



IMAGE: Flickr

TAKE-HOME MESSAGES

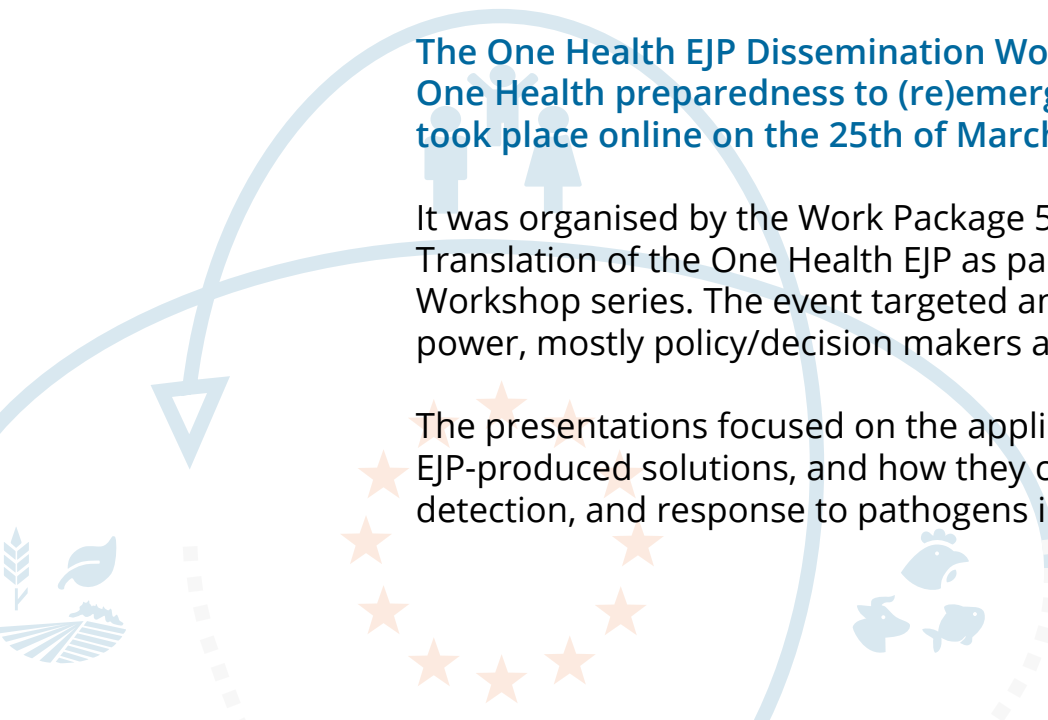
- Given the emergence of many health threats at the animal-human-environment interface, multi-sectoral, One Health preparedness is essential.
- Despite the One Health approach being well acknowledged for the prevention of health crises, preparedness actions are still mostly divided into sectoral silos, especially at the national level, hindering cross-sectoral collaboration.
- Habit and commitment to collaborate across sectors in times when there are no major crises makes cooperation in times of crisis smoother and more efficient.
- One Health preparedness, and the One Health approach in general, should increasingly include sectors such as the environment and social sciences, in particular, given the influence of climate change on human health – and One Health.

One Health EJP Dissemination Workshop Series: IMPROVING ONE HEALTH PREPAREDNESS TO (RE) EMERGING INFECTIOUS THREATS

The One Health EJP Dissemination Workshop on Improving One Health preparedness to (re)emerging infectious threats took place online on the 25th of March 2022.

It was organised by the Work Package 5 (WP5) Science to Policy Translation of the One Health EJP as part of the Dissemination Workshop series. The event targeted an audience with decisional power, mostly policy/decision makers and risk managers.

The presentations focused on the applicability of One Health EJP-produced solutions, and how they can benefit the prevention, detection, and response to pathogens in One Health settings.



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*...several applications
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Introduction to One Health preparedness

Kitty Maassen, RIVM

One Health EJP Joint Integrative Project [COHESIVE](#)

Kitty Maassen introduced the audience to the concept of preparedness in the context of emergency management and highlighted the importance of One Health preparedness by underlining the zoonotic aspects of many emerging threats. Drivers of emerging threats in fact are found at the animal-human-environment interface, making collaboration across disciplines and borders paramount. Accordingly, the concept of One Health preparedness is increasingly present in European and international guidelines.

After this introductory talk, several applications of One Health EJP-developed solutions were presented, considering many aspects of One Health preparedness like antimicrobial resistance (AMR), overlooked threats like that of parasites, and the issue of integration of approaches.

Antimicrobial Resistance movement over ecosystem boundaries

Werner Ruppitsch, AGES

One Health EJP Joint Research Project [FED-AMR](#)

Werner Ruppitsch presented the preliminary results of the ongoing project FED-AMR, which looks at the role of free extracellular DNA in dissemination of antimicrobial resistance (AMR) over ecosystem boundaries along the food/feed chain. Taking advantage of Open Air Laboratories set up in three European countries, the project sheds light on the trends and features of AMR in agriculture environment. Data from the project will be used to build models to improve prevention and response to outbreaks of resistant pathogens in humans and animals. It will also guide the development of strategies for optimal use of antimicrobial agents.

Improved genotyping approach to support preparedness to detect new emerging strains of an endemic zoonotic parasite

Gereon Schares, FLI

One Health EJP Joint Research Project [TOXOSOURCES](#)

Gereon Schares took us through an often overlooked emerging threat constituted by the zoonotic parasite *Toxoplasma gondii*. After an introduction on the parasite and its life cycle, he pointed out the importance of genotyping to detect imported and emerging strains. TOXOSOURCES project has developed a novel genotyping method that is able to efficiently discriminate between strains, including closely related strains circulating in Europe, and can thus facilitate outbreak analysis and improve the knowledge of the epidemiological situation. The technology selected for the typing tool is used in many laboratories for other purposes, and the new typing tool benefits researchers and clinicians alike.

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Strengthening One Health collaboration in the area of risk analysis

Kitty Maassen, RIVM

One Health EJP Joint Integrative Project [COHESIVE](#)

Kitty Maassen illustrated, with real-life examples and referencing high level reports, the importance of having a zoonoses structure in place to be prepared to health emergencies. One virtuous example is the integrated human-veterinary risk analysis structure for efficient signalling, risk-assessment and control of emerging zoonoses existing in The Netherlands. Kitty Maassen and her team developed guidelines to set up integrated human-veterinary-food risk analysis structure for efficient signalling, risk-assessment, response and control of (emerging) zoonoses. These guidelines are available in the form of an interactive online tool at www.ohras.eu.

Tools to support outbreak management and surveillance

Marion Gottschald, BfR

One Health EJP Joint Integrative Project [COHESIVE](#)

Continuing to present the solutions developed by COHESIVE, Marion Gottschald explained how, to make sense of the increasingly large amount of data available for risk assessment and outbreak control, the COHESIVE team developed a number of integrative IT tools and data formats. They are readily available and support surveillance, outbreak response, and risk assessments. These tools are used at both the EU and national level.

She illustrated the use and benefit of three solutions. The COHESIVE prototype information system (CIS, more info [here](#), virtual machine [here](#), demo version [here](#)) integrates pathogen information (WGS data and related metadata) from human and veterinarian side at country level, supporting sharing and data interoperability between One Health sectors. [FoodChain-Lab](#) Web (FCL Web) is a free and open source software to trace back and forward suspicious food items along complex supply chains to help solving foodborne crises by unifying visualisation, analysis and reporting of tracing data collected from several actors. The open access software [shiny Risk](#), finally, applies probabilistic models for quantitative risk assessment, using state-of-the-art risk modelling approaches.

Integrated surveillance for foodborne disease

Eelco Franz, RIVM

One Health EJP Joint Research Project [ADONIS](#)

Eelco Franz reminded the audience of the concerning re-emergence of *Salmonella* Enteritidis in Europe. He and colleagues of the ADONIS project have developed a cross-sectoral data sharing tool based on Whole Genome Sequencing data. The tool supports the outbreak detection, tracing, but also epidemiological research of foodborne zoonoses to identify emerging pathogen clones. The private food sector also contributes with its data, and private laboratories are not hesitant to share their information and are in general satisfied with the resulting increased transparency of their businesses.

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...this mapping method was able to identify and portray information available for surveillance at the country level.

Mapping existing surveillance chains at country level

Francesca Cito, IZSAM

One Health EJP Joint Integrative Project [MATRIX](#)

Francesca Cito introduced the MATRIX project, which builds a framework that addresses cross-sectorial collaboration along the whole surveillance pathway, with a focus on specific pathogens and hazards. In particular, Francesca Cito and colleagues mapped the surveillance chain across all sectors in a number of European countries. Using Hepatitis E in wild boar meat as example, the MATRIX team proved how this mapping method was able to identify and portray information available for surveillance at the country level. In turn, this allows to clearly identify the actors involved in the surveillance in each step, as well as data generated by each surveillance activity.

How to assess capacity to perform One Health surveillance?

Viviane Hénaux, ANSES

One Health EJP Joint Integrative Project [MATRIX](#)

Viviane Hénaux reminded the audience how, despite the attention to the One Health approach, the organization of national surveillance systems is still highly silo-oriented. The added value of multi-sectoral activities depends on the context, and there is a need for evaluating strengths and weaknesses of multi-sectoral and multi-disciplinary collaborations in surveillance systems. The OH-EpiCap is a tool, complementary to ECDC's EU-LabCap, that reinforces One Health integration, evaluating epidemiological capacities for One Health surveillance of any given hazard (including emerging threats) at the country level. It helps identifying opportunities for improvement in organisation, operational implementation and impact of multi-sectoral collaborations, thus strengthening One Health preparedness and response. The tool is being validated in national pilots. Stakeholders interested in conducting OH-EpiCap evaluations in their country can contact the MATRIX consortium.

Conclusions

Guido Benedetti, SSI

One Health EJP Joint Integrative Project [MATRIX](#)

The presentations of the workshop exemplified how the application of One Health EJP-produced solutions supports One Health preparedness to emerging and re-emerging infectious threats.

In the final talk, Guido Benedetti summarised the key take-home messages of the presented outcomes, highlighting how there is no simple answer to the complex question of One Health surveillance. However, application of One Health solutions, tools, and technologies for data sharing and integration of approaches, help being prepared before a crisis erupts.

... application of One Health EJP-produced solutions supports One Health preparedness.



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European Climate and Health Observatory

[Aleksandra Kazmierczak, European Environment Agency \(EEA\)](#)

Aleksandra Kazmierczak reminded the audience that climate change-related health risks are on the rise, and there is a need both for deeper understanding, and for increased capacity to counteract them. These serious health threats have to be addressed across borders, therefore the European Commission established a European Climate and Health Observatory under Climate-ADAPT, launched in March 2021. Its objectives are aligned with the EU Climate Law, to “better understand, anticipate and minimise the health threats caused by climate change”.

Vector-borne diseases, for example, pose a particular threat to human health, calling for novel governance structures, working groups, and training initiatives, as exemplified in a number of case studies presented.

Discussion

[Moderated by Pikka Jokelainen, SSI, and Annemarie Käsbohrer, BfR,
One Health EJP WP5 Science to Policy Translation](#)

After the presentation of the European Climate and Health Observatory, it was pointed out that the EEA is expanding its efforts to improve the science to policy translation of One Health issues, in synergy with EU sister agencies. Nevertheless, there is need to fill persisting knowledge gaps and expand the efforts of One Health initiatives to increasingly include the environmental sector, traditionally underrepresented. Factors like environmental degradation, pathogen dynamics in ecosystems and water quality, but also insights coming from sectors like social science, have to be considered to improve surveillance systems and risk assessment strategies. Although not a focus of the One Health EJP, a number of its project deal with environmental issues.

Participants agreed that there is a general need to look deeper at the environmental side of One Health, and to learn more on the relation between environment and health, a focus of the WHO European Centre for Environment and Health, for example by paying particular attention to signals arising in the environmental sector.

In agreement with the WHO Regional Office for Europe, it was pointed out that One Health EJP outcomes could benefit the whole European region. In fact the FAO, OIE and WHO established the Regional One Health Coordination Mechanism, the One Health EJP being a member of its Partner Platform. Objectives of the Regional One Health Coordination Mechanism focus on the operationalisation of the One Health approach, and on the coordination of efforts among partners.

The audience highlighted the importance of having a well established One Health structure linking human and animal health in times when there are no major crisis. Experience from national examples shows, for example, that having regular contacts between representatives of different sectors greatly improves knowledge sharing and

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commits experts to cross-sectoral collaboration. During crises, moreover, it helps having representatives of the other sector in the response team, although a crisis could be sector specific.

One Health initiatives tackling preparedness to (re)emerging infectious threats are met with support of national and international stakeholders, that acknowledge the challenges of working across sectors (e.g. privacy issues, and how to share data in a transparent way between the sectors, in accordance with GDPR), but also the benefit of an inclusive One Health approach.



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