

Mapping laboratory capacities for the  
detection and characterization of  
*Salmonella* and *Campylobacter*  
in ROMANIA

Codruța-Romanița USEIN

on behalf of the Romanian FWD AMR RefLabCap team

# ROMANIA



- Location: in Southeastern Europe

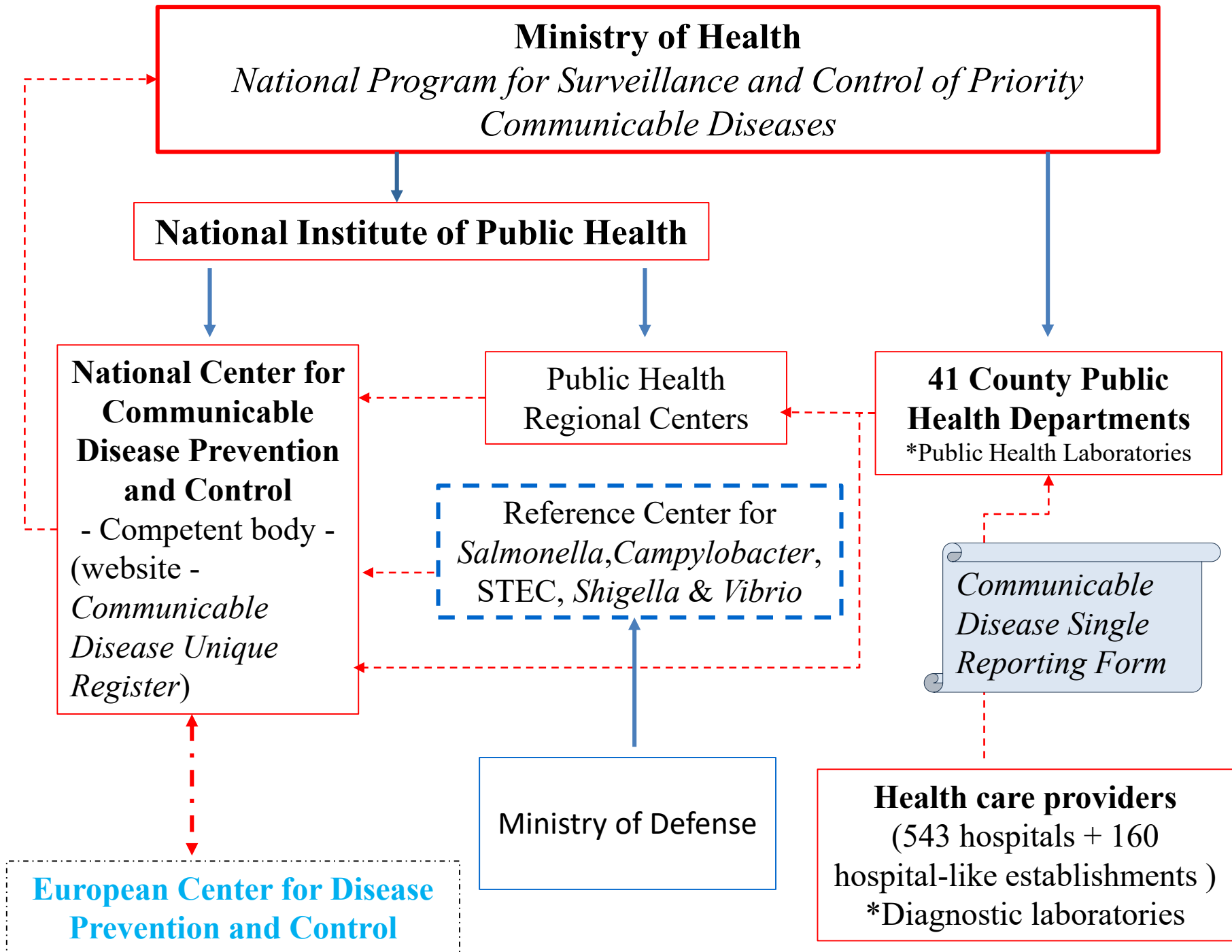
- Capital: Bucharest

- Area: 238,397 km<sup>2</sup> (11<sup>th</sup> largest EU state)

- Population: 19,717,532 people (6<sup>th</sup> most populous EU state)

- Administrative-territorial structure: 41 counties (320 cities & 2861 communes) + Bucharest





# Geographical distribution of the 49 respondents (NUTS 3)

Legend:

**Red line** – County Public Health Laboratories (29/42, 69% coverage)

**Green line**: Regional Public Health Laboratories (2/6)

**Blue line**: Hospital laboratories

- \*4 hospitals of infectious disease
- \*2 pediatric hospitals
- \*10 county emergency clinical hospitals
- \*1 teaching clinical hospital
- \*1 regional Institute of gastroenterology&hepatology



## *Salmonella* & *Campylobacter* detection and characterization: how we do it?

Methods	PHLs	DLs
<b>Stool cultures</b>		
Protocols in place for <i>Salmonella</i>	100%	
Protocols in place for <i>Campylobacter</i>	16%	61%
<b>Culture-independent tests</b>		
<i>Salmonella</i> (PCR-based tests)	-	8
<i>Campylobacter</i> (Ag-based tests)	-	39

- All laboratories report using culture in the routine testing including for enteric pathogens.
- Culture-independent procedures are adopted as diagnostic alternatives for *Campylobacter* in DLs (*no reflex culture!*).
- There is a more comprehensive capacity for *Salmonella* surveillance (*the rates of confirmed cases are low!*) than for *Campylobacter* (*fastidious nature, more expensive culture procedure, less recognized as pathogen?*)

Methods	PHLs	DLs
<b>Serotyping</b> (agglutination with <i>Salmonella</i> polyvalent O group antisera)	78%	71%
<b>Antibiotic susceptibility testing</b>	100%	
1 method (Disk Diffusion method)	90%	28%
> 1 method (DD& MIC methods/automated systems)	10%	72%
EUCAST/CLSI standards	45/53	

- Most laboratories provide partial serotype information for *Salmonella* (*staff and budget limitations!*).
- Laboratories describe service for AST as a minimum but there are more methods of measurement and interpretation applied.
- More than half of the labs did not switch from CLSI to EUCAST (*implementation is expensive!*)

## About human resource and quality assurance

Aspects	Laboratories reporting adequate/fully adequate situation	
	PHLs	DLs
Staff and workload	65 %	50 %
Quality Assessment	PHLs	DLs
<b>Laboratory accreditation</b> (RENAR) for <i>Salmonella</i> identification and AST	61% (ISO 17025:2018)	50% (ISO 15189:2022)
<b>Proficiency testing</b> in the last 3 years		
<i>Salmonella</i> schemes	77%	83%
<i>Campylobacter</i> schemes	-	17

- The shortage of workforce is evident but the staff in place is perceived as competent.
- About half of the labs are accredited by the national accreditation organism RENAR but there is still a necessity to establish a quality culture in everyday work.

## Laboratory feedback on the areas requiring support

Support considered	% of PHLs
Training/workshops for lab staff	97
Support for outbreak detection and management	55
Provision of control material	48
Support visit in the laboratory	35
Shipment of samples/isolates	35
	% of DLs
Training/workshops for lab staff	83
Participation on laboratory network	67
Provision of control material	56
EQAs for phenotypic testing	56

- Training and professional advice/support are the most important issues in all the laboratories!



## Survey conclusions

- The majority of laboratories experience common and recurring gaps, related mainly to staffing, attention to quality management and financial limitations.
- A clear definition of the expected roles, functions and minimum standards is needed at all levels across the laboratory system, complemented with adequate allocations of appropriate human resources, operational logistics and financial support.

## Steps in improving the situation

- Initiatives of the Reference Center from Cantacuzino Institute
  - pilot study for the implementation of WGS for Salmonella for public health reasons (since 2022)
  - \*ECDC and FWD AMR RefLabCap 2022 and 2023 EQAs for Salmonella and Campylobacter!
  - organization of a course on the detection, typing and characterization for antibiotic resistance in enteric pathogens (in 3<sup>rd</sup> trimester 2024)



- The Romanian Society of Microbiology organized a course regarding the implementation of EUCAST standard (September 2022)