Project: Technical assistance to improve implementation of food safety standards and disease crisis preparedness

Training course: Antimicrobial Resistance and Prudent use of VMP

Lecturer: Blagojcho Tabakovski

Date: ……

Place: Nicosia, Cyprus

Project funded by the European Union Aid Programme for the Turkish Cypriot community, implemented by NSF Euro Consultants Consortium

CONTENT

- What is AMR
- Definition
- EU initiative
- Legislation
- Monitoring
- Prudent use of antimicrobials

AMR

- Antimicrobial Resistance (AMR): is the ability of microorganisms, such as bacteria, to become increasingly resistant to an antimicrobial to which they were previously susceptible. AMR is a consequence of natural selection and genetic mutation. Such mutation is then passed on conferring resistance. This natural selection process is exacerbated by human factors such as **inappropriate use of antimicrobials** in human and veterinary medicine, **poor hygiene conditions and practices** in healthcare settings or in the food chain facilitating the transmission of resistant microorganisms. Over time, this makes antimicrobials less effective and ultimately useless.
- 33,000 deaths per year in EU
- 1.5 billion per year in health care and productivity losses
- Excellent example of One health
- Action plan against AMR

Definitions

- **Antimicrobials:** include antibiotics, antivirals, antifungals and antiprotozoals. They are active substances of synthetic or natural origin which kill or inhibit the growth of microorganisms. Used in every-day medicine (e.g. urinary tract infections, surgery and care of premature babies), they are vital to preventing and treating infections in humans and animals.
- **One Health:** is a term used to describe a principle which recognises that human and animal health are interconnected, that diseases are transmitted from humans to animals and vice versa and must therefore be tackled in both. The One Health approach also encompasses the environment, another link between humans and animals and likewise a potential source of new resistant microorganisms. This term is globally recognised, having been widely used in the EU and in the 2016 United Nations Political Declaration on AMR.

EU initiatives

- EU One Health Action Plan against AMR
- A Pharmaceutical strategy for Europe
- EU4Health 2021-2027 – a vision for a healthier European Union
- Farm to Fork strategy (European Green Deal)

Action plan against AMR

- The key objectives of this plan are built on 3 main pillars:
  - Making the EU a best practice region
  - Boosting research, development and innovation
  - Shaping the global agenda
- Guidelines for the prudent use of antimicrobials in human health
- Guidelines for the prudent use of antimicrobials in veterinary medicine

Pharmaceutical strategy for Europe

- The strategy will address several AMR challenges including the lack of investment in antimicrobials and inappropriate use of antibiotics, and it is based on 4 pillars:
  - ensuring access to affordable medicines for patients, (in the areas of antimicrobial resistance and rare diseases, for example)
  - supporting competitiveness, innovation and sustainability of the EU's pharmaceutical industry and the development of high quality, safe, effective and greener medicines
  - enhancing crisis preparedness and response mechanisms,
  - ensuring a strong EU voice in the world, by promoting a high level of quality, efficacy and safety standards

EU4Health programme

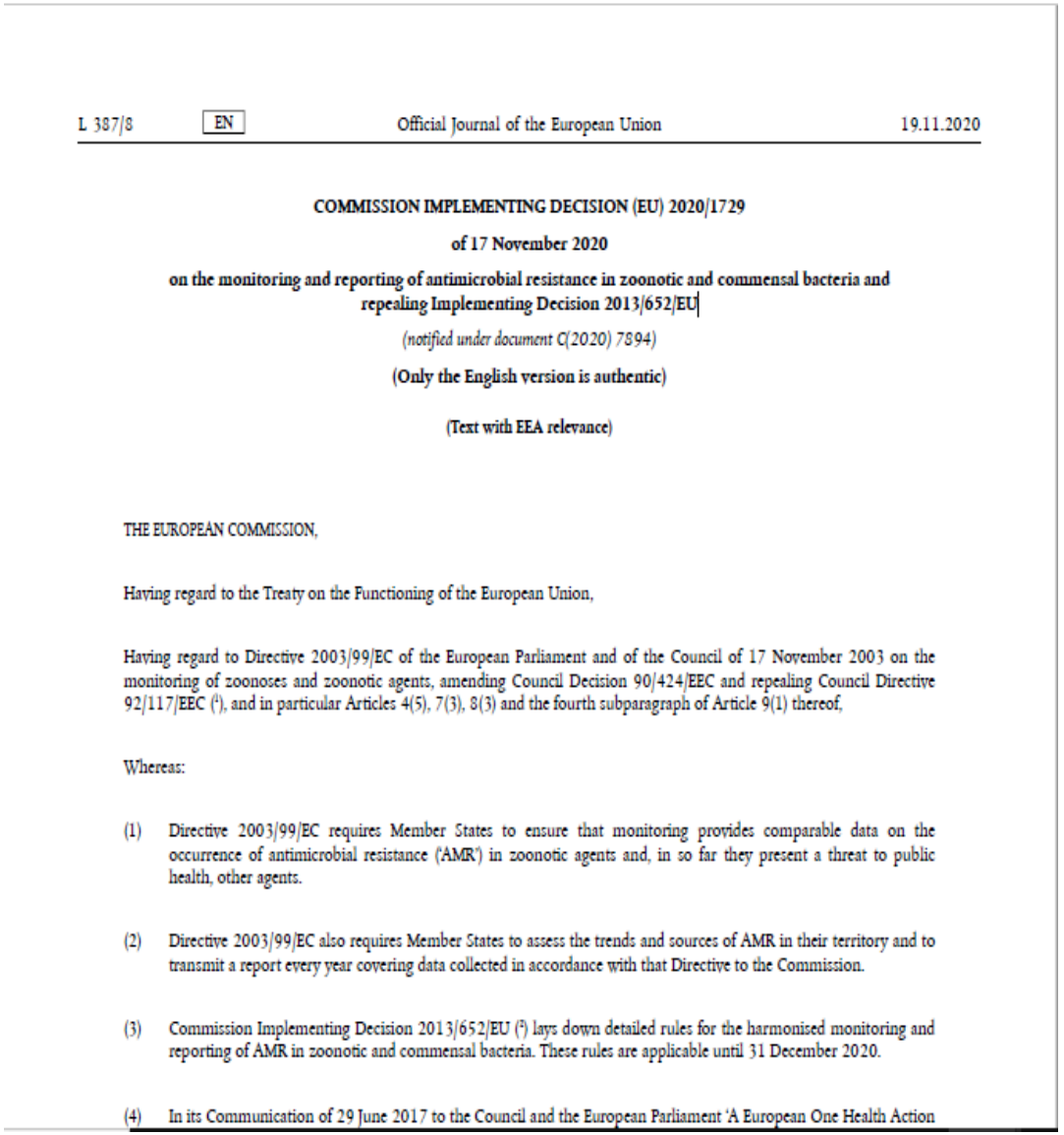
- EU4Health is an ambitious and dedicated funding programme for 2021-2027 that will ensure a high level of human health protection and pave the way to the Health Union. Its activities are in keeping with the One Health approach bringing together human and animal health and the environment.
- €5.3 billion
- Improve and foster health in the Union
- Protect people in the Union from serious cross-border threats to health
- Make medicines available and affordable
- Strengthen health systems, their resilience and resource efficiency

Farm to Fork Strategy

- The aim of the strategy is:
  - Sustainable food production
  - Sustainable food processing and distribution
  - Sustainable food consumption
  - Food loss and waste prevention
- The Commission will therefore take action to reduce overall EU sales of antimicrobials for farmed animals and in aquaculture by 50% by 2030. The new Regulations on veterinary medicinal products and medicated feed provide for a wide range of measures to help achieve this objective and promote one health.

Legislation for surveillance

- COMMISSION IMPLEMENTING DECISION (EU) 2020/1729 of 17 November 2020 on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria and repealing Implementing Decision 2013/652/EU



L 387/8 EN Official Journal of the European Union 19.11.2020

COMMISSION IMPLEMENTING DECISION (EU) 2020/1729

of 17 November 2020

on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria and repealing Implementing Decision 2013/652/EU

(notified under document C(2020) 7894)

(Only the English version is authentic)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2003/99/EC of the European Parliament and of the Council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents, amending Council Decision 90/424/EEC and repealing Council Directive 92/117/EEC (1), and in particular Articles 4(5), 7(3), 8(3) and the fourth subparagraph of Article 9(1) thereof,

Whereas:

(1) Directive 2003/99/EC requires Member States to ensure that monitoring provides comparable data on the occurrence of antimicrobial resistance ('AMR') in zoonotic agents and, in so far they present a threat to public health, other agents.

(2) Directive 2003/99/EC also requires Member States to assess the trends and sources of AMR in their territory and to transmit a report every year covering data collected in accordance with that Directive to the Commission.

(3) Commission Implementing Decision 2013/652/EU (2) lays down detailed rules for the harmonised monitoring and reporting of AMR in zoonotic and commensal bacteria. These rules are applicable until 31 December 2020.

(4) In its Communication of 29 June 2017 to the Council and the European Parliament 'A European One Health Action

Article 1 - Subject matter and scope

- This Decision lays down harmonised rules for the period **2021-2027** for the monitoring and reporting of antimicrobial resistance ('AMR') to be carried out by Member States in accordance with Article 7(3) and 9(1) of **Directive 2003/99/EC** and Annex II (B) and Annex IV thereto.
- The monitoring and reporting of AMR shall cover the following bacteria:
  - (a) Salmonella spp.;
  - (b) Campylobacter coli (C. coli);
  - (c) Campylobacter jejuni (C. jejuni);
  - (d) Indicator commensal Escherichia coli (E. coli);
  - (e) Salmonella spp. and E. coli producing the following enzymes:
    - (i) Extended Spectrum β-Lactamases (ESBL);
    - (ii) AmpC β-Lactamases (AmpC);
    - (iii) Carbapenemases (CP).
- The monitoring and reporting of AMR may cover indicator commensal Enterococcus faecalis (E. faecalis) and Enterococcus faecium (E. faecium).

Article 1 - Subject matter and scope

- The monitoring and reporting of AMR shall cover the following food-producing animal populations and food:
  - (a) broilers;
  - (b) laying hens;
  - (c) fattening turkeys;
  - (d) bovine animals under one year of age;
  - (e) fattening pigs;
  - (f) fresh meat from broilers;
  - (g) fresh meat from turkeys;
  - (h) fresh meat from pigs;
  - (i) fresh meat from bovine animals.
- Member States shall monitor and report AMR in specific combinations of bacteria/antimicrobial substances/food-producing animal populations and fresh meat derived thereof in accordance with Articles 3 and 4.

Annex to Decision (EU) 2020/1729

- Part A
  - Sampling frame work and analysis
  - Sampling frequency
  - Sampling design and sample size
  - Antimicrobial testing

- Part B
  - Reporting

Other legislation

- Basic legislation **Directive 2003/99/EC** of the European Parliament and of the council of 17 November 2003 on the monitoring of zoonoses and zoonotic agents, amending Council Decision 90/424/EEC and repealing Council Directive 92/117/EEC
- **Regulation (EU) 2019/6** of the European Parliament and of the Council of 11 December 2018 on veterinary medicinal products and repealing Directive 2001/82/EC
- **Regulation (EU) 2019/4** of the European Parliament and of the council of 11 December 2018 on the manufacture, placing on the market and use of medicated feed, amending Regulation (EC) No 183/2005 of the European Parliament and of the Council and repealing Council Directive 90/167/EEC

Prudent use of antimicrobials

- Prudent use of antimicrobials should lead to more **rational and targeted use**, thereby maximising the therapeutic effect and minimising the development of AMR. Taking into account cross- and co-resistance, which mean that any exposure to antimicrobials increases the occurrence of AMR, the final outcome of prudent use should be an **overall reduction in the use of antimicrobials**, predominantly by limiting their use only to situations where they are necessary. In these situations antimicrobials should be used as targeted treatment and according to best practices, i.e. **based on clinical diagnosis** and, whenever possible, on the results of **microbiological susceptibility tests**, and using an antimicrobial agent of as **narrow-spectrum as possible**.
- Prudent use <u>in short:</u>

how to?	at the same time …	synonyms
use of antimicrobials to benefits the patient	**minimises the probability of adverse effects**	**judicious, rational, adequate, correct and optimal**

Principles for prudent use - 1

- The **prescription** and dispensation of antimicrobials must be **justified by a veterinary diagnosis** in accordance with the current status of scientific knowledge.
- Where it is necessary to **prescribe** an antimicrobial, the prescription should be based on a diagnosis made **following clinical examination** of the animal by the prescribing veterinarian. Where possible, **antimicrobial susceptibility testing** should be carried out to determine the choice of antimicrobial.
- **Antimicrobial metaphylaxis** should be prescribed only when there is a **real need for treatment**. In such cases, the veterinarian should justify and document the treatment on the basis of clinical findings on the development of a disease in a herd or flock. Antimicrobial metaphylaxis should **never be used in place of good management practices.**
- **Routine prophylaxis must be avoided**. Prophylaxis should be reserved for exceptional case-specific indications.

Principles for prudent use - 2

- Administering medication to an **entire herd or flock should be avoided** whenever possible. **Sick animals should be isolated** and treated individually (e.g. by administrating injectables).
- **All information** relating to the animals, the cause and the nature of the infection and the range of available antimicrobial products must be taken into account when making a decision regarding antimicrobial treatment.
- A **narrow-spectrum antimicrobial** should always be the first choice unless prior susceptibility testing - where appropriate supported by relevant epidemiological data - shows that this would be ineffective. The **use of broad-spectrum antimicrobials** and antimicrobial combinations should be avoided (with the **exception** of fixed combinations contained in **authorised veterinary** medicinal products).

Principles for prudent use - 3

- If an animal or group of animals suffer from recurrent infection(s) requiring antimicrobial treatment, efforts should be made to eradicate the strains of the microorganisms by **determining why the disease is recurring**, and altering the production conditions, animal husbandry and/or management.
- Use of antimicrobial agents prone to propagate transmissible resistance should be minimised.
- A number of compounds on the World Health Organisation's **list** of **critically important** antimicrobials are only authorised in medicinal products for human use. As laid down in EU legislation, those that do **not have marketing authorisations** as veterinary medicinal products for use in **food-producing** animals may only be used **off-label** (following the cascade) in these animals if the substance in question is listed in Table 1 of the Annex to Commission Regulation (EU) No 37/2010.

Principles for prudent use - 4

- The **off-label use** (cascade) of the compounds referred to above for **non-food-producing animals** (e.g. pets and animals used for sports) should be avoided and strictly limited to very exceptional cases, e.g. where there are ethical reasons for doing so, and only when laboratory antimicrobial susceptibility tests have confirmed that no other antimicrobial would be effective.
- Antimicrobial treatment must be administered to animals **according to the instructions** given in the veterinarian's prescription.
- The need for antimicrobial therapy should be **reassessed** on a regular basis to avoid unnecessary medication.
- The **perioperative use** of antimicrobials should be minimised by using aseptic techniques.

Principles for prudent use - 5

- When possible, **alternative strategies** for controlling disease that have been proven to be equally efficient and safe (e.g. vaccines) should be preferred over antimicrobial treatment.
- The **pharmacovigilance system** should be used to obtain information and feedback on therapeutic failures, so as to identify potential resistance issues in the case of use of existing, new or alternative treatment options.
- A **network of laboratories** with the capacity for performing antimicrobial susceptibility tests in zoonotic and commensal microorganisms and target pathogens should be established in each Member State to ensure the availability of susceptibility testing.

Critically important antimicrobials

- These antimicrobials should only be used in situations where a veterinarian has assessed, on the basis of antimicrobial susceptibility testing and relevant epidemiological data, that there is no non-critically important effective antimicrobial available.
- In exceptional cases where the use of these antimicrobials under off-label use (cascade) is unavoidable and legally permissible, prescription and final use should be sufficiently justified and recorded. Such use should be based on clinical grounds, i.e. the prescribing veterinarian considers the use of a particular critically important antimicrobial necessary in order to avoid the suffering of diseased animals, and should also take into consideration ethical and public health concerns.

Oral administration via feed and drinking water - 1

- Whenever possible, individual treatment of the affected animal(s) (e.g. injectable treatments) should be preferred to group or mass treatment
- When using group treatment, the following points should be taken into account:
  - Medicated feed contains a premix of veterinary medicines and requires, according **to EU legislation**, veterinary prescription.
  - Oral antimicrobial treatment given via medicated feed or drinking water must only be administered where **prescribed by a veterinarian**.
  - Antimicrobials should only be administered to groups of animals via feed or drinking water where there is evidence of microbial disease or infection; such treatment should **not be given as a prophylactic** treatment. The administration of antimicrobials via feed or water should be **limited to the animals requiring treatment**, and the drug delivery systems should be appropriate for the intended treatment.

Oral administration via feed and drinking water - 2

- The quantities of antimicrobials administered in feed or water should be monitored and **documented** on a continuous basis, especially in intensive food production systems.
- The **instruction** given in the product information (SPC, leaflet, labelling) and by the veterinarian must be complied with, both in terms of **dosage and duration** of treatment.
- Where an antimicrobial is administered through **feed**, it is important to ensure the **homogeneity** of distribution of the drug, in order that each animal obtains the required therapeutic dose for treating the disease in accordance with the veterinary prescription.
- **Off-label** (cascade) use should be limited to the necessary minimum and to **exceptional occasions** where no other authorised treatment options are available.
- Adequate, **clean storage facilities** should be available on the farm to ensure proper storage of the medicated feed. Access to these facilities should be restricted.

CONTACT

Project e-mail: foodsafetyprojectTCc@gmail.com

THANK YOU FOR YOUR ATTENTION

Project funded by the European Union Aid Programme for the Turkish Cypriot community, implemented by NSF Euro Consultants Consortium