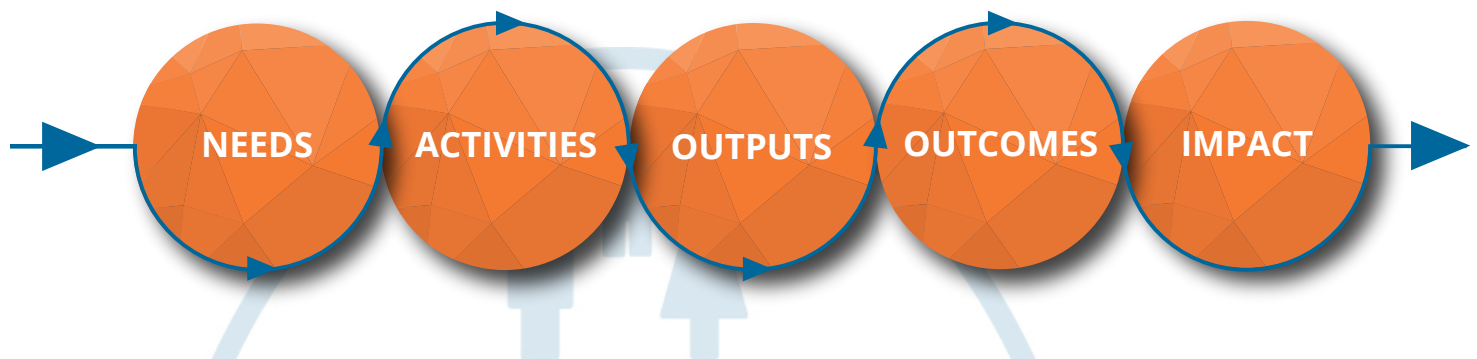


Highlighting One Health EJP Project Outcomes and Impact

The aims of the meeting were:

- to find out about practical outputs/results, possible outcomes and expected impact of the One Health EJP and its encompassing projects after almost four years of research and integrative activities
- to give an update on current and future activities of the One Health EJP and to discuss options for its sustainability
- to explain the process of translating the One Health EJP outputs and outcomes into impact and highlight the respective role of each actor involved in the process (Researchers, Risk Assessors and Risk Managers national and European Policy makers, all Stakeholders related to the OHEJP perimeter of intervention in general).



The projects leaders of 5 finished projects (Joint Research Projects: [METASTAVA](#), [IMPART](#), [NOVA](#) and [TOXDETECT](#), and the Joint Integrative Project [ORION](#)) presented the main outputs and the expected impact of their projects. JRP TOXDETECT was presented by Jacques-Antoine Hennekinne and Yacine Nia

ONE HEALTH EJP TOXDETECT - JACQUES-ANTOINE HENNEKINNE and YACINE NIA, ANSES

The TOXdetect project aims to contribute to an increased consumer health protection by filling the critical gaps of lacking methodologies to detect bacterial toxins and characterizing foodborne toxigenic bacteria.

Scientific impact	Potential policy impact
Transferred knowledge to EURL network	Improved implementation of directive 2003/99/EC (zoonosis directive)
Improved detection of (bacterial) toxins causing foodborne outbreaks and vehicles involved in exposure	Adjusted requirements in regulation (EC) 2073/2005 (microbiological criteria)
Improved understanding of factors contributing to foodborne intoxications	
Improved reporting	
Potential societal impact	
Increased safety concerning toxigenic bacteria, responsible for a large number of foodborne outbreaks	



TOX-detect: Development and harmonisation of innovative methods for comprehensive analysis of foodborne toxigenic bacteria, ie. *Staphylococci*, *Bacillus cereus* and *Clostridium perfringens*

Jacques-Antoine Hennekinne & Yacine Nia,
Project coordinators, ANSES
PMC-POC meeting
24th of November 2021

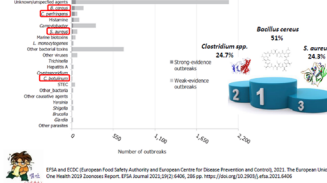
This presentation is part of the European Joint Programme One Health EJP. This programme has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 773830.



Starting point and ...

➤ In 2019, 27 Member States reported in total 5,175 food-borne outbreaks.

➤ Foodborne outbreaks due to bacterial toxins: N = 997, 19.3%



➤ EJP OH ToxDetect (01/18 – 06/21)

(6 EU partners including 3 NRL CPS + EURL CPS as coordinator)

Development and harmonization of innovative methods for comprehensive analysis of food-borne toxigenic bacteria, ie. *Staphylococci*, *Bacillus cereus* and *Clostridium perfringens*

... main objectives

-Establishment of an EU-wide network focusing on the detection and identification of *S. aureus*, *B. cereus* and *C. perfringens*,

-Evaluation of different diagnostic approaches (e.g. mass spectrometry, immunological, functional approaches) to characterize *S. aureus*, *B. cereus* and *C. perfringens*,

-Generation and characterization of a reference collection of bacterial strains,

-Implementation and development of methods to identify bacteria and associated toxins and/or virulence factors,

-Transfer of the developed methods through proficiency trial organization.



Key outputs

- Development of a well characterized strain library for *S. aureus*, *B. cereus* and *C. perfringens* targeting "new" virulence factors to perform *ad hoc* method developments
- Development of a dedicated Maldi ToF library, evaluation of robustness thanks to ILS
 - 30 strains/4 methods/3 replicates/9 labs = 3240 data !
 - % correct identification ToxDetect library > % correct identification Bruker library
 - Very impressive for *B. cereus* strains (better +++ than commercial library)
- Design of 15 harmonized SOPs for all the targeted virulence factors
- Development of 6 methods according to the OH concept to fully characterize strains whatever their origins
- Organization of 5 ILS for developed methods to demonstrate robustness and transferability



Impacts (1/2)

- Development of a tool box strategy including various complementary principles with a direct impact on FBO characterization

➔ Improve consumer protection by filling gaps of lacking methodologies especially for non targeted toxins

➔ Improve implementation of Dir 2003/99

// with the EURL for CPS working program on harmonization of reporting of SFPO across EU MS (expected beginning 2022)

// with Standardization activities at the ISO TC34 SC9 level on

- Dvpt of a Std for validation/verification of bacterial toxins analysis (WG3)
- Dvpt of a Std for SEs quantification (WG30)
- Dvpt of EN ISO 6888-4 for *se* gene content by PCR tools (WG13)



Impacts (2/2)

- Exchange on QA practices, SOP, material to promote work on bacteria producing toxins

➔ SOP and methods available

➔ MaldiToF library available

// EuroBioTox project (H2020 security call)

// TWG of the OPCW on bacterial toxins

// EURL for CPS and NRL network = key pillars for dissemination (for SEs only!)

➔ How to disseminate developments and results for bacteria and toxins not covered by the EU reg (eg EC reg 2073/2005)?

Next step: update food pbio criteria to include other bacteria and/or toxins?...

