MAPPING STRATEGY. SUGGESTED QUESTIONNAIRE FOR THE SUMMARY REPORT

26 October, 2022

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FWD AMR · RefLabCap

MAPPING STRATEGY

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- Needs for mapping
- Selection of laboratories
- Suggested questionnaire
- Execution

NEEDS FOR MAPPING

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- **General, e.g.:**
  - To establish or to improve national laboratory network for surveillance of AMR

- **Specific, e.g:**
  - To elucidate the diagnostics capacities, equipment and resources of laboratories to be able to harmonise the methodologies used for characterisation
  - To identify laboratories that perform culture-independent detection of *Salmonella* and/or *Campylobacter*
  - To identify which PCR setups are used for *Campylobacter jejuni/coli* identification
  - To identify how many laboratories can do serotyping of *Salmonella enterica* and by which method (serology/molecular)
  - To harmonise or to improve referral of samples/isolates for surveillance of AMR

SELECTION OF LABORATORIES

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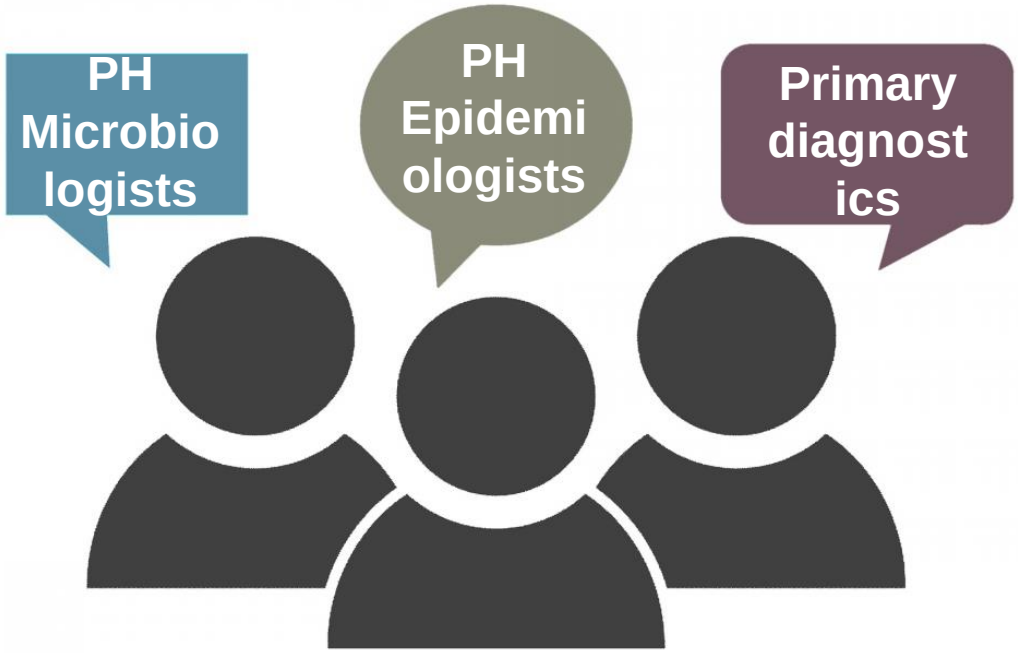
- Consider the geography and population size served
  - E.g. only the hospital/regional laboratories may be selected

- Consider/discuss specific needs for mapping



SUGGESTED QUESTIONNAIRE 1/15

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- **Prepared for distribution to the local/regional laboratories in your own language**

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

You are hereby invited to participate in a survey of clinical microbiology laboratory capacity for the detection and characterization of Salmonella and Campylobacter. The survey is organized by the NRL within the framework of of the Food and Waterborne Diseases and Antimicrobial resistance – Reference Laboratory Capacity (FWD AMR-RefLabCap) project.

- **Aims to support NRLs for filling-in the mapping summary report in English**
  - Suggested questions correspond to the sections 3-7, and should be used depending on your needs
  - Sections 1 and 2 are aimed to describe mapping methodology and PH system in the country and thus are not part of the questionnaire

- **Suggested questions can be modified and additional questions may be added depending on your needs**
  - contains 13 general questions and a maximum of 29 specific questions

SUGGESTED QUESTIONNAIRE 2/15

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General part

- 13 questions to provide basis for section 3 of the summary report

3. Laboratories performing diagnostics of *Salmonella* and *Campylobacter*

- Information on the geographical coverage, private/government status

- The number of local/regional laboratories that perform detection of *Salmonella* and *Campylobacter* in your country

1. Please complete the table on details of your laboratory

	Information about the laboratory
Name of the laboratory	
Name and surname of the contact person	
Email address of the contact person	
Address and institution of the laboratory	
Region/Area covered by the laboratory	
Estimated patient population size covered (approximate number of people in the geographical area the laboratory covers)	
Organisation of the laboratory (e.g. hospital, university, public health, private company etc.)*	

**please use classification relevant to your country*

2. Does your laboratory carries out diagnostic testing of *Salmonella* and/or *Campylobacter* (select both answers, if relevant):

Includes both, culture- and PCR-based detection

a) *Salmonella*
b) *Campylobacter*
c) None of the above

3. How many samples and/or isolates are annually tested at your laboratory for the following pathogens?

Includes all testing methods

a) *Salmonella* (please specify)_____
b) *Campylobacter* (please specify)_____

SUGGESTED QUESTIONNAIRE 3/15

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- The number of local/regional laboratories that perform characterisation of *Salmonella* and *Campylobacter* in your country

4. Does your laboratory perform species identification of *Campylobacter*? (please select all relevant answers)
Includes both, phenotypic and genotypic testing

a) Yes, C. jejuni
b) Yes, C. coli
c) Yes, other species (please indicate species)_____
d) None of the above

5. Does your laboratory perform species/serovar identification of *Salmonella*? (please select all relevant answers)
Includes both, phenotypic and genotypic testing

a) Yes, species
b) Yes, all serovars
c) Yes, selected serovars (please indicate serovars)_____
d) None of the above

6. Does your laboratory perform antimicrobial susceptibility testing for *Salmonella* and/or *Campylobacter?* (select all relevant answers)
Includes both, phenotypic and genotypic testing

a) Yes, on all Salmonella isolates
b) Yes, on selected Salmonella isolates (please indicate the selection criteria)_____
c) Yes, on all Campylobacter isolates
d) Yes, on selected Campylobacter isolates (please indicate the selection criteria)_____
e) None of the above

SUGGESTED QUESTIONNAIRE 4/15

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- Information on the laboratories' status regarding quality assurance, accreditation and participation in EQAs

7. Does your laboratory hold accreditation or certification for some or all laboratory services provided?
This could have been obtained for one or more methods under national or international standards for laboratory Services

a) Yes (please provide the details)_____
b) No

8. Does your laboratory use control material (specimens, DNA etc.) from a reliable source for quality control testing of the following methods? (please select all relevant answers)
Includes both, phenotypic and genotypic testing

a) Salmonella
    a. Detection
    b. Species identification
    c. Serovar identification
    d. Antimicrobial susceptibility testing
    e. No, the laboratory does not have access to controls from reliable sources
b) Campylobacter
    a. Detection
    b. Species identification
    c. Antimicrobial susceptibility testing
    d. No, the laboratory does not have access to controls from a reliable source

9. Has your laboratory participated in any external quality assurance (EQA) schemes for the following methods within the last 3 years? (please select all relevant answers)
Includes both, phenotypic and genotypic testing

c) Salmonella
    a. Detection
    b. Species identification
    c. Serovar identification
    d. Antimicrobial susceptibility testing
    e. No, laboratory did not participate in any EQAs
d) Campylobacter
    f. Detection
    g. Species identification
    h. Antimicrobial susceptibility testing
    i. No, laboratory did not participate in any EQAs

SUGGESTED QUESTIONNAIRE 5/15

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- Other information of relevance

10. Does your laboratory provide testing services to other laboratories? (please select all relevant answers)
Include any type of tests for detection and characterization of *Salmonella* and *Campylobacter*

a) Yes, for *Salmonella*
b) Yes, for *Campylobacter*
c) No

11. Is your laboratory a member of any of the following types of network? (please select all relevant answers)

a) National network of clinical laboratories
b) Regional network of clinical laboratories
c) National group of laboratories involved in capacity building activities in diagnostics and/or research
d) International group of laboratories involved in capacity building activities in diagnostics and/or research
e) No, none of the above

12. Does your laboratory participate in any type of national surveillance for *Salmonella* and/or *Campylobacter*? (please select all relevant answers)

a) Voluntary continuous surveillance
b) Mandatory continuous surveillance
c) Sentinel surveillance (for example by submitting data in shorter periods a number of times per year)
d) No, none of the above

SUGGESTED QUESTIONNAIRE 6/15

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- Needs for support

13. What kind of support would you like to receive from the national reference laboratory (NRL) and/or national network?
    a) Provision of control materials (isolates, DNA etc.)
    b) Shipment of samples/isolates
    c) External quality assessment (EQA) exercises for phenotypic antimicrobial susceptibility testing
    d) Support for outbreak detection and management (including guidance)
    e) Training/workshops for laboratory staff
    f) NRL support visit to your laboratory
    g) Long-term storage of isolates
    h) Participation in laboratory network
    i) Accreditation practices
    j) Other areas of support
    k) We are not interested in or able to join a national network and receive support from the network including the NRL

SUGGESTED QUESTIONNAIRE 7/15

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Specific part

- 6 questions to provide basis for section 4 of the summary report

4. Human resources, laboratory equipment and funding at local/regional laboratories

describe the qualifications and skills of the personnel working on detection and characterisation of *Salmonella* and *Campylobacter* at local/regional laboratories (personnel in different roles: leaders, technical staff, etc) and funding situation

14. On a scale from 1 to 5, how would you rate staffing situation in relation to the workload resulting from the testing of *Salmonella* and/or *Campylobacter* in your laboratory (with 1 being not adequate at all and 5 being fully adequate)?
(e.g. diagnostic testing, quality assurance, participating in EQA, paperwork, training and continuous education of staff etc.)

15. On a scale from 1-5, how would you rate the situation in relation to qualifications and skills of technical staff for all types of *Salmonella* and /or *Campylobacter* testing in your laboratory (with 1 being not adequate at all and 5 being fully adequate)?
Please provide details for specific type of testing, if needed

16. On a scale from 1-5, how would you rate the situation in relation to availability of financial resources to perform Salmonella and/or Campylobacter testing in your laboratory (with 1 being not adequate at all and 5 being fully adequate)?
(e.g. equipment and materials for diagnostic testing, quality assurance, participating in EQA, training and continuous education of staff etc.)

SUGGESTED QUESTIONNAIRE 8/15

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- The laboratory capacity (e.g. availability of the needed equipment, materials, documentation, etc.) in relation to the detection and characterisation of *Salmonella* and *Campylobacter*

17. On a scale from 1-5, how would you rate the situation in relation to availability of documentation for all methods used in your laboratory (protocols, guidance for interpretation of results) for *Salmonella* and/or *Campylobacter* testing in your laboratory (with 1 being not adequate at all and 5 being fully adequate)?
Please provide details for specific methods, if needed

18. On a scale from 1-5, how would you rate the situation in relation to availability of documentation (SOPs, IQC, QA and biosafety procedures) for all types of *Salmonella* and/or *Campylobacter* testing in your laboratory (with 1 being not adequate at all and 5 being fully adequate)?
Please provide details for specific type of testing, if needed

19. On a scale from 1-5, how would you rate the situation in relation to availability of procedures for the procurement, inventory, use and storage of laboratory equipment, consumables and reagents for all types of *Salmonella* and/or *Campylobacter* testing in your laboratory (with 1 being not adequate at all and 5 being fully adequate)?
Please provide details for specific type of testing, if needed

SUGGESTED QUESTIONNAIRE 9/15

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Specific part

- 4 questions to provide basis for section 5 of the summary report

5. *Salmonella* and *Campylobacter* detection methods used in diagnostic laboratories

Detection methods used in the diagnostic laboratories. If culture-independent diagnostic tests are used, describe if/when isolation of the pathogen is carried out at the diagnostic laboratory or elsewhere

Describe if/when/how the isolates are stored at the diagnostic laboratories

20. Which media does your laboratory use for culture-based detection of the following pathogens? (please select all relevant answers)

a) Salmonella

a. Direct plating, please indicate media in use_____

b. Selective enrichment and selective plating, please indicate media in use_____

b) Campylobacter

a. Direct plating, please indicate media in use_____

b. Selective enrichment and selective plating, please indicate media in use_____

21. What are the following procedures in your laboratory if *Salmonella* and/or *Campylobacter* is detected using culture-independent methods (please select all relevant answers)

a) In all cases, the laboratory performs culture-based detection
b) In selected cases, the laboratory performs culture-based detection
c) All positive samples are sent to another laboratory for culture-based detection
d) None of the above
e) Other procedure, please specify_____

22. Does your laboratory store *Salmonella* and/or *Campylobacter*-**positive samples**? (please select all relevant answers)

a) Yes, we freeze-store all samples (please specify the temperature and the length of the storage)_____
b) We freeze-store only selected samples (please specify the temperature and the length of the storage)_____
c) We store samples differently (please specify the temperature and length of the storage)_____
d) We don't store positive samples

23. Does your laboratory store *Salmonella* and/or *Campylobacter* **isolates**? (please select all relevant answers)

a) Yes, we freeze-store all isolates (please specify the temperature and the length of the storage)_____
b) We freeze-store only selected isolates (please specify the temperature and the length of the storage)_____
c) We store isolates in a different way (please specify the temperature and length of the storage)_____
d) We don't store isolates

SUGGESTED QUESTIONNAIRE 10/15

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Specific part

- 8 questions to provide basis for section 6 of the summary report

6. *Salmonella* and *Campylobacter* characterisation methods used in local/regional laboratories

The methods used for characterisation of *Salmonella* and *Campylobacter* for diagnostic and/or surveillance purposes and communication of the results

24. Which of the following methods does your laboratory use for identification of *Salmonella* and/or *Campylobacter*? (please select all relevant answers)

a) Salmonella
   a. MALDI TOF
   b. Biochemical tests
   c. Antisera
   d. Molecular methods
   e. None of the above, please spe

b) Campylobacter
   a. MALDI TOF
   b. Biochemical tests
   c. Molecular methods
   d. None of the above, please spe

28. Which methods does your laboratory use for phenotypic testing of AMR in *Salmonella* and/or *Campylobacter*? (please select all relevant answers)
   a) Automated system (e.g. Vitek)
   b) Commercial broth microdilution (e.g. Sensititre/Trek)
   c) In-house micro broth dilution
   d) Agar dilution
   e) Gradient strips (e.g. Etest)
   f) Disk diffusion
   g) Other methods, please specify_____

29. Which genotypic testing method does your laboratory use for testing the presence of antimicrobial resistance genes or point mutation in *Salmonella* and/or *Campylobacter* isolates? (please select all relevant answers)
   a) Conventional PCR
   b) Single-gene sequencing
   c) Real time PCR
   d) DNA array
   e) Whole genome sequencing (WGS)
   f) Other methods, please specify_____

31. Does your laboratory provide individual reports on testing results for *Salmonella* and/or *Campylobacter*? (please select all relevant answers)

Includes all types of tests

   a) Yes, to hospitals/other healthcare facilities
   b) Yes, to relevant public health authority
   c) Other, please specify_____

SUGGESTED QUESTIONNAIRE 11/15

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- Other relevant details

25. Does your laboratory perform antimicrobial resistance testing for the following antimicrobials? (please select all relevant answers)

Includes both, phenotypic and genotypic testing

a) Salmonella

a. Ampicillin (AMP)
b. Chloramphenicol (CHL)
c. Meropenem (MEM)
d. Cefotaxime (CTX)
e. Ceftazidime (CAZ)
f. Ciprofloxacin (CIP)/pefloxacin (PEF)
g. Gentamicin (GEN)
h. Colistin (COL)
i. Tetracycline (TCY)
j. Trimethoprim (TMP)
k. Azithromycin (AZM)
l. Sulfamethoxazole (SMX)
m. Tigecycline (TGC)
n. None of the above
o. Other antimicrobials, please sp

b) Campylobacter

a. Gentamicin (GEN)
b. Erythromycin (ERY)
c. Ciprofloxacin (CIP)
d. Tetracycline (TCY)
e. None of the above
f. Other antimicrobials, please specify_____

26. Does your laboratory perform phenotypic and/or genotypic AMR testing of bacterial isolates in compliance with the 'EU protocol for harmonised monitoring of antimicrobial resistance in human *Salmonella* and *Campylobacter* isolates'?

a) Yes
b) No (please specify the reason and which set of guidelines you follow instead)_____

27. Which phenotypic antimicrobial susceptibility testing guidance (for methodology and breakpoints) do you use in your laboratory? (please select all relevant answers)

a) EUCAST
b) CLSI
c) Other guidance, please specify_____

30. Please indicate the purpose of antimicrobial resistance testing in your laboratory (please select all relevant answers)

a) To inform the clinicians on possibilities for antibiotic treatment
b) To inform infection prevention and control measures
c) Other purposes, please specify_____

SUGGESTED QUESTIONNAIRE 12/15

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- **Specific part**
  - 11 questions to provide basis for section 7 of the summary report

7. *Salmonella* and *Campylobacter* isolate referral and linking to cases

- Sample collection and referral to local/regional laboratories

32. Does your laboratory (or other authorities) issue guidance on sampling practices of patients suspected to be infected with *Salmonella* and/or *Campylobacter*? (please select all relevant answers)

Guidance can be issued by the laboratory, the hospital and/or local, regional or national health authorities and may contain instructions about populations to be sampled, use of antimicrobial therapy, possible exposure, etc..

a) Yes, *Salmonella*
b) Yes, *Campylobacter*
c) No, none of the above

33. Does your laboratory (or other authorities) issue guidance on submission of clinical samples (including types and quality of samples, shipment conditions and documentation required) to their users? (please select all relevant answers)

Guidance can be issued by the laboratory, the hospital and/or local, regional or national health authorities and may contain instructions about sample type, container and transport medium, transport method etc.

a) Yes, instructions on submissions of clinical samples are provided in a laboratory user manual/handbook /standard operating procedure document or information is provided on a website
b) Yes, instructions on submission of clinical samples are provided on request e.g. via phone calls from users
c) No, instructions on submission of clinical samples are not provided

SUGGESTED QUESTIONNAIRE 13/15

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- Sample/isolate referral to NRL and communication

34. Does your laboratory refer (send) newly detected isolates or positive samples to the national reference (or expert laboratory) laboratory for further testing? (please select all relevant answers)

a) Yes, *Salmonella*
b) Yes, *Campylobacter*
c) No, none of the above

35. Does your laboratory (or other department) routinely communicate pre-defined data sets on species/serovar ID and/or antimicrobial test results from your laboratory for any of the following purposes? (please select all relevant answers)

a) Infection prevention and control purposes
b) Local surveillance purposes (e.g. surveillance within the specific area, etc.)
c) Early warning purposes (e.g. accumulation of cases, new variants of concern)
e) No, none of the above

36. Does your laboratory (or other authorities) issue guidance on positive sample/isolate referral (includes handling, storage, transportation and frequency) from your laboratory to the national reference (or expert) laboratory? (please select all relevant answers)
Please answer 'yes' if guidance is followed by your laboratory staff

a) Yes
b) No
c) Other, please specify_____

37. Does your laboratory (or other authorities) issue test requisition form (e.g. may include background information about laboratory methods used in your laboratory, results, patient data) for positive sample/isolate referral from your laboratory to the national reference (or expert) laboratory? (please select all relevant answers)
Please answer 'yes' if guidance is followed by your laboratory staff

a) Yes
b) No
c) Other, please specify_____

SUGGESTED QUESTIONNAIRE 14/15

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- Patient and laboratory data management

38. How does your laboratory record information about samples/isolates tested in your laboratory (includes collection, tracking, storage and diagnostic test results)?

a) We use a pre-defined physical paper form
b) We use electronic laboratory information management system (LIMS) or software application (e.g.WHONET)
c) Other, please specify_____

39. How does your laboratory send laboratory data to the national reference (or expert) laboratory or to relevant public health authorities? (select all relevant answers)

a) We send a pre-defined physical paper form
b) We send a pre-defined form by email
c) We use a pre-defined web-based form
d) We have access to electronic laboratory information management system (LIMS) or software application (e.g.WHONET)
e) Other, please specify_____

40. Does your laboratory have access to case data for samples sent to your laboratory for *Salmonella* and/or *Campylobacter* testing? (please select all relevant answers)

a) Patient age
b) Patient gender
c) Travel information
d) Hospitalization status
e) Underlying diseases
f) Antimicrobial treatment
g) None of the above
h) Other, please specify_____

41. Does your laboratory have procedures for laboratory test result recording, review and notification of laboratory results?

a) Yes
b) No
c) Other, please specify_____

42. Does your laboratory have procedures for patient and/or laboratory data protection and data loss?

a) Yes
b) No
c) Other, please specify_____

SUGGESTED QUESTIONNAIRE 15/15

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- **Question design**
  - Mandatory *vs*. optional questions
  - Multiple choice *vs*. single choice
  - Comments/additional information
  - Etc.

- **Additional questions for sections 3-7 and/or topics for section 8 of the summary report**
  - Lab Assessment of Antibiotic Resistance Testing Capacity (LAARC)

  https://www.cdc.gov/drugresistance/intl-activities/laarc.html
  - PAHO/WHO Rapid assessment tool for monitoring laboratory capacity for antimicrobial resistance surveillance

  https://www3.paho.org/hq/index.php?option=com_docman&view=download&category_slug=antimicrobial-resistance-amr-4104&alias=43598-rapid-assessment-tool-for-monitoring-laboratory-capacity-for-antimicrobial-surveillance-form-598&Itemid=270&lang=en

EXECUTION OF THE SURVEY

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- **Introduction meeting to local/regional laboratories**
  - To explain the purpose of the mapping and to provide motivation to participate

- **Survey distribution – clear deadlines!**
  - Phone calls or visits – great for establishing a personal contact
  - Survey tools
    - **EU Survey**
    - Google Forms
    - Survey Monkey
    - Enalyzer, etc.
  - A combination of strategies

- **Follow – up, if needed**