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SOA8 – WGS surveillance of animal pathogens and AMR (SPAMR-VET) –ST2.1, ST2.2

Lucie Collineau, Charlotte Valat, Anouk Rioual, Anne Margrete Urdahl,
Camilla Sekse

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1 INTRODUCTION

Antimicrobial resistance (AMR) represents a significant burden for animal health. So far, routine surveillance of AMR in bacterial pathogens of animals has primarily relied on phenotypic antimicrobial susceptibility testing.

WGS surveillance of AMR is still in its infancy and not harmonized in Europe.

Tasks 2.1 and 2.2 of SOA8 aim to pave the way towards harmonized WGS surveillance of bacterial pathogens and their AMR profiles of food-producing animals in Europe.

2 INPUT

- The task force of experts in SOA8 subtasks 2.1 and 2.2 include scientists from 12 European countries, with expertise in veterinary microbiology, epidemiology and bioinformatics.
- Additional expertise is needed in
 - Microbiology and bioinformatics of aquatic bacterial pathogens
 - Selected animal bacterial pathogens
 - General pathogen knowledge
 - Comparative genomics
 - Bioinformatic pipelines
 - Databases (AMR, virulence etc.)

3 OUTPUT AND TECHNICAL COLLABORATION

SOA8 tasks 2.1 and 2.2 will offer:

- A review of national capacities for genomic surveillance of AMR in bacterial pathogens of terrestrial and aquatic food-producing animals in Europe (Fig. 1)
- A mapping of available isolates and WGS sequences from the main bacterial pathogens of food-producing animals
- Harmonized WGS monitoring system for bacterial pathogens and their AMR profiles
 - Study design of active surveillance surveys
 - Bioinformatics pipelines for general and species specific analysis
 - Databases (AMR, virulence etc.)
 - Sharing of genomic data from different animal species

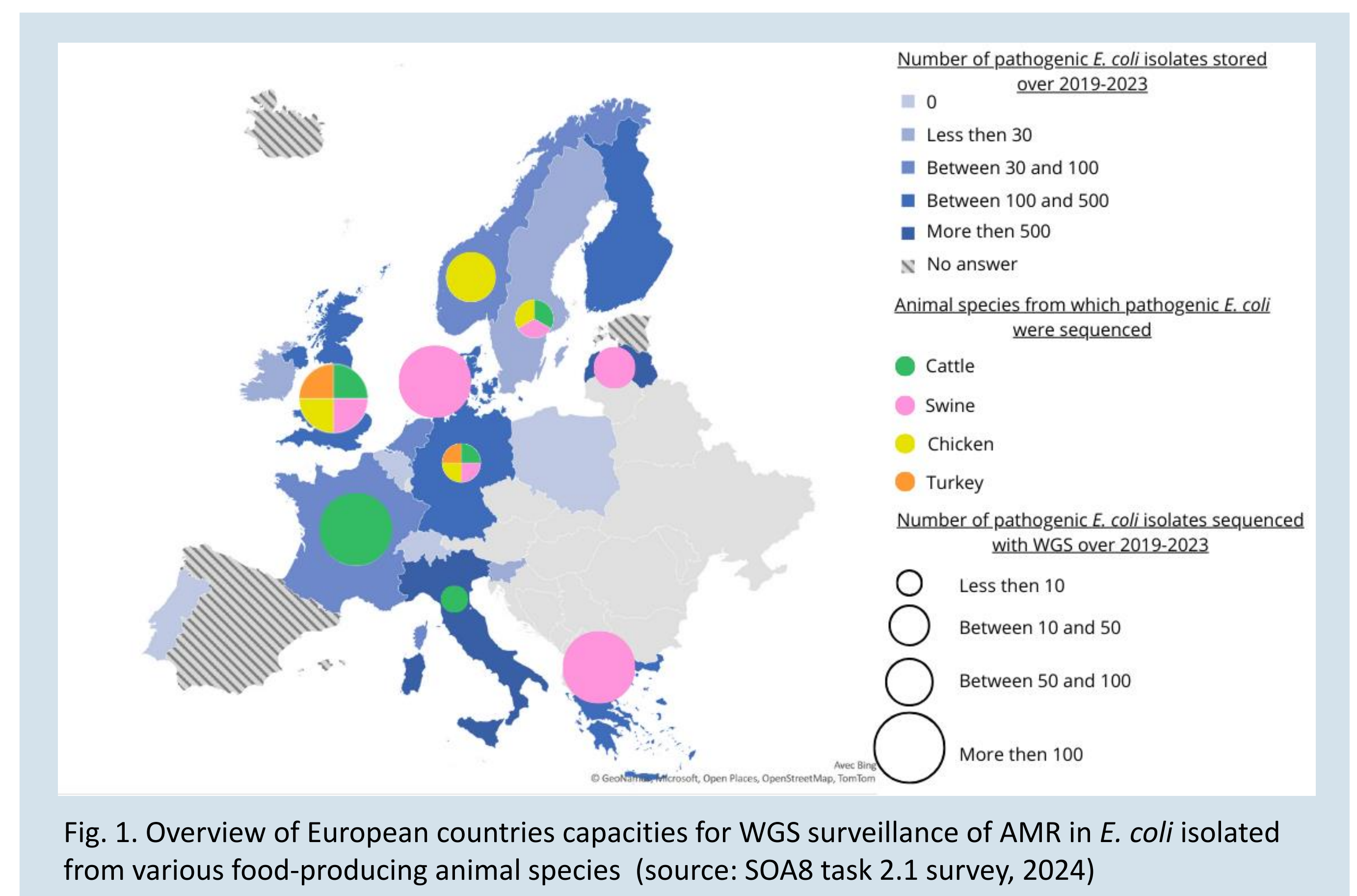


Fig. 1. Overview of European countries capacities for WGS surveillance of AMR in *E. coli* isolated from various food-producing animal species (source: SOA8 task 2.1 survey, 2024)

4 POSSIBILITIES AND FURTHER COLLABORATION

- End-users include scientists from academia, agencies, national reference laboratories or clinical laboratories involved in genomic surveillance of AMR in bacterial pathogens of animals
- Close collaboration with other initiatives, e.g. the EARS-Vet network for AMR surveillance in veterinary medicine (EU-JAMRAI2 Joint Action).
- Dissemination and outreach activities include scientific publications and congresses, communication via existing European networks (e.g. EARS-Vet, network of NRLs) and via national surveillance programmes.
- Collaboration with other EUP AH&W SOAs (i.e. SOA11).
- Participation in EUP AH&W Communication, Education, Exploitation and Dissemination events.

5 TAGS

- # Genomic surveillance
- # AMR
- # WGS
- # Clinical isolates
- # Animal pathogens