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# MSMR

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## Medical Surveillance Monthly Report

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*Data in the MSMR is provisional, based on reports and other sources of data available to the Medical Surveillance Activity. Notifiable conditions are reported by date of onset (or date of notification when date of onset is absent). Only cases submitted as confirmed are included.*

USACHEPDM

Annual summary

## Overview of Military Respiratory Disease Surveillance

Outbreaks of febrile acute respiratory disease (ARD) have occurred throughout the history of the military, particularly during fall-winter seasons. ARD outbreaks, sometimes massive, have often disrupted training and overwhelmed local medical support at mobilization and basic training centers. In the 1960s, it was demonstrated that adenoviruses, particularly types 4 and 7, were predominant causes of ARD among Army basic trainees. In 1966, a surveillance system was established at Army training centers to monitor the safety, efficacy, and side effects of the then new adenovirus vaccines. For more than thirty years since then, the Army has conducted surveillance of febrile acute respiratory diseases among basic trainees. For this program, a case of ARD is defined as a trainee who is hospitalized with fever (oral temperature  $\geq 100.5^{\circ}\text{F}$ ) and a sign or symptom of acute respiratory tract inflammation.

Figure 1 shows the large decline in ARD rates among Army trainees following 1984, the year the Army began year-round use of adenovirus vaccines. Since then, ARD rates have declined slowly but persistently culminating in the lowest annual rate ever recorded in 1996 (0.19 per 100 trainee-weeks). Figure 2 is an overlay of plots of weekly ARD rates at individual training centers during the last ten years. This display shows that ARD outbreaks have been infrequent, particularly in the last five years. In addition, figure 2 shows that the seasonally adjusted baseline (around which rates of individual centers vary) and magnitudes of fall-winter peaks have slowly but persistently declined over the past decade. In this edition, there is a detailed update of the Army's ARD surveillance experience for calendar years 1995 and 1996.

The US Air Force has conducted Influenza surveillance since 1976 focusing on detecting antigenic drifts of influenza viruses. This effort has contributed to the process of determining the composition of the annual Influenza vaccine. A description of the Air Force's global influenza surveillance project (Project Gargle) and a summary of that project's results for the 1995-6 fall-winter season are also included in this edition.

After more than five decades combined of continuous service, the Army and Air Force respiratory disease surveillance programs continue their important roles to detect emerging or resurgent respiratory disease threats, to document indications for and effects of countermeasures against specific agents, and to document experiences overall and in subgroups to guide and focus future policy, resource, and research initiatives.

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*Views and opinions expressed are not necessarily those of the Department of the Army.*

Figure 1. Acute respiratory disease surveillance at Army basic training posts.  
Crude weekly hospitalization rates, 1982 – 1996

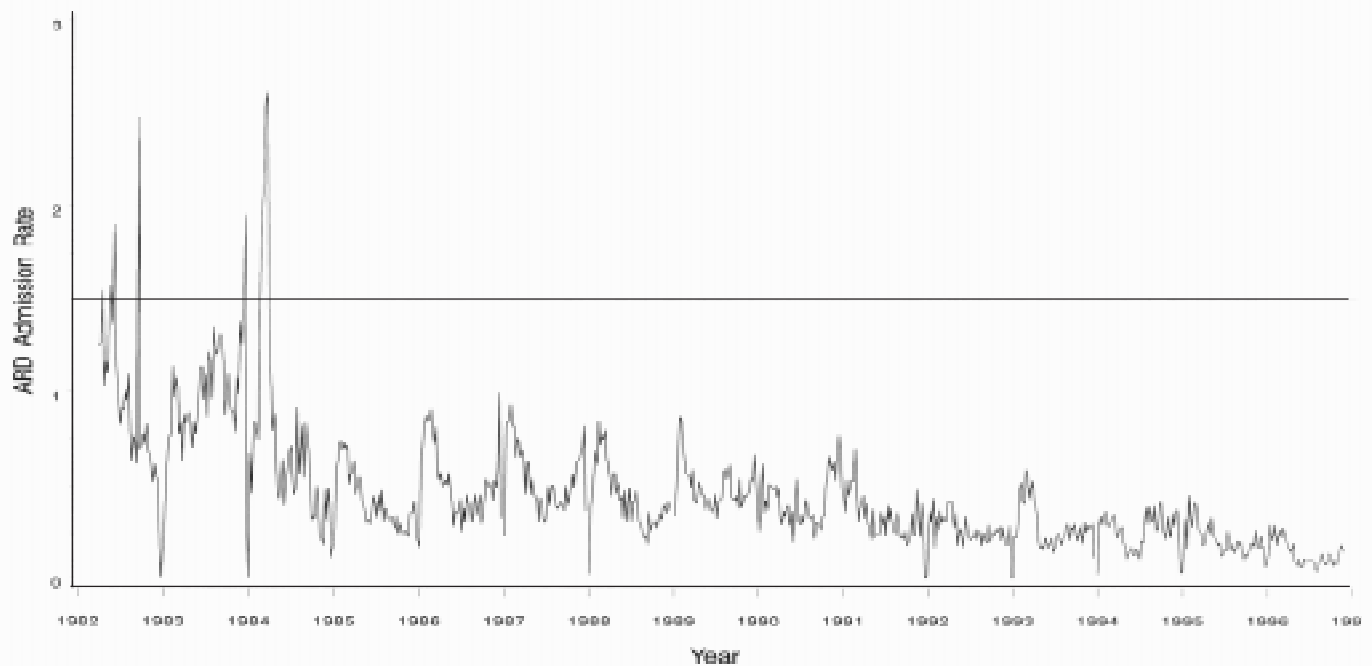
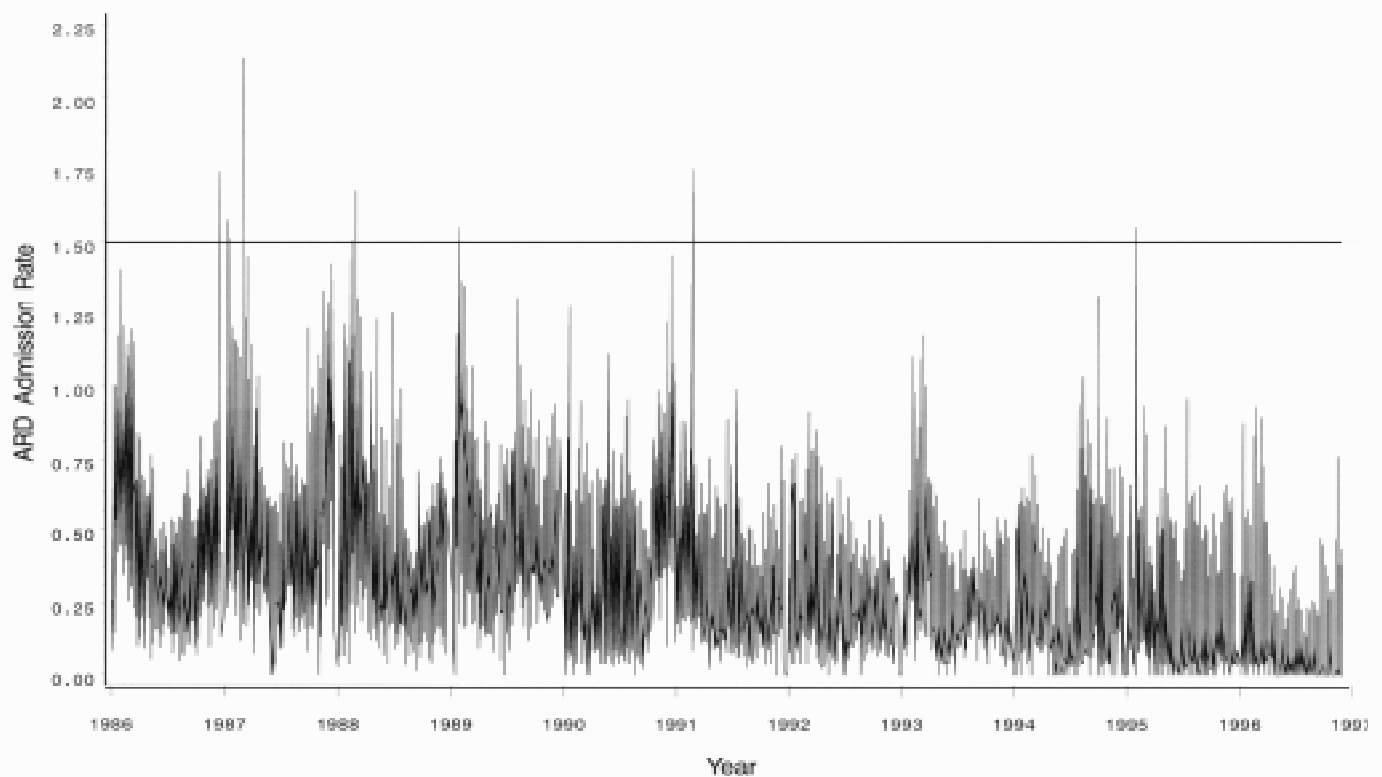


Figure 2. Acute respiratory disease surveillance at Army basic training posts.  
Overlay of weekly hospitalization rates, 1986 – 1996



**TABLE I. Cases of selected notifiable conditions, United States Army\*  
November, 1996**

| Reporting<br>MTF/Post**   | Total number<br>of reports<br>submitted<br>Nov-96 | Environmental Injuries |              |              | Viral Hepatitis |              |              | Malaria        | Varicella      |                |
|---------------------------|---|------------------------|--------------|--------------|-----------------|--------------|--------------|----------------|----------------|----------------|
|                           |   | Active Duty            |              | CO<br>intox. | A               | B            | C            | Active<br>Duty | Active<br>Duty | Other<br>Adult |
|                           |   | Heat                   | Cold         |              |                 |              |              |                |                |                |
|                           |   | Cum.<br>1996           | Cum.<br>1996 | Cum.<br>1996 | Cum.<br>1996    | Cum.<br>1996 | Cum.<br>1996 | Cum.<br>1996   | Cum.<br>1996   | Cum.<br>1996   |
| <b>NORTH ATLANTIC RMC</b> |   |                        |              |              |                 |              |              |                |                |                |
| Walter Reed AMC           | -   | 1                      | -            | -            | 1               | 1            | -            | 1              | 5              | 1              |
| Aberdeen Prov. Ground     | 7   | 1                      | 3            | -            | -               | -            | -            | -              | -              | -              |
| FT Belvoir, VA            | 7   | 1                      | -            | -            | 1               | 1            | -            | -              | -              | -              |
| FT Bragg, NC              | 8   | 18                     | 7            | -            | 1               | -            | -            | 3              | -              | -              |
| FT Drum, NY               | 29  | 6                      | 22           | -            | -               | 1            | -            | 1              | 6              | -              |
| FT Eustis, VA             | -   | 2                      | -            | -            | 1               | -            | -            | -              | -              | 1              |
| FT Knox, KY               | 26  | -                      | 2            | -            | 2               | 2            | 7            | -              | -              | -              |
| FT Lee, VA                | 10  | -                      | -            | -            | -               | -            | -            | -              | -              | -              |
| FT Meade, MD              | 11  | -                      | 1            | -            | 2               | -            | 1            | -              | 9              | 1              |
| USMA, West Point, NY      | -   | -                      | -            | -            | -               | -            | -            | -              | -              | -              |
| <b>CENTRAL RMC</b>        |   |                        |              |              |                 |              |              |                |                |                |
| Fitzsimons AMC            | -   | -                      | -            | -            | -               | -            | -            | 1              | -              | -              |
| <b>GREAT PLAINS RMC</b>   |   |                        |              |              |                 |              |              |                |                |                |
| Brooke AMC                | 10  | -                      | -            | -            | -               | -            | -            | 1              | -              | -              |
| FT Carson, CO             | 37  | -                      | 32           | -            | 1               | 4            | -            | -              | 1              | -              |
| FT Hood, TX               | -   | 2                      | 1            | -            | 1               | 3            | -            | -              | 6              | -              |
| FT Leavenworth, KS        | 3   | -                      | -            | -            | -               | -            | 1            | -              | -              | -              |
| FT Leonard Wood, MO       | 13  | 1                      | 2            | -            | 1               | 1            | -            | -              | 17             | 5              |
| FT Polk, LA               | -   | -                      | -            | -            | -               | -            | -            | -              | -              | -              |
| FT Riley, KS              | 41  | 1                      | -            | -            | -               | -            | -            | -              | -              | -              |
| FT Sill, OK               | -   | 4                      | -            | -            | 4               | 5            | 3            | -              | -              | -              |
| Panama                    | 32  | 3                      | -            | -            | 4               | 4            | 3            | -              | -              | 1              |
| <b>SOUTHEAST RMC</b>      |   |                        |              |              |                 |              |              |                |                |                |
| Eisenhower AMC            | 9   | 2                      | -            | -            | -               | 2            | -            | -              | 2              | -              |
| FT Benning, GA            | -   | 8                      | -            | -            | -               | -            | -            | -              | 9              | -              |
| FT Campbell, KY           | 93  | 3                      | 2            | -            | 3               | 1            | 2            | -              | 2              | -              |
| FT Jackson, SC            | -   | -                      | -            | -            | -               | -            | -            | -              | -              | -              |
| FT McClellan, AL          | -   | -                      | 1            | -            | -               | 1            | -            | -              | 1              | -              |
| FT Rucker, AL             | -   | 4                      | -            | -            | -               | -            | -            | -              | -              | -              |
| FT Stewart, GA            | -   | -                      | -            | -            | -               | 1            | -            | -              | -              | -              |
| <b>SOUTHWEST RMC</b>      |   |                        |              |              |                 |              |              |                |                |                |
| Wm Beaumont AMC           | -   | -                      | -            | -            | 1               | 1            | -            | -              | 3              | -              |
| FT Huachuca, AZ           | -   | -                      | -            | -            | -               | -            | -            | -              | -              | -              |
| FT Irwin, CA              | 10  | 6                      | -            | -            | 1               | 1            | -            | -              | -              | -              |
| <b>NORTHWEST RMC</b>      |   |                        |              |              |                 |              |              |                |                |                |
| Madigan AMC               | -   | -                      | -            | -            | -               | -            | -            | -              | -              | -              |
| FT Wainwright, AK         | 2   | -                      | 81           | -            | -               | -            | -            | -              | -              | -              |
| <b>PACIFIC RMC</b>        |   |                        |              |              |                 |              |              |                |                |                |
| Tripler AMC               | 28  | -                      | 1            | -            | 1               | 1            | -            | 1              | -              | -              |
| <b>OTHER LOCATIONS</b>    |   |                        |              |              |                 |              |              |                |                |                |
| Europe                    | 37  | 1                      | -            | -            | 1               | 5            | 2            | 4              | 5              | 1              |
| Korea                     | -   | 1                      | 1            | -            | -               | 3            | -            | 9              | 6              | -              |
| <b>Total</b>              | <b>413</b>  | <b>65</b>              | <b>156</b>   | <b>0</b>     | <b>26</b>       | <b>38</b>    | <b>19</b>    | <b>21</b>      | <b>72</b>      | <b>10</b>      |

\* Based on date of onset.

\*\* Reports are included from main and satellite clinics. Not all sites reporting.

Date of Report: 7-Dec-96

**TABLE I. Cases of selected notifiable conditions, United States Army\* (continued)  
November, 1996**

| Reporting<br>MTF/Post**   | Salmonellosis  |              |              | Shigella       |              |              | Campylobacteriosis |              |              | Tuberculosis   |              |
|---------------------------|----------------|--------------|--------------|----------------|--------------|--------------|--------------------|--------------|--------------|----------------|--------------|
|                           | Active<br>Duty | Other        |              | Active<br>Duty | Other        |              | Active<br>Duty     | Other        |              | Active<br>Duty | Other        |
|                           |                | Adult        | Child        |                | Adult        | Child        |                    | Adult        | Child        |                |              |
|                           | Cum.<br>1996   | Cum.<br>1996 | Cum.<br>1996 | Cum.<br>1996   | Cum.<br>1996 | Cum.<br>1996 | Cum.<br>1996       | Cum.<br>1996 | Cum.<br>1996 | Cum.<br>1996   | Cum.<br>1996 |
| <b>NORTH ATLANTIC RMC</b> |                |              |              |                |              |              |                    |              |              |                |              |
| Walter Reed AMC           | 2              | 4            | 2            | -              | 3            | 1            | 5                  | 9            | 1            | -              | 4            |
| Aberdeen Prov. Ground     | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Belvoir, VA            | 2              | 3            | 8            | 5              | 7            | 12           | 2                  | 3            | 2            | -              | -            |
| FT Bragg, NC              | 5              | 4            | 23           | 10             | 6            | 28           | 5                  | 2            | 1            | -              | -            |
| FT Drum, NY               | 2              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Eustis, VA             | -              | 2            | 3            | -              | 2            | 3            | -                  | 1            | 4            | -              | -            |
| FT Knox, KY               | -              | 1            | 1            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Lee, VA                | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Meade, MD              | -              | 6            | 5            | 2              | 1            | 1            | -                  | -            | -            | -              | 2            |
| USMA, West Point, NY      | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| <b>CENTRAL RMC</b>        |                |              |              |                |              |              |                    |              |              |                |              |
| Fitzsimons AMC            | -              | -            | -            | -              | 1            | -            | -                  | -            | -            | -              | -            |
| <b>GREAT PLAINS RMC</b>   |                |              |              |                |              |              |                    |              |              |                |              |
| Brooke AMC                | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | 1            |
| FT Carson, CO             | 1              | -            | 2            | 1              | -            | -            | 1                  | -            | 1            | -              | -            |
| FT Hood, TX               | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Leavenworth, KS        | -              | -            | -            | 1              | -            | -            | 1                  | 1            | -            | -              | 1            |
| FT Leonard Wood, MO       | -              | -            | 4            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Polk, LA               | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Riley, KS              | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Sill, OK               | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| Panama                    | 1              | 2            | 21           | 3              | 1            | 8            | 2                  | 6            | 20           | -              | 2            |
| <b>SOUTHEAST RMC</b>      |                |              |              |                |              |              |                    |              |              |                |              |
| Eisenhower AMC            | 1              | -            | -            | -              | -            | 1            | -                  | -            | -            | -              | 1            |
| FT Benning, GA            | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Campbell, KY           | 1              | -            | -            | -              | 1            | 2            | 4                  | 4            | 2            | -              | 1            |
| FT Jackson, SC            | -              | -            | 1            | -              | -            | -            | -                  | -            | -            | 1              | 1            |
| FT McClellan, AL          | -              | -            | -            | -              | 1            | -            | -                  | -            | -            | -              | -            |
| FT Rucker, AL             | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Stewart, GA            | 1              | -            | 1            | -              | -            | -            | -                  | -            | -            | -              | -            |
| <b>SOUTHWEST RMC</b>      |                |              |              |                |              |              |                    |              |              |                |              |
| Wm Beaumont AMC           | 1              | 1            | 4            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Huachuca, AZ           | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Irwin, CA              | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| <b>NORTHWEST RMC</b>      |                |              |              |                |              |              |                    |              |              |                |              |
| Madiqan AMC               | -              | -            | -            | -              | -            | -            | -                  | -            | -            | -              | -            |
| FT Wainwright, AK         | -              | -            | -            | -              | -            | -            | 1                  | -            | -            | -              | -            |
| <b>PACIFIC RMC</b>        |                |              |              |                |              |              |                    |              |              |                |              |
| Tripler AMC               | 1              | -            | 3            | 2              | -            | -            | 8                  | 7            | 7            | -              | 2            |
| <b>OTHER LOCATIONS</b>    |                |              |              |                |              |              |                    |              |              |                |              |
| Europe                    | 13             | 11           | 16           | -              | -            | -            | 4                  | 7            | 3            | 4              | 4            |
| Korea                     | -              | 1            | -            | -              | -            | -            | -                  | -            | -            | 3              | 2            |
| <b>Total</b>              | <b>31</b>      | <b>35</b>    | <b>94</b>    | <b>24</b>      | <b>23</b>    | <b>56</b>    | <b>33</b>          | <b>40</b>    | <b>41</b>    | <b>8</b>       | <b>21</b>    |

\* Based on date of onset.

\*\* Reports are included from main and satellite clinics. Not all sites reporting.

Date of Report: 7-Dec-96

**TABLE II. Cases of notifiable sexually transmitted diseases, United States Army  
November, 1996**

| Reporting<br>MTF/Post*    | Chlamydia     |              | Urethritis<br>non-spec. |              | Gonorrhea     |              | Herpes<br>Simplex |              | Syphilis<br>Prim/Sec |              | Syphilis<br>Latent |              | Other<br>STDs** |              |
|---------------------------|---------------|--------------|-------------------------|--------------|---------------|--------------|-------------------|--------------|----------------------|--------------|--------------------|--------------|-----------------|--------------|
|                           | Cur.<br>Month | Cum.<br>1996 | Cur.<br>Month           | Cum.<br>1996 | Cur.<br>Month | Cum.<br>1996 | Cur.<br>Month     | Cum.<br>1996 | Cur.<br>Month        | Cum.<br>1996 | Cur.<br>Month      | Cum.<br>1996 | Cur.<br>Month   | Cum.<br>1996 |
| <b>NORTH ATLANTIC RMC</b> |               |              |                         |              |               |              |                   |              |                      |              |                    |              |                 |              |
| Walter Reed AMC           | -             | 73           | -                       | 31           | -             | 37           | -                 | 47           | -                    | 2            | -                  | 1            | -               | 2            |
| Aberdeen Prov. Ground     | 3             | 18           | -                       | 17           | -             | 14           | -                 | 3            | -                    | -            | -                  | -            | -               | -            |
| FT Belvoir, VA            | 2             | 51           | -                       | 1            | -             | 14           | -                 | 2            | -                    | -            | -                  | -            | -               | -            |
| FT Bragg, NC              | -             | -            | -                       | -            | -             | -            | -                 | -            | -                    | -            | -                  | -            | -               | -            |
| FT Drum, NY               | 3             | 64           | 1                       | 20           | 4             | 62           | -                 | 15           | -                    | -            | -                  | -            | -               | 1            |
| FT Eustis, VA             | -             | 70           | -                       | -            | -             | 22           | -                 | -            | -                    | -            | -                  | -            | -               | -            |
| FT Knox, KY               | -             | 117          | -                       | -            | -             | 57           | -                 | 53           | -                    | -            | -                  | 3            | -               | -            |
| FT Lee, VA                | 8             | 84           | -                       | 1            | 1             | 39           | -                 | 2            | -                    | -            | -                  | -            | -               | -            |
| FT Meade, MD              | 1             | 36           | 5                       | 32           | 1             | 6            | 1                 | 22           | -                    | 1            | -                  | -            | -               | -            |
| USMA, West Point, NY      | -             | -            | -                       | -            | -             | -            | -                 | -            | -                    | -            | -                  | -            | -               | -            |
| <b>CENTRAL RMC</b>        |               |              |                         |              |               |              |                   |              |                      |              |                    |              |                 |              |
| Fitzsimons AMC            | -             | 1            | -                       | -            | -             | -            | -                 | -            | -                    | -            | -                  | 1            | -               | -            |
| <b>GREAT PLAINS RMC</b>   |               |              |                         |              |               |              |                   |              |                      |              |                    |              |                 |              |
| Brooke AMC                | -             | 9            | -                       | -            | -             | 1            | -                 | -            | -                    | -            | -                  | -            | -               | -            |
| FT Carson, CO             | -             | 249          | -                       | 254          | -             | 85           | -                 | 29           | -                    | 1            | -                  | 1            | -               | -            |
| FT Hood, TX               | -             | 231          | -                       | 81           | -             | 75           | -                 | 30           | -                    | 2            | -                  | -            | -               | 2            |
| FT Leavenworth, KS        | 1             | 17           | -                       | -            | -             | 7            | -                 | 3            | -                    | -            | -                  | -            | -               | -            |
| FT Leonard Wood, MO       | 8             | 82           | -                       | 36           | -             | 23           | -                 | 2            | -                    | -            | -                  | -            | -               | -            |
| FT Polk, LA               | -             | 23           | -                       | -            | -             | 12           | -                 | 2            | -                    | -            | -                  | -            | -               | -            |
| FT Riley, KS              | -             | 109          | -                       | -            | -             | 28           | -                 | 2            | -                    | -            | -                  | -            | -               | 1            |
| FT Sill, OK               | -             | 106          | -                       | 33           | -             | 58           | -                 | 15           | -                    | -            | -                  | -            | -               | 7            |
| Panama                    | -             | 89           | -                       | -            | -             | 5            | -                 | 9            | -                    | -            | -                  | -            | -               | 11           |
| <b>SOUTHEAST RMC</b>      |               |              |                         |              |               |              |                   |              |                      |              |                    |              |                 |              |
| Eisenhower AMC            | -             | 132          | -                       | 1            | -             | 47           | -                 | 68           | -                    | 2            | -                  | -            | -               | 1            |
| FT Benning, GA            | -             | -            | -                       | -            | -             | -            | -                 | -            | -                    | -            | -                  | -            | -               | -            |
| FT Campbell, KY           | 37            | 400          | -                       | -            | 10            | 139          | -                 | 25           | -                    | 3            | -                  | -            | -               | 2            |
| FT Jackson, SC            | -             | 278          | -                       | -            | -             | 15           | -                 | 11           | -                    | -            | -                  | -            | -               | 3            |
| FT McClellan, AL          | -             | 19           | -                       | -            | -             | 15           | -                 | -            | -                    | 1            | -                  | -            | -               | -            |
| FT Rucker, AL             | -             | -            | -                       | -            | -             | -            | -                 | -            | -                    | -            | -                  | -            | -               | -            |
| FT Stewart, GA            | -             | 14           | -                       | 24           | -             | 11           | -                 | 7            | -                    | 1            | -                  | -            | -               | 2            |
| <b>SOUTHWEST RMC</b>      |               |              |                         |              |               |              |                   |              |                      |              |                    |              |                 |              |
| Wm Beaumont AMC           | -             | 180          | -                       | -            | -             | 20           | -                 | 62           | -                    | -            | -                  | 2            | -               | -            |
| FT Huachuca, AZ           | -             | -            | -                       | -            | -             | -            | -                 | -            | -                    | -            | -                  | -            | -               | -            |
| FT Irwin, CA              | 1             | 22           | -                       | -            | -             | 11           | -                 | 2            | -                    | -            | -                  | 1            | -               | -            |
| <b>NORTHWEST RMC</b>      |               |              |                         |              |               |              |                   |              |                      |              |                    |              |                 |              |
| Madiqan AMC               | -             | -            | -                       | -            | -             | -            | -                 | -            | -                    | -            | -                  | -            | -               | -            |
| FT Wainwright, AK         | -             | 23           | -                       | -            | -             | 2            | -                 | 3            | -                    | -            | -                  | -            | -               | -            |
| <b>PACIFIC RMC</b>        |               |              |                         |              |               |              |                   |              |                      |              |                    |              |                 |              |
| Tripler AMC               | 13            | 180          | -                       | -            | 7             | 42           | 5                 | 73           | -                    | -            | -                  | 2            | -               | -            |
| <b>OTHER LOCATIONS</b>    |               |              |                         |              |               |              |                   |              |                      |              |                    |              |                 |              |
| Europe                    | -             | 125          | -                       | 6            | -             | 49           | -                 | 11           | -                    | -            | -                  | -            | -               | 2            |
| Korea                     | -             | 13           | -                       | -            | -             | 6            | -                 | 5            | -                    | -            | -                  | -            | -               | 3            |
| <b>Total</b>              | <b>77</b>     | <b>2815</b>  | <b>6</b>                | <b>537</b>   | <b>23</b>     | <b>902</b>   | <b>6</b>          | <b>503</b>   | <b>0</b>             | <b>13</b>    | <b>0</b>           | <b>11</b>    | <b>0</b>        | <b>37</b>    |

\* Reports are included from main and satellite clinics. Not all sites reporting.

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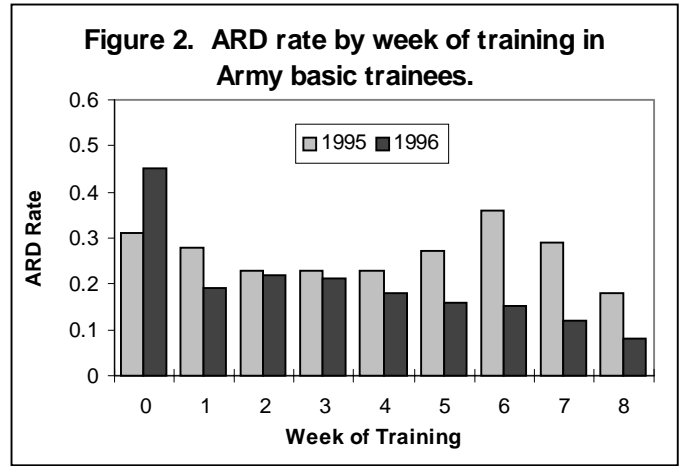
\*\* Other STDs: (a) Chancroid (b) Granuloma Inguinale (c) Lymphogranuloma Venereum (d) Syphilis unspec. (e) Syph, tertiary (f) Syph, congenital

## Acute Respiratory Disease (ARD) Surveillance Among Army Basic Trainees, 1995 - 1996

*Background:* For more than thirty years<sup>1</sup>, the Army has conducted surveillance of febrile acute respiratory diseases among initial entry (“basic”) trainees. A recent report<sup>2</sup> summarized the Army’s ARD surveillance experience during the ten year period 1985 to 1994. During that period, the overall ARD rate was 0.45 hospitalizations per 100 trainees per week. A large incremental decline in ARD rates occurred in 1984, the year the Army began year-round use of adenovirus vaccines. Rates declined slowly but persistently over the next ten years. This report updates surveillance experience for calendar years 1995 and 1996.

*ARD, general:* In 1996 (through November), there were 1,346 ARD hospitalizations among Army trainees who were in the first eight weeks of basic military training. The overall ARD rate in 1996 (0.19 per 100 trainee-weeks) was the lowest ever recorded (figure 1). The overall rate in 1996 was approximately 30% lower than that in 1995.

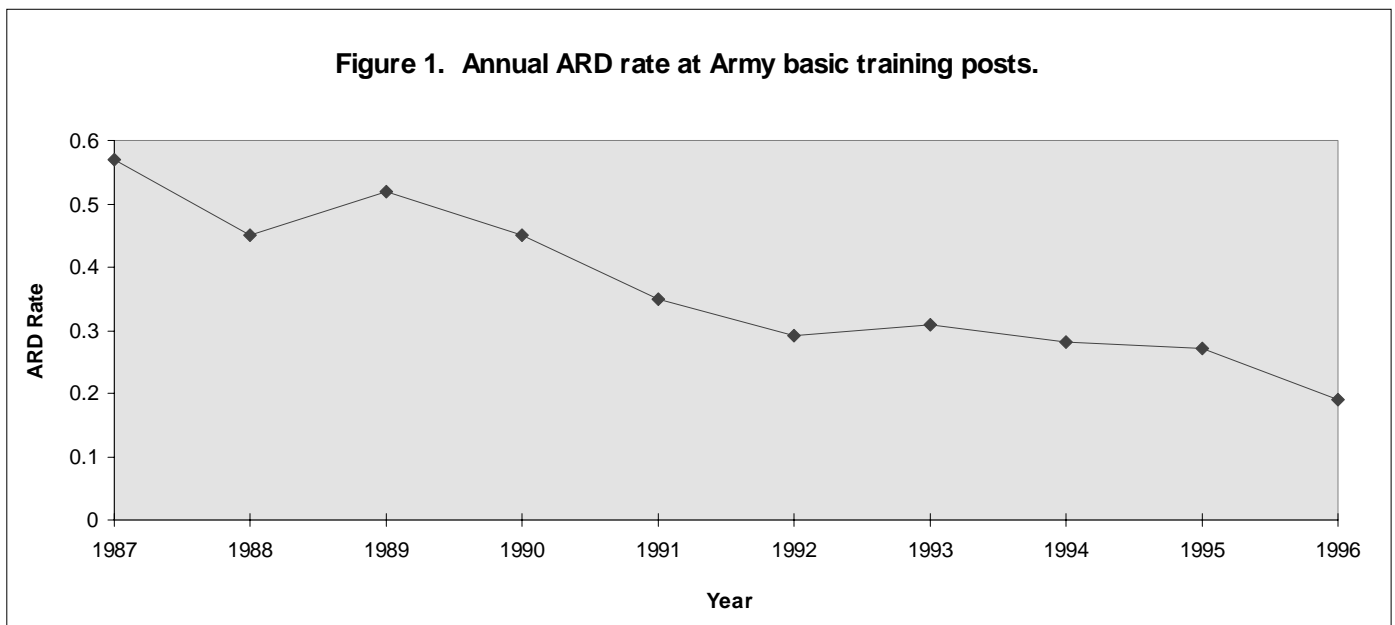
Figure 2 shows week of training-specific ARD rates for 1996 and 1995. In 1996, ARD rates were higher only for trainees in “week 0” (e.g., reception and initial processing). For all subsequent weeks of training, ARD rates in 1996 were lower than those in 1995. In 1996 in contrast to 1995, ARD



rates gradually but persistently declined as training progressed. These data suggest that trainees were more likely in 1996 than in 1995 to arrive at basic training with an incubating or symptomatic febrile respiratory illness, but in 1996, there was not significant propagation of virulent respiratory agents throughout the training cycle.

*ARD, by training center:* In 1996, ARD rates at all training centers were lower than the overall rate of the previous decade. During the year, there were no widespread outbreaks of febrile ARD at Army training centers. Each of the Army’s six

*Continued on page 10*



## Project Gargle: U S Air Force Influenza Surveillance Program Summary 1995-1996

### Introduction

The USAF has participated in global influenza surveillance since 1976 in a program called Project Gargle. The program uses sentinel bases to test throat cultures of potentially infected individuals. This detects antigenic drifts of influenza viruses and helps to predict which viral strains will appear during the next "flu" season. The Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention (CDC) uses this information to make recommendations for the subsequent year influenza vaccine formulation. It must be emphasized that Project Gargle is a sentinel program and therefore does not provide influenza infection rates.

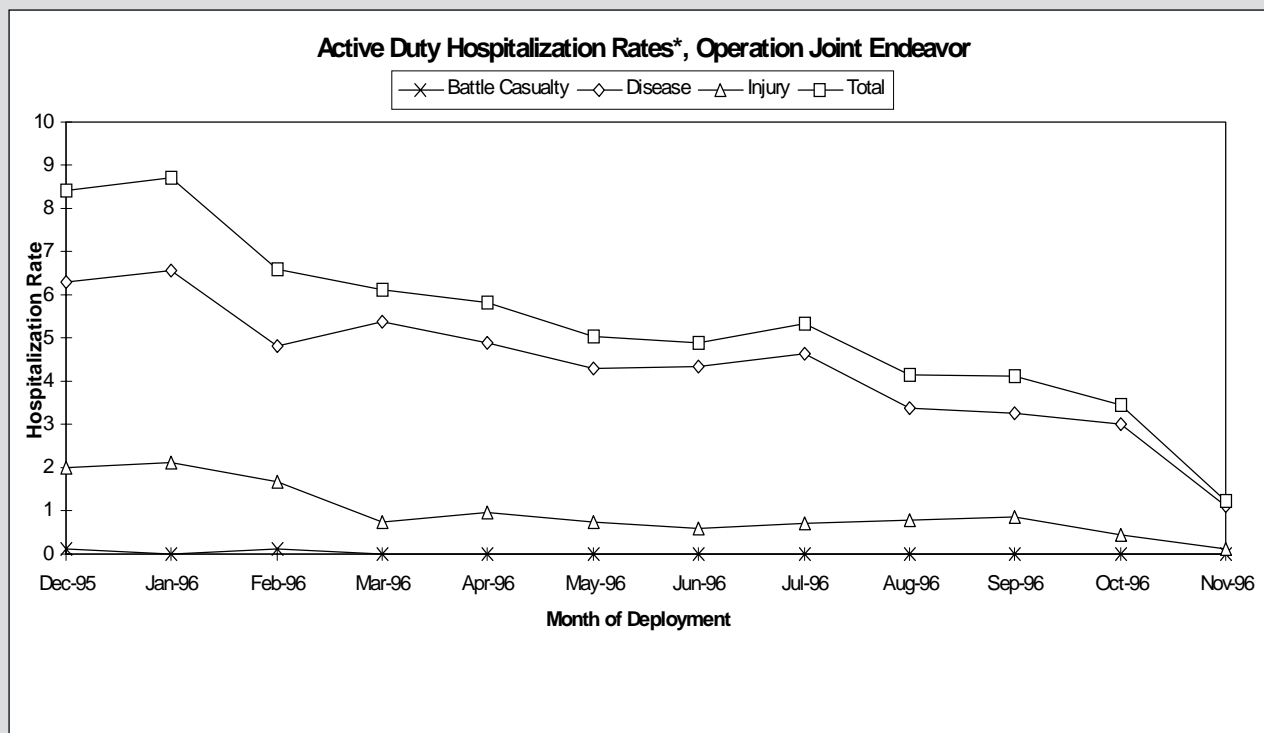
### Methods

Fourteen sentinel bases (Andersen AB, Guam; Elmendorf AFB AK; Incirlik AB, Turkey; Kadena AB, Japan; Keesler AFB MS; Lackland AFB TX; Lakenheath AB, United Kingdom; McGuire AFB NJ; Osan AB, Korea; Ramstein AB, Germany; Sheppard AFB TX; Travis AFB CA; USAF Academy CO; and Yokota AB, Japan) submit throat cultures. These installations are asked to submit at least six weekly throat swab samples for viral isolation and identification throughout the year.

Throat swabs are obtained from patients who meet the case definition for influenza-like illness (temperature at or above 100°F and sore throat or cough). Special viral transport media are provided

*Continued on page 11*

### Surveillance Trends, Bosnia\*\*



\*\* Note: Due to the length of the deployment, monthly rates will now be graphed instead of weekly rates.



*Bosnia Update***TABLE III. Active Duty Hospitalization Rates\*, Operation Joint Endeavor, 11Dec95 - 7Dec96**

| ICD-9 Category   | Males       |             |             |             |             |             |             | Females      |              |             |             |             |             |             | All         |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
|  | < 20        | 20-24       | 25-29       | 30-34       | 35-39       | >= 40       | Total M     | < 20         | 20-24        | 25-29       | 30-34       | 35-39       | >= 40       | Total F     |             |
| Infectious and Parasitic Diseases                                    | 16.4        | 4.4         | 3.2         | 3.6         | 2.1         | 1.0         | 3.5         | 10.9         | 4.0          | 5.8         | 8.8         | 0.0         | 0.0         | 4.5         | 3.6         |
| Neoplasms  | 2.1         | 0.3         | 0.4         | 0.4         | 0.7         | 1.0         | 0.5         | 10.9         | 2.0          | 0.0         | 0.0         | 2.4         | 0.0         | 1.2         | 0.6         |
| Endocrine, Nutritional, and Metabolic Disease and Immunity Disorders | 2.1         | 0.3         | 0.7         | 0.4         | 0.3         | 1.4         | 0.6         | 0.0          | 1.0          | 0.0         | 7.0         | 0.0         | 0.0         | 1.5         | 0.7         |
| Diseases of the Blood and Blood-Forming Organs                       | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 0.0          | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         |
| Mental Disorders   | 6.2         | 3.6         | 2.4         | 1.3         | 1.0         | 1.7         | 2.4         | 0.0          | 5.0          | 7.0         | 0.0         | 4.8         | 2.6         | 4.2         | 2.6         |
| Diseases of the Nervous System and Sense Organs                      | 8.2         | 2.7         | 3.0         | 1.1         | 3.5         | 1.0         | 2.5         | 0.0          | 3.0          | 7.0         | 7.0         | 4.8         | 0.0         | 4.5         | 2.7         |
| Diseases of the Circulatory System                                   | 0.0         | 1.3         | 2.0         | 4.0         | 4.9         | 3.1         | 2.6         | 0.0          | 0.0          | 1.2         | 0.0         | 4.8         | 2.6         | 1.2         | 2.4         |
| Diseases of the Respiratory System                                   | 0.0         | 3.9         | 2.9         | 3.4         | 2.1         | 2.4         | 3.1         | 0.0          | 11.0         | 4.6         | 3.5         | 4.8         | 2.6         | 6.0         | 3.4         |
| Diseases of the Digestive System                                     | 14.4        | 10.4        | 7.5         | 6.5         | 4.2         | 4.1         | 7.5         | 43.5         | 11.0         | 9.3         | 3.5         | 9.6         | 2.6         | 9.0         | 7.7         |
| Diseases of the Genitourinary System                                 | 4.1         | 2.7         | 4.2         | 4.5         | 2.8         | 3.7         | 3.6         | 0.0          | 31.1         | 16.2        | 5.3         | 7.2         | 7.8         | 16.3        | 5.1         |
| Complications of Pregnancy, Childbirth, and the Puerperium**         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.0          | 3.0          | 1.2         | 1.8         | 0.0         | 0.0         | 1.5         | 0.2         |
| Diseases of the Skin and Subcutaneous Tissue                         | 6.2         | 3.1         | 1.1         | 1.8         | 1.0         | 0.7         | 1.9         | 0.0          | 1.0          | 0.0         | 3.5         | 2.4         | 0.0         | 1.2         | 1.8         |
| Diseases of Musculoskeletal System and Connective Tissue             | 6.2         | 5.5         | 6.5         | 6.3         | 3.1         | 3.4         | 5.4         | 0.0          | 5.0          | 3.5         | 0.0         | 12.0        | 7.8         | 4.8         | 5.3         |
| Congenital Abnormalities   | 2.1         | 0.4         | 0.4         | 0.2         | 0.3         | 0.0         | 0.4         | 0.0          | 0.0          | 0.0         | 0.0         | 0.0         | 0.0         | 0.0         | 0.3         |
| Symptoms, Signs, and Ill-Defined Conditions                          | 6.2         | 7.3         | 6.3         | 6.7         | 4.9         | 3.7         | 6.2         | 76.1         | 30.1         | 10.4        | 14.1        | 7.2         | 5.2         | 17.8        | 7.5         |
| Injury and Poisoning   | 12.3        | 15.0        | 10.8        | 10.1        | 7.0         | 3.4         | 10.6        | 32.6         | 23.0         | 5.8         | 5.3         | 9.6         | 0.0         | 11.4        | 10.7        |
| <b>All Hospitalizations</b>  | <b>86.3</b> | <b>60.9</b> | <b>51.4</b> | <b>50.3</b> | <b>38.0</b> | <b>30.6</b> | <b>50.7</b> | <b>174.0</b> | <b>130.2</b> | <b>71.8</b> | <b>59.8</b> | <b>69.7</b> | <b>31.2</b> | <b>85.2</b> | <b>54.7</b> |

\* Rates are calculated per 1000 soldiers per year based on cumulative person time.

\*\* Includes normal delivery

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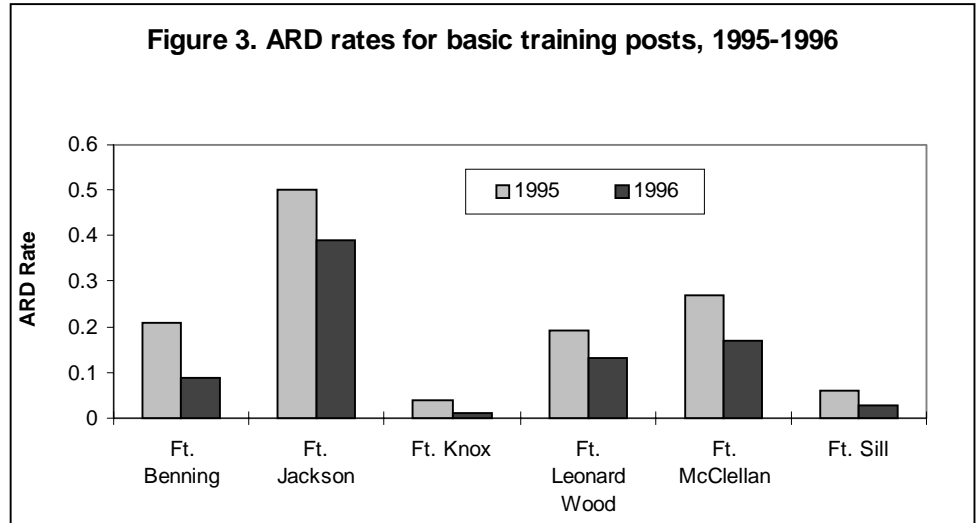
training centers had lower ARD rates in 1996 compared to 1995 (figure 3).

**ARD, by gender.** ARD rates were lower in 1996 compared to 1995 among both males and females (figure 4). However, rates were higher among females compared to males overall and at each center with trainees of both genders (data not shown).

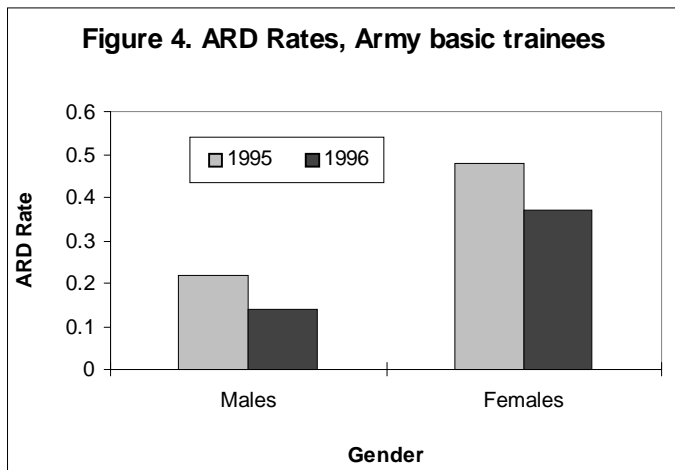
**Overall, group A beta hemolytic streptococcus:** In 1996, 86 (8.0%) of 1,071 throat cultures of basic trainees with febrile acute respiratory illnesses were positive for group A beta hemolytic streptococcus. The 1996 streptococcal recovery rate slightly exceeded that in 1995 (6.3%) but was significantly lower than rates documented during the most recent period of streptococcal disease resurgence (1985-1991)<sup>2</sup>. In 1996, there were no significant outbreaks of ARD associated with group A beta hemolytic streptococcus. The low streptococcal recovery rates in recent years undoubtedly reflect the effects of routine uses of benzathine penicillin chemoprophylaxis at selected training centers<sup>2</sup>.

**Summary:** There were unprecedented low rates of ARD at Army training centers during 1996. As a result, acute respiratory illnesses were not significant causes of morbidity or major obstacles

to the orderly and efficient conduct of initial military training. The historically low rates in 1996 represent the continuation of a long, persistent decline that began more than a decade ago. Year round use of influenza and adenovirus vaccines and the selective use of benzathine penicillin chemoprophylaxis<sup>3</sup> undoubtedly contributed significantly to the recent successes of Army ARD control efforts.



The Army's ARD surveillance system which has operated continuously for more than 30 years<sup>1</sup> will continue its critical role in the face of the imminent disruption in the availability of adenovirus vaccines<sup>4,5</sup>. Specifically, the surveillance system will be relied on to detect emerging or resurgent respiratory disease threats across training centers and to document indications for and effects of countermeasures against specific respiratory agents.



**References**

1. Dudding BA, Top FH, Winter PE, Buescher EL, Lamson TH, Leibovitz A. Acute respiratory disease in military trainees: the adenovirus surveillance program, 1966-1971. *AmJ Epidemiol.* 1973;97:187-98.
2. Brundage JF, Gunzenhauser JD, Longfield JN, Rubertone MV, Ludwig SL, Rubin FA, Kaplan EL. Epidemiology and control of acute respiratory diseases with emphasis on group A beta-hemolytic streptococcus: a decade of US Army experience. *Pediatrics.* 1996;97:964-70.
3. Gunzenhauser JD, Brundage JF, McNeil JG, Miller RN. Broad and persistent effects of benzathine penicillin G in the prevention of febrile, acute respiratory disease. *J Inf Dis.* 1992;166:365-73.

*Continued from page 8*

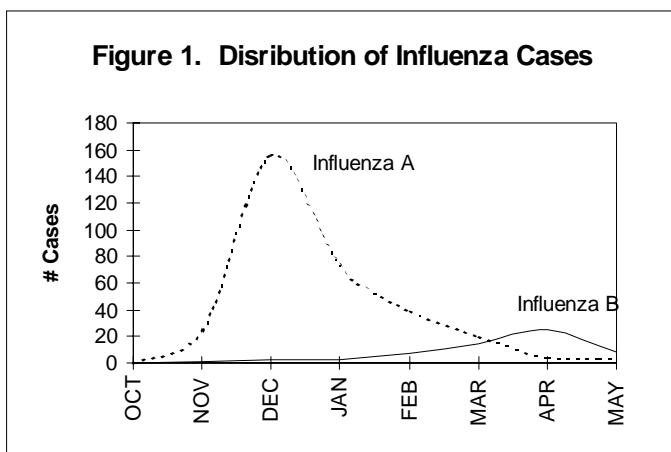
by the Laboratory Services Branch (AL/AOEL) of the Epidemiologic Research Division. Providers are encouraged to obtain the throat samples as soon as possible during the illness since the number of viral particles in the throat decreases rapidly as the illness progresses. Early sampling increases the likelihood of detection by the laboratory. All military health care beneficiaries from all bases are considered eligible participants provided they meet the case definition.

### Laboratory Findings

AL/AOEL received 1,646 specimens from the 14 sentinel bases and 11 nonsentinel bases this past year.

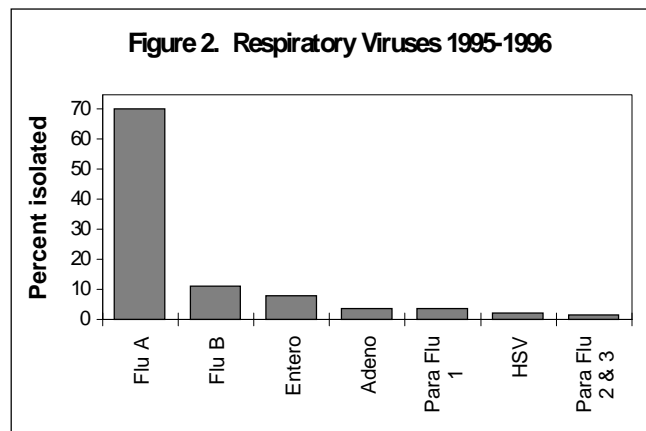
Influenza A was isolated at every sentinel base except Keesler and influenza B at all sentinel bases except Incirlik and Kadena. The peak for influenza A was late November through early December, and April for influenza B (figure 1).

Twenty-two percent of the submissions were positive for influenza A. Selected isolates were sent to the CDC for subtyping. CDC characterized 44% as A/Texas/36/91-like(H1N1), which is closely



related antigenically to the H1 component of the 1995-96 vaccine. The remaining 56% of the influenza A isolates were found to be H3N2. Early in the season these were predominantly subtyped as A/Johannesburg/33/94-like(H3N2), which is also very similar to the current vaccine component. Two

isolates submitted in November from Andersen AFB were identified as A/Wuhan/359/95-like(H3N2). This same strain had appeared earlier in China.



Since USAF isolates documented the eastward spread of Wuhan strain, the World Health Organization decided to make it the H3N2 component of the 1996-97 vaccine. Further evidence was obtained by subtyping. Of 62 additional specimens subtyped as H3N2, 45% were the A/Wuhan strain. Most of these were submitted late in the "flu" season from Osan, Yokota, and Ramstein.

Influenza B was isolated from 3.4% of the submitted specimens. This virus peaked in April as the influenza A isolations were returning to baseline levels. CDC reports that the great majority of the B isolates this season, including those sent by USAF were characterized as B/Beijing/184/93-like. This will remain the B component of the vaccine for the next year.

### Summary

Of 1,634 specimens submitted, 512 were positive for respiratory virus. Seventy percent (358) were type A influenza and 11% (56) were type B influenza (figure 2). The remaining isolates were either enterovirus, parainfluenza virus (1, 2, or 3), adenovirus or herpes simplex virus (HSV).

The ages of all positive influenza cases ranged from 1 to 66 years with a mean of 21 and mode of 6 years. Active duty personnel represented

47.6% of all positive cases; 76% of these were type A influenza and 24% type B.

**Table 1. Immunization rates of all positive Influenza cases by age**

| Age Group | # Immunized | % Immunized |
|-----------|-------------|-------------|
| 0 - 9     | 0           | 0           |
| 10-19     | 11          | 23.4        |
| 20-29     | 42          | 53.1        |
| 30-39     | 26          | 38.8        |
| 40-49     | 3           | 25          |
| 50-59     | 2           | 33          |
| 60+       | 0           | 0           |

Questionnaires were sent to the base public health offices to gather further information about the 414 confirmed positive influenza cases. Of the 336 questionnaires returned to AL/AOES, 237 reported immunization status; 36% (84) of positive cases were immunized (table1). Of those with type

A influenza 33% were immunized and of the type B influenza 56.6% were immunized. However, there is no way to determine whether the individuals were vaccinated with the current year vaccine.

#### *Comments*

The effectiveness of influenza vaccines varies from year to year depending on such factors as homology between vaccine and circulating strain antigens, age, and health status of populations. Air Force personnel are assigned around the world. Characterization of strains that infect them, particularly in the Far East where new strains tend to originate, provides unique information on which to base decisions regarding vaccine components.

*Information submitted by the Epidemiology Services Branch, Armstrong Laboratory, Brooks AFB.*

### **Vaccine Information for the 1996-97 Influenza Season:**

The FDA Vaccines and Related Biological Products Advisory Committee has recommended that the 1996-97 trivalent influenza vaccine for the United States contain A/Texas/36/91-like (H1N1), A/Wuhan/359/95-like (H3N2), and B/Beijing/184/93-like hemagglutinin antigens. For both A/Wuhan/359/95-like and B/Beijing/184/93-like antigens, US manufacturers will use the antigenically equivalent strains A/Nanchang/933/95 (H3N2) and B/Harbin/07/94 because of their growth properties. A more detailed discussion of the 1996-97 influenza vaccine strain selection is available in the *Morbidity and Mortality Weekly Report (MMWR)* published April 26, 1996 (Vol. 45/No. 16), <ftp://ftp.cdc.gov/pub/Publications/mmwr/wk/mm4516.pdf>.

### **Sources of information on Influenza Control Programs:**

The full text of the Advisory Committee on Immunization Practices (ACIP) Recommendations for the Prevention and Control of Influenza is published in the *Morbidity and Mortality Weekly Report (MMWR), Recommendations and Reports*, May 3, 1996 (Vol. 45/No. RR-5). To receive a hard copy of this report, call 404-332-4551. At the prompt that asks if you want a current copy of the ACIP recommendations, please leave your name and address, and the document will be mailed to you. You can also receive the report on the worldwide net at <ftp://ftp.cdc.gov/pub/Publications/mmwr/rr/rr4505.pdf>.

ARD Surveillance Update

| <i>Legend</i> |   |
|---------------|---|
| —             | ARD Rate = (ARD cases / Trainees) * 100 |
| ■ ■ ■         | SASI* = ARD Rate * Strep Rate**         |

Ft Benning

Ft Jackson

Ft Knox

Ft Leonard  
Wood

Ft McClellan

Ft Sill

**Table IV. ARD surveillance rates, submitted by Army TRADOC posts**

\* Strep/ARD Surveillance Index (SASI)

\*\*Strep Rate= (GABHS(+)/ Cultures) \* 100

Note: SASI has proven to be a reliable predictor of serious strep-related morbidity, especially acute rheumatic fever.

**TABLE IV. Reported heat and cold weather injuries, United States Army, \***  
**June, 1996 - November, 1996**

| Reporting<br>MTF/Post**   | Heat Injuries      |          |                |          | Cold Weather Injuries |          |             |          |           |          |             |          |          |
|---------------------------|--------------------|----------|----------------|----------|-----------------------|----------|-------------|----------|-----------|----------|-------------|----------|----------|
|                           | Heat<br>Exhaustion |          | Heat<br>Stroke |          | Frostbite             |          | Hypothermia |          | Immersion |          | Unspecified |          |          |
|                           | M                  | F        | M              | F        | M                     | F        | M           | F        | M         | F        | M           | F        |          |
| <b>NORTH ATLANTIC RMC</b> |                    |          |                |          |                       |          |             |          |           |          |             |          |          |
| Walter Reed AMC           | -                  | -        | 1              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| Aberdeen Prov. Ground     | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Belvoir, VA            | 2                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Bragg, NC              | 4                  | 1        | 8              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Drum, NY               | 6                  | -        | -              | -        | 2                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Eustis, VA             | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Knox, KY               | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Lee, VA                | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Meade, MD              | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| USMA, West Point, NY      | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| <b>CENTRAL RMC</b>        |                    |          |                |          |                       |          |             |          |           |          |             |          |          |
| Fitzsimons AMC            | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| <b>GREAT PLAINS RMC</b>   |                    |          |                |          |                       |          |             |          |           |          |             |          |          |
| Brooke AMC                | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Carson, CO             | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Hood, TX               | 1                  | -        | 1              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Leavenworth, KS        | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Leonard Wood, MO       | -                  | -        | 1              | -        | -                     | -        | -           | -        | 1         | -        | -           | -        | -        |
| FT Polk, LA               | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Riley, KS              | 1                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Sill, OK               | 4                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| Panama                    | 1                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| <b>SOUTHEAST RMC</b>      |                    |          |                |          |                       |          |             |          |           |          |             |          |          |
| Eisenhower AMC            | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Benning, GA            | 2                  | -        | 2              | -        | 1                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Campbell, KY           | 4                  | -        | 1              | -        | -                     | -        | -           | -        | -         | -        | 4           | -        | -        |
| FT Jackson, SC            | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT McClellan, AL          | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Rucker, AL             | 3                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Stewart, GA            | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| <b>SOUTHWEST RMC</b>      |                    |          |                |          |                       |          |             |          |           |          |             |          |          |
| Wm Beaumont AMC           | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Huachuca, AZ           | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Irwin, CA              | 6                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| <b>NORTHWEST RMC</b>      |                    |          |                |          |                       |          |             |          |           |          |             |          |          |
| Madigan AMC               | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| FT Wainwright, AK         | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| <b>PACIFIC RMC</b>        |                    |          |                |          |                       |          |             |          |           |          |             |          |          |
| Tripler AMC               | -                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| <b>OTHER LOCATIONS</b>    |                    |          |                |          |                       |          |             |          |           |          |             |          |          |
| Europe                    | 1                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| Korea                     | 1                  | -        | -              | -        | -                     | -        | -           | -        | -         | -        | -           | -        | -        |
| <b>Total</b>              | <b>36</b>          | <b>1</b> | <b>14</b>      | <b>0</b> | <b>3</b>              | <b>0</b> | <b>0</b>    | <b>0</b> | <b>1</b>  | <b>0</b> | <b>4</b>    | <b>0</b> | <b>0</b> |

\* Army active duty cases only.

\*\* Reports are included from parent and daughter clinics. Not all sites reporting.

Date of Report: 7-Dec-96

TABLE V. Active Duty Force Strength by MTF, United States Army, June, 1996\*

| MTF/Post**                | Males        |               |              |              |              |              |                    | Females     |              |              |              |             |             |                   | All                |
|---------------------------|--------------|---------------|--------------|--------------|--------------|--------------|--------------------|-------------|--------------|--------------|--------------|-------------|-------------|-------------------|--------------------|
|                           | < 20         | 20-24         | 25-29        | 30-34        | 35-39        | >= 40        | Total M            | < 20        | 20-24        | 25-29        | 30-34        | 35-39       | >= 40       | Total F           |                    |
| <b>NORTH ATLANTIC RMC</b> |              |               |              |              |              |              |                    |             |              |              |              |             |             |                   |                    |
| Walter Reed AMC           | 165          | 1414          | 1454         | 1678         | 1986         | 3360         | 10057              | 26          | 413          | 546          | 516          | 498         | 533         | 2532              | 12589              |
| Aberdeen Prov. Ground     | 335          | 767           | 411          | 478          | 454          | 349          | 2794               | 82          | 183          | 117          | 62           | 56          | 32          | 532               | 3326               |
| FT Belvoir, VA            | 27           | 358           | 396          | 375          | 361          | 384          | 1901               | 15          | 110          | 115          | 110          | 87          | 68          | 505               | 2406               |
| FT Bragg, NC              | 1890         | 13067         | 9379         | 6669         | 4501         | 2544         | 38050              | 215         | 1617         | 1256         | 694          | 450         | 224         | 4456              | 42506              |
| FT Drum, NY               | 578          | 3804          | 2177         | 1381         | 927          | 491          | 9358               | 73          | 416          | 194          | 128          | 76          | 34          | 921               | 10279              |
| FT Eustis, VA             | 300          | 1345          | 1049         | 1008         | 900          | 883          | 5485               | 127         | 410          | 316          | 189          | 139         | 93          | 1274              | 6759               |
| FT Knox, KY               | 703          | 2222          | 1455         | 1461         | 1310         | 830          | 7981               | 29          | 169          | 176          | 139          | 113         | 81          | 707               | 8688               |
| FT Lee, VA                | 350          | 921           | 678          | 620          | 531          | 389          | 3489               | 298         | 572          | 295          | 206          | 133         | 69          | 1573              | 5062               |
| FT Meade, MD              | 69           | 811           | 1136         | 1028         | 898          | 1099         | 5041               | 25          | 316          | 327          | 257          | 215         | 159         | 1299              | 6340               |
| USMA, West Point, NY      | 26           | 294           | 327          | 708          | 645          | 627          | 2627               | 5           | 75           | 72           | 110          | 104         | 70          | 436               | 3063               |
| <b>CENTRAL RMC</b>        |              |               |              |              |              |              |                    |             |              |              |              |             |             |                   |                    |
| Fitzsimons AMC            | 27           | 105           | 176          | 151          | 173          | 201          | 833                | 10          | 56           | 72           | 48           | 49          | 52          | 287               | 1120               |
| <b>GREAT PLAINS RMC</b>   |              |               |              |              |              |              |                    |             |              |              |              |             |             |                   |                    |
| Brooke AMC                | 127          | 750           | 972          | 996          | 874          | 1025         | 4744               | 135         | 413          | 424          | 418          | 312         | 324         | 2026              | 6770               |
| FT Carson, CO             | 433          | 4401          | 3505         | 2410         | 1612         | 846          | 13207              | 63          | 595          | 414          | 226          | 151         | 73          | 1522              | 14729              |
| FT Hood, TX               | 2554         | 13750         | 9306         | 5986         | 4125         | 2398         | 38119              | 376         | 2189         | 1509         | 854          | 538         | 276         | 5742              | 43861              |
| FT Leavenworth, KS        | 46           | 311           | 222          | 473          | 847          | 618          | 2517               | 17          | 79           | 70           | 82           | 105         | 53          | 406               | 2923               |
| FT Leonard Wood, MO       | 1189         | 1855          | 1012         | 1040         | 860          | 518          | 6474               | 358         | 427          | 208          | 171          | 90          | 77          | 1331              | 7805               |
| FT Polk, LA               | 332          | 2406          | 1611         | 1227         | 794          | 434          | 6804               | 72          | 391          | 251          | 134          | 94          | 60          | 1002              | 7806               |
| FT Riley, KS              | 635          | 3543          | 2222         | 1429         | 1005         | 528          | 9362               | 60          | 406          | 236          | 161          | 118         | 69          | 1050              | 10412              |
| FT Sill, OK               | 1447         | 4250          | 2651         | 1858         | 1435         | 801          | 12442              | 67          | 419          | 291          | 192          | 115         | 70          | 1154              | 13596              |
| Panama                    | 73           | 952           | 975          | 819          | 680          | 532          | 4031               | 13          | 186          | 169          | 110          | 84          | 47          | 609               | 4640               |
| <b>SOUTHEAST RMC</b>      |              |               |              |              |              |              |                    |             |              |              |              |             |             |                   |                    |
| Eisenhower AMC            | 728          | 2101          | 1396         | 1240         | 1473         | 1226         | 8164               | 154         | 624          | 447          | 383          | 302         | 248         | 2158              | 10322              |
| FT Benning, GA            | 1918         | 4565          | 3089         | 1994         | 1376         | 745          | 13687              | 101         | 419          | 334          | 206          | 128         | 76          | 1264              | 14951              |
| FT Campbell, KY           | 1126         | 6972          | 5772         | 3608         | 2220         | 1123         | 20821              | 187         | 941          | 662          | 359          | 216         | 84          | 2449              | 23270              |
| FT Jackson, SC            | 1416         | 1162          | 701          | 827          | 663          | 422          | 5191               | 738         | 637          | 331          | 301          | 164         | 93          | 2264              | 7455               |
| FT McClellan, AL          | 365          | 662           | 471          | 644          | 542          | 417          | 3101               | 196         | 304          | 173          | 136          | 97          | 56          | 962               | 4063               |
| FT Rucker, AL             | 42           | 660           | 1032         | 648          | 538          | 458          | 3378               | 28          | 158          | 132          | 82           | 61          | 36          | 497               | 3875               |
| FT Stewart, GA            | 1142         | 6462          | 4397         | 2670         | 1885         | 1049         | 17605              | 167         | 889          | 650          | 326          | 214         | 98          | 2344              | 19949              |
| <b>SOUTHWEST RMC</b>      |              |               |              |              |              |              |                    |             |              |              |              |             |             |                   |                    |
| Wm Beaumont AMC           | 387          | 2177          | 1597         | 1134         | 1042         | 996          | 7333               | 114         | 542          | 326          | 215          | 128         | 165         | 1490              | 8823               |
| FT Huachuca, AZ           | 165          | 1070          | 1064         | 856          | 669          | 510          | 4334               | 87          | 349          | 226          | 168          | 138         | 79          | 1047              | 5381               |
| FT Irwin, CA              | 248          | 1341          | 908          | 764          | 530          | 323          | 4114               | 17          | 177          | 114          | 83           | 46          | 15          | 452               | 4566               |
| <b>NORTHWEST RMC</b>      |              |               |              |              |              |              |                    |             |              |              |              |             |             |                   |                    |
| Madiqan AMC               | 768          | 5581          | 4209         | 3068         | 2187         | 1412         | 17225              | 129         | 926          | 686          | 387          | 267         | 192         | 2587              | 19812              |
| FT Wainwright, AK         | 226          | 2191          | 1726         | 1086         | 629          | 337          | 6195               | 35          | 302          | 205          | 157          | 91          | 56          | 846               | 7041               |
| <b>PACIFIC RMC</b>        |              |               |              |              |              |              |                    |             |              |              |              |             |             |                   |                    |
| Tripler AMC               | 538          | 4310          | 3725         | 2367         | 1615         | 1057         | 13612              | 48          | 724          | 638          | 414          | 323         | 213         | 2360              | 15972              |
| <b>OTHER LOCATIONS</b>    |              |               |              |              |              |              |                    |             |              |              |              |             |             |                   |                    |
| Europe                    | 1323         | 12436         | 11492        | 8223         | 6249         | 4031         | 43754              | 297         | 2458         | 1985         | 1319         | 963         | 544         | 7566              | 51320              |
| Korea                     | 1599         | 8499          | 6221         | 4583         | 3692         | 2232         | 26826              | 344         | 1460         | 1091         | 729          | 538         | 264         | 4426              | 31252              |
| Unknown                   | 1090         | 8753          | 8526         | 8654         | 6240         | 4111         | 37381 <sup>§</sup> | 250         | 1320         | 1099         | 1067         | 713         | 374         | 4825 <sup>§</sup> | 42907 <sup>§</sup> |
| <b>Total</b>              | <b>24387</b> | <b>126268</b> | <b>97440</b> | <b>74161</b> | <b>56468</b> | <b>39306</b> | <b>418037</b>      | <b>4958</b> | <b>21672</b> | <b>16157</b> | <b>11139</b> | <b>7916</b> | <b>5057</b> | <b>66901</b>      | <b>485639</b>      |

\* Based on duty zip code. Does not account for TDY.

§ Includes unknown age groups and unknown gender.

\*\* Includes any subordinate catchment areas not listed separately.

Source: Defense Manpower Data Center (DMDC)

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