



# Reducing risk of zoonotic Diseases

## Risk Communication

Maria Thereza Bonilha Dubugras

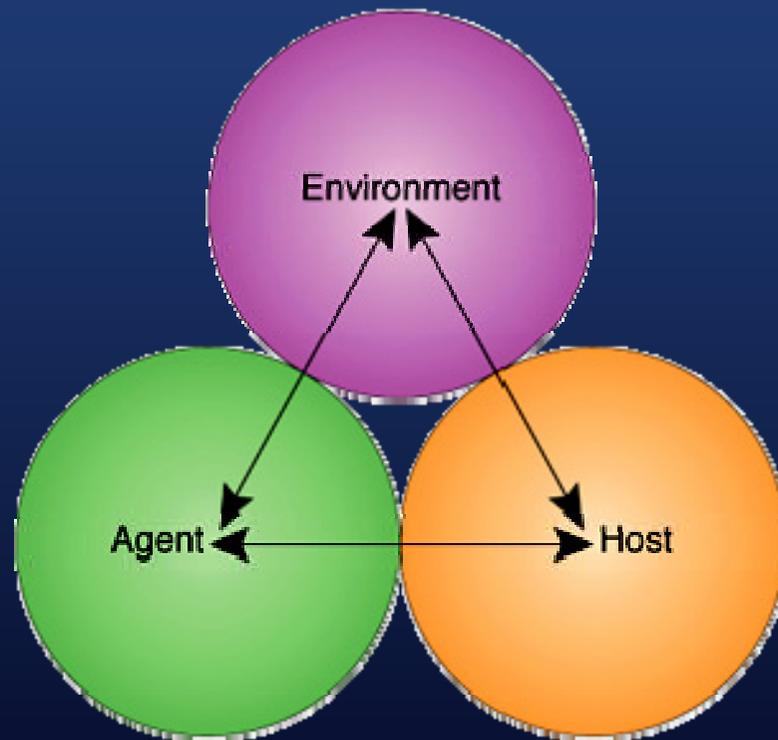
UNIFESP/ Universidade Federal de São Paulo



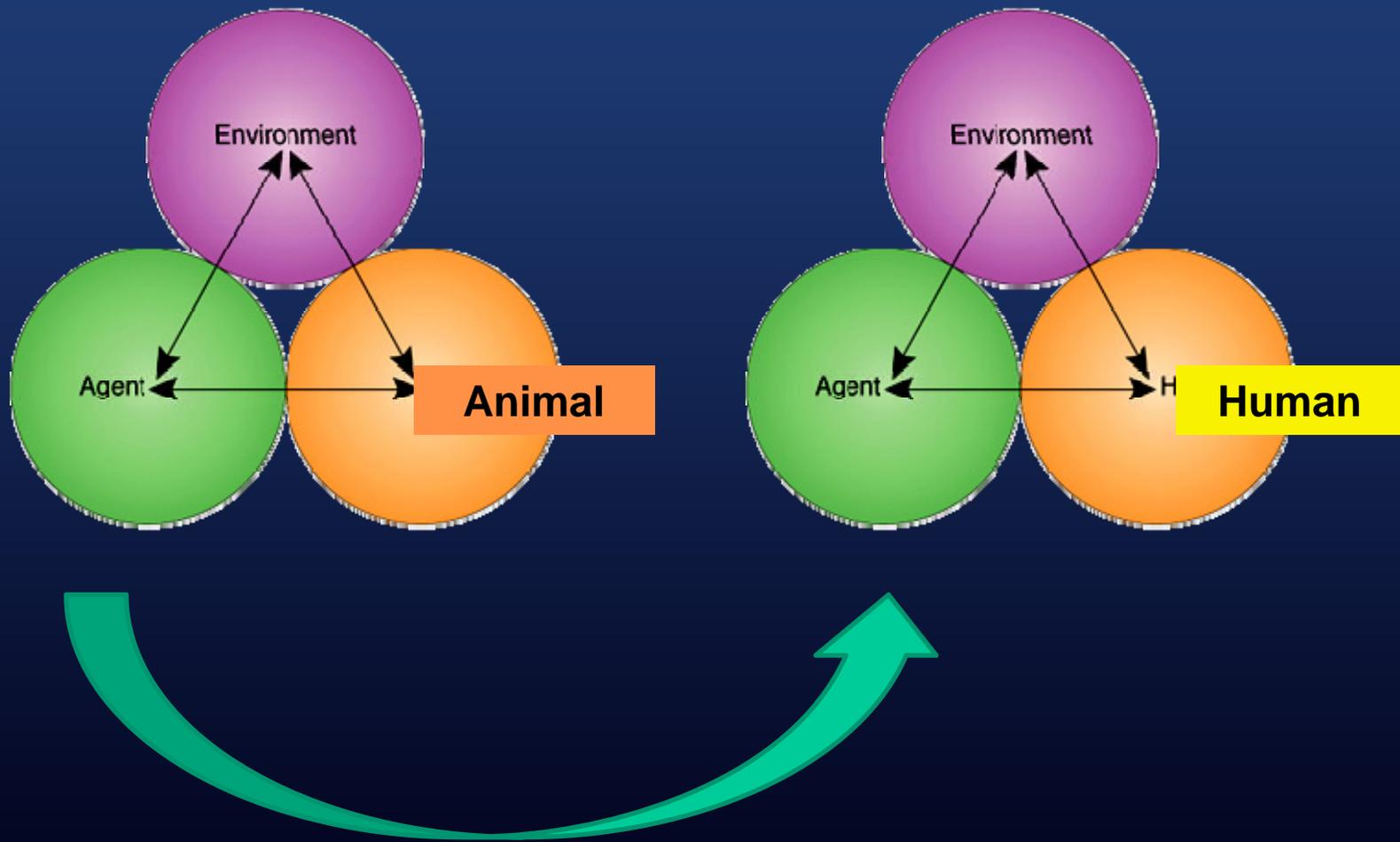
## RISK

- Probability of effect occurs  
AND magnitude
- RISK FACTORS

# Epidemiology



# Epidemiology



1986

1988

1990

1995

1996

A previously **unrecognized disease on cattle** was identified in UK.



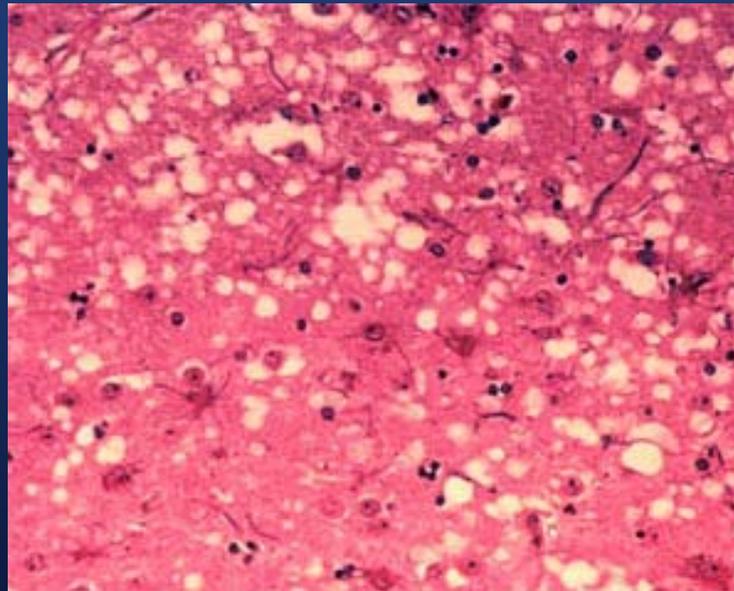
1986

1988

1990

1995

1996



**Histopathological changes**

1986

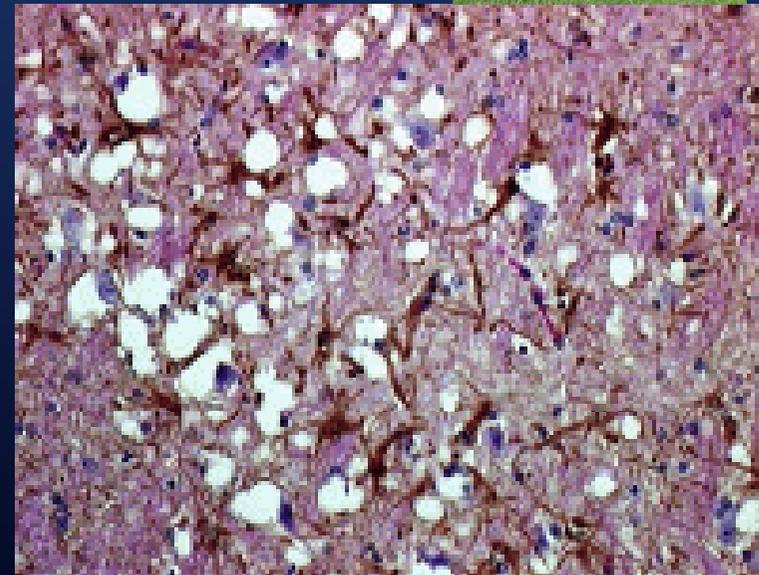
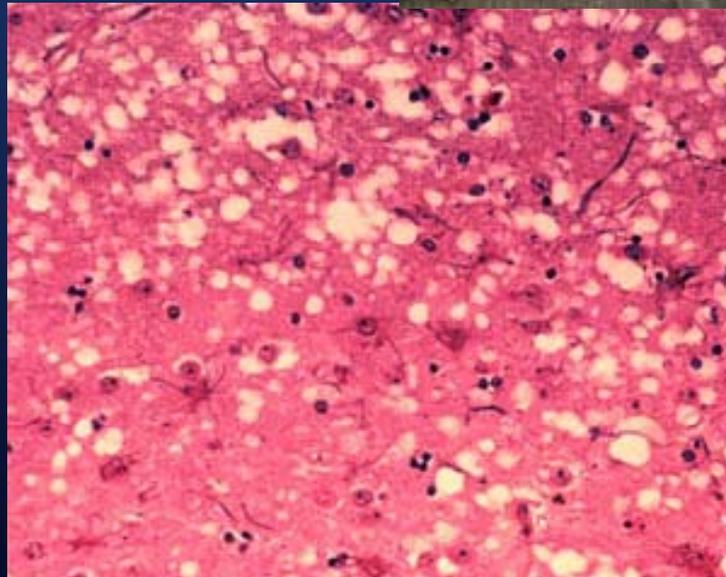
1988

1990

1995

1996

The **lesions were similar** to those characteristic of transmissible spongiform encephalopathies (TSE) or **Prion Diseases** in other species, specifically scrapie of sheep.



**New Disease**

**Scrapie**

1986

1988

1990

1995

1996

## PRION



### Prion Diseases

The infectivity of prions is notoriously resistant to heat (including steam under pressure) and treatment with some harsh denaturing agents.

1986

1988

1990

1995

1996



➤ **Mapping of the cases** that occurred within the first 18 months ⇒ common exposure.

➤ Common exposure = use of a dietary protein supplement, **meat and bone meal (MBM)**.



➤ Dairy x beef herds = higher incidence of disease in dairy herds (MBM )



➤ Age at onset of animals/ first wave of cases = 3-5 years old (it may be Inferred that exposure began in the early **1980s**).

# Meat and Bone Meal

- Slaughterhouse refuse (offal) ⇒ 2 products: tallow (fat) and a defatted mixture of MBM.
- Changes in rendering practices:
  - ❖ Decline in solvent-based extraction of meat in the early 1980s.
    - = **Sheep scrapie-infected** carcasses and offal.

# Meat and Bone Meal

- **Most common in England where modern industrial farming methods have increasingly become the norm.**
- **Northern Ireland and Scotland**
  - **Herds are grass fed**
  - **BSE has rarely occurred.**

1986

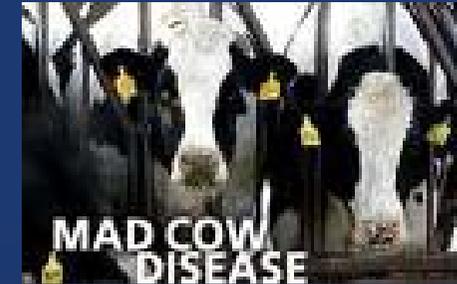
1988

1990

1995

1996

## Bovine Spongiform Encephalopathy (BSE) Mad Cow Disease

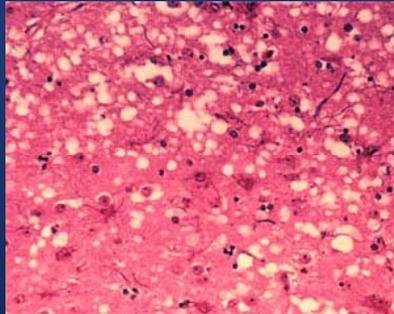


- BSE - Reportable Disease - Obligatory notification
  - ❖ Preventing the spread of disease through international movements.
- Diagnostic service to screen all suspected cases
- Animals destroyed because of the disease
- Ban on the feeding of ruminant protein to ruminants
- Ban on specified bovine offals - food chain
  - ❖ UK BSE 2.225 casos

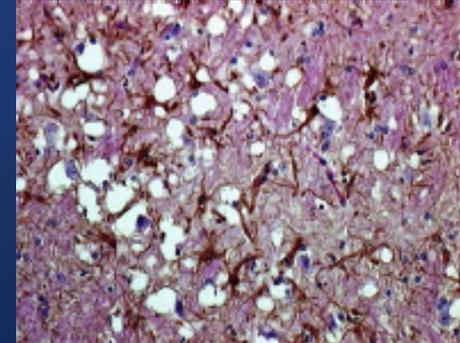
### NEWSPAPERS: Risk????

- ❖ *Mystery/ Unknown disease*

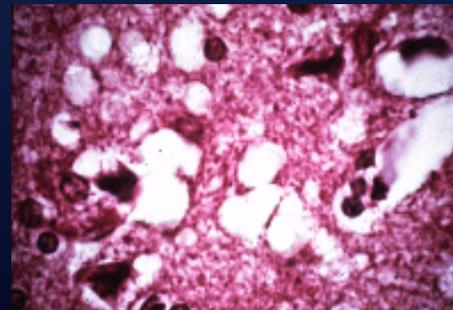
# Spongiform Encephalopathy



**BSE**



**Scrapie**



**Kuru**

## Creutzfeldt-Jakob disease (CJD)

- CJD - occurred predominantly in patients of middle age (34 and 73 years).
- It was uncommon in younger people.

1986

1988

1990

1995

1996



Is there a **potential transmission of BSE to humans** by the consumption of beef or beef products?

- Previous epidemiologic studies failed to demonstrate an association between sporadic cases of Creutzfeldt-Jakob disease (CJD) (or other human prion diseases) and consumption of lamb.



- Low infectivity of scrapie, when administered by feeding
  - BSE **can not jump species** barriers
  - No human health risk

1986

1988

1990

1995

1996

➤ **Laboratory – transmission to pigs**



➤ **Case in cat - Feline spongiform encephalopathy (FSE)**

**Apparently transmitted to cats in BSE-contaminated food**

❖ **BSE Total 14.407 in cattle**

1986

1988

1990

1995

1996



**ZERO RISK???**

1986

1988

1990

1995

1996



- 2 cases of CJD in **teenagers**
- Press coverage increased.
- Professor Sir Bernard Tomlinson announced in that he had stopped eating hamburgers.
- Beef consumption drops even more.
  - Public risk perception amplified.
  - Stigma= **Beef is not safe**

1986

1988

1990

1995

1996

## 20 de março - Stephen Dorrell



- New variant form of CJD (vCJD) - 10 patients UK, with onsets of illness between February 1994 and October 1995).
- Cases were mainly under age 40 years at onset.
  - Potential link between BSE and CJD.
  - World-wide export ban on British beef followed.

Thursday, 26 October, 2000

## Ministers 'misled' public on BSE



The inquiry was chaired by Lord Phillips

Former health secretary, Stephen Dorrell, **has expressed regret** over statements he made relating to the safety of British beef during the BSE crisis.

Mr Dorrell - who was one of the ministers criticised in the BSE inquiry report - told BBC Radio 4's Today programme that he has made a mistake when he said there was "no conceivable risk from beef".

Conservative ministers and their officials repeatedly misled the public about the threat to human health posed by mad cow disease, according to the official BSE inquiry report.

The long-awaited report said the **crisis had been made worse by an over-riding desire to avoid a health scare, poor communication between government departments,** and bureaucratic delays in responding to scientific warnings about the risks.

1986

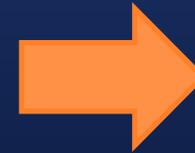
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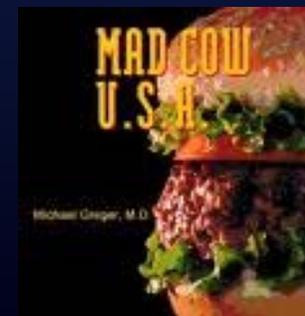
## Modern industrial farming



# Importance of zoonotic diseases

**More than 60%** of the newly identified infectious agents that have affected people over the past few decades have been caused by pathogens originating from animals or animal products (WHO, 2010).

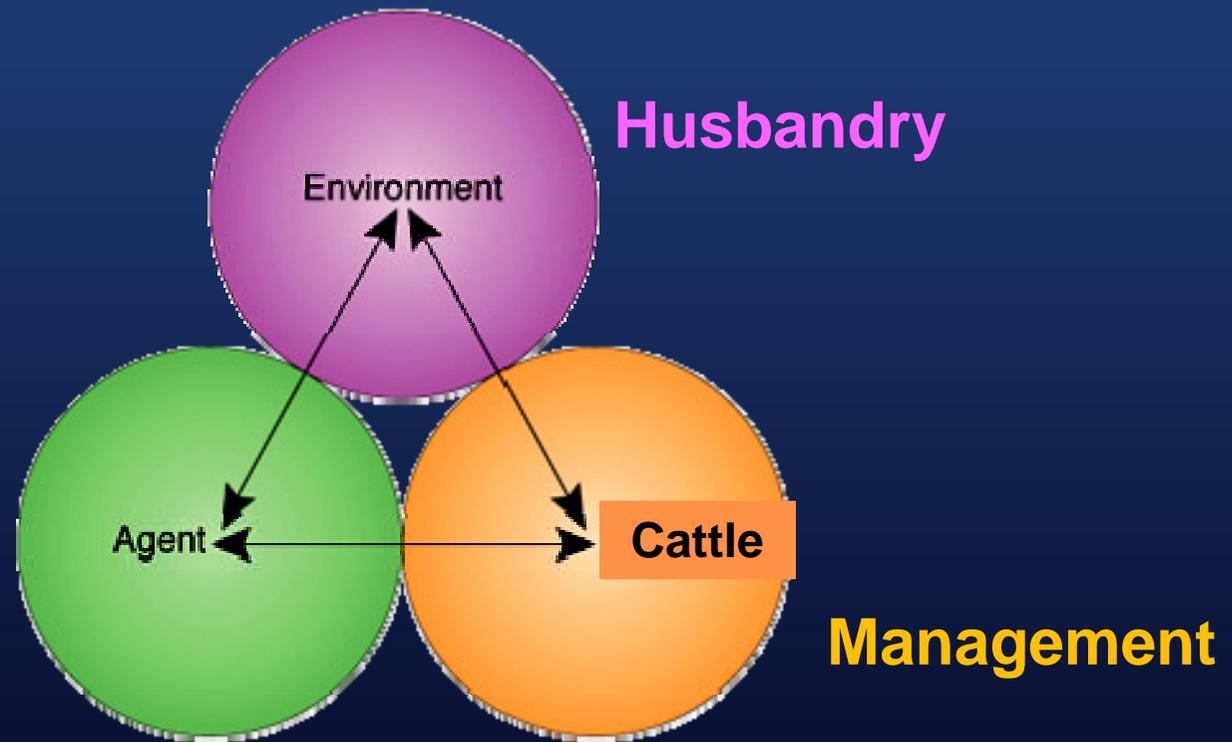
**70% zoonotic infections: wildlife origin**



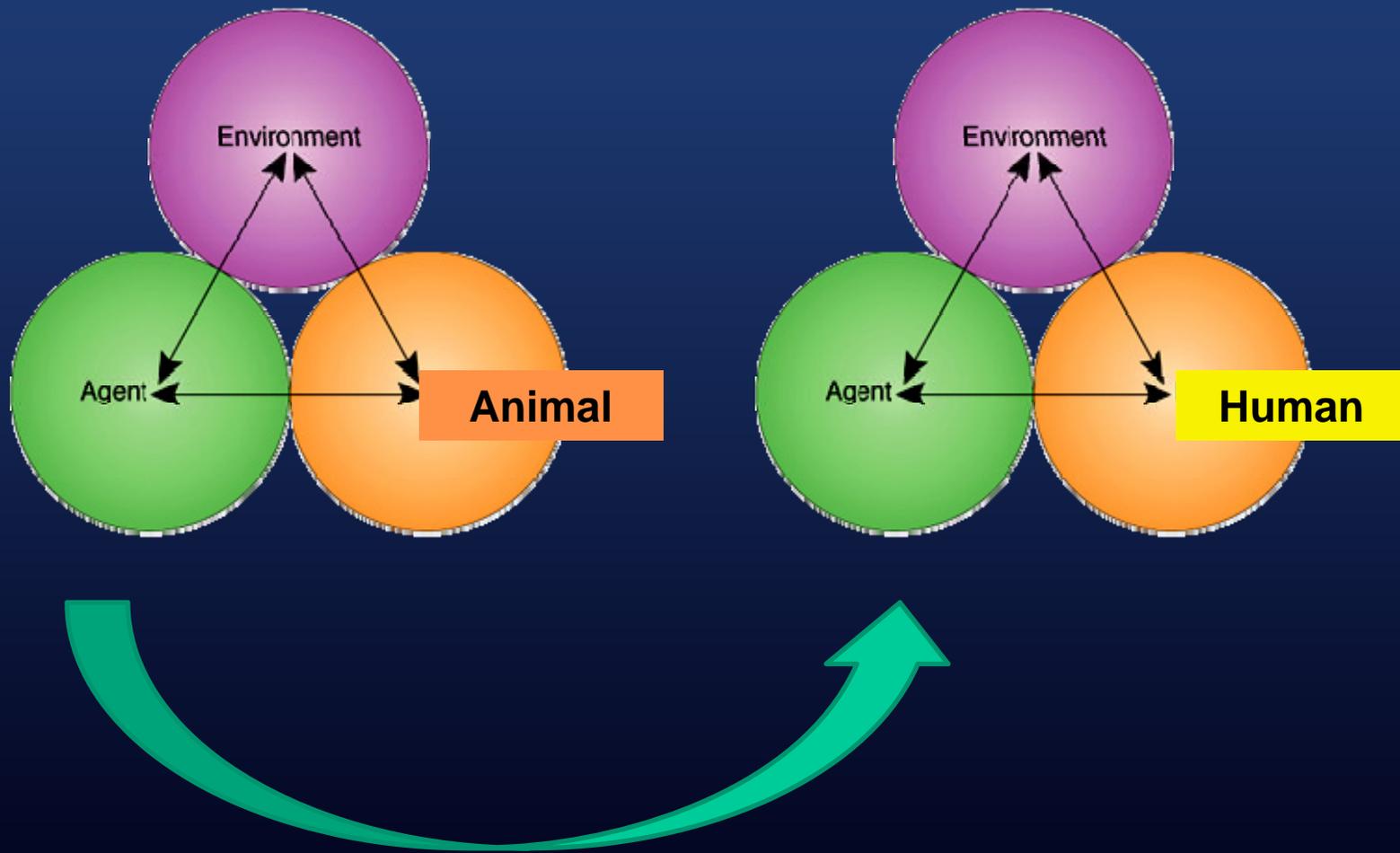
# Disease outbreaks

- The **emergence or re-emergence** of zoonotic disease is complex and multifactorial, driven by factors which include:
  - Microbial adaptation
  - Ecology
  - Global climatic anomalies
  - Human demographics and behaviour
  - International travel and trade
  - Agricultural practices, technology and industry.

# Epidemiology



# Epidemiology



# Zoonoses transmission

Direct contact:

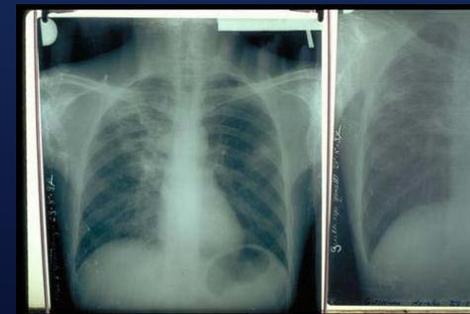
**Rabies**

*Rhabdovirus*



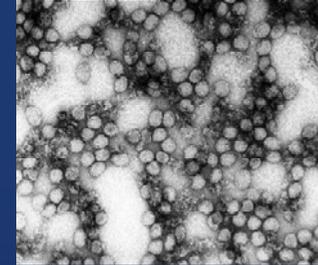
# Zoonoses transmission

Food:  
Zoonotic Tuberculosis  
*Mycobacterium bovis*



# Zoonoses transmission

Insects:  
Yellow Fever  
*Flavivirus*

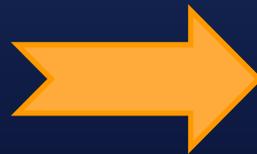
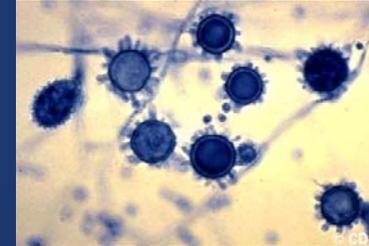


*Aedes mosquitoes*



# Zoonoses transmission

Environmental contamination:  
**Histoplasmoses**  
*Histoplasma capsulatum*



**RABIES**

# RABIES



125 years ago, **Louis Pasteur** developed the first rabies vaccine.

**Why the disease still occurs today?**

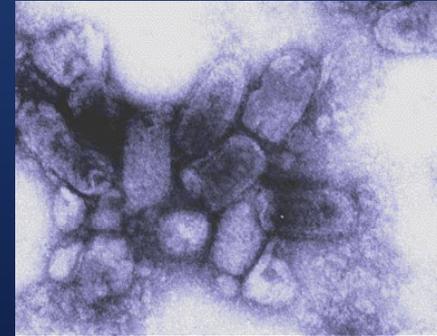


# RABIES



Genus: *Lyssavirus*

Family: *Rhabdoviridae*

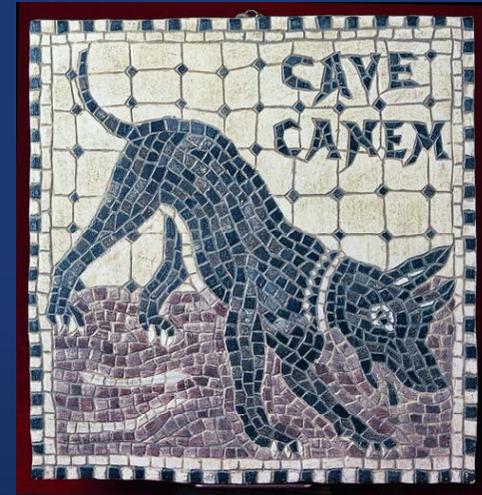


*Rabies virus*



- More than 55 000 human deaths per year  
(about 95% in Asia and Africa)

# RABIES



2300 BC

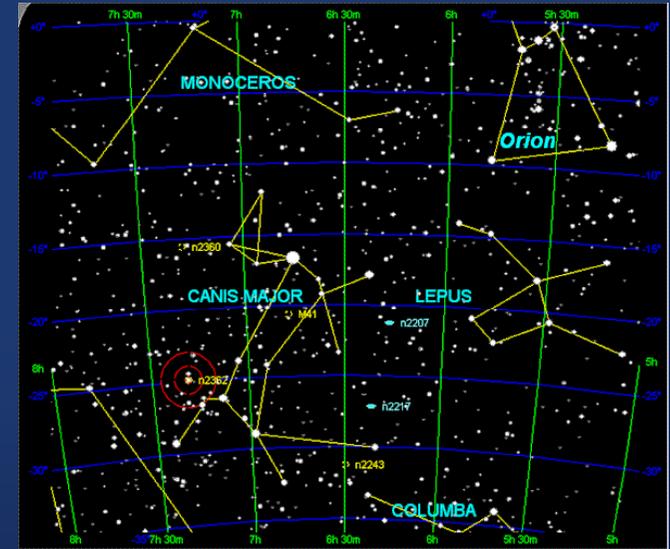
Dog owners in the Babylonian city of Eshnunna are fined heavily for deaths caused by their dogs biting people.

# RABIES

800-700 BC

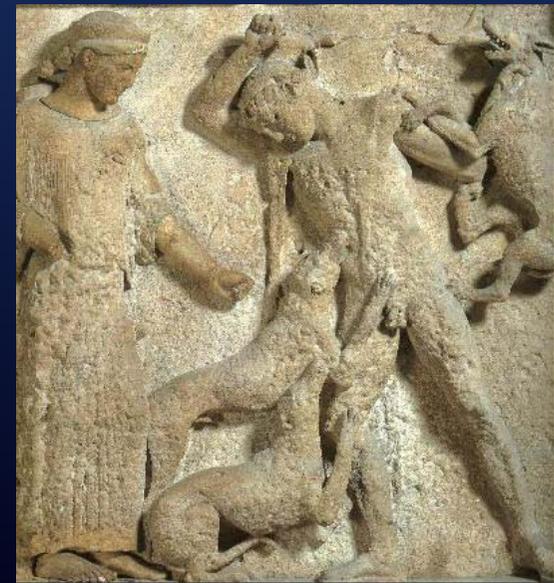
*The Iliad* (Homer)

Sirius, the dog star of Orion, “*exerts a malignant influence upon the health of mankind*”.



**Myth of Acteon and Artemys**

**Ariseus, son of Apollo,** had powers to counteract the effects of rabies.



# RABIES



1800

There are accounts of European villagers dying from contact with mad **wolves**, foxes and dogs.

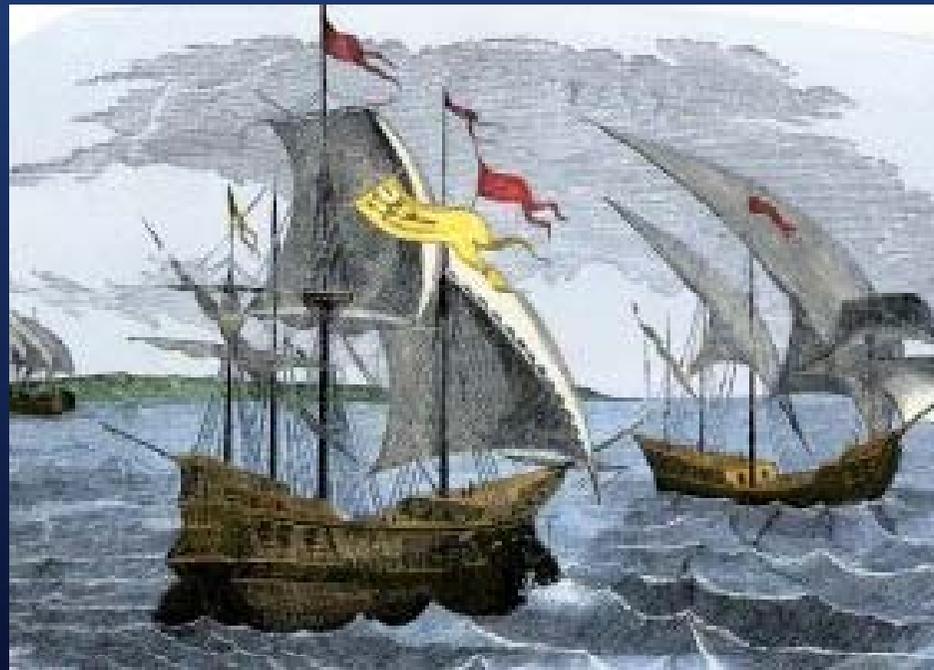




## Evil Werewolf

The legend of the werewolf is one of the most ancient and wide spread. Due to wolf attacks upon humans, fear of rabies, and a conflation of werewolves with witches, the sympathetic medieval werewolf exited entertainment literature.

# NEW WORLD



# RABIES IN THE NEW WORLD

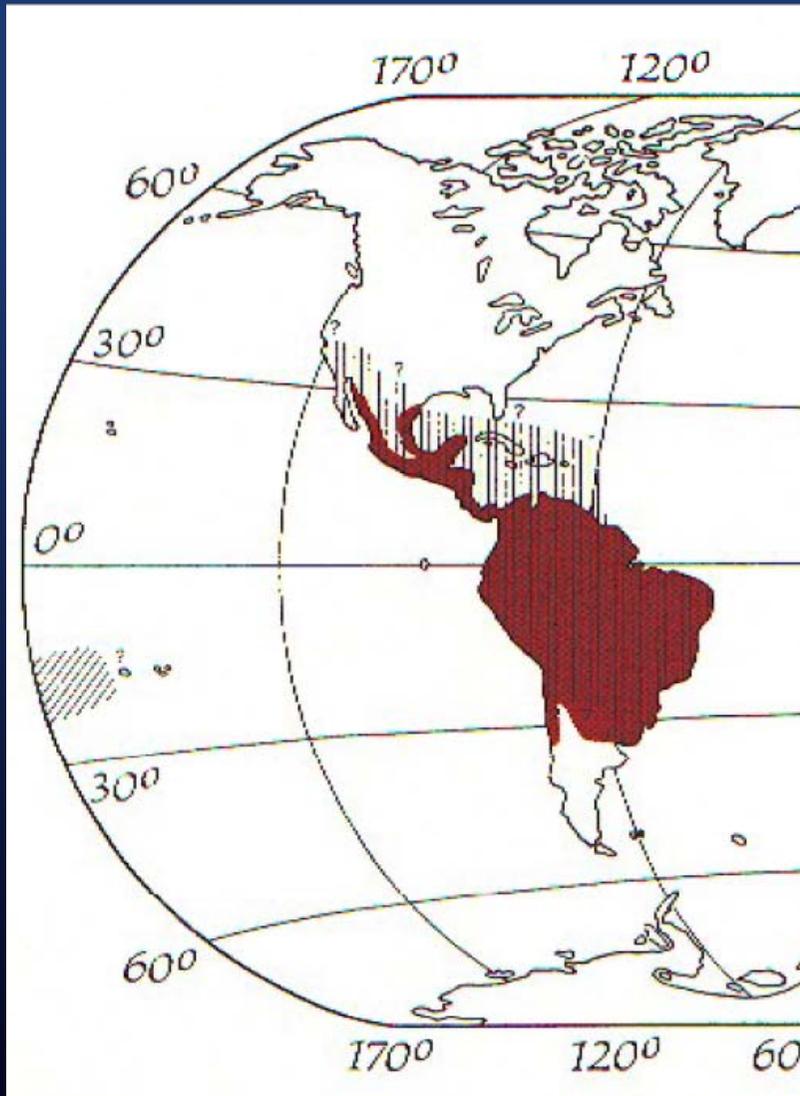


**Mayan Cult of Camazotz**

# RABIES IN THE NEW WORLD



Vampire Bat



Vampire bats  
*Desmodus rotundus*

## RABIES IN THE NEW WORLD



**Vampire-transmitted rabies** has probably existed has probably existed in tropical America since the pre-Hispanic era.

**Fernandez de Oviedo** (*Sumario de la Historia Natural de las Indias*): many soldiers died from bat bites during the Darien conquest.

**Molina Solis** (*Historia del Descubrimiento y Conquista de Yucatán*) : many soldiers and horses of Francesco de Montejo's army were attacked by vampire bats.



## VAMPIRE BAT RABIES

**First scientific report on bovine rabies in tropical America - by Carini in 1911 (SP, Brazil )**

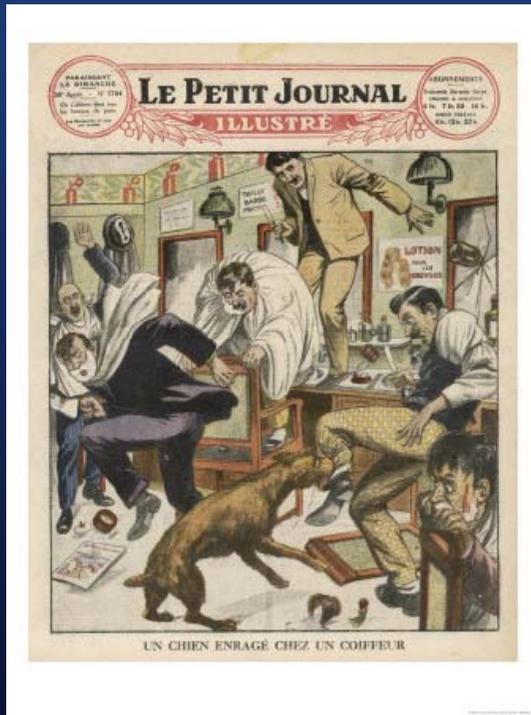


**First outbreak of bat-transmitted human rabies reported on scientific literature - Trinidad in 1927**

**➤ 55 human deaths (1929 – 1935)**



# RABIES



**19th century** - Many rabies cases in Europe (e.g. London - 29 deaths in the first weeks of 1877)

Rabies Order gave local authorities the right to muzzle, control, seize, lock up, and dispose of stray dogs.

# RABIES

**Louis Pasteur** began to work on rabies in 1880.



**1885**

Vaccination of Joseph Meister (9 years) - 13 injections of rabbit medulla homogenate (one per day)

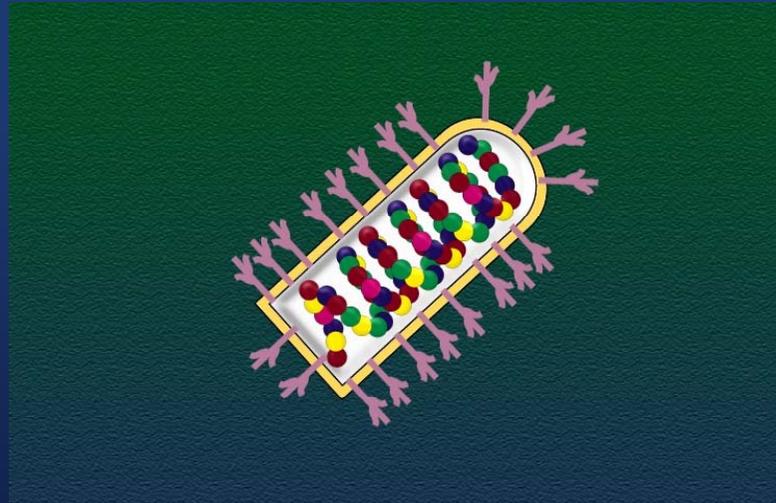
3 months later

Vaccination of Jean-Baptiste Jupille, severely bitten by a rabid dog

26 October 1885 - Results presentation at French Academy of Sciences.



# RABIES

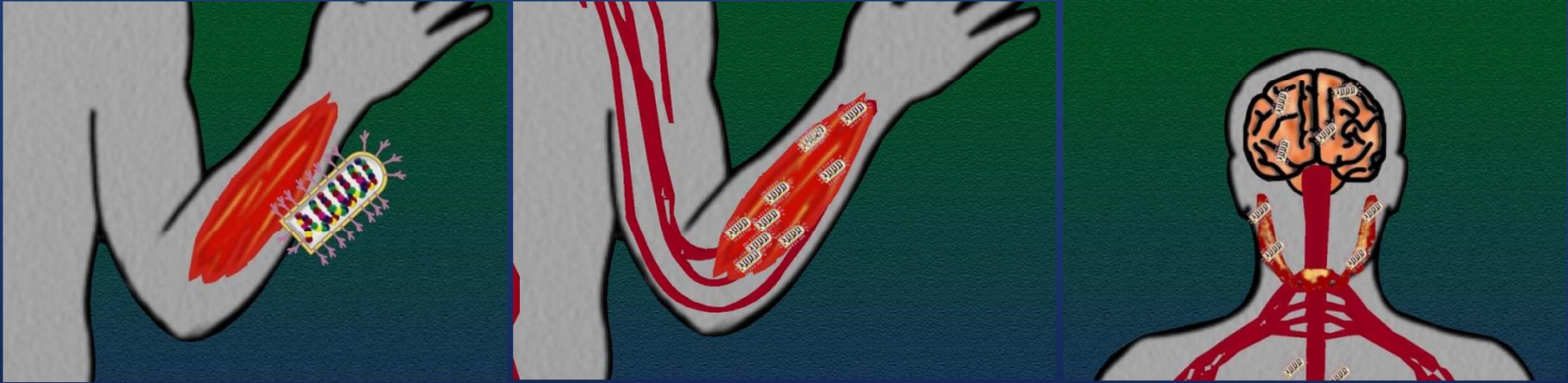


**Direct contact – saliva contact of broken skin or mucous membranes with saliva.**



**Aerosol transmission (bat infested caves, labs).**

# RABIES



All tissues of infected animals are potentially infectious, with highest titers in the CNS, saliva, and salivary glands.

Transplant surgery

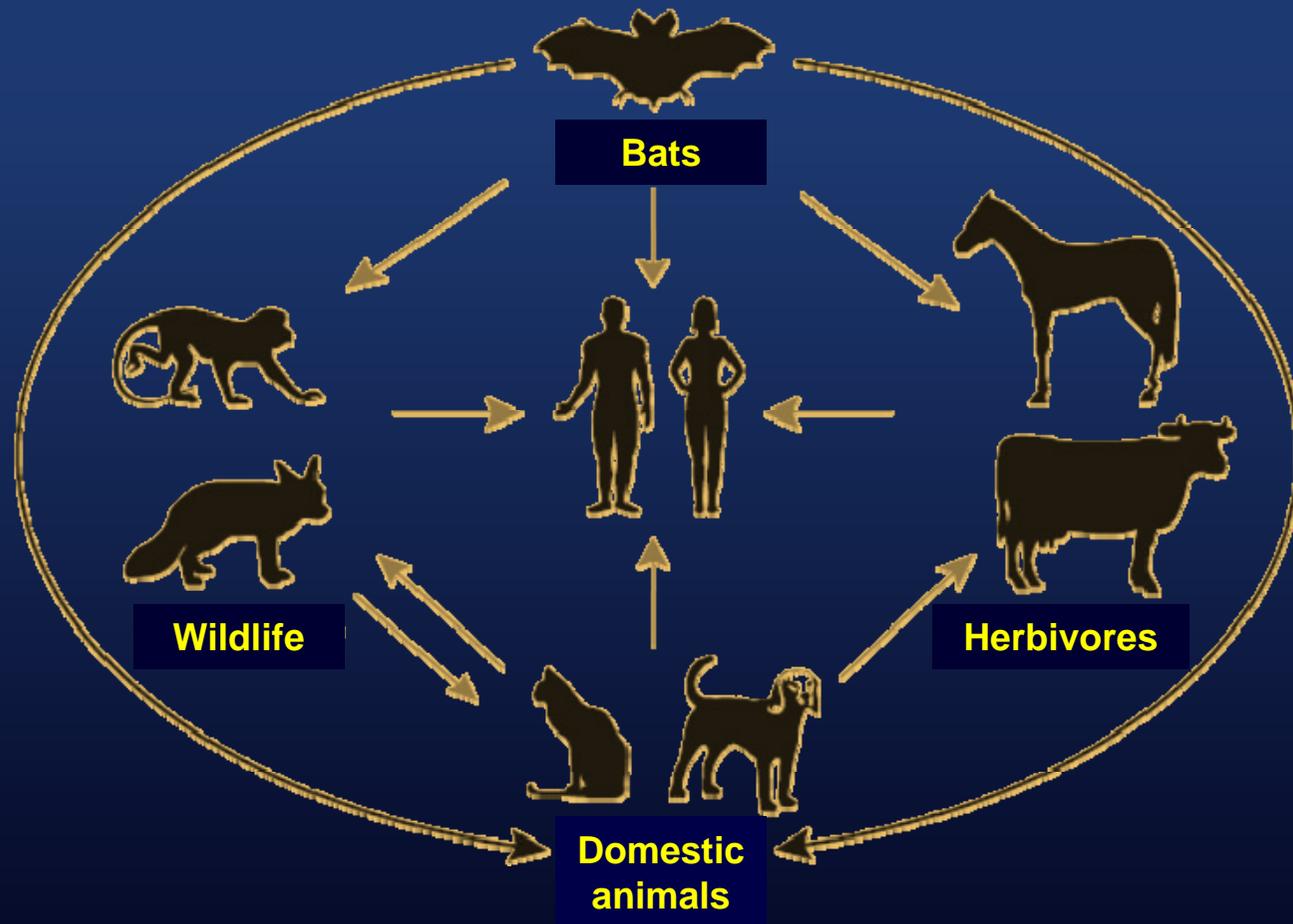
# HUMAN RABIES PREVENTION



Elimination of **exposition** to rabid animals

Prompt local **treatment** of wounds and  
postexposure rabies prophylaxis for  
exposed persons.

# RABIES



# RABIES - CONTROL MEASURES



## Dogs and Cats

Animal **population control** (without animal suffering)  
= reducing a stray dog

Mass **vaccination** campaigns

**Responsible dog ownership**





## Animal aggressions

# RABIES - CONTROL MEASURES



**Cattle, horses, deer and other herbivores**

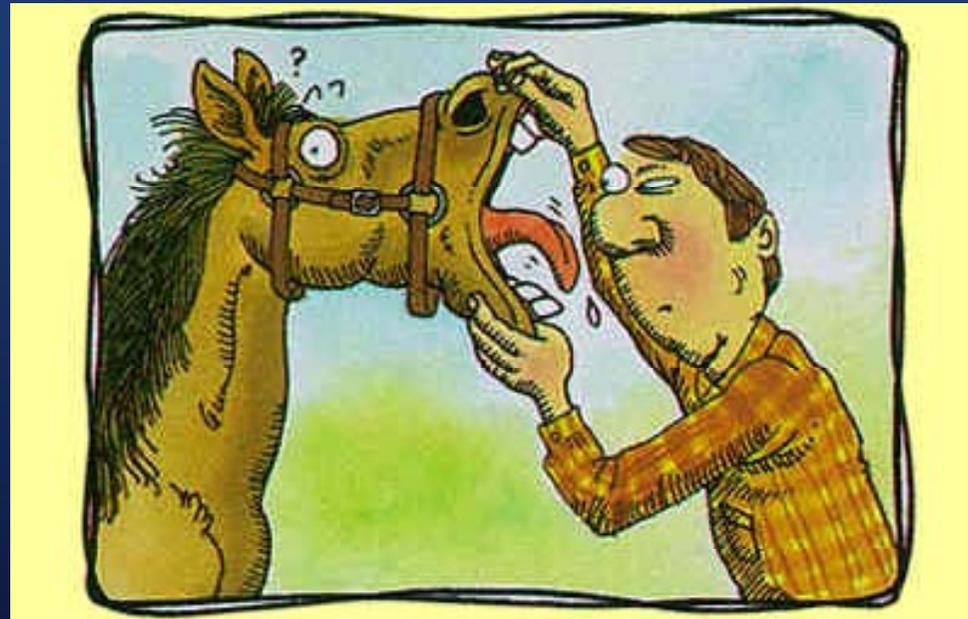
**Vaccination**

**Vampire bite**

**Vampire bats control**



# Herbivores rabies



- **Preexposure vaccination for professionals.**
- **Proper animal handling, basic biosecurity precautions, and personal hygiene.**



**Individuals that are more likely to be exposed to rabies than is the general public**

# RABIES - CONTROL MEASURES

## Wildlife



Raccoon, Grey Wolf, Red Fox, Skunk (National Geographic)

# RABIES - CONTROL MEASURES

## Wildlife

Canada - The Ministry of Natural Resources Rabies  
Research and Development Unit



# RABIES - CONTROL MEASURES

## Wildlife – Bats



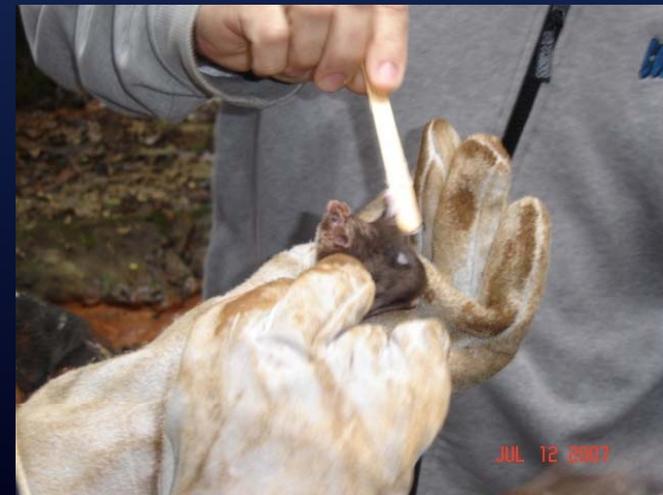
# RABIES - CONTROL MEASURES

## Wildlife – Bats



# RABIES - CONTROL MEASURES

## Wildlife – Bats





**Contact with wildlife**

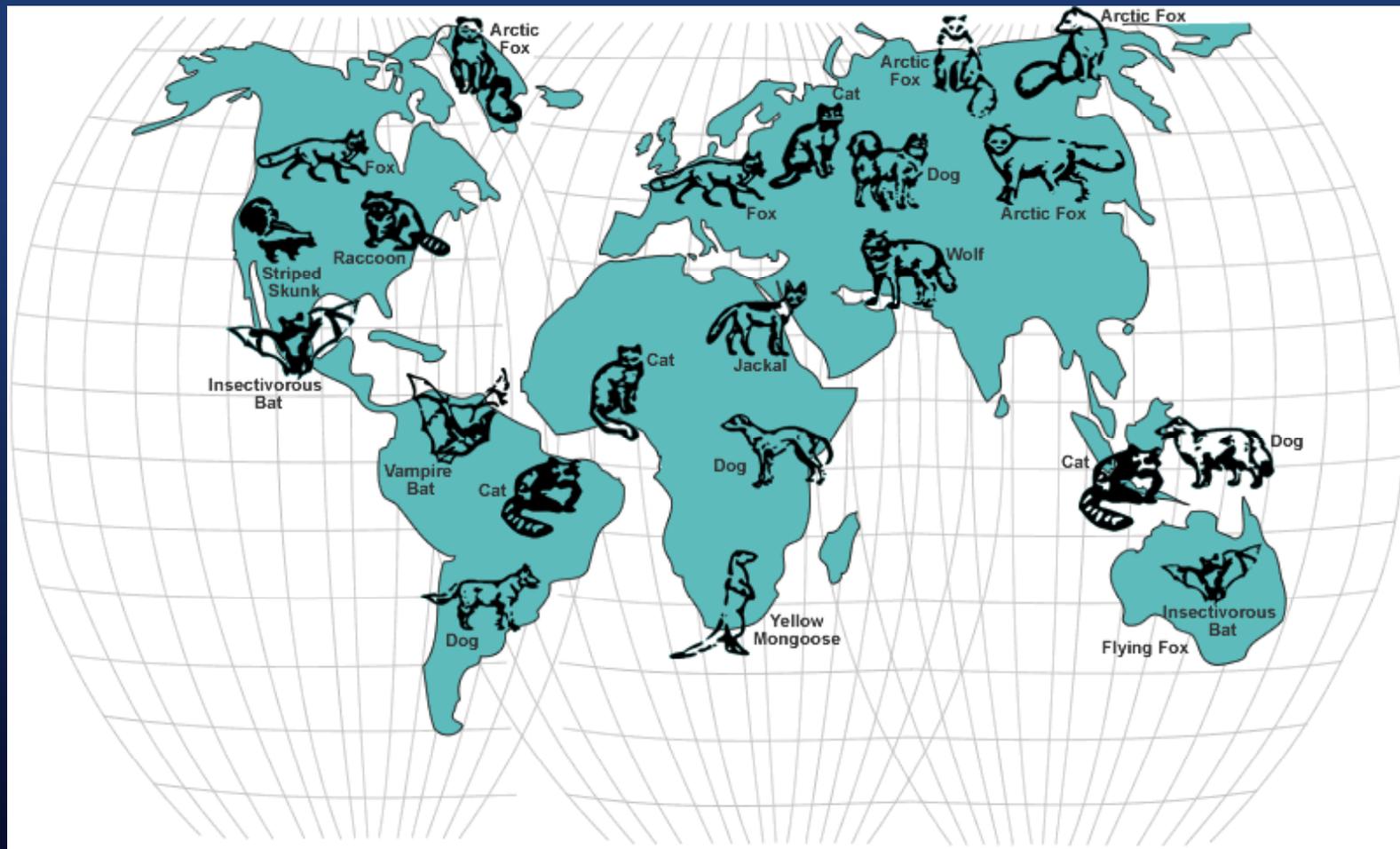
# France

1998 - 4 animal cases

- 2 Border with the Belgium – fox and cat
- 1 Brittany – bat *Eptesicus serotinus*
- 1 South – dog abandoned
  - Variant - Egypt

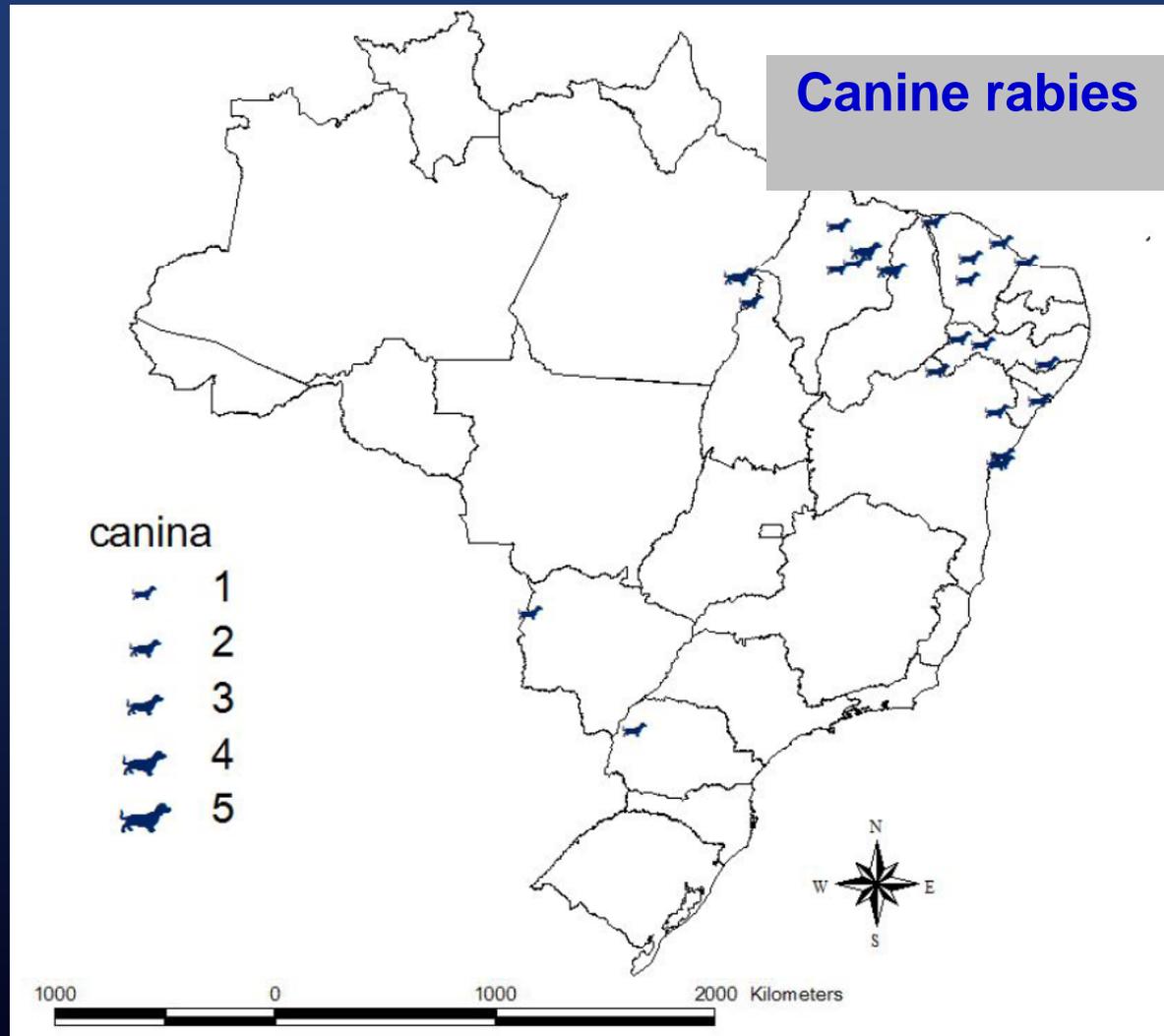


## **Illegal importation of animals Travels**



1<sup>o</sup> Canine and feline rabies control

# RABIES – BRAZIL 2009

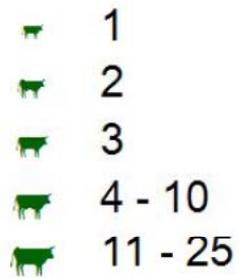


Estado	C
Norte	3
Rondônia	-
Acre	-
Amazonas	-
Roraima	-
Pará	3
Amapá	-
Tocantins	-
<b>Nordeste</b>	<b>21</b>
Maranhão	7
Piauí	-
Ceará	6
R. G. do Norte	-
Paraíba	-
Pernambuco	3
Alagoas	-
Sergipe	1
Bahia	5
<b>Sudeste</b>	<b>-</b>
Minas Gerais	-
Espírito Santo	-
Rio de Janeiro	-
São Paulo	-
<b>Sul</b>	<b>1</b>
Paraná	1
S. Catarina	-
R. G. do Sul	-
<b>Centro-Oeste</b>	<b>1</b>
M. G. do Sul	1
Mato Grosso	-
Goiás	-
D. Federal	-
<b>Brasil</b>	<b>26</b>

# RABIES – BRAZIL 2009

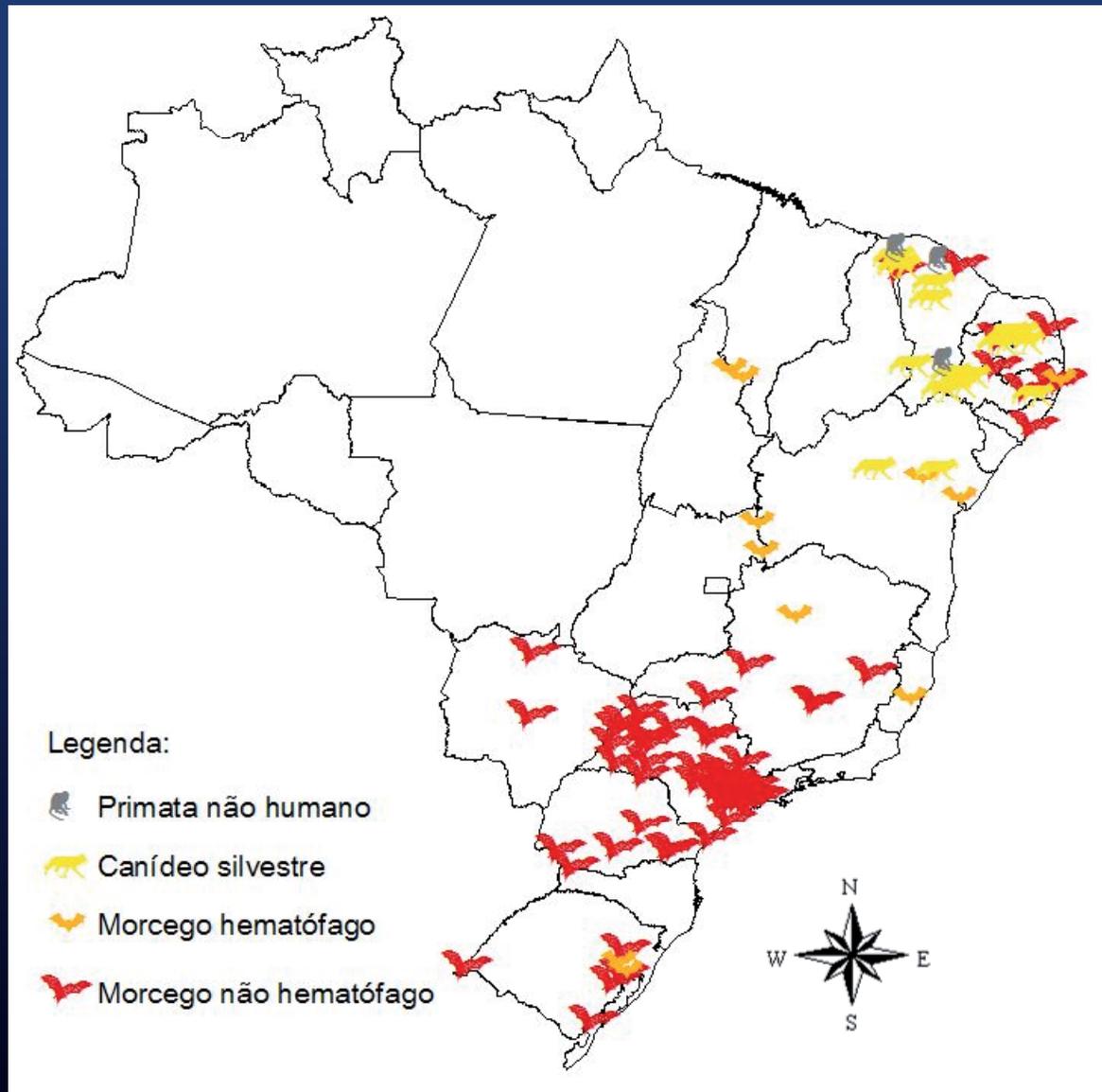
## Herbívoros rabies

### Bovina



Estado	B
Norte	35
Rondônia	11
Acre	-
Amazonas	2
Roraima	-
Pará	5
Amapá	2
Tocantins	15
<b>Nordeste</b>	<b>131</b>
Maranhão	-
Piauí	-
Ceará	2
R.G.do Norte	5
Paraíba	-
Pernambuco	55
Alagoas	-
Sergipe	1
Bahia	68
<b>Sudeste</b>	<b>319</b>
Minas Gerais	133
Espírito Santo	61
Rio de Janeiro	36
São Paulo	89
<b>Sul</b>	<b>190</b>
Paraná	119
S.Catarina	17
R.G.do Sul	54
<b>Centro-Oeste</b>	<b>104</b>
M.G.do Sul	5
Mato Grosso	62
Goiás	37
D. Federal	-
<b>Brasil</b>	<b>779</b>

# RABIES – BRAZIL 2009

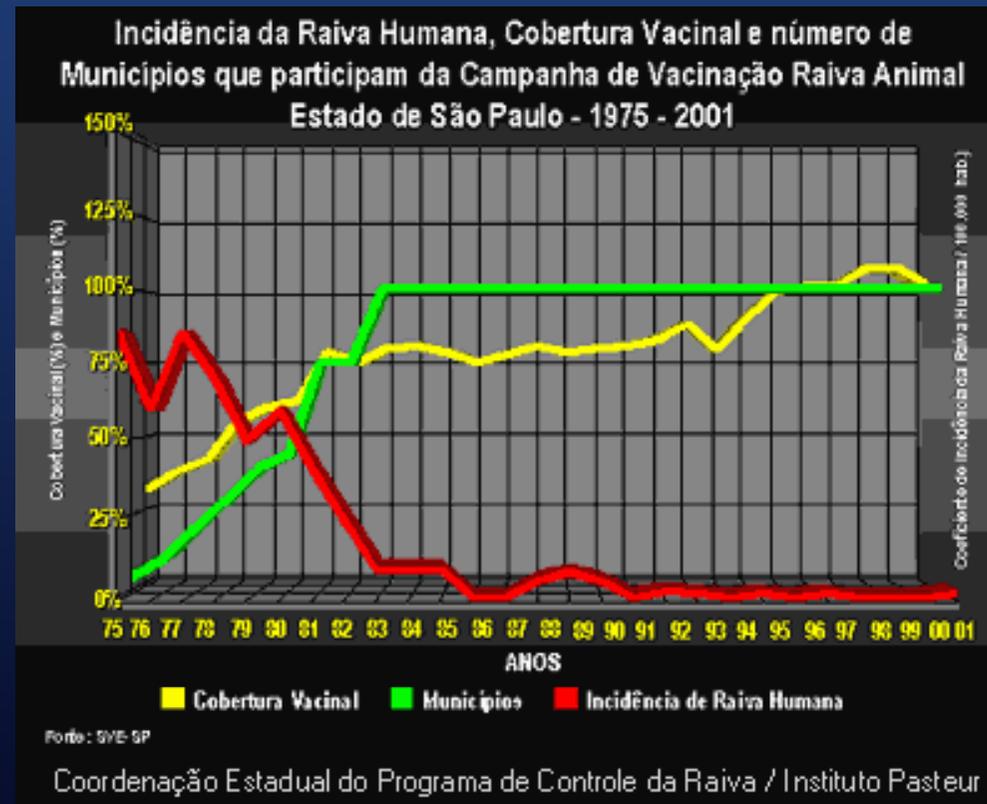


# State of São Paulo





# Human rabies x Canine and Feline Vaccination



# Canine and Feline Rabies

2001 Human rabies case  
Municipy: Dracena  
Cat not vaccinated



Antigenic study - *Desmodus rotundus* variant

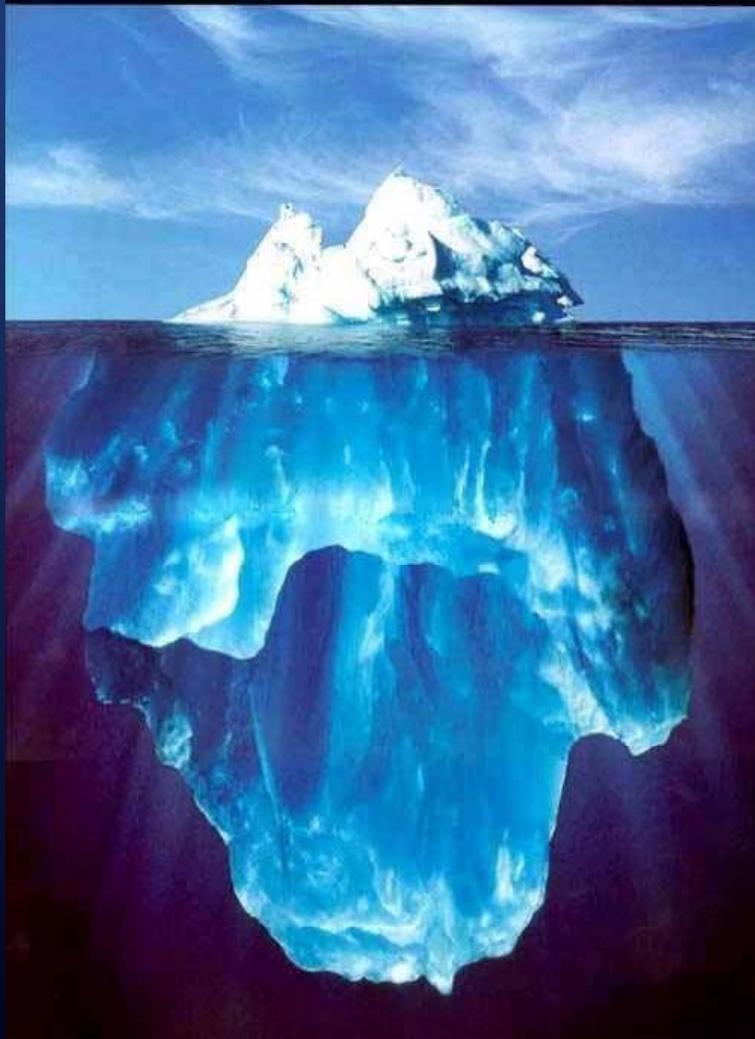
(KOTAIT et al, 2001)





**Adhesion to  
recommendations**

***Canine and Feline Rabies might only be the tip of the iceberg...***



## Outbreak human rabies transmitted by vampire bats 2004 - 2005



Source: Literature reviews, Ministry of Health of Brazil, 2007; Ministry of Health of Peru, 2007.

## Outbreak human rabies transmitted by vampire bats



Small villages in the Rain Forest

## Outbreak human rabies transmitted by vampire bats



# Social risk factors

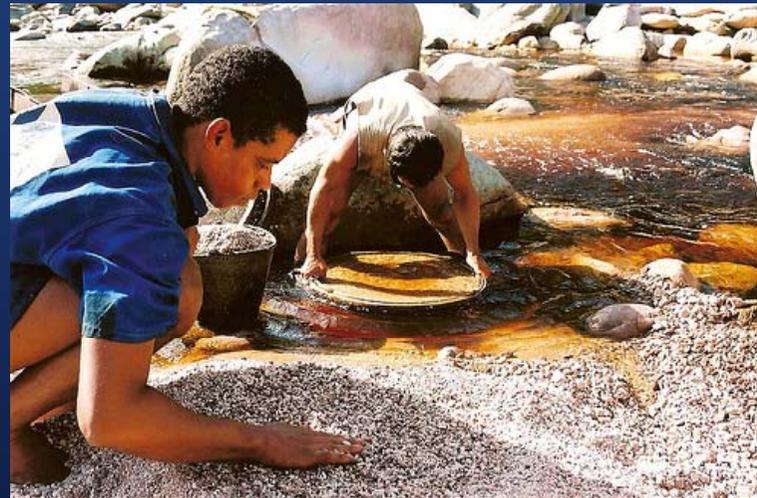


**Humans occupation of the forest**

**Deforestation**

**Fire points – “*queimadas*”**

## Social risk factors



Prospection for gold - cutting down trees, bringing in noisy machinery, hunting animals for food  
**GARIMPO**

## Social risk factors



**“These changes in the environment in turn can lead to changes in the type of species available as a food supply for vampire bats, which could lead to their attacking people” (Schneider, 2009).**

# Social risk factors



Photos: Jakeline Rios  
Estado do Maranhão  
Secretaria de Estado da Saúde

# Social risk factors



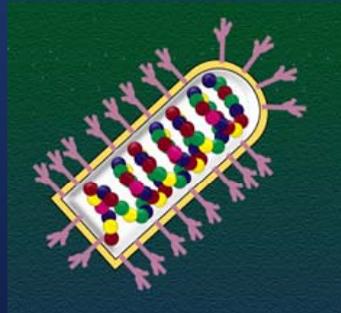
- Poverty
- Poor living conditions
- Vulnerable housing in remote areas
- Sleeping in hammocks
- Difficulties accessing health services
  - **Human serve as easy prey**

# Biological risk factors



Photos: Jakeline Rios  
Estado do Maranhão  
Secretaria de Estado da Saúde

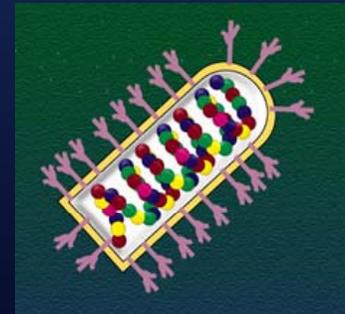
# Biological risk factors



# Human Rabies Cases

2004 - 2005

- Pará: 38 cases
- Maranhão: 24 cases





**Changes in the environment**  
**Urbanization**

**Social factors**

# Risk



- Animal aggressions
- Individuals that are more likely to be exposed to rabies than is the general public
- Contact with wildlife
- Illegal importation of animals and travels
- Adhesion to recommendations
- Changes in the environment:  
Urbanization
- Social factors

**Adequate choice of measures for risk management**

**Financial and personal recourses**

**Is the problem solved?**

## ÷ RESPONSABILITIES

**PUBLIC AWARENESS** – e responsibilities essential component of rabies prevention and control:

- Responsible pet ownership
- Routine veterinary care
- Awareness about: rabies transmission routes
- Avoiding contact with wildlife
- Prompt recognition and reporting of possible exposures to medical professionals and local public

# Health communication

**Health communication** is the study and use of communication strategies to inform and **influence** individual and community decisions that enhance **health**

(U.S. Department of Health and Human Services, 2000)



# Risk communication

**Risk communication** is an interactive process of exchange of information and opinion among individuals, groups, and institutions (e.g. scientists, communities, media professionals) about the nature, magnitude, significance, and/or control of health risks (FAO & OMS, 2005).

# Risk analysis



# Risk analysis



External risk communication

# Risk analysis

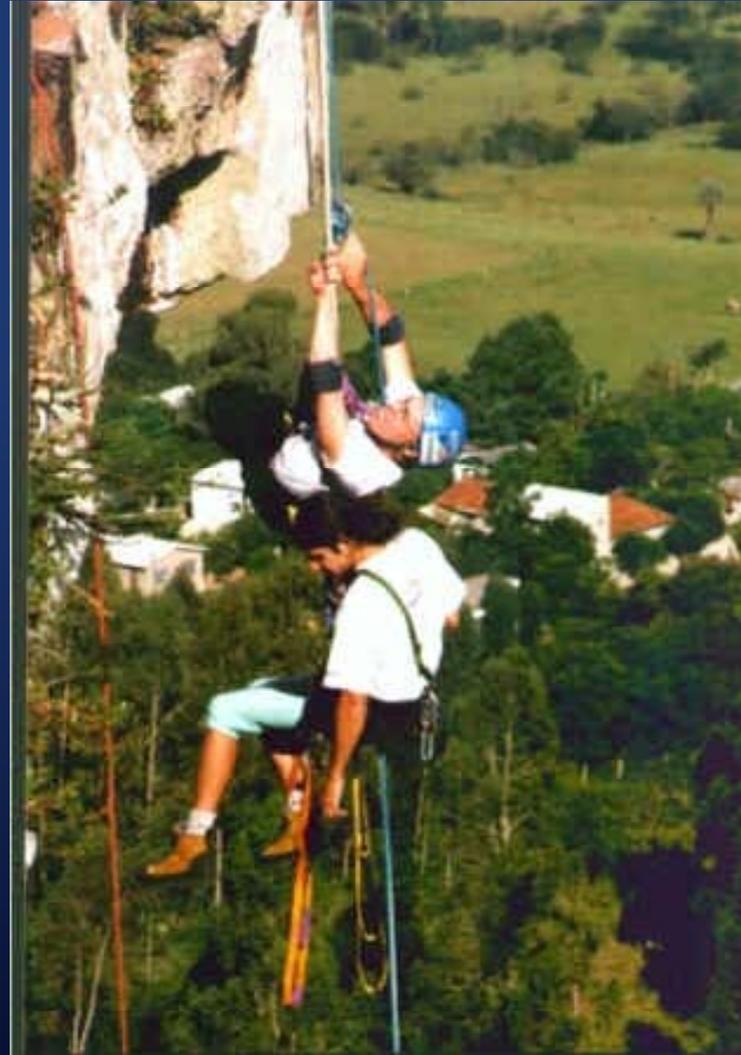


# How we deal with health risks?



... just ignorance?

Foto: Antonio Siqueira



***Why people expose themselves to risks?***



*“My father was bitten by the bats, he lived for 110 years, now you are inventing a disease from this?!!”*

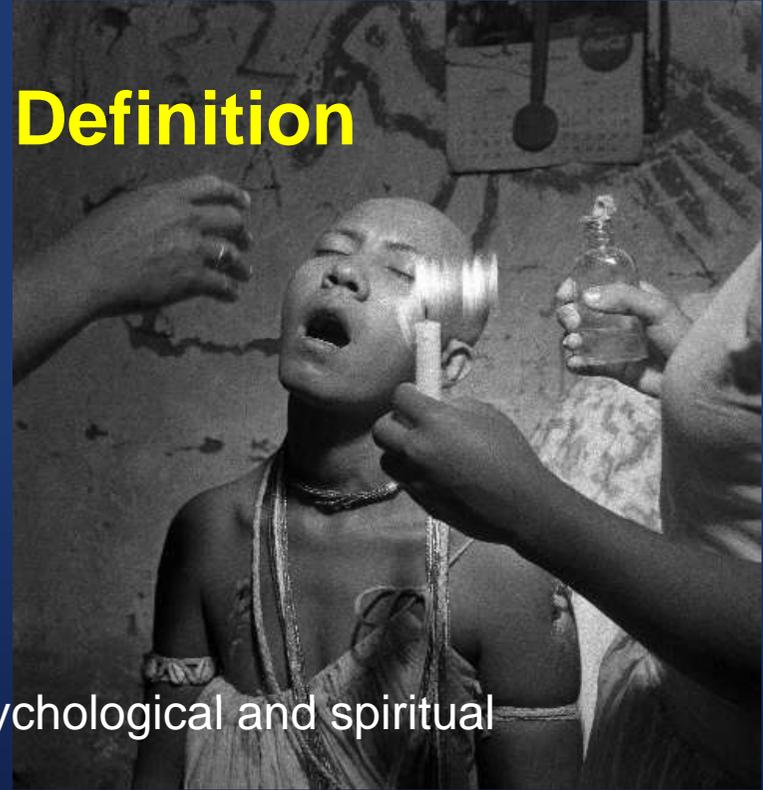
*(Habitant of Pará)*

# Culture and Disease definition



- What a **culture** defines as abnormal behavior is a consequence of what it defines as a modal personality.

# Culture and Disease Definition



## Shamans

- Religious practitioners who attends to the psychological and spiritual needs of a community - privileged status.
- They interact with spirit entities and have special powers and can influence the course of nature or human affairs.

## Schizophrenia

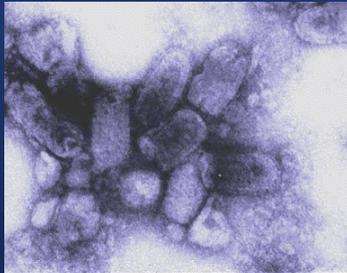
- Silverman (1967) postulated that shamanism is a form of acute schizophrenia: the two conditions have in common “grossly non-reality oriented ideation, abnormal perceptual experiences, profound emotional upheavals, and bizarre mannerisms”



**Ecuador rainforest – Shuaro  
8 cases**

**(Castro, 2001)**

# Scientific concepts



# Public concepts

**Spiritual  
condition**

# Human Behavior



# Risk perception

**Knowledge**  
**Health literacy**  
**Beliefs**  
**Values**  
**Personality**  
**Life experience**



**Social context**



**Risk Benefits**

# Risk perception

Knowledge  
Health literacy  
Beliefs  
Values  
Personality  
Life experience

**ACCEPTABLE  
LEVEL OF RISK**

**ATTITUDE  
BEHAVIOR**

Social context

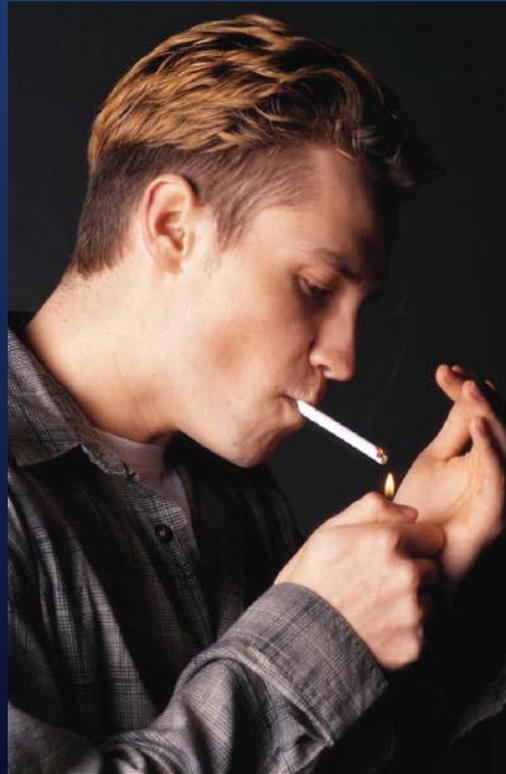
Risk Benefits

# Risk perception

**School**

**Science  
Medicine**

**His experience**

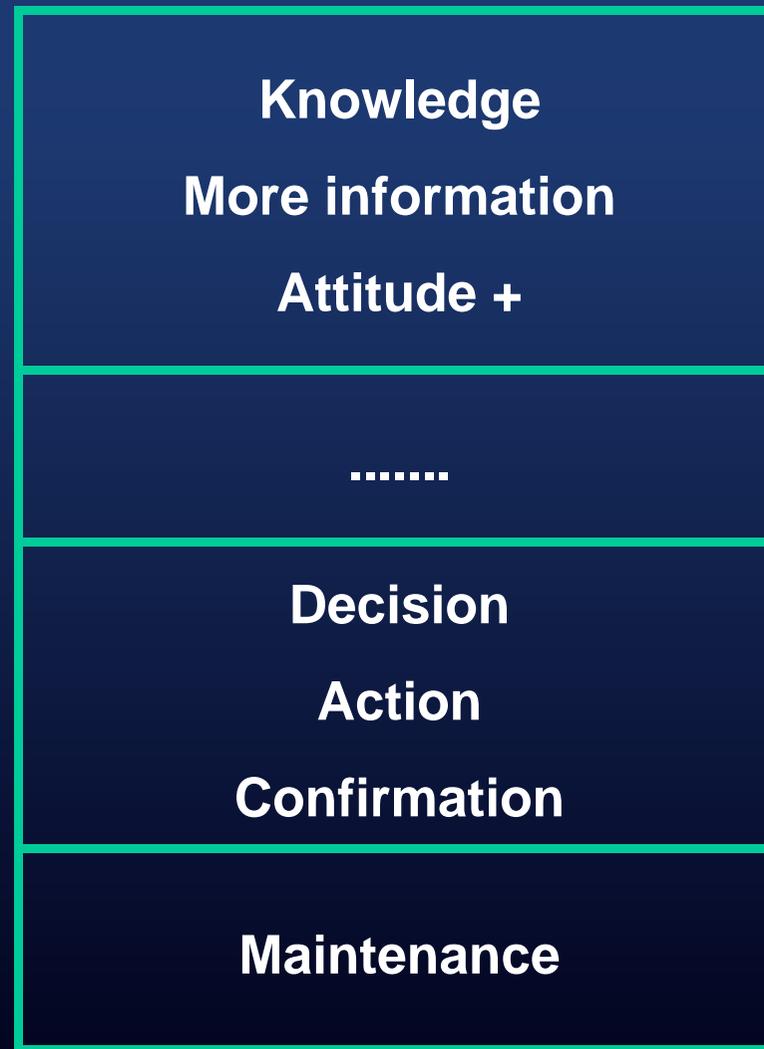


**Religion**

**Community  
Family, friends**

**Media**

# Change in behaviour



# Risk perception



# Risk perception



**Subjective, Emotional**

**Personal experience**

**Community**

**Need absolute answer  
(100%)**

# Risk analysis

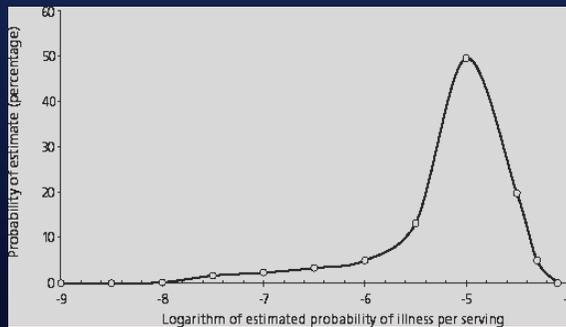


Science

Objective

Population

Probability



## **What is the main goal of risk communication?**

- **Health**
- **Awareness of risk factors**
- **Commitment to risk reducing measures**

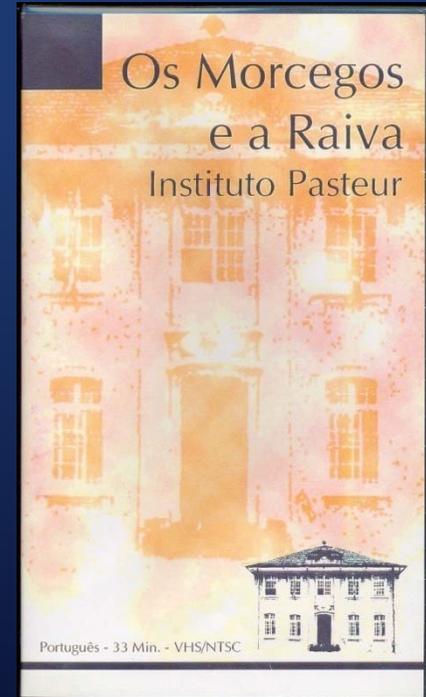
# Risk communication

People does not do measures just because they are scientific.

- Promote **consistency and transparency** in arriving at and implementing risk management decisions
- Promote **awareness** and understanding
- Foster public **trust and confidence**
- Community Engagement - **Mobilization**
- **Crisis** managment

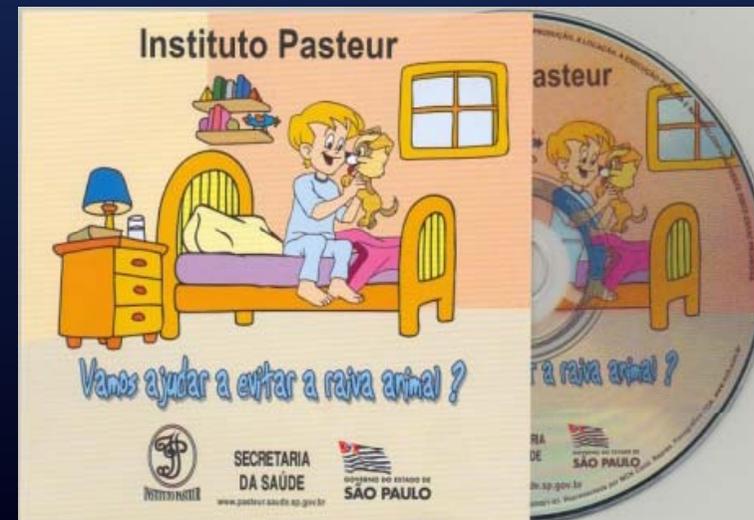


**How?**





# Target audience



# "Dog bites mailman"

SEST/SMES/GESAU  
PROJETO CÃO

IP



Coordenation: Dr. Maria de  
Lourdes Reichmann



*When I saw, his leg  
already was inside my  
mouth....*

Morcegos em áreas urbanas

**Vacinação Contra a Raiva de Cães e Gatos**

*Lembre-se! Preciso ser vacinado contra a raiva*

Dúvidas sobre a raiva?

**RAIVA DOS HERBÍVOROS**



**Mol...**  
Para o efetivo cont...



Comunique a existência de (naturais ou artificiais) ao I...  
Agropecuária de sua região

**ATENÇÃO**



**Vacinação de Cães e Gatos**

*Lembre-se! Preciso ser vacinado contra a raiva*



A raiva em cães e gatos no Estado...

Colabore para o controle da raiva. Informe-se no seu município onde e q...

Local: \_\_\_\_\_  
Data: \_\_\_\_\_

Posto Médico do Instituto Pasteur - (0471) 266-6000

**Profilaxia da Raiva Humana**

Consulte sempre o Posto Técnico para saber se precisa e em que procedimento adequado.

**ALGUNS CASOS DE CÃO**

**ALGUNS CASOS DE MORCEGOS**

**ALGUNS CASOS DE EQUINOS**

**ALGUNS CASOS DE LACTANTES**



**RAIVA**

...ngos...  
...uária ou...  
... região.

**A RAIVA**

... ESTADOS...  
... PARA O...  
... RAIVA...  
... em 2004... 12.000...

Desenho de capa  
Cristina Carbone Sardini, 1998

Instituto Pasteur  
Av. Paulista 203  
São Paulo, SP - Brasil  
CEP 01311-000  
Fone (11) 298-0088  
www.pasteur.saude.sp.gov.br

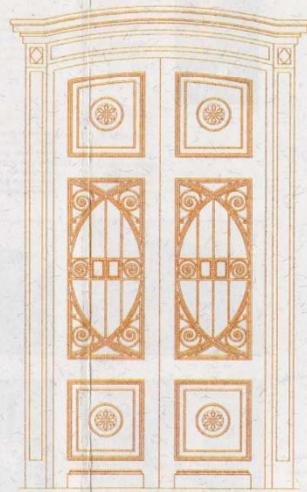
apoio



realização



SECRETARIA  
DA SAÚDE



Exposição

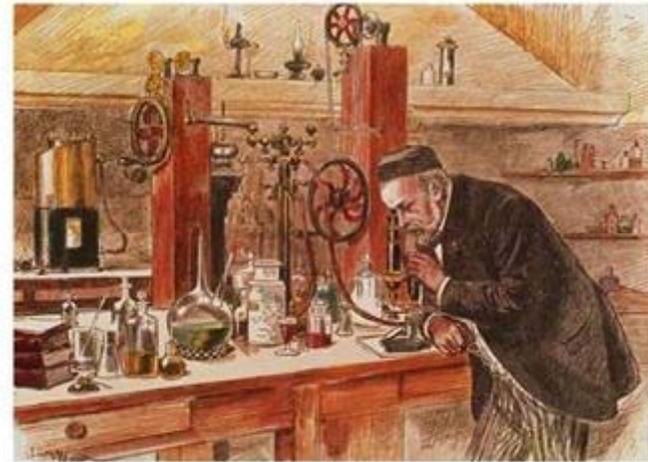
Centenário do  
Instituto Pasteur  
de São Paulo

Sua trajetória  
1903 2003

Exposição

Vida e obra de  
Louis Pasteur

Exposição aberta de 5 de agosto a 30 de setembro 2003  
de segunda a sexta das 9 às 17:30h  
Av. Paulista 407 - São Paulo - SP  
Espaço cedido pela **FIAT do Brasil SA**



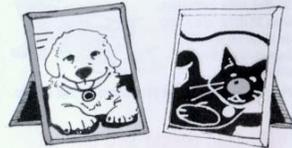
# Responsible dog ownership

**AGORA FAÇO PARTE  
DE SUA FAMÍLIA!  
VOCÊ SABE  
CUIDAR DE MIM ?**



**ENTÃO VAMOS  
CONVERSAR...**

**Você já  
ouviu falar  
de Raiva?**



**A Raiva é uma doença  
mortal que afeta  
mamíferos. Os cães e  
gatos podem adquiri-la e  
transmiti-la aos seres  
humanos.**



Mediavet.com.br

Sociedade Protetora dos  
Animais  
São Roque

**CAMPANHA DE  
CASTRACÃO  
CÃES E GATOS**

**DIA 22 DE MARÇO**

Valor: R\$ 60,00

Local: Escola Roque Verani

Tel.: (11) 4784-3899

Inscrição: Empório Country

Apoio:



Agora também!  
Hering Adulto e Infantil  
Lado Avesso e Lee

Tel.: 011 4712-8773  
Av. Tiradentes, 183 - Centro - São Roque

Animal identification  
Castration campaigns



## Small villages in the Rain Forest

# Estado do Maranhão

## Secretaria de Estado da Saúde



Photos: Jakeline Rios  
Estado do Maranhão  
Secretaria de Estado da Saúde

## Estado do Maranhão Secretaria de Estado da Saúde



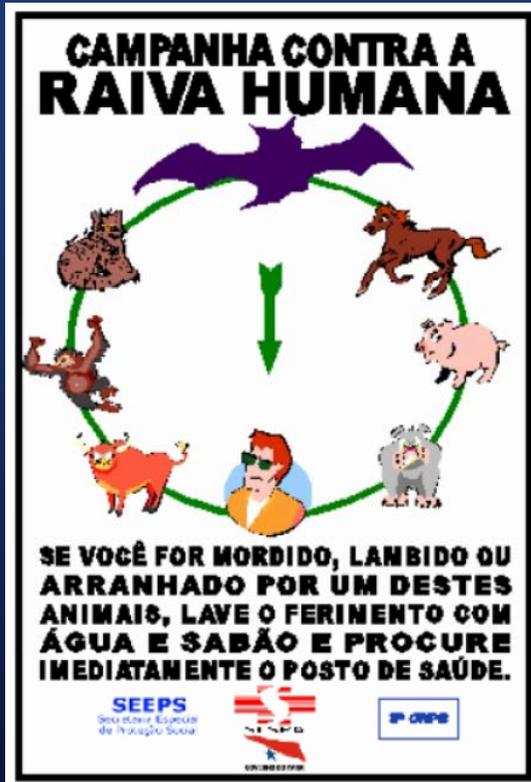
Photos: Jakeline Rios  
Estado do Maranhão  
Secretaria de Estado da Saúde

## Estado do Maranhão Secretaria de Estado da Saúde



# Estado do Maranhão

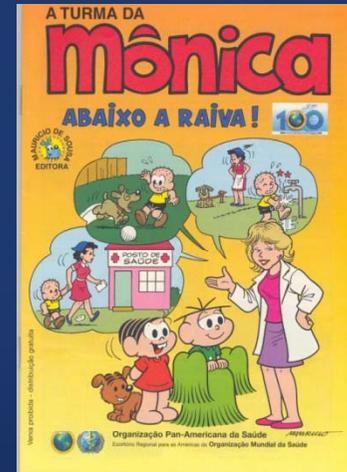
## Secretaria de Estado da Saúde



Photos: Jakeline Rios  
Estado do Maranhão  
Secretaria de Estado da Saúde



**Campanha Brasil Livre da Aftosa - MAPA**



**MAPA**



**MAPA**





Where there's a Man...



there's a Marlboro

—with a filter that delivers a smoke of surprising mildness



The Marlboro Filter... delivers a smooth, mild smoke that's easy on the throat. It's the reason you can enjoy a cigarette during the coldest weather of the year without feeling any discomfort. It's the reason you can enjoy a cigarette during the coldest weather of the year without feeling any discomfort. It's the reason you can enjoy a cigarette during the coldest weather of the year without feeling any discomfort.

YOU GET A LOT TO LIKE... FILTER, FLAVOR, FUN-TOY BOX

Printed in the U.S.A. © 1954 Philip Morris Inc.

Resist not less than 18 years of age.



**Blow in her face and she'll follow you anywhere.**

Hit her with tangy Tipalet Cherry. Or rich, grape-y Tipalet Burgundy. Or lascious Tipalet Blueberry. It's Wild! Tipalet. It's new. Different. Delicious in taste and in aroma. A puff in her direction and she'll follow you, anywhere. Oh yes... you get smoking satisfaction without inhaling smoke.

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Smokers of America, do yourself a flavor. Make your next cigarette a **Tipalet.**

New from Murit. About 5 for 25¢.

**"I'd walk a mile for a Camel."**

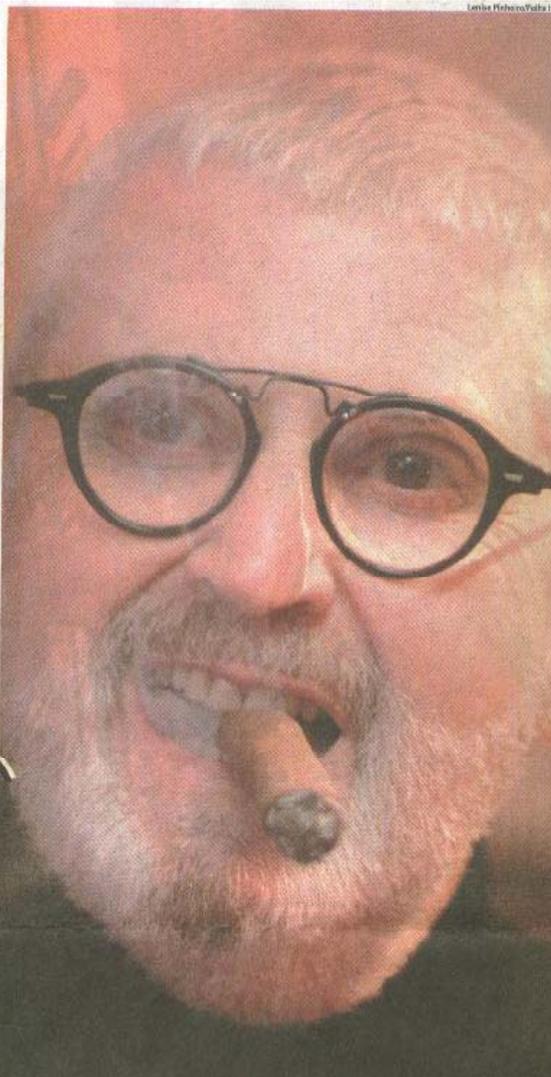
This message is strictly for smokers who never tasted a Camel cigarette. Camel smokers, you know what we mean. You other guys, start walking.

**Camel**

1950 Ads



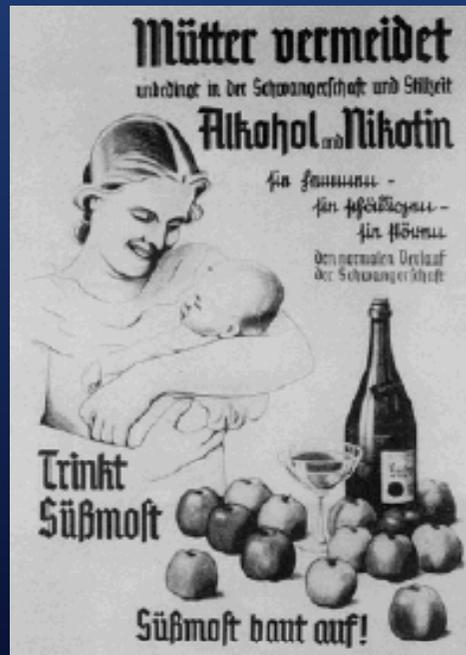
JÔ SOARES



**Opinion Leaders**



# Hitler's Anti-Tobacco Campaign



# Anti Tobacco Campaign



**First War - Tobacco consumption increased 5 a 15% per year**

**1950 UK – First scientific article about tobacco and lunge cancer association (Richard Doll and A Bradford Hill, 1950)**

**1964 USA – Report of the Surgeon General on smoking and and heath risks = smoking causes lung cancer.**

# Anti Tobacco Campaign



## Medicine

- Normal habit ⇔ Disease

World Health Organization ICD-10  
F17.2 Tobacco Dependence Syndrome

- Diseases caused by tobacco



# Anti Tobacco Campaign



Official restriction on smoking (e.g. smoking banned on buses, airline flights, in indoor places)



Tax policy

# Anti Tobacco Campaign



## SOFRIMENTO



O Ministério da Saúde adverte:  
A dependência da nicotina causa  
tristeza, dor e morte.



**PARE DE FUMAR**  
DISQUE SAÚDE  
0800 61 1997

## MORTE



O Ministério da Saúde adverte:  
O uso deste produto leva à morte por  
câncer de pulmão e enfisema.



**PARE DE FUMAR**  
DISQUE SAÚDE  
0800 61 1997



**Marlboro Lights**

**SURGEON GENERAL'S WARNING: Quitting Smoking Now Greatly Reduces Serious Risks to Your Health.**

12 mg "tar," 0.8 mg nicotine av. per cigarette by FTC method.

© Philip Morris Inc. 1998

The advertisement features a silhouette of three cowboys riding horses through a field at sunset. The sky is a vibrant orange and yellow. In the top left corner, there is a small image of a Marlboro Lights cigarette pack. The brand name "Marlboro Lights" is written in large, white, serif font across the top.

**Come to where the flavor is.**

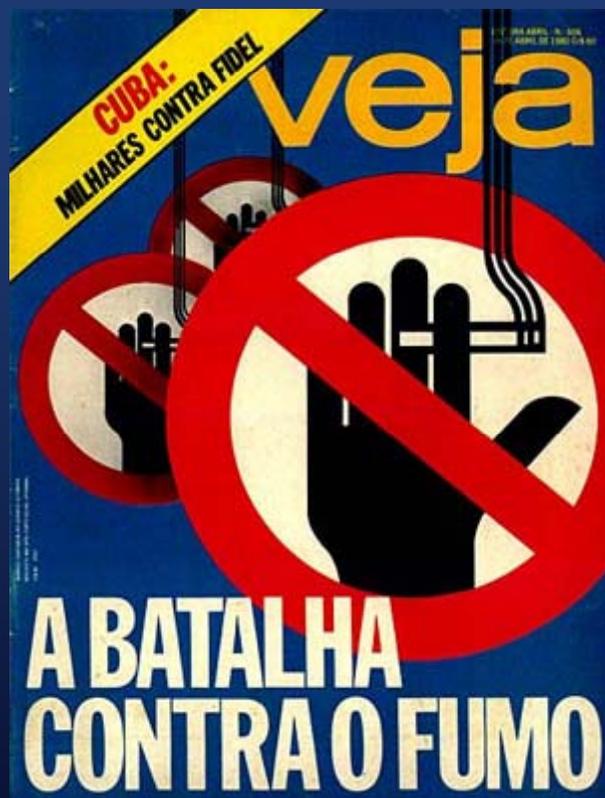
Marlboro Red or Longhorn 100's— you get a lot to like.

**Warning: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health.**

17 mg "tar," 1.0 mg nicotine av. per cigarette, FTC Report (Apr. 77)

The advertisement shows a cowboy in a red shirt, brown vest, and light blue cowboy hat, standing in front of a wooden barn. He is holding a lit cigarette in his mouth. In the foreground, there are two packs of Marlboro cigarettes: a red pack (Marlboro Red) and a white pack (Marlboro 100s). The cowboy is holding a lasso that is coiled around his waist. The text "Come to where the flavor is." is written in a large, white, serif font across the middle. Below it, in a smaller font, is "Marlboro Red or Longhorn 100's— you get a lot to like." At the bottom, there is a white box with the text "Warning: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health." and a small line of text "17 mg 'tar,' 1.0 mg nicotine av. per cigarette, FTC Report (Apr. 77)".





April 2009



August 2009



**The New York Times**

**The New York Times Bans Cigarette  
Ads**

April 28, 1999, Wednesday

By DOREEN CARVAJAL (NYT);  
Business/Financial Desk

Joining a small group of newspapers, The New York Times will ban cigarette advertising in its pages, effective Saturday.

The newspaper decided to impose the ban because of concerns about the harmful effects of cigarette smoking, said Nancy Nielsen, a spokeswoman for The New York Times Company. "Deciding on the acceptance of advertising often means we have to weigh the pros and cons of competing and sometimes conflicting values," Ms. Nielsen said, adding that "we don't want to expose our readers to advertising that may be dangerous to their health."

# Besides health risk...



## HORROR



O Ministério da Saúde adverte:  
Este produto causa envelhecimento  
precoce da pele.



**PARE DE FUMAR**  
DISQUE SAÚDE  
0800 61 1997

## FUMAÇA TÓXICA



O Ministério da Saúde adverte:  
Respirar a fumaça deste produto causa  
pneumonia e bronquite.

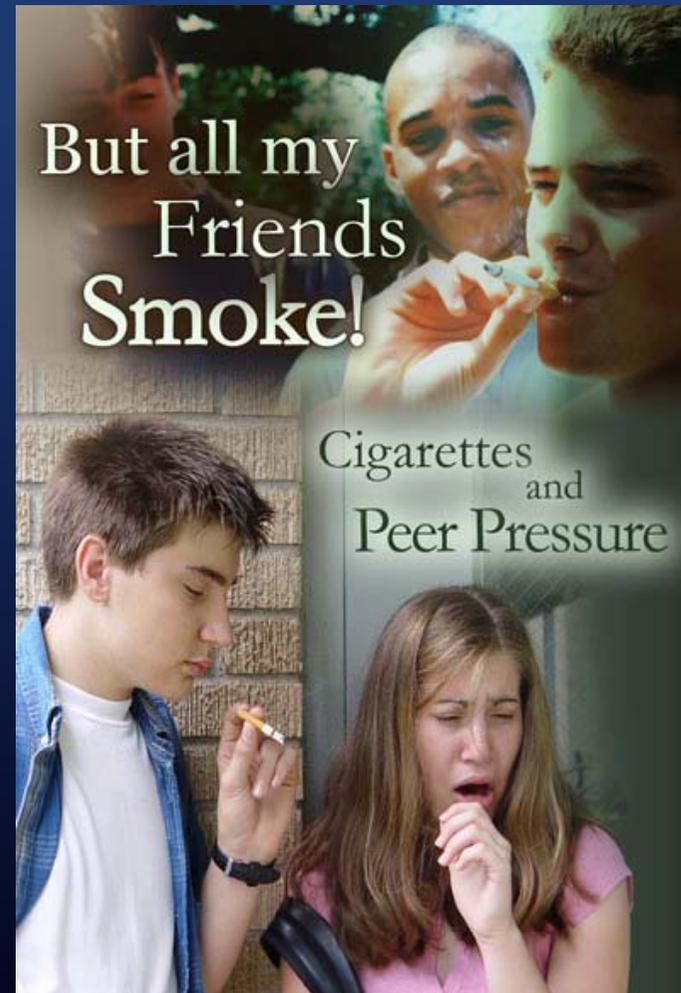


## Opinion Leaders



London, June 4 - Actor Russell Crowe, who gave up smoking a day before Sunday's World Anti-Tobacco Day, is trying hard to stay away from cigarettes





# Social pressure



- Peers
- Public in general
- Job

# Diverse Health Educational & Communication Strategies for Diverse Populations



Scientific references

Laws – Public health surveillance

Official campaigns

Social marketing

Health Journalism

Change in arts/ entertainment representation

Opinion Leaders

Social pressure

Social mobilization



*“My father was bitten by the bats, he lived for 110 years, now you are inventing a disease from this?!!”*

*(Habitant of Pará)*

# To change public perception

A modern anti-smoking advertisement featuring a woman with a cigarette in her hand. The cigarette is positioned in her hair, and the top of her head is shown as a cross-section, revealing a brain that is heavily damaged and charred. Labels with red lines pointing to the damage include:

- Addiction
- Wrinkles
- Cataracts
- Cancers

The advertisement also includes the following text:

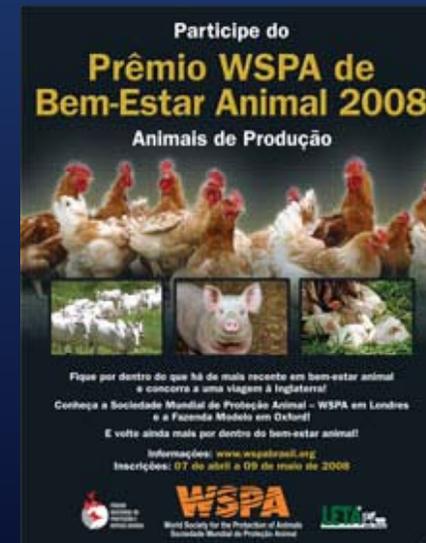
- BRITISH COLUMBIA Ministry of Health
- Protecting B.C.'S HEALTH FROM TOBACCO
- 85% of smokers begin before their 16th birthday.
- [www.tobaccofacts.org](http://www.tobaccofacts.org)

# Disease outbreaks

- The **emergence or re-emergence** of zoonotic disease is complex and multifactorial, driven by factors which include:
  - Microbial adaptation
  - Ecology
  - Global climatic anomalies
  - Human demographics and behaviour
  - International travel and trade
  - Agricultural practices, technology and industry.

# One world, one health

## Animal welfare



Sociedade Mundial de Proteção Animal

# One world, one health

## Animal welfare



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**UNIFESP/ Escola Paulista de Medicina**

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