



Office of the Assistant Secretary  
of Defense for Health Affairs

# Deployment Health Support Directorate

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Severe Acute Pneumonitis in US  
Military Personnel During Operation  
Iraqi Freedom



# Pneumonitis in CENTCOM, 2003



- About 100 cases of pneumonia
- 19 severe cases



# Pneumonia / Pneumonitis



- Inflammatory process in the lungs
- Affects portions of lungs where oxygen enters the blood
- Causes: Infection, toxic substances, allergy, unknown
- “Pneumonitis” is more generic term



# Pneumonitis



- Individual Cases
  - Bacterial culture or Viral culture, antibodies
  - Chest x-ray
  - Antibiotic treatment for bacteria
  - Monitor lung function (oxygenation)
  - Care for complications



# Severe Acute Pneumonitis



- Bilateral (both lungs), confirmed by x-ray
- Requiring mechanical ventilation
- Not a complication of another medical condition



# Pneumonia Hospitalizations (Non-Federal) in the United States, 2000



Age Group (yrs)	Rate (per 10,000)
<i>&lt;15</i>	<b>33.3</b>
<b>15-44</b>	<b>10.5</b>
<i>45-64</i>	<b>35.8</b>
<b>65+</b>	<b>221.2</b>

Source: Hall MJ, Owings MF. 2000 National hospital discharge survey. Advance Data from Vital and Health Statistics 2002, 19 June;329:10



## Pneumonia in the Military

(Hospital Discharge Rate\* of Active Duty Personnel with Diagnosis of Pneumonia and Influenza  
[ICD-9 480-487])



<b>Service</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>Total</b>
<b>Army</b>	7.10	8.62	7.70	10.69	11.54	9.14
<b>Navy</b>	4.45	4.61	4.00	4.48	3.99	4.31
<b>Air Force</b>	4.22	4.68	6.90	4.85	5.70	5.26
<b>Marines</b>	5.31	7.18	9.46	10.13	19.02	10.23
<b>Total</b>	<i>5.41</i>	<i>6.33</i>	<i>6.72</i>	<i>7.45</i>	<i>8.90</i>	<i>6.96</i>

\*PER 10,000 PERSONS

Rates comparable  
to US 15-45 y.o

**SOURCE: SIDR, Defense Medical Epidemiology Database, DMSS**



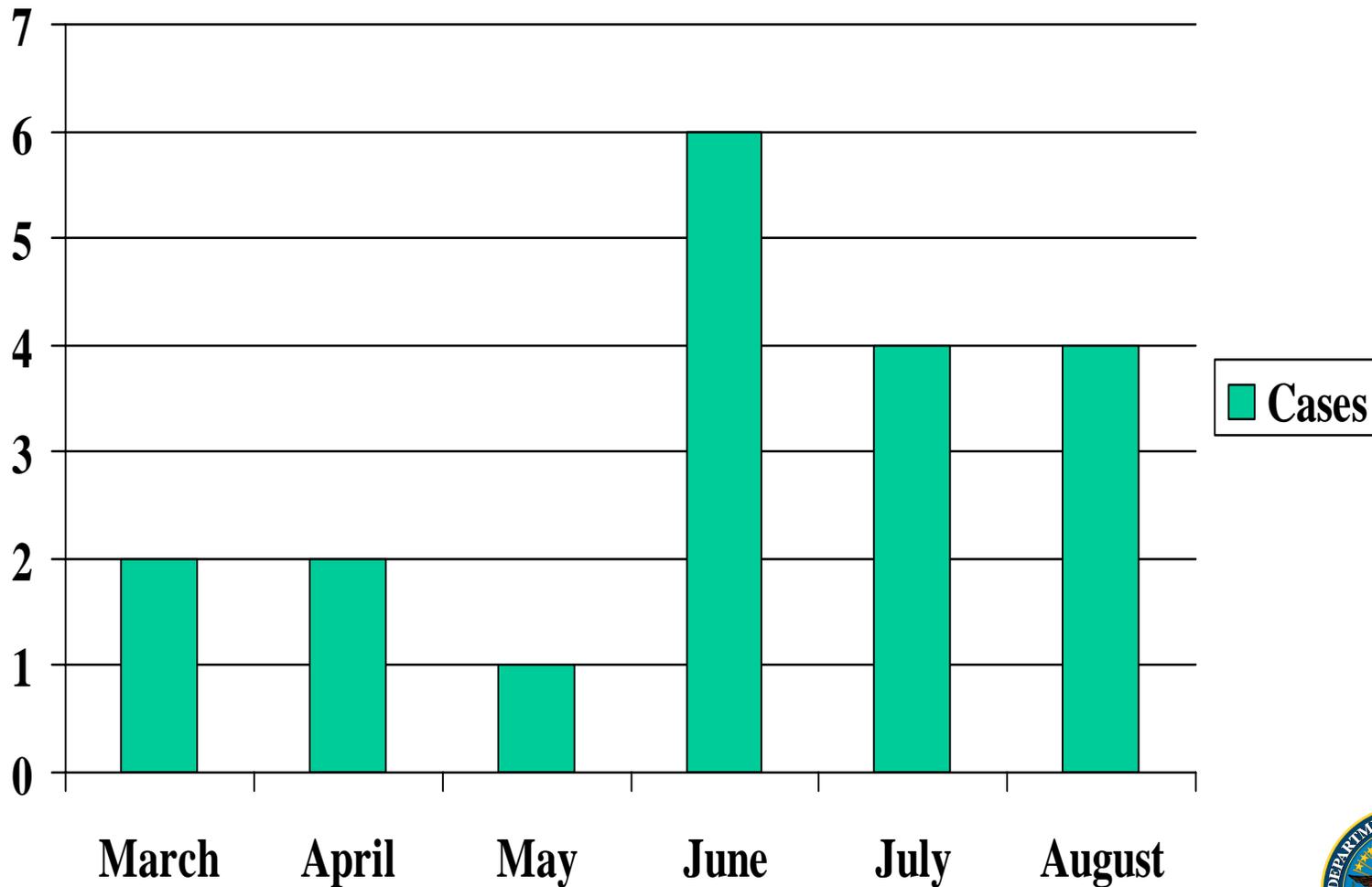
## Other Military Pneumonia Observations



- Gulf War experience: in-theater hospital admission rate (pneumonia and influenza) - **8.6** *per 10,000 persons/year*
- Military admission rate compares favorably with observed ~100 cases in SWA over 6 months (estimated at max 13/10,000).
- 5 to 8 % of all Army personnel admitted for pneumonia / influenza CY98-02 required mechanical ventilation.
- Fatalities: 17 Army deaths attributed to pneumonia over five years (CY98-02).



# Severe Acute Pneumonitis, CENTCOM, Mar-Aug 2003



# EPICON Investigations - Army



- Landstuhl - Infectious disease physician, epidemiologist
- Iraq - Infectious disease physician, epidemiologist, 2 microbiologists, 2 technicians
- Consultation: CDC, AFEB, Mayo Clinic
- Laboratory Support: CDC



# Looking for Patterns of Illness



- Investigate for patterns suggesting a common cause in order to:
  - Prevent additional cases
  - Modify treatment
- Patterns may be found in:
  - Identifiable infectious or toxic agent
  - Characteristic course of illness
  - Time, place, or person



# Findings



- Bacteria associated with 4 cases:
  - Streptococcus pneumoniae (2)
  - Coxiella burnettii (1) - antibody
  - Acinetobacter baumannii (1) - culture
- No laboratory evidence for: SARS, BW agents, hantavirus, influenza, Legionella, mycoplasma, adenovirus, etc.



# Patterns



- Geography:
  - Iraq - 13
  - Kuwait (3), Qatar, Uzbekistan, Djibouti
- Units: No clustering except 2 cases from the same unit, 4 months apart
- Smoking: 15 out of 19

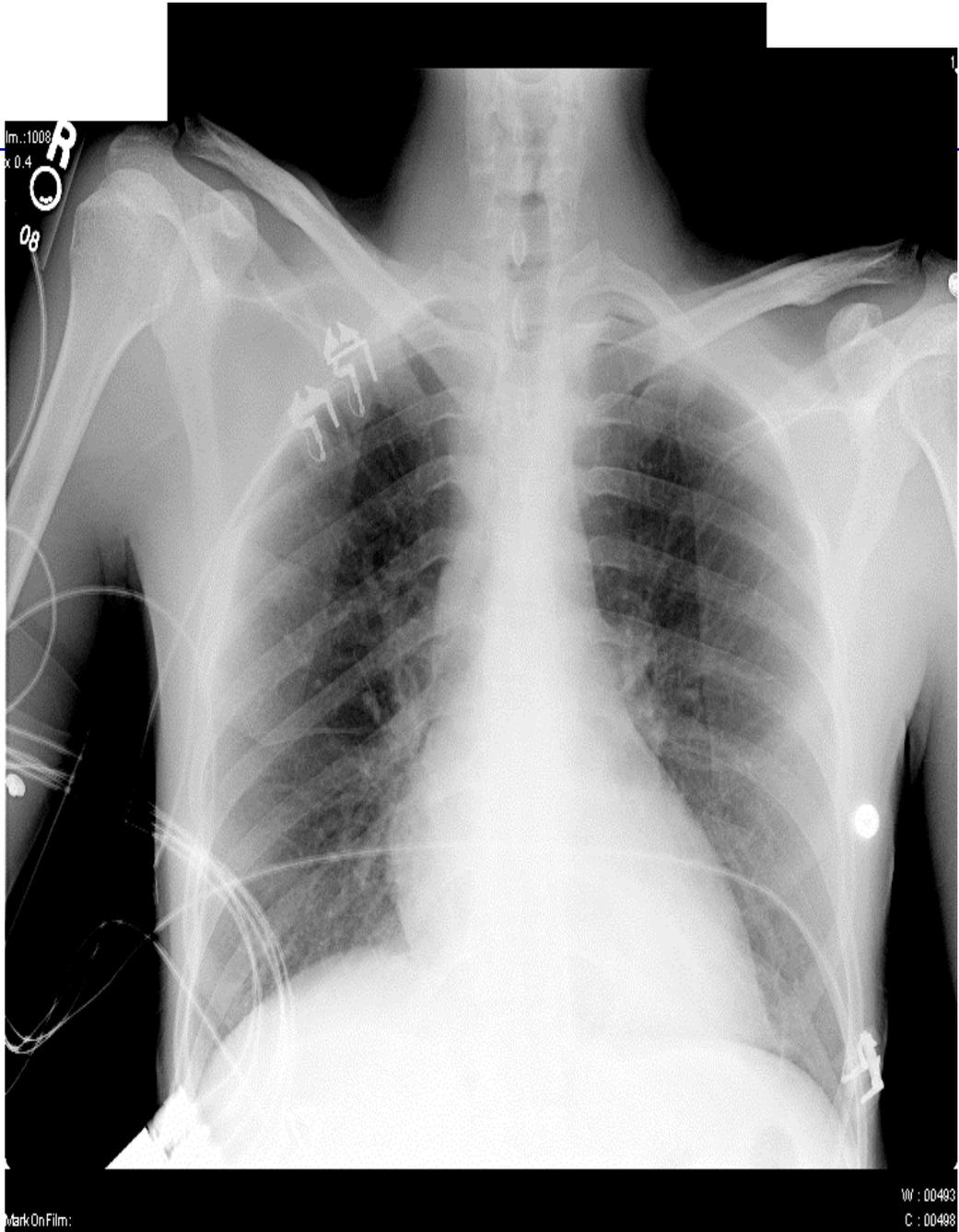


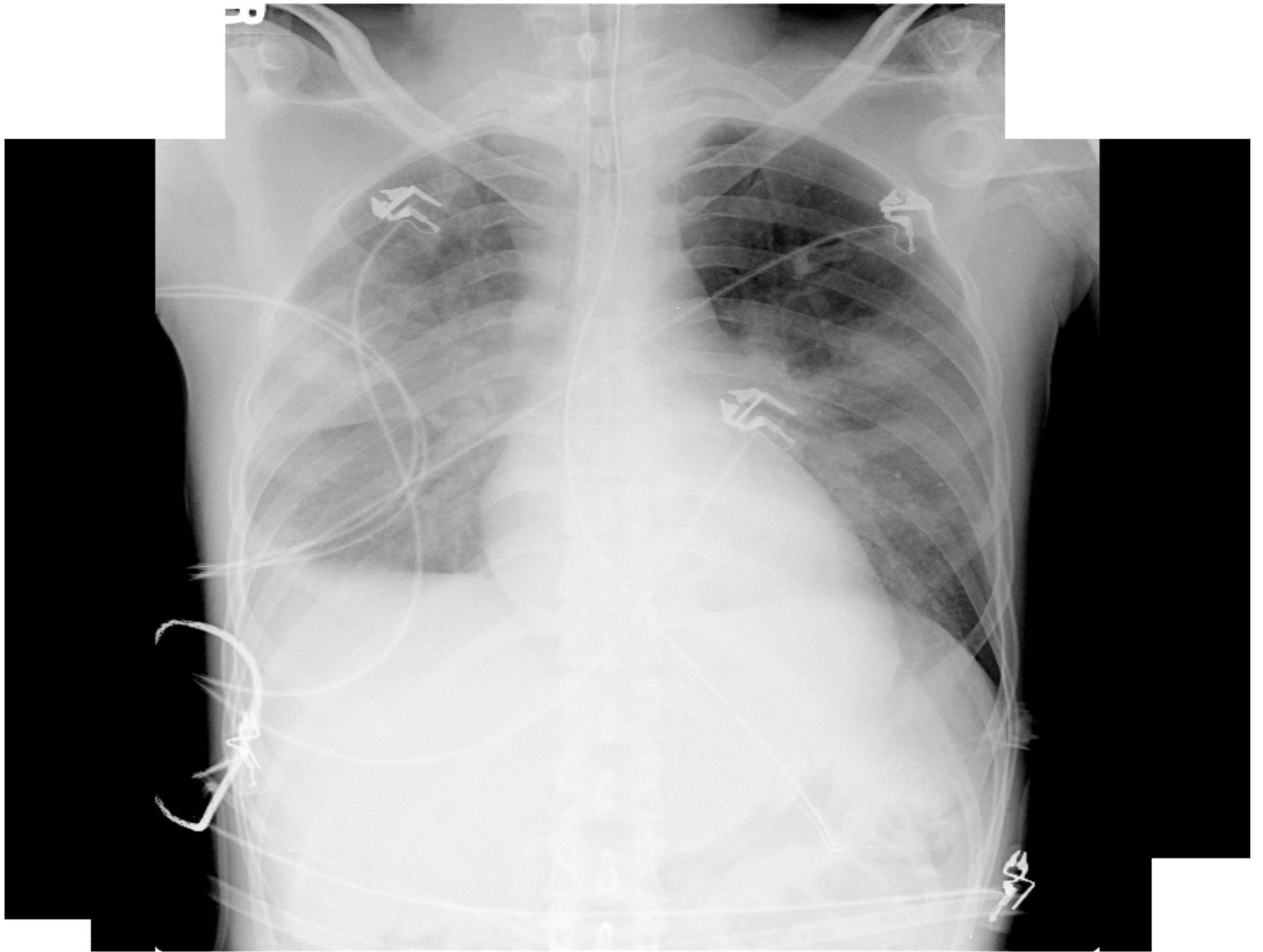
## 19 Severe Pneumonitis Cases (March - August 2003)

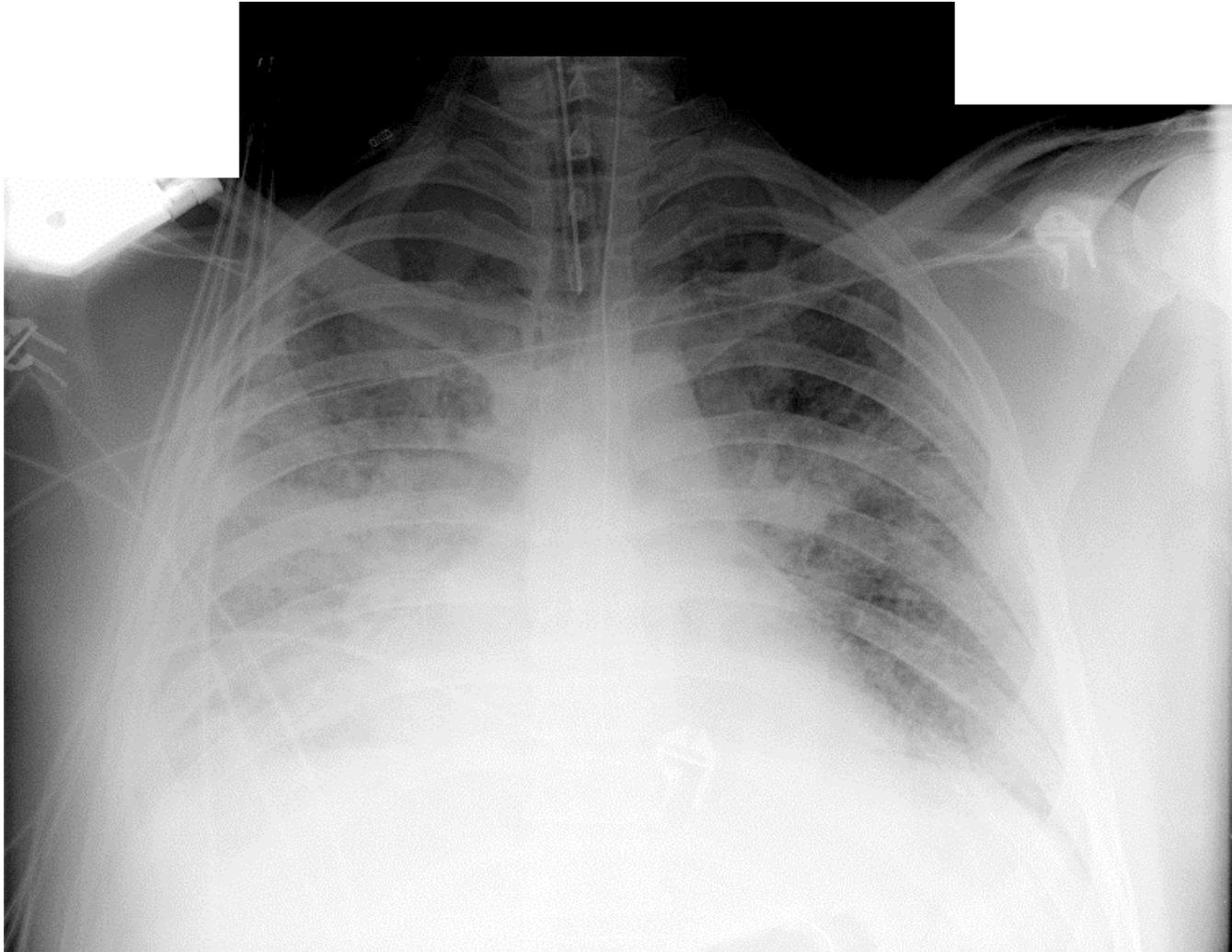


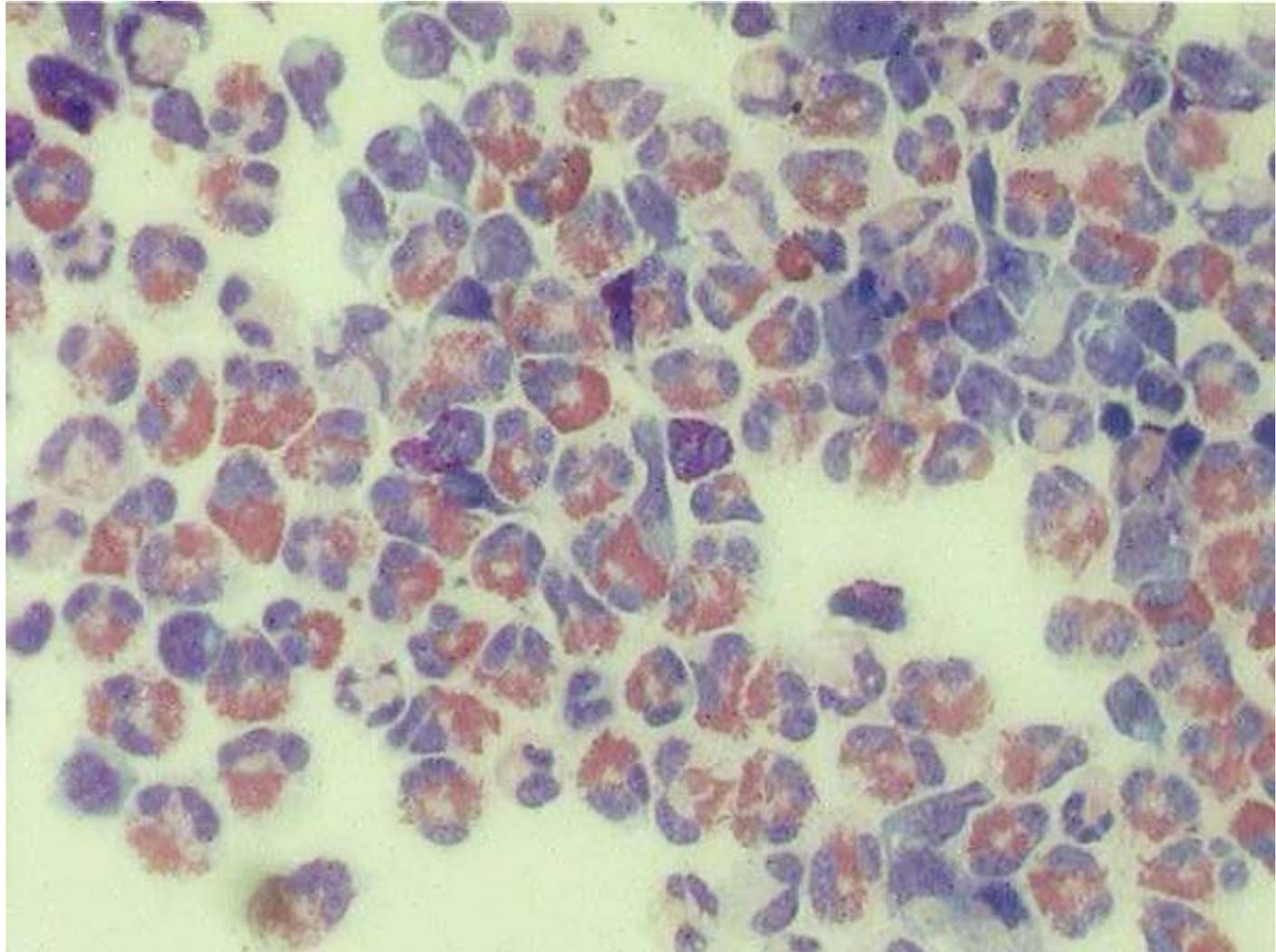
- 1 Female
- USA-17, USN-1, USMC-1
- NCO-7, Officers-1
- NG and Reserve - 7
- Types of Units
  - Combat Arms - 8
  - Engineers - 3
  - 2 each in Transportation, Signal, Medical
  - 1 each in Supply, Military Police









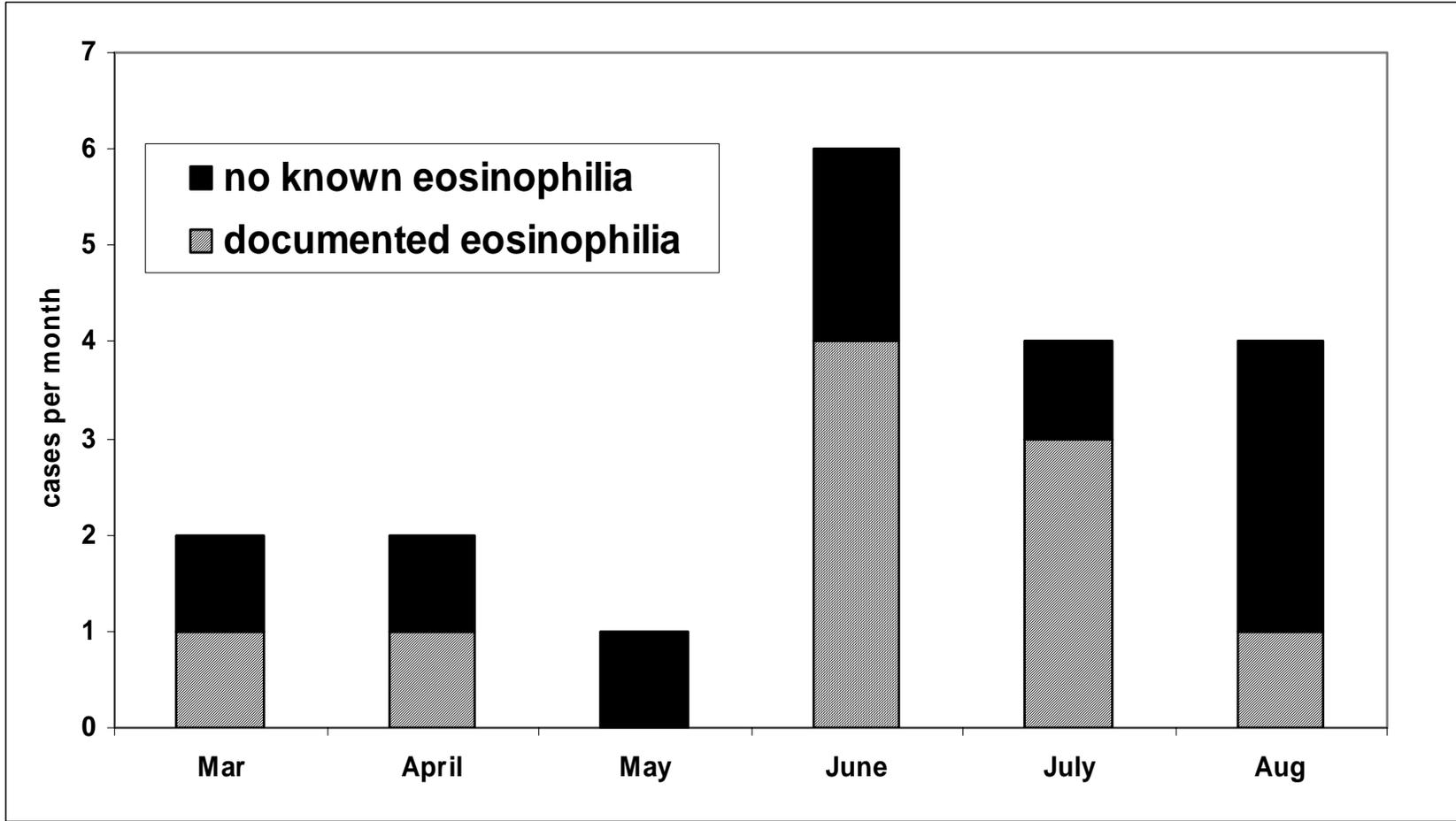


# Eosinophilia



- 10 cases exhibited eosinophilia in:
  - Peripheral blood (8)
  - Lung tissue (1)
  - Bronchoalveolar lavage fluid (3)
  - Pleural fluid (1)
- Eosinophilia: Allergic reactions, asthma, hay fever, infections, drug reactions, idiopathic
- Meaning depends upon context





# Severe Acute Pneumonitis with Eosinophilia



- Pneumonitis + eosinophilia in lungs (tissue, bronchoalveolar fluid, or pleural fluid) - CONFIRMED CASE
- Pneumonitis + eosinophilia in blood - PROBABLE CASE
- Pneumonitis alone - SUSPECT CASE



# 19 Severe Pneumonitis Cases



- **CONFIRMED SAPE - 4**  
Pneumonitis + eosinophils in lung
- **PROBABLE SAPE - 6**  
Pneumonitis + eosinophils in blood
- **SUSPECT SAPE - 9**  
Pneumonitis



# SAPE and Smoking - A Link ?



10 Confirmed / Probable

9 Suspect

10 Smokers

5 Smokers

8

**New Smokers**

0



# Ongoing



- Advisory to troops about smoking
- Related scientific information:
  - Eosinophilic pneumonia link to field training in Mojave Desert, CA
  - Japanese reports related to smoking
- MMWR article to advise US physicians
- Testing of environment will be guided by clinical findings

