Datasets, Databases and Repositories on Avian Influenza in England, Italy and Germany: availability, accessibility, and potential use in epidemiological research

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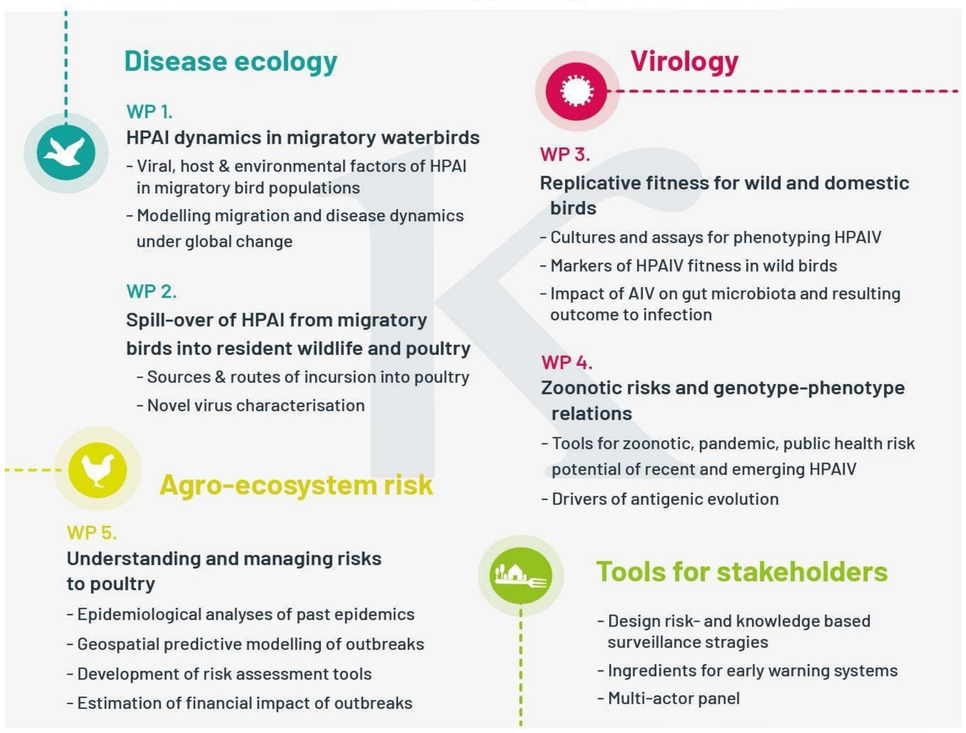
The Kappa-Flu project



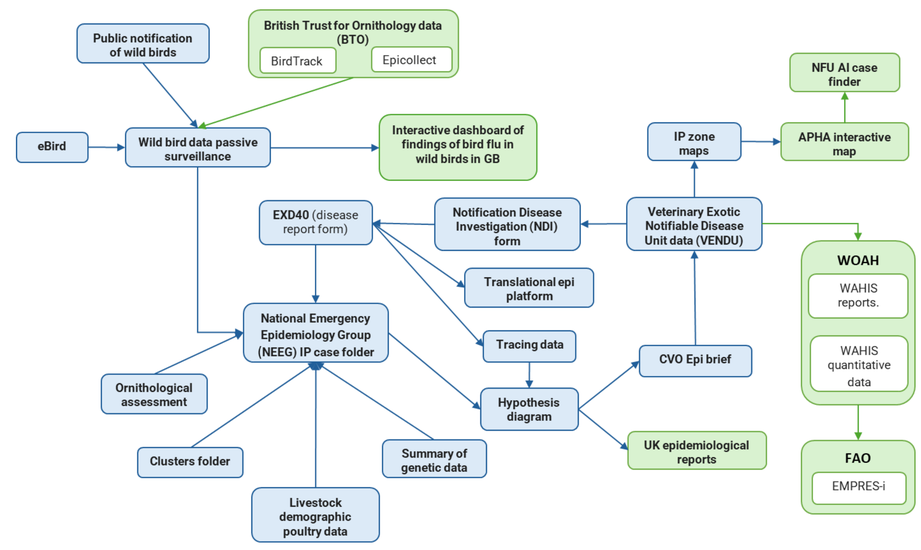
WP5 Task 5.1 Data collection and harmonisation

- The increasing capacity to collect and store data shifted the challenges in veterinary epidemiology from data acquisition to translating data into meaningful insights about animal health
- We mapped existing datasets on HPAI in poultry and wild birds in three case-study regions (England, Italy and Germany) and assessed their connections, harmonisation, accessibility and potential for future epidemiological research
- The above data will be exploited for eco-environmental and socio-economic analyses of avian influenza outbreak occurrence, develop a risk assessment tool for a prompt informed response, while forming the basis for other data analysis that will be performed within the Kappa-Flu project

Methods

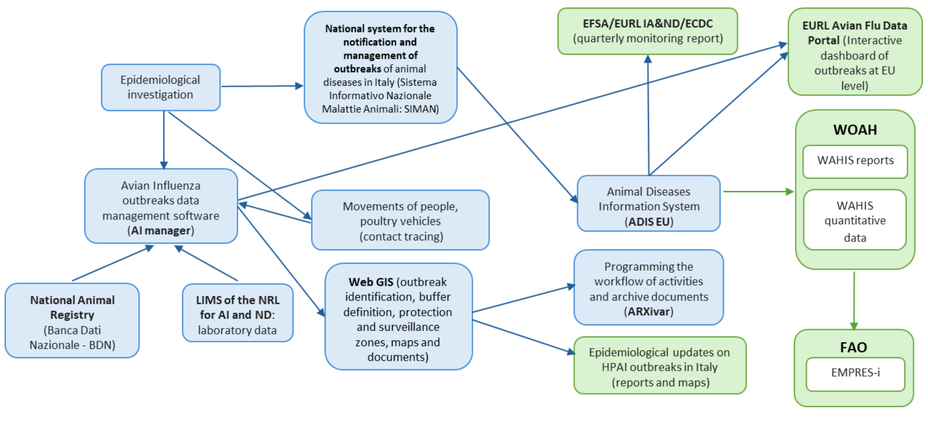
- Search of publicly available datasets or reports within each country, via government agency websites and Google search
- Expert consultation with government representatives from the Animal and Plant Health Agency (APHA), executive veterinarians at the European Reference Laboratory for Avian Influenza and Newcastle Disease at Istituto Zooprofilattico Sperimentale delle Venezie (EURL-AI & ND at IZSVe), and Friedrich Loeffler Institut (FLI), to gather information on available HPAI datasets

Results



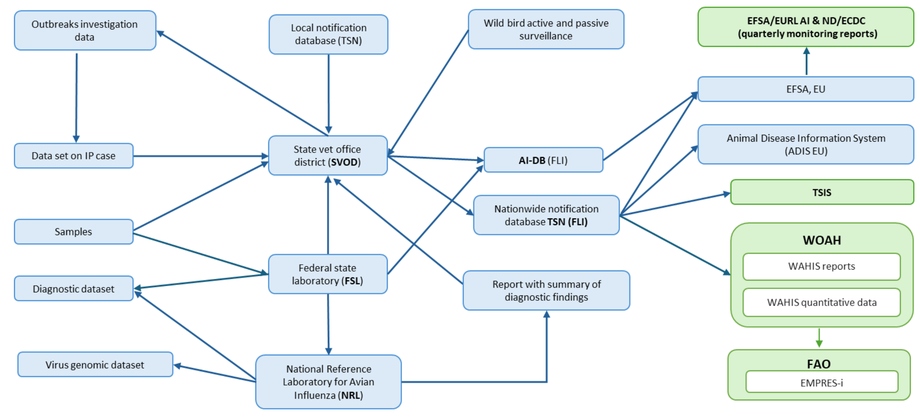
IP: infected premises; APHA: Animal and Plant Health Agency; NFU: National Farmers' Union

Figure 1 *Overview of AI datasets in England and their connections (green boxes are data publicly available)*



LIMS: Laboratory Information Management System

Figure 2 *Overview of AI datasets in Italy and their connections (green boxes are data publicly available)*



SVOD: State Veterinary Office District , State FLI: Friedrich-Loeffler-Institut

Figure 3 *Overview of AI datasets in Germany and their connections (green boxes are data publicly available)*

England

- Following the notification of a suspicion of HPAI by the Exotic Notifiable Disease Unit (**VENDU**) of the APHA, an official veterinarian visits the suspected premises, completes a disease report form (**EXD40**) with detailed data on the case, and takes animal samples for testing. When the disease is confirmed, further investigations will take place
- An infected premises (IP) case folder is created where all data related to that case are stored. These data are used for experts' discussions to determine the likely source of infection and to generate an hypothesis diagram, which will inform further investigations to be carried out, when needed
- The information generated through the hypothesis diagram will be summarised in an epidemiological brief for the CVO, and will be used by **VENDU** to notify **WOAH**
- Interactive maps on surveillance and protection zones are produced by APHA
- Yearly epidemiological reports are published with summaries of the investigations carried out describing the evolution of an HPAI epidemic

Italy

- Following the notification of a suspicion of HPAI by the poultry company vet or the Local Competent Authority, the disease will be confirmed or excluded by the National Reference Laboratory (NRL) for AI and ND and an epidemiological investigation is carried out
- Data collected will be stored into: 1) the Avian Influenza outbreaks data management software (**AI manager**) and will serve for outbreak management and to support control measures through the **WebGIS** application; and 2) the National system for the notification of outbreaks of animal diseases (**SIMAN**) and will be used to notify the EU commission via **ADIS**, the **WOAH** and **FAO**
- Notification of positive findings in wild birds through passive or active surveillance will be stored in the same data management softwares and used to fulfil the information obligations towards international organizations (EU and WOAH)
- Data stored in the AI manager and ADIS will be daily uploaded in the **EURL Avian Flu data Portal** and visualized through a dashboard consisting of graphs, tables and maps
- Epidemiological reports and maps of Italian outbreaks in poultry and wild birds are regularly updated on the NRL for AI and ND website

Germany

- Suspicions of HPAI are reported to the State Veterinary Office District (**SVOD**). There are 412 districts in Germany, which are responsible for the data collection and control of outbreaks
- All data collected on poultry and wild birds outbreaks are stored by the SVOD. Samples will be first analysed by a Federal state laboratory (**FSL**), and then confirmed by the National Reference Laboratory (**NRL**)
- A subset of data is sent by SVOD to the Friedrich-Loeffler-Institut (**FLI**) and stored under the **TSN** data system (for positive cases in poultry and wild birds) and **AI-DB** system (for positive and negative wild birds samples). This data contains essential information such as species, farm size or locations and will be used to notify the EU commission via ADIS, the WOAH and FAO. More specific data from field investigations (e.g. tracing data, biosecurity, etc…) will be retained at each SVOD
- FLI will then generate publicly accessible databases (**TSIS**) and will submit data to EFSA. Epidemiological reports and maps are published by BMEL, EFSA and FLI.

Conclusions and perspectives

Large amount of diverse data are collected routinely on HPAI infected premises, which are used operationally for outbreak management and control. These data provides several opportunities to meet needs for epidemiological research on HPAI. Challenges for its effective use differ between countries. Improving accessibility and harmonization will enhance the value of the data.

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