



Federal Ministry
of Food
and Agriculture

Establishing a national cross sectoral WGS-data management system for surveillance and outbreak detection of foodborne pathogens - Experiences from DE

Science Meets Policy conference: Using Next Generation Sequencing to tackle foodborne threats

5 - 6 September 2023, Parma, Italy and online

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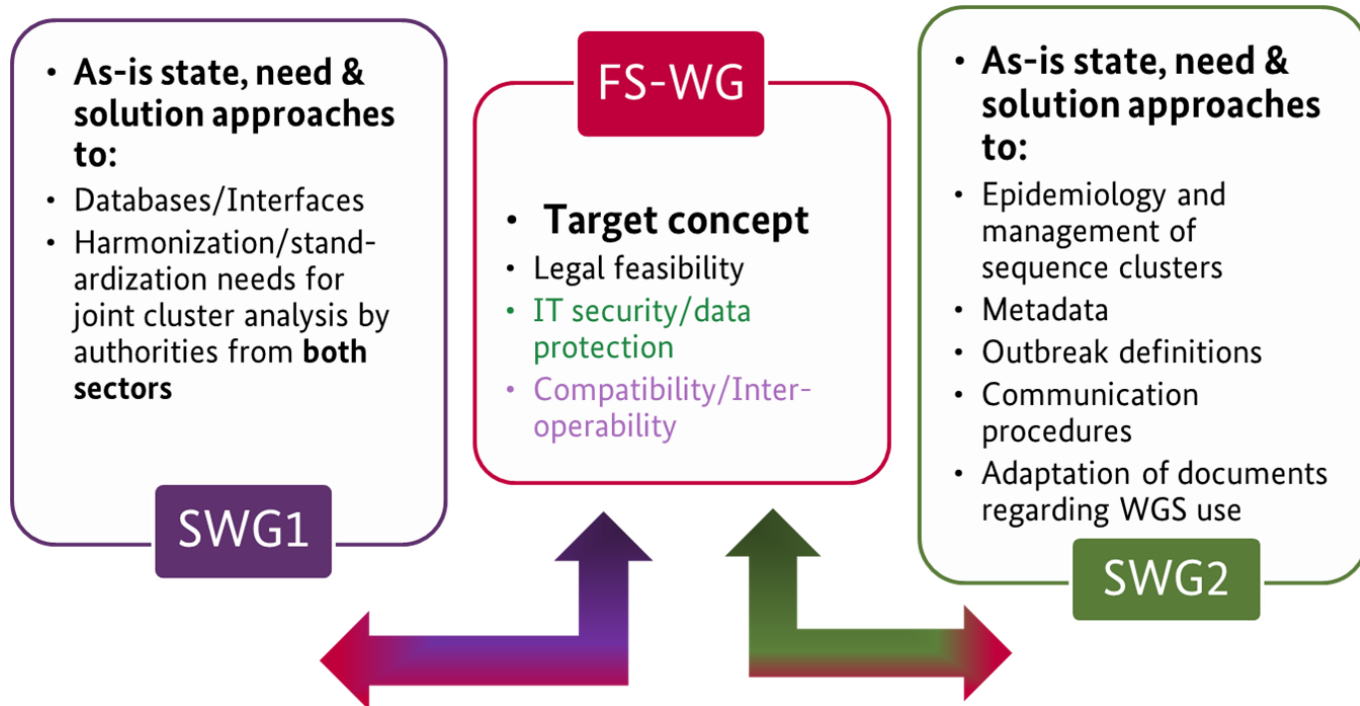
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What is my talk about and what is it not about?

- ✓ It is an **extension of Burkhard's talk**, so it is **not** about the **bioinformatics** aspects that were already presented yesterday
- ✓ It is about the **steps taken so far** that have led us to the current status and some of the difficulties we face
- ✓ It is told mainly from the **food safety perspective**
- ✓ It is about the implementation of a **system for the continuous alignment of sequence data**, not only in case of an outbreak

Finally, I will explain the next steps.

Federal-State Working Group (FS-WG), Sub-Working Group(s) (SWG)1 and 2: Tasks and Objectives



Nice structure! But what were the steps that led to it?

- ✓ The **benefits** of WGS for foodborne **outbreak detection and prevention** have been known for some time
- ✓ The **cost** of implementing the technology has dropped tremendously since the EHEC outbreak in 2011, allowing most to use it routinely
 - Several federal state and national reference **laboratories** from public health and food safety started using WGS on a **routine** basis; increasing trend
- ✓ Major **foodborne outbreaks** in DE have increased **political pressure** to optimize response in this area

Steps that led us so to this point

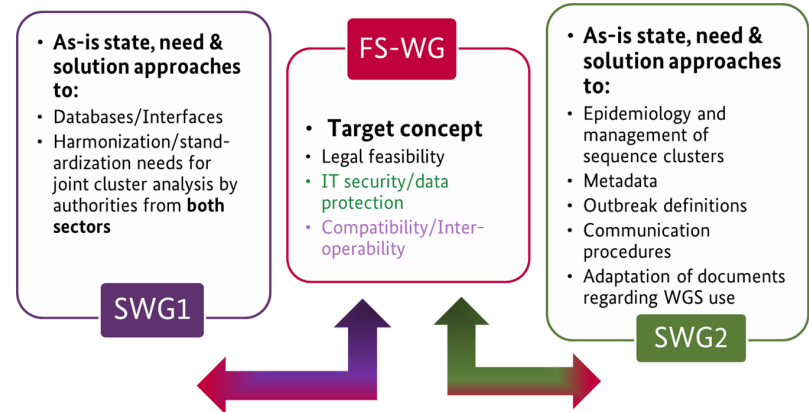
- ✓ Years of **good cooperation** between the **federal authorities** RKI, BfR and BVL **and the Länder** in the investigation of supraregional outbreaks
 - WGS introduced as standard technology for outbreak investigation at federal level in 2019
 - Extensive findings in third-party funded projects increased know how
 - Further needs identified in projects among food control committees
- ✓ Increasing outbreak investigations and **lack of mandate** prompt NRLs retreat from current situation
- ✓ **Requirements of the Länder** brought to the attention of the federal government in 2021
- ✓ **2022** was used for **coordination** talks **between sectors** at the **federal level**

Steps that led us to this point

- ✓ **1st output in 2022:** comprehensive **document** developed in agreement with the MOH
 - Describes the **state of play** on the use of **WGS** for the investigation of foodborne outbreaks
 - Gives **suggestions for** an approach based on **key aspects** agreed on at federal level **and** a **structure:**

Key aspects

- ✓ Open-source based software is preferable
 - ✓ Harmonized with EFSA/ECDC
 - ✓ Decentralized system
 - ✓ Sequence raw data publication after delay
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Steps that led us so to this point

- ✓ Separate presentations of the project to **competent authorities** of the Länder for both sectors and **recruitment of participants** in 2022
- ✓ **Kick off** with all ~60 participants meeting in February 2023
 - Introduction of groups and leaders
 - Presentation of work plan 2023
 - 3 meetings of each SWG
 - 2 meetings FS-WG
- ✓ 2 meetings in April
- ✓ 2 meetings in July
- ✓ **1st draft** of target concept

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Topics covered so far, related difficulties & possible solutions

- ✓ Technical requirements (see Burkhard's presentation)
 - *Difficult*: different **requirements & systems** in use; open source vs. commercial; different systems per pathogen; financial resources
 - *Suggestion*: keep looking for the common denominator; define minimum requirements
- ✓ Information and reporting channels
 - *Difficult*: the current state has **evolved historically** and existing **guidelines** do not take into account the use of WGS; sensitivity of detection increased
 - *Suggestion*: automated reporting; establishment of contact points at federal and state levels, taking into account the NRLs' withdrawal from coordinating tasks; revision of guidelines
- ✓ Metadata
 - For **different purposes**, from match **detection** to cluster **prioritization**
 - *Difficult*: Data protection
 - *Suggestion*: role-based system with access rights; access to metadata according to dynamics

Next steps

- ✓ Presentation of previous work and results to overarching FS-WG in November
- ✓ Discussion on specific aspects
- ✓ Continue work:
 - Alignment of target concept
 - Proposals
 - Set of metadata including access options according to cluster and outbreak dynamics
 - Minimum requirements for system

Thank you for your attention!

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