

Antibiotico resistenza: situazione presente e ricadute sulla pratica zootecnica veterinaria

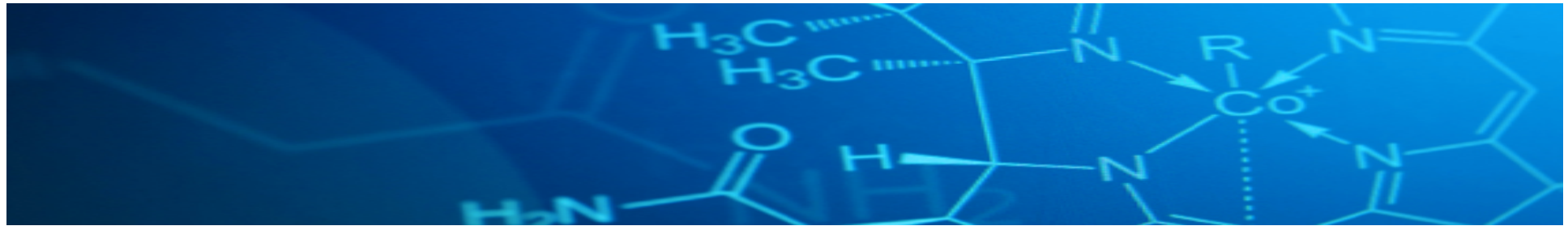


TABLE WO-1 Burden of Multidrug-Resistant (MDR) Bacteria in the European Union, Iceland, and Norway, 2007

Human burden

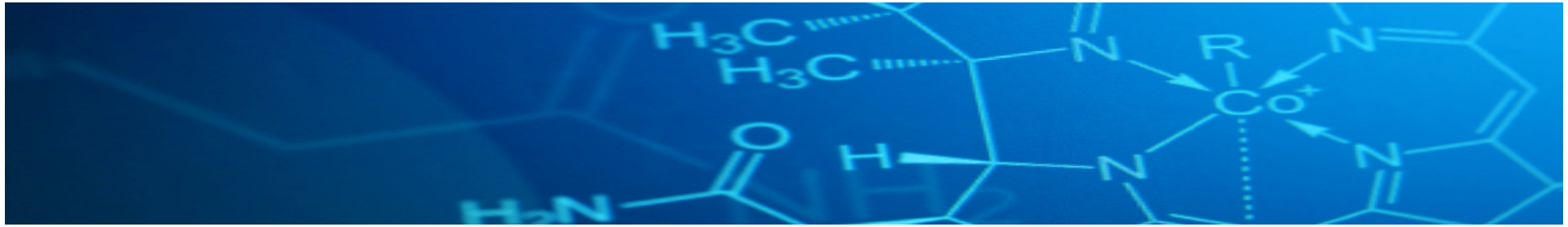
Infections (6 most frequent MDR bacteria, 4 main types of infection)	~400,000/year
<u>Attributable deaths</u>	<u>~25,000/year</u>
Extra hospital days	~2.5 million/year

Economic burden

Extra in-hospital costs	~€900 million/year
Productivity losses	~€600 million/year

NOTE: Limitation: these are underestimates.

SOURCE: ECDC and EMEA (2009).



L'era pre-antibiotica

Scand J Infect Dis. 2011 Sep;43(9):690-5. doi: 10.3109/00365548.2011.577801. Epub 2011 Jul 8.

War and infection in the pre-antibiotic era: the Third Ottoman Army in 1915.

Erdem H, Tetik A, Arun O, Besirbellioglu BA, Coskun O, Eyigun CP.

Department of Infectious Diseases and Clinical Microbiology, Kasimpasa Hospital, Kasimpasa-Istanbul, Turkey. hakanerdem1969@yahoo.com

Malattia	%Morte
Polmoniti	90%
Colera	80%
Tubercolosi	58%
Tifo	51



KILLER BUG IN MOST CHICKENS

Warning by Food Standards Agency

Warning

More than three-quarters of British chicken is contaminated with a particularly lethal food poisoning bug, a report revealed yesterday.

Three new tests for safe to eat, across the country showed that 74.1 per cent of whole British broiler chickens harboured the dangerous salmonella bug, which kills 40 people a year and causes a further 400,000 ill.

When broiler carcasses and chicken pieces have reached the shop, they should be cooked to a temperature of 75 degrees to kill the bacteria and other bugs.

A spokesman for the agency said: "It is vital to cook the meat and eat it quickly after it is cooked."

The Food Standards Agency said: "The Food Standards Agency has issued a warning to consumers to cook chicken thoroughly before eating it. The agency has also issued a warning to consumers to cook chicken thoroughly before eating it. The agency has also issued a warning to consumers to cook chicken thoroughly before eating it."

NEWS HEALTH

Home UK Africa Asia Europe Latin America Mid-East US & Canada Business Health

11 March 2013 Last updated at 13:36 GMT 10K Share

Antibiotics resistance 'as big a risk as terrorism' - medical chief

By Fergus Walsh
Medical correspondent



The New York Times

Health

WORLD U.S. N.Y. / REGION BUSINESS TECHNOLOGY SCIENCE HEALTH SI

Deadly Bacteria That Resist Strongest Drugs Are Spreading

By DENISE GRADY
Published: March 5, 2013

Deadly infections with bacteria that resist even the strongest [antibiotics](#) are on the rise in hospitals in the United States, and there is only a "limited window of opportunity" to halt their spread, health officials warned Tuesday.

HEALTH

TRENDING [Oscars 2014](#) | [Oscar winners: full list](#) | [Ellen DeGeneres](#) | [Justin Bieber](#) | [R.I.P. Harold Ramis](#) | [Lupita Nyong'o](#)

Superbugs spreading in Canada due to lax laws governing antibiotics use by farmers: leading doctors



MARGARET MUNRO, POSTMEDIA NEWS | February 21, 2014 | Last Updated: Feb 21 1:17 PM ET

[More from Postmedia News](#)



Doctors say antibiotic resistance built up because of farmers overusing medications on their livestock is exacerbating the problems of spre

Antibiotici

il rischio nel piatto



Alcuni batteri possono sviluppare un pericoloso meccanismo di resistenza ai farmaci. Li abbiamo cercati nella carne di pollo. E nell'84% dei casi li abbiamo trovati.

LA NOSTRA INCHIESTA

In collaborazione con le associazioni di consumatori di Belgio, Spagna e Portogallo, abbiamo analizzato 250 campioni di petti di pollo acquistati in supermercati, mercati e macellerie. Per l'Italia gli acquisti sono stati fatti a Milano e Roma.

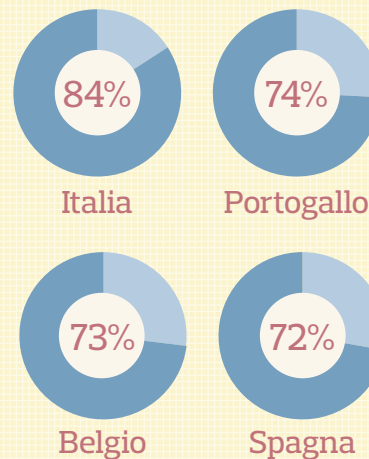
OCCHIO AI BATTERI

In laboratorio abbiamo cercato alcuni particolari batteri (della famiglia delle Enterobatteriaceae), più inclini di altri a sviluppare un meccanismo di resistenza agli antibiotici. Li abbiamo trovati nell'84% dei 45 campioni italiani e in percentuali comprese tra il 72 e il 74% tra i campioni acquistati negli altri paesi. Una volta isolati i batteri ne abbiamo verificato la resistenza agli antibiotici, come cefalosporine, ampicilline e amoxicilline.



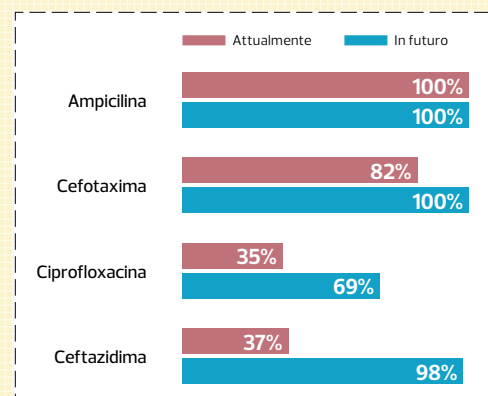
L'INCHIESTA IN QUATTRO PAESI

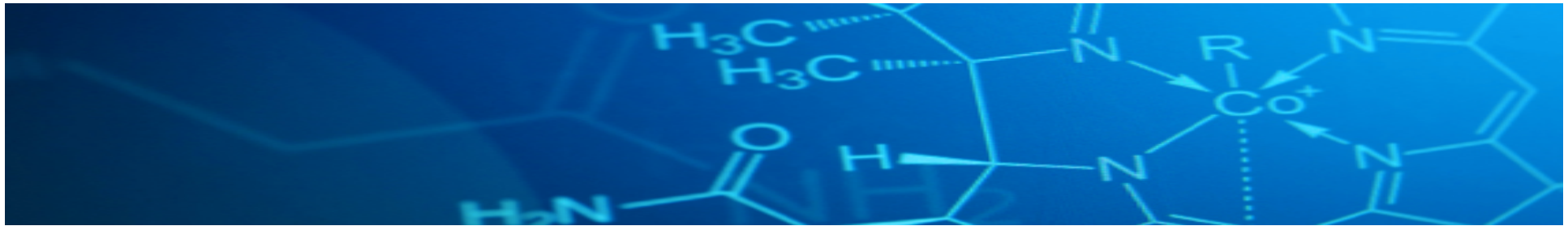
Dei 250 campioni di petti di pollo analizzati per questa inchiesta, 195 contengono batteri resistenti agli antibiotici. Sotto trovate la percentuale di polli contaminati riscontrata in ogni paese.



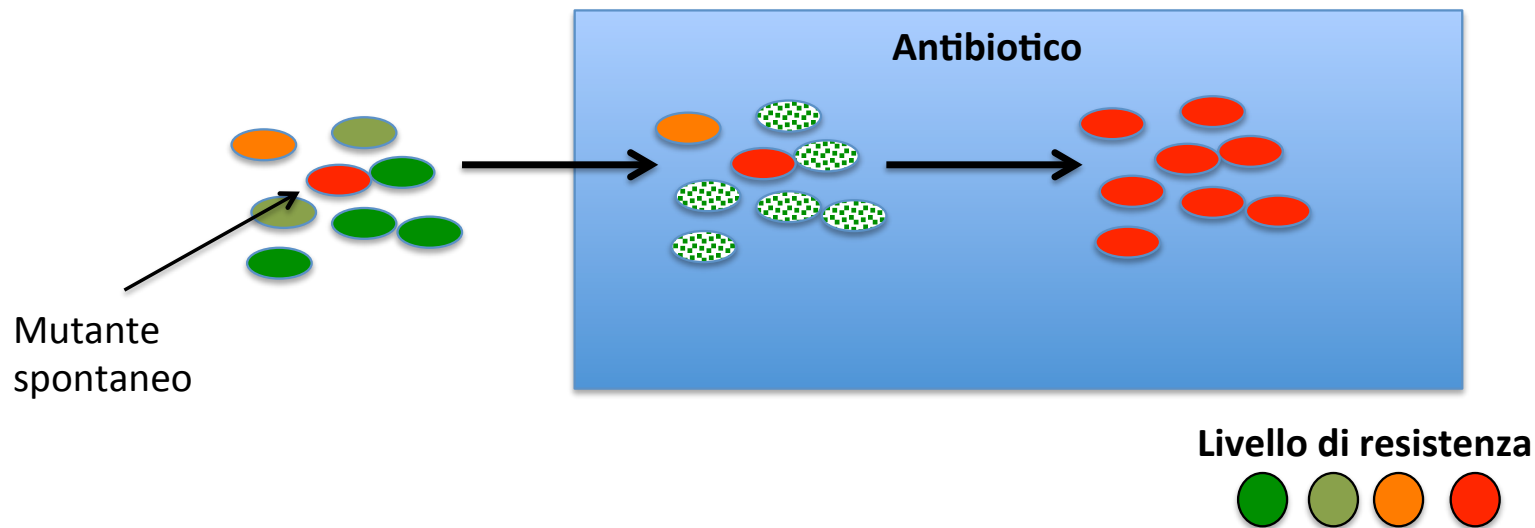
QUANTI BATTERI RESISTONO?

Senza seri provvedimenti, tra una decina di anni, gli antibiotici perderanno di efficacia e non riusciranno più a sconfiggere la maggior parte dei batteri. Non si tratta di allarmismo, ma di dati reali e preoccupanti. Dalle nostre analisi è emerso che il 37% dei batteri oggi sopravvive alla ceftazidima (un antibiotico usato per curare le infezioni delle vie respiratorie e del tratto urinario), e che in futuro la percentuale potrebbe arrivare al 98%.



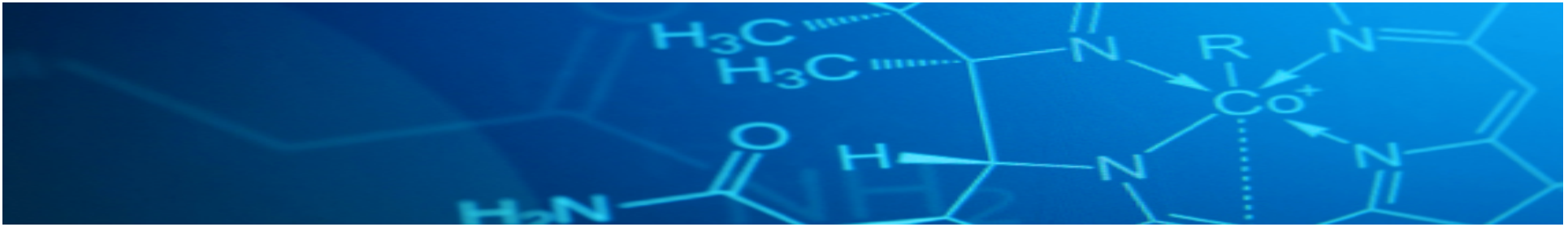


Pressione di selezione!

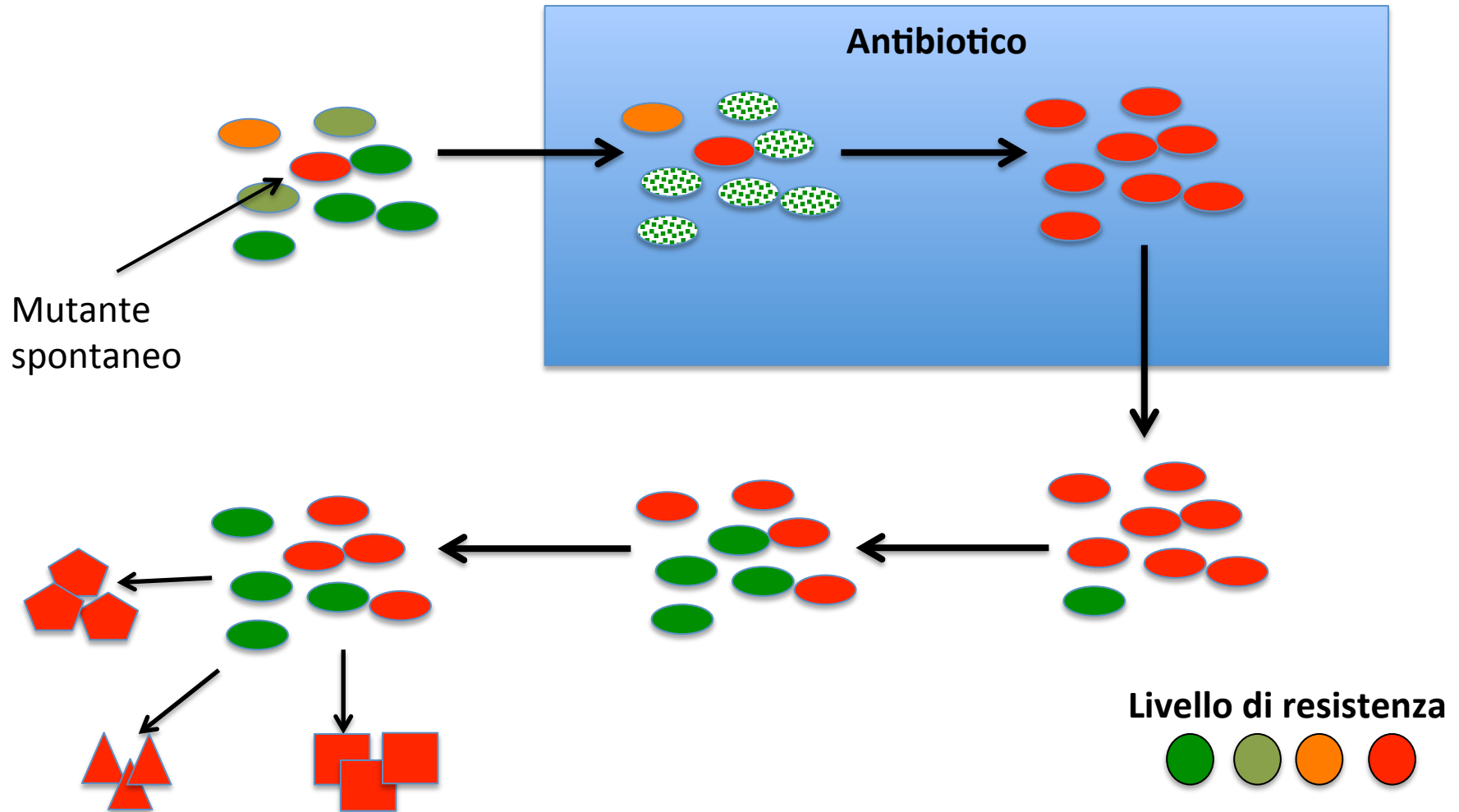


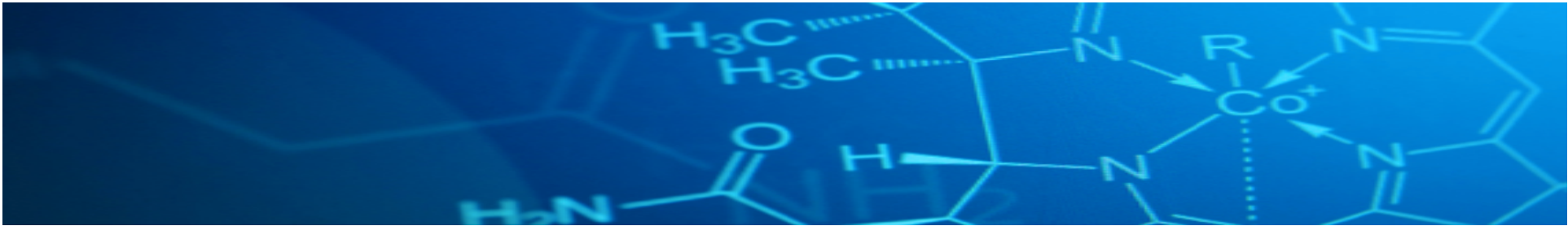
1) La presenza di antibiotico seleziona i batteri più resistenti

2) La presenza continua di antibiotico consolida la resistenza, rendendola permanente

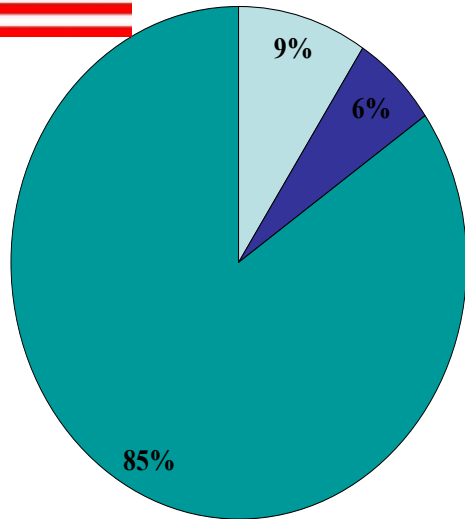


Pressione di selezione!



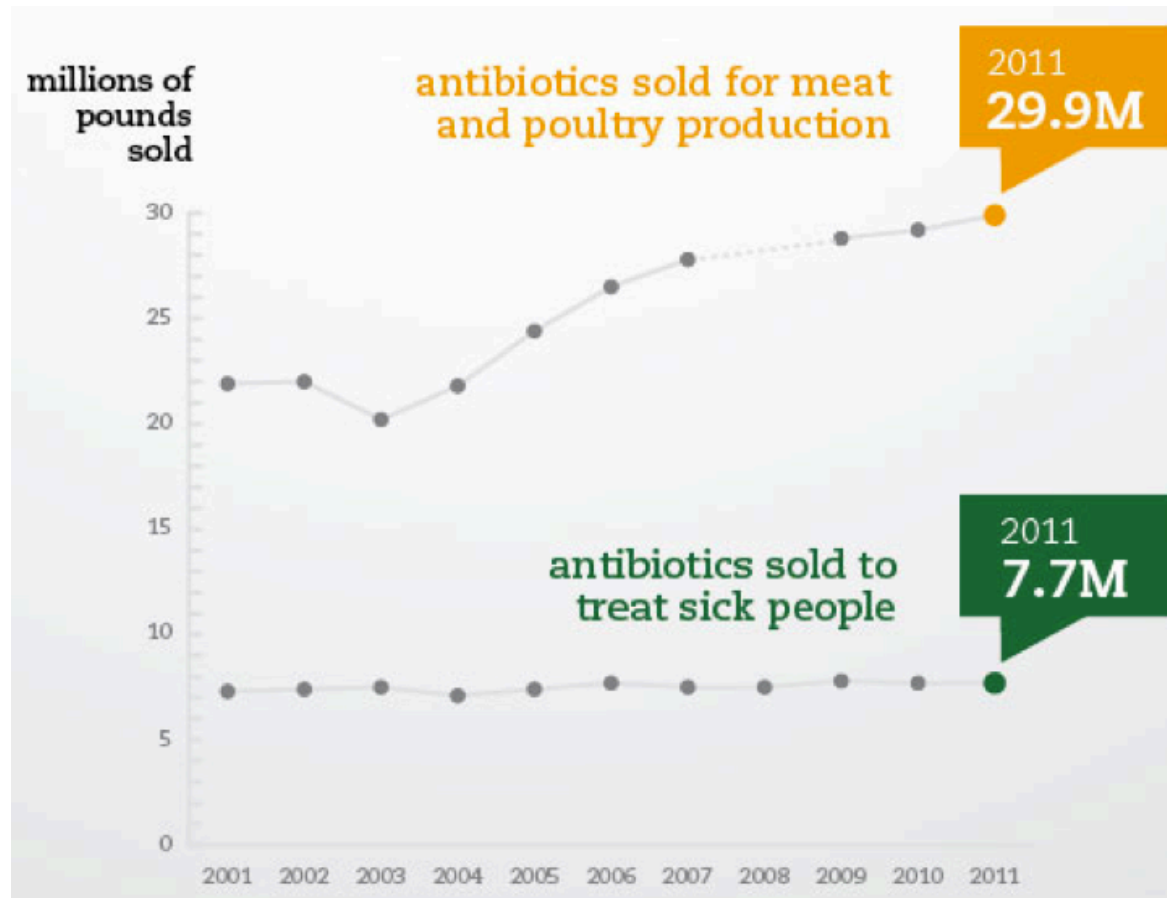


Pressione di selezione!

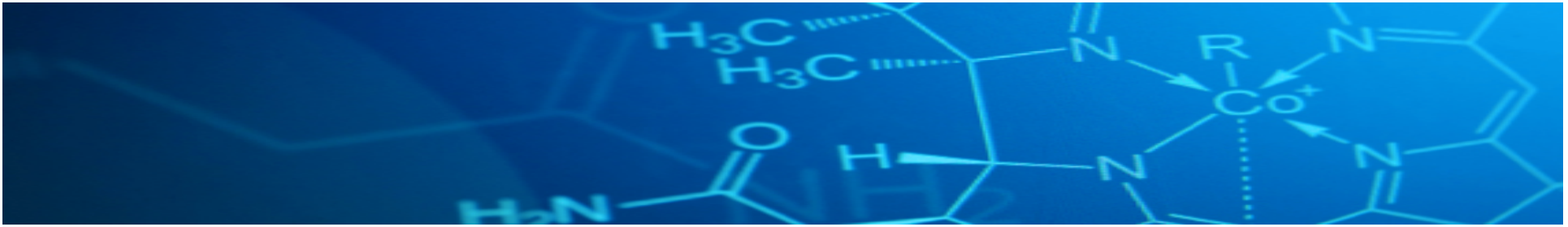


Human
 Animal therapy
 Non-therapeutic

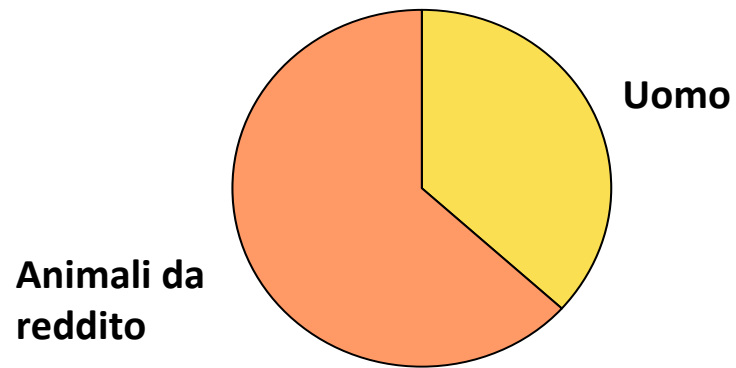
Source: UCS 2000



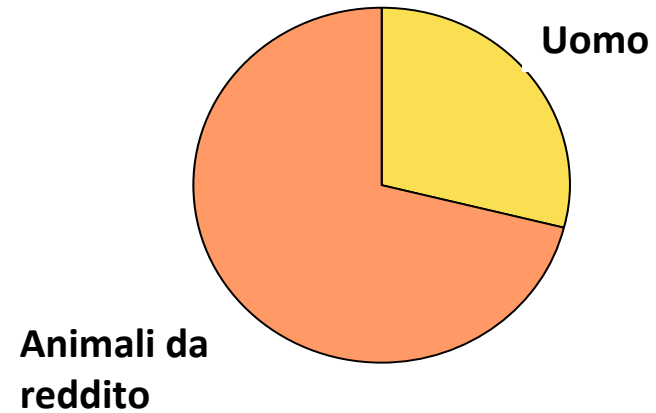
Fonte CDC 2012



Pressione di selezione!



Francia 2005



Danimarca 2007

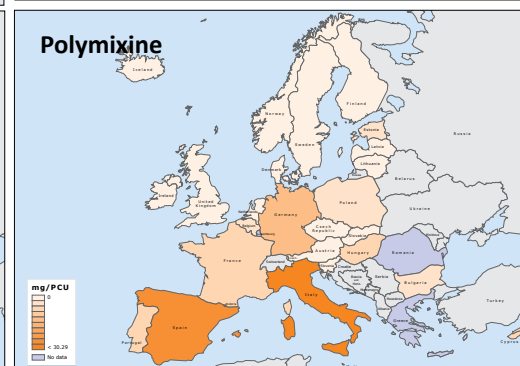
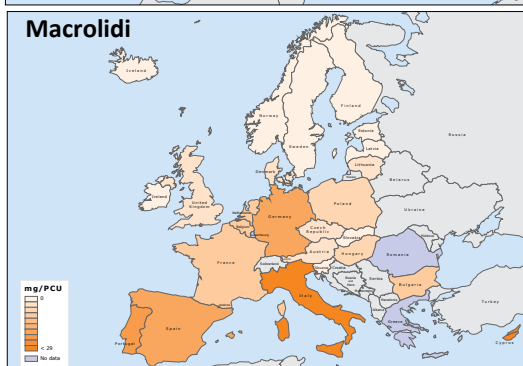
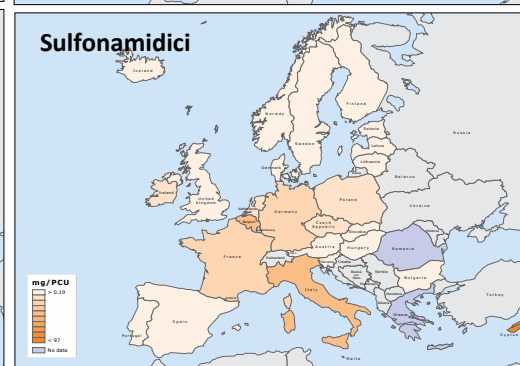
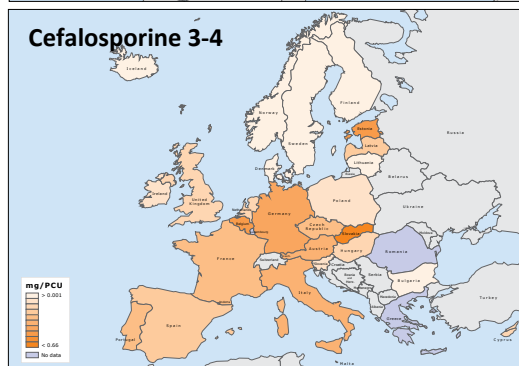
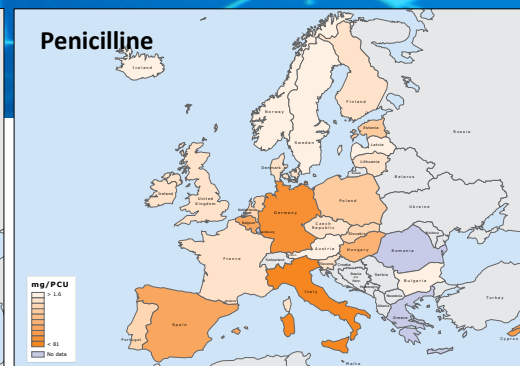
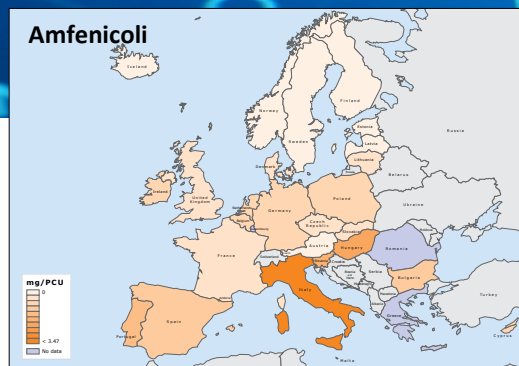
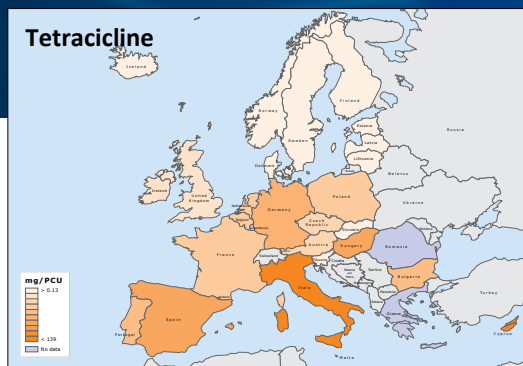
Fonte WHO 2010

Table 5. Sales, in tonnes of active ingredient, of veterinary antimicrobial agents marketed mainly for food-producing animals¹ (including horses), population correction unit (PCU) and sales in mg/PCU, by country, for 2010² and 2011

Country	Sales (tonnes) for food-producing animals		PCU (1,000 tonnes)		% change PCU	mg/PCU		% change mg/PCU
	2010	2011	2010	2011	2010-2011	2010	2011	2010-2011
Austria	63	53	994	977	-1.8%	63	54	-13%
Belgium	299	297	1,660	1,695	2.1%	180	175	-3%
Bulgaria		42		399			104	
Cyprus		52		127			408	
Czech Republic	71	61	755	732	-3.1%	94	83	-12%
Denmark	119	106	2,503	2,479	-1.0%	47	43	-10%
Estonia	7.6	7.5	115	114	-1.1%	66	66	-0.4%
Finland	13	12	517	520	0.6%	25	24	-4%
France	997	896	7,538	7,643	1.4%	132	117	-11%
Germany		1,819		8,600			211	
Hungary ³	206	147	768	767	-0.2%	268	192	-28%
Iceland	0.9	0.7	113	114	0.8%	7.2	6.3	-13%
Ireland	96	87	1,779	1,770	-0.5%	54	49	-9%
Italy	1,928	1,663	4,514	4,497	-0.4%	427	370	-13%
Latvia	6.6	6.0	165	171	3.7%	40	35	-12%
Lithuania	16	14	342	337	-1.5%	48	42	-14%
Netherlands	461	363	3,155	3,186	1.0%	146	114	-22%
Norway	6.3	6.2	1,537	1,680	9.3%	4.1	3.7	-11%
Poland		471		3,929			120	
Portugal	181	164	1,020	1,016	-0.3%	178	161	-9%
Slovakia ⁴		11		247			44	
Slovenia	8.4	7.8	181	182	1.0%	46	43	-6%
Spain ⁵	1,746	1,779	7,248	7,135	-1.6%	241	249	3.5%
Sweden	13	11	832	835	0.3%	15.2	13.6	-11%
United Kingdom	456	344	6,714	6,724	0.2%	68	51	-25%

Table 5. Sales, in tonnes of active ingredient, of veterinary antimicrobial agents marketed mainly for food-producing animals¹ (including horses), population correction unit (PCU) and sales in mg/PCU, by country, for 2010² and 2011

Country	Sales (tonnes) for food-producing animals		PCU (1,000 tonnes)		% change PCU	mg/PCU		% change mg/PCU
	2010	2011	2010	2011	2010-2011	2010	2011	2010-2011
Austria	63	53	994	977	-1.8%	63	54	-13%
Belgium	299	297	1,660	1,695	2.1%	180	175	-3%
Bulgaria		42		399			104	
Cyprus		52		127			408	
Czech Republic	71	61	755	732	-3.1%	94	83	-12%
Denmark	119	106	2,503	2,479	-1.0%	47	43	-10%
Estonia	7.6	7.5	115	114	-1.1%	66	66	-0.4%
Finland	13	12	517	520	0.6%	25	24	-4%
France	997	896	7,538	7,643	1.4%	132	117	-11%
Germany		1,819		8,600			211	
Hungary ³	206	147	768	767	-0.2%	268	192	-28%
Iceland	0.9	0.7	113	114	0.8%	7.2	6.3	-13%
Ireland	96	87	1,779	1,770	-0.5%	54	49	-9%
Italy	1,928	1,663	4,514	4,497	-0.4%	427	370	-13%
Latvia	6.6	6.0	165	171	3.7%	40	35	-12%
Lithuania	16	14	342	337	-1.5%	48	42	-14%
Netherlands	461	363	3,155	3,186	1.0%	146	114	-22%
Norway	6.3	6.2	1,537	1,680	9.3%	4.1	3.7	-11%
Poland		471		3,929			120	
Portugal	181	164	1,020	1,016	-0.3%	178	161	-9%
Slovakia ⁴		11		247			44	
Slovenia	8.4	7.8	181	182	1.0%	46	43	-6%
Spain ⁵	1,746	1,779	7,248	7,135	-1.6%	241	249	3.5%
Sweden	13	11	832	835	0.3%	15.2	13.6	-11%
United Kingdom	456	344	6,714	6,724	0.2%	68	51	-25%



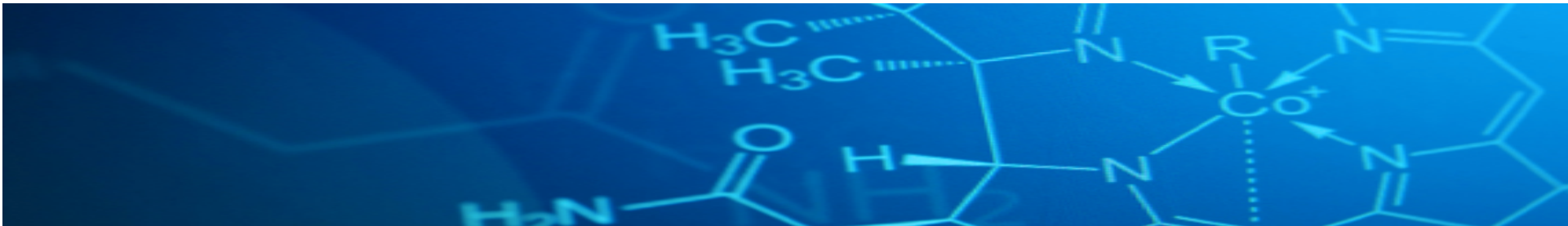
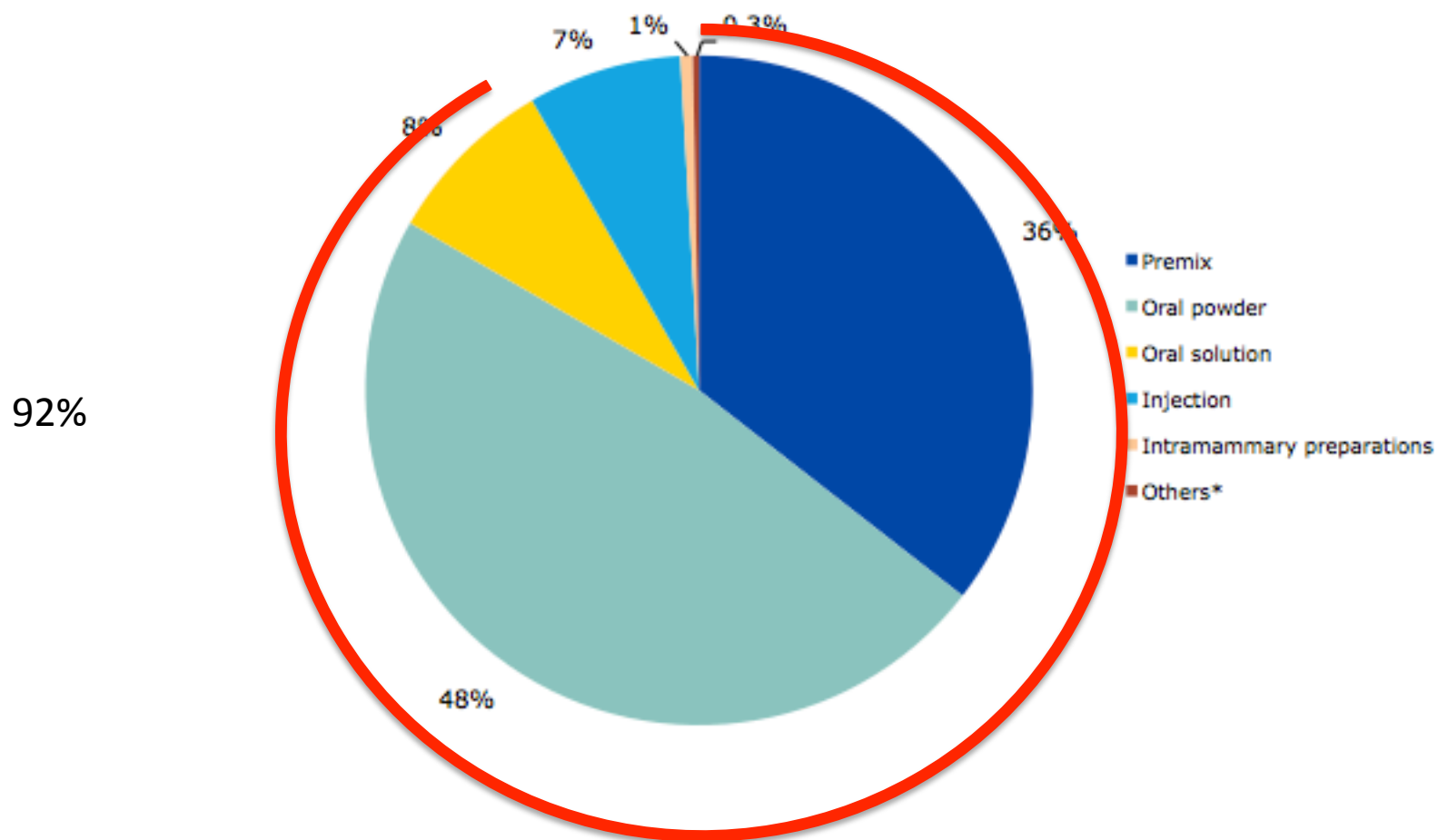


Figure 8. Distribution of sales, in mg/PCU, of the various pharmaceutical forms of veterinary antimicrobial agents for food-producing animals (including horses) aggregated by the 25 EU/EEA countries for 2011



Denmark

YELLOW CARD SYSTEM:

In Denmark, a 10% reduction in sales (in mg/PCU) from 2010 to 2011 is observed. This is mainly accounted for by tetracyclines, penicillins and pleuromutilins, but also macrolides and sulfonamides. The proportion accounted for by the major antimicrobial classes remained relatively stable. The substantial decrease in sales is primarily explained by the introduction of the 'yellow card' in pig production. The yellow card works as follows: based on the total consumption of antimicrobial agents in pigs in Denmark, measured as prescribed numbers of defined daily doses animals (DDDA)/100 pigs per day, a maximum limit value is set up per age group. For sows, this value is currently 5.2, for weaners, 28, and for slaughter pigs, 8. If just one of the different age groups on a farm exceeds the limit, the farmer will as a first step be asked for an explanation, and if the reply is not satisfactory, will receive a fine of approximately 1,100 euro. They will then have 9 months to bring the consumption of antimicrobial agents down under the maximum limit. If they do not succeed, they will receive another fine and further restrictions, such as a reduction in the number of animals.

Medie di utilizzo per categoria di animale

Scrofe: 5.2

Suinetti: 28

Ingrasso: 8

Supero limiti anche in 1 sola categoria



Spiegazione e/o Multa 1100 Euro



9 mesi per mettermi in ordine

SI



OK!



NO

Multa "salata" + restrizione sulla produzione

Approccio Danese

Approccio conservativo da un punto di vista SANITARIO

C'e' un RISCHIO per la salute umana correlato all'uso di AB in ambito animale?

SI

Eliminare tutti gli usi di Ab NON Terapeutici

2009

10%

2011

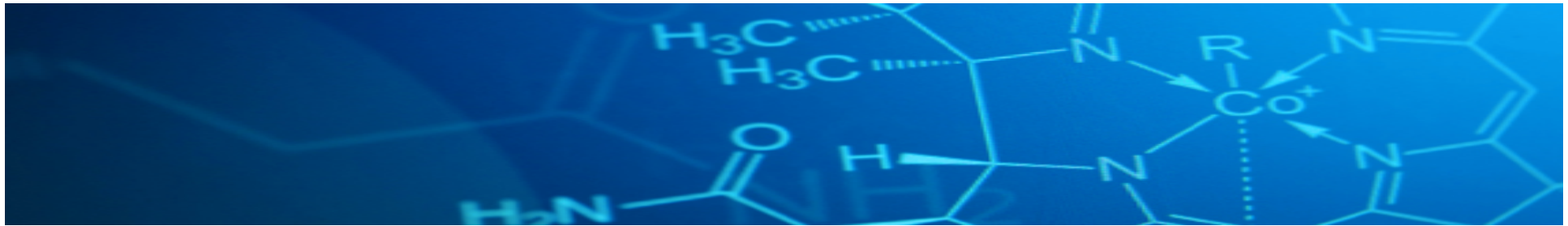
20%

2013

50%

2017

70%



Netherlands

In the Netherlands, a decrease of 22% in sales (in mg/PCU) from 2010 to 2011 is observed. This is the result of efforts of the major production sectors, which, in 2010, agreed with the government to set reduction targets for the use of antimicrobial agents in animal production: -20% for 2011 and -50% for 2013, with reference to 2009. The reduction achieved affects most of the main antimicrobial classes. The highest reduction percentage was achieved for tetracyclines (-28%), while reduction in the sales of sulfonamides and trimethoprim were just above the average (-24%). Reductions in the sales of 3rd- and 4th-generation cephalosporins, fluoroquinolones and macrolides were a little bit below the average (16%–19%). In contrast, sales of penicillins remained almost constant. Tetracyclines are most commonly used in pig and veal production, the two species accounting for about 80% of the use of antimicrobial agents in Dutch animal production.

A further decrease of 20-25% in total sales has been observed from 2011 to 2012.



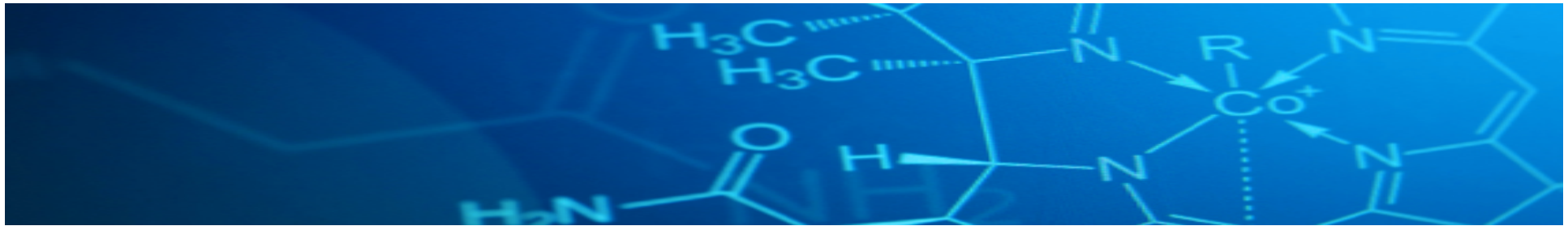
France

An 11% decrease in sales (in mg/PCU) was observed from 2010 to 2011, mainly accounted for by tetracyclines, macrolides, polymyxins and sulfonamides. The results from 2011 confirm the trend in sales seen in previous years.

The sales in weight of active ingredient do not accurately reflect their use because of the differences in potency and dosing between different antimicrobial agents, and thus a decrease in sales volume does not necessarily correspond to a decrease in exposure to antimicrobial agents. To more precisely quantify animal exposure to antimicrobial agents, the French authority has assessed the weight of animals treated with antimicrobial agents by taking into account the dosing. The weight of animals treated with the various antimicrobial classes is obtained by dividing the sales volume expressed in weight of active ingredient by the amount of active ingredient required to treat one kilogram of body weight (daily dose multiplied by the duration of treatment). By use of this method, the estimated exposure to antimicrobial agents, including all routes of administration and species combined, showed an increase between 1999 (start of the monitoring of antibiotic sales) and 2007, and since then there has been a steady decline; from 2010 to 2011, the exposure fell by 3.7%, and by 15.3% over the past five years.

However, this overall trend must be qualified according to target species and antimicrobial classes. The exposure to tetracyclines decreased for all species, and the exposure to macrolides decreased for all species except cattle. Over the past five years, exposure to 3rd- and 4th-generation cephalosporins has increased by 9.4%, while exposure to fluoroquinolones has increased by 7.0%. After a period of sharp increase in animal exposure to these two classes of antimicrobial agents, an inflection can be seen in the exposure development curve, indicating a trend towards stabilisation.

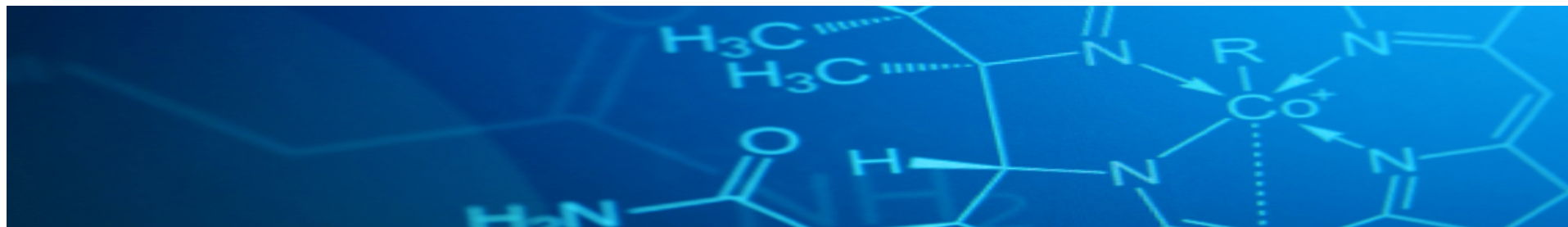
Some sectors (especially the pig and rabbit sectors) that have taken measures to promote the prudent use of antimicrobial agents experienced greater reductions in exposure. Following an initiative in the pig sector to voluntarily restrict the use of newer-generation cephalosporins, exposure of pigs to this class of antimicrobial agents fell by 51.8% between 2010 and 2011.



Spain

In Spain, a 3.5% increase in sales (in mg/PCU) from 2010 to 2011 is reported; the sales data show a moderate change in the proportion of sales of penicillins with extended spectrum, macrolides and polymyxins. For 2010, it was identified that one marketing-authorisation holder (MAH) failed to report the sales data; for this company, the reported sales represented 21% of total sales (in tonnes) for 2011. Consequently, the sales of veterinary antimicrobial agents reported for 2010 represent an underestimate. Provided that the sales for this MAH were at the same level in 2010, the sales in Spain in 2011 would have been approximately 16% lower than in 2010. The observed changes in the sales patterns are partly due to the underreporting of sales from this single MAH.





Italy

In Italy, a decline in sales (in mg/PCU) of 13% from 2010 to 2011 is observed, and the decline is reported for almost all classes; however, the major part was for tetracyclines, polymyxins, sulfonamides and pleuromutilins. The prescribing patterns were relatively stable. The reduced sales are likely to have been caused by the following factors:

- Since 2009, a continuous improvement of the information and of the training system related to rational and prudent use of veterinary medicinal products has taken place.
- In 2009, the Ministry of Health launched awareness campaigns against prophylactic use of antimicrobial agents in breeding plants. Training courses were held in collaboration with the National Reference Laboratory for Antimicrobial Resistance, IZSLT, in Rome. An online training course on veterinary medicines surveillance and pharmacovigilance, which also included basic principles of prudent use of antimicrobial agents in livestock productions, was published in the Italian Veterinarians Federation's journal.
- In 2010, an information system was activated that involved reporting to the Ministry of Health the prescription volumes by the Italian regions, in order to estimate the total number of prescriptions issued throughout each Italian region, divided by animal category (farm animals, companion animals, stocks, medicated feed, cascade) and species (number of average annual prescriptions per species). This survey allows the local competent authorities to identify during a particular year the most problematic sectors where antimicrobial resistance has to be tackled in the following year.



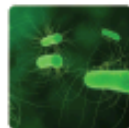
Directorate-General for
Health & Consumers



Communication from the Commission to the European Parliament and the Council

Action plan against the rising threats from Antimicrobial
Resistance

COM (2011) 748



The Commission Action Plan on Antimicrobial resistance sets out 12 actions to be implemented in close cooperation with member states.

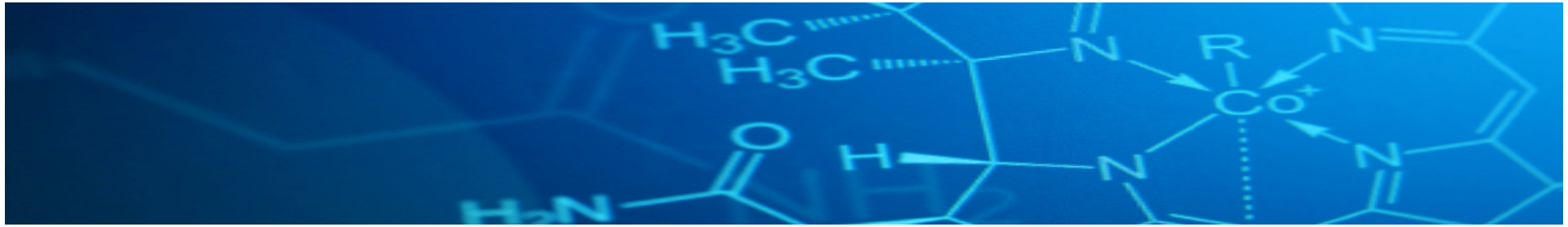
- Improve awareness raising on the appropriate use of antimicrobials
- Strengthen EU law on veterinary medicines and on medicated feed
- Introduce recommendations for prudent use of antimicrobials in veterinary medicine, including follow-up reports
- Strengthen infection prevention and control in hospitals, clinics, etc.
- Introduce legal tools to tighten prevention and control of infections in animals in the new EU Animal Health Law
- Promote unprecedented collaboration to bring new antimicrobials to patients
- Promote efforts to analyse the need for new antibiotics in veterinary medicine
- Develop and/or strengthen multilateral and bilateral commitments for the prevention and control of AMR
- Strengthen surveillance systems on AMR and antimicrobial consumption in human medicines
- Strengthen surveillance systems on AMR and antimicrobial consumption in animal medicines
- Reinforce and co-ordinate research
- Improve communication on AMR to the public

Target temporale: 2016!

← Limitazioni d'uso

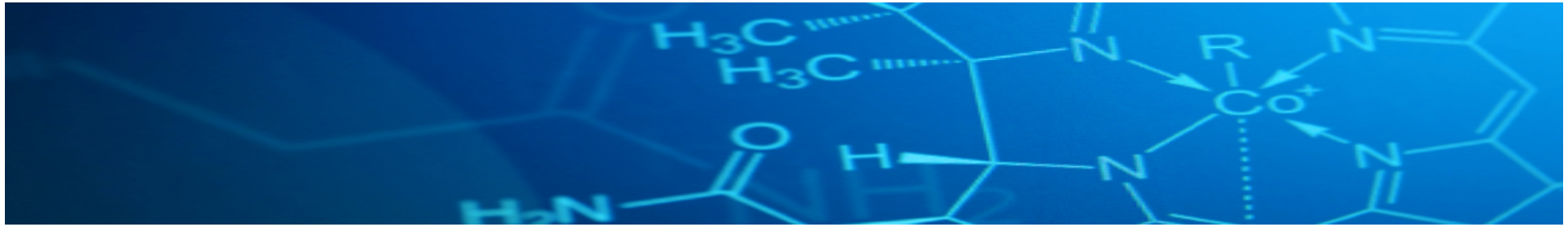
← Prevenzione e ruoli veterinario

← Monitoraggio



Limitazioni d'uso

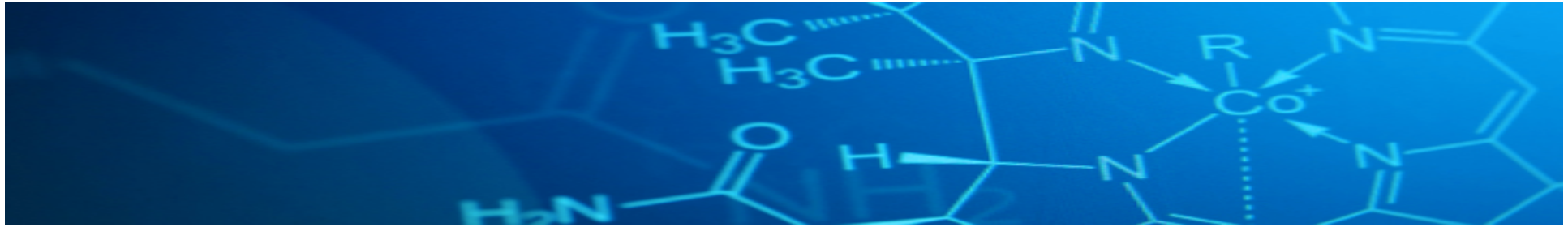
1. No Profilassi
2. Metafilassi SOLO per patologie altamente infettive e short-listed
3. Metafilassi solo se animali con sintomi
4. Uso subordinato a tests di laboratorio
5. No Cefalosporine e CIA
6. No Colistina! (Parere EMA)



Prevenzione e ruoli veterinario

Responsibilities of veterinarians and aquatic animal health professionals

1. Veterinarians shall in the course of their activities which fall within the scope of this Regulation:
 - (a) take all appropriate measures to prevent the introduction, development and spread of diseases;
 - (b) ensure the early detection of diseases by carrying out proper diagnosis and differential diagnosis to rule out or confirm a disease before symptomatic treatment is commenced;
 - (c) play an active role in:
 - (i) raising animal health awareness;
 - (ii) disease prevention;
 - (iii) the early detection and rapid response to diseases.
 - (d) cooperate with the competent authority, operators, animal professionals and pet keepers in the application of the disease prevention and control measures provided for in this Regulation.



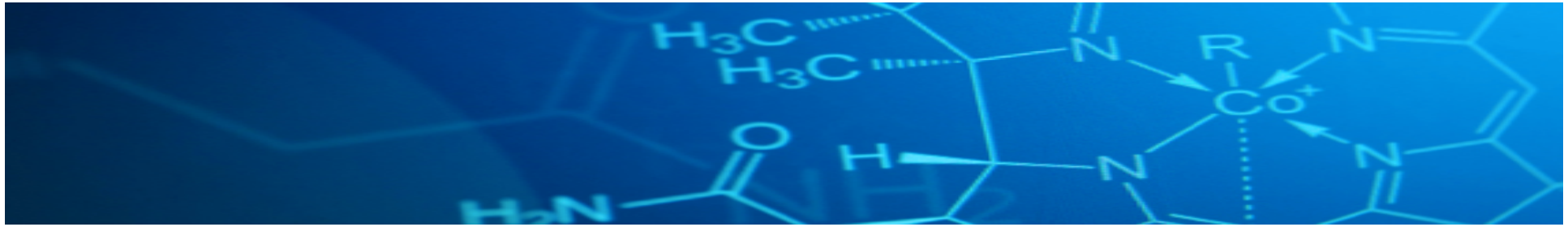
Antibiotico-Resistenza



MONITORAGGIO CONTINUO



<Pressione di Selezione
(Uso massiccio, umano e veterinario, di antibiotici)



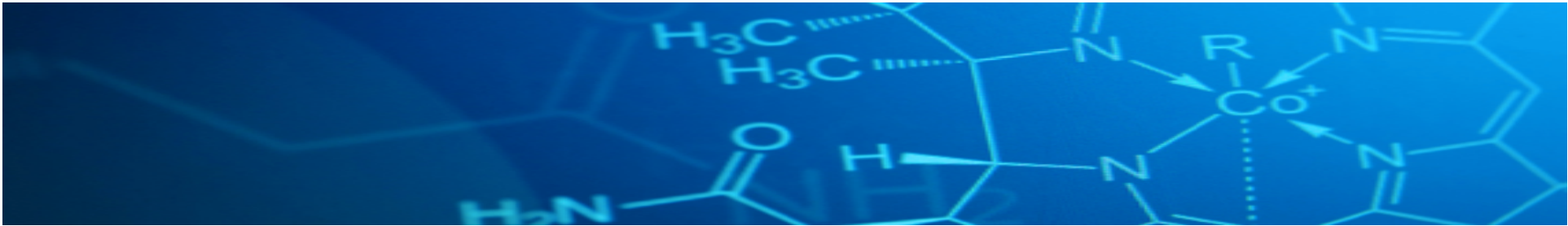
MONITORAGGIO CONTINUO

A) Patogeni di allevamento

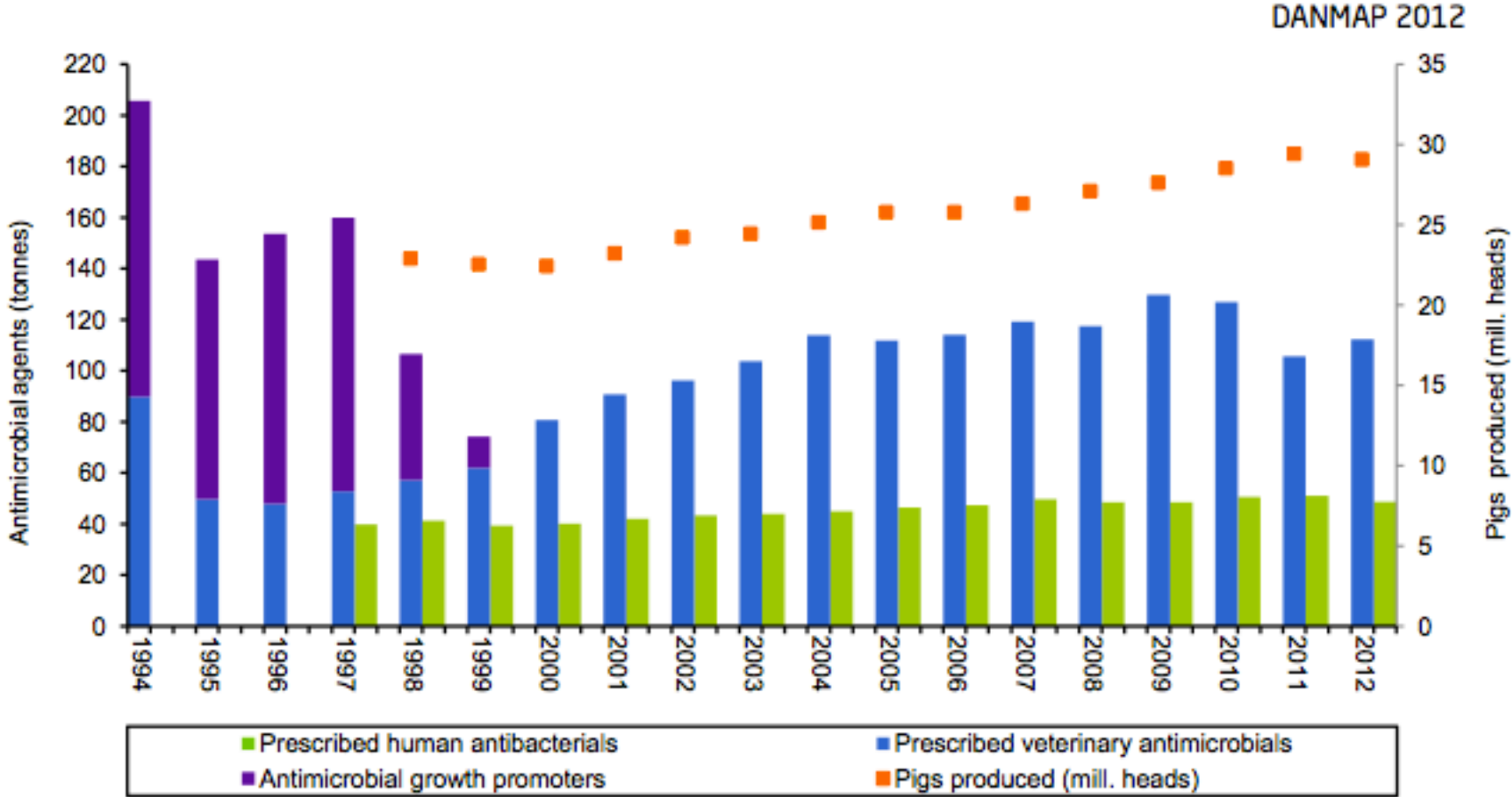
B) Batteri indicatori:

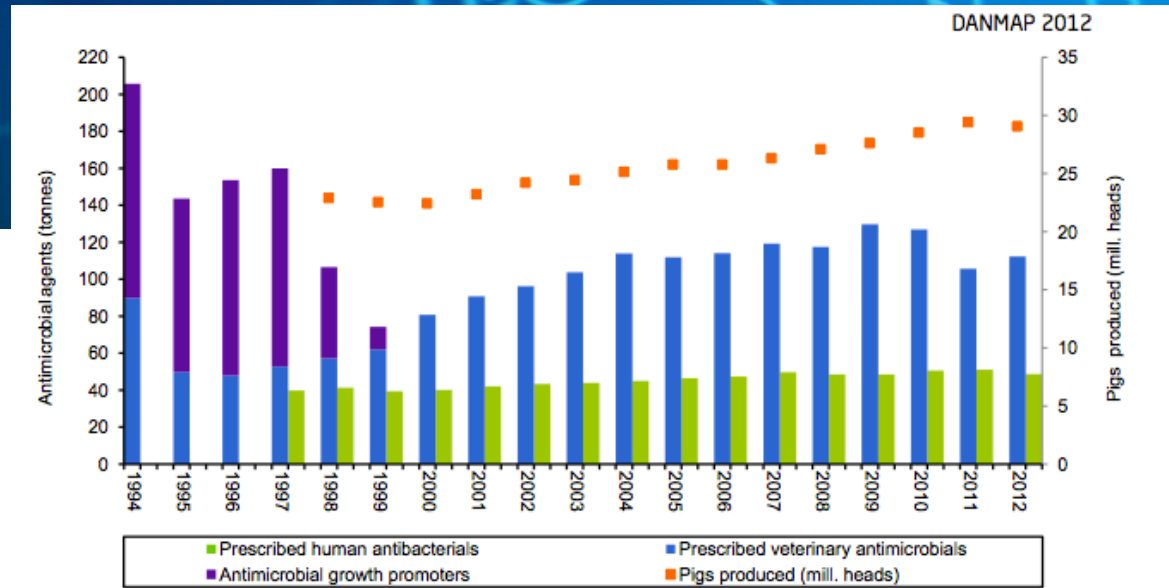
- 1) E. coli, Enterococcus**
- 2) 1 a ciclo/categoria produttiva**
- 3) Random**
- 4) Animali SANI**
- 5) Ambiente**

**Storico
di
allevamento**

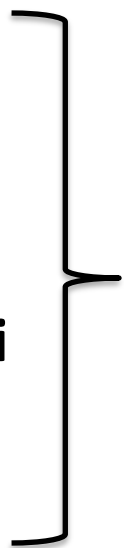


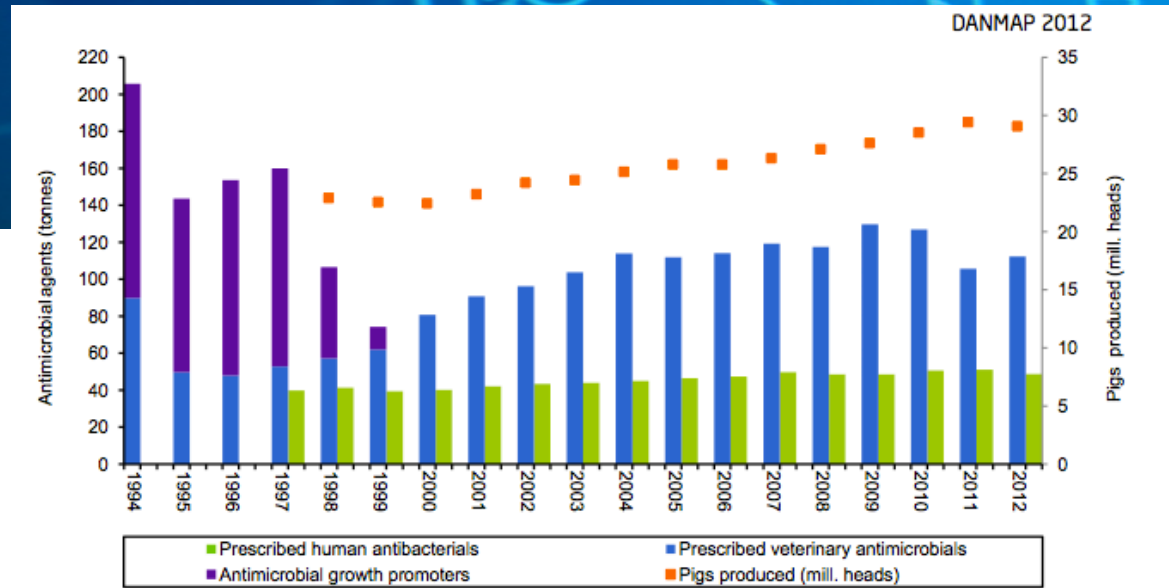
Il modello di riferimento e' sempre quello Danese perche':



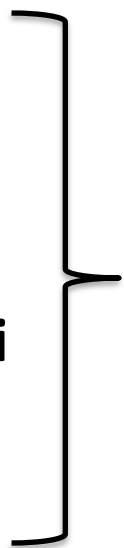


- < Numero di piccoli produttori
- > Costi
- > Produttori piu' grandi in grado di fare economia di scala su management e controlli





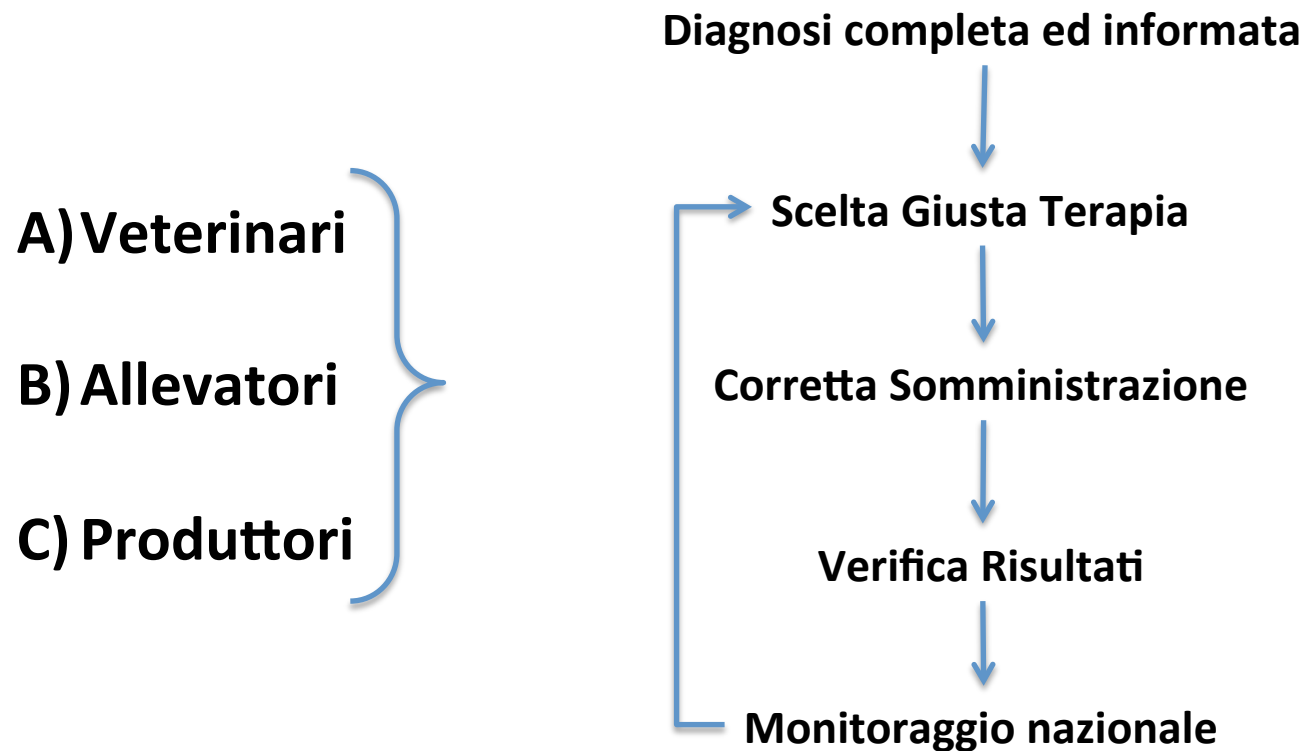
- < Numero di piccoli produttori
- > Costi
- > Produttori piu' grandi in grado di fare economia di scala su management e controlli

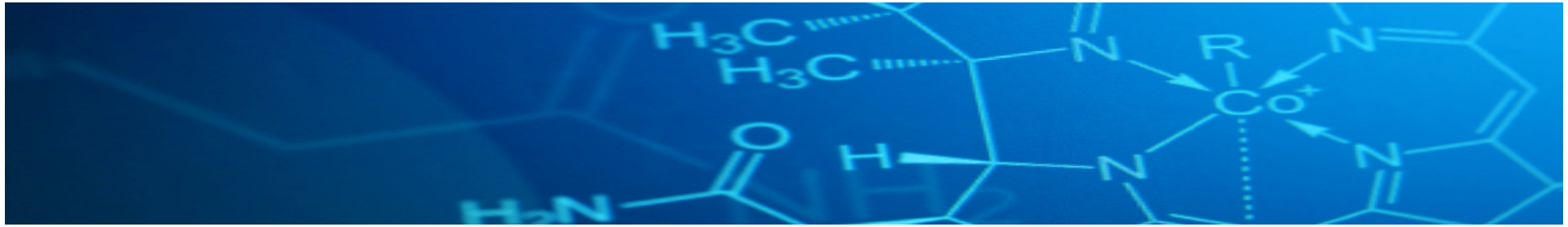


**Produzioni
maggiori e piu'
controllate**

USO RESPONSABILE DEL FARMACO

2) FORMAZIONE E LAVORO COLLEGIALE





“È stato uno shock ma l’abbiamo affrontato con la prevenzione, il monitoraggio e la trasparenza del dato, ed il lavoro di tutti gli organismi coinvolti”

- Rens Van Dobbenburg, vicepresidente Uevp