

Hantavirus Pulmonary Syndrome 2026 A Global Threat?

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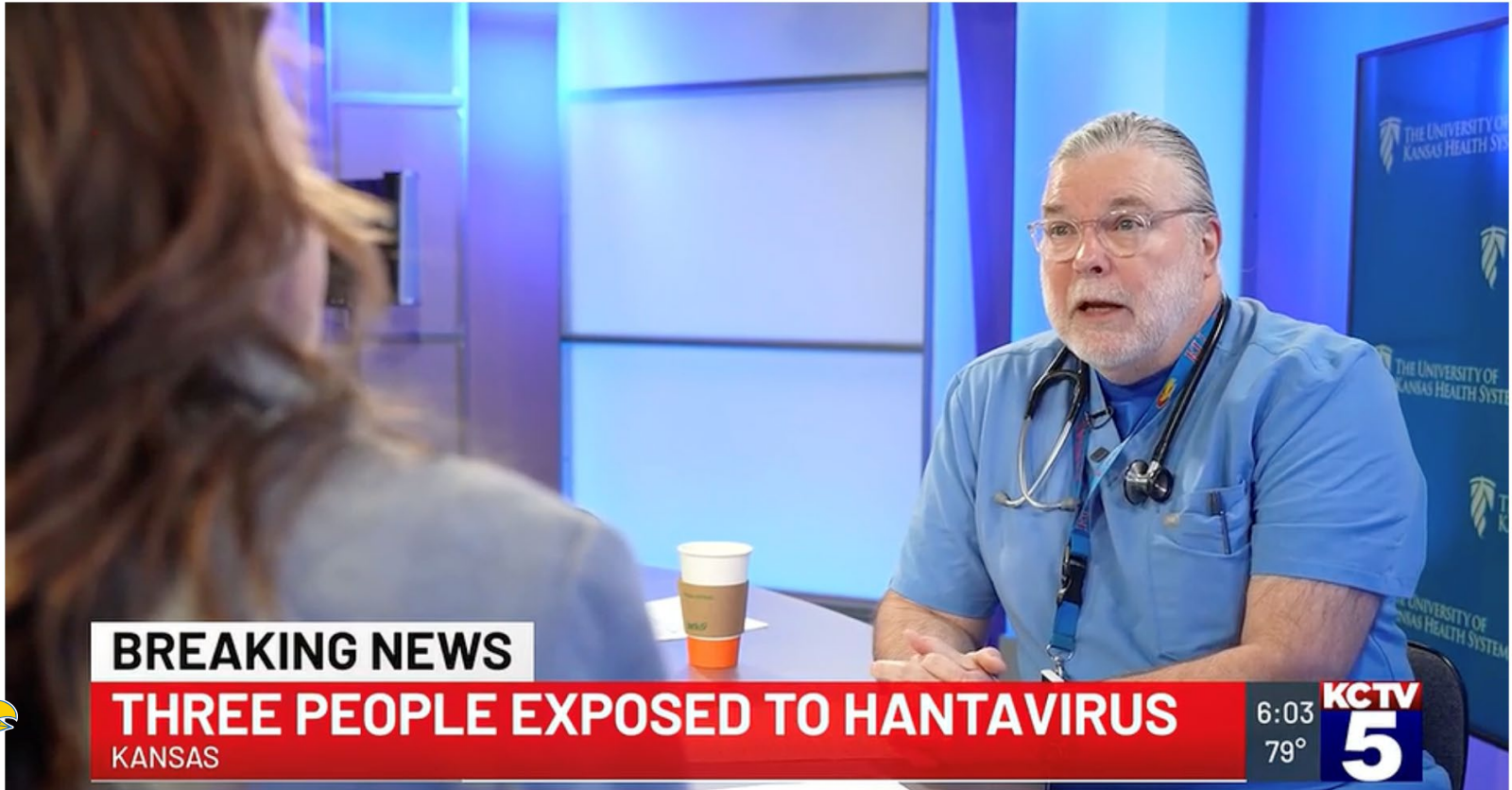
Professor of Medicine

Division of Pulmonary, Critical Care, and Sleep Medicine

University of Kansas



Kansas health officials monitor 3 people exposed to cruise ship passenger infected with hantavirus



BREAKING NEWS

THREE PEOPLE EXPOSED TO HANTAVIRUS

KANSAS

6:03
79°

KCTV
5





GROUP STAGE

ARGENTINA  V  ALGERIA

JUNE 16 • 8:00 PM CT

ECUADOR  V  CURAÇAO

JUNE 20 • 7:00 PM CT

TUNISIA  V  NETHERLANDS

JUNE 25 • 6:00 PM CT

ALGERIA  V  AUSTRIA

JUNE 27 • 9:00 PM CT



How Kansas City health officials are preparing for the World Cup, with hantavirus and heat looming

KCUR | By [Noah Taborda](#)

Published May 12, 2026 at 4:00 AM CDT



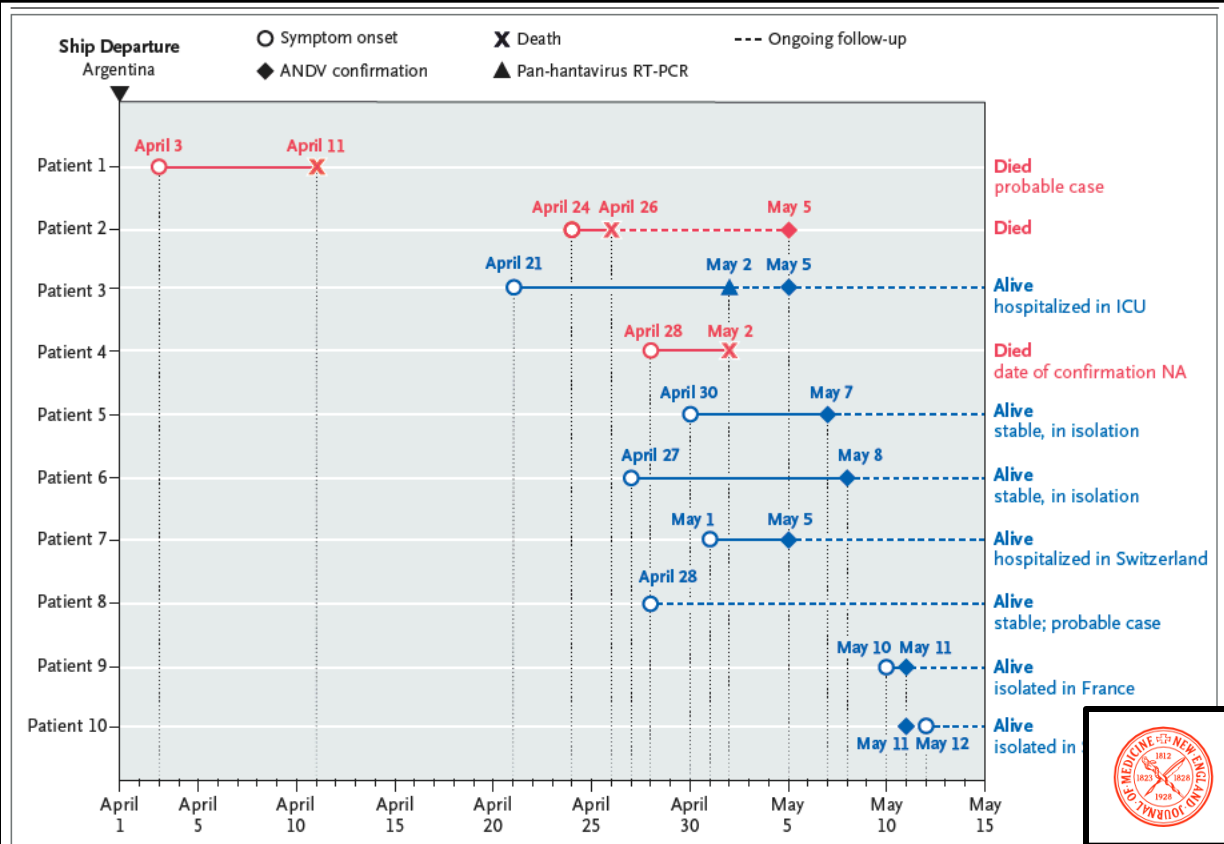
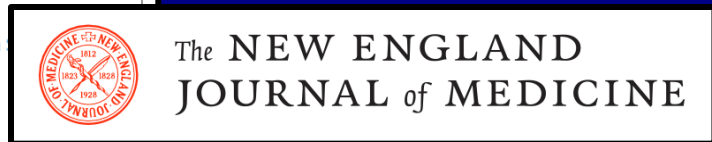


Figure 1. Timeline of the First 10 Cases Associated with the MV Hondius.²
 ANDV denotes Andes virus, ICU intensive care unit, NA not available, and RT-P



CORRESPONDENCE | PUBLIC HEALTH ALERTS



Andes Hantavirus Outbreak on a Cruise Ship, 2026

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Hantavirus Pulmonary Syndrome

Initial Outbreak 1993 - Four Corners Area

Sin Nombre Virus

- Hantavirus genus of Bunyaviridae family
- Negative sense RNA virus (S, M, L)

Deadly disease

Otherwise healthy individuals in their prime

- Mean age 37, range 10 to 75 years

Acquired by inhabitants of rural areas

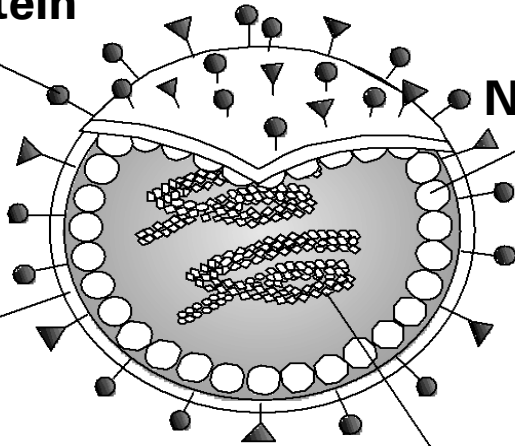


Glycoprotein

Nucleocapsid

**Lipid
Envelope**

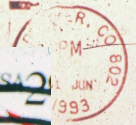
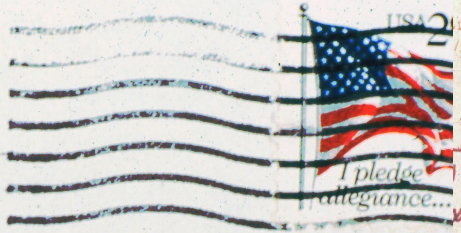
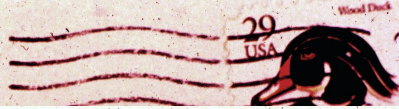
Viral RNA



**Binds to
Cadherin-1**







27
2

MEXICO
MICO

Medical Detectives
Mystery Disease
U.N.M. University Hospital
2211 LOMAS BLVD N.E
Albuquerque, New Mexico



ALBUQUERQUE JOURNAL

110th Year, No. 131 • 41 Pages in 8 Sections Monday Morning

Desi

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

— Dr. Ron Voorhees

Sickness, Toxin May Be Acting Together

By Rex Grabin

Just being confirmed at the Centers for Disease Control and Prevention in Atlanta

How Sickness For?

Here are some of the types

LAB ANIMAL TESTING

Legs, head and throat samples directly into laboratory animals that are susceptible to respiratory viruses, chlamydia and other microbes.

It's not clear if a small mouse, rat or guinea pig is the best animal to use. Dr. Rex Grabin, an expert with the state Department of Health, said he is a veterinarian.

Researchers have used a number of animals and viruses and said they expect to see similar results.

The effort will be coordinated by the Centers for Disease Control and Prevention in Atlanta. The state health department is the lead agency for the state of New Mexico. The state health department is the lead agency for the state of New Mexico.

Large amounts of material (DNA) produced in enough quantity to compare to major families of microorganisms.

POLYMERASE CHAIN REACTION TEST

Large amounts of material (DNA) produced in enough quantity to compare to major families of microorganisms.



Mystery Illness Death Toll 9

Round-the-Clock Effort To Find Cause Continues

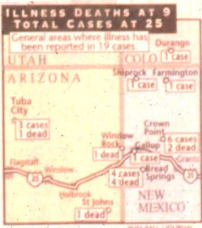
By Leslie Linthicum

JOURNAL STAFF WRITER

The death toll of a mystery ailment plaguing the Four Corners area reached nine Friday and 11 new cases were reported as medical investigators worked round the clock to determine the cause.

The illness' seeming ability to avoid detection by scores of laboratory technicians in New Mexico and at the Centers for Disease Control and Prevention in Atlanta has left health officials wondering whether they're looking at a ferocious new disease.

"The longer that we go and the more of the diagnostic avenues that we exhaust, the more likely it is that it's something we've never seen before," deputy state epidemiologist Dr. Ron Voorhees said Friday at a news conference in Gallup, N.M.



The latest victim, a 19-year-old man from the area of the Ramah Navajo reservation southeast of Gallup, died Thursday within 24 hours of complaining of severe muscle aches.

As of late Friday there had been 25 confirmed cases of the illness that begins with flu-like symptoms and quickly progresses to acute respiratory failure. With the exception of two infants and a 56-year-old woman, the victims have been healthy young adults. All but two have been Navajo and all



Gary W. Oty, above, supervisor of virology and serology for the state Health Department's Scientific Laboratory Division, uses a high-powered microscope to look at cells used to isolate viruses. At left, are different cultures of cells.

What should you do to protect yourself? The advice from health officials for people living in the Four Corners area near the Navajo reservation is "don't panic," and get medical attention for any symptoms of the illness. Symptoms include fever, muscle aches, and

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1988 Year, No. 131 • 41 Pages in 8 Sections Monday Morning

Home-Owned

Home-Operated

Toll at 10

Navajo Teen-Ager Dies Hours After Collapsing At Dance Near Gallup

By Leslie Linthicum

Experts attempted after midnight to determine cause of death

A 19-year-old Navajo girl who collapsed at a party and died one Friday and died at home Saturday in the Navajo reservation in the Four Corners area near Gallup. The state health department said she had been feeling ill for several days before she collapsed at a party Saturday with a reported death toll of nine. The state health department in Gallup said she had been feeling ill for several days before she collapsed at a party Saturday with a reported death toll of nine. The state health department in Gallup said she had been feeling ill for several days before she collapsed at a party Saturday with a reported death toll of nine.



Federal, state and local health officials meet Saturday in Albuquerque to discuss the outbreak of the mysterious illness in northeastern New Mexico.

Navajo teen-ager dies hours after collapsing at dance near Gallup

Experts attempted after midnight to determine cause of death. A 19-year-old Navajo girl who collapsed at a party and died one Friday and died at home Saturday in the Navajo reservation in the Four Corners area near Gallup. The state health department said she had been feeling ill for several days before she collapsed at a party Saturday with a reported death toll of nine. The state health department in Gallup said she had been feeling ill for several days before she collapsed at a party Saturday with a reported death toll of nine.





Peromyscus maniculatus




El Niño

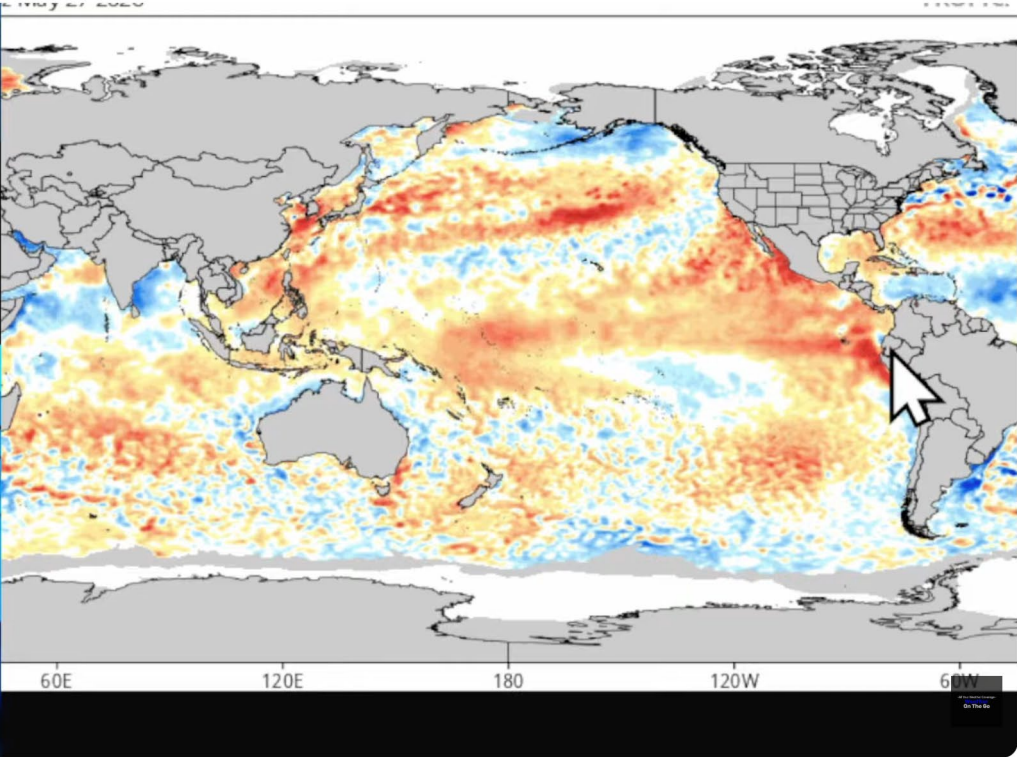
ALL YOUR WEATHER COVERAGE
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WED., MAY 27, 2026



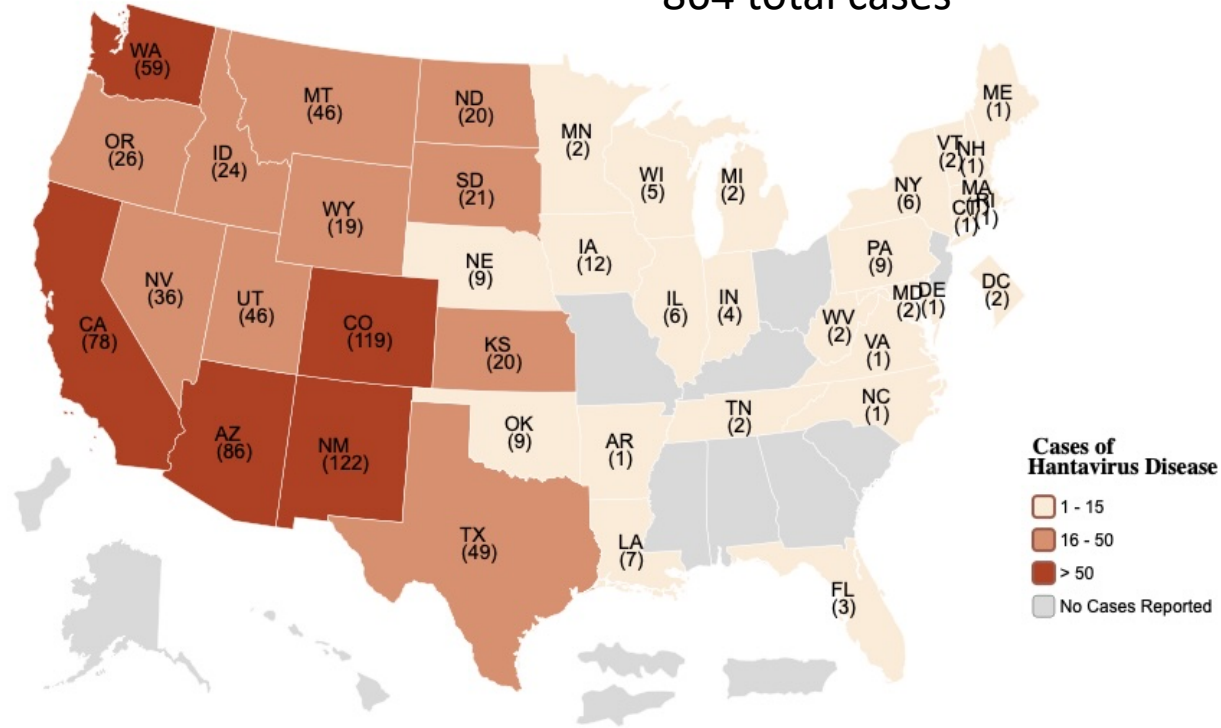
A MAJOR El Niño Is Rapidly Developing...



Map of U.S. Cumulative Cases of Hantavirus by State through 2022



864 total cases



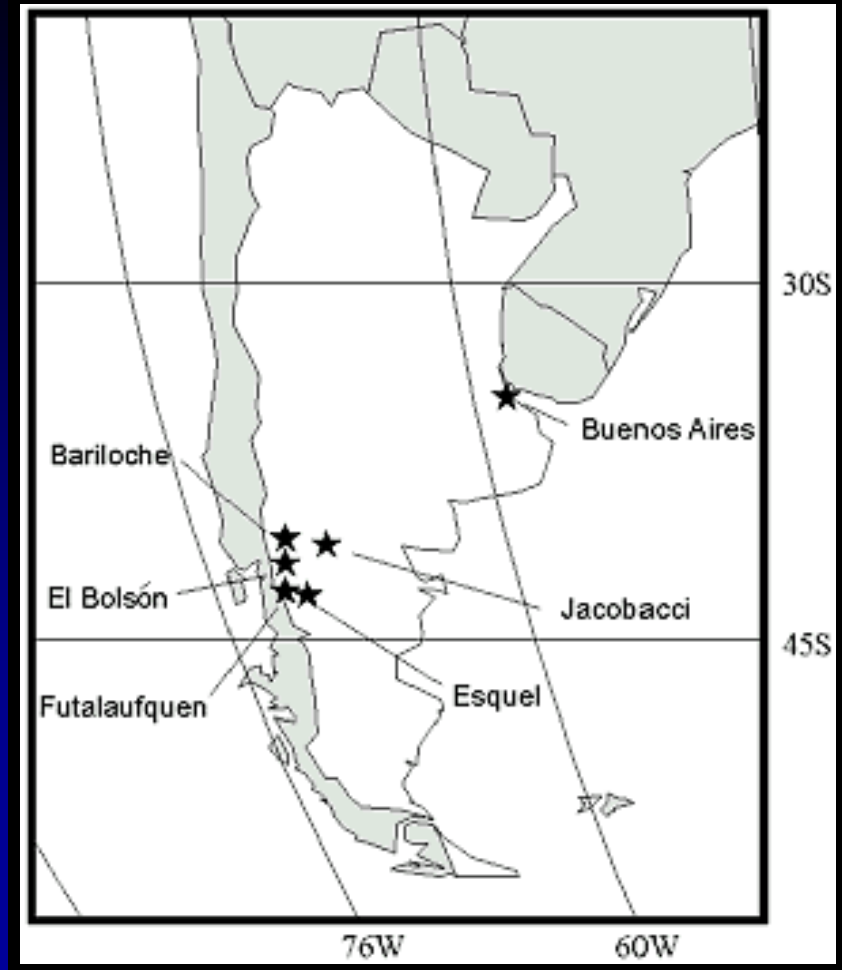
Cases of Hantavirus Disease

- 1 - 15
- 16 - 50
- > 50
- No Cases Reported

All cases were confirmed between 1993-2022 and met the NNDSS case definition applicable at the time of reporting. Included in the sum total are 31 historical cases that occurred prior to 1993, but were confirmed retrospectively. Five cases had presumed exposure outside the United States.



Towns Involved in 1996 Argentine Outbreak



Oligoryzomys longicaudatus



CERALDI

Materiales
para la construcción

Ruiz Moreno 975 Te: 25510 fax: 25147

Diario Patagónico
El Cordillerano

por la verdad, la moral, la cultura
y el progreso regional

Fuerza andina

CERALDI

Materiales
para la construcción

Ruiz Moreno 975 Te: 25510 fax: 25147

Año 2 - N° 578 - sábado 23 de noviembre de 1996 - Matutino. No se edita los domingos - Tel/FAX 31409 - San Carlos de Bariloche - Río Negro - República Argentina - Precio \$ 1 -

SEGÚN CIENTÍFICOS ARGENTINOS Y NORTEAMERICANOS QUE EXPUSIERON EN EL LLAO LLAO

Definitivo: el hanta virus no se contagia persona a persona



HFRS

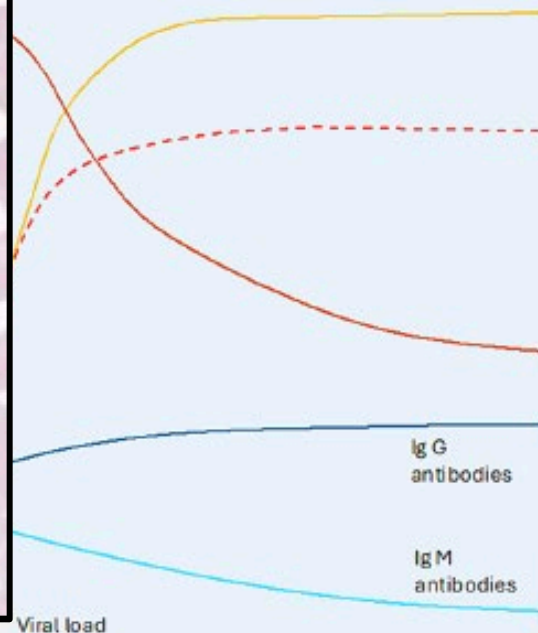
Hantaan,
Puumala
Peritoneal leak,
Renal failure

HPS

Sin nombre
Pulmonary leak

Andes
Pulmonary leak,
Renal failure

C



Prodrome

HCPS (5 to 7 days)

Recovery and convalescence

Viral load

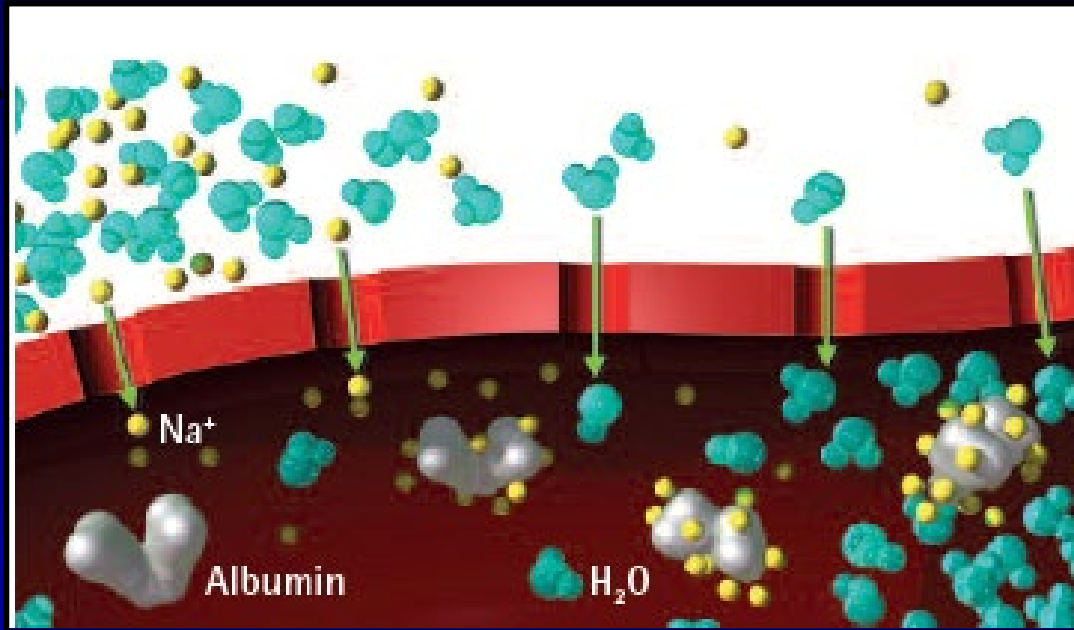
Ig G
antibodies

Ig M
antibodies



Starling's Equation

$$Q = K[(P_c - P_i) - \sigma(\pi_c - \pi_i)]$$



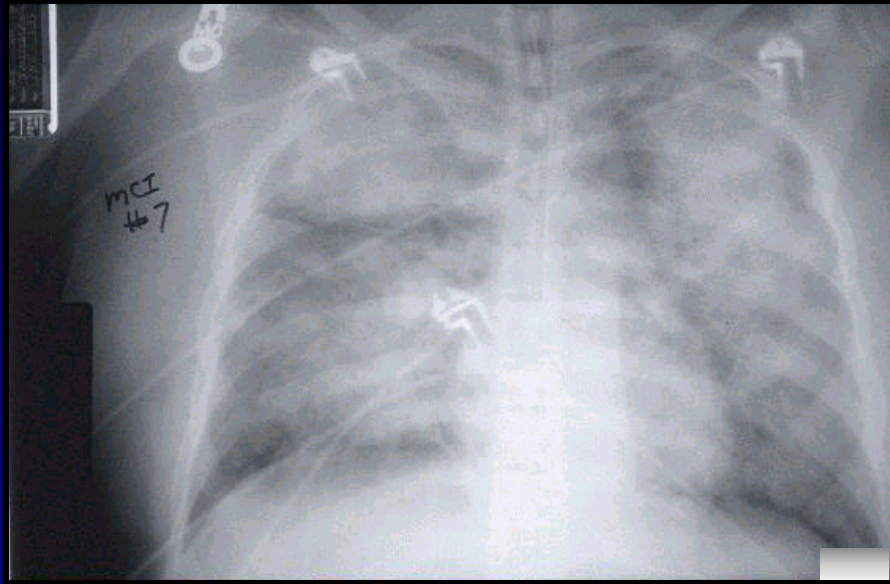
Tracheal Aspirate Protein

3 Fatal Cases

Patient		Total Protein	Ratio	Albumin	LDH
1	Trachea	5.1	0.98	2.6	4191
	Serum	5.2		2.5	1498
2	Trachea	2.8	0.82	1.8	2934
	Serum	3.4		1.5	2810
3	Trachea	4.3	1.19	2.1	3469
	Serum	3.6		1.6	4104



Hantavirus Pulmonary Syndrome



The New England Journal of Medicine

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APRIL 7, 1994

Number 14

HANTAVIRUS PULMONARY SYNDROME: A CLINICAL DESCRIPTION OF 17 PATIENTS WITH A NEWLY RECOGNIZED DISEASE

JEFFREY S. DUCHIN, M.D., FREDERICK T. KOSTER, M.D., C.J. PETERS, M.D., GARY L. SIMPSON, M.D., PH.D.,
BRUCE TEMPEST, M.D., SHERIF R. ZAKI, M.D., PH.D., THOMAS G. KSIAZEK, D.V.M., PH.D.,
PIERRE E. ROLLIN, M.D., STUART NICHOL, PH.D., EDITH T. UMLAND, M.D., RONALD L. MOOLENAAR, M.D.,
SUSAN E. REEF, M.D., KURT B. NOLTE, M.D., MARGARET M. GALLAHER, M.D., JAY C. BUTLER, M.D.,
ROBERT F. BREIMAN, M.D., AND THE HANTAVIRUS STUDY GROUP*

Keynote Address
1994 SCCM
Congress
Orlando, FL

Cardiopulmonary manifestations of hantavirus pulmonary syndrome

Hallin, Gustav W. MD; Simpson, Steven Q. MD; Crowell, Richard E. MD; James, David S. MD; Koster, Frederick T. MD; Mertz, Gregory J. MD; Levy, Howard MD

Critical Care Medicine: February 1996 - Volume 24 - Issue 2 - p 252-258
Clinical Investigation

Social Impact of Respiratory Infections*

Steven Q. Simpson, MD, FCCP; Paul W. Jones, PhD;
Peter D.O. Davies, DM; and Alice Cushing, MD

(CHEST 1995; 108:63S-69S)

include medical costs at
people in employment



Goals of Mechanical Ventilation

- Adequate oxygenation and ventilation
- Avoid hyperoxic lung injury
 - $F_{I}O_2 < 0.6$
- Avoid volutrauma
 - low tidal volumes – 6 mL/kg
- Avoid RECOREX
 - adequate PEEP, alveolar recruitment strategies



Volume Administration in HPS

- Rationale:
 - hemoconcentration
 - low cardiac output
 - low PAOP (< 8 mm Hg in all early cases)
- Administration:
 - PA catheter recommended (Swan-Ganz)
 - specific hemodynamic profile – PAOP < 10 mm Hg
- Crystalloid vs. Colloid



Hemodynamic Profile

Patient	Cardiac Index (L/min/m ²)	PAOP (mmHg)	SVRI (dyne•sec•cm ⁻⁵ /m ²)	Mean PA (mmHg)	Stroke Volume Index (mL/beat/m ²)
1	3.0	8	1653	23	29.0
2*	1.6	11	2951	48	12.5
3*	1.8	28	2997	NA	10.5
4	2.6	11	2097	26	29.0
5	1.0	24	NA	20	7.1
6	2.8	10	1828	28	25.0
7*	2.7	13	2154	28	21.9
8*	3.2	20	1110	35	23.8
Mean	2.4	15	2112	30	19.8



Vasoactive Agents in HPS

Inotropes

- Dobutamine
- Epinephrine

Vasopressors

- Epinephrine
- Norepinephrine – try to avoid



ECMO in HPS

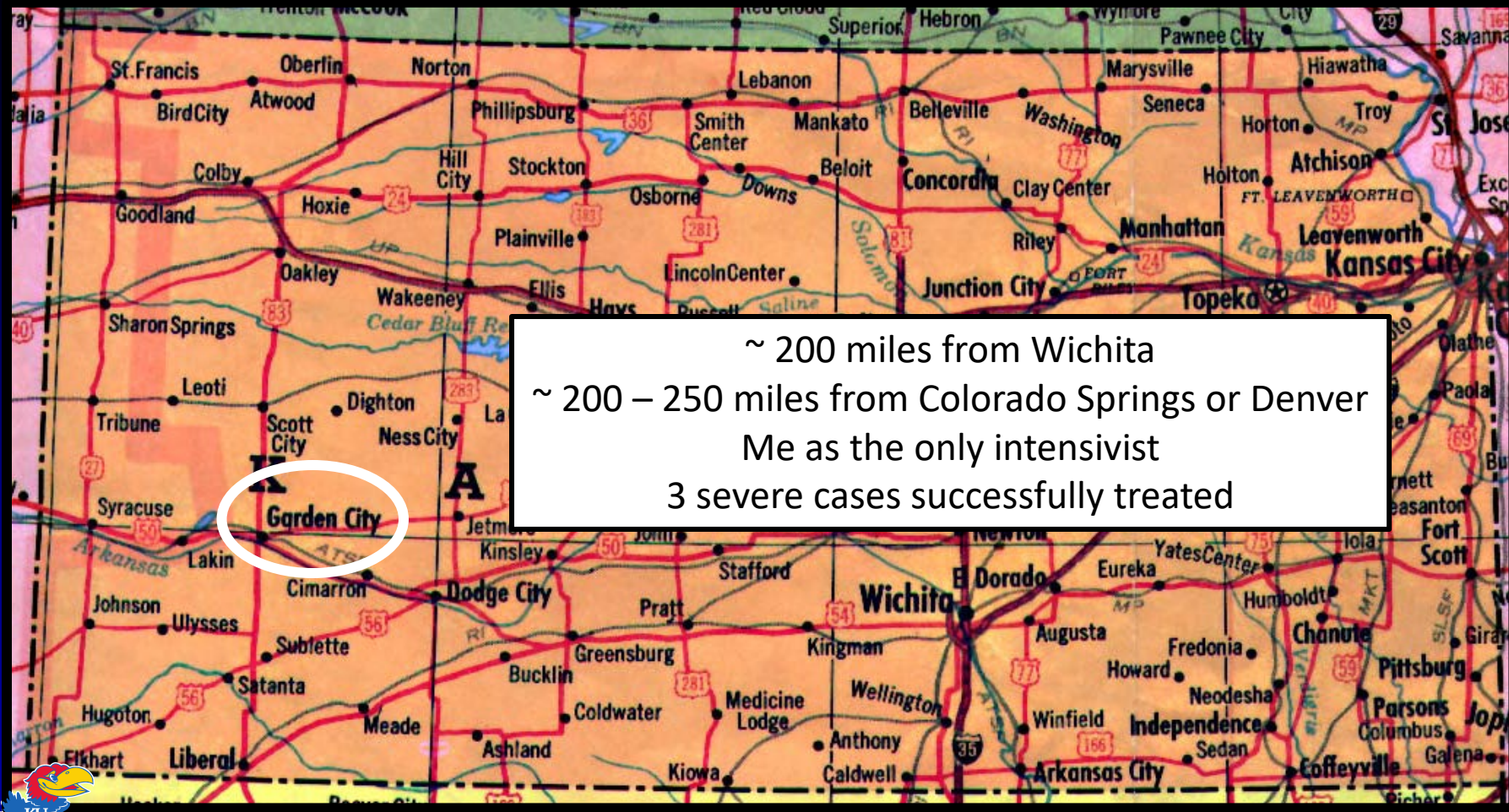
	Patient 1	Patient 2
ECMO Conditions	Cardiac Arrest	Maximum pressors Low Cardiac Output
Initial Cardiac Index	0.8	1
Initial Lactate	6.7	4.3
Peak Lactate	21	9.2
Alveolar Edema Fluid	>27L	Minimal
Run Time	9 hours	94 hours
Outcome	Died	Survived



ECMO in HPS 1994 - 2006

- 38 Patients: veno-arterial
- 4 men; 5 women
- 23 survivors; 15 died – 39.5% mortality
- complications:
 - plugged membrane (thrombosis)
 - leg ischemia
 - exsanguination





~ 200 miles from Wichita
 ~ 200 – 250 miles from Colorado Springs or Denver
 Me as the only intensivist
 3 severe cases successfully treated



Recap

1. Fluids, but not too much – use a PA catheter
2. If no response to fluids – dobutamine
3. If CI too low and/or O₂ requirement too high – ECMO
4. Best chance for avoiding ECMO is in the early going
5. Andes twists – sometimes hemorrhage, sometimes ARF
6. Ride it out for 48 - 72 hours and it will get better



CHICKEN GAME

DON'T LOOK AT THE CHICKEN.



Thank you!

ssimpson3@kumc.edu

