Día Europeo
para el Uso Prudente
de los Antibióticos

Una iniciativa europea para la salud

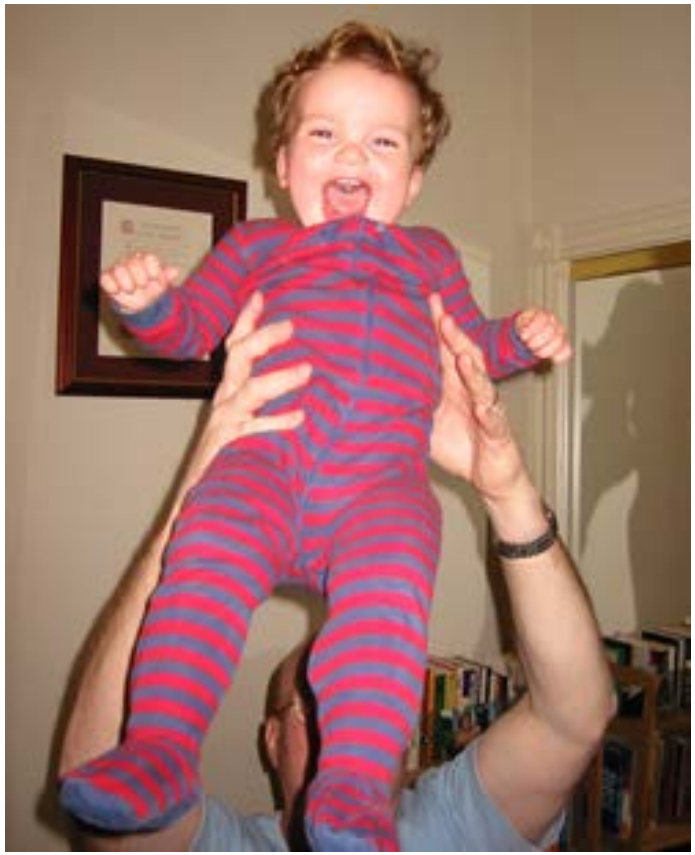
Resistencia a Antibióticos: Vuelta al siglo XIX

Prof. Bruno Gonzalez-Zorn
Universidad Complutense de Madrid

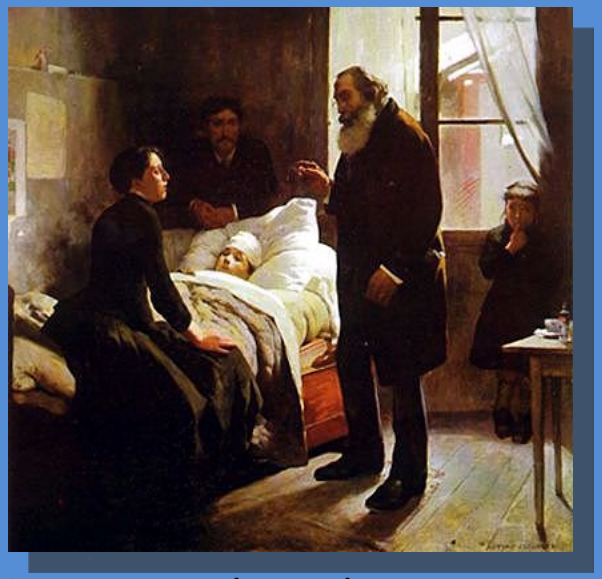
Plan Nacional
Resistencia
Antibióticos

VISAVET

Madrid, 18 de Noviembre de 2015

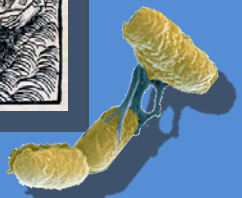


Simón



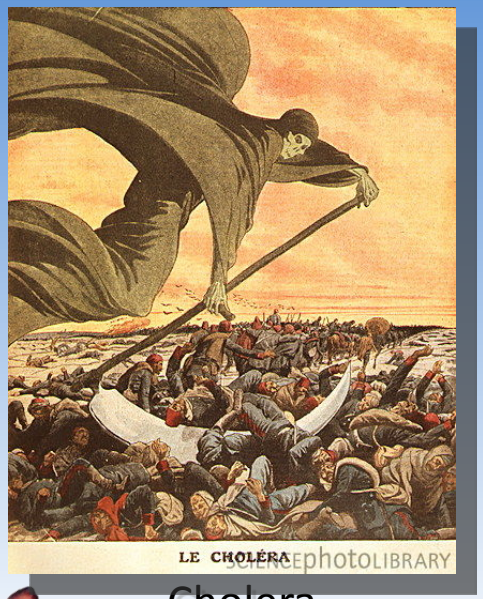
Tuberculosis

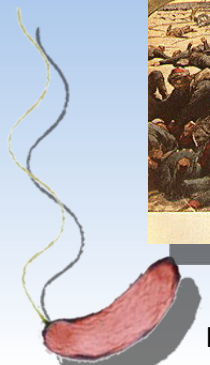
Dominguez L. pers. comm.



Plague

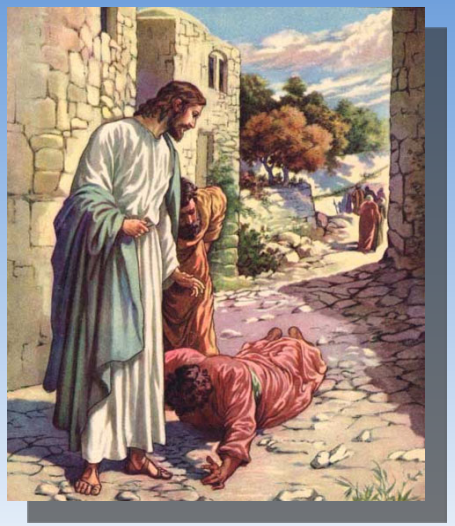
Haensch *et al. PLoS Pathogens*. 2010





Cholera

Mutreja *et al*. *Nature* 2011



Leprosy

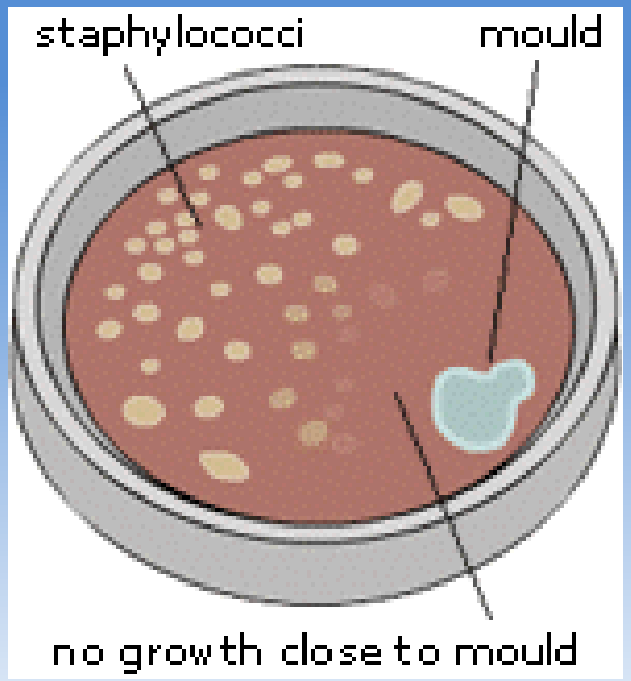
Peste

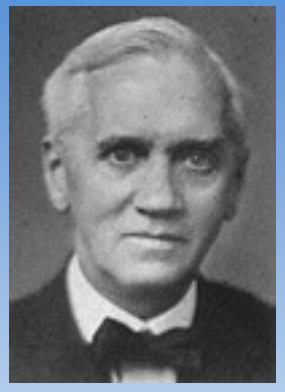
- Siglo VI, pandemia durante 50 años, 100 x 10^6 muertes
- 10.000 muertes por día en Bizancio

Bos K.I. *et al*, Nature 2011

Fleming, 1929:

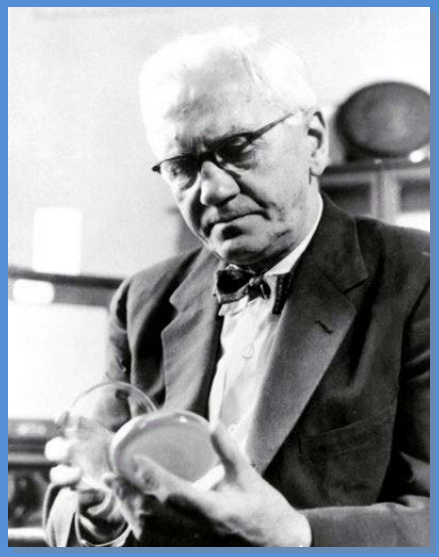
- Desubre la Penicilina (*Penicillium notatum*).



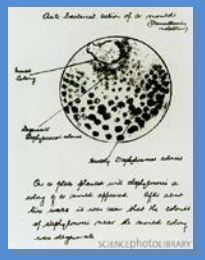


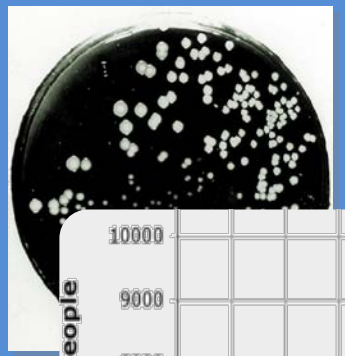
ANTIBIÓTICOS

EL MAYOR DESCUBRIMIENTO MÉDICO DE LA HISTORIA



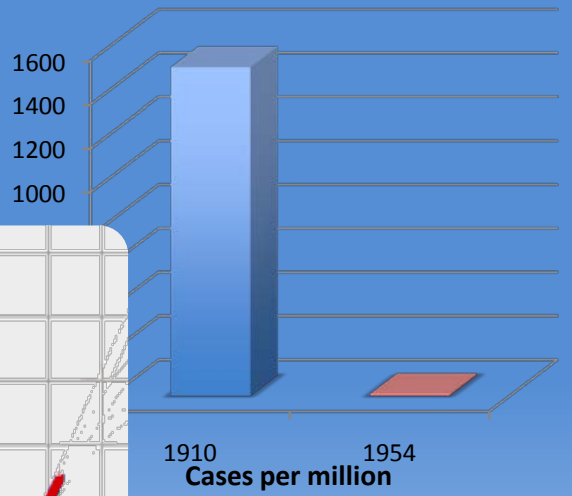
1928

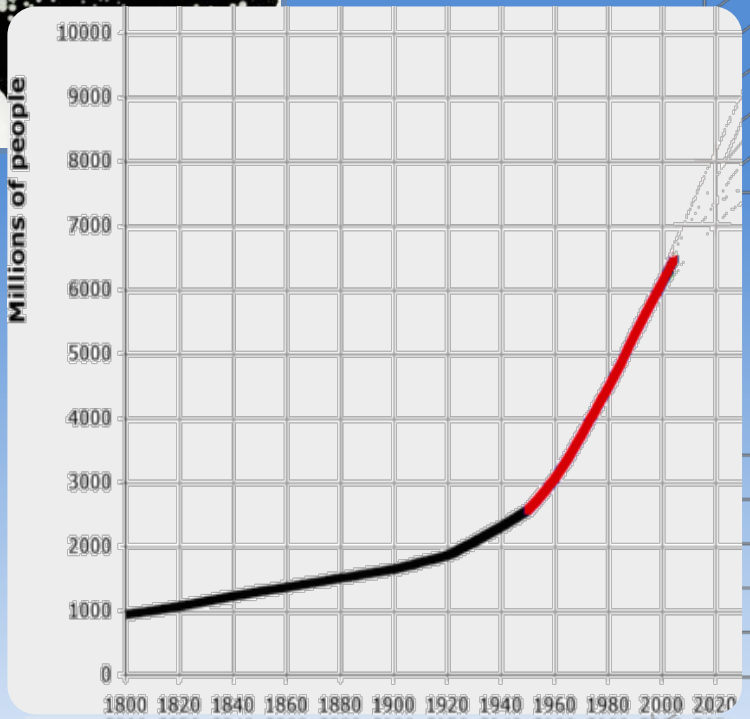




Infant Mortality

due to congenital syphilis

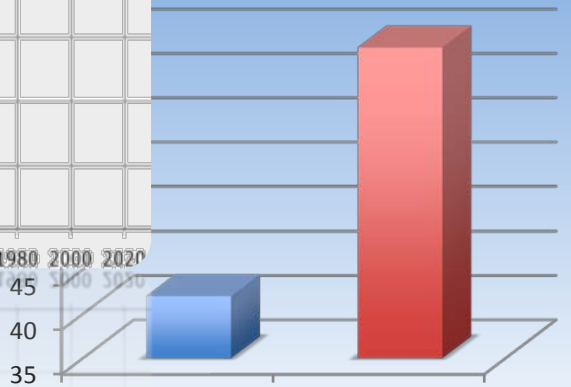


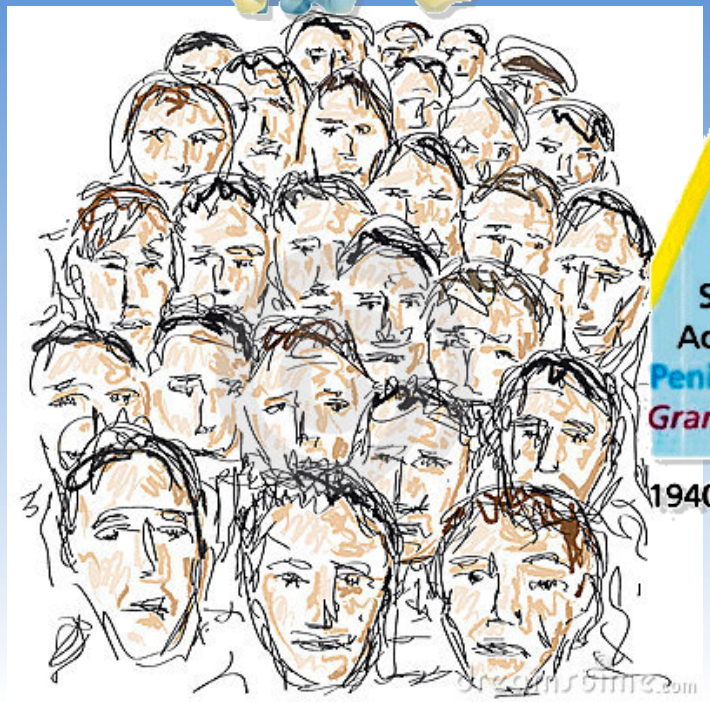


1941

1943-1947

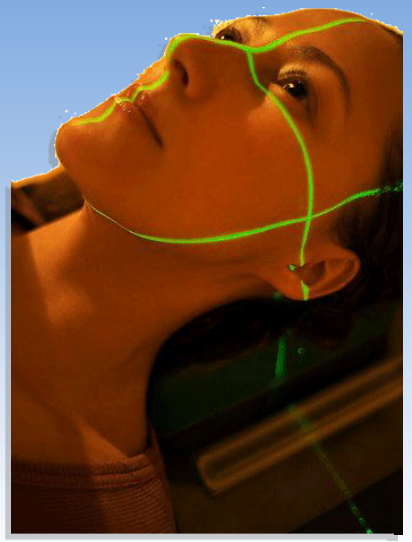
Life Expectancy

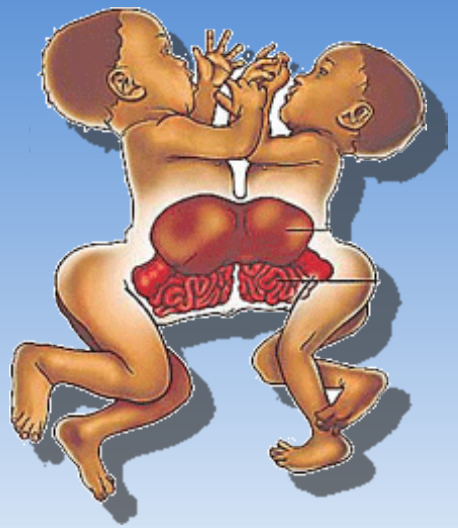




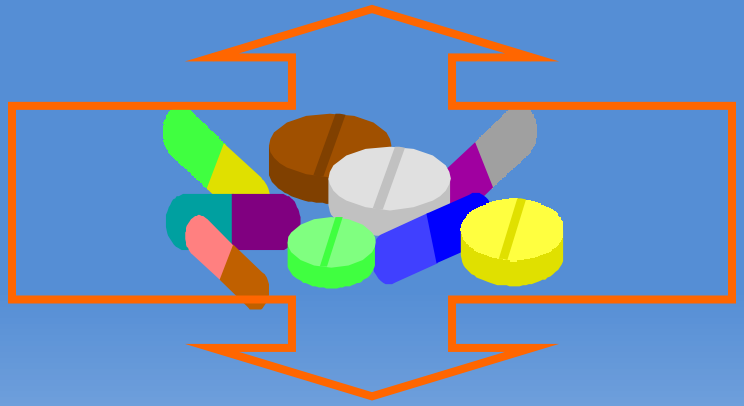

Mitomycin
Novobiocin
Amphoteric
Vancomycin
Neomycin Cephal in
Virginiamy
Chlortetracycline Gent
Candicidin
Chloramphenicol Tylosin
Spiramycin
Bacitracin Tetracycline
Erythromycin
Streptomycin Oleandomycin
Streptothricin Griseofulvin
Actinomycin Rifamycin
Penicillin Oxytetracycline
Gramicidin Nystatin Kana
1940
1950
19


SCIENCE PHOTO LIBRARY





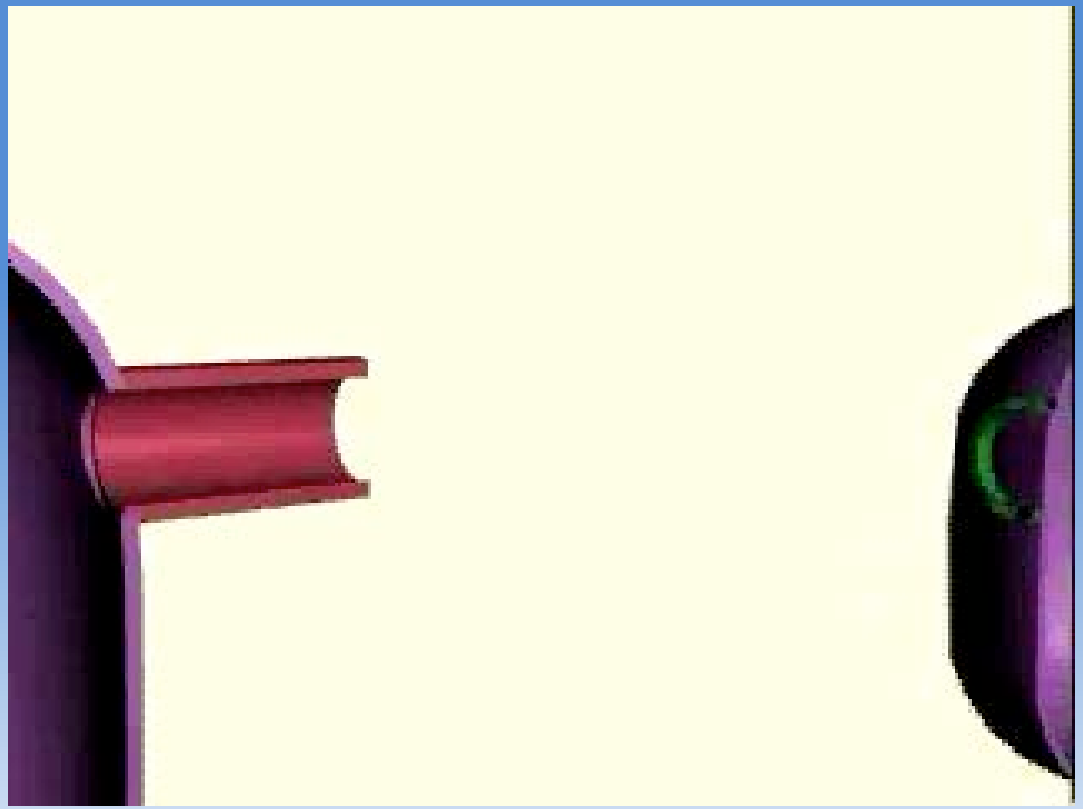
BENEFICIO: CURAN

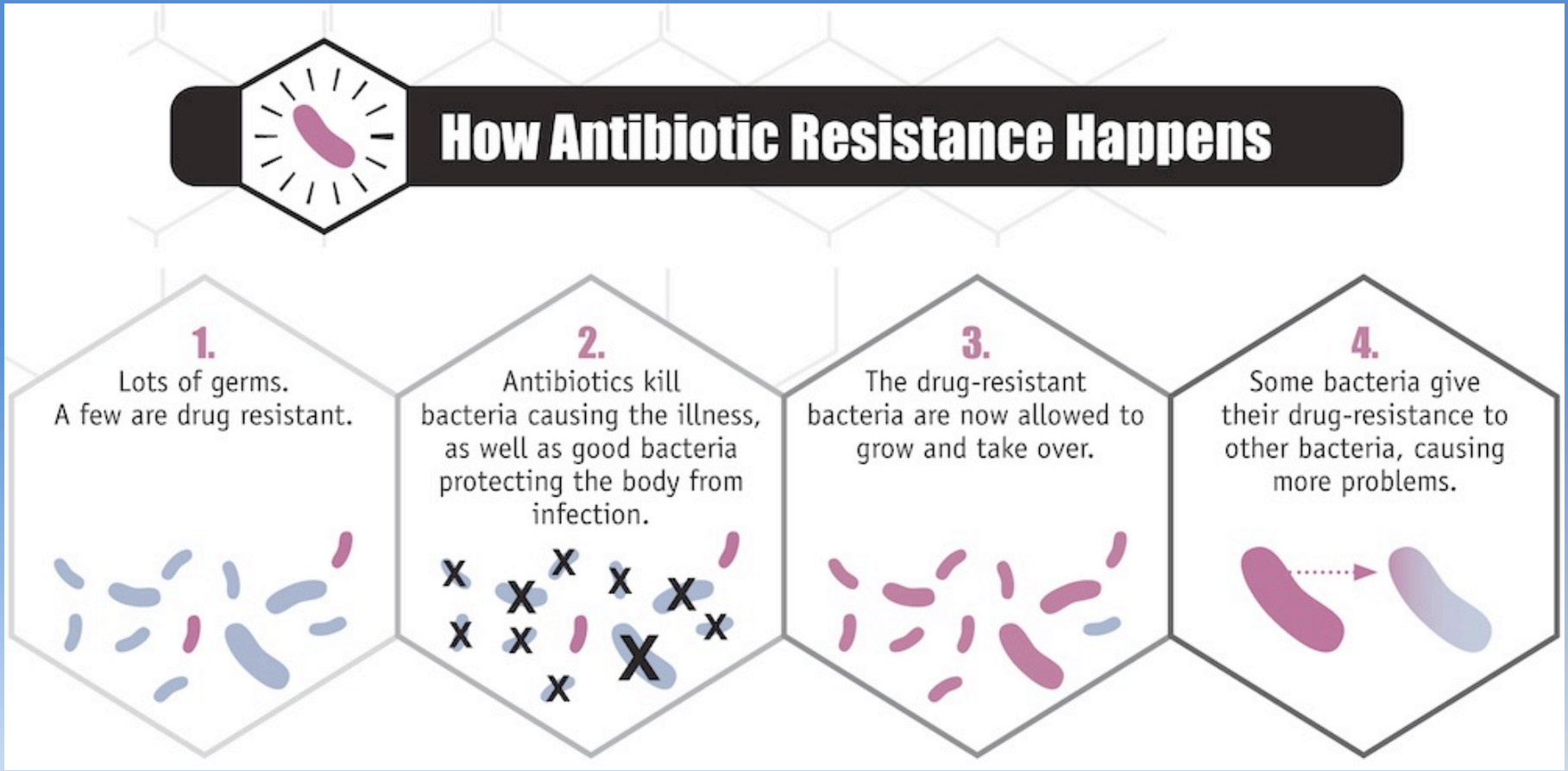


PROBLEMA:

DESARROLLO DE RESISTENCIAS

Las bacteria se intercambian constantemente mecanismos de resistencia




How Antibiotic Resistance Happens
1.
Lots of germs.
A few are drug resistant.
2.
Antibiotics kill
bacteria causing the illness,
as well as good bacteria
protecting the body from
infection.
3.
The drug-resistant
bacteria are now allowed to
grow and take over.
4.
Some bacteria give
their drug-resistance to
other bacteria, causing
more problems.

RESISTENCIA A LOS ANTIBIÓTICOS

EL MAYOR PROBLEMA MÉDICO DE LA HISTORIA


Antimicrobial
Resistance
Penicillin
Gramicidin
1940
2000

Mata

AR 5 x SIDA

Aumenta el Coste

Estancia Hospitalaria más larga y más frecuente

Absentismo laboral

Table 1. Annual death rates in the United States for selected infectious diseases.

Infectious disease	No. of deaths (estimated)	Year	Reference
MRSA infection	19,000[a]	2005	[14]
AIDS	15,798	2004	[15]
Tuberculosis	662	2004	[16]
Viral hepatitis	5793	2002	[17]
SARS	0	All	[18]
Avian influenza	0	All	[19]

Data from eCDC and Boucher & Corey, *Clin Infect Diseases*, 2008.

TODAS LAS ESPECIALIDADES

ALARGA LAS LISTAS DE ESPERA

AMENAZA LOS AVANCES MÉDICOS

ERA PRE-ANTIBIÓTICA

World Health Organization

Estimates of Burden of Antibacterial Resistance

European Union
population 500m

25,000 deaths per year

2.5m extra hospital days

Overall societal costs
(€ 900 million, hosp. days)
Approx. €1.5 billion per year

Source: ECDC 2007

Thailand
population 70m

>38,000 deaths

>3.2m hospital days

Overall societal costs
US$ 84.6–202.8 mill. direct
>US$1.3 billion indirect

Source: Pumart et al 2012

United States
population 300m

>23,000 deaths

>2.0m illnesses

Overall societal costs
Up to $20 billion direct
Up to $35 billion indirect

Source: US CDC 2013

Global information is insufficient to show complete disease burden impact and costs

Declaration of the G7 Health Ministers

8 - 9 October 2015 in Berlin

G7 GERMANY

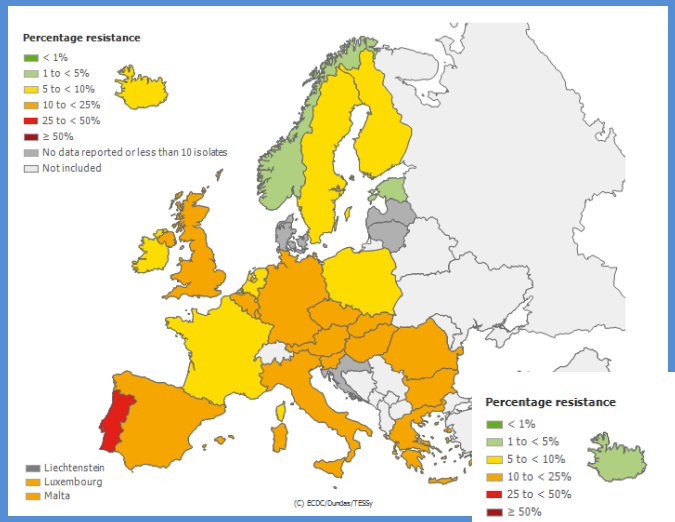
2015 | Gesundheitsministertreffen

Think Ahead. Act Together.
An morgen denken. Gemeinsam handeln.

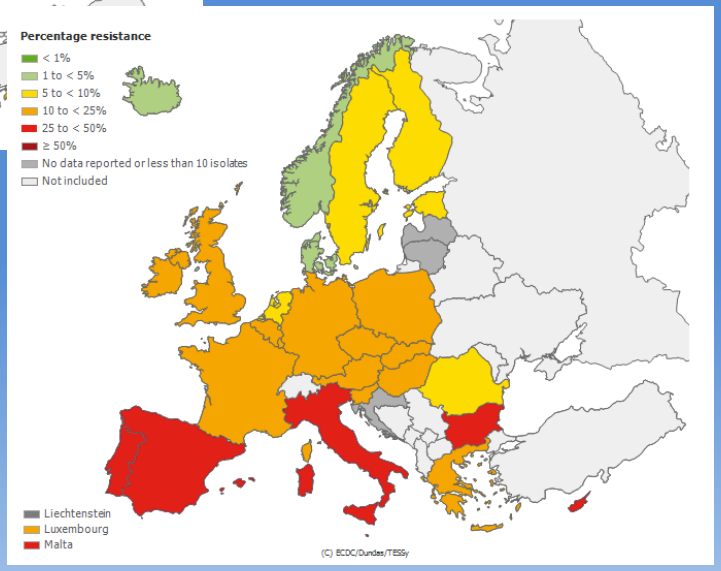
1. In continuation of the G7 Summit in Elmau on 7 and 8 June 2015, we, the G7 Health Ministers, discussed the health topics Antimicrobial Resistance (AMR) and Ebola during our G7-Meeting in Berlin on 8 and 9 October 2015.

Berlin Declaration on Antimicrobial Resistance –
Global **U**nion for **A**ntibiotics **R**esearch and **D**evelopment (**GUARD**)
Agreed by G7 Health Ministers in Berlin 2015

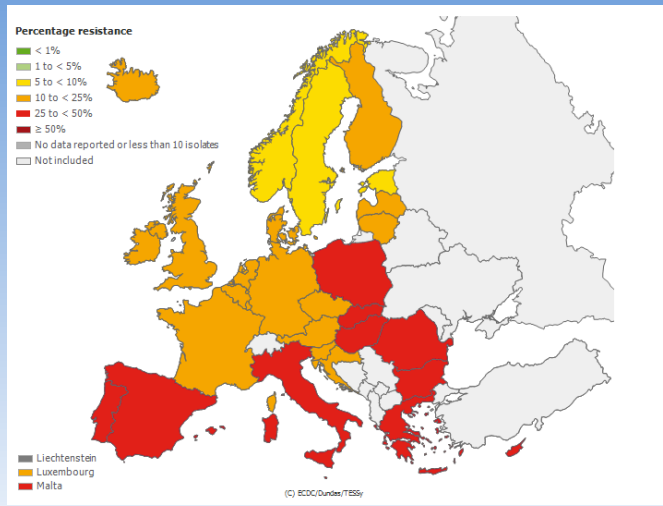
We are aware that AMR is a multisectoral problem, encompassing human and animal health, agriculture and the environment. Combating AMR requires a global approach and joint international efforts.



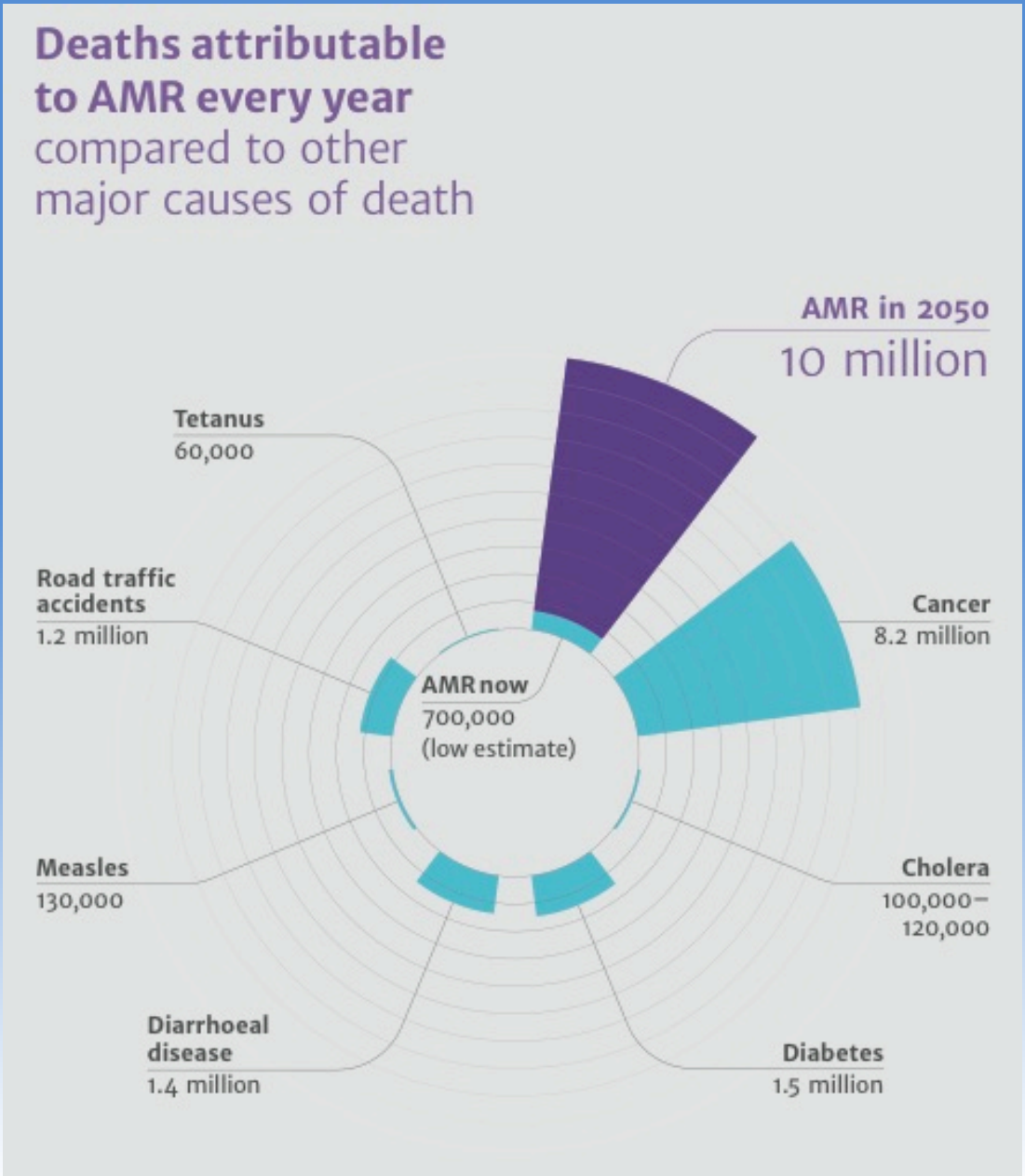
2003



2008



2013



Jim O'Neill 2014

Report of the Second WHO Expert Meeting Copenhagen, 29–31 May 2007

Aminoglycosides **Glycopeptides**

Critically Important

Highly Important

Beta Lactams **Glycylcyclines**

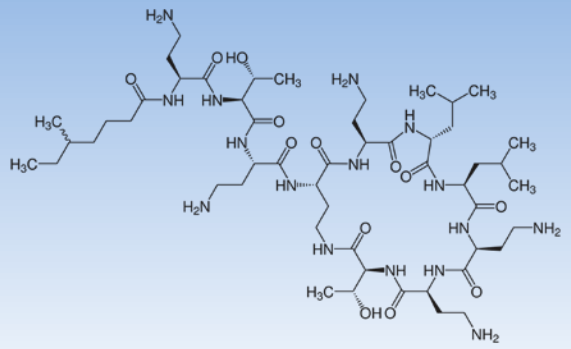
Important

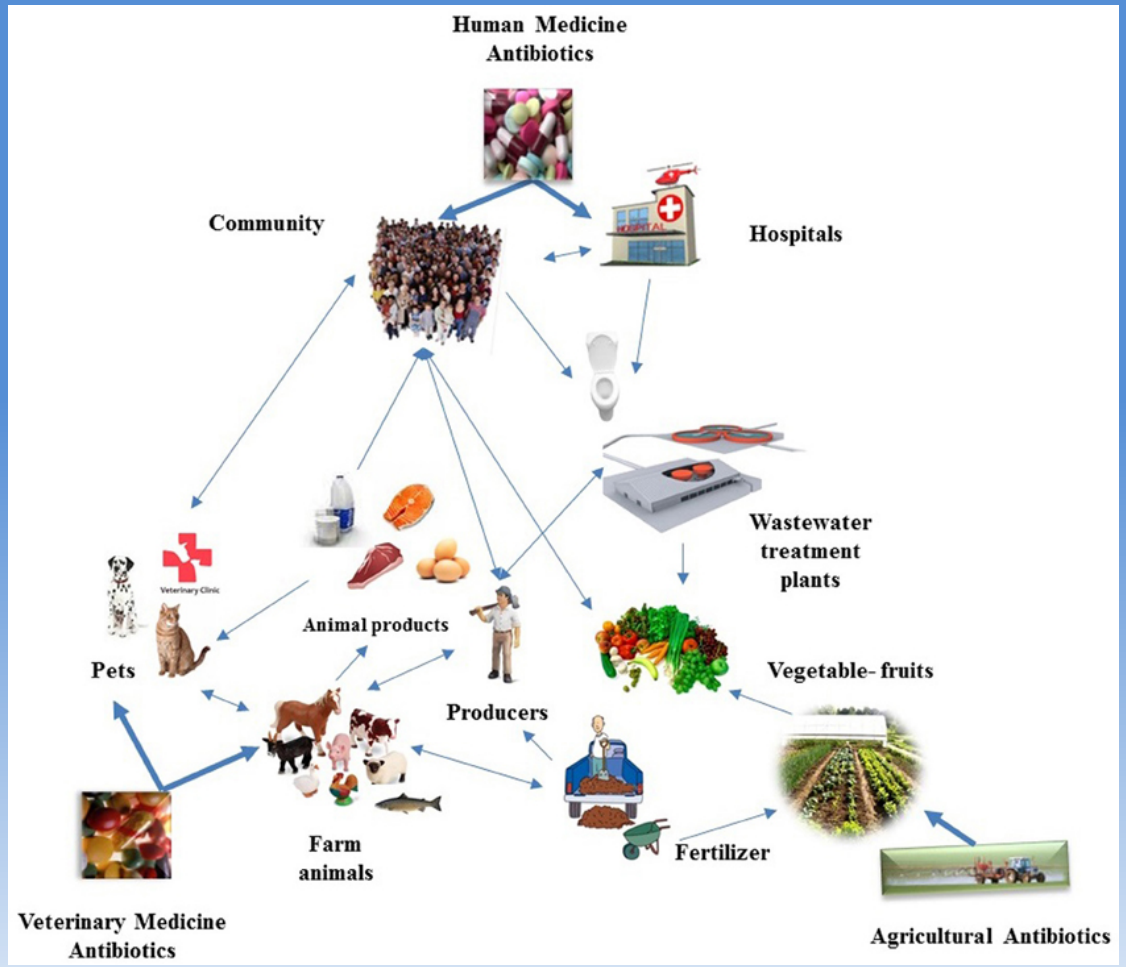
Quinolones

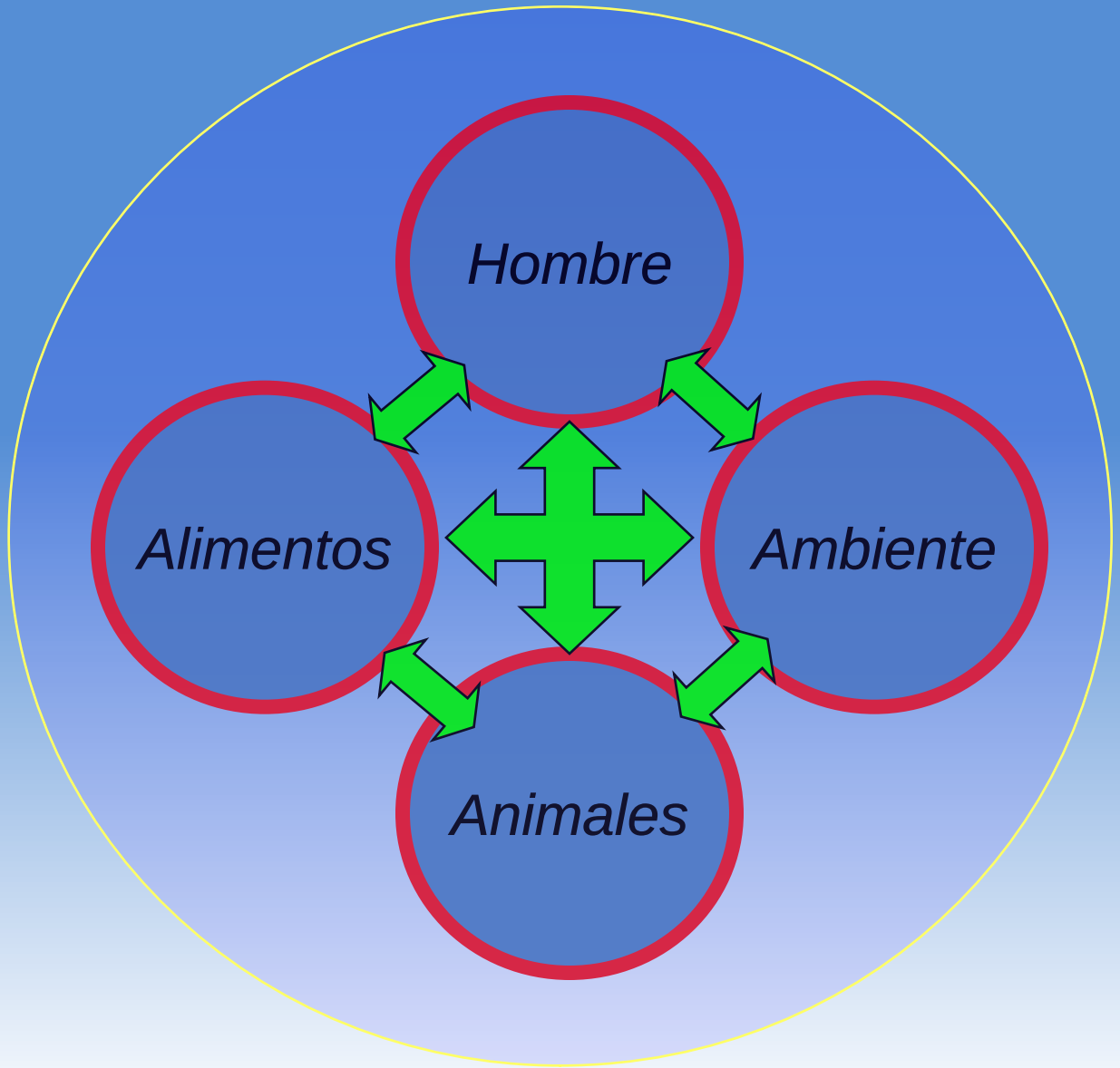
Preserve their efficacy

El último antibiótico

Colistina




Human Medicine
Antibiotics
Community
Hospitals
Wastewater
treatment
plants
Animal products
Pets
Vegetable- fruits
Producers
Farm
animals
Fertilizer
Veterinary Medicine
Antibiotics
Agricultural Antibiotics



Bruno Gonzalez-Zorn

¡ Muchas gracias !

bgzorn@ucm.es