

***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 January 10): For the 2007-2008 season, there are no confirmed reports of influenza-related pediatric mortality in Michigan.

***Reminder: The CDC has asked all states to continue to collect information on any pediatric death associated with influenza infection. This includes not only any death in a child less than 18 years of age resulting from a clinically compatible illness confirmed to be influenza by an appropriate laboratory or rapid diagnostic test, but also unexplained death with evidence of an infectious process in a child. Refer to http://www.michigan.gov/documents/fluletter_107562_7.pdf for the complete protocol. It is important to immediately call MDCH to ensure that appropriate clinical specimens can be obtained.

Congregate Settings Outbreaks (as of January 10): There have been no reports for the 2007-2008 influenza season.

National (CDC [edited], January 4): During week 52 (December 23-29, 2007), influenza activity continued to increase in the United States. During week 52, WHO and NREVSS laboratories reported 3,358 specimens tested for influenza viruses, 108 (3.2%) of which were positive, including 20 influenza A (H1) viruses, seven influenza A (H3) viruses, 57 influenza A viruses that were not subtyped, and 24 influenza B viruses. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. The proportion of outpatient visits for influenza-like illness (ILI) and acute respiratory illness (ARI) was above national baseline levels. The East North Central [*Editor: Michigan is in the East North Central region*], East South Central, Mountain, New England, South Atlantic, and West South Central regions reported ILI equal to or above their region-specific baselines, and the East North Central, Pacific, and West South Central regions reported ARI equal to or above their region-specific baselines. Five states reported regional influenza activity; nine states reported local influenza activity; 33 states, the District of Columbia, and Puerto Rico reported sporadic influenza activity; and three states reported no influenza activity.

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



International, WHO (Weekly Epidemiological Record, December 27): During weeks 50–51, the level of overall influenza activity in the world remained low. A slight increase in the number of influenza viruses detected was observed in some countries of the northern hemisphere. In Latvia, influenza A was detected for the first time in the 2007–2008 winter season.

Canada. The level of influenza (A, B) activity rose slightly in the Canadian provinces of Alberta, British Columbia, Nunavut, Ontario and Saskatchewan, where influenza A (H1) predominated.

Czech Republic. A localized outbreak of influenza A (partly subtyped as A (H1)) was reported in the Czech Republic.

United States of America. Influenza regional activity was reported by 1 state (Colorado) and localized activity was reported by 5 states (Arizona, Hawaii, Massachusetts, Texas and Virginia). Influenza A (H3) and A (H1) predominated.

During weeks 50–51, sporadic influenza activity was detected in Belarus (A), Austria (H1), China (B predominant, H3), Hong Kong Special Administrative Region of China (B predominant, A), Denmark (A, B), France (A, B), Germany (B, H1), Hungary (H1), Islamic Republic of Iran (H1, B), Italy (H1, B), Ireland (A, B), Japan (H1), Latvia (A, B), Morocco (B), Norway (H1, A, B), Portugal (H1), Russian Federation (H3 predominant, H1, B), Slovakia (H1), Slovenia (H1), Sri Lanka (B), Sweden (A, B), Switzerland (A, H1) and United Kingdom (H1 predominant; Scotland (A, B)).

Argentina, Belgium, Croatia, Luxembourg, Philippines, Poland, Romania, Spain and Ukraine reported no influenza activity.

MDCH reported **LOCAL ACTIVITY** to the CDC for the week ending January 5, 2007.

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 (The Canadian Press [edited], January 3): The genetic structure of H5N1 virus recovered from Pakistan's first confirmed human case of the illness suggests the virus did not mutate to become better adapted to humans, an expert with the World Health Organization said Thursday.

Dr. Frederick Hayden said initial sequencing of several genes of the virus showed no worrisome genetic changes. The London-based influenza laboratory that did the work reported that the virus was identical to a number of H5N1 viruses isolated from chickens in the region, he said.

The virus fragments were recovered from specimens taken from a man who died of H5N1 infection on Nov. 28. The WHO believes the man became infected while caring for his brother, a veterinary worker who fell ill after culling H5N1-infected poultry.

"There were no adaptive mutations in the hemagglutinin that would suggest that it have moved towards human binding characteristics, which is of course good news," said Hayden, a medical officer with the WHO's global influenza program.

"If you look at the sequence findings combined with the epidemiologic investigations that have been done to date, it really does suggest that the H5 virus has not gained a capacity for spread from human-to-human within either Pakistan or more broadly."

Several other members of the family initially tested positive in diagnostic work conducted by Pakistan's National Institute of Health. But confirmatory tests done by international labs working with the WHO only produced the one positive result.

The WHO cautioned last week that doesn't mean others in the family weren't infected, noting the samples could have deteriorated by the time they reached the London lab.

It is hoped follow-up blood testing will reveal whether -- as the WHO suspects -- a number of other members of the family were also infected, including the veterinary worker. Another brother who nursed the veterinary worker also fell ill but he died without being tested.

Hayden said the initial sequencing shows the virus is from a family or clade of H5N1 viruses identified as "Qinghai Lake" like viruses. That family of viruses spread from a lake in northwestern China in 2004 into Russia, Europe and eventually the Middle East and Africa.

Like most viruses in that grouping, known as clade 2.2, the virus from the Pakistan man appears to be susceptible to both classes of influenza drugs -- neuraminidase inhibitors (Tamiflu and Relenza) and M2 inhibitors (amantadine and rimantadine).

Hayden said sequencing of the full genome of virus grown from a specimen taken from the Pakistani man remains to be completed.

International, Human (Associated Press, January 9): Blood testing has confirmed that a U.S. resident whose brother was Pakistan's first confirmed case of H5N1 infection never contracted the disease.

The New York State health department revealed that the man's blood showed no antibodies to H5N1, indicating he had not caught the virus while attending his brother's funeral in Pakistan late last year.

"His final test came back. He showed no avian flu and no antibodies to avian flu, which means he never got it," Claudia Hutton, the department's director of public affairs, said in an interview from Albany.

The man, who lives on Long Island, is part of a large family of brothers involved in a cluster of confirmed, probable and suspect cases. The other surviving brothers live in Pakistan's North-West Frontier Province.

Because of the pattern of illnesses within the family, the World Health Organization believes there was limited person-to-person spread of the virus among the relatives. But initial diagnostic efforts were only able to confirm one case, so follow-up blood work will be needed to determine how many people were actually infected.

One member of the family, a veterinary worker, fell ill in late October after helping to cull H5N1-infected poultry. While he was sick, at least two of his brothers nursed him, first at home, then at the hospital.

The veterinary worker survived but the two brothers died, one in mid-November and the other on Nov. 28. The first man to die was never tested for H5N1. But a specimen taken from the second showed he was infected with the virus. Another brother was also ill and was hospitalized. Still another showed no signs of illness.

The brother from Long Island experienced mild cold-like symptoms after returning from Pakistan. And his young son, who did not make the trip with him, also had a cold; it appeared to get worse after his father's return.

The man went to his doctor, the doctor notified local public health authorities and they in turn alerted the state. The U.S. Centers for Disease Control even sent a plane to New York to collect specimens from the man and his son for testing in the CDC's Atlanta labs.

They were both negative. But, a negative test isn't proof positive there was no infection. A test taken too late in the course of an infection could come back negative.

To close the book on the incident, authorities collected blood samples from the man and the son to look for the antibodies that would be present if they had been infected with the virus. Both the father and the son were negative in antibody testing.

The WHO said this week that blood samples from the surviving family members in Pakistan have been sent to a U.S. Naval laboratory in Cairo that does influenza testing for the WHO. But it could be a couple of weeks or longer before results are available.

International, Poultry (Reuters [edited], January 4): Bird flu has spread to another district in Bangladesh, forcing health and veterinary workers to cull around 1,500 birds, officials said on Friday. The

latest H5N1 infection was reported in Kurigram, 380 km (240 miles) north from the capital, said Salehuddin Khan, director of the government's livestock department.

Bird flu was first reported near the capital in March last year and has since spread mainly to northern districts, forcing authorities to kill more than 300,000 chickens. With the latest outbreak, 21 of Bangladesh's 64 districts have been affected by the deadly virus.

International, Poultry (Reuters [edited], January 4): China has reported an outbreak in poultry of the H5N1 strain of bird flu in its far west Xinjiang region, Xinhua news agency said on Friday. The first bird flu outbreak in the country since September came about a month after the virus killed a 24-year-old man in the eastern province of Jiangsu.

A total of 4,850 poultry have died of the disease in Turpan city in the Xinjiang Uighur Autonomous Region since Dec. 29, prompting authorities there to cull another 29,383 birds, Xinhua said.

The National Avian Influenza Reference Laboratory confirmed the virus as a subtype of the H5N1 strain on Thursday, it said, without specifying which kinds of poultry were infected. "At present, the epidemic has been brought under effective control," Xinhua said.

The Agriculture Ministry has warned of a "very high" possibility of bird flu outbreaks in the country over winter and spring, when the virus is at its most contagious.

International, Poultry (Xinhua, January 4): Vietnam's northern Thai Nguyen province has been stricken by bird flu, raising the current number of affected localities in the country to two, local newspaper People's Army reported Friday.

On Jan. 1, bird flu hit a flock of 350 white-winged ducks aged two months raised by a household in Song Cong town, the newspaper quoted the Department of Animal Health under the Ministry of Agriculture and Rural Development as reporting.

The provincial Veterinary Bureau has culled the whole flock, and detoxified affected areas to prevent the disease from spreading. Now, six communes and wards in Tra Vinh are being hit by bird flu, said the department.

International, Poultry (OIE, January 8): In a report submitted to OIE on January 4, Portugal reported the discovery of a low pathogenic H5 avian influenza virus found through a national surveillance program. Three farms were affected; two had red-legged partridges and one was a broiler farm. A total of 27,315 birds were destroyed. Test results were confirmed on December 21 at Portugal's national laboratory.

Michigan Wild Bird Surveillance (USDA, as of January 10): For the 2007 testing season, 1756 Michigan samples have been taken so far, comprised of 100 live bird samples, 1209 hunter-killed birds, 172 morbidity/mortality samples, and 275 environmental samples.

H5N1 subtype H5N1 has not been recovered from any Michigan samples tested to date, or from the 73,658 birds or environmental samples tested nationwide. The 2007 testing season will run from April 1, 2007-March 31, 2008. 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.

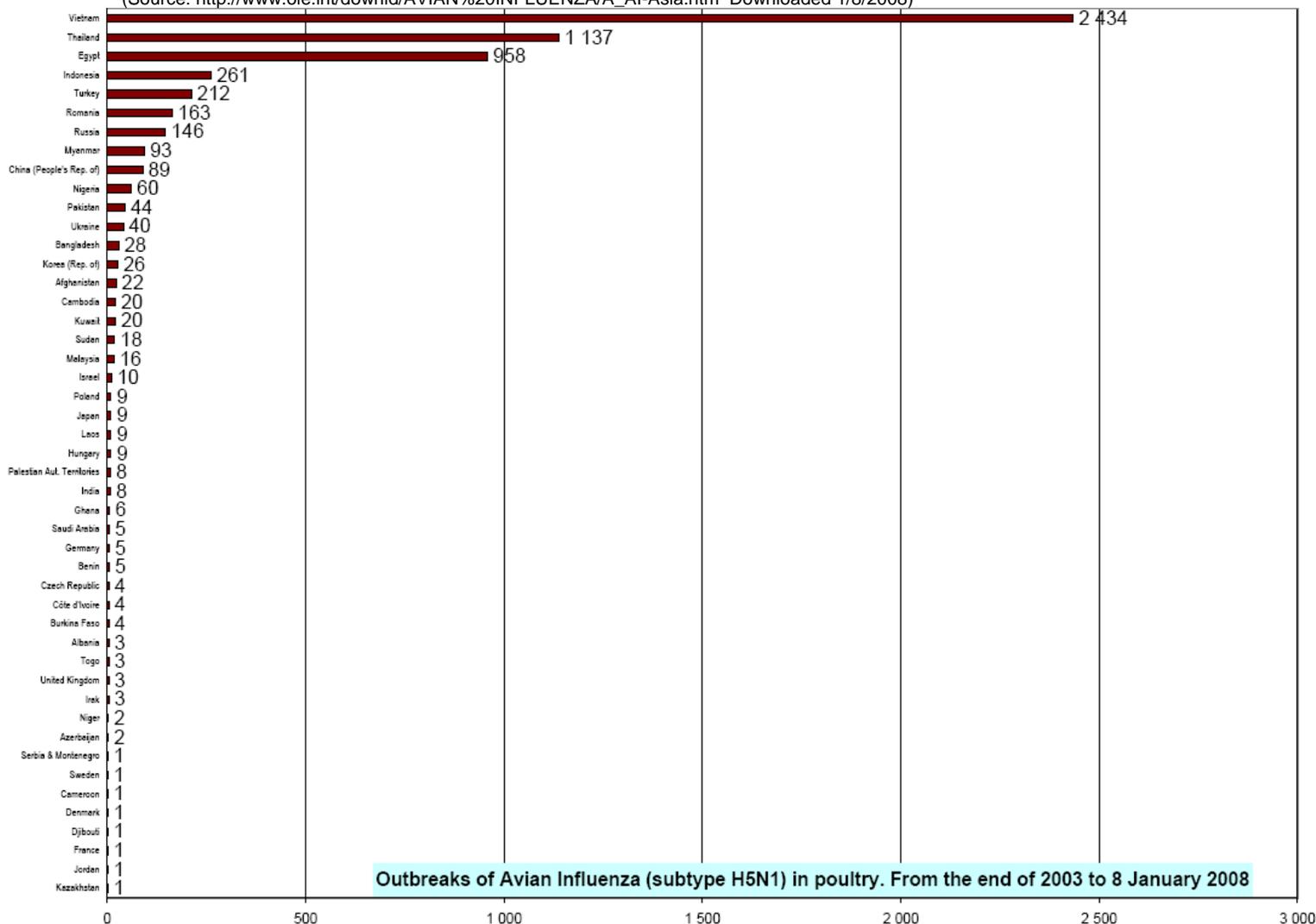
Contributors

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Table 1. H5N1 Influenza in Poultry (Outbreaks up to January 8, 2008)

(Source: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm Downloaded 1/8/2008)



Outbreaks of Avian Influenza (subtype H5N1) in poultry. From the end of 2003 to 8 January 2008

Table 2. H5N1 Influenza in Humans (Cases up to January 3, 2008)

(http://www.who.int/entity/csr/disease/avian_influenza/country/cases_table_2008_01_03/en/index.html Downloaded 1/3/2008)

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

| Country | 2003 | | 2004 | | 2005 | | 2006 | | 2007 | | Total | |
|------------------------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|-------|--------|
| | cases | deaths |
| Azerbaijan | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 5 | 0 | 0 | 8 | 5 |
| Cambodia | 0 | 0 | 0 | 0 | 4 | 4 | 2 | 2 | 1 | 1 | 7 | 7 |
| China | 1 | 1 | 0 | 0 | 8 | 5 | 13 | 8 | 5 | 3 | 27 | 17 |
| Djibouti | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Egypt | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 10 | 25 | 9 | 43 | 19 |
| Indonesia | 0 | 0 | 0 | 0 | 20 | 13 | 55 | 45 | 41 | 36 | 116 | 94 |
| Iraq | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 0 | 0 | 3 | 2 |
| Lao People's Dem. Rep. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 |
| Myanmar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| Nigeria | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Pakistan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Thailand | 0 | 0 | 17 | 12 | 5 | 2 | 3 | 3 | 0 | 0 | 25 | 17 |
| Turkey | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 4 | 0 | 0 | 12 | 4 |
| Viet Nam | 3 | 3 | 29 | 20 | 61 | 19 | 0 | 0 | 8 | 5 | 101 | 47 |
| Total | 4 | 4 | 46 | 32 | 98 | 43 | 115 | 79 | 85 | 58 | 348 | 216 |