

# Severe Acute Pneumonitis Among Deployed U.S. Military Personnel in Southwest Asia

## Operation Iraqi Freedom Severe Pneumonitis Epidemiology Consultation Team



### CASE DEFINITION

- A. Member of the U.S. military deployed to the U.S. Central Command area of operations with primary, radiograph-confirmed, bilateral pulmonary infiltrates, requiring intubation and mechanical ventilation
- B. Presence of elevated eosinophils in bronchoalveolar fluid (>5%) and/or pleural fluid (>5%)
- C. Presence of peripheral eosinophilia (>600 cells/ $\mu$ l blood)

#### Case criteria

- Confirmed = A and B
- Probable = A and C
- Suspect = A only

### METHODS

- Questionnaire and database development
- Case finding
- Review of charts, radiographs and laboratory results
- Clinician interviews
- Case interviews
- Autopsy review
- Follow-up evaluation of 13 patients

### ROLE OF EOSINOPHILS

- Ten of the 19 patients with elevated eosinophils, four in lung and/or blood, six in blood only (lung testing not performed)
- Parasite testing negative
- Various antibiotics administered which can elevate blood eosinophil counts

### DEMOGRAPHICS

Service	N (%)
Army	17 (90)
Navy	1 (5)
Marine Corps	1 (5)
Unit	N (%)
C Co 2/8 Infantry 4th ID	2* (10)
Other	17 (90)
Evacuation location	N (%)
Landstuhl	17 (90)
Rota Fleet Hospital	1 (5)
Not evacuated (death)	1 (5)

\*1st case evacuated to Germany before 2nd deployed to Kuwait from the United States; illness separated by 4 months

SWA Army 3 <sup>rd</sup> PERSCOM <sup>‡</sup> Cases <sup>†</sup>		
Sex*	N (%)	N (%)
Male	16 (94)	211,794 (88)
Female	1(6)	27,706 (12)
Service Component	N (%)	N (%)
Active	11 (65)	168,496 (70)
Reserve	6 (35)	71,010 (30)
Age* (years)	Median	Range
	24	19-40
		17-64
Rank*	N (%)	N (%)
≤ E4	10 (59)	122,755 (51)
E5-E9	7 (41)	86,750 (36)
Officer	0	29,721 (12)
Total	17	239,506

\*Excludes 6 missing sex; 2,820 missing age; and 280 missing rank  
<sup>†</sup>SWA = South West Asia  
<sup>‡</sup>PERSCOM = Personnel Command

No statistically significant difference between SWA cases and 3<sup>rd</sup> PERSCOM

### MILITARY OCCUPATION

Infantry	3
Armor	2
Artillery	2
Engineer	3
Mechanic	1
Truck driver	2
Fuel/Supply	1
Communications	3
Medic	2

### INFECTIOUS ETIOLOGIES

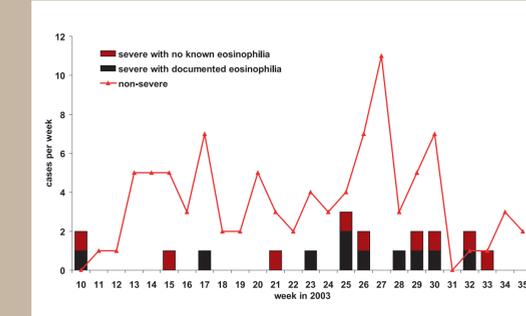
- *Streptococcus pneumoniae*  
1 positive sputum culture  
1 positive urine antigen
- *Acinetobacter baumannii*  
1 positive culture of bronchoaveolar fluid
- *Coxiella burnetii*  
1 confirmed by serology  
2 probable by serology
- *Chlamydia pneumoniae*  
2 probable by serology

### RELATIONSHIP TO TOBACCO

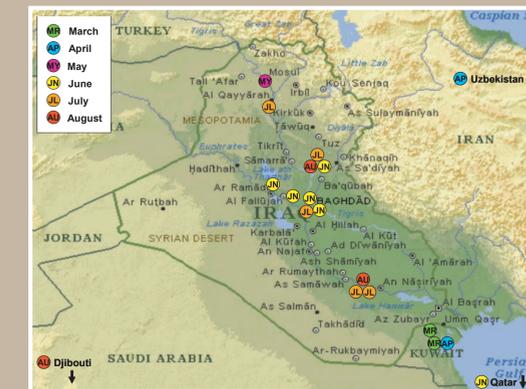
	Elevated Eosinophils	
	Yes	No
Non-smoker	0	3
New-onset smoker	9	0
Chronic smoker	1*	6

\*Substantial increase in cigarette consumption during deployment

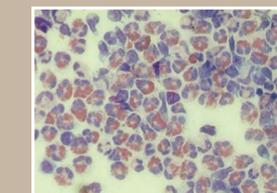
### EPIDEMIC CURVE



### LOCATION AT TIME OF ILLNESS



### CLINICAL PICTURES

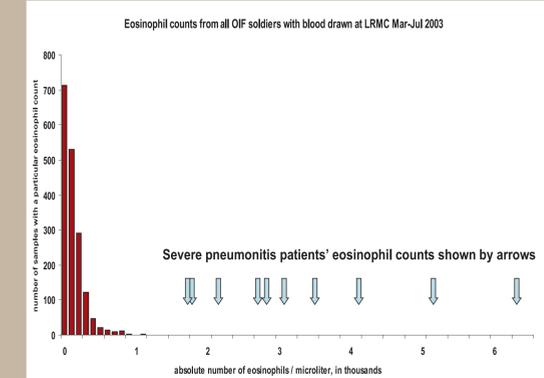


Bronchoalveolar lavage showing eosinophils



Chest X-ray showing pneumonitis

### EOSINOPHIL COUNTS



### CONCLUSIONS

Cases of severe acute pneumonitis with eosinophils have occurred in military personnel in Southwest Asia

- 4 confirmed
- 6 probable
- 9 suspect

New-onset smoking is a possible risk factor for increased eosinophils in severe pneumonitis patients.

### CREDITS

- USACHPPM: S Cersovsky, D Shanks, B Petruccelli, S Scoville, J Brundage, J Kirkpatrick, J Heller, J Reston, L Pearce, T Logan
- LRMIC: K Kumke, P Marco, J Rusnak, G Deye, T Murphy, D Taillon, C Martin, R Erickson, M Lovell, J Mancuso, A Mansfield, M Ostafin, D Heath, S Tyner, A Stahl, D Grider
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- MAMC: A Weg
- CJTF 7: E Lund, D Gagliano, L Bybee, E Milstrey.