



MINISTRY OF HEALTH OF THE REPUBLIC OF MOLDOVA  
NATIONAL AGENCY FOR PUBLIC HEALTH



# Republic of Moldova - experience on the mapping exercise results and outcomes

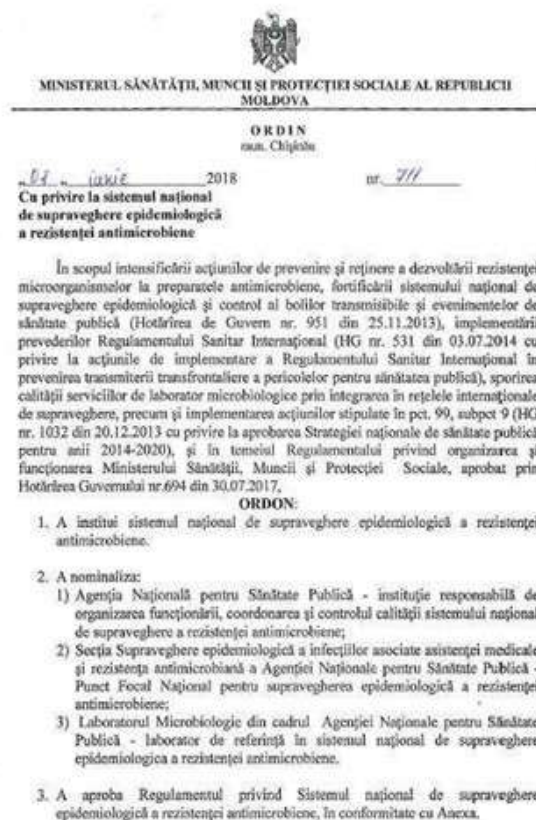


FWD AMR.  
RefLabCap

# Background (1)

The National Epidemiological Surveillance of AMR System was established in the R. of Moldova - 2018

- ✓ Order no. 711, of June 7, 2018 "On the National Epidemiological Surveillance of Antimicrobial Resistance System"
- ✓ The Regulation on the National Epidemiological Surveillance of Antimicrobial Resistance System which includes the structure and attributions of each part of the system



## Regulamentul privind Sistemul național de supraveghere epidemiologică a rezistenței antimicrobiene

RAM este o problemă globală de sănătate publică ce evoluează în țări din Regiunea Europeană ponderea agenților patogeni cu rezistență antimicrobiene depășește 50%, fiind atestată o tendință de creștere rapidă a și răspândire a fenomenului de rezistență. Rețeaua internațională de supraveghere a Biroului Regional pentru Europa al Organizației Europene de Microbiologie Clinică și Boli Infecțioase (engl. European Surveillance of Antimicrobial Resistance - CAESAR) și al Institutului de Mediu din Olanda.

Rețeaua standardizată, combaterea și prevenirea apariției și răspândirii bolilor din regiunea europeană a OMS. CAESAR reprezintă o extindere a rețelei de supraveghere a Rezistenței Antimicrobiene (engl. European Antimicrobial Resistance - EARS-Net) al Comisiei Europene, coordonate de către Centrul European de Prevenire și Control al Bolilor (engl. - European Centre for Disease Prevention and Control) și 8 țări membre ale Uniunii Europene, plus Norvegia, Islanda și țările din regiunea EARS-Net, și permite elaborarea rapoartelor standardizate, în baza

Sistemul național de supraveghere epidemiologică a rezistenței antimicrobiene (RAM) va permite alinierea la standardele internaționale de supraveghere CAESAR.

**a preparatelor antimicrobiene** – presupune activități privind darea în circulație a medicamentelor antimicrobiene, eliberare, distribuție și administrare a acestora pe bază de protocoale a prescrierii, vizând prevenirea apariției și rezistenței.

**antimicrobiene** – include antibioticele, medicamentele antivirale, antifungice și substanțe active de origine sintetică sau naturală care distrug sau care inhibă creșterea și reproducerea microorganismelor (de exemplu, infecții bacteriene și virale, și animale).

**capacitatea de supraveghere a rezistenței antimicrobiene (RAM)** – reprezintă capacitatea de a detecta și măsura rezistența la un preparat antimicrobial anterior receptiv. RAM este o consecință a selecției naturale și a

## Background (2)

The NES of AMR System in the Republic of Moldova is structured on 2 levels

- **Level I** – national, National Reference Microbiology Laboratory in AMR
- **Level II** - includes (24) the territorial microbiological laboratories of National Agency for Public Health (10) and Public Medical Institutions - Hospitals (10) and private laboratories (4).



# Communication with laboratory network within mapping exercise

## "Mapping of the local/regional laboratories capacities for the detection and characterization of *Salmonella* and *Campylobacter*"

- 18 labs that reported more consistent data to the National AMR Surveillance System have participated in the survey
- the survey was conducted online, using EU Survey platform,
- the participating labs completed the questionnaire translated into Romanian with the help of FWD AMR-RefLabCap Project team
- National Reference Laboratory communicate with network laboratories routinely via phone, emails and at trainings
- Annually, workshops on AMR issues are organized by NLR with the support of WHO Country Office (microbiologists, epidemiologists, clinicians, clinical pharmacologists, veterinarian specialists etc.)

The screenshot displays the EU Survey platform interface for the 'FWD AMR workshop mapping' survey. The top navigation bar includes 'FWD\_AMR\_R', 'Dashboard', 'Surveys', 'Exports', 'Address Book', 'Settings', and 'New Survey'. Below the navigation bar, there are tabs for 'Overview', 'Editor', 'Test', 'Results', 'Participants', 'Privileges', 'Translations', 'Properties', and 'Activity'. A checkbox option 'Save a backup on your local computer (disable if you are using a public/shared computer)' is visible. A 'Disclaimer' box states that the European Commission is not responsible for the content of questionnaires created using the EU Survey service. The main content area is titled 'Diagnostics of Salmonella and Campylobacter' and includes a section '1. Please complete the table on details of your laboratory' with a table for data entry. The table has columns for 'Name of the laboratory', 'Name and surname of the contact person', 'Email address of the contact person', and 'Address and institution of the laboratory'. Below the table, there is a 'Published survey link' section with a URL: [https://ec.europa.eu/eusurvey/runner/FWD\\_AMR\\_RefLabCap\\_Capacity\\_Survey\\_Moldova\\_2023](https://ec.europa.eu/eusurvey/runner/FWD_AMR_RefLabCap_Capacity_Survey_Moldova_2023). The 'Owner' is Livia Tapu. The 'Starts on' and 'Ends on' dates are 'Unset'. The 'Answers' count is 18. The 'Results' are 'Not published'. A 'Publish' button is present, and a warning message states: 'Your survey is highly complex. This can lead to system slowdown for your participants. Please reduce the complexity of your survey before publishing. Contact the Support Team if needed.' A 'Show pending changes' button is also visible.

# Membership of networks and national surveillance of *Salmonella* spp. and *Campylobacter* spp.

## Voluntary surveillance -

✓ Data reporting on *Salmonella* spp. within international AMR surveillance networks

➤ Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR) since 2018.

(*Salmonella* spp. isolated from blood, CSF)

➤ Global Antimicrobial Resistance Surveillance System (GLASS) since 2021.

(*Salmonella* spp. isolated from stool)

## Mandatory surveillance

✓ Data reporting on *Salmonella* spp. and *Campylobacter* spp. to National Agency for Public Health Laboratories



Central Asian and Eastern European Surveillance of Antimicrobial Resistance

ID	Accession Number	Report Date	Subject	Date of Onset	Date of Report
10402096	MSM0001200104020956	2023-02-22	ASBEST	2023-02-22	2023-02-22
10402096	MSM0001200104020957	2023-02-22	ASBEST	2023-02-22	2023-02-22
10402096	MSM0001200104020958	2023-02-22	ASBEST	2023-02-22	2023-02-22
10402096	MSM0001200104020959	2023-02-22	ASBEST	2023-02-22	2023-02-22
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10402096	MSM0001200104021000	2023-02-22	ASBEST	2023-02-22	2023-02-22



## **Weaknesses in the laboratory network identified during the mapping exercise (1)**

- 44% of participating labs do not carry out phenotypic and/or genotypic AMR testing of *Campylobacter* spp. bacterial isolates;
- Only Public Health laboratories have the capacity to perform detection, identification and antimicrobial susceptibility testing of *Campylobacter* spp. isolates;
- Only 11% laboratories are accredited to the SM SR EN ISO 15189:2014 clinical standard (MOLDAC), plus the NRL. The other laboratories are accredited by National Health Assessment and Accreditation Council;
- Insufficient financial resources for accreditation and re-accreditation to the SM SR EN ISO 15189:2014 clinical standard for all labs in the network;

## **Weaknesses in the laboratory network identified during the mapping exercise (2)**

- The laboratories did not participate in the EQA exercise for *Campylobacter* spp.;
- None of labs performs molecular tests for *Salmonella* and *Campylobacter*, because of insufficient financial resources for reagents acquisition.
- There is no connection between the Public Health laboratory information system and other laboratories from medical institutions.
- Data on AMR is reported by paper, no software is used for this purpose, only a few laboratories and the National Reference Laboratory collect the data and use e-IRF (CAESAR) and WHONET.

## Gaps in the laboratory network identified during the mapping exercise (1)

- Laboratories perform phenotypic or genotypic AMR testing of bacterial isolates in accordance with **national methodical indications**,
- The "EU protocol for harmonized monitoring of antimicrobial resistance in human *Salmonella* and *Campylobacter* isolates" is not officially implemented at the national level.
- Only Public Health Labs report *Campylobacter* spp. isolates to National Agency for Public Health, according existing legislation.
- Clinical microbiological labs have not implemented the methodology for diagnostic of infections caused by *Campylobacter* spp.
- The laboratories rate the staffing situation in relation to the workload resulting from the testing of *Salmonella* and *Campylobacter* as not fully adequate and the most affected areas are:
  - quality assurance;
  - diagnostic testing;
  - paperwork and accreditation procedures;
  - training and continuing education of staff.



# Gaps in the laboratory network identified during the mapping exercise (2)

- The AMR surveillance of pathogens is done according to the legislative framework  
(Order of Ministry of Health No. 711 / 2018).
  - All isolates of *Salmonella* spp. from blood, CSF and stool are reported,
  - *Campylobacter* spp. is not included in the list of reported pathogens.
- A digital system for reporting data on AMR isolates is not implemented.
- The NRL collects the data from the network labs on paper referral sheets, then reports it to CAESAR and GLASS using e-IRF and WHONET software.

# Strengths in the laboratory network identified during the mapping exercise (1)

- Network labs have recommendations, national guidelines and SOPs regarding the submitting of clinical samples. Guidance documents are developed and distributed by the National Reference Laboratory, printed and laid out with WHO support.
- All labs have implemented the EUCAST methodology (EUCAST disk diffusion method for antimicrobial susceptibility testing, Guidance documents and Expert rules and expected phenotypes, clinical breakpoints).
- The disc-diffusion method, MIC determination methods, including automated methods, according to EUCAST recommendations, are used to perform antimicrobial susceptibility tests.
- All labs use control materials from reliable sources, the NRL provides control materials/strains for detection/identification and antimicrobial susceptibility testing for *Salmonella* spp. and *Campylobacter* spp. in order to ensure the quality of investigations.
- All laboratories hold accreditation certificates (either CNEAS or MOLDAC – SM SR EN ISO 15189:2014).



# Strengths in the laboratory network identified during the mapping exercise (2)

- Laboratories from national network have the capacity to detect, identify and test antimicrobial susceptibility by classical and/or automated methods for *Salmonella* spp.
  - Laboratories from territorial PHC have the capacity to detect, identify and test antimicrobial susceptibility for strains of *Campylobacter* spp.
  - The NRL provides support on standardization of detection, identification, antimicrobial susceptibility testing methods for *Salmonella* spp., *Campylobacter* spp.:
- ✓ "**Microbiological diagnosis of intestinal infections**" for the detection of *Salmonella* spp.
  - ✓ "**Laboratory diagnosis of Campylobacter in human and food products**" for the detection of *Campylobacter* spp.



MINISTERUL SĂNĂTĂȚII,  
MUNCII ȘI PROTECȚIEI SOCIALE  
AGENȚIA NAȚIONALĂ  
PENTRU SĂNĂTATE PUBLICĂ



DIAGNOSTICUL DE LABORATOR  
AL CAMPYLOBACTER ÎN PROBE UMANE  
ȘI PRODUSE ALIMENTARE

Indicații metodice

Chișinău, 2019

## Strengths in the laboratory network identified during the mapping exercise (3)

- Labs send identified isolates of *Salmonella* spp. to the NRL for further testing  
(Order of Ministry of Health No. 711 of 2018)
- *Campylobacter* spp. is currently not reported for AMR surveillance.
- Territorial Public Health Laboratories are obliged send for confirmation to the NRL all isolates of *Campylobacter* spp.  
(According to Order of Ministry of Health No. 2 / 2015 towards the approval of the Instruction regarding the monitoring of causative agents of diarrhea and other acute diarrheal diseases)
- Labs provide guidance on sampling practices of patients suspected to be infected with *Salmonella* spp. and *Campylobacter* spp.
- Labs send positive AMR isolates and the referral sheet form to the NRL.
- All laboratories are members of CAESAR and GLASS, they send data to these networks, but after confirmation of susceptibility and resistance mechanisms by NRL.

## **Next steps in improving national laboratory network for *Salmonella* spp. and *Campylobacter* spp. (1)**

- Implementation of the "EU protocol for harmonized monitoring of antimicrobial resistance in human *Salmonella* and *Campylobacter* isolates" at national level;
- Implementation of the diagnostic methodology for infections caused by *Salmonella* spp. and *Campylobacter* spp. in all laboratories;
- Accreditation of all laboratories to the SM SR EN ISO 15189:2014 clinical standard, use of reference materials for all laboratory activities. Internal audit on the quality assurance of the results;
- Training of laboratory staff on diagnostic methods and phenotypic or genotypic characterization of *Salmonella* spp. and *Campylobacter* spp.;

## **Next steps in improving national laboratory network for *Salmonella* spp. and *Campylobacter* spp. (2)**

- Identification of financial resources for the acquisition of tests and the coverage of diagnostic investigations especially for *Campylobacter* spp.;
- Extending the list of pathogens in the National AMR Epidemiological Surveillance System with the addition of *Campylobacter* spp.;
- Identification of financial resources for the maintenance of laboratory information systems and the implementation of the national integrated digital system;
- Digitization of AMR data reporting by labs from national network and staff training on electronic reporting of AMR data, including data for *Salmonella* and *Campylobacter*.

**Thank you for your attention!**

