Network on Zoonoses Monitoring Data - Antimicrobial Resistance data reporting

Minutes of the 9th meeting

Held on 6-7 November 2019, Parma

(Agreed on 23 October 2020)

Participants

- **Network Representatives of Member States (including EFTA Countries):**

Country	Name
Austria	Peter Much
Belgium	Koenraad Van Hoorde
Bulgaria	Hristo Daskalov
Croatia	Gordan Kompes
Cyprus	Despina Theodoridou
Czechia	Tomas Cerny
Denmark	Helle Bisgaard Korsgaard
Estonia	Jelena Sõgel
Finland	Suvi Nykasenoja
France	Sophie Granier
Germany	Bern Alois Tenhagen
Greece	Maria Alexandraki
Hungary	Zita Záborczki
Ireland	Rosemary Slowey
Italy	Antonio Battisti, Alessia Franco
Latvia	Tatjana Ribakova
Lithuania	Asta Pereckiene
Luxembourg	Apologies
Malta	Chris Inguanez
Netherlands	Johan Bongers
Poland	Dariusz Wasyl
Portugal	Andre Cara D'Anjo
Romania	Theodora Chesiou Vasile
Slovakia	Andrea Moizisova
Slovenia	Majda Golob
Spain	Fernando Adam Fresno, Pilar Vicente Escriche

Sweden	Oskar Nilsson
United Kingdom	Chris Teale
Iceland	Vigdis Tryggvadottir
Norway	Jannice Schau Slettemeås
Switzerland	Gudrun Overesch

- **Hearing Experts**

Valeria Bortolaia, EURL-AR, point 4.2

Heather Tate, NARMS, point 6.4

- **European Commission:**

Pamina Suzuki, DG SANTE, Unit G4

- **EFSA:**

Biological Hazards and Contaminants (BIOCONTAM) Unit: Pierre-Alexandre Belœil (Chair), Frank Boelaert (agenda point 4.5), Valentina Rizzi (agenda point 4.7), Teresa Felício (agenda point 4.8), Beatriz Guerra (agenda point 6.7), Krisztina Nagy (agenda point 6.1), Francesca Baldinelli (agenda point 6.7)

Evidence Management (DATA) Unit: Anca-Violeta Stoicescu (agenda points 4.3 and 6.1), Luca Pasinato (agenda point 4.4)

- **Other country representatives:**

Apologies (Albania), Apologies (Bosnia and Herzegovina), Martin Josheki (Former Yugoslav Republic of Macedonia), Apologies (Kosovo), Dragana Gerbic Sekuloivc (Montenegro), Tatjana Labus (Serbia), Guzin Sahin (Turkey).

1. Welcome and apologies for absence

The Chair welcomed the participants.

2. Adoption of agenda

The agenda was adopted without changes. No further items were added.

3. Agreement of the minutes of the 8th Network on Zoonoses Monitoring Data – Antimicrobial Resistance Data Reporting held on 7-8 November 2018, Parma

The minutes were agreed by written procedure on 27 November 2018 and published on the EFSA website on 28 November 2018.

4. Topics for discussion

6 November 2019

4.1. General introduction

Pierre-Alexandre Belœil gave a general introduction to the meeting, notably underlining the importance and relevance of the antimicrobial resistance (AMR) monitoring activities at the European Union (EU) level. The main objectives of the 9th specific meeting on AMR data reporting of the Scientific Network for Zoonoses Monitoring were presented and discussed with the Network members. They notably related to the 2018 data reporting and the up-coming activities related to AMR monitoring in the EU in 2020, in particular regarding the 2019 data collection

and the review of the EFSA technical specifications for harmonized monitoring of AMR.

4.2. EURL-AR activities: present and future (Valeria Bortolaia – EURL-AR)

Valeria Bortolaia from the EURL-AR presented highlights on the main activities performed by the EURL-AR in 2019 and on the planned activities in support of the upcoming Commission Implementing Decision replacing Decision 2013/652/EU (see appendix 1 for further details).

4.3. Reporting of 2018 AMR data

Anca Stoicescu presented the feedback received from reporting countries in relation to the 2018 data reporting. Specific achievements of 2018 data reporting were shared with the participants. Based on the analysis of answers and suggestions from a survey of Network Representatives, the solutions/improvements proposed for the next reporting period were presented. It was agreed that it would be helpful that the deadlines for AMR data validation are the same as those for the zoonoses-FBO data collections.

4.4. Use of Microstrategy for AMR data reporting

Luca Pasinato presented the EFSA MicroStrategy AMR Advanced Environment. For the first time, this year, the EUSR tables were produced in MicroStrategy in order to improve timeliness and increase the transparency of data analysis. All zoonoses and AMR data are stored in EFSA Scientific Data Warehouse to allow for timely extractions and analyses, increased transparency and advanced analysis capabilities.

4.5. Fitness check of EU SRs on zoonoses-FBO and on AMR: customer feedback

Frank Boelaert presented the results of a customer satisfaction survey that aimed to evaluate the fit-for purpose of the annual EUSRs on zoonoses and food-borne outbreaks and on AMR. This report, delivered by an EFSA contractor, was recently published. An online survey and semi-structured interviews during April and May 2019 were carried out and respondents came from 34 different EU and affiliated countries and were associated with EFSA's Zoonoses Monitoring Data Network, EFSA’s Advisory Forum, EFSA Panels, ECDC, DG SANTE and EU Reference Laboratories (EURLs) for food-borne pathogens. In total 108 complete responses were received, and 23 stakeholders took part in the interviews.

Stakeholders were generally positive about all aspects of the EUSRs, which were considered to provide an adequate assessment of sources and trends of zoonotic agents and AMR by most respondents and to satisfy the needs of stakeholders. The EUSRs are considered to be an essential and unique source for the collation of national data. Stakeholders were highly positive about the extent to which the EUSRs adhere to the Founding Regulation. In general, there was agreement among stakeholders that the EUSRs align with the One Health report approach and that they demonstrate alignment between ECDC and EFSA’s joint objectives. Overall, the size and format of the EUSRs are considered to be appropriate and necessary to provide a comprehensive analysis. Requirements of the report vary depending on the type of stakeholders. Risk assessors and managers tend to be satisfied with the level of detail related to emerging trends and performance of each Member States, while stakeholders within a communication or dissemination

role indicated that the reports can be overly detailed for their purposes. DG SANTE, hold similar views to the wider stakeholder group.

Recommendations were; continue work on harmonising data collection between Member States to achieve desired level of analysis; improve integration of EFSA and ECDC data and conduct higher level strategic discussions to foster a One Health approach; ensure the EUSRs clearly signpost relevant content or sections for specific audiences (e.g. risk assessors and risk communicators); increase use of plain language and summary of findings to improve accessibility (particularly among risk communicators); focus on interpretive analysis and background information (e.g. communication of data limitations and analytical methods) to ensure data is being interpreted and used correctly by decision makers; and consider requests for additional content such as emerging risks, alignment of findings with Scientific Opinions and benchmarking analysis for risk assessors and managers.

4.6. The 2018 EU Summary Report on AMR

The preliminary main findings were briefly presented on AMR in *Salmonella*, indicator *Escherichia coli*, *Campylobacter jejuni* and Methicillin Resistant Staphylococcus aureus (MRSA) in food and food-producing animals from the draft 2018 EUSR on AMR. The 2018 EUSR on AMR is the fourth EUSR based on AMR data collected and reported in accordance with the requirements of Commission Decision 2013/652/EU. The 2018 EUSR on AMR focuses on AMR in poultry. Analyses of AMR occurrence are performed per combinations of bacteria-animal populations/food categories. The occurrence of multi-drug resistance (MDR), combined resistance to critically important antimicrobials and rates of complete susceptibility are also analysed.

For *Salmonella*, preliminary results on the occurrence of resistance, geographical distribution of ciprofloxacin-R and cefotaxime-R, data on combined resistance to these antimicrobials, and information on the main resistant serotypes were presented. Preliminary results on the prevalence of AMR and MDR in *E. coli* and *C. jejuni* were presented and discussed. Some key findings on the occurrence of ESBL-/AmpC-/carbapenemase-producing *E. coli/Salmonella* deriving from the routine monitoring and the occurrence/prevalence of ESBL-/AmpC-/carbapenemase-producing *E. coli* from pigs and calves and from pig meat and bovine meat collected within the specific monitoring. Results regarding the presumptive carbapenemase-producing microorganisms specific monitoring were also described.

The 2018 EUSR on AMR is planned to be produced according to a new 'overview' format. A proof of concept report based on 2015-2016 data was circulated for consultation earlier in 2019 and the comments from the Network received were positive. The 'overview' format corresponds to a more synthetic report, covering all food-producing animals and derived meat monitored, based on the most up-to-date data available, and focusing on the main findings at the EU level, while addressing key outcome indicators, temporal trends and variability among the MSs through graphs and maps. The report also comprises scientific discussions, information on emerging risks and interpretative analysis. The expected added values are improved situational awareness and enhanced comparability between situations in animals/food and humans as well as, ultimately, better integration with data on use of antimicrobials. The EFSA Network commented positively on the new 'overview' format during the meeting.

4.7. Technical support to collect and analyse whole genome sequencing (WGS) data in the joint ECDC-EFSA molecular typing database

Valentina Rizzi presented the current status of the joint ECDC/EFSA Molecular Typing Database. Updates on the joint activities of EFSA and ECDC for the collection of WGS data and on scenarios for the new joint database were given.

4.8. Opinion on the application and use of Next Generation Sequencing (including Whole Genome Sequencing) for risk assessment of foodborne microorganisms

Teresa Felício presented the scientific opinion on 'Whole Genome Sequencing and metagenomics for outbreak investigation, source attribution and risk assessment of foodborne microorganisms' which was adopted by the BIOHAZ Panel on 23 October 2019. The background for the genesis of this self-task mandate was explained as well as the interpretation of the specific ToRs of this mandate. Details on the approaches followed to answer both ToRs were provided and the most important conclusions for ToR 2 focusing on AMR-related aspects were presented as well as the recommendations included in this opinion. Network members were kindly asked to keep the slides of the presentation as confidential until the publication of this opinion, which is expected in the beginning of December.

4.9. Network representatives' role in EFSA's Scientific Networks

Julia Finger presented the role and structure of EFSA's Scientific Networks. The different responsibilities and tasks of the Advisory Forum, the Focal Points, and the Network Representatives were also presented. From 2020 the Focal Points will have new tasks in the area of Data Collection and closer collaboration will be needed between Network Representatives and Focal Points. Regarding the new tasks of the Focal Points, Julia Finger clarified that the role of the Focal Points is supportive and not supervisory.

7 November 2019

5. Welcome and apologies for absence

The Chair welcomed the participants to the second day of the 9th specific meeting on AMR data reporting of the Scientific Network for Zoonoses Monitoring Data.

6. Topics for discussion

6.1. The 2020 reporting period

Anca Stoicescu presented the changes to the 2019 data reporting. No changes are envisaged in the Data Collection Framework (DCF), data models and Excel mapping tool. Improvements will be inserted in the reporting manuals, business rules, catalogues and the MicroStrategy reports. More examples will be added in the reporting manuals. Reporting manuals will be sent for consultation on 10 January 2020 and published on 31 January 2020. The milestones of the 2019 data reporting were agreed as follows:

- Requests for proposals for new terms to be added in the catalogues: 15 November 2019;
- Publication of the supporting manuals: 31 January 2020;
- Opening of the reporting period: 1 April 2020;

- Closure of the reporting period: 31 May 2020; any change in data during the data correction periods will be reflected automatically the day following a dataset submission in the EUSR tables;
- EU summary tables will be displayed in MicroStrategy; any change in data during the data correction periods will be reflected automatically in the EUSR tables the day following a dataset submission;
- First validation period: 1 – 13 June 2020;
- Letters requesting scientific clarifications and/or amendments (if needed) sent to the MSs: 14 June 2020;
- First data correction by MSs: 14 June – 5 July 2020;
- Final validation period: 6 – 15 July 2020;
- Final data correction: 15 – 25 July 2020;
- 26 July 2020: EFSA validates the final submitted and corrected data (against a number of criteria). After 26 July 2020, data cannot be changed, as data extracted on this date will be used to draft the 2018 EUSR. Erroneous data (e.g. combination of matrix/pathogen) will not be included in the analysis;
- Amendments to 2019 data and of historical data can be carried out between 1 and 30 November 2020. These data will be used in the National reports and in the scientific data warehouse (DWH) but will not be included in the analysis of 2019 EUSR.

The Network agreed to the timelines proposed but requested EFSA to adhere strictly to these timelines to enable MSs to plan their work at national level. Reporting officers were requested to clearly communicate to the national experts the deadlines for 2019 data reporting and validation.

6.2. Update from the European Commission (Pamina Suzuki)

The European Commission representative provided an update on the implementation of the EU Action plan against AMR. In particular, the plan and timelines on the review of the draft legislation on harmonised monitoring of AMR in food-producing animals and food was presented to the Network.

6.3. EFSA Technical Specifications on harmonised monitoring of antimicrobial resistance in zoonotic and indicator bacteria from food-producing animals and food (P.-A. Belœil)

The proposals to update the harmonised monitoring and reporting of antimicrobial resistance (AMR) from a public health perspective in *Salmonella*, *Campylobacter coli, Campylobacter jejuni, Escherichia coli, Enterococcus faecalis, Enterococcus faecium* and methicillin-resistant *Staphylococcus aureus* (MRSA) from food-producing animals and derived meat in the EU were presented. They accounted for recent trends in AMR, data collection needs and new scientific developments. Phenotypic monitoring of AMR in bacterial isolates, using microdilution methods for testing susceptibility and interpreting resistance using epidemiological cut-off values was reinforced, including further characterisation of those isolates of *E. coli* and *Salmonella* showing resistance to extended-spectrum cephalosporins and carbapenems, as well as the specific monitoring of ESBL/AmpC/carbapenemase-producing *E. coli*. Combinations of bacterial species, food-producing animals and meat, as well as antimicrobial panels have been reviewed and adapted, where deemed necessary. It was suggested to complement routine monitoring with

specific cross-sectional surveys on MRSA in pigs and on AMR in bacteria from seafood and the environment. Whole genome sequencing (WGS) of isolates obtained from the specific monitoring of ESBL/AmpC/carbapenemase-producing *E. coli* was strongly advocated to be implemented, on a voluntary basis.

6.4. NARMS Update 2019: Towards One Health Surveillance of AMR

Heather Tate, from NARMS (USA) provided an update on the NARMS activities and, in particular, regarding the move towards the One Health surveillance. The surveillance is intended to include companion animals, other foods, and surface water and to make use of WGS. The presentation was very well received by the EFSA Network.

6.5. Genetic Diversity of *Salmonella Derby* from the Poultry Sector in Europe

Sophie Granier, the French delegate, gave a presentation on the genetic Diversity of *Salmonella Derby* from the Poultry Sector in Europe.

6.6. Antimicrobial resistance in Swiss *Salmonella* isolates

Gudrun Overesch, the Swiss delegate, gave a presentation on the antimicrobial resistance situation in Switzerland and, in particular, in *Salmonella*.

6.7. New Mandates related to AMR

Beatriz Guerra and Francesca Baldinelli presented the new AMR-related mandates:

Scientific opinion (self-tasking mandate) on the role played by the environment in the emergence and spread of antimicrobial resistance (AMR) through the food chain. Deadline 31 December. Having the food of animal and non-animal origin in the centre of the picture, EFSA was asked to: 1. Identify the main environmental sources and transmission routes leading to the food contamination with antimicrobial-resistant bacteria and/or resistance determinants. 2. Identify the bacteria and resistance mechanisms of highest priority for public health contaminating food, and the main risk factors influencing their occurrence and persistence in food-producing environments and food. 3. Review the impact of existing or new possible strategies and options to mitigate the emergence and spread of the former bacteria and mechanisms. 4. Identify knowledge gaps and research needs.

Scientific Opinion to evaluate the specific maximum levels of cross-contamination for 24 antimicrobial active substances in non-target feed below which there would not be an effect on antimicrobial resistance, and the levels for which there would be growth promotion/increase yield. Deadline 30 September 2021. EFSA was asked by EC to: 1. Assess the specific concentrations of antimicrobials resulting from cross-contamination in non-target feed for food-producing animals, below which there would not be an effect on the emergence of and/or selection for resistance in microbial agents relevant for human and animal health. 2. Assess which levels of the antimicrobials have a growth promotion/increase yield effect.

Scientific opinion for the listing and categorisation of transmissible animal diseases caused by bacteria resistant to antimicrobials, in the framework of the Animal Health Law. The objectives were presented as follows: 1. To provide a global state of play as regards resistant bacterial animal pathogens that cause transmissible animal diseases. 2. To summarize the situation in the EU in terms of impact on animal health and identify the most relevant bacteria in the EU. 3. To assess the

bacteria that are relevant in the EU in the framework of the Animal Health Law (listing and categorisation)

6.8. Scientific Report on AMR: The JIACRA III project: an update

ECDC-EFSA-EMA investigated the association between use of antimicrobials (AMC) and occurrence of AMR in food-producing animals and humans. Joint reports were published in 2015 (JIACRA I) and 2017 (JIACRA II). JIACRA III exercise addressing the 2016, 2017 and 2018 data is on-going and should be finalised by June 2021.

7. Any Other Business

No AOB was raised.

8. Date for next meeting

The 10th Specific Meeting on AMR (November 2020) is planned to be organised in the first week of November 2020 shared with the participants.

9. Conclusions

The Chair summarised the main discussions and agreements reached during the meeting. It can be retained that the update from the European Commission recalled the importance of the fight against AMR and the reduction of the use of antimicrobials in food-producing animals. The revision of the legislation on the harmonised monitoring of AMR is on-going and will be finalised in 2020.

In 2019, in accordance with a mandate of the EC, the EFSA has reviewed the technical specifications underpinning the EU legislation on harmonised monitoring of AMR in the light of the constantly evolving epidemiological situation and feedback from practical implementation experience.

The meeting was also an opportunity to exchange about the preliminary outcomes of AMR monitoring in 2018. The preliminary draft report is planned to be sent for a 2-week consultation in December. Confirmatory testing results will be accounted for as deemed necessary. Regarding the 2020 reporting process, the intention is to align the deadlines for validations of AMR data and zoonoses data.

The 2019 customer satisfaction survey that aimed to evaluate the fit-for purpose of the annual EUSRs on zoonoses and food-borne outbreaks and on AMR showed that stakeholders were generally positive. EUSRs were notably considered to provide an adequate assessment of sources and trends of zoonotic agents and AMR by most respondents and to satisfy the needs of stakeholders.

10. Closure of the meeting

Appendix 1: Main EURL-AR activities

The main tasks of the EURL-AR were summarized as follows:

- To ensure harmonization of AMR detection methods, the EURL-AR maintains a website (www.eurl-ar.eu) with updated protocols and list of reference material available for the EURL-AR network. NRLs are encouraged to use the website and contact the EURL-AR for advice and comments.

Depending on the outcome of the discussions regarding the upcoming Commission Implementing Decision on harmonised monitoring of AMR in food-producing animals and food, the EURL-AR will work on protocols for Whole Genome Sequence (WGS)-based detection of AMR, isolation of enterococci from caecal samples/meat and selective isolation of vancomycin-resistant *Enterococcus faecium*/*E. faecalis* from meat.

- The EURL-AR follows tightly the updates in methods for detection of resistance phenotypes of public health relevance. The IMPART project, led by Kees Veldmann (NRL-AR of the Netherlands), includes work packages on: i) harmonized method for selective isolation and detection of colistin resistant Enterobacteriaceae (*mcr*-positive isolates), led by Sophie Granier (NRL-AR of France), and ii) harmonized method for selective isolation and detection of carbapenemase resistant Enterobacteriaceae (CPE), led by Jannice Schau Slettemeås (NRL-AR of Norway). Ring trials and many other activities have been performed within the IMPART project and we are looking forward to hearing about the outcome.

Furthermore, in October 2019, colleagues from the NRL-AR of Germany published a highly sensitive method for detection of VIM-producing *Escherichia coli* from pooled pig faecal samples and from the farm environment (https://doi.org/10.3389/fmicb.2019.02256). This method consists of a combination of molecular methods and enrichment steps.

- To ensure quality of AMR monitoring data, the EURL-AR performs External Quality Assurance Systems (EQAS) on a yearly basis. The available EQAS focus on antimicrobial susceptibility testing of *E. coli*, *Salmonella* spp., *Campylobacter jejuni*/*C. coli*, *S. aureus*, *E. faecium*/*E. faecalis*, and on isolation and antimicrobial susceptibility testing of ESBL/AmpC/carbapenemase-producing *E. coli*. In 2019 the EURL-AR in collaboration with the IT department at DTU developed new webtools for submission and evaluation of EQAS results. The implementation of a completely new system created some delays for the reporting of the data but eventually the webtool should guarantee an improved users' experience. NRLs-AR are encouraged to provide feedback on the webtool since changes can still be implemented.

The overall results from the EQAS 2018 were presented to highlight that the percentage of deviations from expected results is below 2% when considering all laboratories and all *E. coli*, *Salmonella* spp., *C. jejuni*/*C. coli*, *S. aureus*, *E. faecium*/*E. faecalis* strains. This is a very satisfactory result. It was also shown that several observed deviations were due to limitations of the broth microdilution method and not to methodological issues, thus providing further evidence of the good quality of antimicrobial susceptibility test data produced for the EQAS.

- Each year since 2016, the EURL-AR, in close collaboration with EFSA, performs a confirmatory testing on a subset of the isolates included in the European Union summary report on antimicrobial resistance in zoonotic and

indicator bacteria from humans, animals and food. In 2019, the EURL-AR received 359 of the 384 isolates from 31 countries selected by EFSA. MIC determination was performed on all isolates and results were compared with those that the MSs submitted to EFSA. Main highlights were: i) colistin and tigecycline results were of difficult interpretation: mainly one-step dilution difference between MS and EURL, and ECOFFs are under revision; ii) all reported carbapenem-resistant isolates could not be confirmed by EURL, and the carbapenem-resistant isolates were typically contaminated by non-E.coli strains; and iii) there are some problems with ESBL/AmpC classification when FOX is close to ECOFF.

Each MSs is going to be contacted by the EURL-AR soon after this meeting with possible recommendations for amendments of the results reported to EFSA. The EURL-AR also started to perform WGS on these isolates, and sequence data and results will be provided to each MS when available. It is important to remember that these isolates and the respective data are protected by MTAs which the EURL-AR set in place when asking the MSs for the isolates. The MSs are the owners of strains and data.

- At the end of September 2019, the EURL-AR organized a 3.5 day training course entitled "Enhancing WGS capacity for AMR surveillance in the EURL-AR Network". Forty participants attended the course which was a mix of theoretical lectures and practical exercises in the wet and dry laboratory. Overall the course received positive feedback.

- Within the scope of facilitating WGS-based detection of AMR, the EURL-AR is working on ResFinder 4.0, a freely available online tool for detection of genes and chromosomal mutations mediating AMR. ResFinder 4.0 is different from previous ResFinder versions both in the software and in the database, and one of its main features is to shield the user from the need of comprehensive knowledge of the genetic basis of AMR. Initial validation of ResFinder 4.0 showed that the genotype-phenotype concordance is higher than 96% for most antimicrobial/bacterial species combinations tested. Currently ResFinder 4.0 is in a beta-version (available upon request) and should soon be ready for release.

Appendix: List of Action Points

No	What	Action points	Deadline
1	Format of the 2018 EUSR on AMR	EFSA to prepare and draft the 2018 EUSR on AMR following the 'overview' format	By December 2020 (for the consultation) and by 28 February 2020
2	Updated list of data providers	Reporting Officers to provide the updated list of experts to have access in the DCF, in MicroStrategy	By 28 February 2020
3	The deadlines of 2019 data reporting and validation	EFSA to align the deadlines for reporting and validation of the 2019 data on AMR and zoonoses	By 30 November 2019
4	The deadlines of 2019 data reporting and validation	Reporting Officers to communicate to national experts the deadlines (in year 2020) for 2019 data reporting and validation	By 30 November 2019
5	Changes in the reporting manuals and in the catalogues	EFSA to update the documents and catalogues with the proposed changes and send them for consultation to the Reporting Officers	By 10 January 2020
6	Changes in the reporting manuals	Reporting officers to provide feedback on the proposed changes in the manuals	By 24 January 2020
7	Changes in the reporting manuals and in the catalogues	EFSA to publish the manuals and the catalogues	By 31 January 2020