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United States
Environmental Protection
Agency

National Biodefense Strategy Calls for a Robust Decontamination Capability



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Office of Research and Development
Center for Environmental Solutions and Emergency Response

International Decon Conference
November 19, 20219

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TIME
WARNING:
WE ARE NOT READY FOR
THE NEXT PANDEMIC


Ricin Clean-Up


AFTER THE AIR WAR
Newsweek
Anthrax
A SPREADING SCARE THE MEDICAL FACTS


DONATE
oats and Soda
ussian Lab Explosion Raises Question:
hould Smallpox Virus Be Kept Or
estroyed?
ptember 19, 2019
RAN KRITZ
VISITING ANOTHER COUNTRY? PROTECT YOUR FAMILY.
THINK MEASLES.
BEFORE YOU TRAVEL
AFTER YOU TRAVEL


BUSINESS INSIDER
Subscribe
CDC Says It Just Discovered Vials Identified As Smallpox At A Lab In Maryland
Kevin Loria Jul 8, 2014, 1:27 PM
On July 1, workers at the National Institutes of Health notified the Centers for Disease Control and Prevention that they discovered vials containing smallpox in a cold storage room of a Food and Drug Administration lab on the NIH Bethesda campus.
An Israeli nurse holds a vial of smallpox vaccine in 2002. People in the United States haven't received a vaccine for
Because it's so infectious


Plug-in cars tested
TECHNOLOGY • FUTURE
FOCUS
BIOTERRORISM
it is a real threat. Are we ready?
Astro Big Brother


The Washington Post
FINAL
31 Exposed to Anthrax on Capitol Hill; House Shuts Down; Senate Offices Close
U.S. Seeks to Boost Security, Soothe Public
Investigators See Tie in Letters In Fla., NBC and Daschle Cases

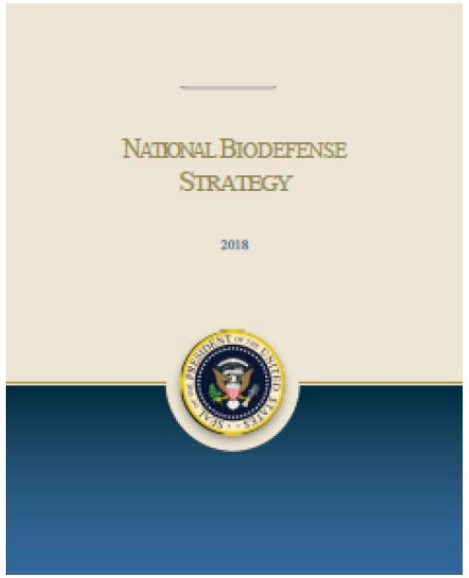

AFGHANISTAN: INSIDE THE
THE FEAR FACTOR
Anthrax letters. FBI warnings. Bin Laden's videotapes. Bombarded by threats real and imagined, a nation on edge asks, What's next?


The Washington Post
Democracy Dies in Darkness
WorldViews
Two Ebola patients who fled quarantine may have exposed dozens to virus


KING NEWS
POISON RICIN SUSPECTED IN MAIL SENT TO TRUMP & PENTAGON
CNN
Pentagon Correspondent

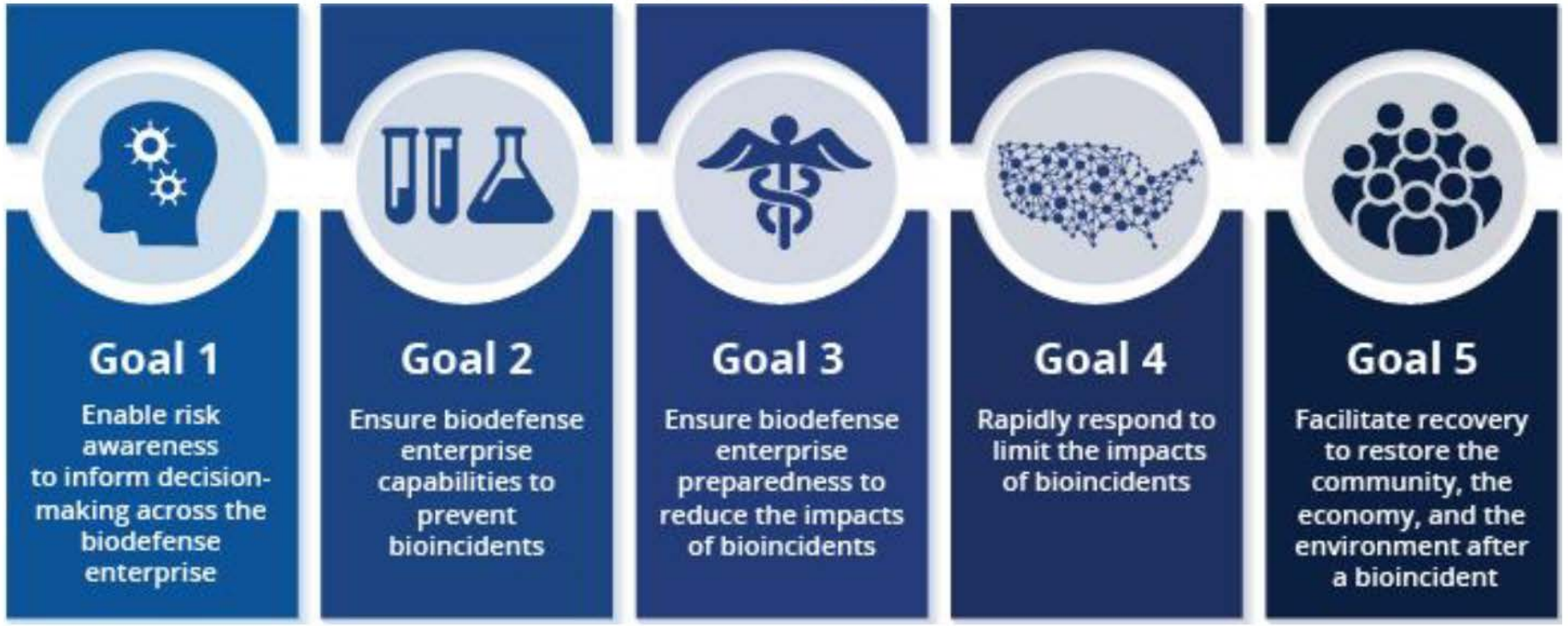

BREAKING NEWS
FBI TESTS ENVELOPES
SENT TO PENTAGON
ENVELOPES SENT TO PENTAGON TEST POSITIVE FOR RICIN


Los Angeles Times
LOG IN
Op-Ed: Ebola lapses show lab safety protocols should factor in human error



"All of Community" Approach to Biodefense

A single coordinated effort to orchestrate the full range of activities that needs to be carried out to address biological incidents, whether deliberate, naturally occurring, or accidental in origin.



US National Biodefense Strategy calls for a Robust Decontamination Capability

Coordination Cooperation Collaboration

Prepare (NBS Goal 3)

- Conduct research to understand the persistence and potential for secondary transmission of biological contaminants in a variety of environments and the ability of various disinfection technologies to inactivate or remove biological contaminants.
- Develop and verify technologies for all phases of environmental cleanup that address various types of infrastructure, equipment, and environments.
- Develop readily available and scalable technologies and software tools to support water and wastewater infrastructure decontamination and the treatment of contaminated water.
- Develop and verify plans for all phases of environmental cleanup for facilities, equipment, and the environment through drills and exercises that incorporate relevant partners and stakeholders.
- Establish pre-incident decontamination and waste management recommendations for:
  - o Impacted community members, patients, and response personnel;
  - o Contaminated drinking water;
  - o Waste collection, handling, and packaging methods suitable for waste transport (including interstate transport), temporary storage, off-site treatment, and disposal;
  - o Handling and disposition of human remains;
  - o Disposition of animal remains; and
  - o Environmental decontamination practices, as warranted.

DECON

Capability and Capacity

Respond (NBS Goal 4)

- Conduct decontamination operations and the management of waste and contaminated materials in a manner that is protective of human, animal, and plant health, the environment, and the economy

Recover (NBS Goal 5)

- Address the loss of critical infrastructure capability and capacity as quickly as possible to limit cascading effects by working with owners and operators, SLTT entities, and international partners, as appropriate.
- Support restoration of critical infrastructure in addition to continued performance of National Essential Functions through recovery of the federal, military, local first responders, and other critical workforces.

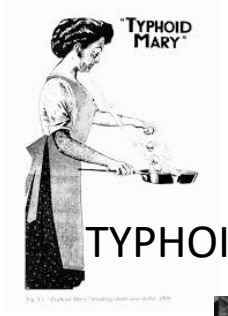
Basic Phases of Response and Recovery to a Biological Incident

Response and Recovery*					
Crisis Management		**Consequence Management**			
Notification	**First Response**	**Remediation/Cleanup**			**Restoration/ Reoccupancy**
		Characterization	**Decontamination**	**Clearance**	
Receive information on biological incident Identification of suspect release sites Notification of appropriate agencies	Initial threat assessment HAZMAT and emergency actions Forensic investigation Public health actions Screening sampling Determination of agent type, concentration, and viability Risk communication	Characterization of biological agent Characterization of affected site Site containment Continue risk communication Characterization environmental sampling and analysis Initial risk assessment Clearance goals	Decontamination strategy Remediation Action Plan Worker health and safety Site preparation Source reduction Waste disposal Decontamination of sites or items Decontamination verification	Clearance environmental sampling and analysis Clearance decision	Renovation Reoccupation decision Long-term environmental and public health monitoring
* The optimization decision process is applicable to any phase					


09-11-01
09-11-01
DEATH TO AMERICA
DEATH TO ISRAEL
ALLAH IS GREAT

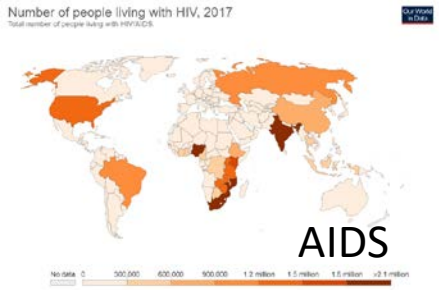
“Responding and Recovering” from Outbreaks


SMALLPOX



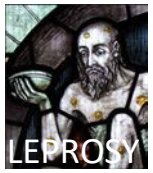
TYPHOID

CRYPTO
The Milwaukee Outbreak



AIDS


MEASLES


LEPROSY


CHOLERA

ANTHRAX


ZIKA

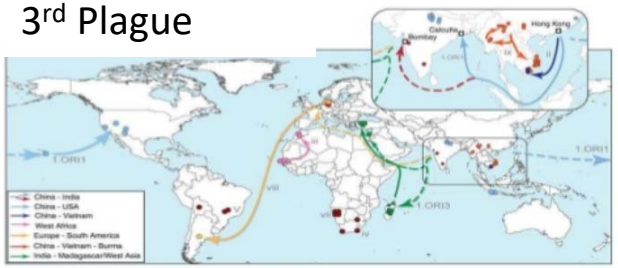
Antiquity | Middle Ages | Modern Era | Today | What’s Next?

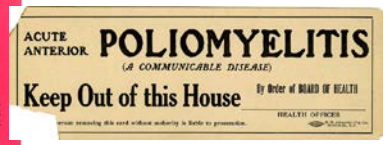

Justinian

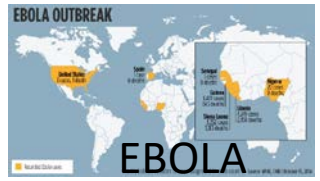

Black Death

3rd Plague

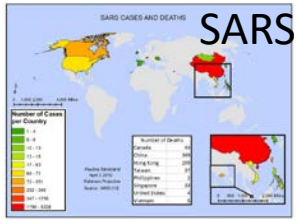
PLAGUE







EBOLA



SARS


ASF

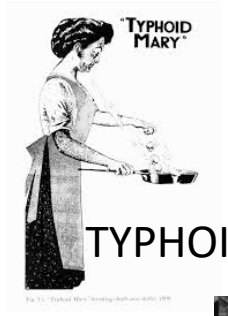

MERS

How and why do disease outbreaks occur?

- People on the move
- Living closer together
- Changing the land
- Evolving interactions with animals
- Infrastructure failures
- Lab accidents
- Bioterrorism

“Responding and Recovering” from Outbreaks


SMALLPOX



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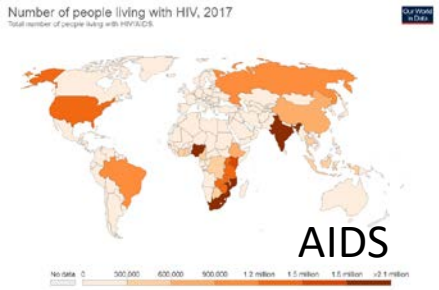

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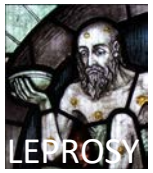
MEASLES


LEPROSY


CHOLERA

ANTHRAX


ZIKA

Antiquity | Middle Ages | Modern Era | Today

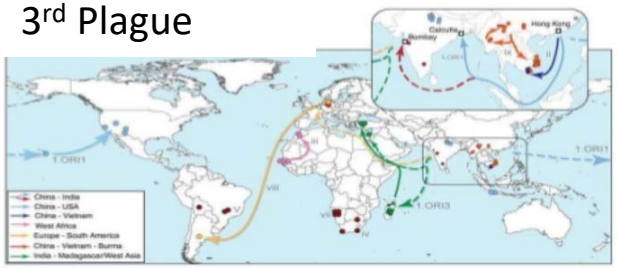
What’s Next?

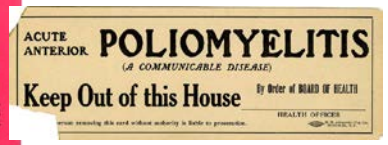

Justian

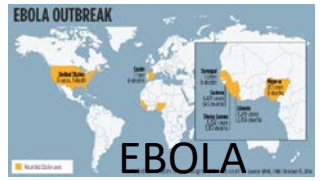

Black Death

3rd Plague

PLAGUE







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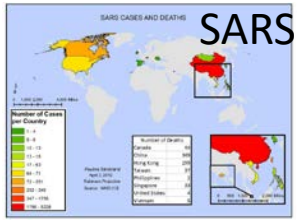


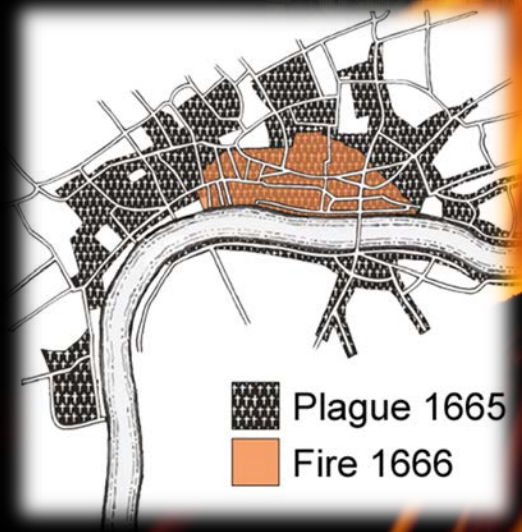
SARS


ASF


MERS

https://ridiculousgreetingcards.wordpress.com/2010/01/07/clean-world/

Great Fire of London, 1666

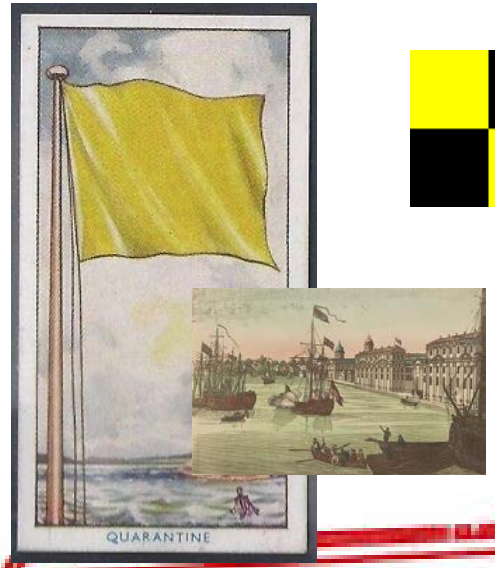


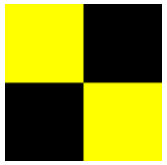
San Francisco Earthquake, 1906

Plague-infested homes (China, 1890s)

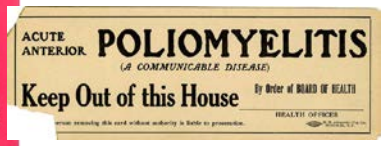
Plague-infested homes (Honolulu, 1900)


HOME FOR LEPERS
MARCH 1991
MISSION TO LEPERS IN INDIA


QUARANTINE




These Premises are
QUARANTINED
SCARLET FEVER


ACUTE ANTERIOR POLIOMYELITIS
(A COMMUNICABLE DISEASE)
Keep Out of this House
By Order of BOARD OF HEALTH
HEALTH OFFICER


THESE PREMISES ARE UNDER
QUARANTINE
No one is permitted to enter or leave without permission of the Health Officer.
WHOOPING COUGH
City-County Health Department


"TYPHOID MARY"


NIGHT EXTRA
The Seattle Daily Times
CHURCHES, SCHOOLS, SHOWS CLOSED
EPIDEMIC PUTS BAN ON ALL PUBLIC ASSEMBLIES
SEATTLE TO MAKE FIGHT ON DISEASE
AMERICANS AND FRENCH SMASH FOE
U.S. TROOPS SMASH HUNS IN ARGONNE
ONLY ONE-HALF OF CITY'S QUOTA FOR LOAN SUBSCRIBED
BLAST SHATTERS DOZENS OF TOWNS IN NEW JERSEY
NEW WAGE SCALE IN SHIPYARDS TO RUN FROM AUG. 1


QUARANTINE


HORNET • 3

THE PLAGUE IN PENSACOLA AND ITS EXTERMINATION

The Dreaded "Bubonic Plague" Has Appeared In Pensacola

THE FEDERAL, STATE AND CITY HEALTH AUTHORITIES ARE FIGHTING THIS DISEASE FOR YOUR BENEFIT

To Insure Success, Your Co-operation Is Imperative

This Plague is primarily a disease of the Rat.
The infection is transmitted by the Flea.
The Flea living on the infected Rat becomes infected
If the infected Flea bites a human being, that person becomes infected with the Plague.
It is incumbent upon all to wage a relentless war on the Rat.

YOUR DUTY:

Trap Rats!
Obey the Sanitary Laws of the City!
Have your Premises Inspected!

CITIZENS' HEALTH COMMITTEE

A TALE OF TWO CITIES

AND HOW THEY DEALT WITH THE PLAGUE

APRIL 6, 1900
PRICE: 5¢
VOL. 6

PLAGUE HITS SAN FRANCISCO

POLITICS.
ECONOMICS.
RACISM

Merle Rosenzweig, Anna Cupito, Elise Wescom, Chase Masters

1. On the wharves, San Francisco, 1900.

2. Joseph James Kinyoun MD: Central to the discovery of the San Francisco plague of 1900-1904

3. Plague Commissioners. Photograph taken during commmissioner "bureau" meeting on February 4th, 1901. From left: Lewellys Barker, Simon Flexner, Frederick Novy.

4. Frederick Novy: Showed plague was present by performing fluid aspirated from the spleen of the deceased patient, Wong Chi Lin.
5. Page from Novy's laboratory notebook.

6. Receiving Station set up as part of the War on Rats led by the U.S. Public Health Service.
7. Rat Dissection.

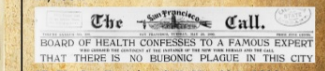
8. Hiding the Sick.

9. Fighting the Plague in San Francisco.

11. San Francisco's Chinatown with barbed wire fences circa 1900.

10. San Francisco Quarantine. May 30, 1900.

12. Official Report Upon the Plague in San Francisco. the Pacific commercial advertiser, April 17, 1901.

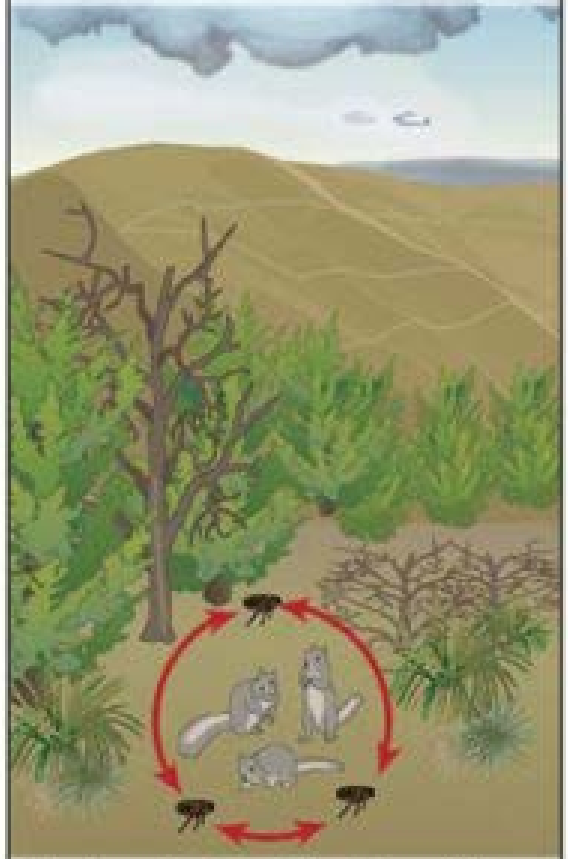


13. The San Francisco Call. May 29th, 1900.

Plague Ecology in the United States

Plague in Nature

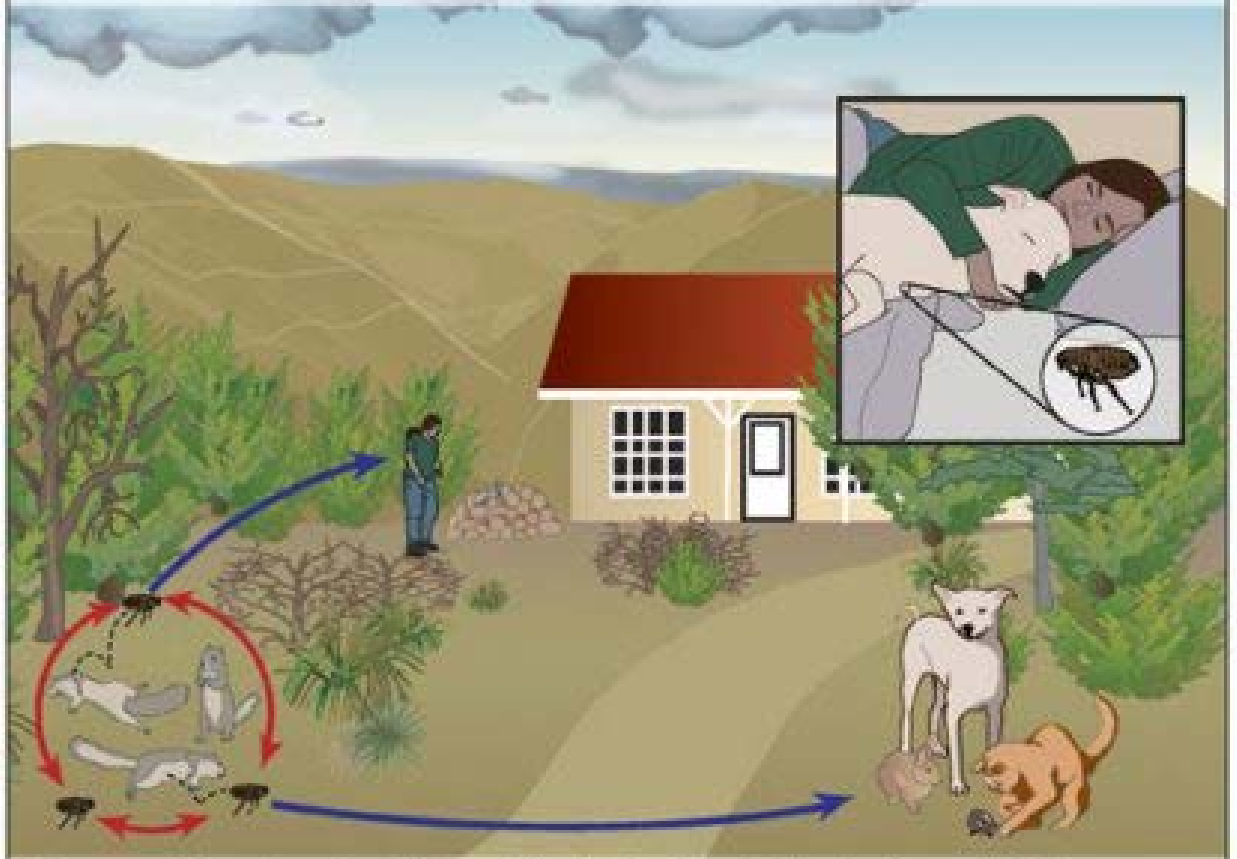
Plague occurs naturally in the western U.S., especially in the semi-arid grasslands and scrub woodlands of the southwestern states of Arizona, Colorado, New Mexico and Utah.



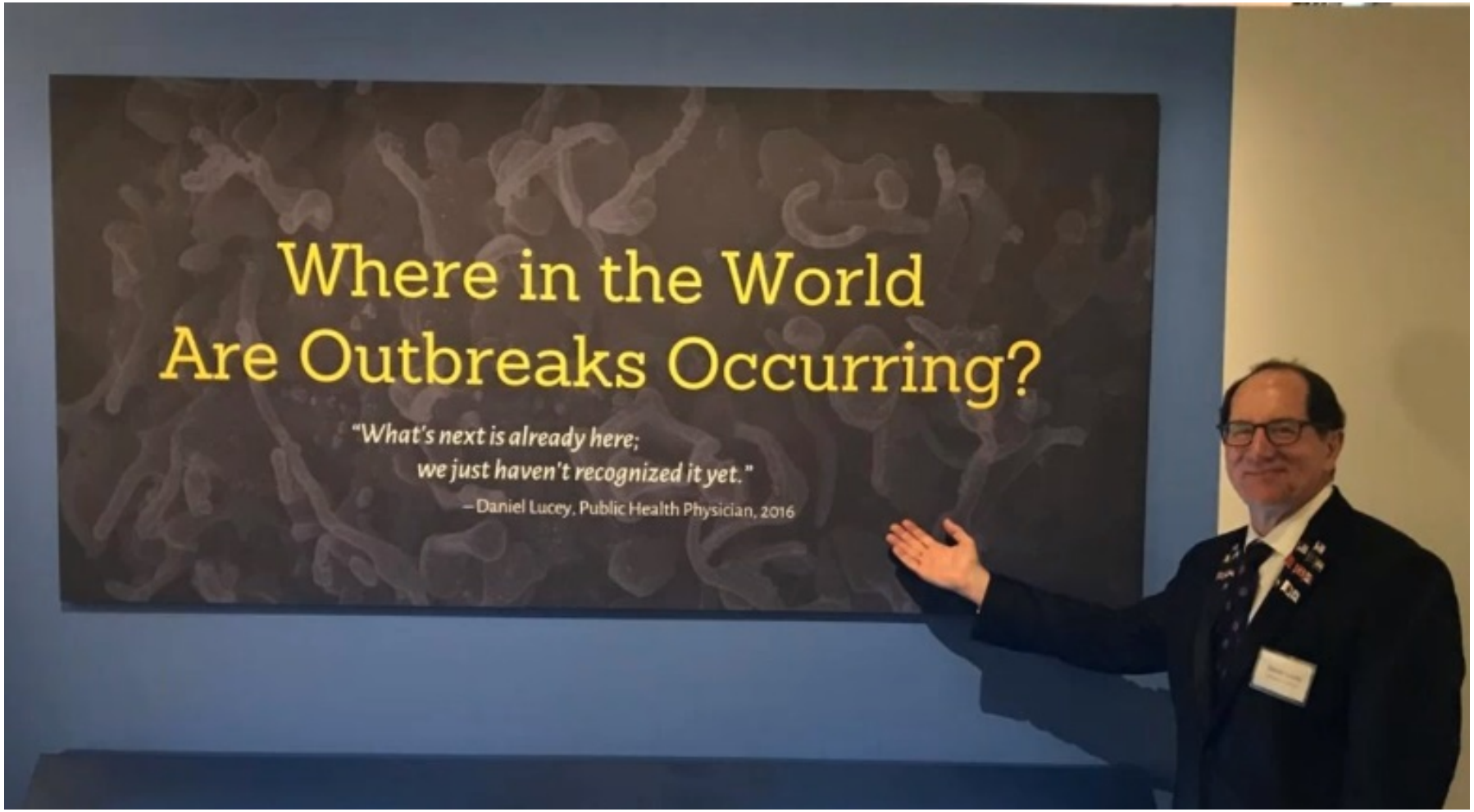
The plague bacterium (*Yersinia pestis*) is transmitted by fleas and cycles naturally among wild rodents, including rock squirrels, ground squirrels, prairie dogs and wood rats.

Plague in Humans

Occasionally, infections among rodents increase dramatically, causing an outbreak, or epizootic. During plague epizootics, many rodents die, causing hungry fleas to seek other sources of blood. Studies suggest that epizootics in the southwestern U.S. are more likely during cooler summers that follow wet winters.



Humans and domestic animals that are bitten by fleas from dead animals are at risk for contracting plague, especially during an epizootic. Cats usually become very ill from plague and can directly infect humans when they cough infectious droplets into the air. Dogs are less likely to be ill, but they can still bring plague-infected fleas into the home. In addition to flea bites, people can be exposed while handling skins or flesh of infected animals.



US National Biodefense Strategy

ASSESS PREVENT PREPARE RESPOND RECOVER

National Biodefense Strategy Calls for a Robust Decontamination Capability

For more information:

https://www.phe.gov/Preparedness/biodefense-strategy/