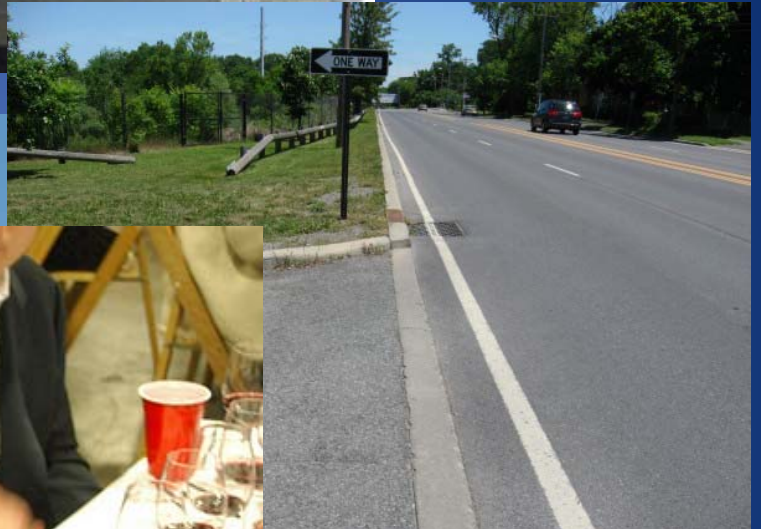


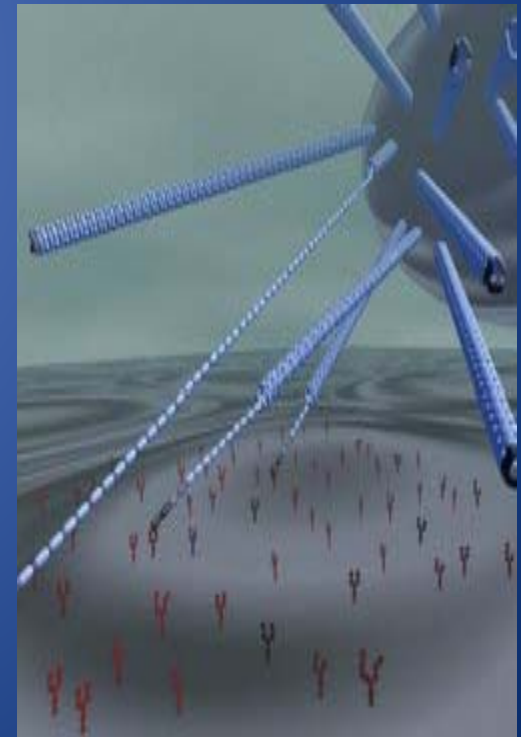
↓ ↓ ↓ ALLONTANARSI DALLA LINEA GIALLA



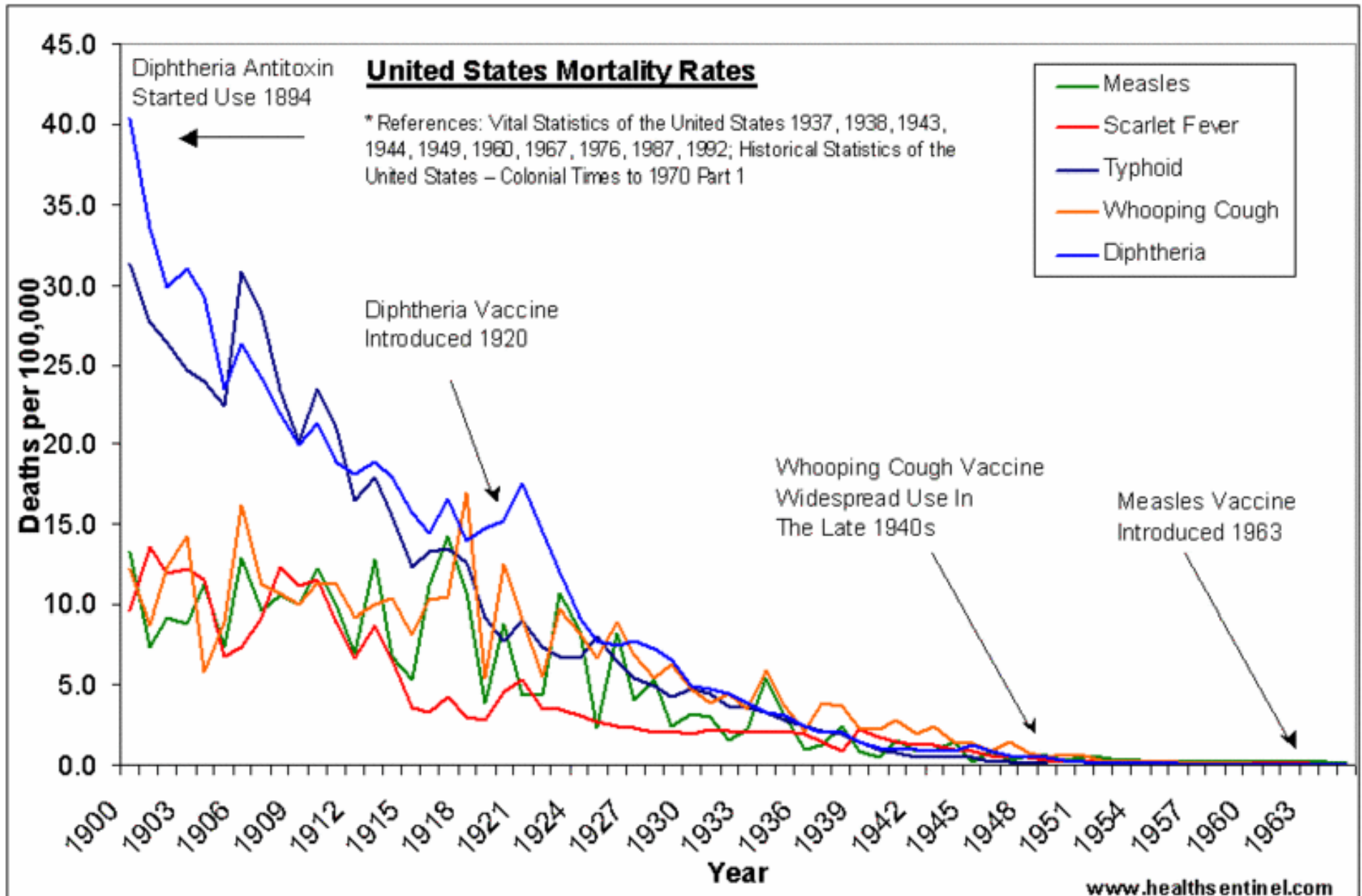
War of the Worlds:

Our Worlds are Colliding and Infections
Disease is Winning.

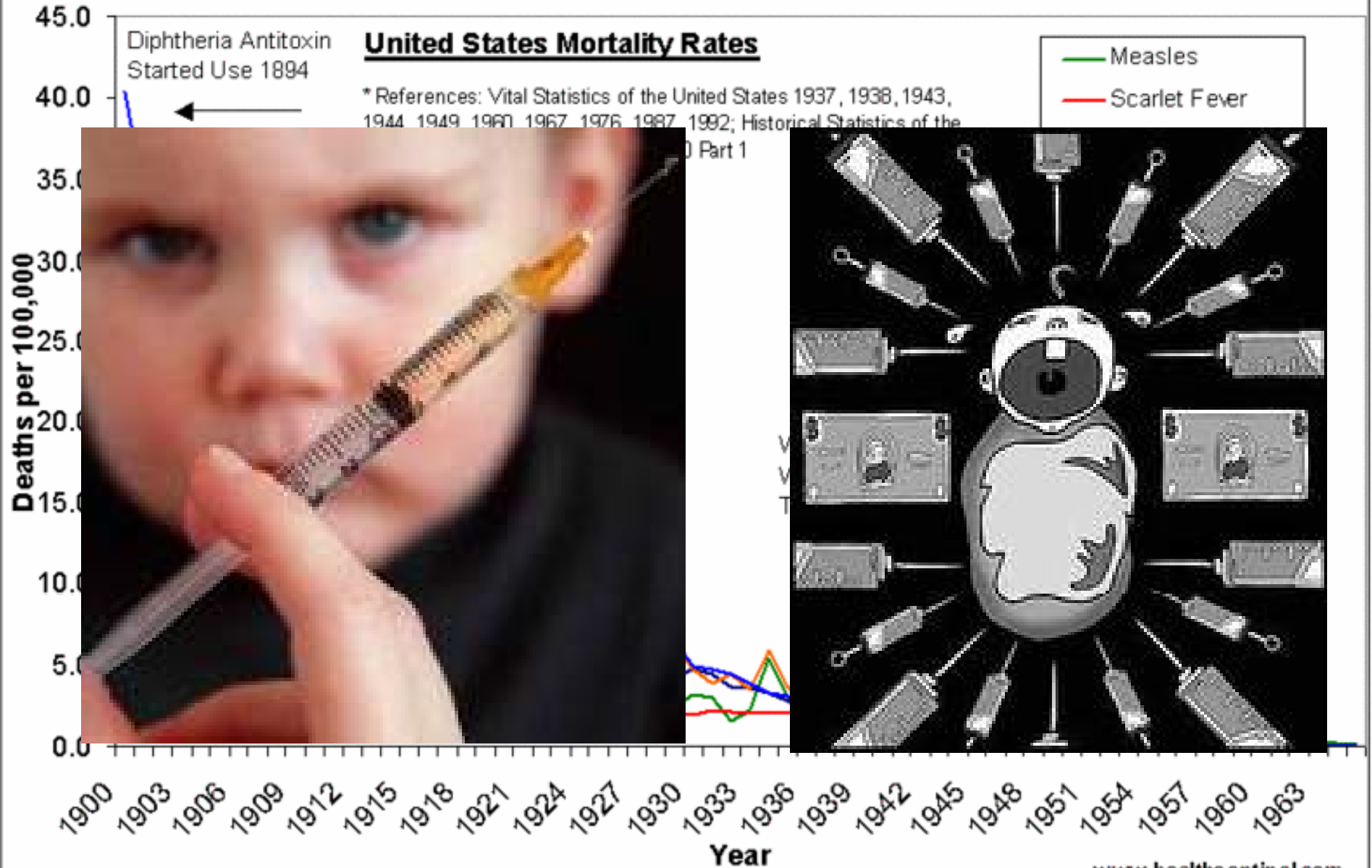
Biosafety in a World of Emerging Diseases.



Infectious Diseases



Infectious Diseases



Infectious Diseases



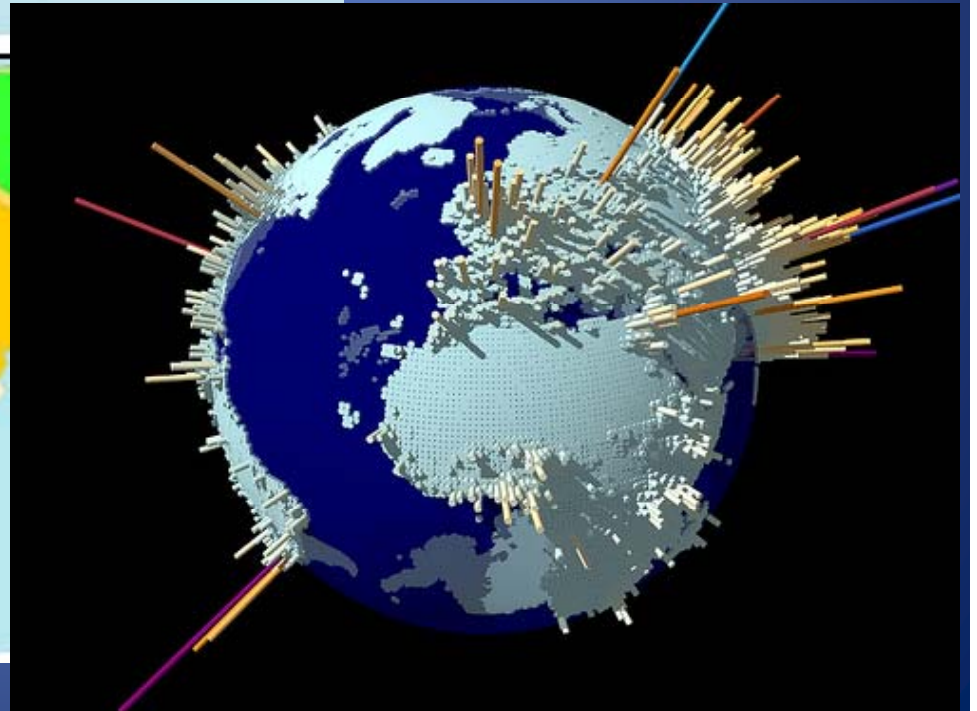
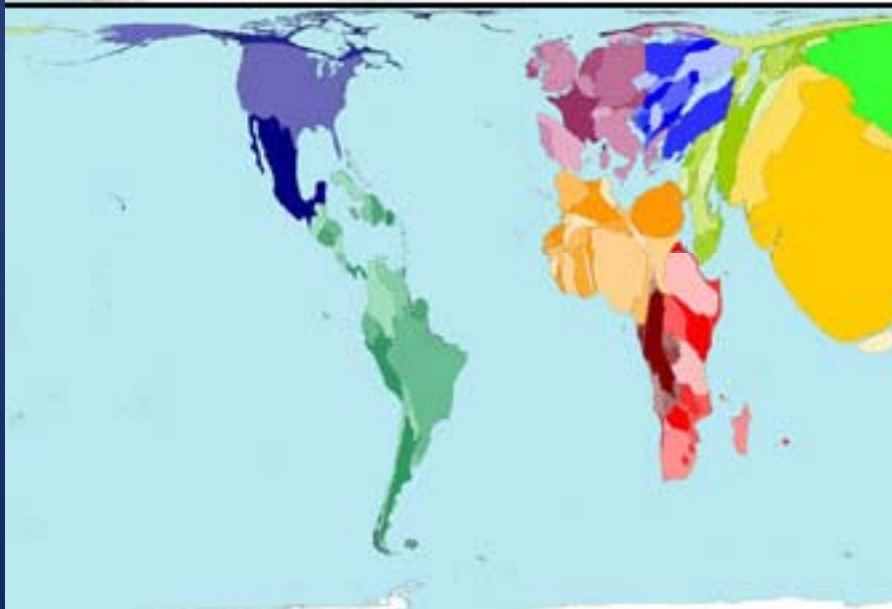
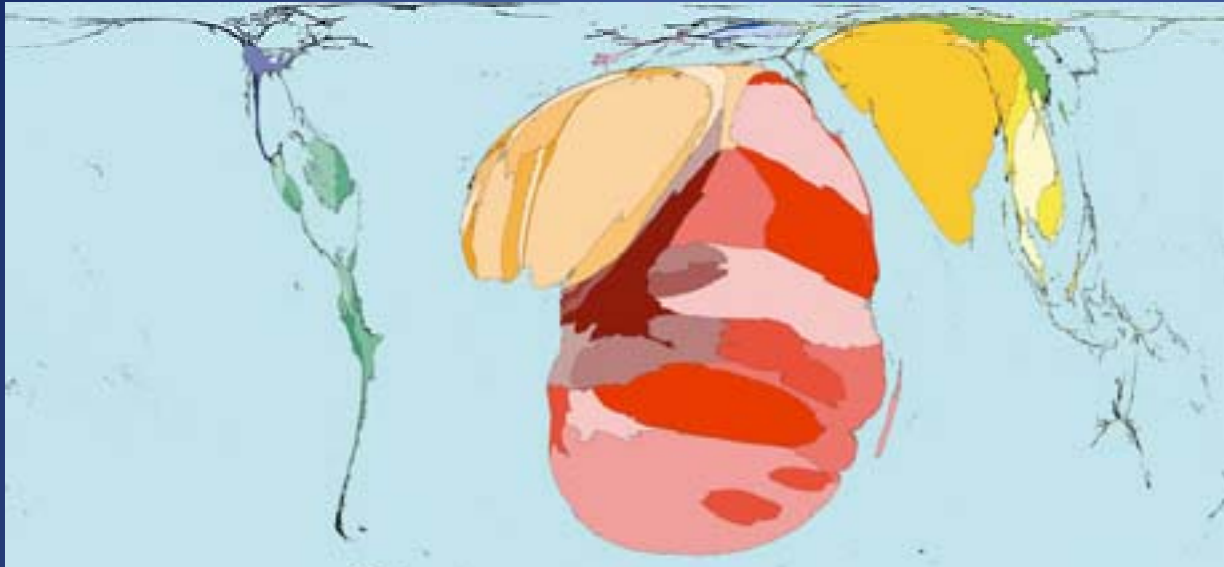
Dr. William H. Stewart, the Surgeon General responsible for the cigarette warning, is often quoted in infectious disease lectures as saying, "it is time to close the book on infectious diseases."

U.S. Surgeon General told Congress in 1969 that time was ripe to "close the book on infectious disease."

Infectious Diseases

Cartogram

Global Disease Burden



Human EIDs

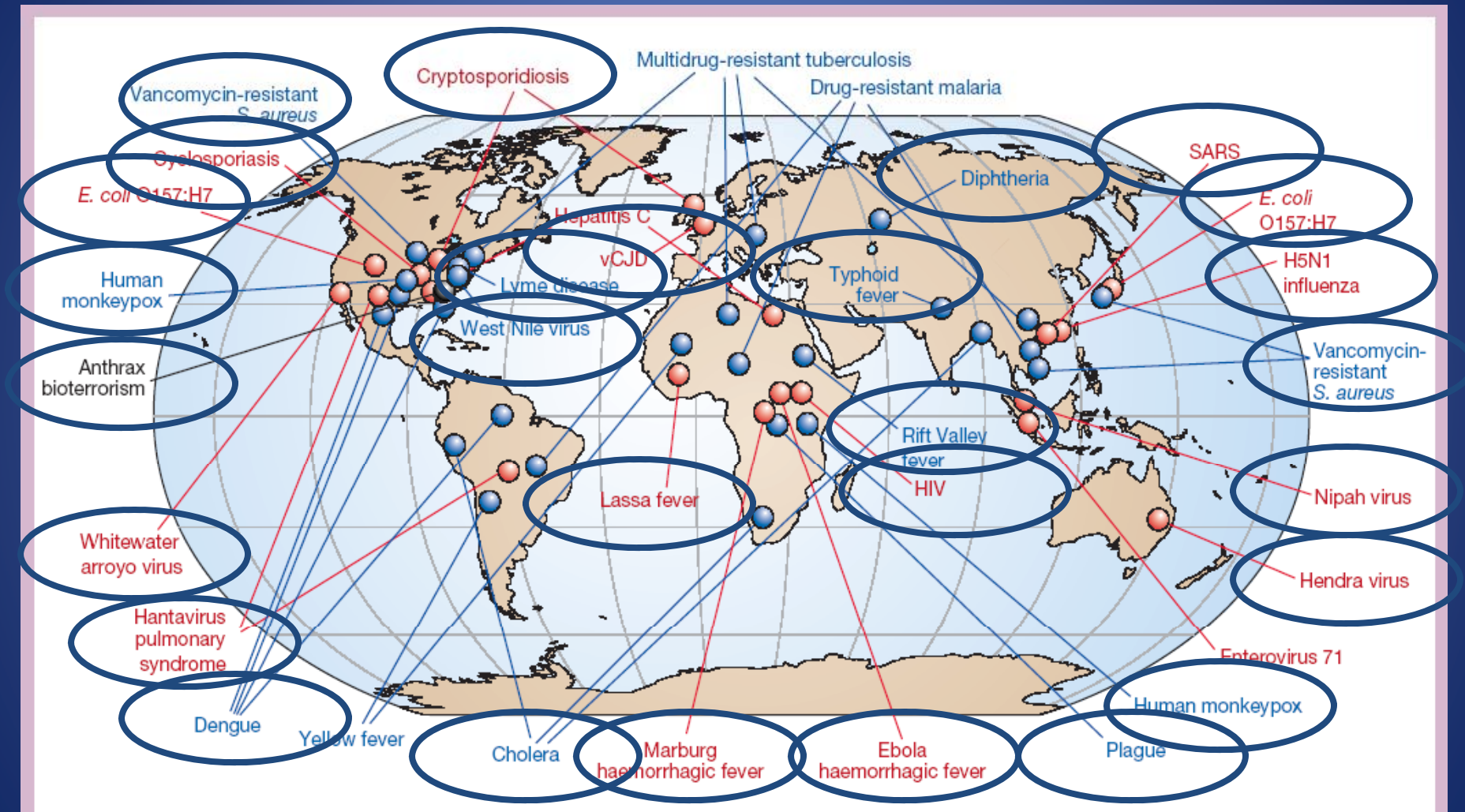


Figure 1 Global examples of emerging and re-emerging infectious diseases, some of which are discussed in the main text. Red represents newly emerging diseases; blue, re-emerging/resurging diseases; black, a 'deliberately emerging' disease. Adapted, with permission, from ref. 23.

EMERGING INFECTIOUS DISEASES[®]

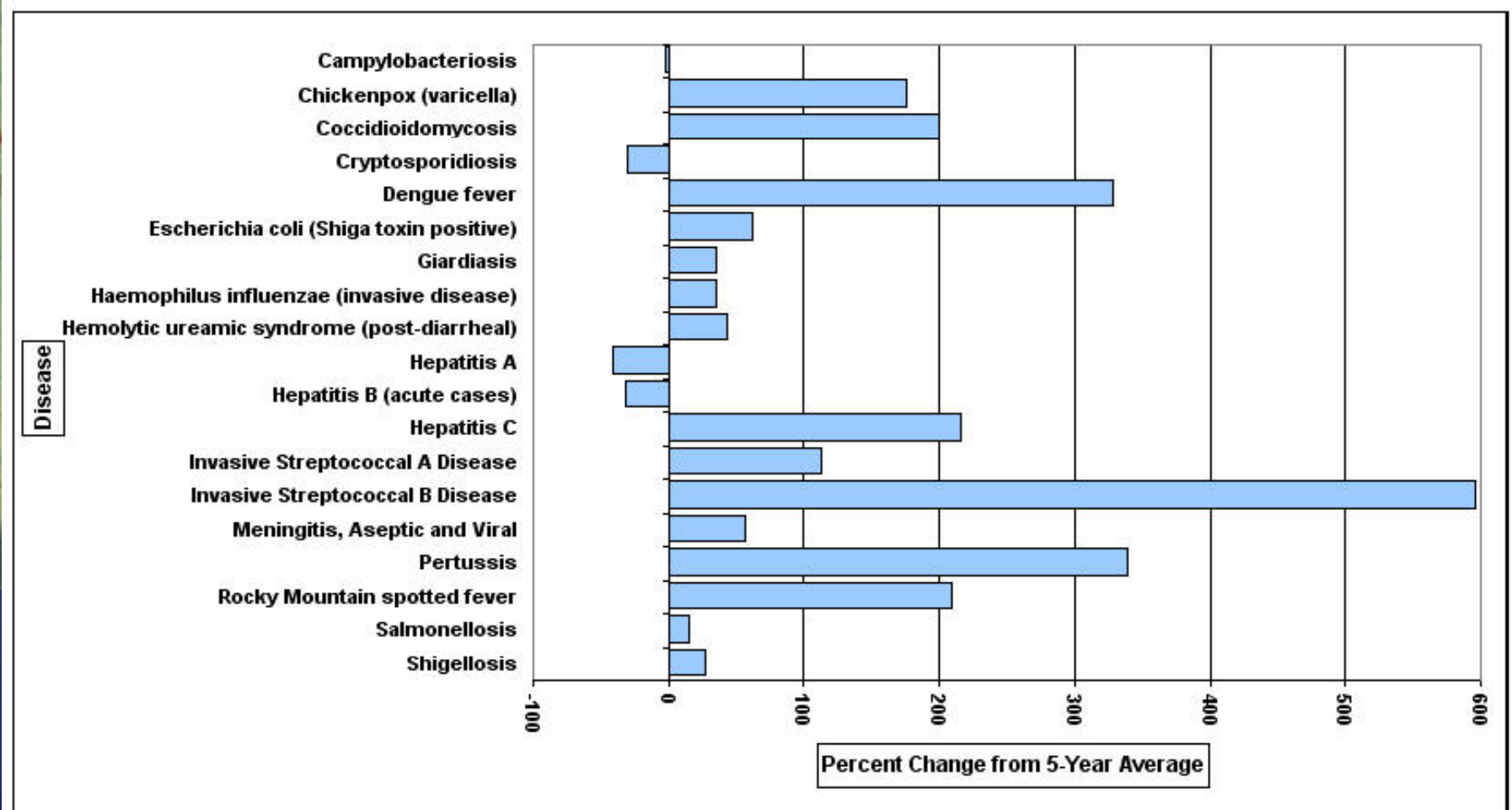
EID
OnLine

January 2007



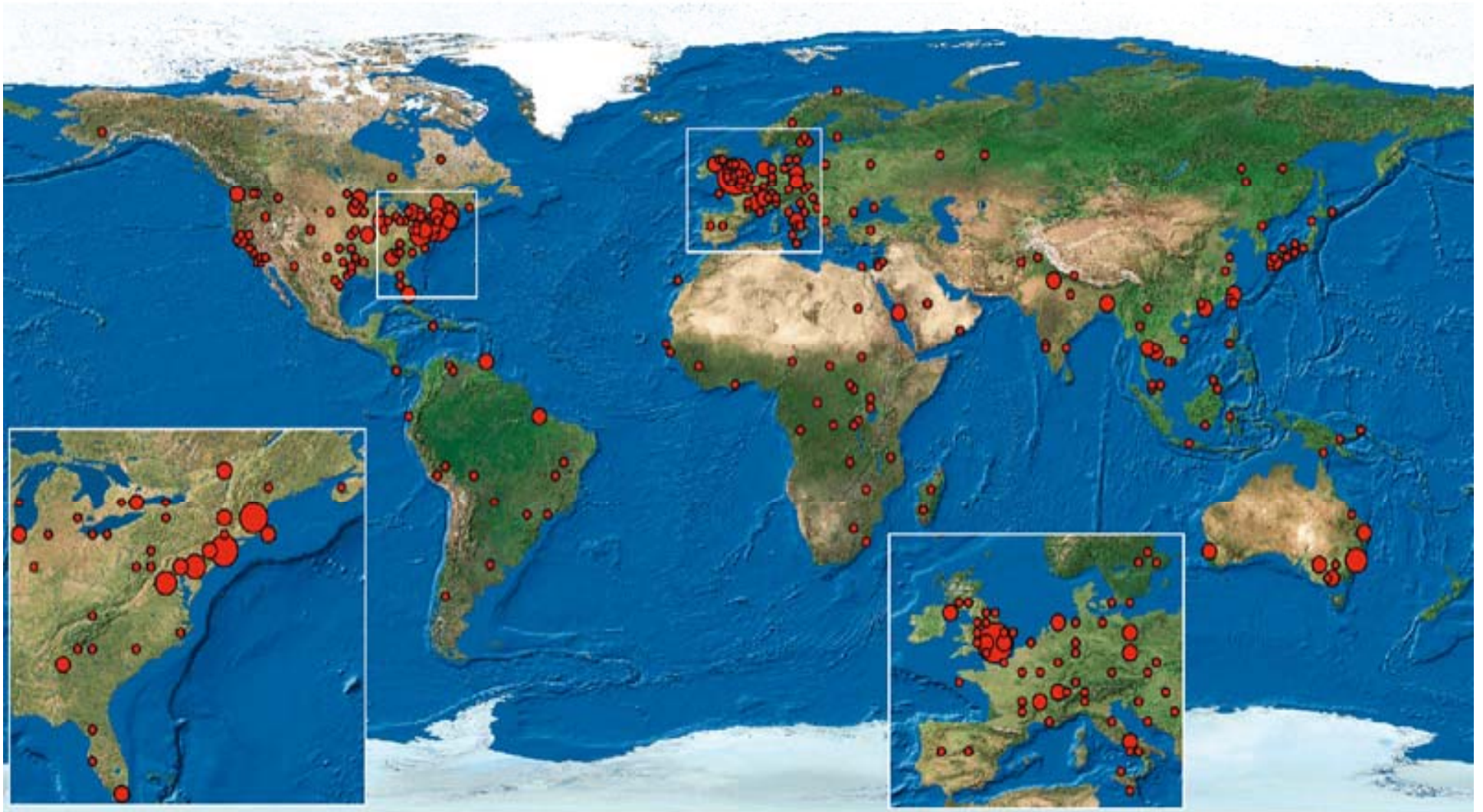
Cryptococcus gattii Dispersal

Re-emerging Disease



Emerging Disease - in our backyard

No. of EID events • 1 ● 2-3 ● 4-5 ● 6-7 ● 8-11



**The interfaces of humans, animals, wildlife, cultures...
a few GMO's and bioterrorists thrown in.**





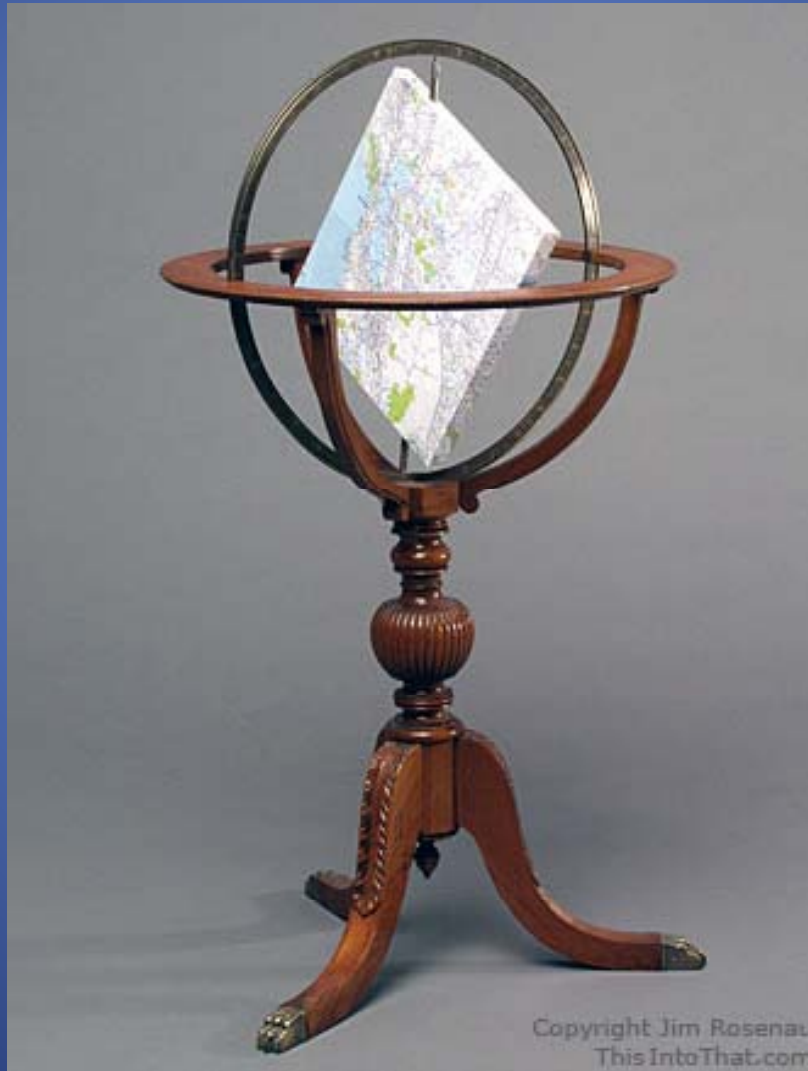
Mission Statement

Recognizing that human health (including mental health via the human-animal bond phenomenon), animal health, and ecosystem health are inextricably linked, One Health seeks to promote, improve, and defend the health and well-being of all species by enhancing cooperation and collaboration between physicians, veterinarians, other scientific health and environmental professionals and by promoting strengths in leadership and management to achieve these goals.

Vision Statement:

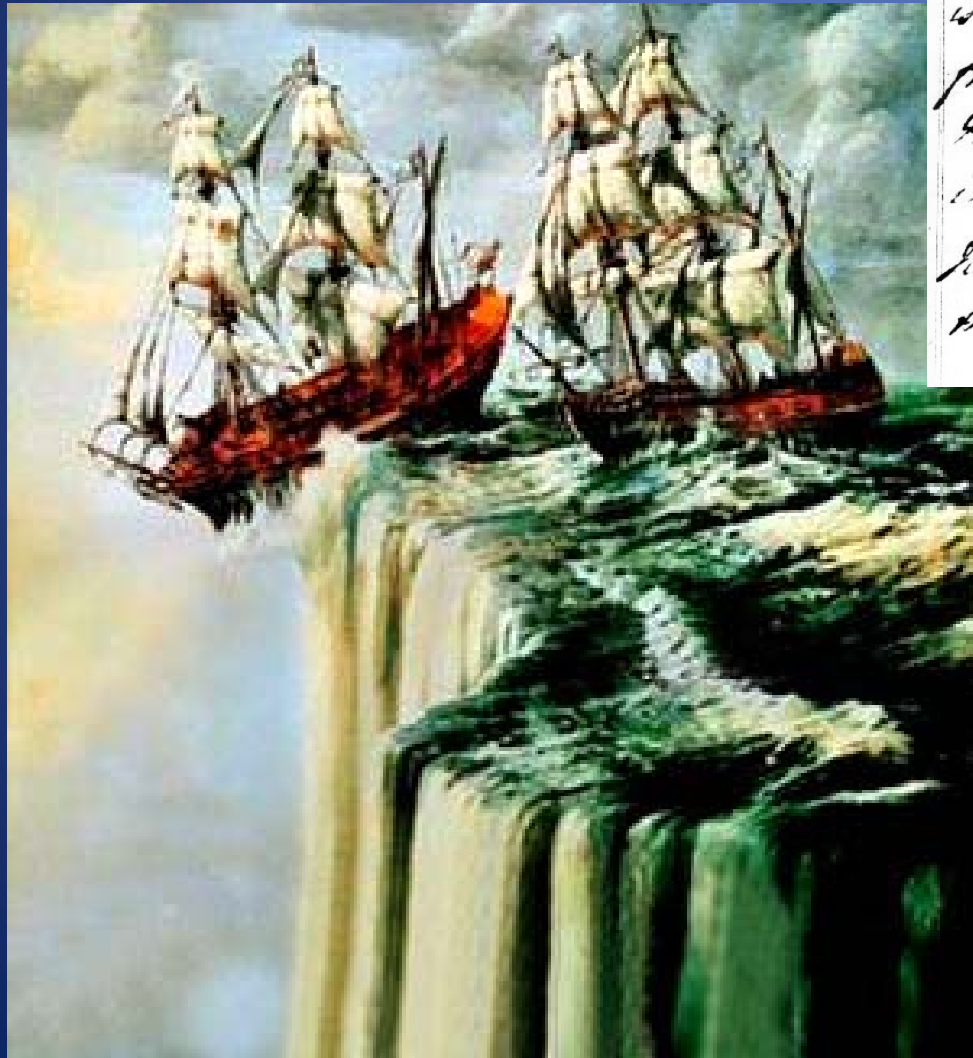
One Health (formerly called One Medicine) is dedicated to improving the lives of all species—human and animal—through the integration of human medicine, veterinary medicine and environmental science.

Infectious Diseases Emerging in a Flat World

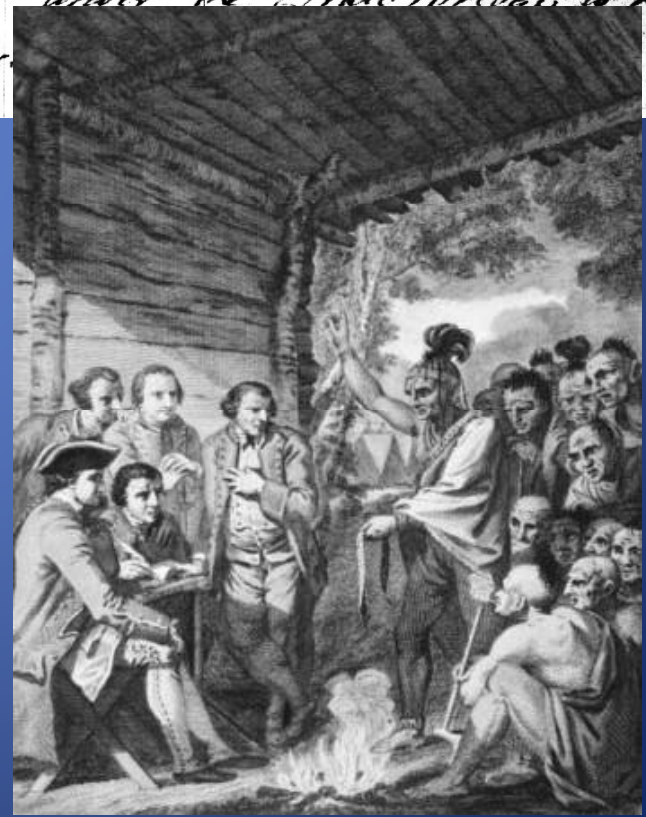


Copyright Jim Rosenau
ThisIntoThat.com

Emerging Diseases In a Flat World

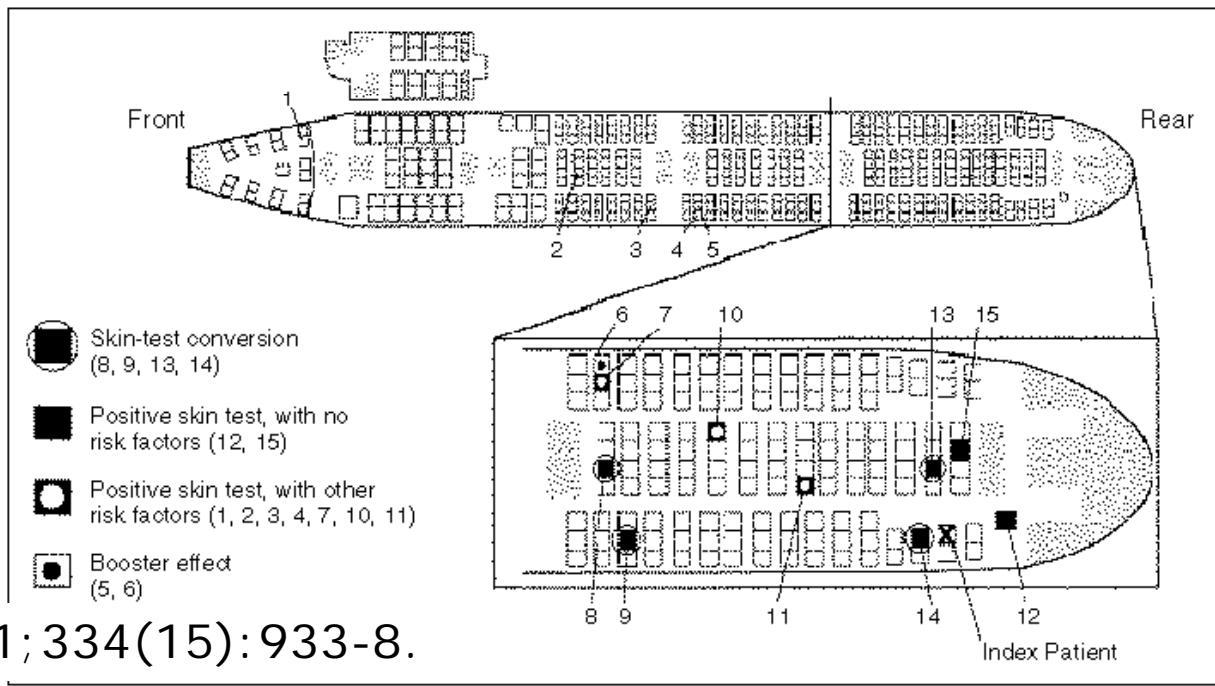
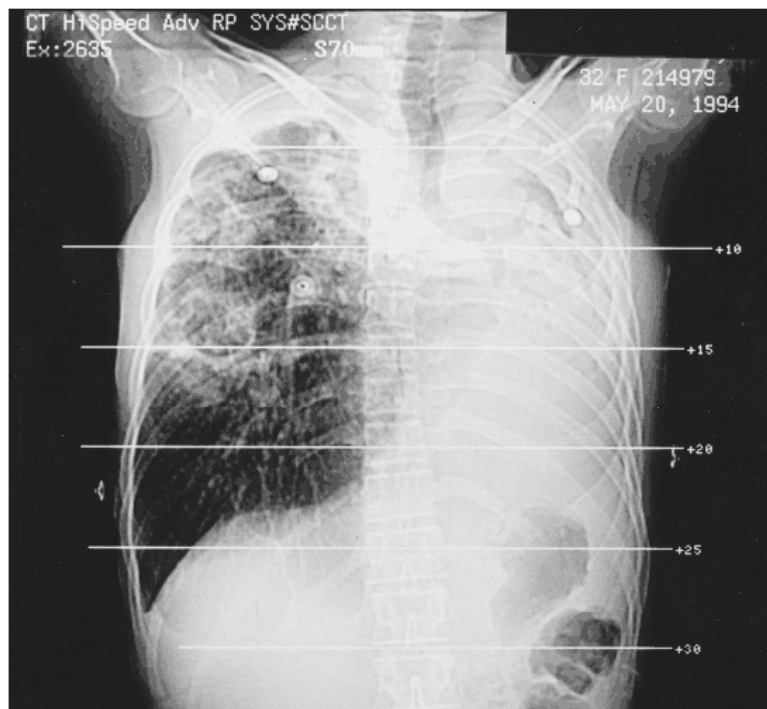


Captain Enyeart writes me that Fort Pitt is in good state of defence against all attacks from the Indians, who are daily firing upon the Fort; unluckily the Small Pox has broken out in the garrison, for which he has built one Hospital under the Draw Bridge to prevent the spread of the disease.



Emerging Diseases

A level playing field



[N Engl J Med.](#) 1996 Apr 11;334(15):933-8.

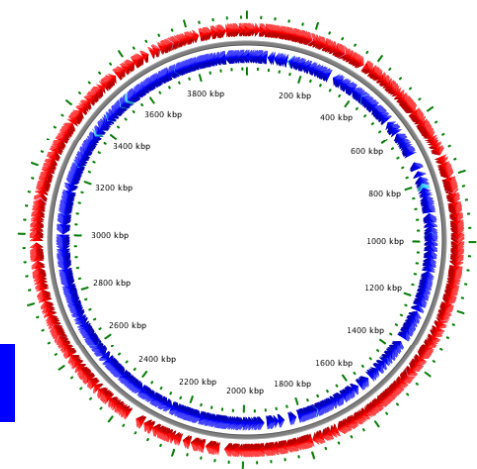
Who lives here?



States with Community Hospitals infected with *Acinetobacter Baumannii* from Iraq
As reported by staff, patients and family members.



Acinetobacter baumannii ATCC 17978, complete genome



Alien Islands

Accession: NC_009085

Topology: circular; Length: 3,976,747 bp; Genes: 3,421



SUPER SUPERBUGS

- Are you aware?
- What is NDM-1 and is it important to you?

<http://www.nytimes.com/2010/08/12/world/asia/12bug.html>



NDM-1 infection hotspots



Source: The Lancet

The New York Times

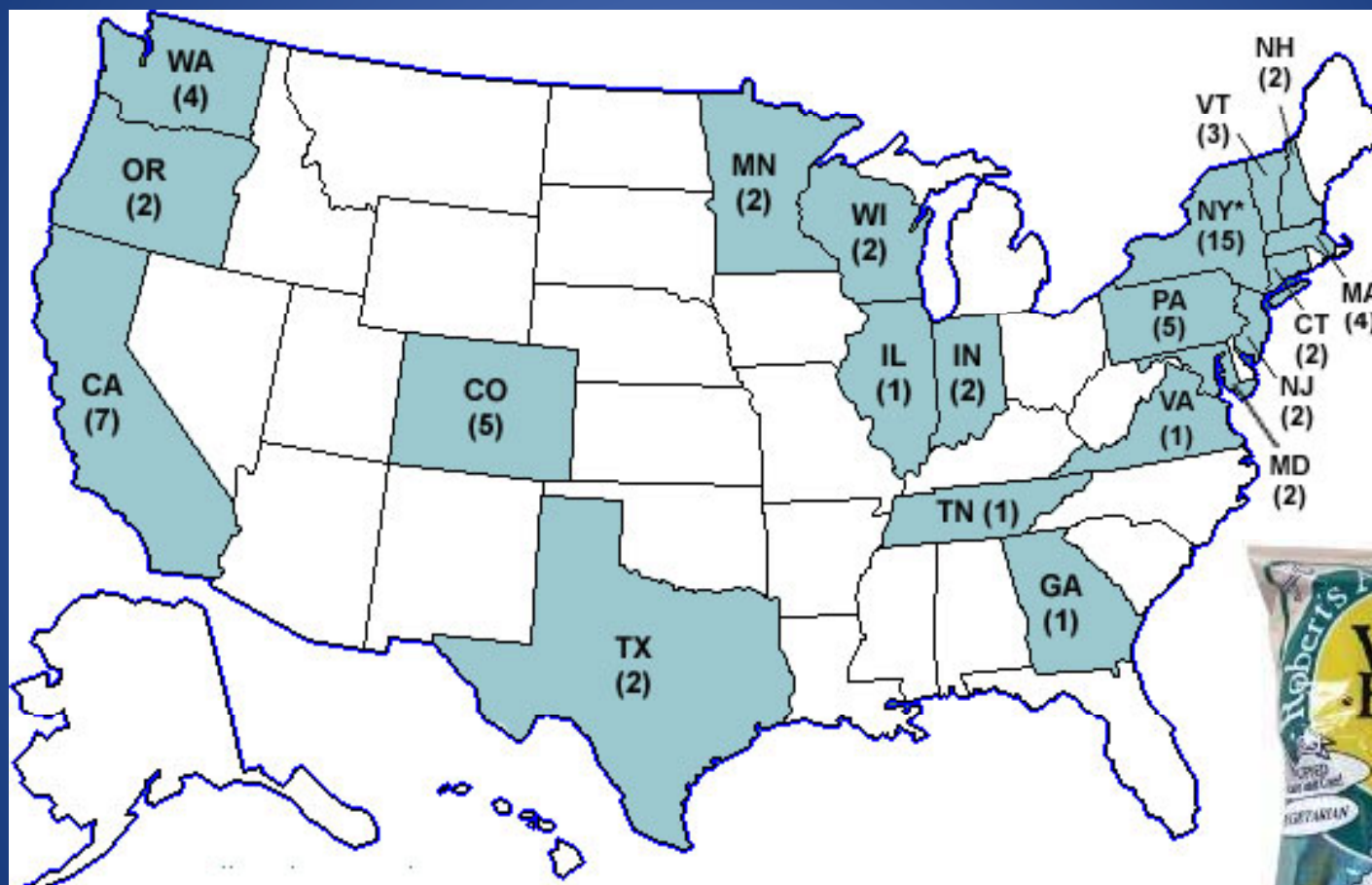
Antibiotic-Resistant Bacteria Moving From South Asia to U.S.

By DONALD G. McNEIL Jr.

— August 11, 2010

Medical experts said they feared that a mutation, common in Pakistan and India, could spread globally.

Salmonella wandsworth

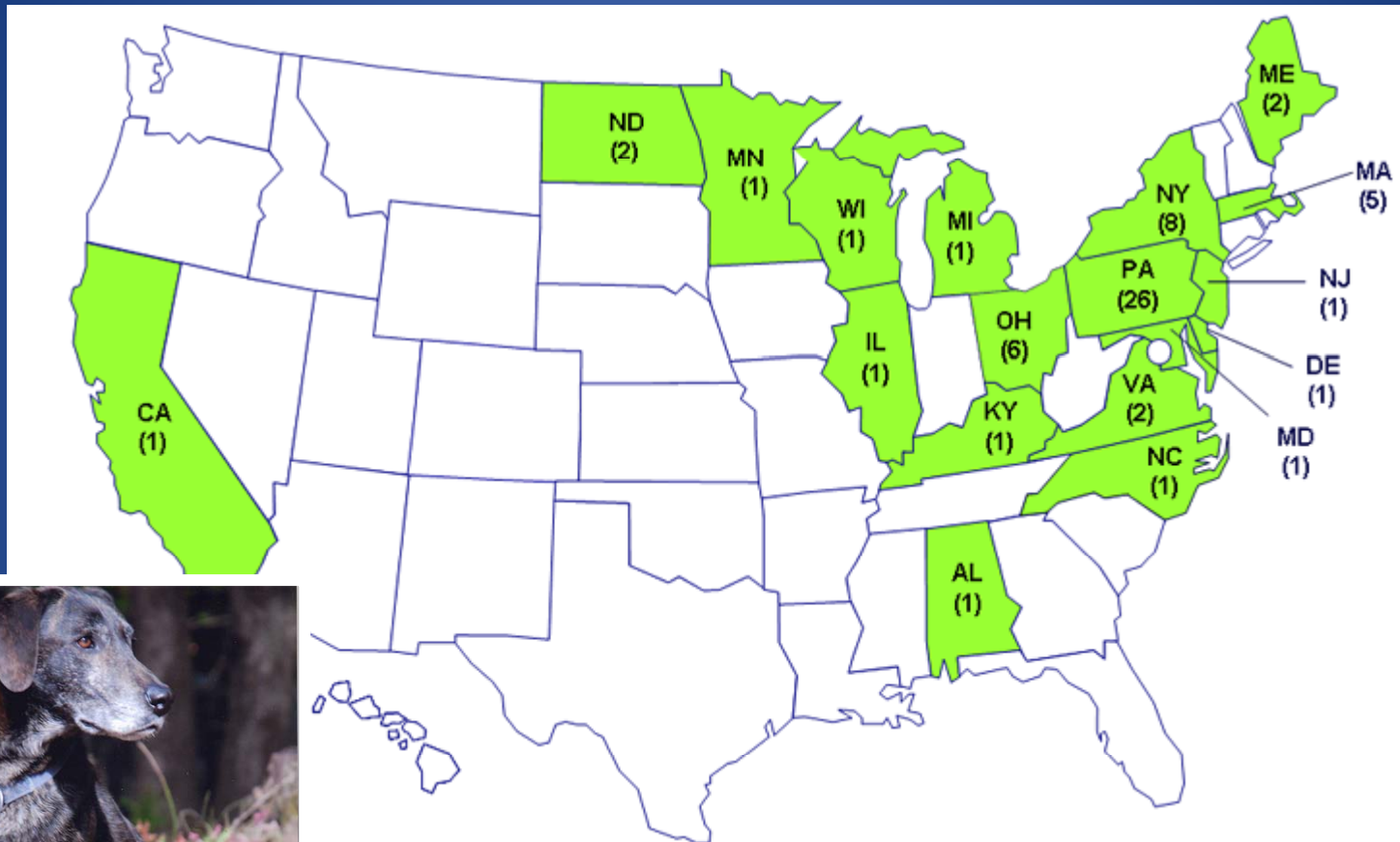


- Rare strain of *Salmonella* – in seasoning mix
- 90% of cases in children <3 years old

* New York City case count -
New York State case count



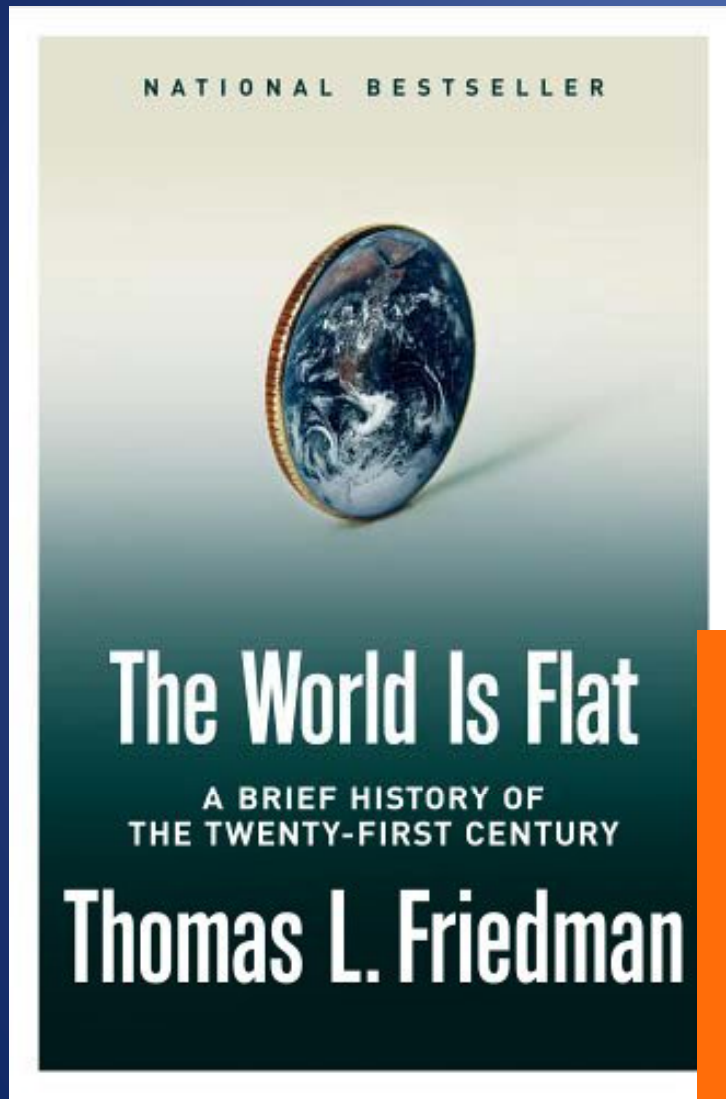
Salmonella schwarzengrund



Lucky, an unregistered Plott, owned by Rick and Libby Bagby. Photo by Tom Styers. Used by permission.

- Dry pet food
- 62 cases in humans
- 40% < 1 year old

A Flat World



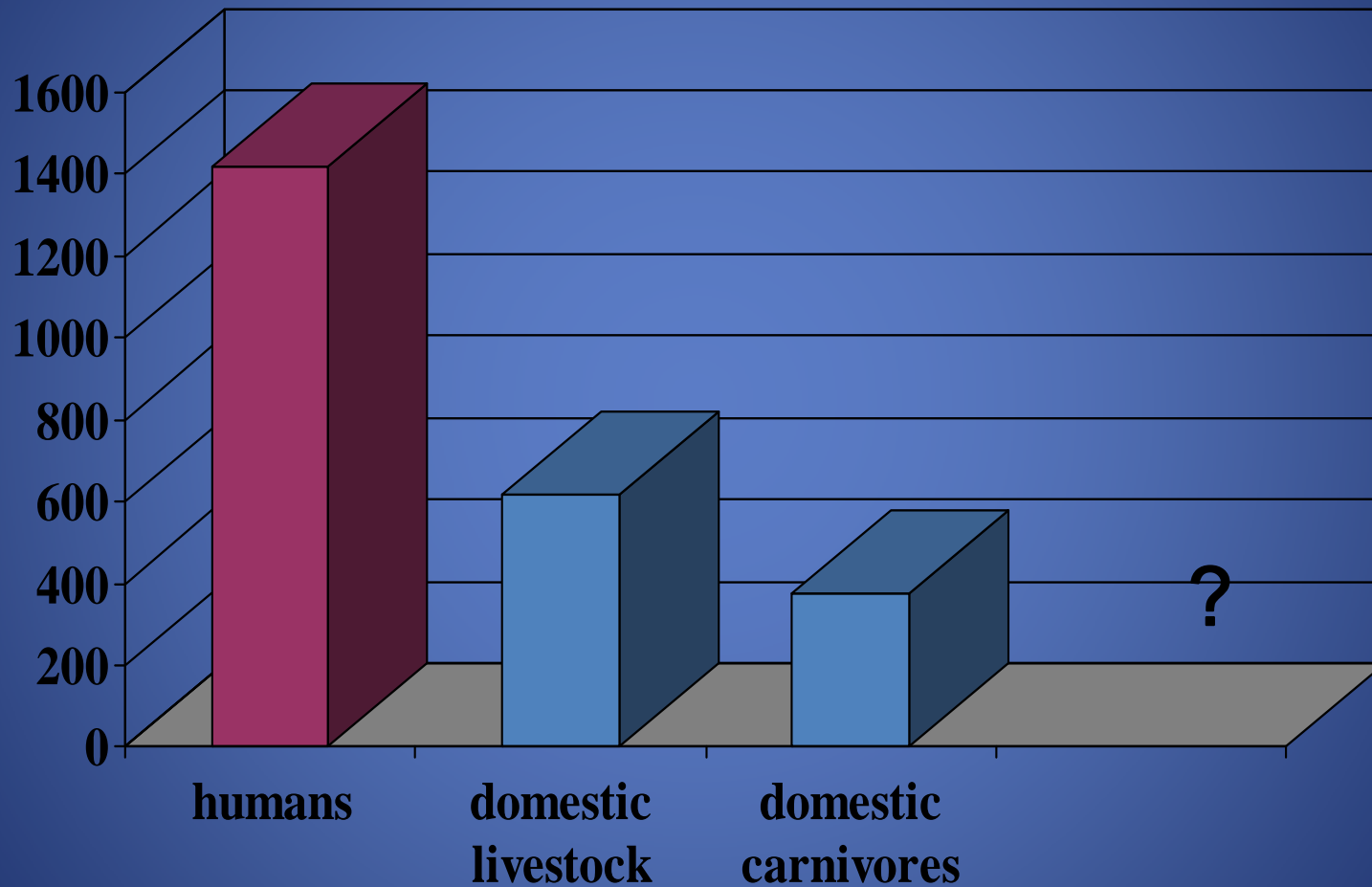
Ten "Flatteners"

- #1: **Collapse of Berlin Wall--11/'89**: End of the Cold war.
- #2: **Netscape**: Netscape and the Web broadened the audience to all people.
- #3: **Workflow software**: The ability of machines to talk to other machines.
- #4: **Open sourcing**: Communities uploading and collaborating online.
- #5: **Outsourcing**: Allows companies to split service & manufacturing activities.
- #6: **Offshoring**: Manufacturing's version of outsourcing.
- #7: **Supply chaining**: The Wal-Mart factor.
- #8: **Insourcing**: UPS itself repairs Toshiba computers on behalf of Toshiba.
- #9: **In-forming**: Google "now processing roughly 1 billion searches per day".
- #10: **"The Steroids"**: Personal digital devices

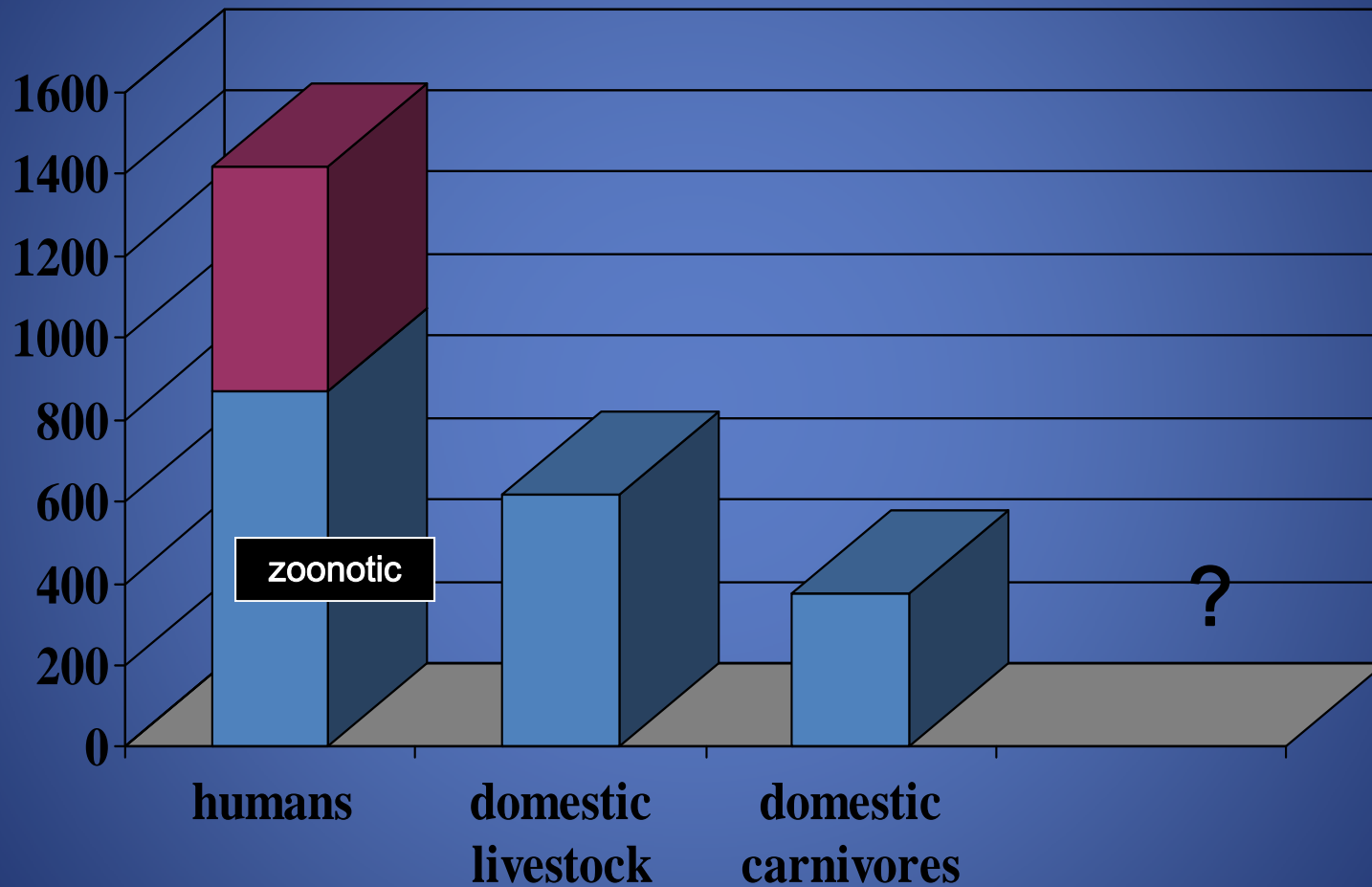
Emerging and Re-emerging Zoonoses Worldwide

- > 75% of EIDs are zoonotic agents
- Vast majority of BT agents are zoonotic
- Primary factors underlying emerging disease
 - movement to new populations
 - environment disruption
 - crossing species boundaries
 - lifestyle (husbandry changes)

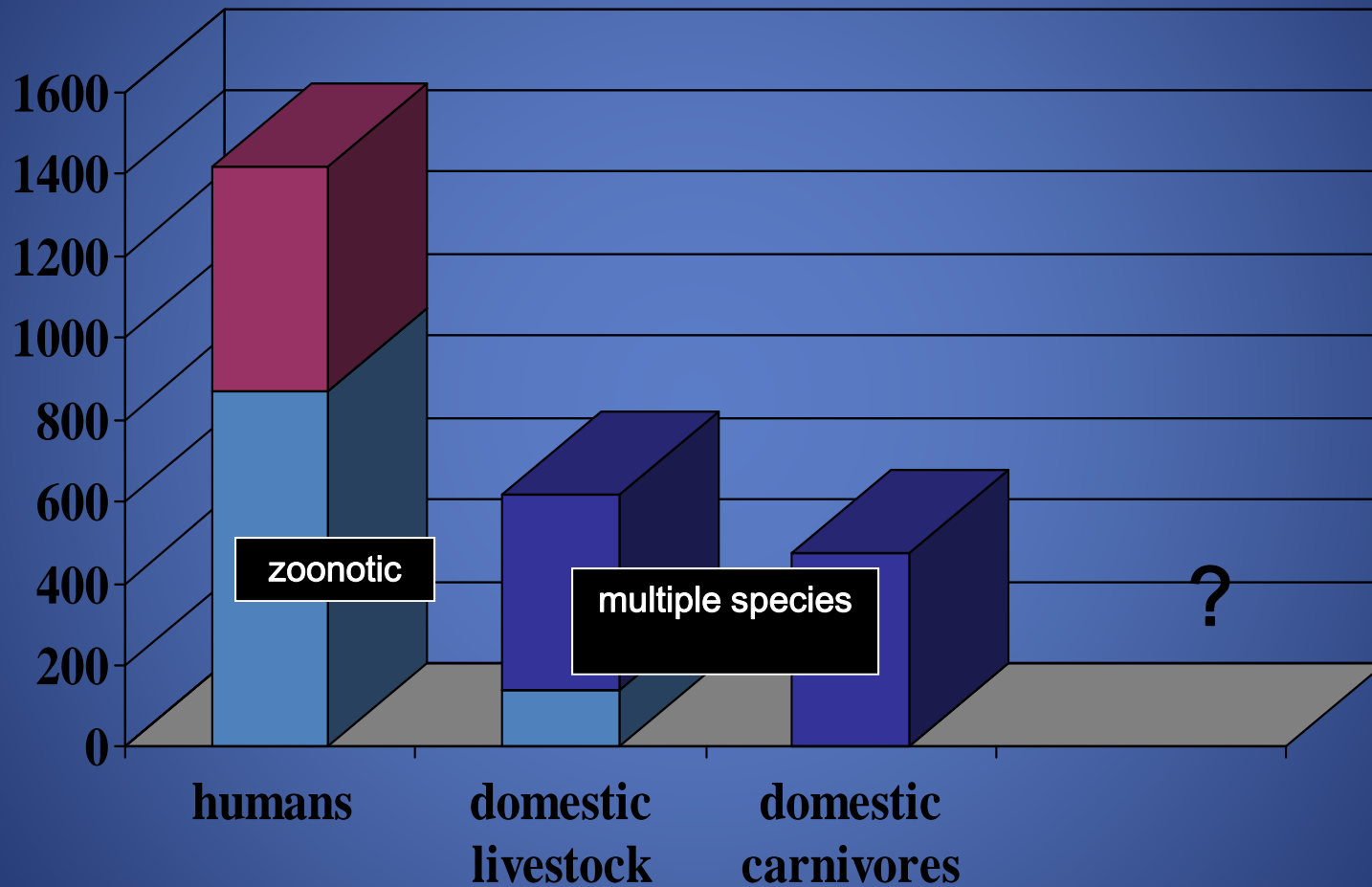
Numbers of Known Pathogens



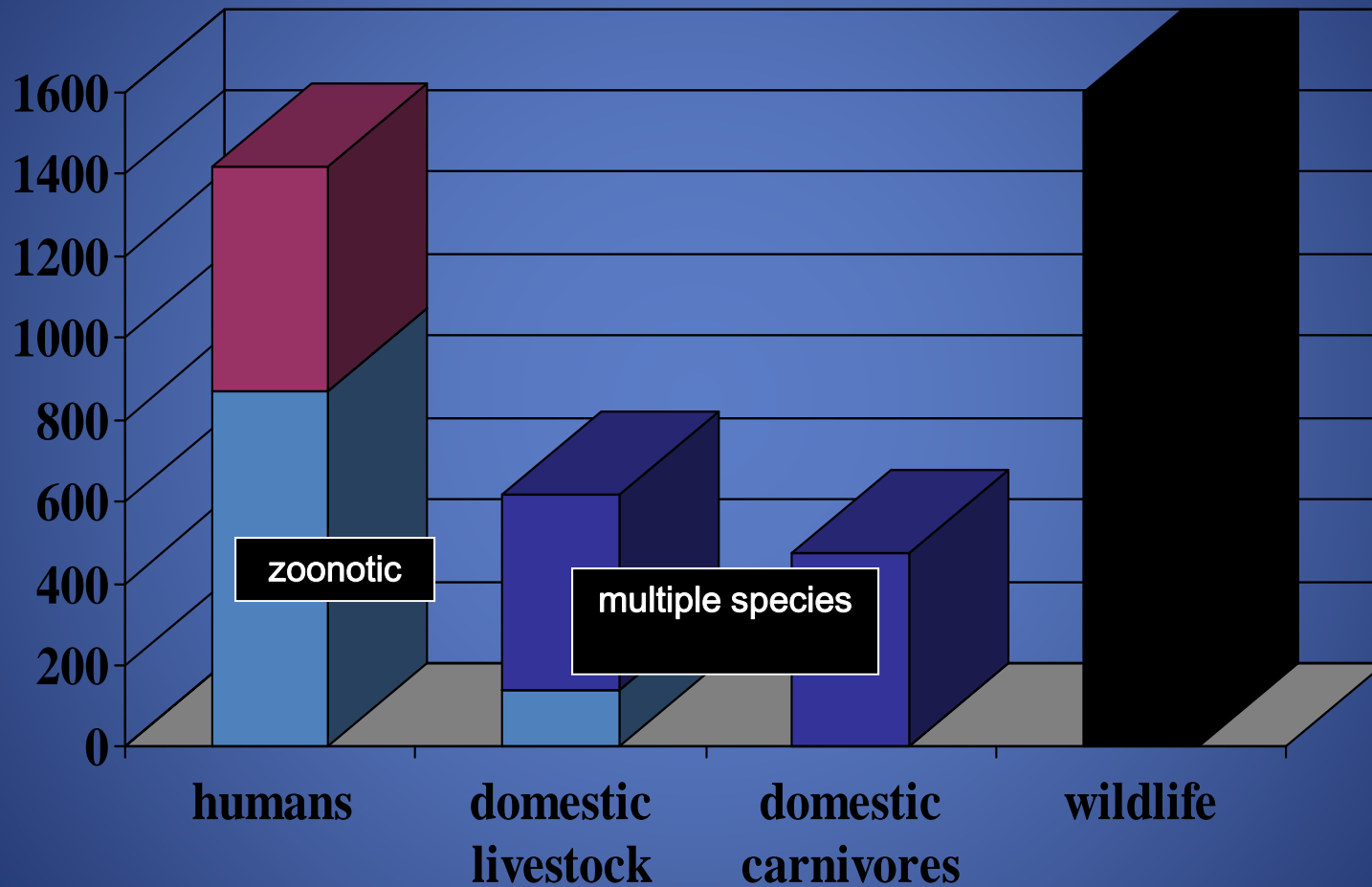
Numbers of Known Pathogens



Numbers of Known Pathogens



Numbers of Known Pathogens



International Transport of Wildlife

- **FACT 1:** More than 650 million exotic animals were imported legally into the United States during the past three years, according to the U.S. Fish and Wildlife Service. **LEGALLY**

Smuggling of exotic animals very lucrative



Illegal Exotic Animal Trade

- **FACT 2:** The \$10 billion-a-year black market for illegal exotic animals is second only to illegal drugs.



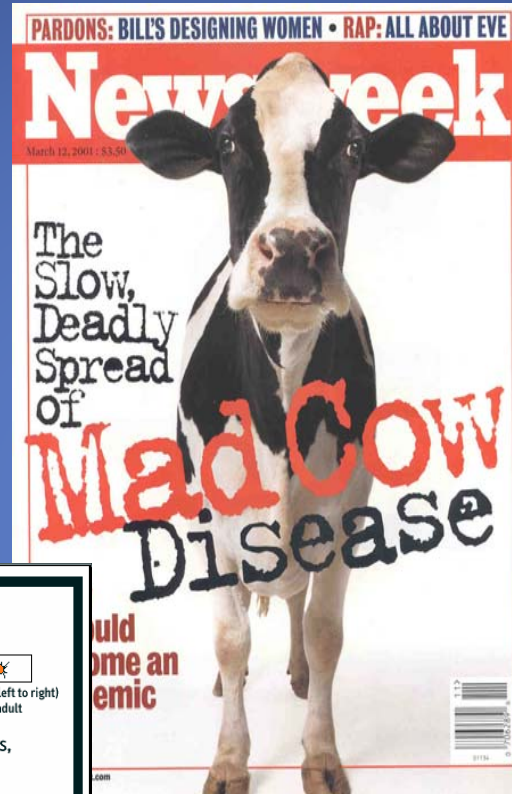
The government employs just 120 screeners to evaluate the millions of animals that enter the country.

Emerging Diseases – 3 WAVES

1. Brand new and spectacular
2. Bioterrorism - the select agents
3. Trade-generated w/ new geographic areas




Emerging Diseases - Brand new and spectacular



LYME DISEASE ALERT

Do a THOROUGH BODY CHECK FOR TICKS AFTER BEING OUTDOORS.

How To Remove A Tick



- Using tweezers, grasp tick near the mouth parts, as close to skin as possible.
- Pull tick in a steady, upward motion away from skin.
- DO NOT use kerosene, matches, or petroleum jelly to remove tick.
- Disinfect site with soap and water, rubbing alcohol or hydrogen peroxide.
- Record date and location of tick bite. If rash or flu-like symptoms appear contact your health care provider immediately.

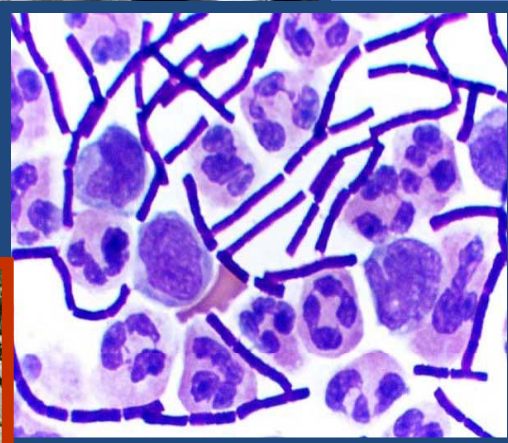
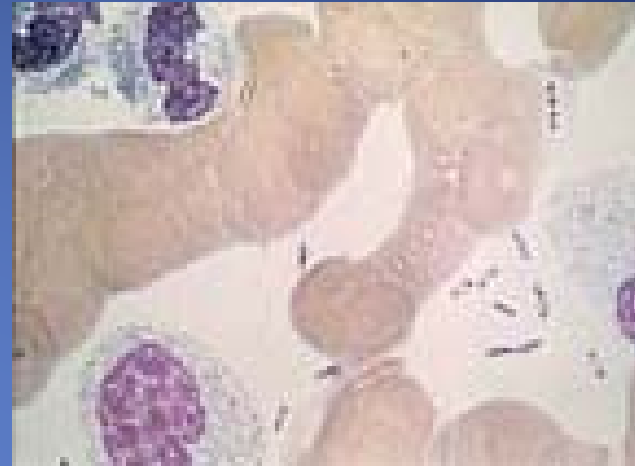
DISEASE RISK IS REDUCED IF TICK IS REMOVED WITHIN 36 HOURS.

New York State Department of Health

Deer tick size (left to right)
larva, nymph, adult



Emerging Diseases - Bioterrorism - the select agents





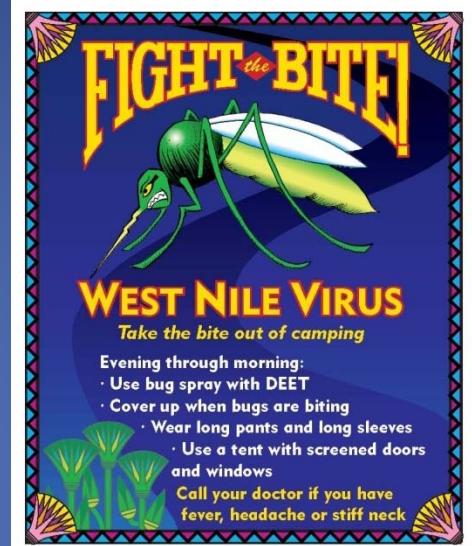
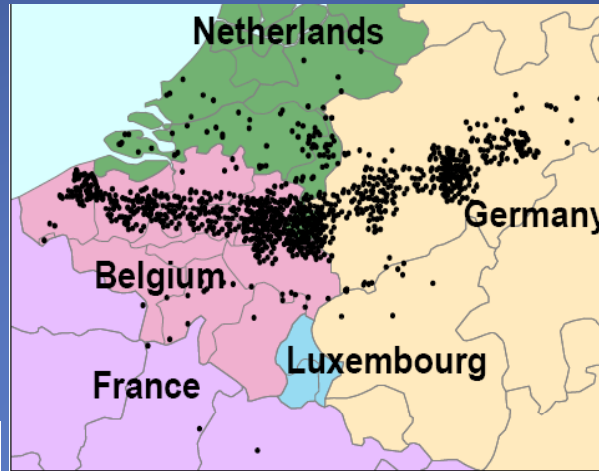
"Buddy" before



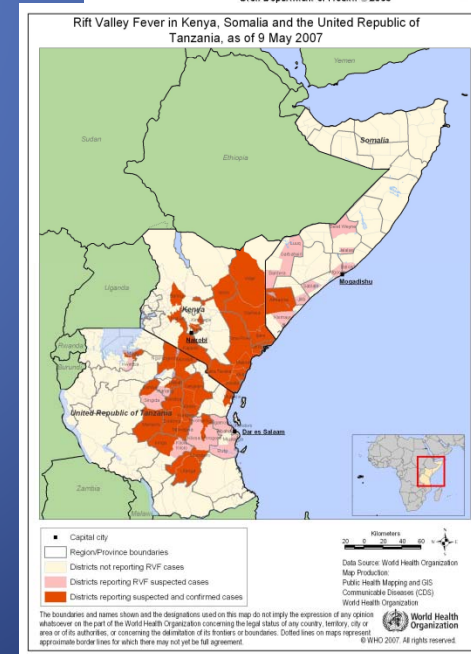
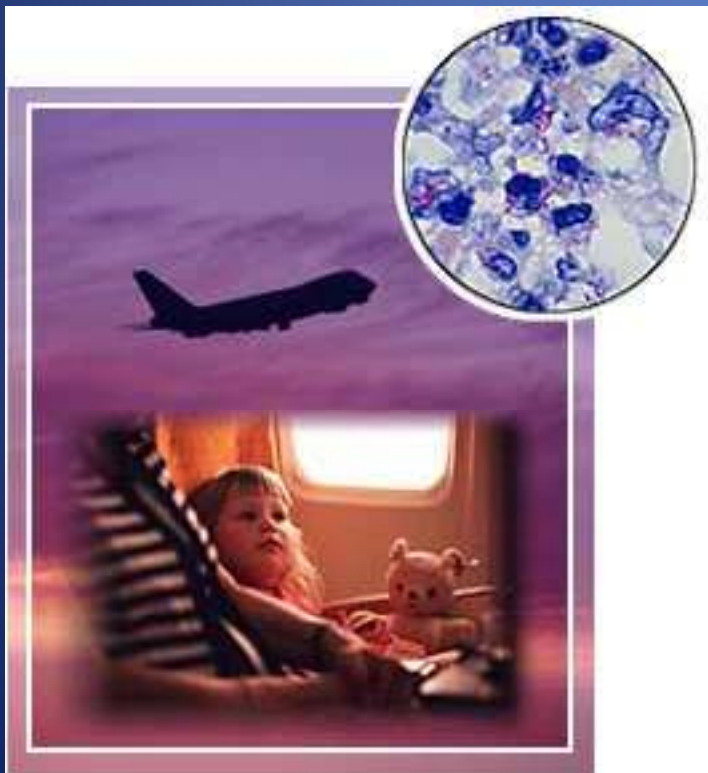
"Buddy" after

*Ask your vet about **BOWOTOX** for your pet!
BOTOX: Not just for humans anymore.*

Emerging Diseases - Trade-generated w/ new geographic areas



For more information, visit www.health.utah.gov/wnv
Utah Department of Health ©2003



Seeds of Globalization



3 critical "inventions"



+ 2 key leaders

FACT 3: Of the world's 100 largest economic entities, 51 are now corporations and 49 are countries.

WAL★MART®
ALWAYS LOW PRICES.
Always.



TOYOTA

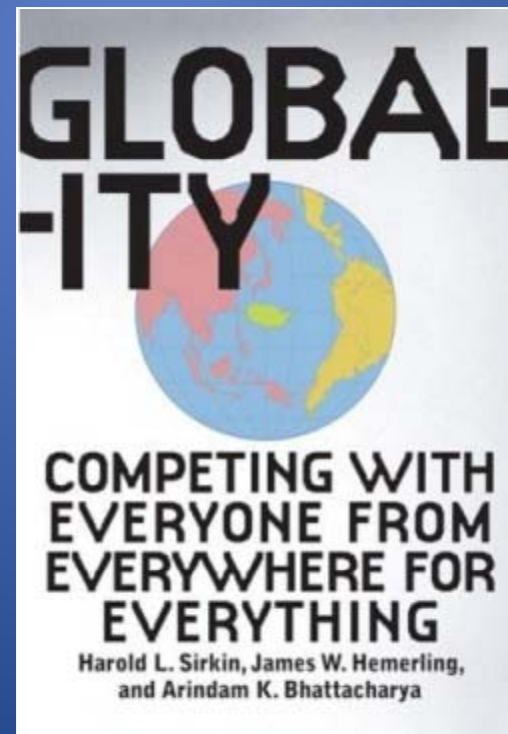
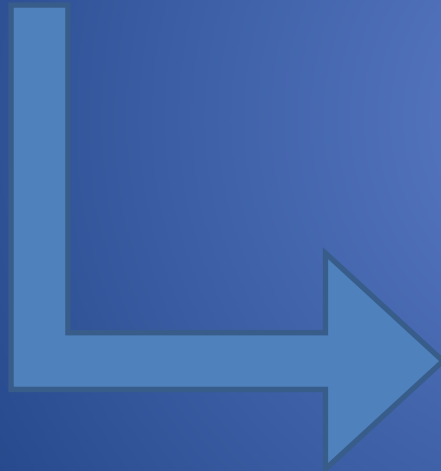


EXXON

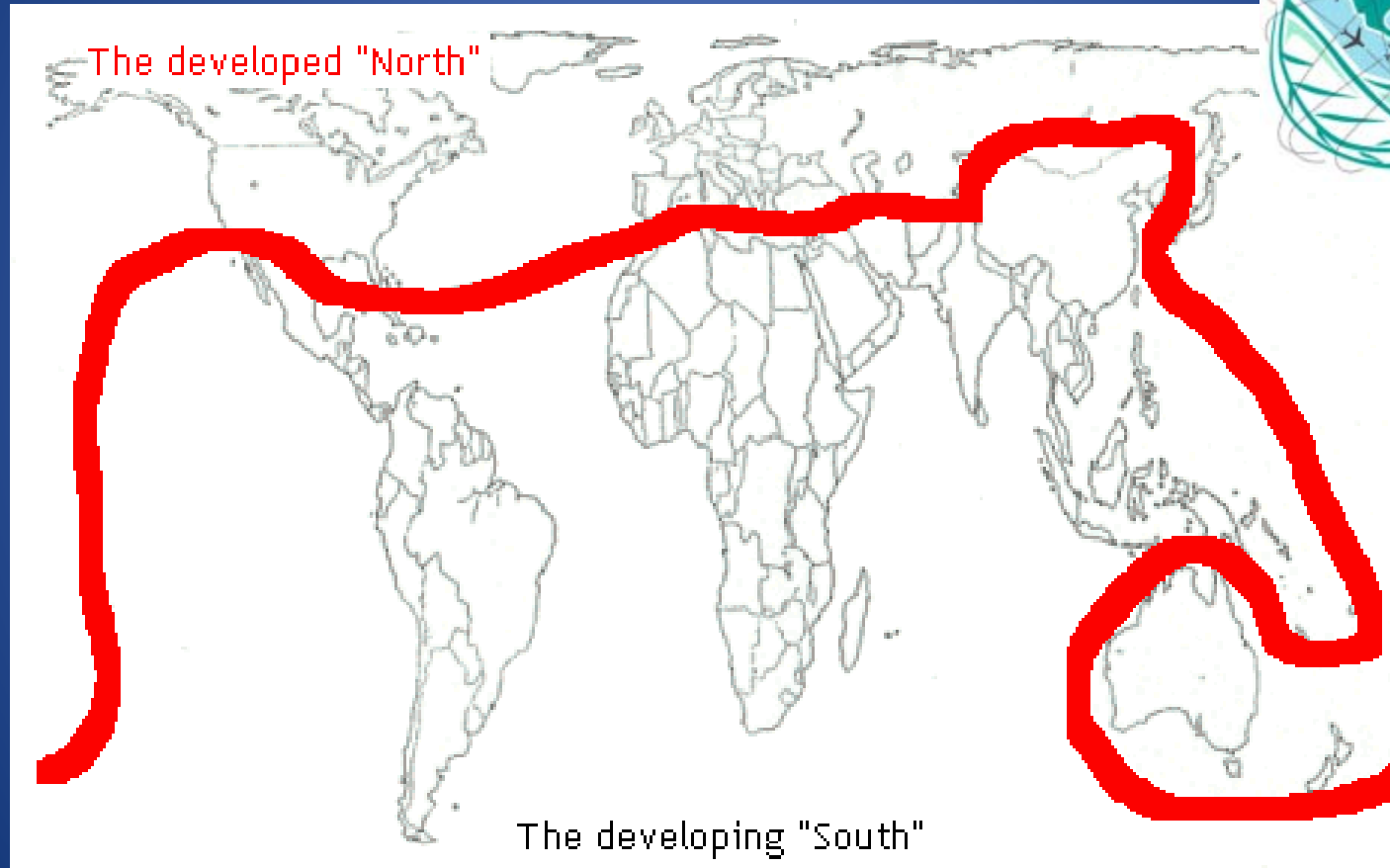
Mobil

Globalization

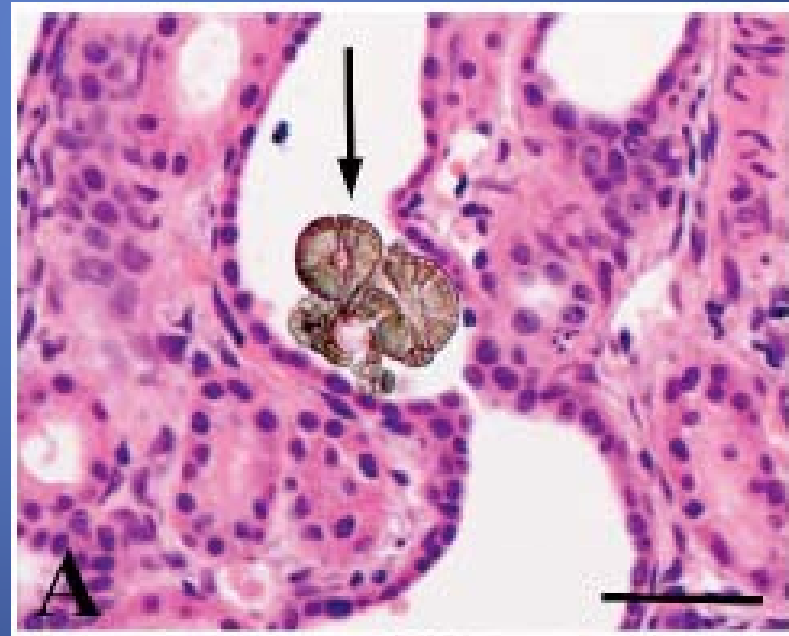
“an ongoing process characterized by the integration of markets, nations, and technology to create an interdependent, worldwide economy.”



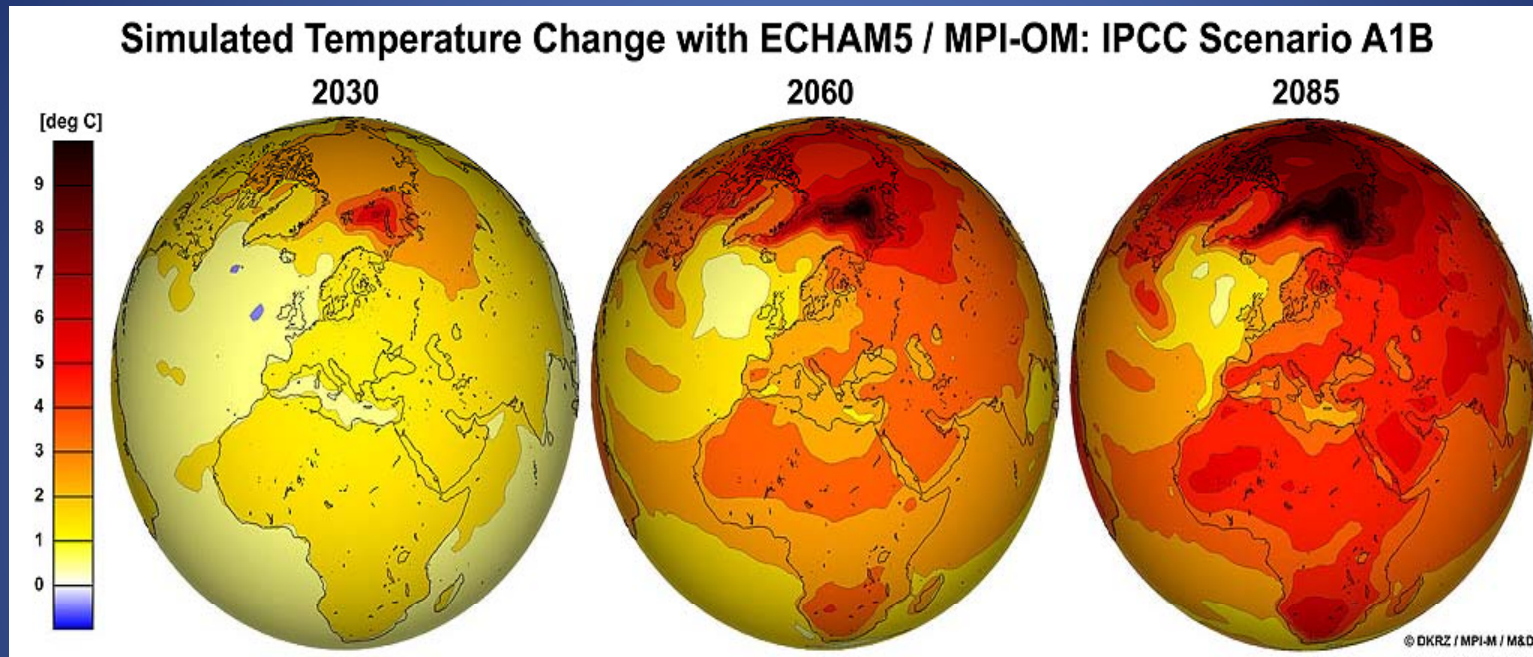
WHERE WILL THE FOOD COME FROM?







Factors - Temperature shift



© T. Evans 1996



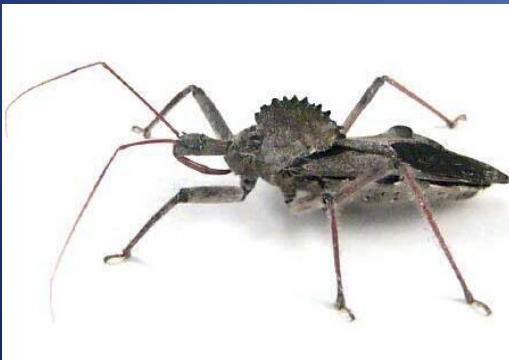
Factors - Vector spread



Aedes albopictus, Asian Tiger Mosquito
Originally native to Southeast Asia -> Spread to USA, Canada, Africa, Europe, Australia and New Zealand



Lutzomyia sp. & *Phlebotomus sp.*, New and Old World Sand flies -> range is expanding to include EIDs



Triatoma infestans, Assassin bug or Kissing bug. Vector, reservoirs and habitat exist to allow for spread.

Factors - Disaster & Civil Unrest



Factors - Novel Interactions

- Monkeypox



Democratic Republic of Congo reported cases of Monkeypox

- 1970-1980: 48 reported cases
- 1981-1986: 338 reported cases
- 1996-2001: 1705 reported cases
- 2003 USA outbreak: 35 human cases (200 prairie dogs across 6 states) starting with a pet distributor in Illinois who had imported 762 small mammals from Ghana





Mary Jo Waticki / AP



Primary inoculation site, Marshfield index case, 5/26/03
Hospital day 4, 13 days following prairie dog bite

FIGURE 2. Movement of imported African rodents to animal distributors and distribution of prairie dogs from an animal distributor associated with human cases of monkeypox — 11 states*, 2003†§

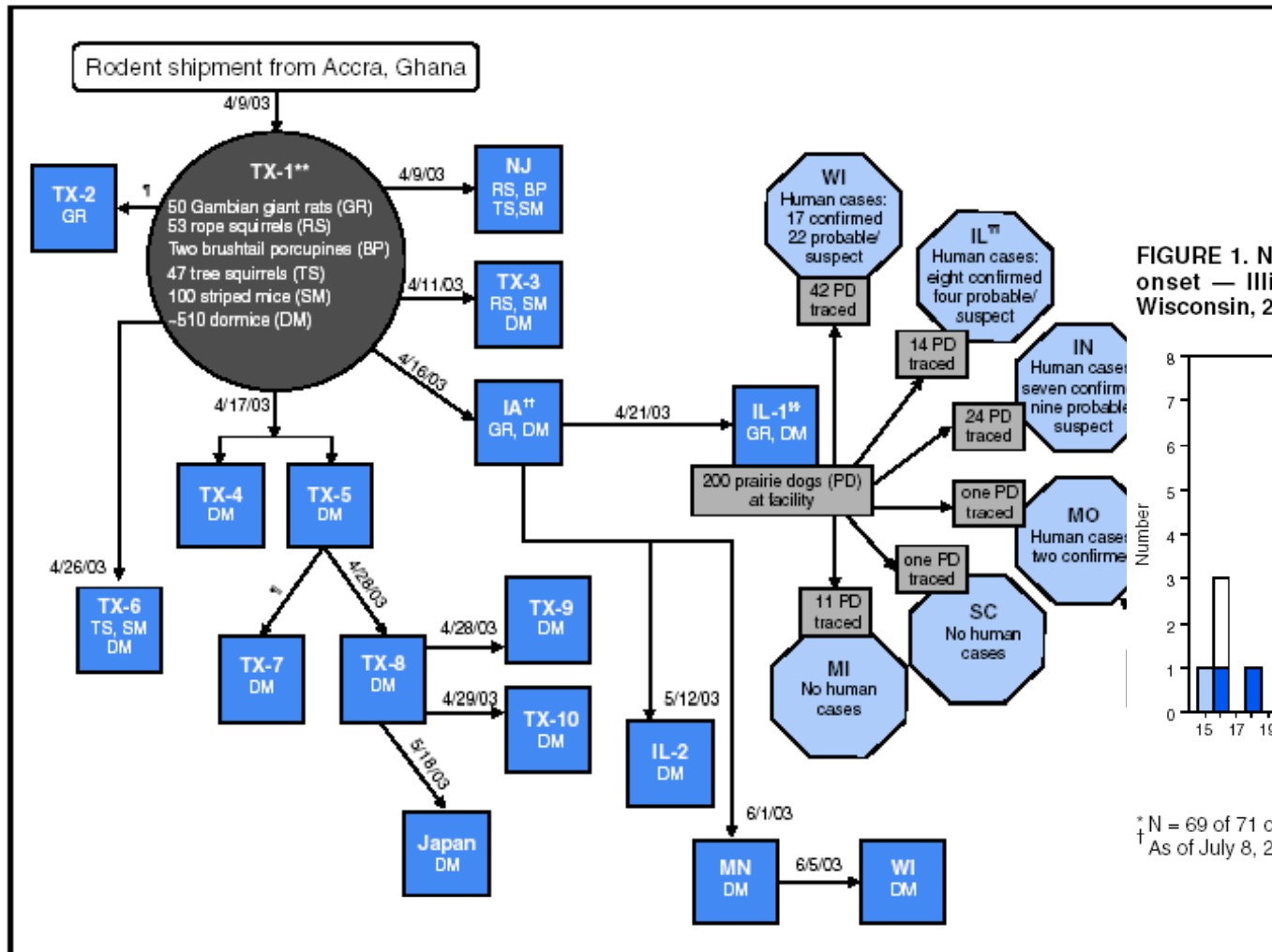
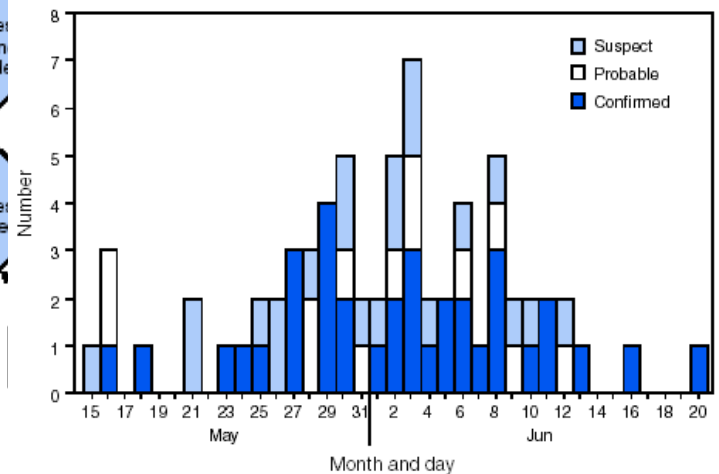


FIGURE 1. Number of monkeypox cases*, by date of illness onset — Illinois, Indiana, Kansas, Missouri, Ohio, and Wisconsin, 2003†



* N = 69 of 71 cases with known date of illness onset.
† As of July 8, 2003.

* Illinois (IL), Indiana (IN), Iowa (IA), Kansas (KS), Michigan (MI), Minnesota (MN), Missouri (MO), New Jersey (NJ), South Carolina (SC), Texas (TX), and Wisconsin (WI). Japan is included among sites having received shipment of rodents implicated in this outbreak.

† As of July 8, 2003.
§ Does not include one probable human case from Ohio; investigation is ongoing.
†† Date of shipment unknown.
** Identified as distributor C in *MMWR* 2003;52:561-4.
††† Identified as distributor D in *MMWR* 2003;52:561-4.
§§ Identified as distributor B in *MMWR* 2003;52:561-4.
†††† Includes two persons who were employees at IL-1.



Clinical or Diagnostic Laboratories Biosafety Levels are...

Clinical laboratories generally receive requests for analysis of a variety samples types with equally **ambiguous histories. Typically, the infectious nature of the sample is unknown and specimens are often submitted with a broad request for microbiological examination for multiple agents.**

It is the responsibility of the laboratory director to establish written standard procedures in the laboratory that specifically address the issue of the infective hazard posed by clinical/diagnostic specimen and control access to clinical/diagnostic areas of the laboratory.

Generally, the initial processing of clinical/ diagnostic specimen and serological isolates can be done at biological safety level 2 and requires the use of standard precautions unless there is information which suggests the presence of an agent which may be transmissible via an aerosol route. Procedures that may cause spraying, splashing, splattering of droplets or the generation of aerosols must be performed in a BSC. Recommendations of practices specific to clinical laboratories can be obtained from the Clinical Laboratory Standards Institute.

St. Louis Encephalitis Strikes the Bronx, NY



EEE, WEE???

AVIAN NECROPSY ROOM





MATERIAL FROM NECROPSY OF BIRDS DURING THE OUTBREAK OF WEST NILE FEVER (1999) IN NORTH AMERICA

Species of Mosquito Positive for WNV by Year

1999

- Aedes vexans
- Culex pipiens
- Cx restuans

2000

- Ae vexans
- Anopheles punctipennis
 - Cx pipiens
- Culiseta melanura
- Ochlerotatus cantator
 - Oc japonicus
 - Oc triseriatus
- Psorophora ferox

2001

- Ae albopictus
- Ae cinereus
 - Ae vexans
- An punctipennis
- An quadrimaculatus
- Coquillettia perturbans
 - Cx nigripalpus
 - Culex pipiens
- Cx Quinquefasciatus
 - Cx restuans
 - Cx salinaius
 - Cs melanura
- Oc canadensis
 - Oc cantator
 - Oc japonicus
 - Oc sollicitans
 - Oc trivattatus
- Orithopodomyia signifera
 - Ps columbiae
- Uranotaenia sapphirina

2002

- Ae aegypti
- Ae albopictus
 - Ae vexans
- An atropos
- An barberi
- An crucians/bradleyi
- An punctipennis
- An quadrimaculatus
 - An walkeri
- Cq perturbans
- Cx erraticus
- Cx nigripalpus
- Culex pipiens
- Cx Quinquefasciatus
 - Cx restuans
 - Cx salinaius
 - Cx tarsalis
 - Cx territans
 - Cs inomata
 - Cs melanura
- Deinocerites cancer
 - Oc atropalpus
- Oc atlanticus/tormentor
 - Oc canadensis
 - Oc cantator
 - Oc japonicus
 - Oc sollicitans
- Oc taeniorhynchus
 - Oc triseriatus
 - Oc trivattatus
 - Or signifera
 - Ps ciliata
 - Ps columbiae
 - Ps ferox
- Ur sapphirina

2003

- Ae aegypti
- Ae albopictus
- Ae cinereus
 - Ae vexans
- An atropos
- An barberi
- An crucians/bradleyi
- An punctipennis
- An quadrimaculatus
 - An walkeri
- Cq perturbans
- Cx erraticus
- Cx nigripalpus
- Culex pipiens
- Cx Quinquefasciatus
 - Cx restuans
 - Cx salinaius
 - Cx tarsalis
 - Cx territans
 - Cs inomata
 - Cs melanura
- Deinocerites cancer
 - Oc atropalpus
- Oc atlanticus/tormentor
 - Oc canadensis
 - Oc cantator
 - Oc dorsalis
 - Oc infirmatus
 - Oc fitchii
 - Oc japonicus
 - Oc provocans
 - Oc sollicitans
 - Oc sticticus
 - Oc stimulans
- Oc taeniorhynchus
 - Oc triseriatus
 - Oc trivattatus
 - Or signifera
 - Ps ciliata
 - Ps columbiae
 - Ps ferox
 - Ps howardii
- Ur sapphirina

Ebola

- Filoviridae
- Hemorrhagic fevers
- Endothelial cytolysis
- Ebola:
 - Sudan: '04
 - Reston
 - Zaire: '07
 - Tai (Ivory coast): '94
 - Bundibugyo: '07
- US outbreaks: '89-'96
 - Reston, VA/Phila, PA
 - Alice, TX



Bushmeat



Science. 2009 Jul 10;325(5937):204-6.

Discovery of swine as a host for the Reston ebolavirus.

Foreign Animal Disease Diagnostic Laboratory, National Veterinary Services Laboratories, Animal and Plant Health Inspection Services, United States Department of Agriculture, Plum Island Animal Disease Center, New York, NY 11944, USA.

Science. 2009 Jan 23;323(5913):451.

Emerging infectious diseases. Scientists puzzle over Ebola-Reston virus in pigs.

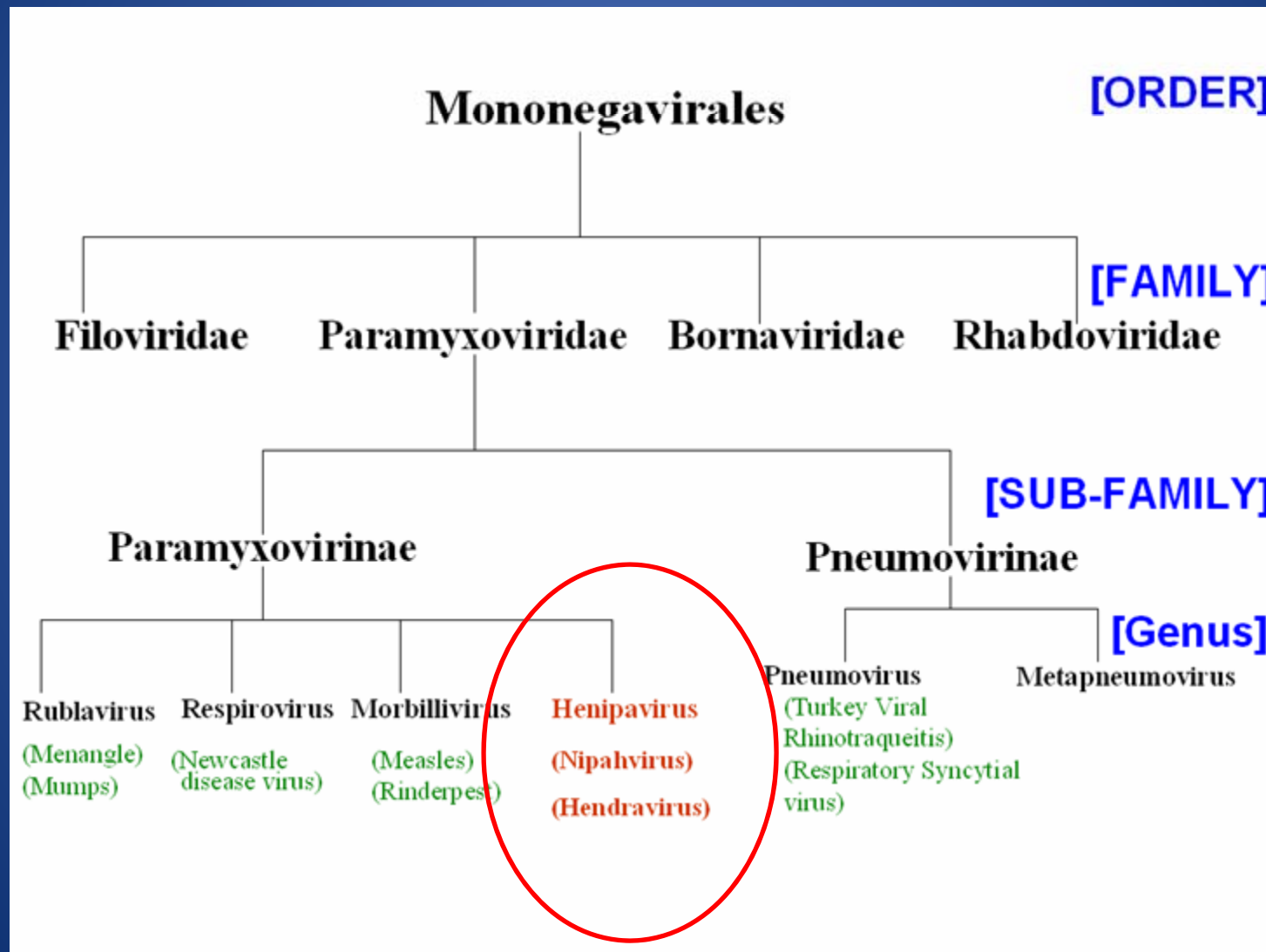
Ebola in Pigs...

Concerns:

- Pigs have served as genetic mixing vessels for viruses that pass from animals to humans, which makes the Philippine discovery significant.
- When a virus jumps species, in this case from monkeys to pigs... particularly as pigs are much closer to humans than monkeys in their ability to harbor viruses.
- Phillipines is primarily an export market.



Novel Viruses Emerge



Where in the world are these diseases?

Original detections

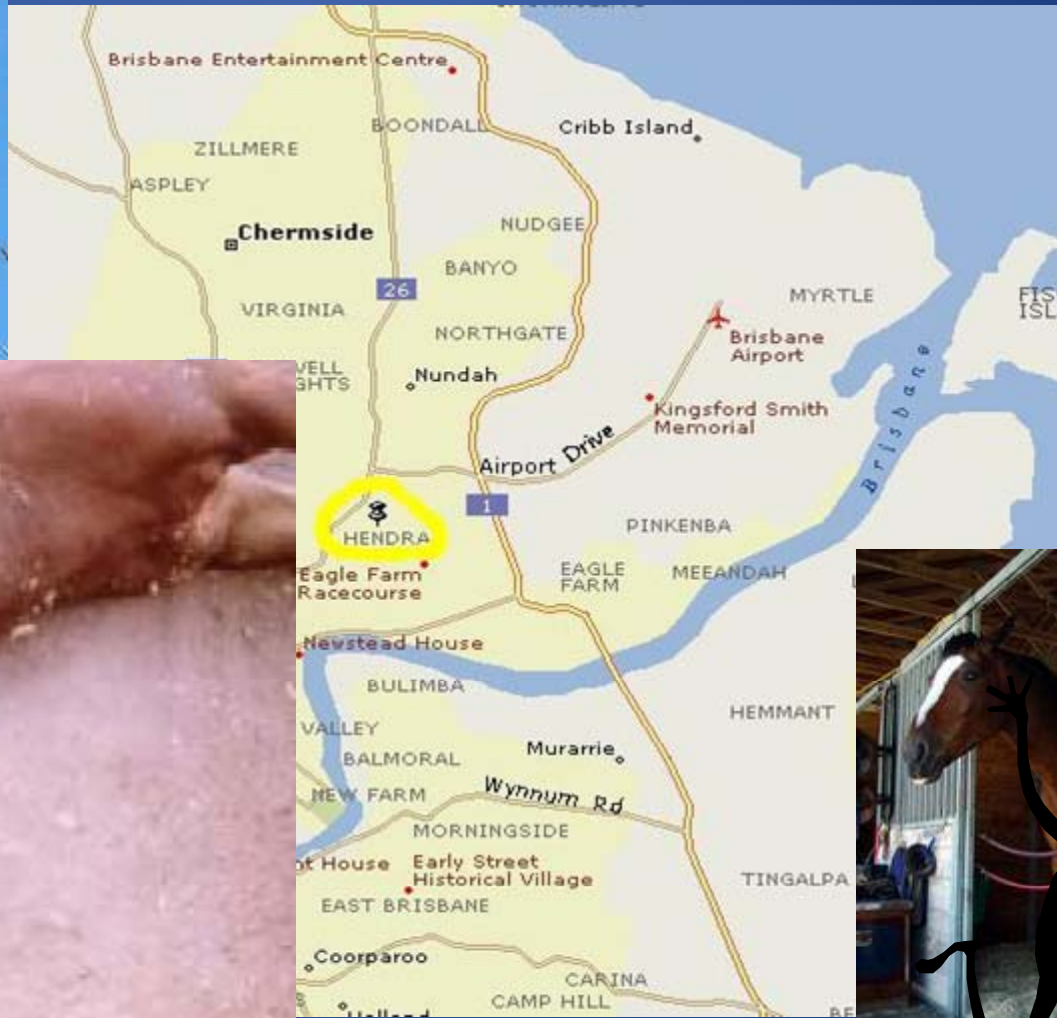


More recent Nipah cases in Indian subcontinent

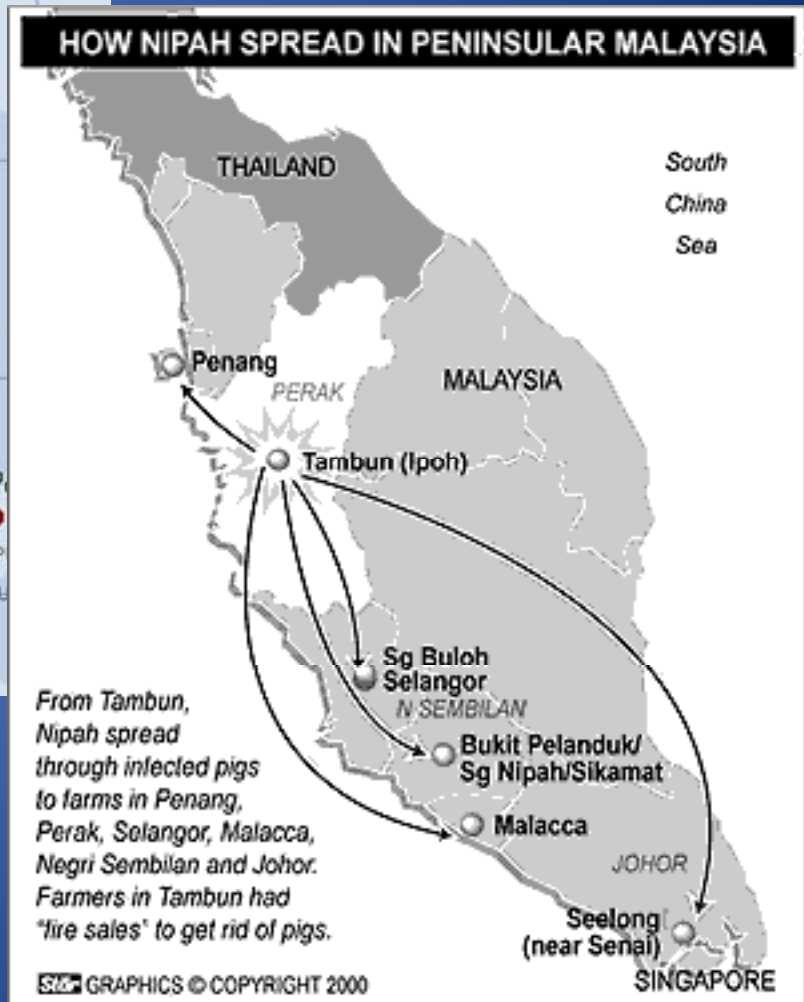
Natural History

- 1) The story of **Hendra** in Queensland, Australia
- 2) The story of **Nipah** in the Malaysian Peninsula
- 3) The story of **Menangle** in New South Wales, Australia

First encounter with Hendra



First encounter with Nipah



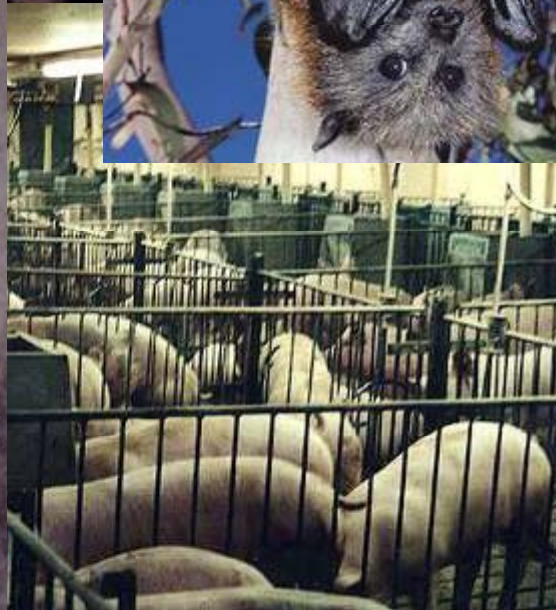
Environment for first Nipah detections



First encounters with Menangle



Local environment for Menangle







The military was responsible for depopulation in a BSL-4 climate.

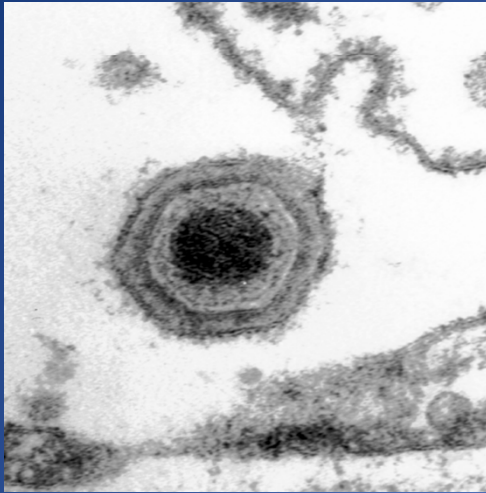
Vol. 7, No. 4, Jul–Aug 2001

EMERGING INFECTIOUS DISEASES

**Nipah Virus Infection Among Military Personnel Involved in Pig Culling during an
Outbreak of Encephalitis in Malaysia, 1998-1999**







What: SARS

Where: Worldwide

When: 2002-present

Impact: National economies, Travel, (ex: Toronto)



Severe Acute Respiratory Syndrome

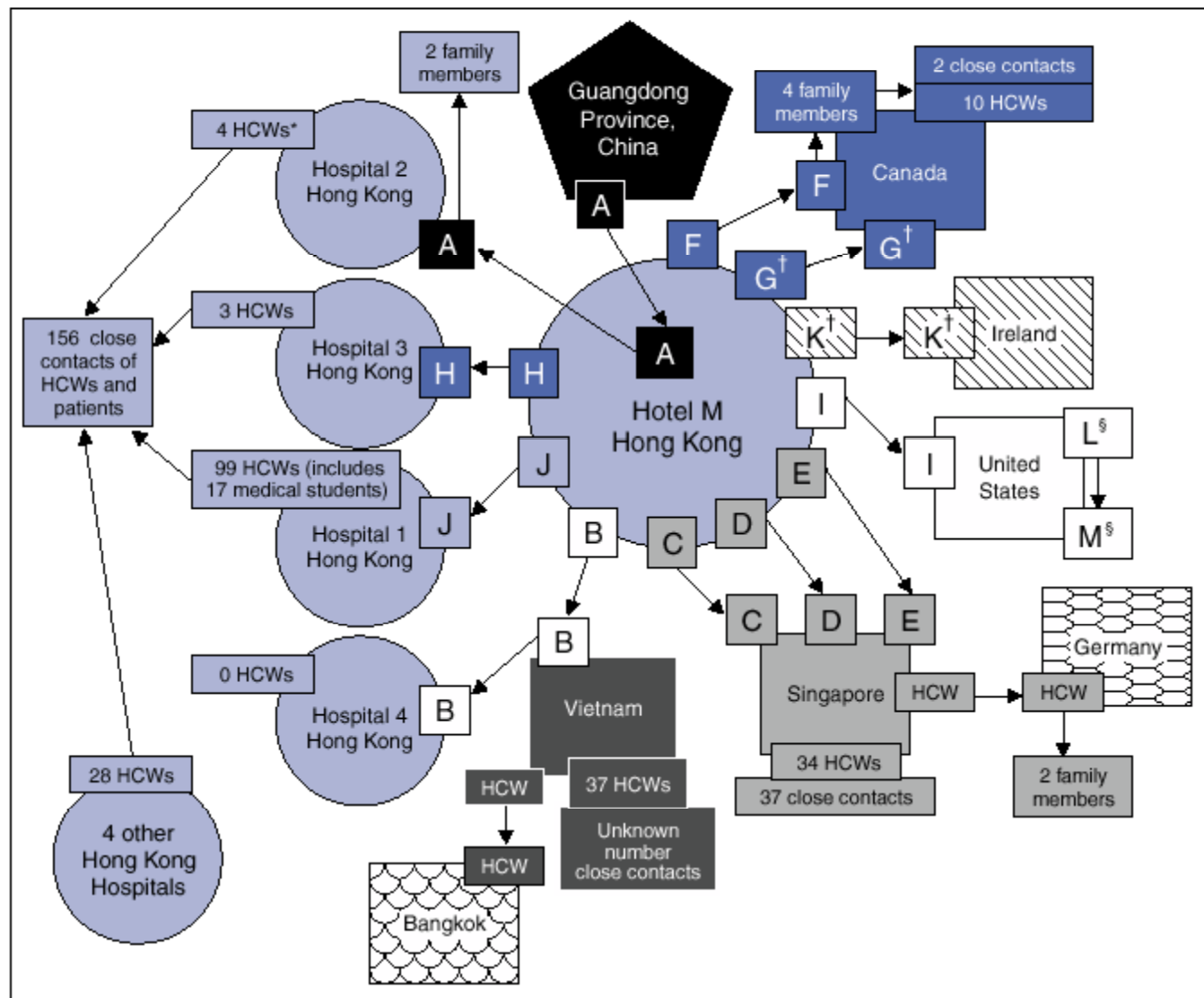
- Greater than 7,000 case worldwide
- Etiology: coronavirus (Nature 423:240, May 15, 2003)
- Agent is stable in urine and feces for 1-2 days (diarrhea, up to 4 days)
- ORIGIN?

Severe Acute Respiratory Syndrome

- Genomics and epidemiology link SARS to domestic animals?



FIGURE 1. Chain of transmission among guests at Hotel M — Hong Kong, 2003



* Health-care workers.

[†] All guests except G and K stayed on the 9th floor of the hotel. Guest G stayed on the 14th floor, and Guest K stayed on the 11th floor.

[§] Guests L and M (spouses) were not at Hotel M during the same time as index Guest A but were at the hotel during the same times as Guests G, H, and I, who were ill during this period.

MAY 5, 2003

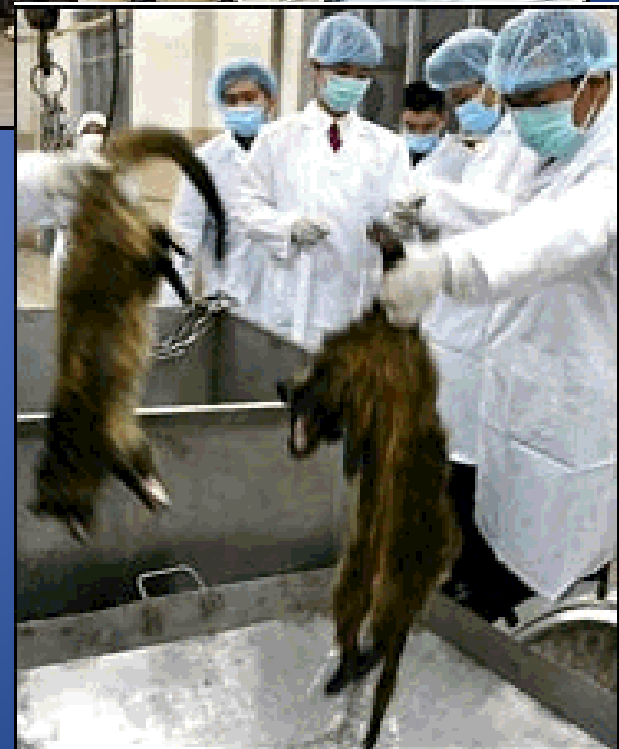
www.time.com AOL Keyword: TIME

TIME

THE TRUTH ABOUT
SARS

WHY
the virus
spreads
China's
COVER-UP
How
SCARED
should
you be?





10,000 civet cats killed

HEALTH

▪ Section Front

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Rats Join SARS Kill List In China

BEIJING, China, Jan. 9, 2004

FREE VIDEO

U.S. Ready For SARS?



One health worker holds down a civet cat (not shown) with a metal prod, while another beats it to death, in a wildlife market in Guangzhou, China. (Photo: AP)

QUOTE

In Guangzhou, red banners reminiscent of political slogans of the 1950s flutter in the streets. They declare: "Everybody work together. Do more to improve hygiene. Exterminate the four dangers. Lift the level of public health."



(AP) Authorities in southern China on Friday threatened fines of up to \$12,000 for merchants who try to hide civet cats, a day ahead of the deadline to slaughter thousands of the animals because of fears they carry a virus linked to SARS.

Guangdong province, with a second suspected SARS case announced Thursday, intensified its campaign to clean streets and wipe out civets plus other potential carriers that have been labeled the "four dangers" - rats, roaches, flies and mosquitoes.

Civets, a local delicacy, were ordered seized from markets and slaughtered after tests suggested a link between them and China's first SARS case of the season, a 32-year-old television producer.

A five-member World Health Organization team was in Guangzhou on Friday to help Chinese experts try to figure out how the man was exposed to the virus. WHO officials have urged caution with the civet slaughter, saying it could destroy medical clues or expose those involved in the cull to SARS.

The WHO experts haven't joined the

Science

2005 Oct 28;310(5748):676-9.

Bats are natural reservoirs of SARS-like coronaviruses.

What else has come to us from bats?

- Emerg Infect Dis. 13(9), 2007
 - Detection of group 1 coronaviruses in bats in North America.
- Nature 438, 575-576, 2005
 - Fruit bats as reservoirs of Ebola virus
- EID Research 12 (12), 2006
 - Isolation of Lagos Bat Virus from Water Mongoose



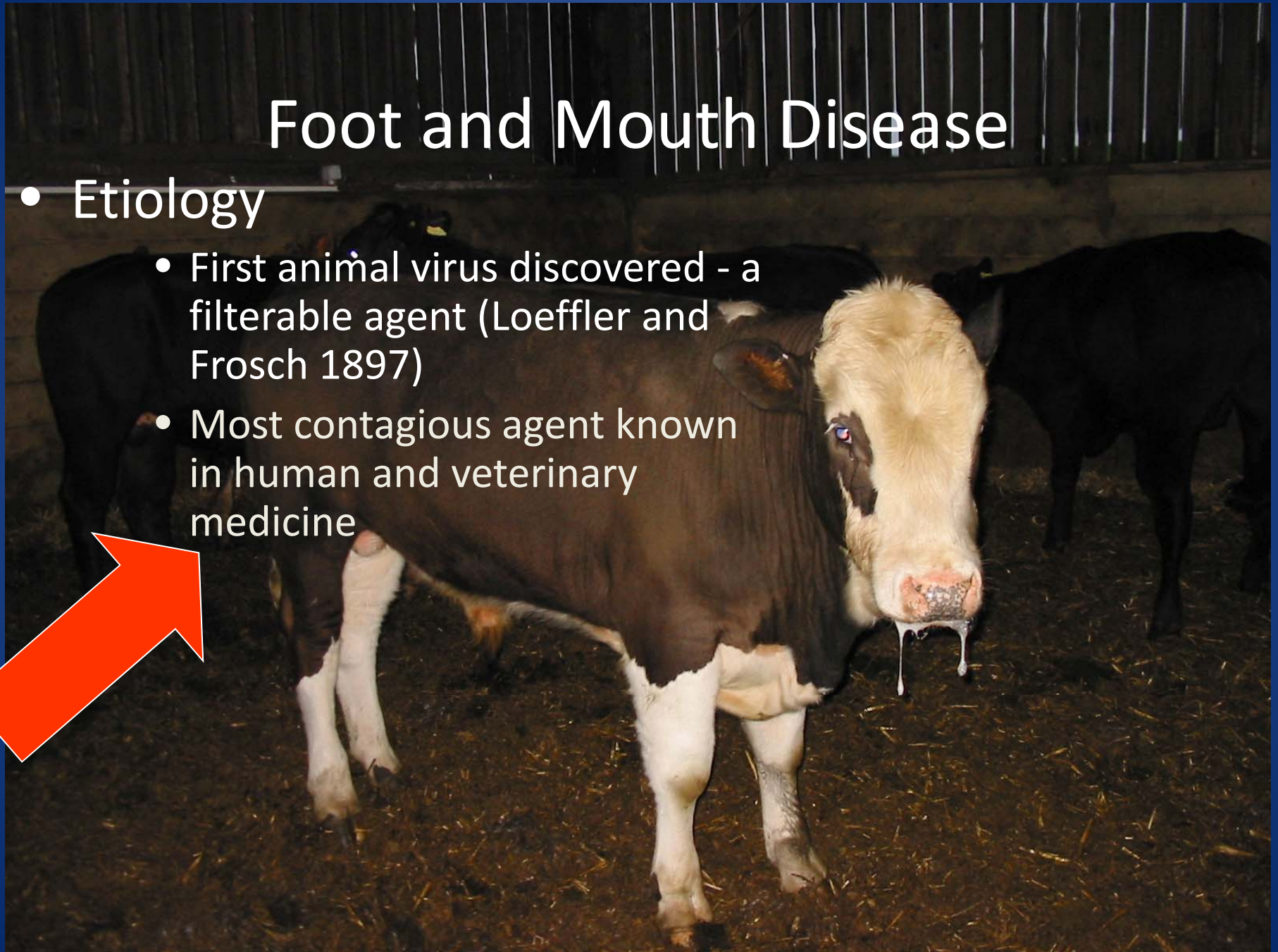
- ❖ Duvenhage virus
- ❖ Hendra
- ❖ *Histoplasma capsulatum*
- ❖ Kasokero virus
- ❖ Menangle
- ❖ Mokola virus
- ❖ Nipah
- ❖ Lyssavirus
- ❖ Rabies
- ❖ Salmonellosis
- ❖ Yuli virus
- ❖ SARS



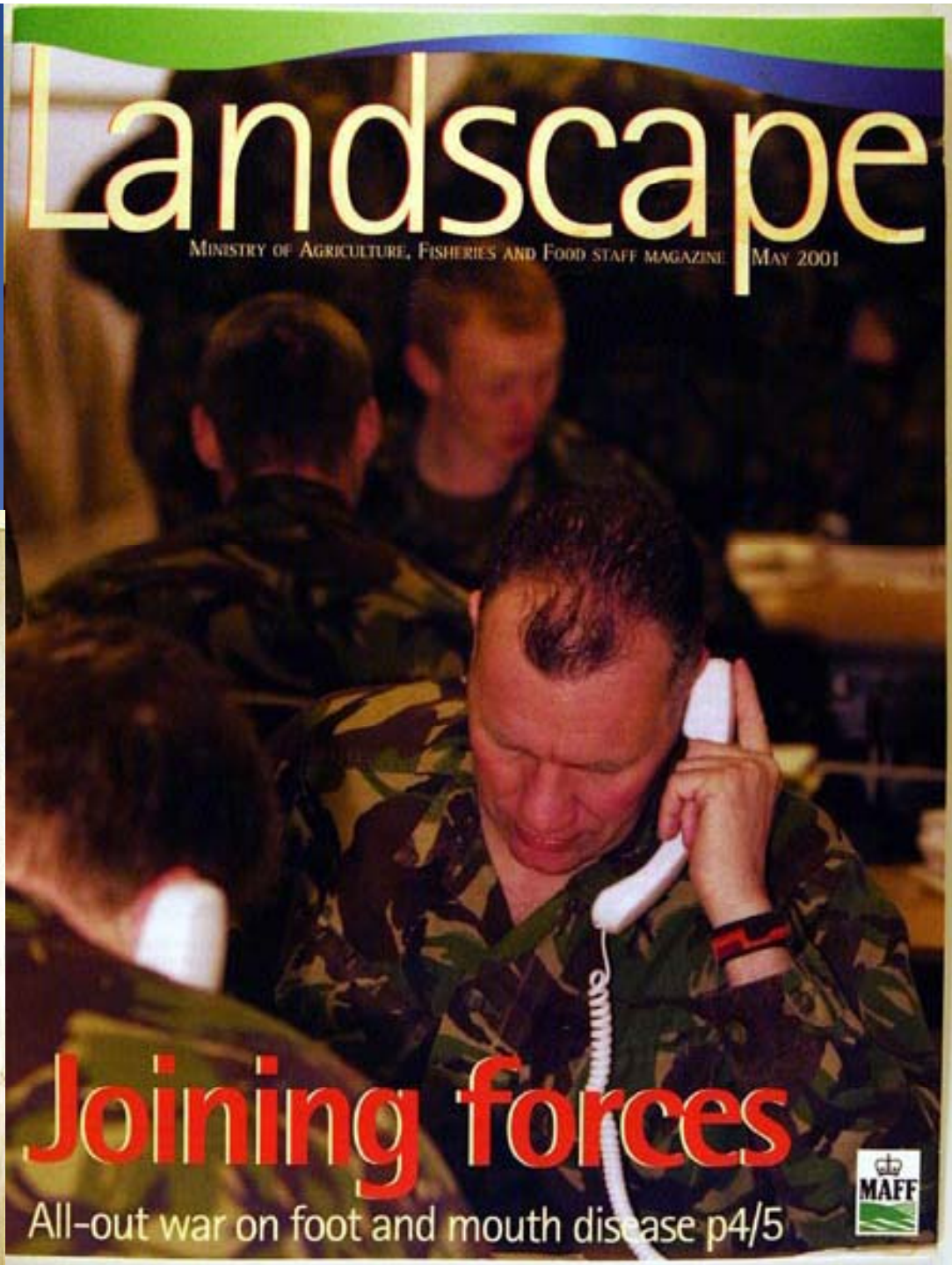
Taking Blood

Foot and Mouth Disease

- Etiology
 - First animal virus discovered - a filterable agent (Loeffler and Frosch 1897)
 - Most contagious agent known in human and veterinary medicine



The players in a national disease eradication program



BRAMPTON, LONGTOWN AND HALTWHISTLE EDITION
The Cumberland News
 FRIDAY, APRIL 27, 2001
 www.cumberland-news.co.uk

'One of the most important finds ever made in UK'
 One man and his ducks keep dog in shape
 What future for farming in Cumbria?

NEWS: page 5 NEWS: page 3 AGENDA: page 10

Blair salutes Brigadier

PM thanks army and backs Brown's new culling policy

Our man Phil is top of the North

Forget Phoenix, what about my herd?

SPRING SALE



Three layers - Biosecurity



Euthanasia - methods - and - your mental health



Tarrant's latest
£1million winner
sets a quiz for
Mail readers **PAGES**
28 & 29



BRIDGET JONES
OR
BRIDGET BONES
who do you prefer?
PAGE 49



EXCLUSIVE: I'm worried my family's livelihood is in ruins

HORROR OF MAN FEARED TO HAVE FOOT AND MOUTH

IT started like a cold, but when the white blisters appeared on his tongue Paul Stamper knew it could be only one thing.



By
**Rebecca
Fowler**

The unthinkable had happened and he had caught foot and mouth disease.
Now 41-year-old Mr Stamper, a former machinery contractor, says that realising he had the disease was a relief as he had to deal with his wife.
"It took a while to get the father of two to the first signs of the outbreak, he will be a carrier of the disease and another will start to deal with him."
"I just can't believe it," said Mr Stamper. "I never knew what it was. I'm terrified of what it may mean. It is a foot and mouth. It's hard to tell if the machinery and I've lost everything."
He said his wife, Christine, had been working in the dairy industry for 15 years, and they shared a house with their two children and a dog. Mr Stamper said that he was worried about his family's livelihood, but that he was not worried about his own health.
"I'm worried about my family's livelihood, but I'm not worried about my own health," he said.

standing behind a tractor when a cow on the job of organic exploded, something that he ignored and said Mr Stamper had no idea of his health. "It started like a cold," he said. "I got it out as quickly as I could, but I don't think it was dangerous."
He was not wearing a mask because he had not been told there was any health risk. They were available, but Mr Stamper thought they were only to prevent infection from the virus.
The UK is not considered a high risk area for the disease, but it is not clear if he has any symptoms.
Mr Stamper says he was diagnosed with the disease on his last weekend, but the virus was obviously there when he started showing the signs of the disease. The symptoms included a sore throat and a fever.
By Friday evening Mr Stamper was in so much pain he was unable to eat a Chinese take-away at the house in the village of Denton.
"It was there that it struck him. He would have been shocked by that, and it was. When he got to the house of the house in the business name."



Writing and hoping Paul and Christine Stamper get on track from parents

INSIDE: Waterloo 14, Ephraim 15, Dampier 41, Fernax 43-56, TV 57-60, Lotters 61-62, Coffee Break 68-70, City 71-76

Can humans get FMD?

Foot and Mouth Disease





**Mad Cow Disease:
Bovine Spongiform
Encephalopathy**



Vote Labour or the calf gets it!



SEE PAGE 11

CATWOMAN 'SEDUCED' BOY OF 15

By ANDY RUSSELL

A MUM dressed in a PVC catsuit tried to seduce a 15-year-old boy at an "Asian Nights" whoring party held in a kinky sex club, a court heard yesterday.

Sarah Newell, 27, stripped off and put the lad's hands on her bare breasts. It was said she allegedly told him: "You've never had a real woman until you've had me".

The boy, a stage actor, told Manchester Crown Court he was "very nervous" as he saw a woman being led into a dungeon room and guests checking her out.

GRABBED

He claimed to have seen several women in PVC outfits in the club, in Manchester's Club Lash.

The boy alleged she invited him to go to her room - and called him the son of a bitch.

Newell, who faces three charges of indecent assault, pleaded guilty to seducing a victim, the court heard.

The Lad said - Page 44



Newell yesterday

Mum, 27, got horny in Club Lash dungeon, court told

Politics
&
Media

PARDONS: BILL'S DESIGNING WOMEN • RAP: ALL ABOUT EVE

Newsweek

March 12, 2001 : \$3.50

The
Slow,
Deadly
Spread
of

Mad Cow Disease

How
It Could
Become an
Epidemic



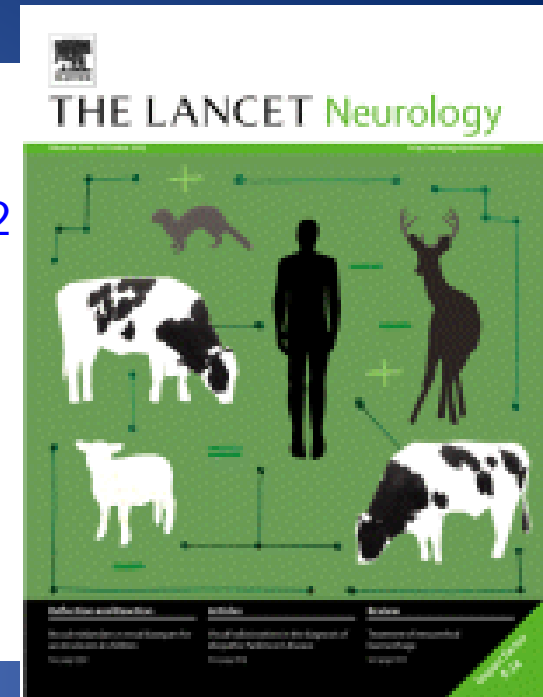
newsweek.msnbc.com

THE LANCET:

Volume 4, Issue 10 , October 2005, Pages 635-642

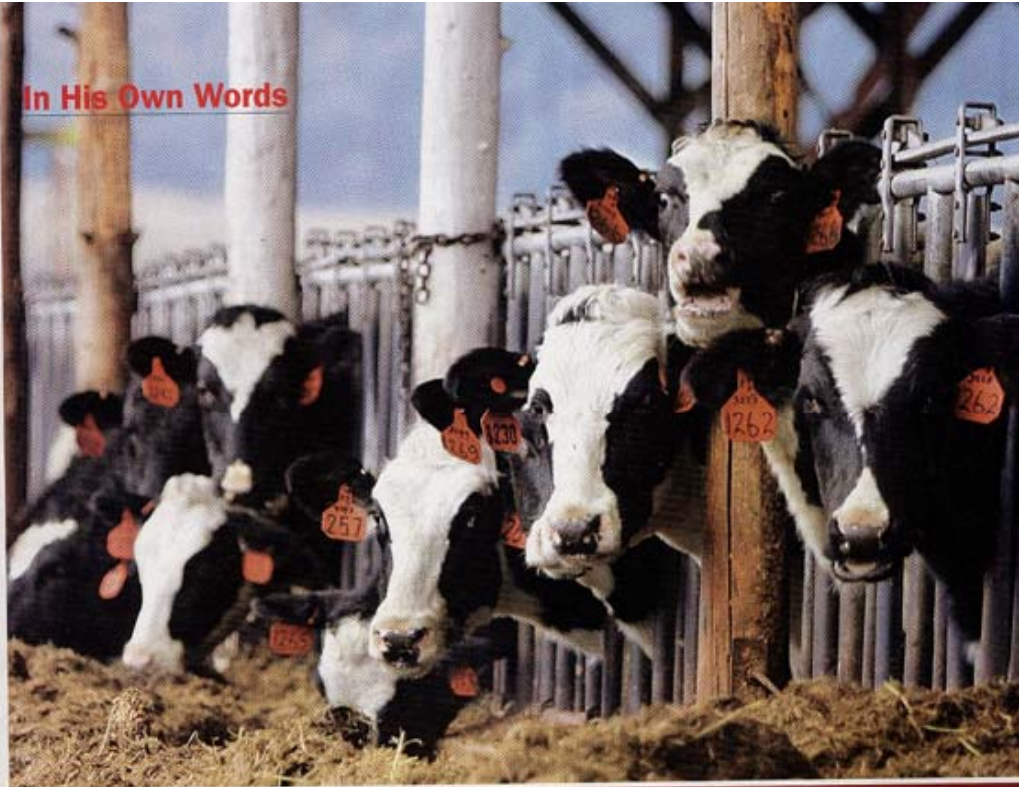
Prion diseases

Richard T Johnson MD



The different modes of transmission of different prion diseases, the unpredictable species barriers, the variable distribution of infectivity in tissues, and strain variations found in some diseases all make risk assessment and predictions of future events difficult.

In His Own Words



More than 4,000 bovines were quarantined in Washington State after a local animal was diagnosed with mad cow disease.

Is Our Beef Safe?

An infected animal raises worries of a mad cow disease outbreak in America

Last month's discovery of a single Holstein infected with mad cow disease on a Mabton, Wash., dairy farm—the first confirmed case in the U.S.—terrified many Americans and sent the beef industry reeling. Properly known as bovine spongiform encephalopathy (BSE), mad cow is contracted by animals who are fed the infected meat and bone meal of other animals, and it can spread to humans who consume tainted meat. Always fatal, the disease destroys the brain and central nervous system. A 2000 outbreak in Britain infected thousands of cattle, which were killed and burned.

In the U.S., where animal feed has



A Manhattan grocery issued this warning as public concern grew.

been banned since 1997, officials say the risk of catching BSE is minuscule. Still, a recall of 10,000 lbs. of beef is under way as a result of the discovery of the Mabton cow, which is believed to have been imported from Canada with 73 other animals in 2001.

How grave is the threat? Giuseppe Legname, a molecular biologist at the University of California at San Francisco and an expert on BSE, spoke about the risks with PEOPLE's Giovanna Breu.

What is mad cow disease?

It's the bovine form of a fatal illness that carries infectious proteins called

People Magazine
January 12, 2004

The TSEs

- BSE
- TME
- CWD
- Scrapie
- FSE
- EUE
- CJD
- vCJD
- familial CJD
- Kuru
- GSS syndrome
- FFI

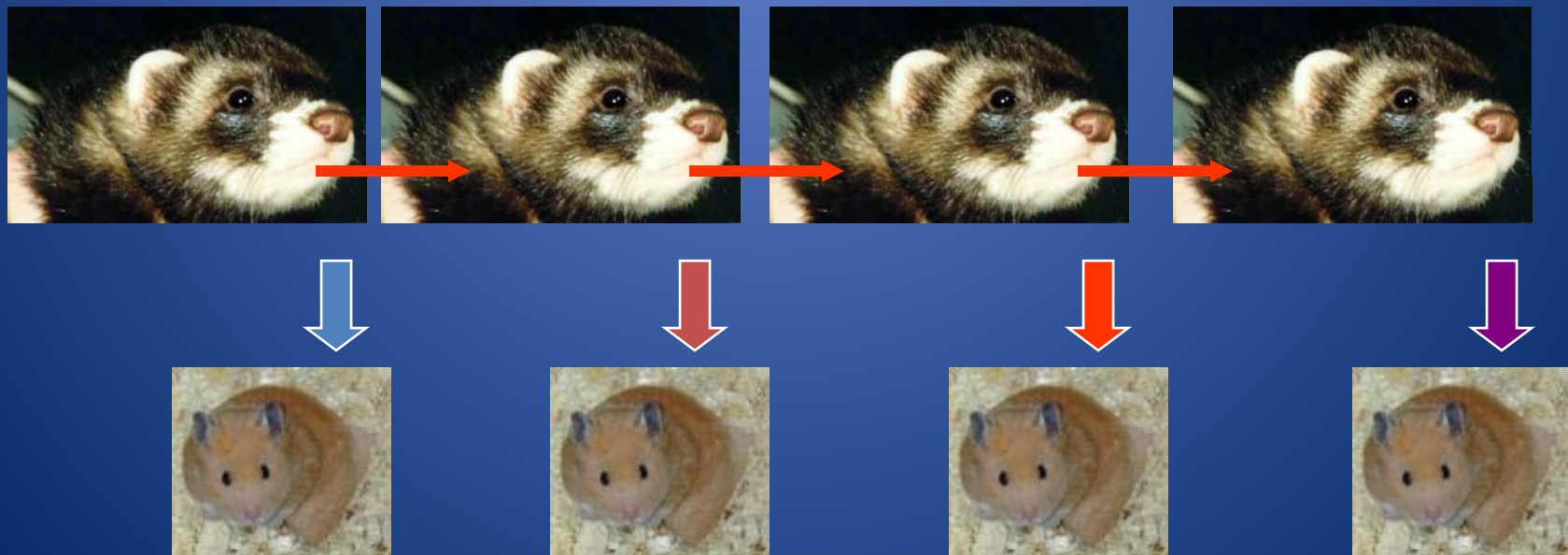


Transmission Studies and Species Barriers



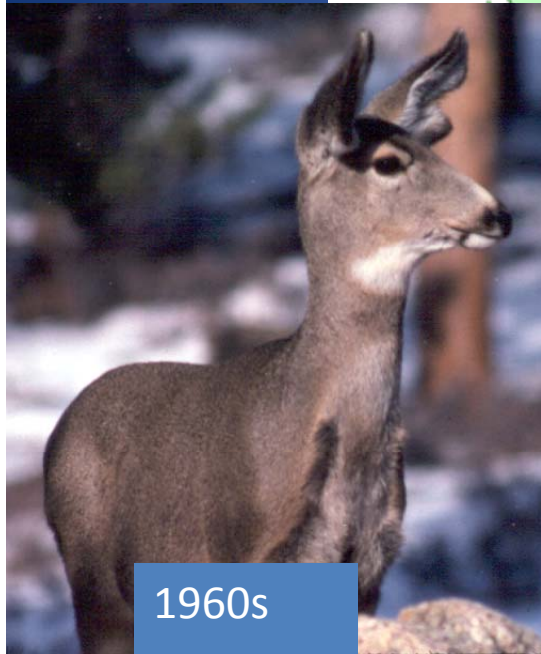
- Change host range
- Change pathogenesis
- Change virulence
- Change pathology
- Change in the Prion

Virology 1998 251:2, Bartz et al



Chronic Wasting Disease In North America

Point and click on a state for more information



So, why the new policies?

THE LANCET, Volume 366, Issue 9488,
September 2005

**The origin of bovine spongiform encephalopathy: the human
prion disease hypothesis**

Alan CF Colchester FRCP, and Nancy TH Colchester MBChB



SBO, MBM and SRM bans

It's Tuesday . . .





Prions & General Biosafety Recommendations

Prions (proteinaceous infectious particles, an abnormal isoform of a normal cellular protein) cause Creutzfeldt-Jakob disease (CJD), scrapie and other related human and animal neurodegenerative diseases.

Human prions are manipulated at Biosafety Level (BSL) 2 or 3, depending on the activity, with most human prions treated as BSL-3 under most experimental conditions. In many instances, BSE prions can also be manipulated at BSL-2, however due to the high probability that BSE prions have been transmitted to humans, certain circumstances may require the use of BSL-3 facilities. All other animal prions are considered BSL-2 pathogens. However, when a prion from one species is inoculated into another the resultant infected animal should be treated according to the guidelines applying to the source of the inoculum. Please see the following table adapted from the BMBL for a list of common mammalian prions and general BSL recommendation.

BIOSAFETY
LEVEL

2



BIOSAFETY
LEVEL

3



www.timeasia.com

FEBRUARY 8, 2004

TIME

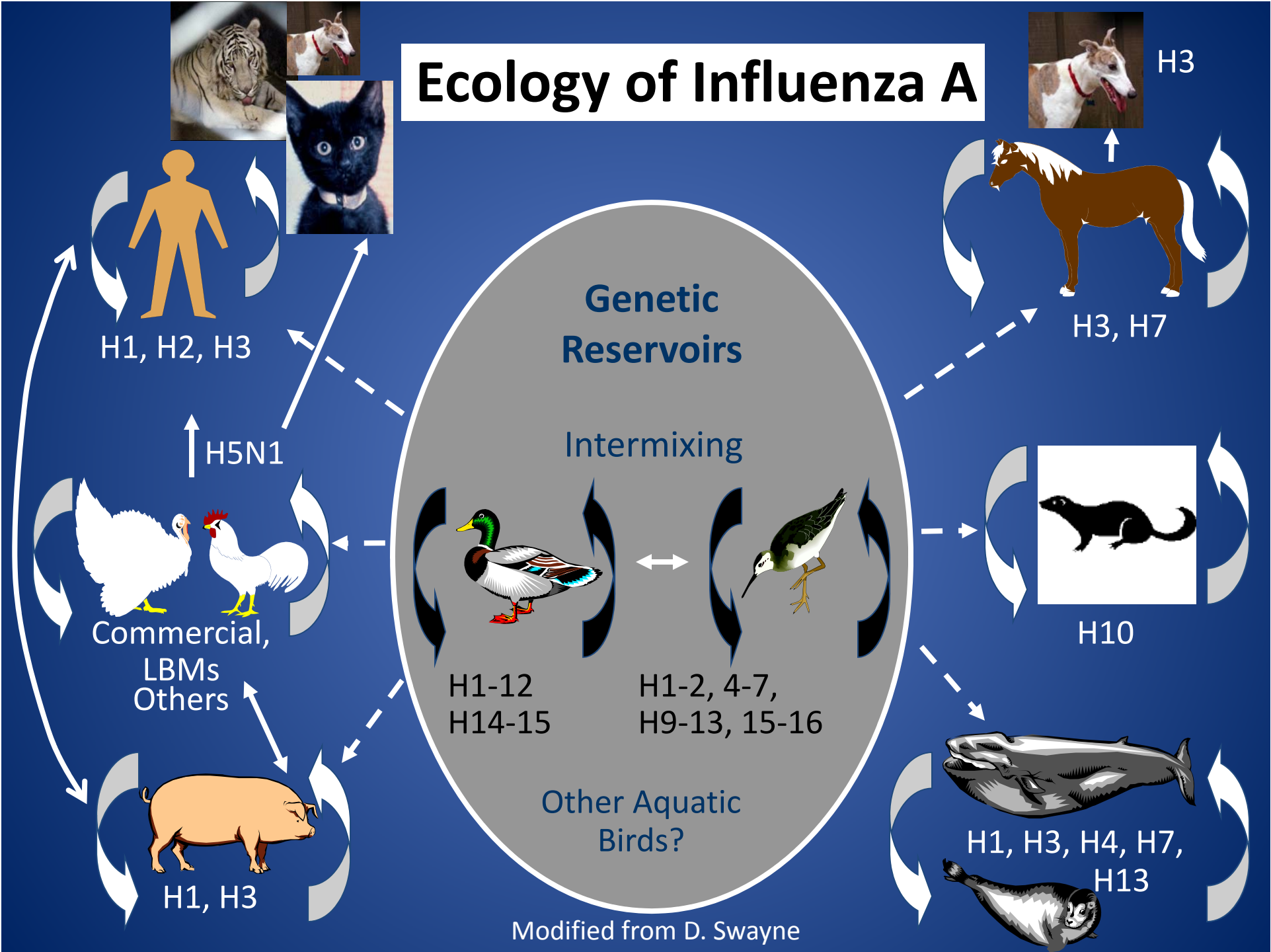


BIRD FLU

Is Asia
hatching
the next human
pandemic?



Ecology of Influenza A



Modified from D. Swayne





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SCIENCE AMERICA

NEWS | IN DEPT
September 14, 2005

News
September 14, 2005

Long Th

The threat fr
broadening.
that one sub
domestic ca
long consid
fact that the
humans, too

During the o
(H5N1) in Asia in 2003 - 2004, there were
34 documented cases of bird-to-human
transmission, of which 23 resulted in death.

Like other avian strains, the deadly H5N1 virus appears unable to pass from human to human. In the midst of this health emergency, however, a story came out of Thailand about the infection of three pet cats, as well as a white tiger from a zoo, resulting from the consumption of flu-stricken chickens. Concerns immediately arose about the possibility of cats transmitting the disease to humans.

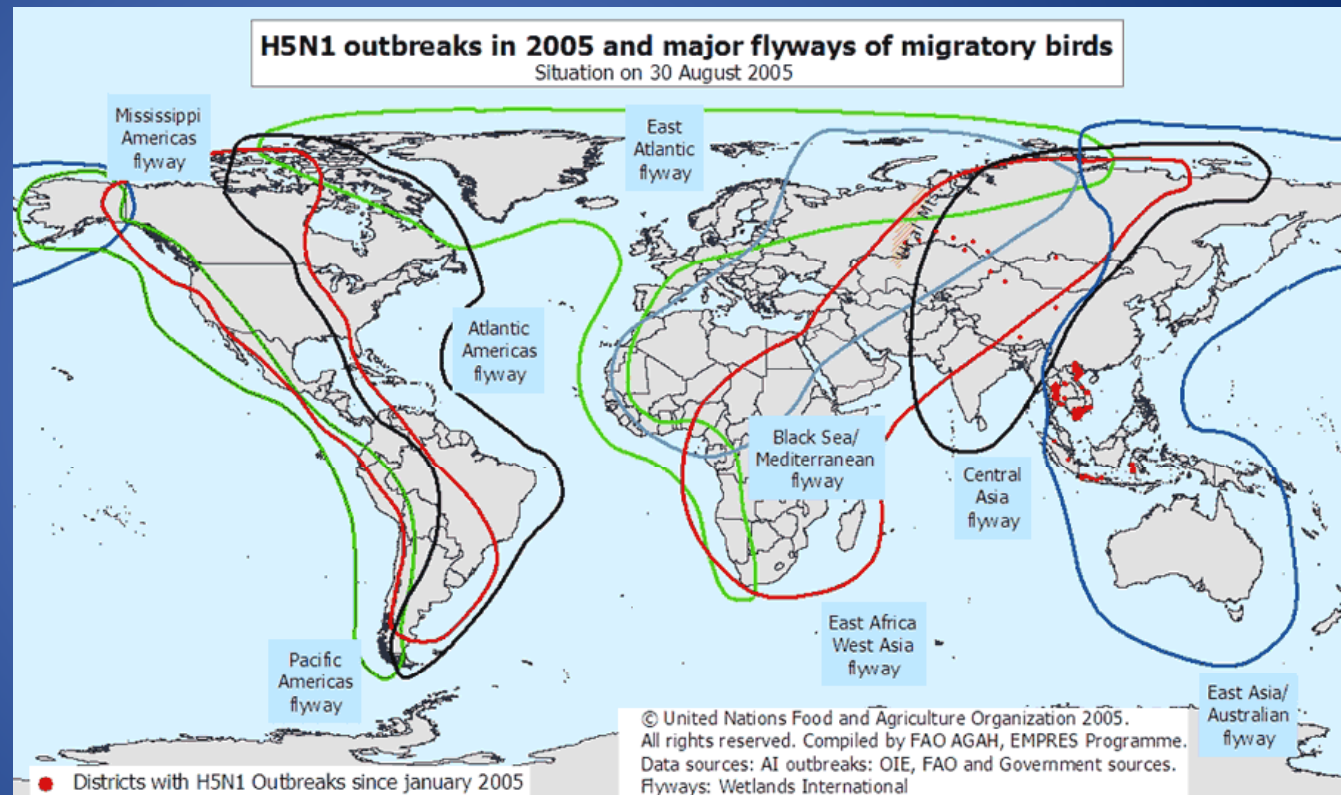
Image: KATE WONG



AI Surveillance: Domestic and Wildlife

poultry, gamebirds, unexplained mortalities, bird mortality reporting, waterfowl

- mallards
- Canada geese
- sandpiper
- dunlin
- sanderling
- long-tailed duck
- Atlantic brant
- black-bellied plover



Safeguarding You

PPE



AI PPE recommendations from the CDC

<http://www.cdc.gov/flu/avian/professional/protect-guid.htm> Jan. 14, 2006. See site for complete details

- Disposable nitrile or vinyl gloves
- Disposable coverall with impermeable apron
- Shoe covers or boots which can be disinfected
- Safety goggles
- Respirator (N-95, N-99, N-100)
- Prophylactic antiviral medications
- Seasonal flu vaccination
- Surveillance of workers





Ignorance Is The Root Cause Of Fear. From a College Essay

The Webster dictionary defines fear as "the emotion experienced in the presence or threat of danger" ...

To begin with, the fear of the unknown is a biological fact. It is no more and no less than an innate reflex that has one purpose: to keep us safe.

Thorough our life our brain is trained to discern between what is harmless, and what is dangerous.

Alas, most people's safety centers have gone a little too far in their learning. The lesson they probably internalized was "if it is unfamiliar, it may pose a threat. Only trust the things you know."

To follow, the phenomenon of fear induced by ignorance can be easily observed both in individuals and as a social mechanism. The prejudices and phobias, such as xenophobia, homophobia or fear of injections, are more often than not caused by our lack of knowledge and experience.



- Directly from the introduction of the new BMBL 5th edition; Introduction.
- “The nation’s response to recent world events brings with it a heightened concern for a potential increase in LAIs. **In 2003, the United States federal government awarded significant funding for the construction of National Biocontainment Laboratories (NBL) and Regional Biocontainment Laboratories (RBL).** The NBLs will house BSL-2, 3, and 4 laboratories; the RBLs will house BSL-2 and 3 laboratories. In addition, construction of new containment facilities by private and public institutions is underway nationwide. We had a BSL-3 Laboratory established before this time.

“Coming together is a beginning.
Keeping together is progress.
Working together is success.” Henry Ford



World Health Organization

Oie

Homeland Security U.S. Department of Agriculture
Agricultural Research Service

PLUM ISLAND
ANIMAL DISEASE
CENTER
*Research
Participation Program*



HOMELAND SECURITY
ADVISORY SYSTEM

SEVERE
SEVERE RISK OF
TERRORIST ATTACKS

HIGH
HIGH RISK OF
TERRORIST ATTACKS

ELEVATED
SIGNIFICANT RISK OF
TERRORIST ATTACKS

GUARDED
GENERAL RISK OF
TERRORIST ATTACKS

LOW
LOW RISK OF
TERRORIST ATTACKS



In conclusion...



Setting

Fear of re
disease..
nonawar
guideline

Knowledge



ectious
and
govern

should.

Open to Discussion

