BEUC The European Consumer Organisation

The Consumer Voice in Europe

Antibiotic use in livestock: Time to act

BEUC Position Paper

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Summary

Antibiotics, also known as antimicrobial drugs[1], are commonly used in human and veterinary medicine to treat a wide variety of infectious diseases.

Yet misuse and overuse of these drugs have contributed to a phenomenon known as antibiotic resistance. This resistance develops when harmful bacteria change in a way that reduces or eliminates the effectiveness of antibiotics. Antibiotic resistance is one of the most challenging public health issues of our times as antibiotics might no longer cure bacterial infections and common infections such as strep throat could once again prove fatal.

The One Health concept, endorsed by the World Health Organisation (WHO) and the World Organisation for Animal Health (OIE), recognises that human health, animal health and ecosystems are interconnected. Consequently it is necessary to curb all antibiotic uses as antimicrobial use in one environment will drive selection and impact microbial diversity in another[2].

In recent years consumer organisations have decided to address the antibiotic resistance issue from a food safety perspective after several years devoted to the fight against antibiotic resistance from the patient side only. After a series of tests on meat products, it emerged that the presence of antibiotic resistant bacteria is widespread. Indeed a very large percentage of samples were found to contain antibiotic resistant bacteria, among which ESBL-forming bacteria, methicillin-resistance *Staphylococcus* (MRSA) and resistant *Campylobacter* which all cause very serious infections with limited treatment options. Multiresistant bacteria, which are of particular concern as they exhibit resistance to several classes of antibiotics, were also discovered in some products.

Consumer organisations are particularly concerned of the growing presence of antibiotic resistant bacteria in food products and the associated consumers' exposure and we believe policy-makers urgently need to protect consumers from this growing threat. Indeed this issue can only be addressed if strong policies to curb antibiotic overuse are in place.

Therefore, we urge the EU to effectively safeguard the efficiency of antibiotics by:

- **Restricting the use of antibiotics to therapeutic use**, better regulate and report on metaphylaxis use and phase out prophylaxis.

- **Making individual treatment the norm and herd treatment the exception** while restricting the use of oral treatments. The option of banning the use of antibiotics in medicated feed should be thoroughly examined.

- Reducing the need for antibiotics by **improving animal health** through biosecurity measures, disease prevention and good management practices.

[1] Antimicrobials encompass drugs such as antibiotics but also anti-viral, anti-fungal and anti-protozoas.

[2] *Antibiotics in animal feed, Human health, animal health and ecosystems are interconnected*, BMJ, 2013.

- **Decoupling veterinarians' right to both prescribe and sell antibiotics** to eliminate all economic incentives.

- **Restricting the use of critically important antibiotics** such as modern cephalosporins, fluoroquinolones and macrolides. Those antibiotics should be banned for species where a high risk of resistance transmission has been identified, as well as for therapeutic group treatment and eventually for metaphylaxis. When other treatment options are available we believe their use should be phased out. Carbapanems should also continue to be banned in veterinary medicine while tough controls are necessary to ensure the drug is not used for livestock production.

- **Implementing strict restrictions on *'off-label use'***, and in particular the cascade. At the same time **concrete and ambitious reduction targets should be set** to achieve a significant reduction in the use of antibiotics.

- **Testing meat products** to assess the presence of antibiotic resistant bacteria in food products. This should not only be done by consumer organisations but also by EU policy makers.

- Relying on **sound data** to monitor the progress made and assess whether the EU is on the right tracks. Consumption data by species should be collected by all Member States. **Collecting data on the use of antibiotics at farm level** proved to be an efficient way to compare practices and to align with the best performers.

Introduction: issues at stake

Misuse and overuse of antibiotics in both human and veterinary medicine led to the emergence of resistance, whereby treatments become inefficient

Antibiotics that inhibit the growth of or kill bacteria have played a major role in managing the health of both humans and animals for more than 60 years[3].

In the EU, 2 million people are infected with antibiotic-resistant bacteria and 25,000 patients die from such infections each year.

However the overuse and misuse of these drugs in livestock production and the incorrect use of antibiotics in human medicine, either due to inadequate prescribing patterns or to consumers' inappropriate use, has contributed to the emergence of antibiotic resistance, a mechanism by which bacteria become resistant to treatments[4].

More and more bacteria strains are becoming resistant to several kinds of antibiotics, limiting treatment options, while few new antibiotics are available. It is now estimated that 25,000 patients die from resistant bacteria infections each year in the EU and if nothing is done, routine infections could become deadly in just 20 years[5]. Without antibiotics, therapies such as stem cell transplants, bone marrow transplantation, cancer chemotherapy as well as therapies weakening the immune system (e.g. rheumatoid arthritis or multiple sclerosis treatments), would be impossible[6].

If measures are not urgently taken, routine infections could become deadly in just 20 years.

Antibiotic resistance also increases the costs of health care since longer duration of treatment is needed as well as more expensive therapies which place economic burden on both families and societies[7]. Scientific and medical authorities have warned that if measures are not urgently taken we might return to the pre-antibiotic era, where people had no medicines and simple infections could kill.

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3 *Antimicrobial Resistance and Responsible Use of Antimicrobials: Information for Veterinary Surgeons*, DEFRA, 2009.
4 *Antimicrobial resistance*, Fact sheet N°194, WHO, May 2013.
5 *The drugs don't work: the global threat of antimicrobial resistance*, LSHTM Blog, 2013.
6 *Dr. Arjun Srinivasan: We've reached 'The End of Antibiotics, Period'*, Hunting the Nightmare Bacteria, Frontline.
7 *Antimicrobial resistance*, Fact sheet N°194, WHO, May 2013.

Growing body of evidence of the transmission risk through contaminated food products.

According to EFSA, bacteria causing foodborne infections, such as *Salmonella*, are becoming more and more resistant to antibiotics.

If over consumption of antibiotics by consumers remains a critical issue, the overuse of antibiotics at farm level and the risk of transmission via food products must also be considered. Contamination can occur by consumption of meat and dairy products but also through spread of faeces and manure which can end up on fruits and vegetables, well as in soil and rivers. Direct contact with animals can also be of significance depending on the type of bacteria. In addition, resistant genes can move from resistant bacterium in animals to a bacterium pathogenic to people. The WHO identified food products of animal origin as the main potential route of contamination for transmission of resistant bacteria and resistant genes from food animals to people[8].

If we acknowledge the fact that it is difficult to quantify transmission potential between antibiotic resistant bacteria in livestock and antibiotic resistant bacteria in humans, it is now recognised that the intensive use of antibiotics in food animals adds to the burden of antibiotic resistance in humans. More and more scientific studies demonstrate a stronger link between the two than previously thought and a recent study showed genetic similarities between resistant isolates found in chicken meat and humans[9]. If the risk posed to humans by resistant organisms from farms and livestock cannot be precisely quantified the link between antibiotic use in food-producing animals and the occurrence of antibiotic-resistant infections in humans is now undeniable[10].

In addition, the WHO highlighted the fact that the use of antimicrobials, including antibiotics, in livestock still outweighs use for humans in several EU countries[11]. For instance in Germany, according to data collected by the Federal Office of Consumer Protection and Food Safety in 2011, 1.734 tons of antimicrobial agents were supplied by pharmaceutical companies to German veterinarians while only around 800 tons were used in human medicine[12].

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8 *Tackling antibiotic resistance from a food safety perspective in Europe*, WHO Europe, 2011.
9 *Fluoroquinolone-Resistant Escherichia coli: Food for Thought*, Peter Collignon and Frederick J. Angulo, The Journal of Infectious Diseases, Oxford Journals, 2006.
10 *Antibiotic resistance threats in the United States*, CDC, 2013.
11 *Tackling antibiotic resistance from a food safety perspective in Europe*, WHO Europe, 2011.
12 *Cutting antibiotics: Denmark leads way in healthier pig farming*, Der Spiegel, 2013.

In both the EU and the US, more antibiotics are used in livestock than for human medicine.

This is also the case in the United States as shown by a recent government-funded report which found that more kilograms of antibiotics are sold in the US for food-producing animals than for people[13]. The relationship between antibiotic use in animal husbandry and the increase in resistance in bacteria pathogenic to humans is of particular concern because the same classes of antibiotics are used in both animal and human medicine and similar resistance mechanisms have emerged in both sectors. For instance the use of enrofloxacin, a fluoroquinolone (see section 3.2.1.b), in food animals has resulted in the development of resistance in *Salmonella* and *Campylobacter* to ciprofloxacin, a fluoroquinolone used to treat people[14].

Therefore it is urgent to combat this growing threat by adopting measures to regulate the use of antibiotics at farm level and decrease the prevalence of these bacteria in food-producing animals and eventually in food products. This is particularly relevant knowing that the latest joint report by EFSA and the European Agency for Disease Control (ECDC) on antimicrobial resistance showed that bacteria most frequently causing food-borne infections, such as *Salmonella* and *Campylobacter*, exhibit significant resistance to common antimicrobials[15].

Antibiotic resistance is a priority for BEUC members who carried out tests on meat products and found that most samples are contaminated with antibiotic resistant bacteria

As the presence of resistant bacteria in food-producing animals has increasingly been recognised of particular concern for public health several BEUC members have recently decided to undertake a series of tests looking for the presence of antibiotic resistant bacteria in a wide range of meat products. Samples were collected in Belgium, France, Germany, Italy, Portugal, Spain, Sweden, Switzerland and the Netherlands in 2013 and 2014. The products, ranging from chicken fillets to pork chops, were bought in supermarkets but also in retail stores and butchers. Overall member tests showed a high prevalence of antibiotic-resistant bacteria[16].

Research across the EU showed that most samples contain ESBL-forming bacteria, which are known to destroy the effectiveness of some of the most important antibiotics in human medicine such as penicillins and modern cephalosporins (see section 3.2.1.a) by means of enzymes, but also methicillin-resistant *Staphylococcus aureus* (MRSA) and resistant *Campylobacter*[17]*.* In addition, members found some samples were contaminated with bacteria strains resistant to several antibiotics belonging to different chemical classes, the so-called '*multiresistant bacteria*'[18].

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13 Antib*iotic resistance threats in the United States*, CDC, 2013.
14 *Tackling antibiotic resistance from a food safety perspective in Europe*, WHO Europe, 2011.
15 *The European Union Summary Report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2012*, EFSA/ECDC, March 2014.
16 See annex 1.
17 See BEUC technical paper on antibiotic resistance.
18 *Antibiotiques, Menace sur notre santé*, UFC Que-Choisir, March 2014.

This is not the first time consumer organisations perform tests and find antibiotic resistant bacteria in food. Yet this is the first initiative launched on such a scale which depicts how serious the situation actually is. As such consumer organisations have called for strong political action from their government and EU legislators.

A cross-border threat that requires strong EU coordinated action

In past years several initiatives have been launched to address this issue at EU level. After the Council and the European Parliament both called for immediate measures the European Commission issued an action plan listing twelve areas of actions. Such plan included the promotion of the appropriate use of antimicrobials and the need to consider this issue via the review of veterinary medicines and medicated feed legislations[19].

The European Medicines Agency (EMA) is also providing advice to the Commission on the use of veterinary medicines on the basis that the responsible use of antimicrobial agents in veterinary medicine is a key factor in minimising the risk of the development and spread of antimicrobial resistance[20]. Since 2010 the EMA has also collected data on sales from several European countries to enable comparison and identify trends. It has found that significant differences exist in the sales of antimicrobials between Member States, and that it cannot be explained by the animal husbandry practices. At the same time some countries are more affected by antimicrobial resistance than others[21]. EU countries have set up different policies to tackle this burning problem, with specific rules on issues such as the type of antibiotics allowed in both veterinary and human medicine and the kind of data collected by national authorities. Yet we need strong EU rules in order to fight this growing cross-border threat. Indeed national policies only have a limited impact and their effectiveness can be reduced as the population might still be exposed to antibiotic resistant bacteria through imported food from other EU countries.

The high prevalence of antibiotic resistant bacteria in food products uncovered by BEUC members should spur the necessary changes

If Member States collect data on sales of antibiotics few tests have been performed on meat products. As such, the tests carried out by BEUC members provide critical information. Indeed the high prevalence of antibiotic resistant bacteria found in food products highlights the risk of contamination via the food chain.

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[19] *Communication from the Commission to the European Parliament and the Council, Action plan against the rising threats from Antimicrobial Resistance*, 2011.

[20] *Sales of veterinary antimicrobial agents in 25 EU/EEA countries in 2011, Third ESVAC Report*, EMA, 2013.

[21] *Antimicrobial resistance surveillance in Europe 2012*, ECDC, 2013.

BEUC and its members believe a series of measures should urgently be taken at European level to reverse the trend. Indeed if consumers organisations will continue to test products and to provide advice to consumers on ways to avoid contamination, such as thorough cooking of the meat, careful handling of raw products to avoid cross-contamination and frequent hand washing, full responsibility should not fall on consumers who should be provided with safe food products. Indeed the remaining efforts to achieve are at farm level.

Full responsibility should not fall on consumers who should be provided with safe food.

BEUC and its members have drafted several recommendations to ensure immediate measures are taken to reduce the unnecessary use of antibiotics in livestock and eventually get a chance to win the war against antibiotic resistance.

Therefore we call on the European Commission and other institutions to consider BEUC's recommendations, covering a wide range of issues including administration routes, non-therapeutic use, restriction on use for certain veterinary medicine as well as data collection for the forthcoming discussions on the review of the Veterinary Medicines and Medicated Feed legislations. All our demands are detailed in the second part of this position paper.

1. High prevalence of antibiotic resistant bacteria in meat products

BEUC members found overall that antibiotic resistant bacteria are found in most products. In six countries more than 70% of the products tested were contaminated with antibiotic resistant bacteria while eight countries reported that half of the samples contained these harmful bacteria[22]. Where antibiotic resistant bacteria were found at lower levels, for instance in France, they sometimes exhibit specific resistance profile such as resistance to important classes of antibiotics used in human medicine, which pose a great risk to public health. Some members also focused their research on bacteria strains such as ESBL-forming bacteria, MRSA and more generally *'multiresistant bacteria'*, which are particularly feared as few treatment options are available to treat infected patients. Consequently the quantity of bacteria found is critical, as it increases contamination risks, but the profile of the bacteria is also a major criteria to take into account when analysing the results.

In 6 EU countries, more than 70% of the meat products tested were contaminated with antibiotic-resistant bacteria.

The table in Annex 1 depicts the results by species (poultry and beef/veal) and by bacteria type (ESBL-forming bacteria, MRSA, resistant *Campylobacter*). It aims to demonstrate the high prevalence of antibiotic resistant bacteria in meat products in each country. As such it is not designed to compare situations in different countries and estimate average contamination levels in the EU.

[22] See BEUC Technical Paper

2. BEUC recommendations

2.1 Change practices at farm level

2.1.1 Promote the adequate use of antibiotics for food producing animals

BEUC and its members call for a reduction of the unnecessary use of antibiotics. Non-therapeutic use can be broken down into two categories. On the one hand, **prophylaxis** consists in giving healthy animals antibiotics to prevent infection. On the other hand, **metaphylaxis** is a mass medication procedure which aims to treat sick animals while medicating others to prevent disease.

We believe prophylaxis should be phased out while in the case of metaphylaxis strict rules should apply to ensure it is restricted to certain defined cases and as a last resort solution. At the same time it is critical to make individual treatment the norm and herd treatment the exception. To achieve these objectives it is necessary to invest more in animal health and prevention and to eliminate any economic incentive which could lead to the inappropriate prescription of antibiotics.

a) *Use antibiotics when necessary: Phase out prophylaxis and limit metaphylaxis to clearly defined cases*

Prophylaxis, where animals are given antibiotics to prevent infection, should be phased out. Indeed we believe that medicines should only be given to animals for therapeutic uses. This is particularly relevant knowing that prophylaxis use is still widespread. A recent study found that in Belgium prophylactic group treatment was applied in 98% of the visited herds[23]. Some European countries like Denmark, Sweden and the Netherlands have already enacted such restrictions as the prophylactic use of antibiotics is prohibited. We therefore invite the Commission to set a legally binding timetable to phase out prophylactic use of antibiotics.

Antibiotics should be used to treat existing infections. Individual treatment should always be the norm and herd treatment the exception.

In the case of early collective treatment, also known as metaphylaxis, we believe it should be reserved for cases where there is a clear need in the herd, after close clinical inspection and evaluation of the risk/benefit ratio[24]. The choice of the antibiotics administered is also of the utmost importance. Indeed critically important antibiotics should not be used for metaphylaxis. As the risk of increasing selection pressure is high veterinarians should also prioritise narrow spectrum

[23] *Prophylactic and metaphylactic antimicrobial use in Belgian fattening pig herds*, Bénédicte Callens, Preventive Veterinary Medicine, 2012.

[24] *Antimicrobial use and resistance in animals*, Scott A. McEwen and Paula J. Fedorka-Cray, Oxford Journal, 2002.

antibiotics as the first choice[25]. Eventually the defined cases where metaphylaxis is authorised should be better identified in EU legislation and should be registered in Member States' databases.

Although prevention is better than cure, it should not be the excuse to use antibiotics.

Sub-therapeutic use, where low doses are administrated for growth promotion, and which is prohibited since 2006 in the EU, should continue to be banned. In addition it should be controlled that farmers and animal keepers administrate the adequate dose to animals, for therapeutic use or metaphylaxis, not a lower dose which would equal sub-therapeutic use. Indeed the pretext of treatment or control of infectious diseases should not be used to administer antibiotics to animals for growth promotion as such practices can even trigger more selection pressure and participate to the emergence of antibiotic resistance[26].

b) Make individual treatment the norm and herd treatment the exception

Treating infected animals individually at an early stage increases full recovery chances.

While individual treatment is the rule in human medicine, food animals, especially pigs and broiler chickens, are frequently subjected to herd treatment with antibiotics. Antibiotics are often used to treat respiratory and enteric infections in groups of intensively fed animals, especially during the early part of an animal's life[27]. A recent EMA report pointed out that the EU is not spared as it was found that antibiotics are still mostly used for herd treatments. AFSCA, the Belgian food safety Agency, said group treatment increases selection pressure on all animals simultaneously[28], i.e. resistant bacteria survive and multiply.

BEUC believes individual treatments should always be the norm and collective treatments the exception. The priority should be given to treat individual animals presenting with symptoms as early as possible and to keep them apart from the herd until full recovery. Indeed early treatment that only targets infected animals proved to effectively replace the strategy of collective treatment and enable the control of infections[29].

Giving the right antibiotics, at the right dose, at the right time help combat antibiotic resistance.

This is particularly relevant knowing that a way to decrease selection pressure and control the emergence of antibiotic resistance is to administer the right antibiotics, at the right dose and the right timing. All these conditions are extremely difficult to respect when a whole group of animals is treated. Consequently the use of antibiotics for therapeutic purpose should always target individual animals, as it allows a more targeted intervention and increases chances

[25] *Antimicrobial Resistance and Responsible Use of Antimicrobials: Information for Veterinary Surgeons*, DEFRA, 2009.
[26] *Farmacology*, Johns Hopkins Magazine, Dale Keiger, 2009.
[27] *Tackling antibiotic resistance from a food safety perspective in Europe*, WHO Europe, 2011.
[28] *Avis 19-2013*, AFSCA, 2013.
[29] *Early treatment with antibiotics is best*, INRA, 2013.

that sick animals fully recover. Ensuring all is done to treat sick animals in the first place will additionally help to avoid metaphylaxis.

c) The limits of oral group treatment

Moreover we believe oral group treatments, where allowed, should be more controlled as it has the potential to increase selection pressure. Indeed as the Belgian food safety authority AFSCA recently said administration via medicated feed lacks the necessary flexibility[30]. EMA confirmed that from a pharmacological perspective oral treatment is not well controlled as the ingested doses varies between animals and the exposure to the gastro-intestinal tract, where most zoonotic bacteria are present, will be high[31]. Adequate concentration in the body organ of interest after oral administration for sick animals might be impaired, which means sick animals might not fully recover and might eventually need additional antibiotics treatments, while healthy animals will be given antibiotics, which will increase selection pressure.

Oral group treatment gives rise to resistant bacteria strains. Stricter rules are needed.

As such stricter rules for medicated feed should be enacted as oral group treatment, via feed but also water and for therapeutic or metaphylaxis use, participates to the emergence of antibiotic resistant bacteria strains. AFSCA even recommended that the current practice to give antibiotics via medicated feed should preferably no longer be applied[32]. Therefore, we encourage the Commission to thoroughly consider the option of banning antibiotics in medicated feed. In addition restrictions on the use of antibiotics in drinking water should also be introduced as it has the potential to increase selection pressure and spur antibiotic resistance.

While it has been demonstrated that the global increase of the intensive fish farming sector has been accompanied by bacterial infections that are usually treated with antibiotics added to fish foodstuffs we also call for a reduction of oral antibiotic treatments in this sector[33]. It is critical to implement at an early stage a system relying on good management practices and the use of vaccines. This is all the more key knowing that in aquaculture few veterinary medicines are designated for specific species and indications which results in the significant use of the cascade (off-label)[34]. Veterinarians are allowed to use certain drugs '*off-label*', which means in a manner other than what is stated on the label. The cascade allows veterinarians to prescribe antibiotics intended for other clinical indications and species. The vet can even decide to prescribe a medicine used for human medicine but not allowed as a veterinary medicine. This could eventually

'Off-label' use - whereby vets can prescribe medicine for unapproved indications or species - increases antibiotic resistance and should be tightly regulated.

30 *Avis 19-2013*, AFSCA, 2013.
31 *EMA Committee for Medicinal Products for Veterinary Use (CVMP) strategy on antimicrobials 2011-2015*, European Medicines Agency, 2011.
32 *Avis 19-2013*, AFSCA, 2013.
33 *Tackling antibiotic resistance from a food safety perspective in Europe*, WHO Europe, 2011.
34 *Veterinary Medicinal Products in Aquaculture*, Dr Klaus Hellman and Dr. Bill Vandaele, 2013.

lead to anomalies in veterinary practices by promotion of the use of 2nd or 3rd line drugs over 1st line or topical drugs and eventually increase selection pressure[35]. Veterinarians might choose other drugs than the one usually recommended to treat the disease, which could increase the risk of antibiotic resistance, while the use of the cascade was originally permitted if no suitable veterinary medicine was authorised to treat a condition.

2.1.2 Animal health and prevention should prevail

One of the seven priorities of the European Commission Action Plan is to prevent microbial infections and their spread[36]. BEUC believes that it is critical to focus on prevention to reduce the overall use of antibiotics.

As such measures aimed at maintaining and improving animal health through biosecurity measures and good hygiene practices should be promoted since it reduces the need for antibiotics[37]. Stressful situations should be avoided as stress is well-known to weaken animals' immune systems[38]. Therefore they might be more vulnerable to disease and may require antibiotic treatment. Disease prevention can also be achieved by the use of vaccines. In Norway the introduction of vaccines in farmed salmon and trout together with improved fish health management reduced the annual use of antimicrobials in farmed fish by 98% between 1987 and 2004[39].

In Norway, mainly thanks to vaccination, the use of antibiotics in farmed fish decreased by 98% in less than 20 years.

Such measures will help change behaviours, such as the automatic administration of antibiotics to animals before transport and efficiently reduce the use of antibiotics[40]. Better animal health also means farmers and livestock keepers must have access to reliable, fast and affordable tests to detect animal diseases as early as possible and treat sick animals. The development of on-site diagnostics would for example be of great value as sick animals can be identified in due time[41]. In addition regular visit of the farm by veterinarians, as required by the Danish law, would help educate farmers and check the health status of the animals[42].

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35 *Department of Health: Technical Engagement on the New UK Five-year Antimicrobial Resistance Strategy and Action Plan*, RCVS, 2012.

36 *Communication from the Commission to the European Parliament and the Council, Action plan against the rising threats from Antimicrobial Resistance*, 2011.

37 *Antimicrobial Resistance and Responsible Use of Antimicrobials: Information for Veterinary Surgeons*, DEFRA, 2009.

38 *Veterinarians and farmers care for animals and people, 'Responsible use of antibiotics in food-producing animals – How can this be ensured?'*,FVE, Copa-Cogeca.

39 *The evolving threat of antimicrobial resistance – Options for action*, WHO, 2012.

40 *Veterinarians and farmers care for animals and people, 'Responsible use of antibiotics in food-producing animals – How can this be ensured?'*,FVE, Copa-Cogeca.

41 *Progress in the area of Antimicrobial Resistance in Veterinary Medicines*, FVE, 2011.

42 In Denmark veterinarians reportedly have to visit pig farms on a monthly basis.

We believe a way to achieve better results would be to have a legally binding code of good practice for animal husbandry that would help prevent infections. Currently there are only voluntary guidelines while a legally binding code would ensure the same strict standards apply across the whole EU. Training and education of farmers and veterinarians on the prudent and responsible use of antibiotics should also continue to be improved.

We welcome that these issues are addressed in the new EU Animal Health legislation, which focus on prevention and aims at improving animal health and welfare to eventually reduce the incidence of disease and the use of antibiotics. One interesting measure is the proposal to keep animals in less-intensive conditions with, wherever possible, access to the outdoor[43].

2.1.3 Eliminate all economic incentives to overprescribe

According to the EMA, veterinarians' prescribing behaviour is one of the reasons invoked to explain huge variations in sales data between Member States. Consequently any economic incentives regarding the prescription of antibiotics should be abolished. BEUC considers that veterinarians should only be allowed to prescribe antibiotics, not selling them. Indeed authorising veterinarians to both prescribe and sell antibiotics may facilitate the inappropriate prescription of antibiotics, for instance the prescription of larger quantities. This is particularly true knowing that this sale activity can represent a large share of veterinarians' turnover. In France 60% of rural veterinarians' total turnover comes from antibiotics sales. Self-regulation is not compatible with the responsible use of antibiotics, especially as pharmaceutical laboratories can grant discounts depending on the quantity ordered[44].

Separating prescription from sale curbed antibiotics overuse in Denmark. This should apply to the EU at large.

Therefore it is urgent to decouple prescription and sale, as this is currently the case for human medicine. We urge EU legislators to introduce such restrictions which proved to be effective in reducing the overuse of antibiotics in Denmark. Indeed Danish law currently prohibits veterinarians from selling antibiotics, except for 5 days emergency treatment, a change which was endorsed by both farmers and veterinary organisations[45]. As the new EU Regulation on Animal health clearly lays down responsibilities on the veterinarian it is critical to ensure their professional independency. At the same time they should severely be punished if their prescription behaviour is inadequate. Prescription patterns can also be monitored via collection of data on vet-level, as this is currently done in Denmark[46].

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43 *The current situation with legislation on farm antibiotic use*, Peter Stevenson, Compassion in World Farming.

44 *Antibiotiques, Menace sur notre santé*, UFC Que-Choisir, March 2014.

45 *The Danish approach to reducing farm antibiotic use*, Jan Dahl, Chief Advisor, DVM, Danish Agriculture and Food Council.

46 *The Danish approach to reducing farm antibiotic use*, Jan Dahl, Chief Advisor, DVM, Danish Agriculture and Food Council.

Veterinarians should rather base their income from health consulting work, which would furthermore encourage mandatory frequent health visits from vets to help identify sick animals and prevent any outbreak. Eventually it is important to continue to prohibit the advertising of antibiotics to professional keepers of animals as stipulated by Article 85(3) of European Directive 2001/82/EC which prohibits the advertising of prescription only veterinary medicines to the general public.

2.2 Stricter rules for veterinary medicines

2.2.1 Restrict the use of certain antibiotics

Critically important antibiotics must be mainly used for human medicine and highly restricted for livestock.

Fluoroquinolones, 3rd and 4th generation cephalosporins, macrolides and carbapenems are four classes of antibiotics classified as critically important by the WHO. To qualify as critically important antibiotic (CIA) the antibiotic must be used as a sole therapy or one of few alternatives to treat serious human diseases; and also used to treat diseases caused by organisms that can be transmitted via non-human sources or organisms that can acquire resistance genes from non-human sources[47].

BEUC believes it is urgent to place restrictions on the use of CIAs to preserve their effectiveness in human medicine. Thus we encourage the European Commission to adopt a European definition of critically important antibiotics for humans and animals and to eventually implement stricter rules for their use in livestock production. In this matter we support its ambition to have a shared EU definition based on the World Organisation of Animal Health (OIE) and WHO definitions.

A first step would be to withdraw the use of these antibiotics in certain species where high risks of resistance have been identified, such as fluoroquinolones and poultry. Overall strict restrictions on the use of modern cephalosporins, fluoroquinolones and macrolides should be implemented and a ban should be considered when other treatments are available. The same should apply for all beta-lactam antibiotics, including cephalosporins. All these antibiotics should be given only in single animals for a limited number of strict indications and when other antibiotics would fail based on susceptibility testing. This is particularly important knowing that in the EU these antibiotics are still widely used for livestock production. In its last report on sales of antibiotics ANSES, the French food safety agency, reported that exposure to fluoroquinolones had doubled and exposure to cephalosporins had tripled[48].

[47] *Critically Important Antimicrobials for Human Medicine*, WHO, 2009.
[48] *Suivi des ventes d'antibiotiques vétérinaires*, ANSES, 2013.

It is particularly urgent to ensure critically important antibiotics are not used for prophylaxis, which should be phased out, or for metaphylaxis. Belgium it was found that critically important and broad-spectrum antimicrobials were used for prophylaxis in almost all visited herds (98%)[49]. On the contrary, all necessary measures should be taken to reduce the use of these molecules in veterinary medicine.

98% of tested Belgian herds were given critically important antibiotics. Not because they were sick, just as prevention.

In addition the use of carbapenems in veterinary medicine should continue to be banned. Restrictions should also apply to '*new*' antibiotics, which should be used only as a last resort medicine, to preserve their effectiveness and delay the emergence of resistance.

a) Modern cephalosporins

Cephalosporins are critical antibiotics for human medicine as they are used against life-threatening infections. In the EU modern cephalosporins are not allowed to be used in poultry since 2012 after a Commission's implementing decision of 13 January 2012 required a modification of the Summary of Product Characteristics (SPCs), the document accompanying any medicinal product which describes the product properties and its clinical use, stating it should not be used in poultry[50].

Modern cephalosporins treat life-threatening infections in humans. Their ban should apply to all species.

If this is a step in the right direction BEUC believes the ban on modern cephalosporins should be extended to all species. The EMA itself states that equal or even better treatment exists for almost all the indications for the systemic use of these medicines while EFSA said that '*a highly effective control option for certain types of antimicrobial resistance would be to stop all uses of cephalosporins/systemically active 3rd/4th generation cephalosporins, or to restrict their use'*.

In the meantime, the Commission should urgently prohibit the use of modern cephalosporins to be used off-label, as this is the case in the US since 2012 for cattle, swine, chickens and turkeys[51].

b) Fluoroquinolones

Because of the effectiveness and broad-spectrum activity of fluoroquinolones this antibacterial class has been widely used both in human and veterinary medicine. The fluoroquinolone ciprofloxacin is the most heavily consumed antibacterial agent worldwide. It is used to treat a whole range of infections caused by *Salmonella enterica*, *Campylobacter spp.*, *Escherichia coli*, *Klebsiella spp.* and *Streptococcus*

[49] *Prophylactic and metaphylactic antimicrobial use in Belgian fattening pig herds*, Bénédicte Callens, Davy Persoons, Preventive Veterinary Medicine, 2012.
[50] *Need to reduce use of antibiotics in livestock production, Open letter to Commission*, Compassion in World Farming, May 2013.
[51] *Major developments on US policy on antibiotic use in food animals*, APUA.

pneumonia. Yet resistance has rapidly emerged. As fluoroquinolones are critically important for treating serious infections in humans its use in food animals is of particular concern[52]. Several countries have therefore introduced a ban on fluoroquinolones. Since 2003 fluoroquinolones were withdrawn for use in animals in Denmark and it has also been banned for poultry production in the US since 2005.

BEUC believes the EU should ban the use of fluoroquinolones, at least as a first step in poultry, before extending it to other species to protect the efficacy of these molecules and avoid growing selective pressure. Such policies proved to reduce the consumption of antibiotics, as the Danish experience showed, with a reduction of fluoroquinolones consumption in food animals (pigs, cattle and poultry) from 114kg in 2001 to 24kg in 2006[53].

c) Macrolides

Macrolides, such as erythromycin, are used for the treatment of diseases that are common in food-producing animals, especially for herd treatment, but also to treat certain zoonotic infections. Therefore, risk mitigation measures are needed to reduce the risk for spread of resistance between animals and humans[54].

In the US the FDA is now recommending new rules on macrolides as data showed it is still widely used for livestock production[55]. Indeed in 2009 five times more macrolides were sold for food animal production than for treating sick people[56]. EU policymakers should therefore consider strict restriction on their use to preserve the efficiency of these clinically important antibiotics.

d) Carbapenems

Very few options exist to treat infections caused by carbapenem resistant bacteria. This drug should never be approved for veterinary use.

Carbapenems should remain forbidden as a veterinary medicine. This goes along the line of EFSA's recent publication on carbapenems resistance in food animal ecosystems which urges to continue the prohibition of the use of carbapenems in food-producing animals[57]. Indeed it is critical to use the most effective drugs sparingly in human medicine and to exclude them from livestock production. Moreover a zero-tolerance ruling on carbapenem-resistant Enterobacteriaceae (CREs), which are a group of bacteria including *E. Coli* and

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52 *Exploring ResistanceMap: The Rise of Fluoroquinolone Resistance* <http://www.cddep.org/blog/posts/exploring_resistancemap_rise_fluoroquinolone_resistance_part_1>

53 *Human Health Hazards from Antimicrobial-Resistant Escherichia coli of animal origin*, Anette M. Hammerum and Ole E. Heuer, 2009.

54 *Reflection paper on the use of macrolides, lincosamides and streptogramins (MLS) in food-producing animals in the European Union: development of resistance and impact on human and animal health*, EMA, 2011.

55 *FDA to limit use of antibiotics in farm animals* <http://consumer.healthday.com/public-health-information-30/safety-and-public-health-news-585/fda-to-limit-use-of-antibiotics-in-animal-feed-682968.html>

56 *Antibiotics in Food Animal Production: Pew's Response to Raymond Op-Ed* <http://www.foodsafetynews.com/2013/01/the-importance-of-monitoring-antibiotic-use-in-animals/#.UzqX2Kh_v5d>

57 *Scientific Opinion on Carbapenem resistance in food animal ecosystems*, EFSA, 2013.

Klebsiella species difficult to treat as they are resistant to most available antibiotics, in retail food should also be implemented. This could be done via an international ban on the sale of food items containing CREs based on routine testing. Indeed CREs can be detected rapidly and reliably in culture-based or molecular assays[58].

2.2.2 *Introduce restrictions on off label use and particularly 'the cascade'*

At present veterinary medicinal products can be used for non-approved indications and posologies under the *'off-label use'*. One of the most controversial off-label uses is the cascade. It permits the veterinary use of medicine, including human medicine, intended for other clinical indications or species. Yet BEUC believes that off-label use should be more regulated and especially the cascade. Indeed in the past the use of the cascade became widespread to the extent that human medicines were used routinely despite the availability of suitable authorised veterinary products[59]. Such practices are not acceptable, particularly for molecules which are used as last resort medicine for humans[60]. If clinical freedom of veterinarians must be stressed, as they are the best placed to determine the right option treatment, we believe such practices should be better controlled as it represents a risk of increasing selection pressure.

2.2.3 *Set concrete reduction targets*

To put an end to the increasing spread of antibiotic resistance, policy makers must endorse concrete and quantitative targets. Defining a reduction percentage is the only way to achieve a significant reduction in antibiotic use as experience in several countries proved.

In 1996 the Norwegian livestock farming organisations launched a successful campaign to reduce antibiotics in agriculture by 25% before year 2000[61]. In 2011 the Dutch government set a clear policy objective to achieve a 20% reduction in antibiotic use compared with 2009. In the end the total sales of antibiotics dropped by nearly 32% in 2011 alone, which far exceeded the original objective. In addition the 2013 policy objective to achieve a 50% reduction in antibiotic use compared with 2009 has already been exceeded as the total sales of antibiotics dropped by 51% during the period 2009-2012[62].

Experience in Norway and NL has proven quantitative reduction targets slashed antibiotics use. How about setting EU targets?

[58] *Ban resistant strains from food chain*, Jan Kluytmans, Correspondance, 2013.
[59] *Cascade*, Veterinary Medicines Directorate, DEFRA.
[60] *EMA Committee for Medicinal Products for Veterinary Use (CVMP) strategy on antimicrobials 2011-2015*, European Medicines Agency, 2011.
[61] *Surveillance of the overall consumption of antibacterial drugs in humans, domestic animals and farmed fish in Norway in 1992 and 1996*, Kari Grace, 1999.
[62] *MARAN – Antibiotic usage*, Wageningenur, 2012.

In 2012 the French government also set a clear reduction target to reduce farm antibiotic use by 25% over five years[63]. It shows that quantitative objectives help to efficiently reduce the need to recourse to antibiotics. Consequently we believe the EU strategy should include a clear target with a detailed timeframe.

2.2.4 Allocate more resources for testing

The European Commission should also take the necessary measures to ensure the ban on growth promoters is correctly enforced and dedicate for resources to inspections and controls. In addition if controls of drug residues at farm level are important the European Commission should also consider testing the final product for the presence of antibiotic resistant bacteria.

2.3 More reliable data

Data generated from surveillance of the usage of veterinary antibacterial agents is essential to identify and quantify risk factors for the development and occurrence of resistance and to assess progress made in reducing antibiotics use. The priority is now to refine the data collection at species level and have consumption data, preferably at farm level.

2.3.1 Sales data

Since 2009 EMA monitors the sales of veterinary antimicrobials agents in the European Union through its European Surveillance of Veterinary Antimicrobial Consumption project (ESVAC) which aims to collect data using a harmonised approach to identify trends and make comparison possible.

We believe that Member States should be obliged to systematically collect sales data and report to the EMA. Indeed in several countries it is still optional to collect and share sales data.

Today, sales data do not detail which antibiotic was given to which species, making comparison between animal species impossible.

While such information is of great value it still lacks some specificity. Sales data do not provide information on the kind of species which received antibiotics while most veterinary medicines are administered to several animal species. For instance 70% of the total veterinary antimicrobial product sales in the UK are recorded as multi-species as the products are licensed for use in more than one species[64]. As such it is impossible to know which specific species have been treated. Yet it is urgent to have such data to estimate the average use of antibiotics per animal species and identify in which sectors sales

[63] *ECOANTIBIO, National action plan for the reduction of the risks of antibiotic resistance in veterinary medicine*, 2012.

[64] *Multi-species and sub-species antimicrobial usage in veterinary practice in UK - A quantitative assessment*, DEFRA, 2012.

increase. It will also provide information as to the classes of antibiotics used per species and help determine whether some antibiotics should not be allowed for certain species anymore.

Some EU countries have already started collecting sales data per species and we believe such practices should be extended to other countries[65]. To have reliable sales data which allows comparison by species and helps policy makers to develop new strategies it is important to have data by weight groups or production type. Indeed larger animals may require larger doses, as this is the case in human medicine, so sales data per species alone might not always reflect reality.

2.3.2 Consumption data

However sales data, even when collected per species, per weight group and production type, do not always reflect the true situation on the ground. If sales data indicate how many tons of antibiotics were sold, it does not provide any information on the real consumption of antibiotics by farm animals. In addition, overall sales data might show a steady decline only because more powerful antibiotics are used at lower doses, which inaccurately reflect the risk posed to both animal and human health. Consequently harmonised methodology to collect and compare consumption data should be developed urgently.

As such we welcome the announcement that the EMA is planning the collection of consumption data by species after the EC requested to develop a harmonised approach to the collection and reporting of data on the use of antimicrobial agents in animals from EU Member States. Collecting antibiotics consumption volumes in livestock farming is critical as it allows us to determine whether differences in antibiotic resistance amongst animal species can be related to differences in consumption patterns of antibiotics. It will help describe and quantify the consumption of antibiotics in full detail at animal species level to eventually determine which changes to make. The data will create transparency and help define benchmark indicators for veterinary consumption of antibiotics. In Denmark and the Netherlands, two EU countries who already collect consumption data, this information has been used to implement efficient policies to reduce the use of antibiotics.

Eventually if we support the EMA in developing a collective framework which will collect data by animal species and by daily dose we regret that crucial factors such as the treatment indication (i.e. curative, metaphylactic or prophylactic) and whether the treatment is used for the whole herd or for individual animals will not be included[66].

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[65] France requested in 2009 that MAHs provide an estimated distribution of the sales of antimicrobial agents by target species. It enables an estimation of the amounts of antimicrobial agents sold per species (limitations: weight group and production type information lacking).

[66] *ESVAC Reflection Paper on collecting data on consumption of antimicrobial agents*, EMA, 2013.

2.3.3 Consumption data at farm level

Some countries have even collected data at farm level. This allows comparison between farms with similar activities to help identify persistently high consumers. This is the reason invoked by the Danish government who implemented the yellow-card system in 2010. In this system pig farms are given a '*yellow card'* when they consume more than twice the average consumption. This highlights that greater efforts are still needed to limit the use of antibiotics at farm level[67]. It allows government officials to review the antibiotic use of individual farmers and to consequently issue warnings and require farm inspections as needed. At the same time farms who achieve good results could be used as a model for farms which rely too much on antibiotics.

Some other EU countries are in the process of implementing similar policies. For instance the German government recently set up a new central databank that will record antibiotic use on individual farms. It aimed to help authorities identify where antibiotics are used in excess and enable farmers to compare their level of antibiotic use with the national average. Indeed it is urgent that farmers report every single treatment administered to efficiently monitor the use of antibiotics.

Consumption data reflects the situation on the ground. Refining data at farm or vet level helps identify inadequate behaviours.

[67] *Consumption of Antimicrobials in Pigs, Veal Calves, and Broilers in The Netherlands: Quantitative Results of Nationwide Collection of Data in 2011, Marian E. H. Bos, Femke J. Taverne, Ingeborg M. van Geijlswijk, Johan W. Mouton, Dik J. Mevius, Dick J. J. Heederik, on behalf of the Netherlands Veterinary Medicines Authority (SDa), 2013.*

Conclusion

We believe that the adequate use of antibiotics at farm levels is of critical importance and will help combat antibiotic resistance, which is a major global public health concern and also a food safety issue. Under the banner of *'One Health'*, whereby **animal and human health are closely interconnected**, immediate action should be undertaken as **the threat is growing** and it might take several years to reverse the trend. Indeed positive effects could only be seen many years after antibiotic use has diminished while antibiotic resistance is happening right now in every region of the world and has the potential to affect anyone, of any age, in any country[68].

As antibiotic resistance knows no border, **EU cooperation in this area is of great value** and engaging in dialogue with Member States will help identify best practices and extend them to other countries. In view of the upcoming review of both Veterinary Medicines and Medicated Feed legislations it is critical to implement rules which will help to curb the use of antibiotics in food-producing animals and to effectively fight antibiotic resistance.

We also call on the Commission to publish a progress report on the implementation of the 5 year action plan on antimicrobial resistance indicating areas where legislative changes are required.

To sum up BEUC urges the EU to effectively safeguard the efficiency of antibiotics by:

- **Restricting the use of antibiotics to therapeutic use**, better regulate and report on metaphylaxis use and phase out prophylaxis.

- **Making individual treatment the norm and herd treatment the exception** while restricting the use of oral treatments. The option of banning the use of antibiotics in medicated feed should be thoroughly examined.

- Reducing the need for antibiotics by **improving animal health** through biosecurity measures, disease prevention programs and good management practices.

- **Decoupling veterinarians' right to both prescribe and sell antibiotics** to eliminate all economic incentives.

- **Restricting the use of critically important antibiotics** such as modern cephalosporins, fluoroquinolones and macrolides. Those antibiotics should be restricted for species where a high risk of resistance transmission has been identified, as well as for therapeutic group treatment and eventually for metaphylaxis. When other treatment options are available we believe their use should be phased out. Carbapanems should also continue to be banned

[68] *Antimicrobial resistance : global report on surveillance 2014*, WHO, 2014.

in veterinary medicine while tough controls are necessary to ensure the drug is not used for livestock production.

- **Implementing strict restrictions on '*off-label use*'**, and in particular the cascade. At the same time **concrete and ambitious reduction targets should be set** to achieve a significant reduction in the use of antibiotics.

- **Testing meat products** to assess the presence of antibiotic resistant bacteria in food products. This should not only be done by consumer organisations but also by EU policy makers.

- Relying on **sound data** to monitor the progress made and assess whether the EU is on the right tracks. Consumption data by species should be collected by all Member States. **Collecting data on the use of antibiotics at farm level** proved to be an efficient way to compare practices and to align with the best performers.

END

Annex to the position paper

Poultry

ESBL forming bacteria

Member	Publication date	Meat	Number of samples	Contamination
Altroconsumo, DECO, OCU, Test-Achats (Italy, Portugal, Spain, Belgium)	October 2013	Chicken	250	**82%** (Italy) **74%** (Portugal) **73%** (Belgium) **72%** (Spain)
Consumentenbond (Netherlands)	February 2012	Chicken	240	**98%**
FRC (Switzerland)	October 2013	Poultry (chicken and turkey)	40	**42.5%**
Rad & Ron (Sweden)	October 2013	Chicken	78	**50%**
Stiftung Warentest (Germany)	October 2013	Chicken	20	**44%**
UFC Que-Choisir (France)	March 2014	Chicken	100	**16%**

MRSA

Member	Publication date	Meat	Number of samples	Contamination
FRC (Switzerland)	October 2013	Poultry (*chicken and turkey*)	40	**12.5%**
Stiftung Warentest (Germany)	October 2013	Chicken	20	**20%**

Resistant Campylobacter

Member	Publication date	Meat	Number of samples	Contamination
FRC (Switzerland)	October 2013	Poultry (*chicken and turkey*)	40	**22%**

Total antibiotic resistant bacteria				
Member	**Publication date**	**Meat**	**Number of samples**	**Contamination**
Altroconsumo, DECO, OCU, Test-Achats (Italy, Portugal, Spain, Belgium)	October 2013	Chicken	250	**82%** (Italy) **74%** (Portugal) **73%** (Belgium) **72%** (Spain)
Consumentenbond (Netherlands)	February 2012	Chicken	240	**98%**
Rad & Ron (Sweden)	October 2013	Chicken	78	**50%**
FRC (Switzerland)	October 2013	Poultry (*chicken and turkey*)	40	**47.5%**
Stiftung Warentest (Germany)	October 2013	Chicken	20	**80%**
UFC Que-Choisir (France)	March 2014	Chicken	100	**16%**

Beef/Veal

ESBL forming bacteria				
Member	**Publication date**	**Meat**	**Number of samples**	**Contamination**
Consumentenbond (Netherlands)	April 2013	Beef/veal	210	**40%** (veal) **13%** (beef)
	October 2013	Raw minced beef	60	**1.6%**

Total antibiotic resistant bacteria				
Member	**Publication date**	**Meat**	**Number of samples**	**Contamination**
Consumentenbond (Netherlands)	April 2013	Beef/veal	210	**40%** (veal) **13%** (beef)
	October 2013	Raw minced beef	60	**1.6%**

END