USAF School of Aerospace Medicine & Defense Health Agency

# DoD Global Respiratory Pathogen Surveillance Program

2017-2018

## Cumulative Results

| | |
|---|---|
| Locations | 97 |
| Collected | 10,727 |
| Tested | 10,575 |

| | |
|---|---|
| **Influenza A** | **2,539** |
| A(H1N1)pdm09 | 511 |
| A(H1N1)pdm09 Coinfection | 46 |
| A(H1N1)pdm09 & A(H3N2) | 3 |
| A(H1N1)pdm09 & B | 8 |
| A(H3N2) | 1,750 |
| A(H3N2) Coinfection | 186 |
| A(H3N2) & B | 9 |
| A/not subtyped | 23 |
| A/not subtyped Coinfection | 3 |
| **Influenza B*** | **1,345** |
| B | 1,242 |
| B & Coinfection | 103 |
| **Other Respiratory Pathogens** | **3,261** |
| Adenovirus | 115 |
| *Chlamydophila pneumoniae* | 17 |
| Coronavirus | 622 |
| Human Bocavirus | 23 |
| Human Metapneumovirus | 378 |
| *Mycoplasma pneumoniae* | 40 |
| Parainfluenza | 171 |
| RSV | 526 |
| Rhinovirus/Enterovirus | 968 |
| Non-influenza Viral Coinfections | 391 |
| Non-influenza Bacterial Coinfections | 10 |
| -*C. pneumo* coinfections *(3)* | |
| -*M. pneumo* coinfections *(7)* | |
| **No Pathogen Detected** | **3,430** |

*Results are preliminary and may change as more results are finalized.*
**Influenza B lineages and specimens submitted for sequencing only will be reported in the periodic molecular sequencing reports.*

## Respiratory Highlights
### 25 March - 7 April 2018 (Surveillance Weeks 13 & 14)

- During 25 March - 7 April 2018, a total of 510 specimens were collected and received from 53 locations. Results were finalized for 460 specimens from 53 locations. The percent influenza positive for Weeks 13 and 14 were 35% and 25%, respectively. The influenza percent positive for the season is approximately 37%.

| Surveillance Week | A(H1N1)pdm09 | A(H3N2) | A/not subtyped | B | A(H3N2) & Adeno | A(H3N2) & Corona | A(H3N2) & Corona & HBoV | A(H3N2) & hMPV | A(H3N2) & Para | A(H3N2) & Rhino/Entero | B & hMPV | B & Rhino/Entero | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Week 13 | 20 | 46 | 1 | 35 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 111 |
| Week 14 | 5 | 12 | 3 | 12 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 35 |
| Total | 25 | 58 | 4 | 47 | 1 | 1 | 1 | 2 | 1 | 3 | 1 | 2 | 146 |

- According to a study published in *The Lancet Respiratory Medicine*, both the adjuvanted and the inactivated influenza vaccine offered similar protection against lab-confirmed flu in children ages 6 months to 5 years. A majority of the study took place during the 2014-15 season, where H3N2 was the predominant strain and the vaccine was a poor match. However, the adjuvanted vaccine was significantly more effective in young children under 2 years old, the population most vulnerable to severe flu outcomes, (CIDRAP Flu Scan, cited 11 Apr 2018).
- According to a letter in *Nature*, a deadly novel coronavirus, swine acute diarrhea syndrome coronavirus (SADS-CoV), in Chinese piglets came from bats and is similar to the emergence of 2002 SARS. The swine outbreak occurred 62 miles from the index SARS case. Researchers examined the possibility that the virus could jump to humans by conducting blood tests on farm workers who had close contacts to sick pigs. There were no positive results, (CIDRAP, cited 11 Apr 2018).

## Table of Contents



88ABW-2015-5508 and PA email guidance dated 10 November 2015.

# DoD Global Respiratory Pathogen Surveillance Program

**Table 1.** Finalized results by region and location for specimens collected during Weeks 13 & 14

| Region* | | A(H1N1)pdm09 | A(H3N2) | A/not subtyped | B | A(H3N2) & Adeno | A(H3N2) & Corona | A(H3N2) & Corona & HBoV | A(H3N2) & hMPV | A(H3N2) & Para | A(H3N2) & Rhino/Entero | B & hMPV | B & Rhino/Entero | Adenovirus | *C. pneumoniae* | Coronavirus | hMPV | *M. pneumoniae* | Parainfluenza | RSV | Rhinovirus/Enterovirus | Non-Influenza Viral Coinfection | No Pathogen | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EUCOM | Aviano AB, Italy | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 |
| | Landstuhl RMC, Germany | 2 | 5 | - | 2 | - | 1 | - | - | - | 1 | - | - | - | - | - | 1 | - | - | 1 | 1 | - | 4 | 18 |
| | NAVSTA Rota, Spain | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | 1 |
| | NSA Naples, Italy | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 |
| | RAF Lakenheath, England | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | 3 |
| | Ramstein AB, Germany | 3 | 4 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 2 | 2 | 5 | 19 |
| | USAG Baumholder, Germany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 |
| | USAG Grafenwoehr, Germany | - | 6 | - | - | - | - | - | 1 | - | - | - | - | - | - | 1 | 1 | - | - | 1 | - | - | 4 | 14 |
| | USAG Hohenfels, Germany | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | 1 |
| | USAG Stuttgart, Germany | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 2 | - | 5 | 10 |
| | USAG Wiesbaden, Germany | 1 | 1 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | 5 |
| | Vilseck AHC, Germany | - | 16 | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 2 | - | 9 | 28 |
| PACOM | Kadena AB, Japan | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | 1 |
| | Kunsan AB, South Korea | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 |
| | Osan AB, South Korea | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 |
| | Yokota AB, Japan | 2 | - | - | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 5 | 10 |
| Region 2 | Ft Drum, NY | - | 2 | 3 | 1 | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 4 | - | 4 | 15 |
| | JB McGuire-Dix-Lakehurst, NJ | - | 1 | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | 1 | 3 |
| | USMA - West Point, NY | - | 8 | - | 5 | - | - | - | 1 | - | 1 | - | 1 | 1 | - | - | 2 | 2 | - | - | 4 | - | 5 | 30 |
| Region 3 | Dover AFB, DE | 1 | - | - | 2 | - | - | - | - | - | - | - | - | - | - | 1 | 3 | - | - | - | 4 | - | 2 | 13 |
| | JB Langley-Eustis, VA | 6 | 3 | 1 | 9 | - | - | - | - | - | - | - | 1 | 1 | - | - | 4 | - | 1 | - | 10 | 6 | 16 | 58 |
| Region 4 | Columbus AFB, MS | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 |
| | Eglin AFB, FL | 1 | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 | 4 |
| | Hurlburt Field, FL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 1 | 1 | 4 |
| | JB Charleston (AF), SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1 |
| | JB Charleston (Navy), SC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 |
| | MacDill AFB, FL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 |
| | Maxwell AFB, AL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 2 | 3 |
| | Moody AFB, GA | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 | - | 2 | 4 |
| | Seymour Johnson AFB, NC | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | - | 5 | 8 |
| | Shaw AFB, SC | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 |

***Cont'd on page 3***

**CONUS locations are based on Health & Human Services regions. Other locations are defined by COCOM.*

**Table 1.** Finalized results by region and location for specimens collected during Weeks 13 & 14
***Cont'd from page 2***

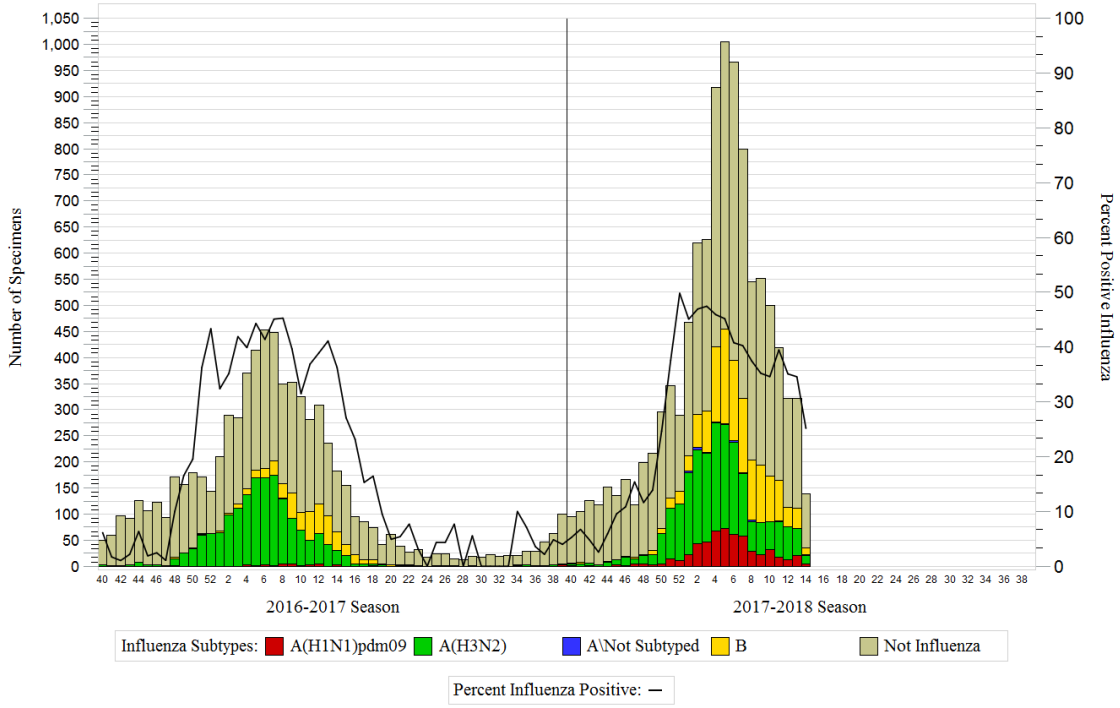
| Region* | | A(H1N1)pdm09 | A(H3N2) | A/not subtyped | B | A(H3N2) & Adeno | A(H3N2) & Corona | A(H3N2) & Corona & HBoV | A(H3N2) & hMPV | A(H3N2) & Para | A(H3N2) & Rhino/Entero | B & hMPV | B & Rhino/Entero | Adenovirus | *C. pneumoniae* | Coronavirus | hMPV | *M. pneumoniae* | Parainfluenza | RSV | Rhinovirus/Enterovirus | Non-Influenza Viral Coinfection | No Pathogen | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Region 5 | Scott AFB, IL | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 | 2 |
| | Wright-Patterson AFB, OH | 7 | 5 | - | 9 | 1 | - | 1 | - | - | - | - | - | 2 | - | 2 | 1 | - | 1 | 2 | 11 | 2 | 27 | 71 |
| Region 6 | Altus AFB, OK | - | - | - | 1 | - | - | - | - | - | - | - | - | 2 | - | - | - | - | 1 | - | 1 | 1 | 5 | 11 |
| | Cannon AFB, NM | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 3 | 4 |
| | JBSA Lackland, TX | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | 4 | 8 |
| | Kirtland AFB, NM | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 2 | 3 |
| | Laughlin AFB, TX | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | 1 | - | 3 | 5 |
| | Little Rock AFB, AR | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 | 3 | 1 | - | - | 2 | - | 4 | 12 |
| | Sheppard AFB, TX | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | 1 | 1 | 3 | 6 |
| | Tinker AFB, OK | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - | 3 | 1 | 9 | 16 |
| | Vance AFB, OK | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 2 | 3 |
| Region 7 | McConnell AFB, KS | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | 1 |
| | Offutt AFB, NE | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | 2 | - | 2 | 5 |
| Region 8 | Ellsworth AFB, SD | - | 4 | - | 1 | - | - | - | - | - | - | 1 | - | - | - | - | 2 | - | - | 2 | 4 | - | 7 | 21 |
| | FE Warren AFB, WY | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 | 3 |
| | Hill AFB, UT | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 |
| | Minot AFB, ND | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 | 1 | - | - | 3 | 7 |
| | Peterson AFB, CO | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | 1 | 2 |
| | USAF Academy, CO | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 | 2 |
| Region 9 | Travis AFB, CA | - | - | - | 1 | - | - | - | - | - | - | - | - | 1 | - | 1 | 2 | - | - | - | - | - | 1 | 6 |
| Region 10 | Fairchild AFB, WA | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 2 |
| | NH Bremerton, WA | 1 | 1 | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 6 |
| Total | | 25 | 58 | 4 | 47 | 1 | 1 | 1 | 2 | 1 | 3 | 1 | 2 | 9 | 1 | 10 | 32 | 3 | 5 | 10 | 66 | 16 | 162 | 460 |

**CONUS locations are based on Health & Human Services regions. Other locations are defined by COCOM.*

## Cumulative Laboratory Results

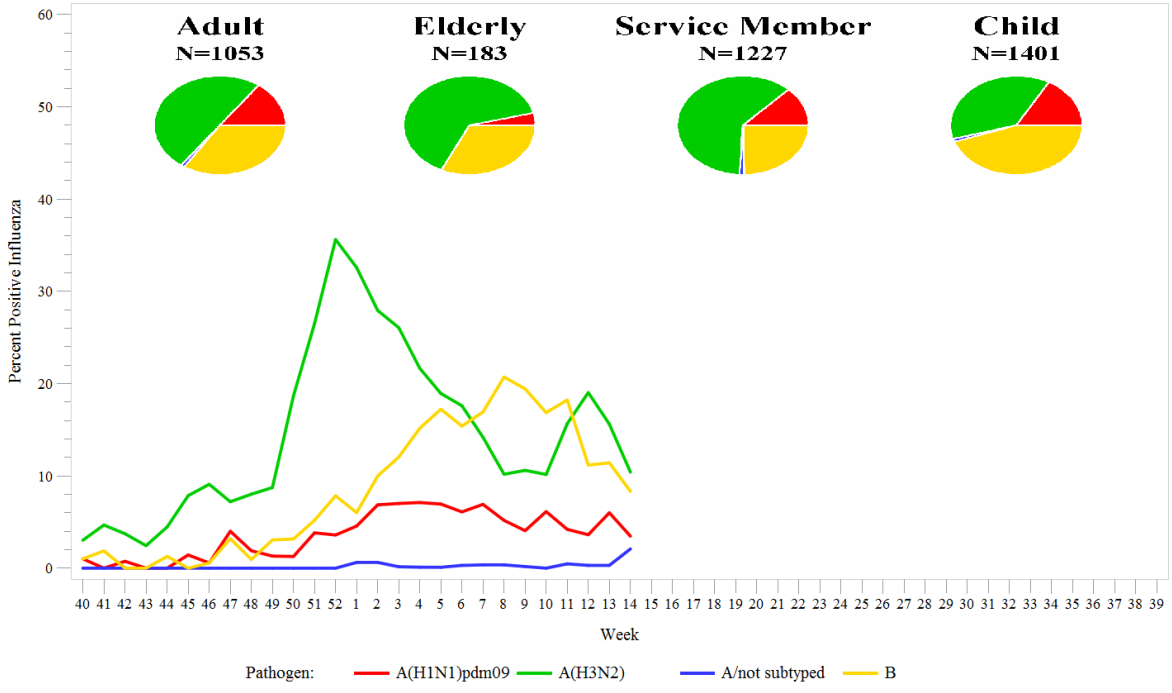
Link to cumulative results by region and location

**Graph 1.** Percent influenza positive by week: 2016-2017 surveillance year and through Week 14 of the 2017-2018 surveillance year



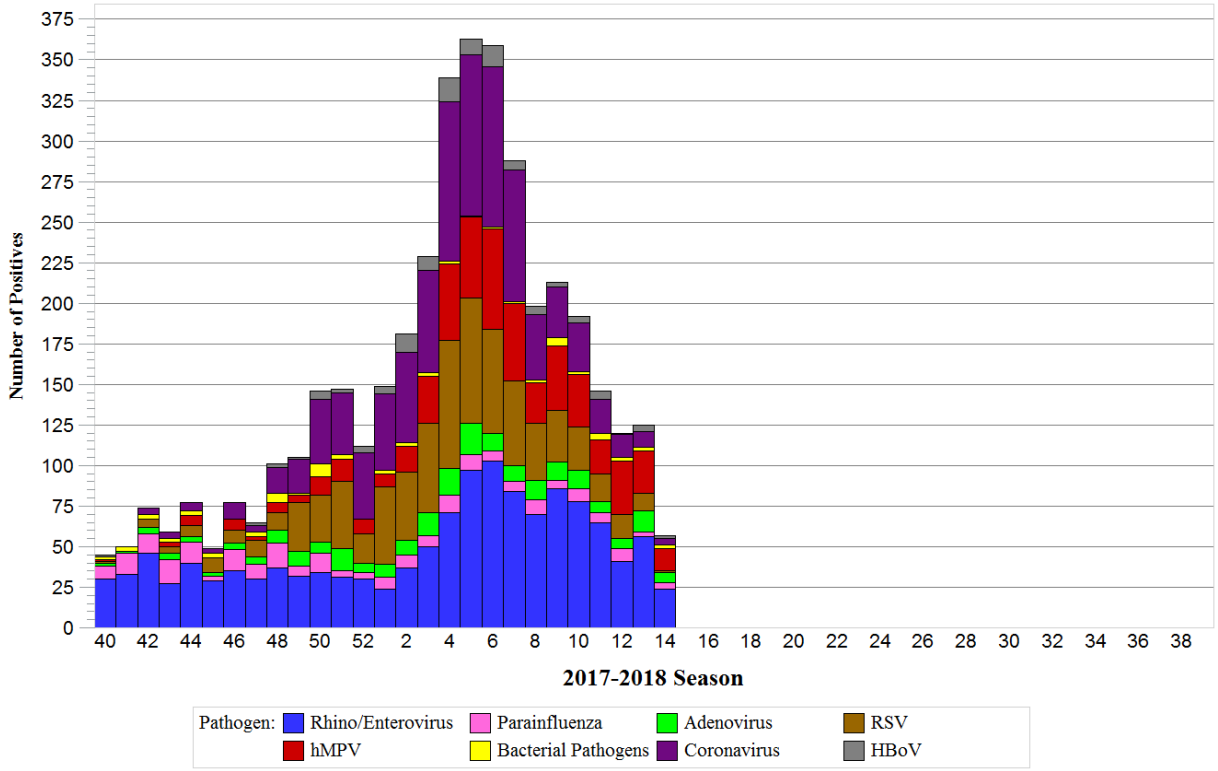

Note: Dual influenza coinfections are excluded from this graph.

**Graph 2.** Percent positive for influenza through ILI trends by subtype and beneficiary status through Week 14 of the 2017-2018 surveillance year

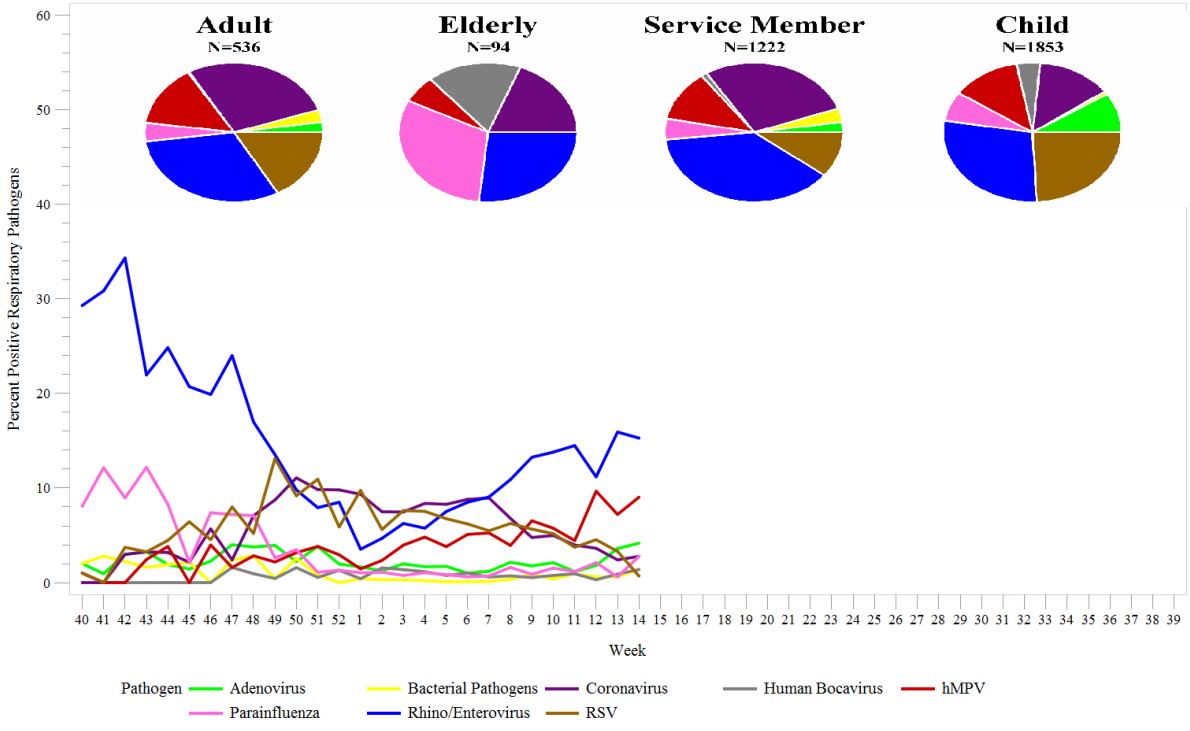



Note: Dual influenza coinfections are excluded from this graph.

**Graph 3.** Other positive respiratory pathogens through Week 14 of the 2017-2018 surveillance year




**Graph 4.** Percent positive for respiratory pathogens through ILI trends by week and beneficiary status through Week 14 of the 2017-2018 surveillance year




88ABW-2015-5508 and PA email guidance dated 10 November 2015.

**Graph 5.** Vaccination status by beneficiary type through Week 14 of the 2017-2018 surveillance year (excluding 'Unknown' beneficiary type)

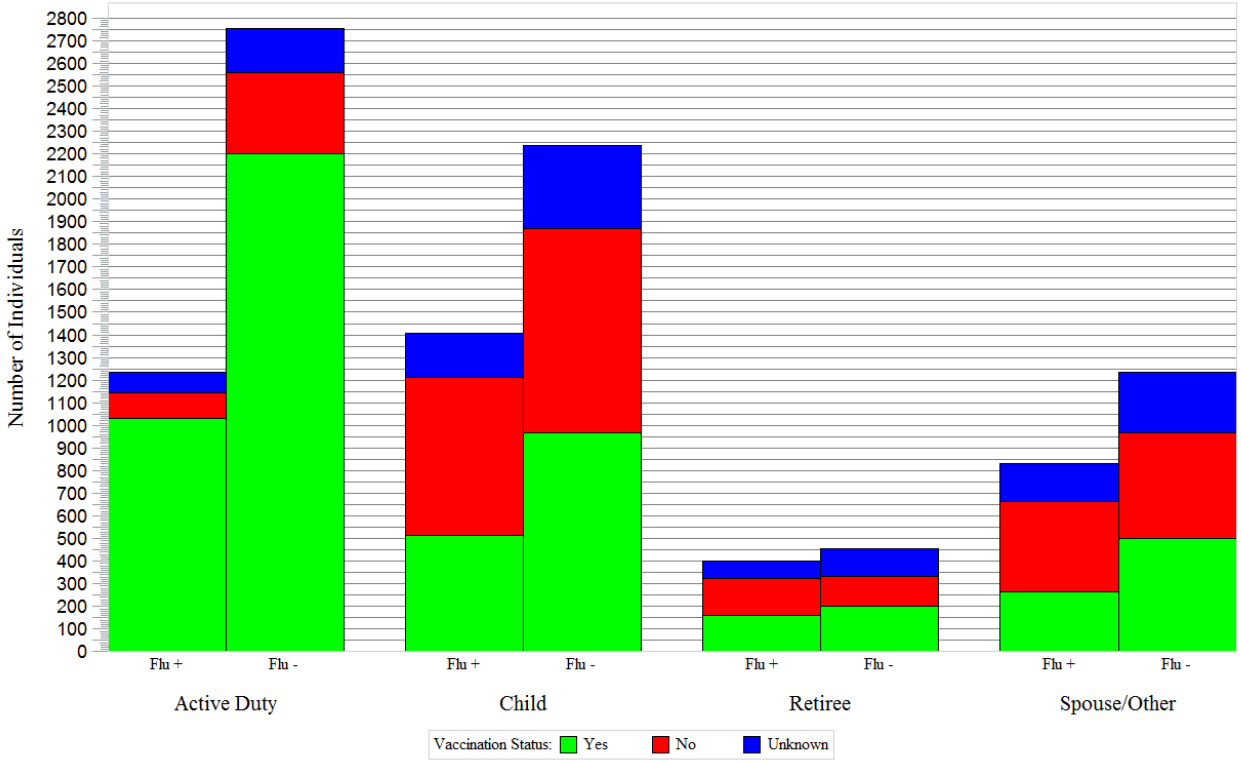
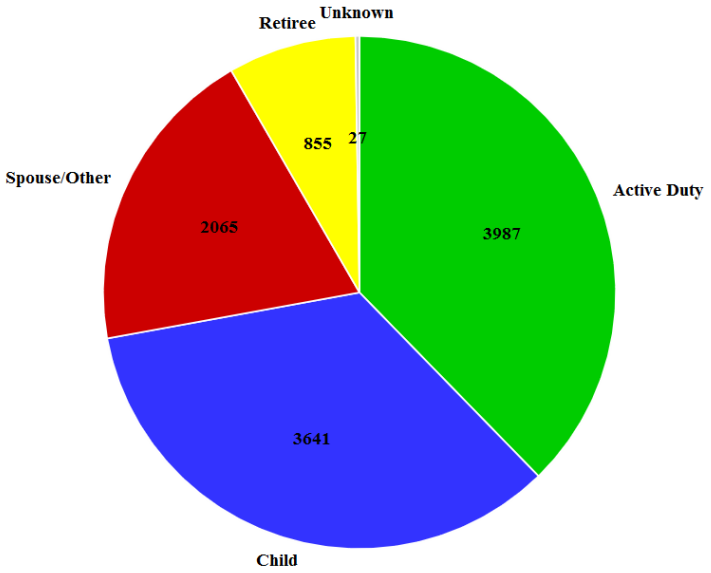



**Table 2.** ILI by age group through Week 14 of the 2017-2018 surveillance year

| Age Group | Frequency | Percent |
|---|---|---|
| 0-5 | 2081 | 19.68 |
| 6-9 | 721 | 6.82 |
| 10-17 | 919 | 8.69 |
| 18-24 | 1584 | 14.98 |
| 25-44 | 3400 | 32.15 |
| 45-64 | 1356 | 12.82 |
| 65+ | 514 | 4.86 |

**Graph 6.** ILI by beneficiary status through Week 14 of the 2017-2018 surveillance year

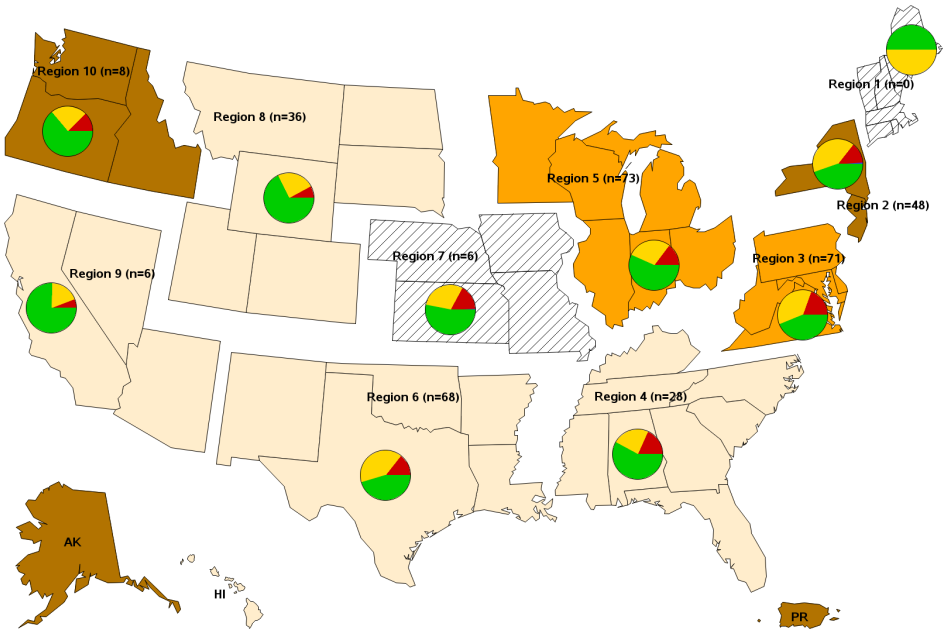



**Demographic Summary**

Of 10,575 ILI cases, 3,987 are service members (37.7%), 3,641 are children (34.4%), 2,065 are spouse/other beneficiaries (19.5%), 855 are retirees (8.1%), and 27 are unknown (0.3%). The median age of ILI cases with known age (n=10,575) is 24 (range 0, 98).

# DoD Global Respiratory Pathogen Surveillance Program

**Map 1.** Influenza subtypes and activity level by U.S. region through Week 14 of the 2017-2018 surveillance year

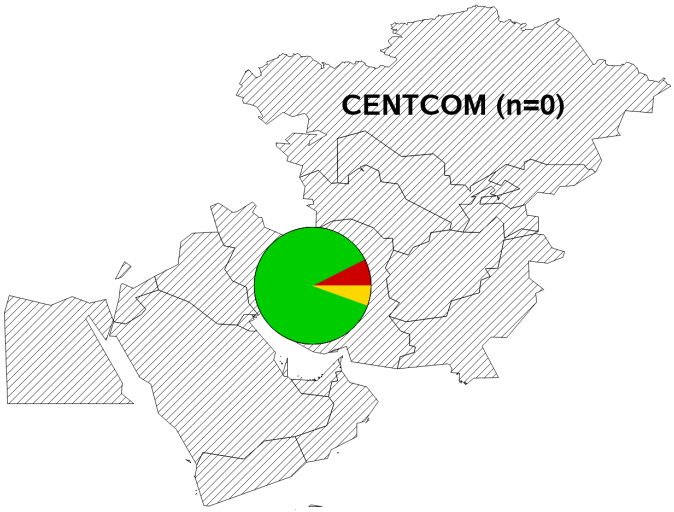



HI - Region 9

AK - Region 10

PR - Region 2

**Map 2.** Influenza subtypes and activity level for CENTCOM through Week 14 of the 2017-2018 surveillance year




**Legend**

**Influenza Activity - Past 2 weeks**

(n = # of submissions)

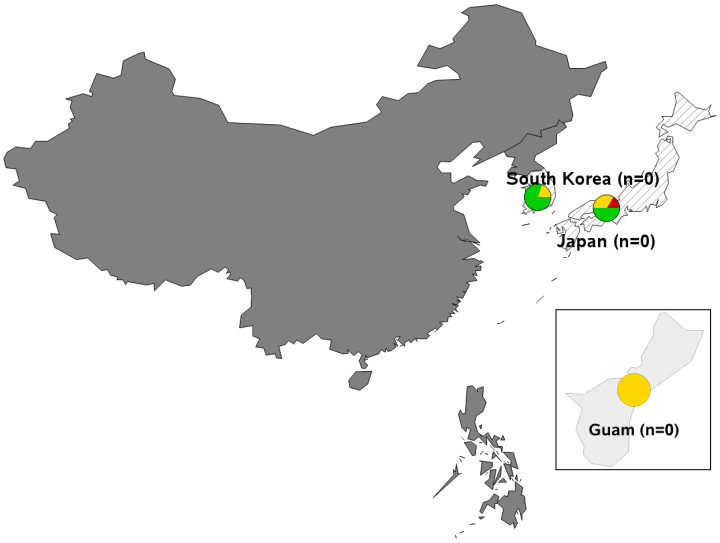
- No activity (0% +) or no submissions
- Low (<25% +)
- Moderate (25-49% +)
- High (>50% +)

**Influenza Results - Cumulative**

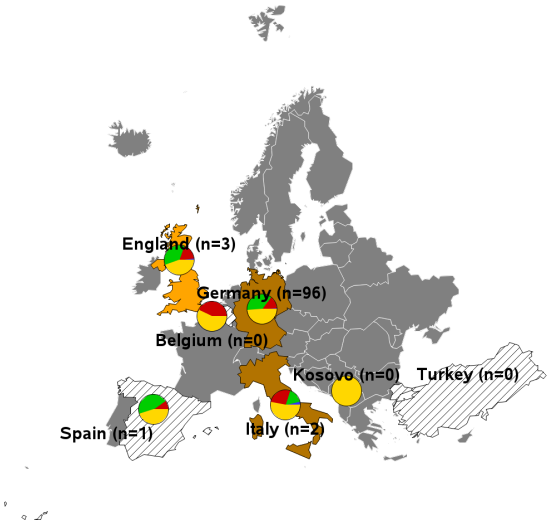
- Influenza A(H3N2)
- Influenza A(H1N1)pdm09
- Influenza B
- Influenza A/not subtyped

88ABW-2015-5508 and PA email guidance dated 10 November 2015.

**Map 3.** Influenza subtypes and activity level by country through Week 14 of the 2017-2018 surveillance year (Pacific)




**Map 4.** Influenza subtypes and activity level by country through Week 14 of the 2017-2018 surveillance year (Europe)




Note - Countries shaded in gray do not contain submitting sites and are only displayed for geographical perspective.

**Legend**

**Influenza Activity - Past 2 weeks**

(n = # of submissions)

- No activity (0% +) or no submissions
- Low (<25% +)
- Moderate (25-49% +)
- High (>50% +)

**Influenza Results - Cumulative**

- Influenza A(H3N2)
- Influenza A(H1N1)pdm09
- Influenza B
- Influenza A/not subtyped

**Table 3.** Cumulative specimens submitted for sequencing only by location through Week 14 of the 2017-2018 surveillance year

| Location | Number Received | Number Tested |
|---|---|---|
| Aviano AB, Italy | 6 | 1 |
| Brian Allgood ACH, South Korea | 184 | 0 |
| Camp Bondsteel, Kosovo | 1 | 0 |
| Ft Bliss, TX | 6 | 0 |
| Ft Bragg, NC | 3 | 0 |
| Ft Hood, TX | 6 | 3 |
| JB Elmendorf-Richardson, AK | 1 | 0 |
| Keesler AFB, MS | 277 | 118 |
| Landstuhl RMC, Germany | 93 | 8 |
| NAS Sigonella, Italy | 16 | 0 |
| NAVSTA Rota, Spain | 13 | 1 |
| NCRM - Walter Reed NMMC, MD | 12 | 2 |
| NMC Portsmouth, VA | 9 | 0 |
| NSA Naples, Italy | 49 | 0 |
| Nellis AFB, NV | 1 | 1 |
| RAF Lakenheath, England | 34 | 5 |
| Ramstein AB, Germany | 26 | 3 |
| SAMMC, TX | 848 | 76 |
| SHAPE, Belgium | 3 | 1 |
| Spangdahlem AB, Germany | 1 | 0 |
| Tripler AMC, HI | 35 | 3 |
| USAG Baumholder, Germany | 4 | 1 |
| USAG Grafenwoehr, Germany | 12 | 0 |
| USAG Hohenfels, Germany | 1 | 0 |
| USAG Kaiserslautern, Germany | 7 | 0 |
| USAG Stuttgart, Germany | 30 | 4 |
| USAG Vicenza, Italy | 32 | 0 |
| USAG Wiesbaden, Germany | 31 | 1 |
| Vilseck AHC, Germany | 14 | 0 |
| **Total** | **1755** | **228** |

USAF School of Aerospace Medicine & Defense Health Agency

# DoD Global Respiratory Pathogen Surveillance Program

## Background

The DoD-wide program was established by the Global Emerging Infections Surveillance and Response System (GEIS) in 1997. The surveillance network includes the Defense Health Agency/Armed Forces Health Surveillance Branch—Air Force Satellite Cell (DHA/AFHSB-AF) and U.S. Air Force School of Aerospace Medicine (USAFSAM) (sentinel site respiratory surveillance), the Naval Health Research Center (recruit and shipboard population-based respiratory surveillance), the Naval Medical Research Unit (NAMRU-3) in Cairo, Egypt, the Naval Medical Research Unit (NAMRU-2) in Phnom Penh, Cambodia, the Armed Forces Research Institute of Medical Sciences (AFRIMS) in Bangkok, Thailand, the Naval Medical Research Unit (NAMRU-6) in Lima, Peru, and the United States Army Medical Research Unit-Kenya (USAMRU-K) located in Nairobi, Kenya. This work is supported by the Air Force and GEIS Operations, a Division of the Armed Forces Health Surveillance Branch (AFHSB).

## Sentinel Site Surveillance

In 1976, the U.S. Air Force Medical Service began conducting routine, global, laboratory-based, influenza surveillance. Air Force efforts expanded to DoD-wide in 1997. DHA/AFHSB-AF and USAFSAM manages the surveillance program that includes global surveillance among DoD beneficiaries at 79 sentinel sites (including deployed locations) and many non-sentinel sites (please see map below). Collaborating partner laboratories include five DoD overseas medical research laboratories (AFRIMS, NAMRU-2, NAMRU-3, NAMRU-6, USAMRD-K) who collect specimens from local residents in surrounding countries that may not otherwise be covered in existing surveillance efforts. Additionally, the Naval Health Research Center (NHRC) in San Diego, CA collects specimens from DoD recruit training centers and conducts surveillance along the Mexico border.

Landstuhl Regional Medical Center (LRMC) and Tripler Army Medical Center (TAMC) assist the program by processing DoD specimens for the EUCOM region and the State of Hawaii, respectively. EUCOM respiratory data is obtained from LRMC and incorporated into our weekly report. This process seeks to provide more timely results and efficient transport of specimens.

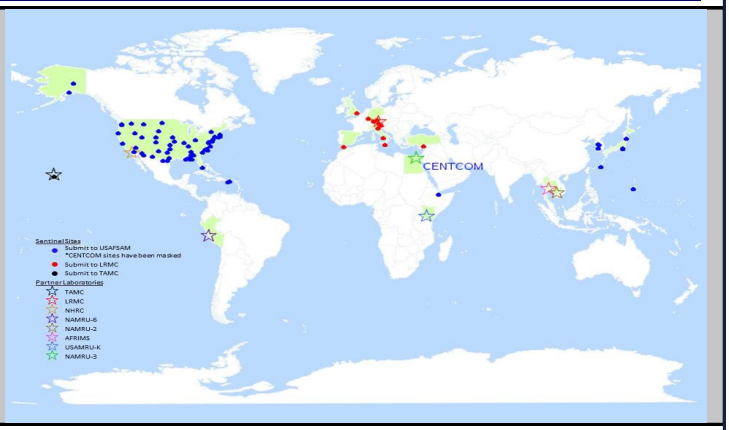
Available on our website (listed below) is a list of previous weekly surveillance reports, program information (including an educational briefing and instruction pamphlets for clinic staff), and a dashboard containing respiratory data for our sentinel sites.

*Errata*:


For Public Health Services
937-938-3196; DSN 798-3196

For Laboratory Services
937-938-4140; DSN 798-4140

USAFSAM.PHRFlu@us.af.mil


## Collaborating Partners

In addition to all participating DoD military sentinel sites, collaborating laboratories and medical centers (described above) may be further understood by reviewing the sites' website. Click on the sites' icon to be directed to their webpage.

88ABW-2015-5508 and PA email guidance dated 10 November 2015.