

greetings FROM NEW MEXICO



Of Mice and Men

Hantavirus Pulmonary Syndrome

Bruce Tempest MD, FACP

Gallup

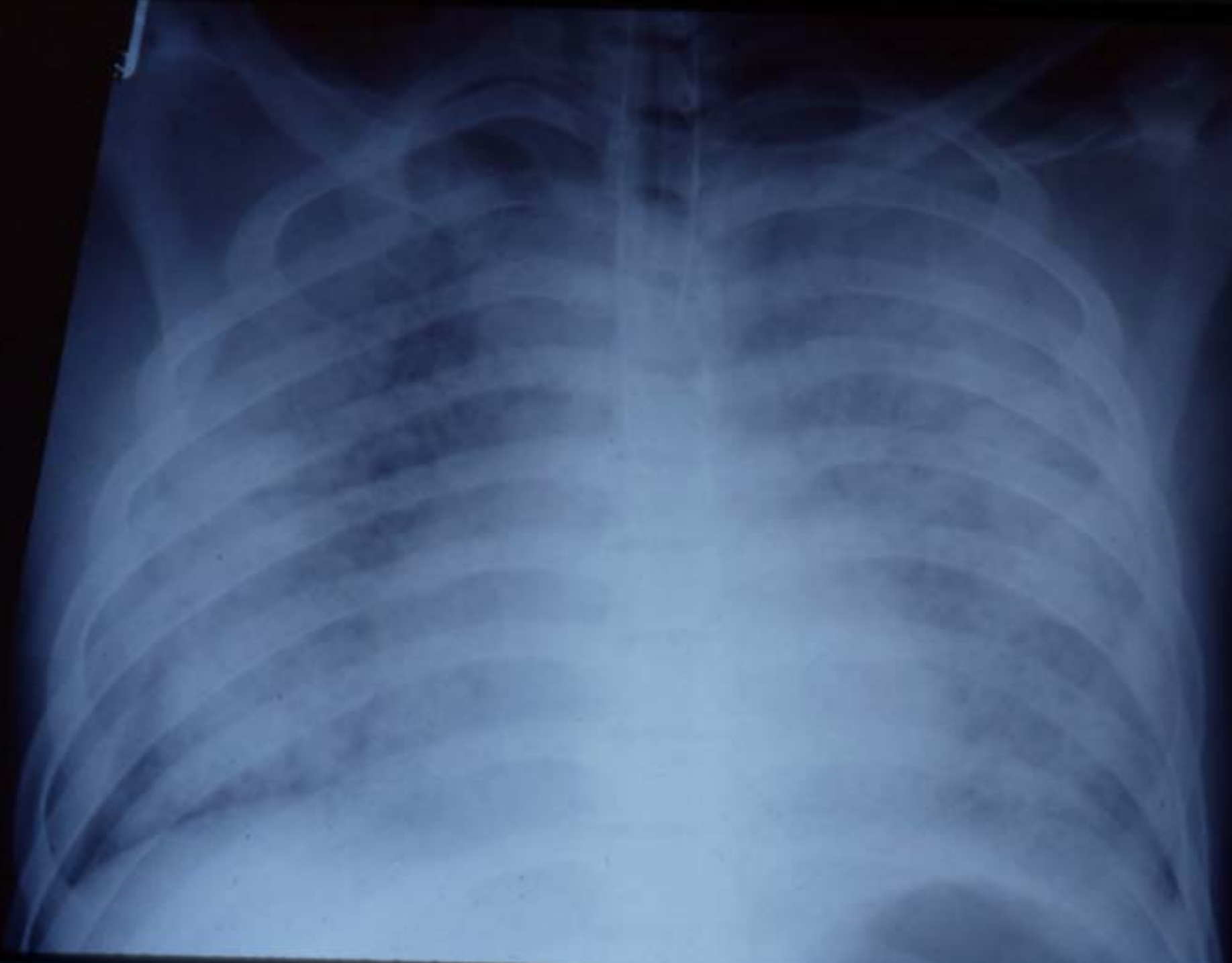
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"The best laid
schemes of
mice & men gang
aft a'gley

Robert Burns 1759-1796



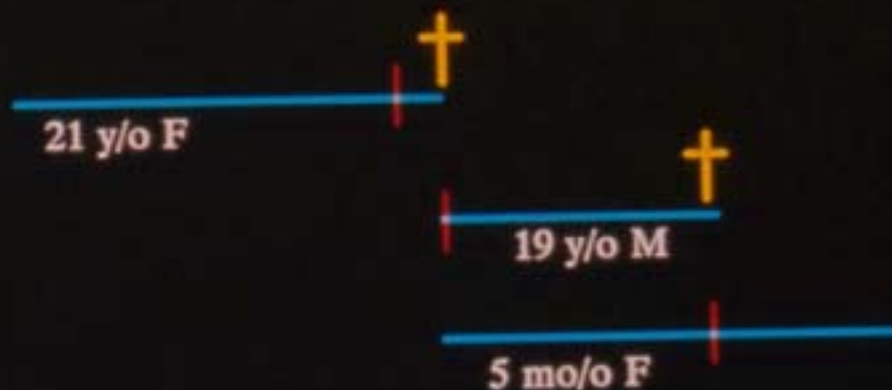




Index Cluster

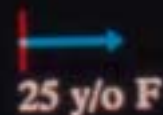
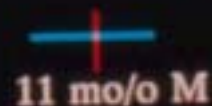
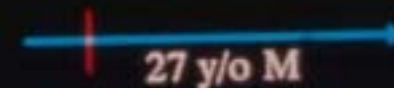
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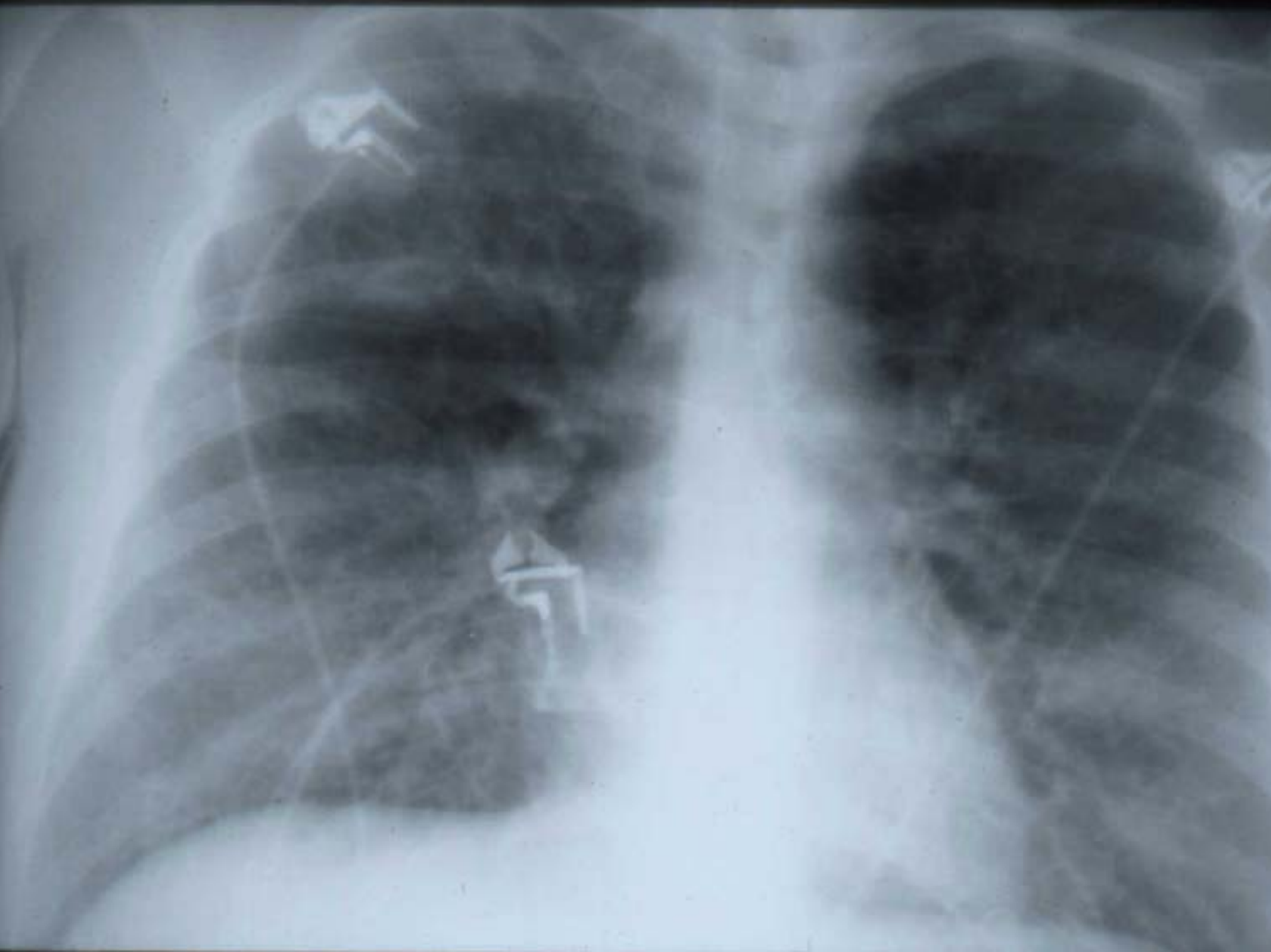
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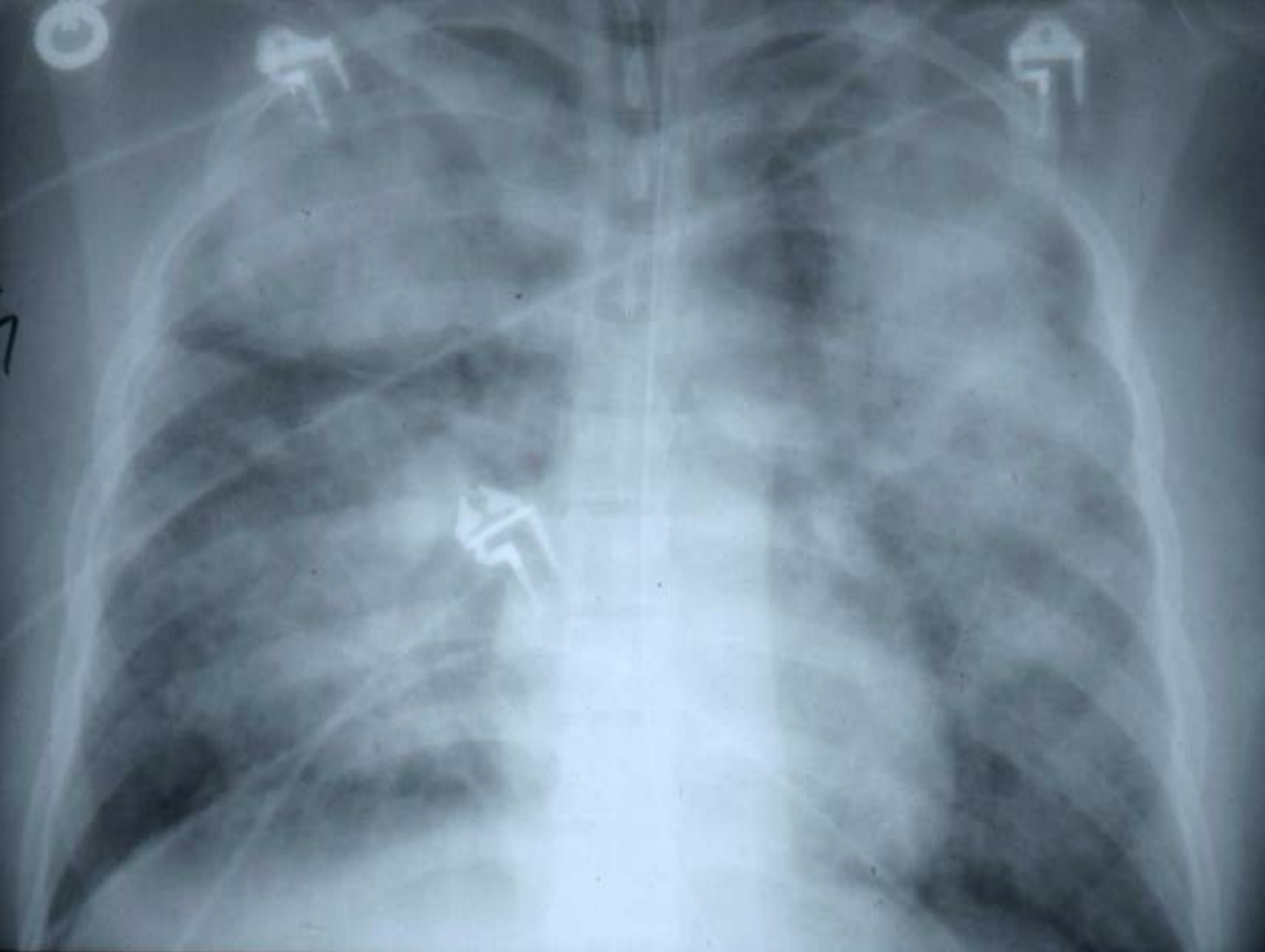


| = Admission

† = Death







Disease Conditions in the Differential Diagnosis

| Bacterial | Viral | Environmental |
|----------------------|---------------------------|---------------------------|
| Plague | Influenza | Paraquat |
| Tularemia | Adenovirus | Phosphene |
| Anthrax | Parvovirus | Phosgene |
| Legionella | Coxsackie | DNP |
| Leptospirosis | RSV | Metal fume fever |
| Chlamydia | Hemmorhagic Fevers | Toxic Oil Synd. |
| Mycoplasma | | Polymer fume fever |
| Brucella | | |
| Ehrlichiosis | Fungal | New Agent |
| Q fever | | |
| Rickettsia | | |



Laboratory Studies Done on Initial Patients

Complement Fixation

Adenovirus

Mycoplasma

Influenza A,B

Parainfluenza 1,2,3

Chlamydia

RSV

Colorado Tick Fever

Rickettsial Panel

Bacterial Cultures

AFB, legionella, fungal, mycoplasma,
chlamydia

Viral Cultures

Enterovirus, adenovirus, coxsackie,
influenza, RSV, herpes

Tissue Examination

Bone marrow, lung tissue,
other



Conditions Remaining in the Differential Diagnosis

Influenza

Viral Hemorrhagic Fevers

New Agent



Desert Mystery: Death Toll at 10

"We have not been able to identify any place where people have gone or any gathering in common. Nothing really fits..."

- Dr. Ron Voortwek



It's an Epidemic, But 'Nothing Fits'

ALBUQUERQUE JOURNAL

STATE

228th Year, No. 252 • 48 Pages in 4 Sections

Wednesday Morning, June 2, 1992 • Copyright © 1992, Journal Publishing Co.

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DESERT MYSTERY: DEATH TOLL AT 12

Two Cases Turn Up Off Reservation

Similar Cases Found in 3 States

No Connection Found To Four Corners Area

By Bob Graham

State Department of Health, with help from epidemiologist "Doc" Tom of the San Jose area, said the illness could be linked to the Four Corners area. The illness is called "Desert Mystery" and is a new disease. It is a respiratory illness that causes a fever, cough, and sometimes a rash. It is not clear if it is a new disease or a re-emergence of an old one.

More than half the Four Corners region, including southern Utah and northern Arizona, is now under a health advisory. Health officials are asking people to avoid the area if they can. The advisory is in effect for at least a week, but it could last longer if the illness continues to spread.

TUESDAY'S DEVELOPMENTS

- The death toll has risen to 12 and the number of people in critical condition is growing.
- Health officials in Utah and Arizona are working to identify the source of the illness.
- A health advisory is in effect for the Four Corners area.
- The U.S. Dept. of Health and Human Services is providing technical assistance to state health departments.

Patients Found In Silver City, Albuquerque

By Leslie Lindemann

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STATE

228th Year, No. 252 • 48 Pages in 4 Sections

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DESERT MYSTERY

Rodent Virus Suspected in Illness

Report Called Preliminary But Possibly Important Breakthrough

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228th Year, No. 252 • 48 Pages in 4 Sections

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Deer Mouse May Be Illness Culprit

THIS WOULD POSSIBLY END THE MYSTERY ILLNESS

Health officials are reporting that a deer mouse may be the source of the illness. The mouse is a common species in the Four Corners area and is known to carry several different types of viruses. It is not clear if the mouse is the source of the illness or if it is simply a carrier.

Tests Show Rodent Is Likely Carrier

By Bob Graham

June 17, 1992

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This article is for informational purposes only and does not constitute medical advice.

For more information, contact the State Department of Health.

Phone: (505) 771-2200

Fax: (505) 771-2201

Internet: www.health.state.nm.us



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Hantaviruses

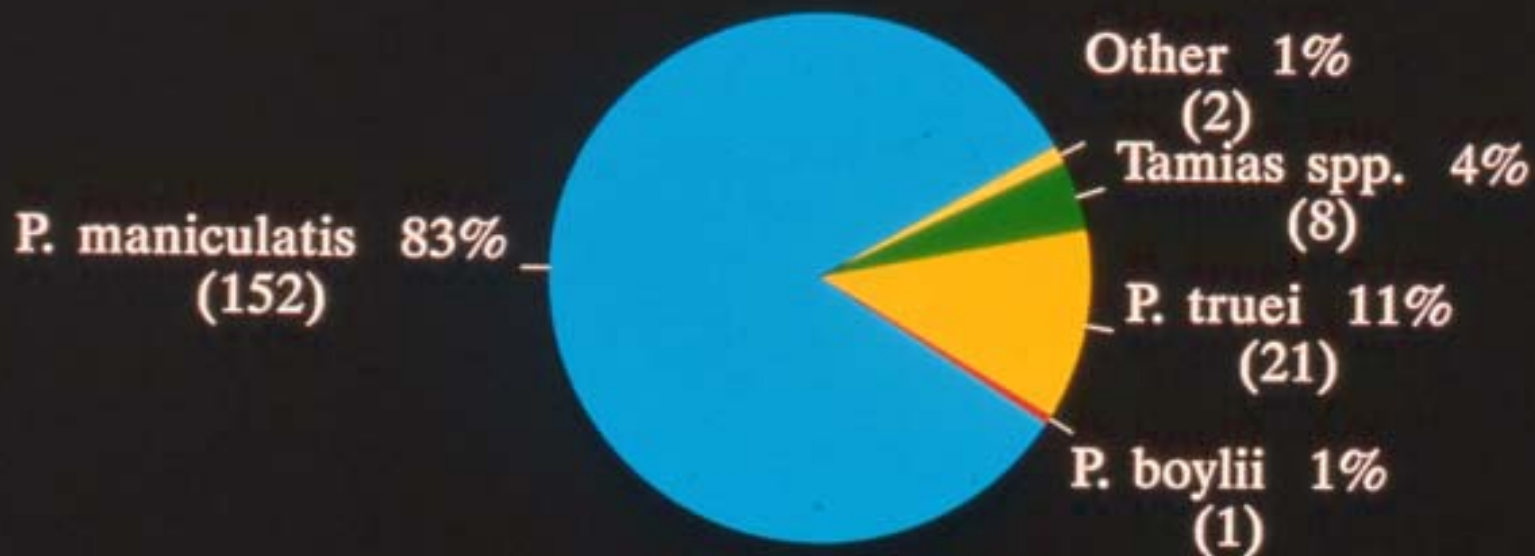
- **Enveloped RNA virus, family Bunyaviridae**
- **Chronic, asymptomatic infection of rodents**
- **Horizontal transmission among rodents**
- **Excreted in rodent urine, saliva, feces**
- **Worldwide distribution**
- **Susceptible to many disinfectants**



Hantavirus Transmission to Humans

- **Aerosolized rodent excreta**
- **Increased with rise of rodent population.**
- **Infections in lab workers with < 5 minutes in same room with rodents.**
- **No person-to-person or nosocomial spread reported.**

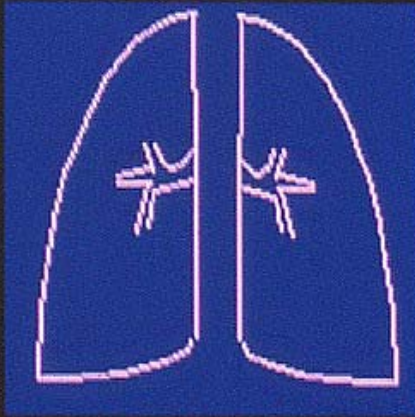
Rodents with Antibodies to Hantavirus Case-Control Trapping, 1993 By Species



Other species: 1 *Mus musculus*, 1 *Spermophilus spp.*
Source: CDC



HUMAN AND *PEROMYSCUS* HANTAVIRUS: THE SAME VIRUS?



Human (autopsy)
organs



Deer mouse organs
(trapped at site of case)

PCR amplify
Sequence
Compare Sequence

Human: ...TACGACACCAACATGTGAGTAG...

Mouse: ...TACGACACCAACATGTGAGTAG...

**CONCLUSION: HUMANS AND MICE ARE
INFECTED BY THE SAME VIRUS**

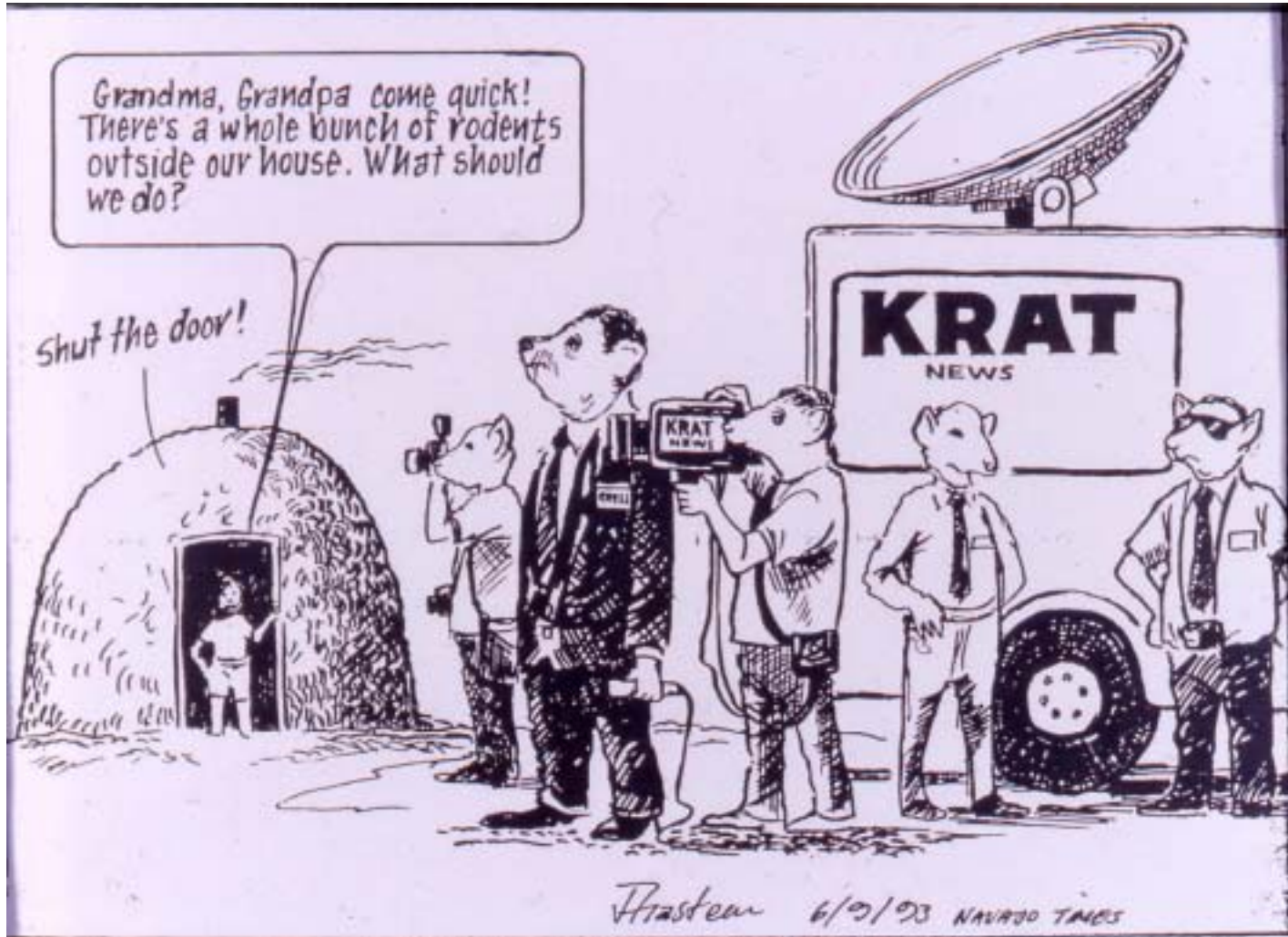




NO NEWS
MEDIA
ALLOWED
NEWSPAPER
• TV RADIO

Grandma, Grandpa come quick!
There's a whole bunch of rodents
outside our house. What should
we do?

Shut the door!



Frastern 6/9/93 NAVRO TIMES

TRUCK ALBUQUERQUE JOURNAL
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BEFORE HANTAVIRUS



AFTER HANTAVIRUS