Exercise handbook

Zoonotic (variant) Highly Pathogenic Avian Influenza (HPAI) with human infection(s)

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NB. This handbook is designed by using the context of infectious disease control in the Netherlands as a basis. It can be tailored or customized to suit specific national or regional circumstances with necessary adjustments. We encourage users to carefully evaluate local needs and regulations when adapting the content to ensure alignment and effectiveness.

Content

1 Introduction

The JA SHARP (Joint Action "Strengthened International HeAlth Regulations and Preparedness") aims to strengthen the common ability of member and partner states to prevent, detect and respond to biological outbreaks, chemical contamination, environmental and unknown threats to human health. The JA consists of 10 Work Packages, covering core public health capacities according to the International Health Regulations (IHR) (2005). In addition to a coordination function, these cover areas such as Communication, Evaluation, Sustainability, IHR core capacity, Preparedness, Laboratories, Training and exercises, Chemical threats and Clinical management. The partnership of the joint action consists of 30 countries (24 EU member states (MS), 3 EEA/EFTA members and 3 European neighboring countries). The SHARP JA liaises with and collaborates with the ECDC, the WHO EURO regional office and the WHO Health Emergency and IHR unit in Lyon, and IANPHI in relevant activities.

The specific objective of Work Package 6 (WP6) within JA SHARP is to support EU MS and JA partner countries in developing operational inter-sectoral preparedness and response plans for serious cross-border health threats with an integrated all hazards approach. A literature review identified (i) the sectors that have been described to take part in multisectoral collaboration during public health emergencies, (ii) when multisectoral collaboration takes place, and (iii) the tools and instruments used to encourage and/or facilitate collaboration. The article was published on BMJ Open in 2022: https://bmjopen.bmj.com/content/12/11/e062624. Consensus was reached on which sectors should at least be included during public health emergency preparedness, response and recovery during a consensus meeting held in September 2022. During this meeting, consensus was also reached on a list of recommendations on how to facilitate and/or improve the incorporation of multisectoral collaboration in preparedness, response and recovery plans. Three additional studies to better understand multisectoral collaboration during the COVID-19 pandemic have been conducted within WP6, one study focusing on COVID-19 testing strategies, and two studies focusing on the citizen's role in multisectoral collaboration during the pandemic. The goal of these studies is to use these outcomes to formulate lessons learnt for future public health emergencies. The workshop in March 2023 discussed all these WP6's outcomes and how to implement these in practice.

To test the feasibility of these tools, i.e., sectors involved and recommendations, in the initial phase of public health emergency response this tabletop exercise is developed in collaboration with ZOOver. Zoover is an RIVM project for strengthening the response on zoonoses as part of pandemic preparedness. The project is funded by the Ministry of Health (VWS) an the Ministry of Agriculture (LNV). ZOOver is coordinated by RIVM CIb/Z&O, zoonosis and environmental research. Within the project a tabletop exercise was conducted by RIVM CIb/LCI to inspire public health professionals to think about multisectoral collaboration in their existing national, (in)formal preparedness and response plans and structures. The objectives of this tabletop exercise are to gather knowledge of preparedness and response (P&R) documents at different stages, to identify sectors/stakeholders relevant at different stages of P&R planning (preparedness, response, recovery), and to compare those with the sectors identified during the consensus meeting. Specific objectives for national public health and policy officials are to define required roles at different stages – overall need assessment, define country/geographic region-specific needs,

apply and identify improvements of (national) plans and practices. After, the exercise organizations can improve and update existing plans and collaboration agreements and evaluate the usefulness of the recommendations .

To make the handbook relevant to real life context, the case of infectious disease control in the Netherlands has been used as a basis. It can be tailored or customized to suit specific national or regional circumstances with necessary adjustments. We encourage users to carefully evaluate local needs and regulations when adapting the content to ensure alignment and effectiveness.

Throughout the following exercise different stakeholder groups specific to the regional and national situation in the Netherlands will be mentioned. Please see below the translation table with specific functions performed (table 1). The website can be found by Ctrl+click the abbreviation. Throughout the text, the specific Dutch situation is appointed in *italic*.

Table 1: translation of Dutch national / regional stakeholders

Abbreviation	Translation	International translation
CIb*	Centre for Infectious Disease Control	Centre for Infectious Disease Control
COM	Consultants public medical microbiology	Liaisons medical microbiological laboratory
EPI*	Centre for Infectious Diseases, Epidemiology and Surveillance	Centre for Infectious Diseases, Epidemiology and Surveillance*
Royal **GD**	Healthcare Service for Animals	Expertise center for animal health with one of the largest veterinary laboratories in the world
GGD	Regional Public Health Service / Municipal Health Service	Municipal Health Service
GGD-GHOR Nederland	National umbrella organisation of the 25 GGD/GHOR organisations	National umbrella organisation of the 25 Municipal Health Services and Regional Medical Assistance Organisations (GHOR)
GHOR	Regional Medical Emergency Preparedness and Planning	Regional Medical Emergency Preparedness and Planning office
IDS*	Centre for Infectious Diseases Research, Diagnostics and Laboratory Surveillance	Centre for Infectious Diseases Research, Diagnostics and Laboratory Surveillance*
LCI*	National Coordination Centre for Communicable Disease Control	National Coordination Centre for Communicable Disease Control*
LFI	National Functionality for Infectious Disease Control	National Crisis Response Organisation
LNV	Ministry of Agriculture, Nature and Food Quality	Ministry of Agriculture, Nature and the Environment
NVIC	NVWA Incident and Crisis centre	NVWA Incident and Crisis centre
NVWA	The Netherlands Food and Consumer Product Safety Authority	Food and Consumer Product Safety Authority
RAC	Regional Medical Liaisons	Medical liaisons
REC	Regional Epidemiology Consultants	Epidemiological liaisons

Abbreviation	Translation	International translation
RIVM	National Institute for Public Health and the Environment	National Institute for Public Health
RVC	Regional Veterinary Consultants	Veterinary liaisons
VWS	Ministry of Health, Welfare and Sport	Ministry of Health
Z&O*	Centre for Zoonoses and Environmental Microbiology	National Centre for Zoonoses and Environmental Microbiology*

*In the Netherlands, those units together form The Centre of Infectious Disease Control as part of the National Institute for Public Health

2 Goals and features of the exercise

This chapter describes the goals and features of the exercise.

2.1 General goals

The general goal of this exercise is to strengthen preparedness and response to zoonoses through improving regional and national collaboration.

2.2 Concrete goals

After the exercise participants should have:

- Gained better insight into each other's tasks and responsibilities, and collaboration agreements with regards to prevention and control of zoonoses or public health emergencies.
- Gained better insight into regional/national stakeholders in different sectors, who are involved in prevention and control of zoonoses that may pose a threat to public health.
- Received input to update (if necessary) existing collaboration agreements together with the right parties.

2.3 Exercise features

The exercise includes participants and observers and will consist of two rounds consisting each of (1) identifying relevant and necessary stakeholders and (2) meeting stakeholders and discussing.

Learning and collaborating

With this exercise the practice feature Learning and Collaboration will be at the forefront. Participants will gain insights into each other's tasks, capacities, and responsibilities based on existing preparedness and response plans and collaboration agreements Additionally, participants will gain insights into the nature of the collaboration and potential and/or necessity for updates.

2.4 Target audience and starting position

The exercise will be comprised of participants and observers involved in public health preparedness and response from different sectors.

Target groups (2 participants per stakeholder group)

Regional/ humanitary:
- Medical liaisons *(RAC)*
- Epidemiological liaisons *(REC)*
- Liaisons medical microbiological laboratory *(COM)*

Regional / veterinary:
- Veterinary liaisons *(RVC)*

National / humanitary:
- National Institute for Public Health / National Coordination Centre for Communicable Disease Control *(LCI)**
- National Institute for Public Health / Centre for Infectious Diseases Research, Diagnostics and Laboratory Surveillance *(IDS)**
- National Institute for Public Health / Centre for Infectious Diseases, Epidemiology and Surveillance *(EPI)**

- National Institute for Public Health / Communication
* In the Netherlands, those units together form The Centre of Infectious Disease Control as part of the National Institute for Public Health

National / veterinary
- National Institute for Public Health / National Centre for Zoonoses and Environmental Microbiology* *(Z&O)*
- NVWA Incident and Crisis centre *(NVIC)*
- Healthcare Service for Animals including lab facilities *(Royal GD)*

Observers
- The umbrella organisation of Regional Public Health Services and Regional Medical Emergency Preparedness and Planning offices *(GGD-GHOR)*
- National Crisis Response Organisation *(LFI)*
- Ministry of Health *(VWS)*

Starting position participants
Participants of the exercise should have experience participating in such exercises in which collaboration at regional or national level is essential. Participants should have knowledge of zoonotic public health risks, associated preparedness and response plans and (presence of) collaboration agreements. They should be involved in handling and upscaling such public health crises. No additional training is necessary as all participants will participate in their own role.

Starting position observers
Observers' role will be to observe participants' collaboration in the room, as their main goal is to suggest points where collaboration can be sharpened. Observers do not have to prepare for the exercise in advance, however they can be approached in their own role. It is not the intention that observers actively join the exercise and for this reason should not actively approach participants, except to ask questions pertaining to collaboration.

3 Initial situation

3.1 Nature and scope of the exercise

3.1.1 Form of the exercise

Interactive paper exercise - table-top

The form chosen for this exercise is an interactive paper exercise.
The main goal of the exercise is ensuring participants gain better insight into each other's tasks, responsibilities and collaboration agreements.
Considering the advanced status of the available competencies, an interactive paper exercise with tabletop is deemed appropriate.

3.1.2 Location of the exercise

Available facilities in the practice space will include computer/ beamer, 5 flipcharts (or as many groups will be assigned). Catering will be provided. The hosting organization will be made aware of the exercise to avoid (unnecessary) interruptions during the exercise.

3.1.3 Level of upscaling

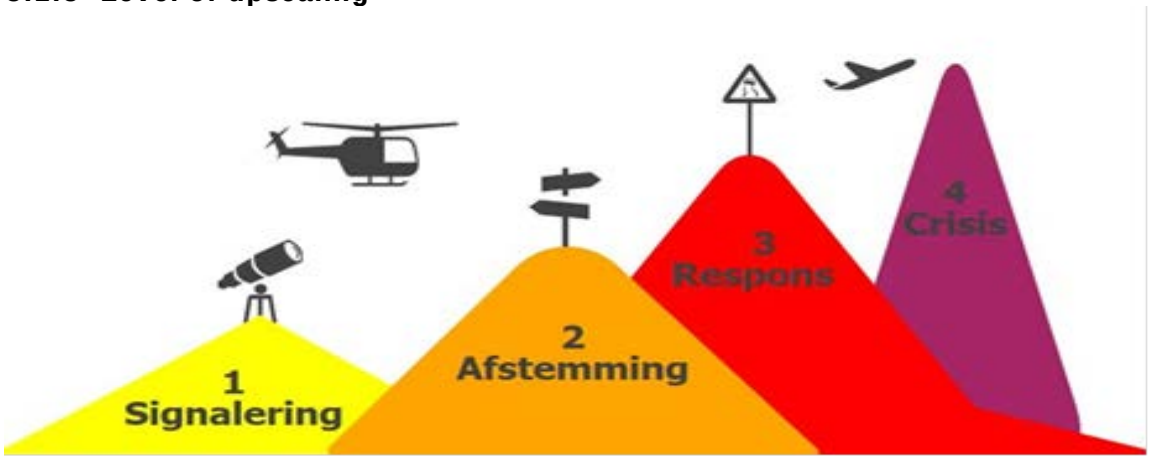

Figure 1: Levels of upscaling (1) signaling, (2) aligning, (3) response, (4) crisis

Please, include in short the upscaling structure appropriate for your situation. An example of what upscaling can look like is described below, using the Dutch situation*. During the exercise, the Centre for Infectious Disease Control-upscaling phases will come up (0: Regular, 1: Signaling, 2: Alignment, 3: Response, 4: National Institute for Public Health-wide crisis). Using the scenario, the different stakeholders / participants will discuss and consider when upscaling is necessary, or when an alignment meeting / response team meeting, communication or outbreak management team (OMT) needs to be organized. Representatives of the Municipal Health Service, Regional Medical Emergency Preparedness and Planning office, National Crisis Response Organisation, Ministry of Health, and Ministry of Agriculture, Nature and the Environment are written into the scenario or are available as observers, and thus can be questioned / their role can be simulated.*

3.2 Safety

No-Play

If at any moment during the exercise an unforeseen circumstance arises, such as a crisis (that requires upscaling) or calamity, the exercise can be (partially) halted. Depending on the situation, the exercise leadership can determine whether the exercise will be halted temporarily or indefinitely. The decision of No-play can be made by the leader of the exercise and will be communicated to participants (verbally or written) with the preamble "**No-Play**". Instructions from exercise moderators in such situations should always be followed.

4 Content of the exercise

4.1 Design of the exercise

This exercise is designed to strengthen regional and national collaboration agreements with regards to control of emerging zoonoses. The main goal of the exercise is to allow participants to gain insight into each other's roles, responsibilities and (existing) collaboration agreements. This will be done by practicing the (regional and national) support structure and existing (regional and national) collaboration agreements between participants / chain partners using an outlined scenario (annex 1). At the same time participants will be asked which stakeholders are missing at different points of the exercise, using a stakeholder analysis (annex 2 and 3). Finally, collaboration will be evaluated and points of improvement will be identified (annex 4). After completion of the exercise, collaboration agreements with regards to zoonoses can be evaluated and (if necessary) adapted by chain partners to strengthen collaboration.

4.2 Exercise plot

The scenario will be centered around observing an increase in the incidence infected wild birds and poultry farms with Highly Pathogenic Avian Influenza (HPAI) H5N1, leading to infection of humans with H5N1, including reassortment and possible human-to-human infection.

4.3 Scenario, messages, and assignments for participants

During the exercise participants will be confronted with two consecutive rounds (round (1) and follow-up round (2)), in which there is an increased incidence of HPAI H5N1 among wild birds and poultry farms in *the Netherlands* (annex 1). There will be an increase in clinical infections of HPAI H5N1 in humans, involving reassortment and possibly human-to-human transmission.

Only if the questions from the first round of the scenario have been answered (using the logbook in Picture, Discuss, Decide-Communicate (PDD-C) structure) and discussed, will the follow-up round (2) be started. Using the PDD-C structure, first a clear picture of the facts about the situation is obtained. During the next step the facts are discussed and interpreted and solutions are considered. Based on this discussion, decisions are taken about what needs to be done. Finally, clear communication with e.g. stakeholders or media needs to be established. In the forms provided in annex 2, participants are guided through this structure.

Incoming information is of importance to participants / chain partners for early detection of zoonoses and response to zoonotic signals.

Round 1: Increased incidence of HPAI H5N1 in *the Netherlands*

Each participant will receive their own 'inject' (or piece of information) that requires collaboration to inform all partners of what is going on and what actions / measures need to be taken.

In addition, a Stakeholder Identification Form is employed to establish the stakeholders with whom the form-filling actor will collaborate at a certain stage of the outbreak, whether the identified stakeholder is present at the exercise or not. This form also specifies the nature of collaboration between these stakeholders. For the stakeholder identification form, which is integrated into the logbook, please see annex 2. Participants should take five to ten minutes to answer the forms and then interact with each other. Depending on what the participants fill in during the exercise and what the specific need is, the Stakeholder Identification Form

can be used for creating an overview of necessary stakeholders (e.g. missing stakeholders at the table), an overview of how certain stakeholders work together, or even a brief network overview (e.g. a network chart[1] or function analysis[2], which can be used as a starting point for further (stakeholder) analysis.

At the end of round 1 there will be a plenary feedback session of both the participants and the observers, and some time for discussion and reflection.

Follow-up scenario (2): Increased incidence HPAI H5N1 in *the Netherlands* continues

In round 2 participants will receive additional information and again will perform risk assessment regarding follow-up measures and decisions (upscaling). Organisations / chain partners will formulate a picture of the situation, discuss relevance for their own organisation or other organisations, and the consequences for their region and/or country *the Netherlands* and decide about follow-up measures. Again, this will be a logbook in PDD-C format and will be combined with a stakeholder analysis to map the collaborating partners in this phase of an outbreak. Participants should take five to ten minutes to answer the questions on the forms and then proceed to interacting with each other.

Finally, after round 2 has been completed, there will be a plenary feedback session and discussion by both the participants and the observers

4.4 Multi-stakeholder collaboration analysis

A multi-stakeholder analysis is held at the end of the exercise, after completion of the outbreak exercise. Here, the aim is to evaluate the collaboration that took place during the exercise and to uncover insights that can enhance collaborative efforts during an infectious disease outbreak. To facilitate this exploration, the larger group will be divided into multiple smaller discussion clusters with six to eight participants per group. Each group will be guided by a facilitator and a note taker. These sessions will run for approximately one hour and will draw on the sailboat technique, a metaphorical approach designed to identify factors that facilitate multistakeholder collaboration (the wind that moves the sailboat forward) and factors impeding it (the anchor that holds the sailboat back). Additionally, it will be explored how collaboration can be enhanced by considering the identified 'winds' and 'anchors'. For the complete multistakeholder collaboration analysis instructions please see annex 4.

4.5 Roles and information

It is the intention that participants actively interact with each other during the exercise. The focus of the exercise is on collaboration and sharing information, rather than working out specific details of collaborating or specific questions in the exercise.

[1] Raab, J., Kenis, P., Kraaij-Dirkzwager, M., Timen, A. (2021). Ex Ante Knowledge for Infectious Disease Outbreaks: Introducing the Organizational Network Governance Approach. https://doi.org/10.1007/978-3-030-47150-7_14

[2] He, X., Jiang, P., Wu, Q., Lai, X., Liang, Y. (2022). Governmental Inter-sectoral Strategies to Prevent and Control COVID-19 in a Megacity: A Policy Brief From Shanghai, China. https://doi.org/10.3389/fpubh.2022.764847

5 Guidance during the exercise

The exercise should begin with a presentation by the one of the trained facilitators explaining the intention and content of the exercise. After this, the facilitators can hand out information to participants to start round 1. After 5-10 minutes to fill out the forms, the facilitators gives participants the opportunity to collaborate and share information with the parties that are present. After round 1 is completed, a facilitators should moderate the discussion and reflection. This is to be repeated for round 2.
Facilitators should be present for the duration of the entire exercise to answer any questions and guide the exercise. During the plenary discussions of round 1 and 2, there should be one or preferably multiple note takers.

6 Practical organization

6.1 Resources and materials

1. Nametags for all participants, observers, facilitators
2. Name signs for all participants and observers on the seats
3. Laptop and beamer
4. Laptop/notepad for notetakers
5. 40x pens (for all participants and observers)
6. Flip chart *x 4 (or the number of groups)*
    a. Sailboat retrospective drawn on it
7. Per group:
    a. Large post its and small post its (2 contrasting colours)
    b. Flip chart markers (one set of various colors)
8. Empty A4s (for note taking and any purpose)
9. 4x voice recorders (and 4x (work)phones as back-up)
10. Printed forms (depending on number of participants, observers and facilitators):
    a. 40x front page
    b. 40x PDD-C form round 1
    c. 40x5 stakeholder form round 1
    d. 40x PDD-C form round 2
    e. 40x10 stakeholder form round 2
    f. Extra stakeholder forms (in case participants require more)
    g. 40x observer front page
    h. 40x observer forms round 1
    i. 40x observer forms round 2
    j. 40x onion-diagram
    k. Overview scenario observers
    l. Extra PDD-C and stakeholder inventory forms
    m. 5x session guide for facilitators
    n. 5x overview table of expected actions
    o. 5x timetable for facilitators

6.2 Infrastructure and logistics

As participants will be divided into groups, the exercise space should facilitate participants sitting together with their group at the start and later moving around the room to meet other stakeholders. Tables and chairs should be divided into the number of groups present and the set-up should allow for enough space to move around and not to be distracted by the other groups.
There should be seats for observers to sit down during the introduction and plenary discussions.
Name signs for all participants and observers should be placed at each seat. The flipcharts should have the sailboat retrospective drawn ahead of the exercise to save time (but hidden from the sight of participants until the start of the sailboat exercise).

6.3 Interacting with the media

Consider if media attention of the exercise provides benefits.

6.4 Catering

Consider any catering needed before, during and after the exercise.

7 Realisation

7.1 Preparation before the exercise

7.1.1 Tasks when preparing for the exercise

Before the exercise, the scenario will have to be adapted to the intended country. This will include critical review of and (if necessary) adaptations to the scenario, to make it fit the national organisation of public health preparedness and response structures and pre-defined involved stakeholders. News items and X-feeds can be added for a realistic feeling.

7.1.2 Timeline for the preparation of the exercise

This schedule is an indication and might need adaption to the country specific situation. The duration is an indication, based on one person working on this full time.

What?	Duration
Consider exercise	1 week
Translate exercise	2-3 weeks
Adapt to country specific stakeholders	1-2 weeks
Invite Stakeholders (including reminder)	1 day
Organize rooms and catering	1 day
Adapt injects for specific stakeholders	2-3 weeks
Feedback round (if applicable)	2 weeks
Perform exercise	4-5 hours
Evaluation	2 weeks

7.2 Execution of the exercise

7.2.1 Tasks when executing the exercise

- Introduce and explain the exercise
- Hand out forms
- Walk around to answer any questions and guide the exercise
- Take notes and keep the time
- Moderate plenary discussions and feedback

7.2.2 Timeline of the exercise

What?	Time	Who?	Support
Opening (5 min)	***12:30hr***	**Management**	**Time keeper/ note taker**
Presentation: • Introduction, purpose and explanation of exercise (10 min) • SHARP/Stakeholder analyse (10 min)	***12.35hr***	1-4 people from the organisation team	
Part 1			
Pass out information for participants and observers (5 min) • Observation forms / summary of round 1 • General information / inject 1 • Logbook / action list • Stakeholder inventory form • Onion-diagram	***12.55hr***	2 people from the organisation team	
Round 1: participants (40 min)	***13.00hr***		
Plenary discussion round 1: participants (30 min)	***13.40hr***	1 facilitator	3 note takers
Plenary discussion observers (10 min)	***14.10hr***	1 facilitator	Same note takers
Short break (15 min)	***14.20hr***		
Part 2			
Pass out information for participants and observers (5 min) • Summary of round 2 • General information / inject 2 (media inject, Osiris questionnaire, lab results, etc.) • Logbook / action list • Stakeholder analysis forms • Onion-diagram	***14.35hr***	2 people from the organisation team	
Round 2: participants (40 min)	***14.40hr***		
Plenary discussion and feedback round 2: participants and observators (45 min)	***15.20hr***	2 people from the organisation team	3 note takers
Multistakeholder collaboration analysis (1 hr)	***16.05hr***	As many facilitators as there are groups	As many note takers as there are groups
Short evaluation (tips and tops) (10 min)	***17.05hr***	1 facilitator	
Finalization	***17.15hr***	1 facilitator	

7.3 Debriefing and follow-up of the exercise

At the end of the exercise, there will be a short evaluation, in which participants will be able comment on the exercise. Debriefing of the facilitators after the exercise can be used for future improvements of the exercise.
Afterwards, an evaluation form will be sent to participants, see 9.1.

8 Budget

For the budget, take the costs of preparation of the exercise (see 7.1.2), the materials stated in 6.1 into consideration, as well as the cost of renting a room, and possible catering. Additionally there might be costs when choosing professional translation of the exercise from English to a native language.

9 Evaluation

9.1 Evaluation form

An evaluation form is sent out to participants after the exercise is completed. This evaluation form is included in annex 5.

9.2 Evaluation of the guidance and chosen working method

In addition to the observers of the exercise, one specific observer who focused on the organizational aspects and chosen working forms is optional.

10 Follow-up

10.1 Outcome within the exercise cycle

Participants gained better insight in the roles and responsibilities of the other participants and the network of regional/national stakeholders who are involved in the prevention and control of zoonoses that may pose a threat to public health. Participants will be able to understand and update (if necessary) existing collaboration agreements. Participants are encouraged to implement any or all improvement(s) in existing collaboration agreements, as found through the exercise.

10.2 Delivery of evaluation report

An evaluation report will be written by the evaluators and sent for critical review to all participants and observers to facilitate implementation of the outcomes.

Annex 1. Scenario

Observers

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

Round 1

This month (September 2023), avian influenza was found at two poultry farms. Now that the NVWA has confirmed the presence of H5N1, the farms will be appraised and the animals culled and disposed of.

Poultry farm 'The Yolk' has 60,000 chickens and is located in the GGD 1 region in the east of the Netherlands. That GGD has already been informed. The owner of the farm reports that two of his employees have called in sick today.

Poultry farm 'Feathers' has 40,000 chickens and is located in the GGD 2 region in the south of the Netherlands. This GGD has been informed as well. In the same region, a number of chickens died last week at a children's farm called 'Mother Nature'. This children's farm is a popular attraction for children in the region. The NVWA has visited 'Mother Nature' and collected samples. As a precaution, the children's farm has now been closed to the public.

Figure: We are closed

Five days ago, a group of children between 7 and 8 years old at primary school 'The Butterfly' visited 'Mother Nature' children's farm on a school trip. The children's farm has informed the school of its closure in connection with a potential avian influenza outbreak among the chickens. Because a number of the children are now experiencing flu-like symptoms, the school has decided to inform the GGD of the situation today. Two of these four children visited the out of hours medical centre this past weekend in connection with respiratory symptoms. This has caused unease among school staff and the parents of the children.

In Germany, multiple human clinical infections of H5N1 have been reported in people who are frequently in close contact with poultry. A relatively large portion of these (symptomatic) cases appear to involve children under the age of 12.

In addition, various sources are already reporting cases of human seasonal influenza viruses and the number of SARS-CoV-2 cases is increasing as well.

Round 1

GD: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

The monitoring programme has shown that in the past six months, the number of poultry farms reporting cases of H5N1 in the Netherlands has risen. In response to increased bird mortality at two poultry farms this month (September), the NVWA conducted an investigation and found H5N1 in two regions: the GGD 1 region in the east of the Netherlands and the GGD 2 region in the south. These farms will be appraised and the animals culled. You have been informed by the NVWA that multiple employees of the farm in the GGD 1 region are experiencing flu-like symptoms.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 1

NVWA/NVIC: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

You (NVWA/NVIC) received reports from veterinarians (in September) concerning increased mortality at two poultry farms, located in the GGD 1 region in the east and the GGD 2 region in the south of the Netherlands. Your front-line team has already visited the farms to collect official samples. HPAI H5N1 was found at both farms: 'The Yolk' in the GGD 1 region with 60,000 chickens and 'Feathers' in the GGD 2 region with 40,000 chickens. These farms will be appraised today and the animals will be culled and disposed of.

The owner of poultry farm 'The Yolk' in the GGD 1 region has told you that two employees on his farm are ill and have flu-like symptoms.

There is also a report of dead chickens at a children's farm called 'Mother Nature' in the GGD 2 region. Here, too, HPAI is suspected. You have visited the children's farm and collected samples. Pigs were also present at the farm, one of which was displaying signs of a respiratory illness. Samples were taken from the pigs as well. As a precaution, it was recommended that the children's farm be closed to the public.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 1

RVC: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

You (NVWA/RVC) received information (in September) concerning increased mortality at two poultry farms, located in the GGD 1 region in the east and the GGD 2 region in the south of the Netherlands. The NVWA has already visited the farms and collected samples to undergo PCR testing for HPAI. HPAI H5N1 was found at both farms: 'The Yolk' in the GGD 1 region with 60,000 chickens and 'Feathers' in the GGD 2 region with 40,000 chickens. These farms will be appraised today and the animals will be culled and disposed of. The owner of poultry farm 'The Yolk' in the GGD 1 region has told you that two employees on his farm are ill and have flu-like symptoms.

There is also a report of dead chickens at a children's farm called 'Mother Nature' in the GGD 2 region. Here, too, HPAI is suspected. A visit was paid to the 'Mother Nature' children's farm and samples were collected from the pigs and chickens. As a precaution, it was recommended that the children's farm be closed to the public.

You have been approached by the GGD 2 region to ask if you know anything else about the situation at the 'Mother Nature' children's farm. Since this children's farm also keeps pigs, the GGD wonders if there is an additional risk of human infection? The GGD tells you that the primary school contacted them today to report that four of the children between 7 and 8 years old who went on the school trip to the children's farm are now ill at home with flu-like symptoms. Last weekend, two of these four children visited the out of hours medical centre complaining of shortness of breath, a cough and a fever. These children were found to have influenza A. Following consultation between the GGD and LCI and IDS, the regional lab forwarded these samples to the RIVM-IDS lab today for further typification as an urgent priority.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 1

RAC: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

You have been approached by the GGD 1 region in the east of the Netherlands. Avian influenza H5N1 has been confirmed at poultry farm 'The Yolk', which has 60,000 chickens. The poultry will be appraised today and the animals will be culled and disposed of. Samples from two farm employees with flu-like symptoms have been sent to the RIVM-IDS lab for diagnostics to determine whether HPAI is present.

Your counterpart RAC has also been approached by the GGD 2 region in the south of the Netherlands, where avian influenza H5N1 has been confirmed at poultry farm 'Feathers' with 40,000 chickens. This farm will also be appraised today and the animals culled and disposed of. The GGD 2 region also received a call from a primary school ('The Butterfly') reporting a rumour that avian influenza is present at the 'Mother Nature' children's farm. There were reportedly dead chickens, and as a precaution, the farm has now been closed to the public. Five days ago, the children between 7 and 8 years old from the primary school in question took a school trip to this children's farm. Today (Monday 18 September), the GGD has learned that four children now have flu-like symptoms and are therefore ill at home. Last weekend, two of these four children visited the out of hours medical centre complaining of shortness of breath, a cough and a fever. These children were found to have influenza A. The children in question petted the chickens and other animals. Following consultation between the GGD and LCI and IDS, the regional lab forwarded the samples to the RIVM-IDS lab today for further typification as an urgent priority. In light of the unease at the school, the GGD would like to confer about whether there are any other indications of infections in the Netherlands.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 1

REC: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

The GGD epidemiologists from the GGD 1 region in the east of the Netherlands and the GGD 2 region in the south have brought the following to your attention:

In the GGD 1 region, avian influenza H5N1 has been confirmed at poultry farm 'The Yolk', which has 60,000 chickens. Two employees have called in sick due to flu-like symptoms. Samples from them have been sent to the RIVM-IDS lab for diagnostics to determine whether HPAI is present.

In the GGD 2 region, avian influenza H5N1 has also been confirmed at poultry farm 'Feathers', which has 40,000 chickens. In addition, the GGD 2 region has learned today that four children between 7 and 8 years old at primary school 'The Butterfly' are currently ill at home with flu-like symptoms. Five days ago, these children visited the 'Mother Nature' children's farm, where there is a possible outbreak of avian influenza. In addition, two of these four children visited the out of hours medical centre last Saturday, complaining of shortness of breath, a cough and a fever. Their respiratory samples tested positive for influenza A. In consultation with the LCI and the medical microbiologist from the IDS lab, it was decided that these samples would be forwarded to the RIVM-IDS lab today for further typification as an urgent priority, due to suspected HPAI. The GGD epidemiologists in these regions are quite new to the position and are therefore asking for your help.

Both poultry farms will be appraised today and the animals will be culled and disposed of.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 1

LCI: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

Through the Early Warning and Response System (EWRS), you have received a message that multiple human clinical infections with influenza A/H5N1 were reported last week in the state of North Rhine-Westphalia, Germany, among individuals who are frequently in close contact with poultry. A relatively large portion of these reports appear to involve children under the age of 12. Germany is asking whether cases of human clinical infection with H5N1 have been found in other countries, and if so, which age groups have been affected and with what common symptoms. Which measures have been taken, assuming any action was necessary? The Communicable Disease Threats Report for today also includes information on the cases of human clinical infection with H5N1 in Germany.

You recently received reports from the NVWA, the GGD 1 region in the east and the GGD 2 region in the south of the Netherlands concerning outbreaks of H5N1 at poultry farms. Both farms will be appraised and the animals will be culled and disposed of.

GGD 1 region: Avian influenza H5N1 has been confirmed at poultry farm 'The Yolk', which has 60,000 chickens. Two employees are ill with flu-like symptoms. In consultation with you and the medical microbiologist from the IDS lab, the GGD has already taken samples from these employees and forwarded them to the RIVM-IDS lab for urgent diagnostic testing to see whether avian influenza is present.

GGD 2 region: Avian influenza H5N1 has been confirmed at poultry farm 'Feathers', which has 40,000 chickens. The GGD 2 region also received a call from a primary school ('The Butterfly') reporting a rumour that avian influenza is present at the 'Mother Nature' children's farm. A group of children aged between 7 and 8 years old from the school visited the farm five days ago. Today, it became apparent that four children from that group are currently ill at home with flu-like symptoms. In addition, two of these four children visited the out of hours medical centre last Saturday, complaining of shortness of breath, a cough and a fever. Their respiratory samples tested positive for influenza A. In consultation with you and the medical microbiologist from the IDS lab, it was decided that these samples would be forwarded to the RIVM-IDS lab today for further typification as an urgent priority, due to suspected HPAI. What policy should be adopted with regard to diagnostics for the group of children (with or without symptoms) who visited the children's farm?

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 1

EPI: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

Via Osiris, you have received alerts concerning two suspected cases of avian influenza from the GGD 1 region in the east of the Netherlands. The LCI has informed you that in the GGD 1 region, avian influenza H5N1 has been confirmed at a poultry farm ('The Yolk') with 60,000 chickens. Two employees are ill with flu-like symptoms. Samples from them have been sent to the RIVM-IDS lab for diagnostics to determine whether HPAI H5N1 is present.

In the GGD 2 region in the south of the Netherlands, HPAI H5N1 has been confirmed at a poultry farm ('Feathers') with 40,000 chickens. You have also received two reports of suspected cases of avian influenza from this GGD. These reports pertain to two children who were potentially exposed to HPAI at a children's farm.

In addition, you have received a message through the LCI's Early Warning and Response System (EWRS) from Germany of multiple clinical infections with H5N1 in the state of North Rhine-Westphalia among individuals who are frequently in close contact with poultry. A relatively large portion of these reports appear to involve children under the age of 12. Germany is asking whether cases of human clinical infection with H5N1 have recently been found in the Netherlands, and if so, which age groups have been affected and which common symptoms are present in the different populations.

Via Epipulse, you have also received today's Communicable Disease Threats Report, which contains information on the cases of human clinical infection with H5N1 in Germany (in the state of North Rhine-Westphalia).

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 1

COM member/IDS: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

COM member

You work as a medical microbiologist in the regional lab for the GGD 1 region in the east of the Netherlands, and are also a member of COM staff for RIVM.

In the GGD 2 region, and independently of one another, two children visited the out of hours medical centre last Saturday. Both children presented with respiratory symptoms (shortness of breath/cough) and fever, causing concern among their parents. There are currently outbreaks of flu and the coronavirus in the Netherlands. The out of hours medical centre therefore asked you to perform diagnostics. You conducted a broad rapid test (Biofire) that can identify both the H1 and H3 subtypes of influenza A, as well as a test for the coronavirus. You confirmed influenza A, but the H1pdm09 and H3 results were negative. You remember there have been reports of avian influenza in the region and report back to the out of hours medical centre that, while the two patients have influenza A, it is not the seasonal flu. You therefore suggest further inquiries be made. The samples turn out to be from two children who recently visited a children's farm where a potential outbreak of avian influenza has occurred (results of veterinary diagnostics pending). With that in mind, you decide (following consultation with LCI/IDS/the GGD 1 region) to send the samples to the RIVM-IDS lab today for further typification as an urgent priority.

IDS

You are an IDS employee and have learned through various channels – including the LCI (Early Warning and Response System [EWRS] report) – that multiple cases of clinical infection with H5N1 have been found in the state of North Rhine-Westphalia, Germany, among individuals who are frequently in close contact with poultry. A relatively large portion of these reports appear to involve children under the age of 12. Through Epipulse/EWRS, Germany is asking whether cases of human clinical infection with H5N1 have recently been found in the Netherlands, and if so, which age groups have been affected and which common symptoms are present in the different populations. You have received today's Communicable Disease Threats Report from the LCI. It also includes information on the cases of human clinical infection with H5N1 in Germany. So far, no H5N1 infection has been confirmed in a human subject in the Netherlands.

However, avian influenza HPAI H5N1 has been confirmed at a poultry farm in the GGD 1 region. The farm is awaiting culling and disposal of its animals. Two employees of the poultry farm have developed flu-like symptoms. In keeping with the established protocol for avian influenza, and after consulting with you, the respiratory samples have been sent to the RIVM-IDS lab for diagnostic testing.

In the IDS lab, the samples underwent molecular characterisation:

- **Sample 1 (employee 1):** Male, 23 years old, common cold, cough, headache: PCR influenza A(H5N1) positive. Sequencing results followed 30 hours later: A(H5N1) with NA-H275Y amino-acid substitution (= oseltamivir resistance).
- **Sample 2 (employee 2):** Male, 37 years old, common cold, cough, muscle ache: influenza A(H5N1) positive. Sequencing results followed 30 hours later: A(H5N1) without the marker for oseltamivir resistance, but with PB2-E627K amino-acid substitution (= marker for adaptation to replication in humans)
- **Sample 3 (child 1):** Girl, 7 years old, headache, sore throat, common cold, shortness of breath, cough, fever: influenza A(H5N1) positive. Sequencing results followed 30 hours later: A(H5N1), with six out of eight genome segments identical to those of the two poultry farm employees, while two segments (PB2 and PA) resembled those found in swine flu viruses.
- **Sample 4 (child 2):** Boy, 8 years old, fever/chills, cough, shortness of breath: influenza A(H5N1) positive. Sequencing results followed 30 hours later: A(H5N1) positive, results identical to sample 3.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 1

RIVM communication: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

You are informed by the LCI that in the GGD 1 region in the east of the Netherlands, avian influenza H5N1 has been confirmed at poultry farm 'The Yolk' with 60,000 chickens. Two employees are ill with flu-like symptoms. Their samples are being subjected to diagnostic testing for influenza, including avian influenza.

In the GGD 2 region in the south of the Netherlands, avian influenza H5N1 has been confirmed at poultry farm 'Feathers' with 40,000 chickens. The GGD 2 region has received a call from primary school 'The Butterfly', reporting a rumour that avian influenza is present at the 'Mother Nature' children's farm. Allegedly, many dead chickens were seen at the farm. Five days ago, a group children between 7 and 8 years old from that primary school took a school trip to the children's farm. Today, it became known that four children from that group are now ill at home with flu-like symptoms. Two children visited the out of hours medical centre this past weekend due to symptoms including shortness of breath and a cough. Both tested positive for influenza A. After consulting with the LCI and GGD, it was decided that the samples should be forwarded to the RIVM-IDS lab for further typification. The children in question petted the chickens and other animals during the school trip.

You have seen various social media posts from parents whose children attend primary school 'The Butterfly'. There appears to be major unrest. There has also been a news item about avian influenza at a children's farm.

Figure. We are closed

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Ellen_deJong
@Ellendejong

Mijn dochter is ziek en een paar dagen geleden met school op kinderboerderij 'de Natuurhoeve' geweest waar nu allerlei mannen in pakken zijn! Er worden dode vogels afgevoerd! Wat is er aan de hand?! #vogelgriep #kinderboerderij #ziekekinderen

782 90 7000

Ellen_deJong@Ellendejong: My daughter is ill and she has been to 'Mother Nature' children's farm with her school class. There are all people in suits taking away the birds. What is happing? #bird flu #children's farm #ill children

Willem_Groot
@Vaders4ever

Mijn kind is ziek na het bezoek aan kinderboerderij 'de Natuurhoeve', er zouden nu allemaal dode vogels zijn, er zou toch geen sprake zijn van vogelgriep?! @RIVM Wat is er aan de hand en wat moet ik doen?

92 13 239

Willem_Groot@Father4ever: My child is ill after visiting 'Mother Nature' children's farm, there are all dead birds, is this bird flu? @RIVM What is going on and what should I do?

OMROEP ONDER DE RIVIEREN Home Voor mij Media Uitgaan Meer

Possible avian influenza at the 'Mother Nature' children's farm?

According to numerous parents of children at the primary school 'The Butterfly', something very bad is going on at the 'Mother Nature' children's farm. Dozens of parents have reported, via various media, that their children are ill at home following a school trip to the children's farm.

One parent said that her child developed serious cold-like symptoms a few days after the farm visit. She thought nothing of it at first – kids get colds all the time, after all – but now that more parents of children from the same year are saying their children are ill with flu-like symptoms, and dead birds are being removed from the children's farm in question, she is obviously quite concerned!

The children's farm says it is very likely that the deaths of the chickens and other birds are down to the extreme heat last week, but that they naturally intend to cooperate with further investigation. As a result, the children's farm has been temporarily closed to the public. According to the children's farm, there is no reason to panic at this time: the employees wearing protective clothing while removing the dead birds and the temporary closure of the children's farm are all part of the standard procedure.

Round 1

Z&O: Inject 1

Baseline situation
Date: 18 September 2023

Avian influenza (H5N1) is currently circulating among wild birds in the Netherlands and other European countries, causing massive die-offs. There are regular cases of infections at poultry farms, which necessitate culling. Wild carnivores (such as foxes and mustelids) are contracting avian influenza after contact with infected wild birds as well. In several countries in Europe, a handful of asymptomatic infections have been confirmed in humans who have been in close contact with infected poultry or wild birds.

As general secretary and president of the SO-Z, you have been informed that new outbreaks of avian influenza have been found at two places in the Netherlands. In the GGD 1 region in the east of the Netherlands, avian influenza H5N1 has been confirmed at poultry farm 'The Yolk' with 60,000 chickens. Two employees are ill with flu-like symptoms. Their samples are being subjected to diagnostic testing for HPAI In the GGD 2 region in the south of the Netherlands, avian influenza H5N1 has been confirmed at poultry farm 'Feathers' with 40,000 chickens. There is also a possible outbreak of avian influenza at a children's farm in this same region. Diagnostic testing for HPAI is being conducted on samples from two children who became ill after a visit to this children's farm.

Both poultry farms will be appraised and the animals will be culled and disposed of.

The Communicable Disease Threats Report containing information about humans infected with H5N1 in the state of North Rhine-Westphalia, Germany, has been discussed in the SO-Z as well.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Discussion of the findings from round 1

Per organisation (group):

Feedback:

- What is the role of your organisation in this situation?
- Which stakeholders/chain partners are involved? (core cooperation)
- To which protocols/collaboration agreements did you refer/could you have referred/should you have referred?

Discussion points:

- Were the expectations and/or how the cooperation would proceed clear to all parties?
- Which parties were missing? What information would you have wanted to share with them?
- Were the existing protocols/collaboration agreements helpful? Which additional protocols, partners or agreements would you want to involve in the cooperation?

Feedback from observers based on the observation form

Observers

Follow-up round (2)

One week later (25 September 2023)

Last week, H5N1 infections were discovered at another five poultry farms in the Netherlands. There are as-yet unsubstantiated reports that multiple employees of these farms are ill.
H5N1 has now been confirmed at the children's farm in the GGD 2 region (in the south of the Netherlands), 'Mother Nature'. In addition to dead chickens, a pig at the farm is showing respiratory symptoms as well.

Diagnostic testing is being conducted on samples from children who developed flu-like symptoms after a visit to this children's farm. H5N1 has been confirmed in four children aged between 7 and 8 years old at primary school 'The Butterfly'. One of these children has been hospitalised with pneumonia. The GGD 2 region has received a report that multiple children at primary school 'The Butterfly' are experiencing flu-like symptoms. Public unease in connection with primary school 'The Butterfly' continues to grow. Can the virus now be transmitted from one person to another? The media is already talking about a new pandemic.

In addition, two dead cats have been found in the immediate vicinity of poultry farm 'The Yolk' in the GGD 1 region (in the east of the Netherlands). Moreover, the Daily Communicable Disease Threats Report from a few days ago contained a report about the presence of H5N1 in cats in eastern Europe. This report was quickly picked up by the media, causing cat owners to become concerned for both their animals and themselves. The GGD and NVWA are receiving frequent phone calls from citizens about this matter.

It has now been confirmed that the employees of poultry farm 'The Yolk' have HPAI H5N1. A little boy who lives near the poultry farm has also developed flu-like symptoms and has been admitted to hospital with pneumonia and a confirmed influenza A viral infection. The further typification of the influenza A virus is still in the works.

Round 2

GD/NVWA/NVIC/RVC: Inject 2

One week later (25 September 2023)

Last week, H5N1 infections were discovered at another five poultry farms in the Netherlands. There are as-yet unsubstantiated reports that multiple employees of these farms are ill with flu-like symptoms. Last week, you (NVWA) visited the 'Mother Nature' children's farm in the GGD 2 region (in the south of the Netherlands) in order to take samples from various chickens for PCR HPAI testing, which confirmed H5N1. During your visit to the children's farm, you learned that there was also a pig with respiratory symptoms, so you took samples from all the pigs. Samples were sent to WBVR for diagnostics. Today, the pig with respiratory symptoms was confirmed to be infected with H5N1. Further sequencing of the virus is in the works.

Yesterday, two dead cats were found in the immediate vicinity of poultry farm 'The Yolk' in the GGD 1 region (in the east of the Netherlands). The local veterinarian has contacted you to ask whether the cats should be tested for HPAI – and if so, by whom. Moreover, the Daily Communicable Disease Threats Report from a few days ago contained a report about the presence of H5N1 in cats in eastern Europe. This report was picked up by the media, causing cat owners to become concerned for both their animals and themselves. You are receiving frequent telephone calls from worried cat owners.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 2

RAC/REC: Inject 2

One week later (25 September 2023)

Last week, H5N1 infections were discovered at another five poultry farms throughout the Netherlands. There are as-yet unsubstantiated reports that multiple employees of these farms are ill.

It has now been confirmed that the employees of poultry farm 'The Yolk' in the GGD 1 region in the east of the Netherlands are infected with H5N1. Their contacts are being traced. The GGD 1 region has been informed that a four-year-old boy who lives across from the infected poultry farm has been admitted to hospital with pneumonia. They have therefore spoken with his parents. The parents said that the boy's illness began with conjunctivitis in both eyes four days ago, and that two days later he developed a cough and shortness of breath as well. Respiratory diagnostics were deployed in hospital, with influenza A as the result. The boy had not been on the infected farm in the last four weeks. Based on this account, the GGD has spoken to the local medical microbiologist and decided to send the samples to the RIVM-IDS lab for further typification as an urgent priority.

The RIVM-IDS lab has confirmed that four children between 7 and 8 at primary school 'The Butterfly' in the GGD 2 region in the south of the Netherlands have been infected with H5N1. Their contacts are being traced as well. One child (eight years old) is seriously ill and has been admitted to hospital. The GGD 2 region has received reports of many more ill children at primary school 'The Butterfly'. Children of other ages – who did not visit the 'Mother Nature' children's farm, where H5N1 has now been confirmed in the animals – have also become ill. Can the virus be transmitted from one person to another? The infectious disease control physician and the local epidemiologist are requesting support in investigating the outbreak.

Data obtained from source and contact tracing:
Employees of infected poultry farm 'The Yolk', GGD 1 region:

- *Employee 1: Male, 23 years old, first day of illness 18 September, common cold, cough, headache → H5N1 positive*
- *Employee 2: Male, 37 years old, first day of illness 18 September, common cold, cough, muscle ache → H5N1 positive*
- *Boy (neighbour): 4 years old, admitted to hospital on first day of illness 23 September, conjunctivitis, common cold, cough, shortness of breath, headache, fever, pneumonia, confirmed to be infected with influenza A virus → Further diagnostics pending at RIVM-IDS*

Individuals who have been in contact with employee 1:

- *Wife: 21 years old, first day of illness 23 September, common cold, muscle ache → Sample taken on 24 September, sent to IDS, results pending*
- *Female: 25 years old, no symptoms*
- *Female: 22 years old, no symptoms*
- *Male: 23 years old, first day of illness 24 September, fever, common cold, cough → Sample taken on 24 September, sent to IDS, results pending*
- *Male: 24 years old, no symptoms*

Individuals who have been in contact with employee 2:

- *Wife: 35 years old, first day of illness 25 September, sneezing, chills → Sample will be taken today*
- *Son: 4 years old, first day of illness 23 September, fever, cough, shortness of breath → Sample taken on 24 September, sent to IDS, results pending*
- *Mother: 70 years old, no symptoms*

Children from primary school 'The Butterfly', GGD 2 region:

- *Child 1: Girl, 7 years old, first day of illness 17 September, headache, sore throat, common cold, shortness of breath, cough, fever → H5N1 positive*
- *Child 2: Boy, 8 years old, first day of illness 16 September, admitted to hospital with pneumonia on 19 September, fever/chills, cough, shortness of breath → H5N1 positive*
- *Child 3: Boy, 7 years old, first day of illness 17 September, elevated temperature, common cold, diarrhoea, general malaise → H5N1 positive*
- *Child 4: Boy, 7 years old, first day of illness 16 September, fever, nasal congestion, sore throat, cough → H5N1 positive*

Individuals who have been in contact with children who have tested positive for H5N1:
Child 1:

- *Mother: 35 years old, no symptoms*
- *Father: 35 years old, first day of illness 23 September, common cold, muscle ache → Sample taken on 24 September, sent to IDS, results pending*
- *Brother: Boy, 2 years old, first day of illness early September, nasal congestion → Sample taken on 22 September, influenza A negative, positive for enterovirus*
- *Cousin: Boy, 7 years old, first day of illness 24 September, nasal congestion, sore throat, cough → Sample will be taken today*

Child 2:

- *Father: 40 years old, no symptoms*
- *Sister: 12 years old, first day of illness 24 September, common cold, muscle ache → Sample will be taken today*

Child 3:

- *Father: 35 years old, first day of illness 25 September, common cold → Sample will be taken today*
- *Mother: 37 years old, first day of illness 23 September, common cold, muscle ache, shortness of breath → Sample taken on 24 September, sent to IDS, results pending*
- *Sister 1: 11 years old, first day of illness 22 September, sneezing → Sample taken, results negative*
- *Sister 2: 4 years old, first day of illness 24 September, common cold, muscle ache, shortness of breath → Sample will be taken today*
- *Grandfather: 72 years old, no symptoms*

Child 4:

- *Father: 55 years old, no symptoms*
- *Mother: 45 years old, no symptoms*

For all children, further contact tracing will take place aimed at school, sports clubs etc. The following facts have been established: Multiple children called in sick to primary school 'The Butterfly' today. In another group (aged between 9 and 10 years old), three children are ill (making a total of seven in this age category). There are currently five ill children in the group of 10-11 year-olds and two ill children in the group of 11-12 year-olds. Further source and contact tracing is being conducted by the GGD 2 region in cooperation with the school.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 2

LCI: Inject 2

One week later (25 September 2023)

The NVWA has informed you that the chickens and pigs at 'Mother Nature' children's farm (in the GGD 2 region in the south of the Netherlands) have tested positive for H5N1.

In total, H5N1 infections have been confirmed in four children between 7 and 8 years old at primary school 'The Butterfly' that visited the 'Mother Nature' children's farm. One child has become seriously ill and has been admitted to hospital with pneumonia. Today, the GGD 2 region received reports of more ill children with cold and flu-like symptoms at primary school 'The Butterfly', including children from other groups. The GGD has also been informed that siblings of the first four children have now developed symptoms as well. There is a considerable amount of unease at this school. Can the virus be transmitted from one person to another? The GGDs say they have requested support in investigating the outbreak from RAC/REC. They are also requesting advice with regard to testing the other ill children at the primary school and whether or not these children should be reported as cases.

It has now been confirmed that the employees of poultry farm 'The Yolk' in the east of the Netherlands have H5N1. The GGD 1 region has informed you about the four-year-old boy who was hospitalised in this region. He lives near the owner of poultry farm 'The Yolk'. This boy was also found to have influenza A and his sample was forwarded to the RIVM-IDS lab for further typification due to suspected H5N1. He had not been to the farm in the four weeks preceding the first day of his illness. Two dead cats were also found near poultry farm 'The Yolk' in this region.

The Daily Communicable Disease Threats Report from a few days ago contained a report about the presence of H5N1 in cats in eastern Europe. This information was quickly picked up by the media.

Other GGDs are now asking for advice because they are receiving many telephone calls from cat owners who are concerned and want to be tested for avian influenza.

Data obtained from source and contact tracing:
Employees of infected poultry farm 'The Yolk', GGD 1 region:

- *Employee 1: Male, 23 years old, first day of illness 18 September, common cold, cough, headache → H5N1 positive*
- *Employee 2: Male, 37 years old, first day of illness 18 September, common cold, cough, muscle ache → H5N1 positive*
- *Boy (neighbour): 4 years old, admitted to hospital on first day of illness 23 September, conjunctivitis, congestion, cough, shortness of breath, headache, fever, pneumonia, confirmed to be infected with influenza A virus → Further diagnostics pending at RIVM-IDS*

Individuals who have been in contact with employee 1:

- *Wife: 21 years old, first day of illness 23 September, common cold, muscle ache → Sample taken on 24 September, sent to IDS, results pending*
- *Female: 25 years old, no symptoms*
- *Female: 22 years old, no symptoms*
- *Male: 23 years old, first day of illness 24 September, fever, common cold, cough → Sample taken on 24 September, sent to IDS, results pending*
- *Male: 24 years old, no symptoms*

Individuals who have been in contact with employee 2:

- *Wife: 35 years old, first day of illness 25 September, sneezing, chills → Sample will be taken today*
- *Son: 4 years old, first day of illness 23 September, fever, cough, shortness of breath → Sample taken on 24 September, sent to IDS, results pending*
- *Mother: 70 years old, no symptoms*

Children from primary school 'The Butterfly', GGD 2 region:

- *Child 1: Girl, 7 years old, first day of illness 17 September, headache, sore throat, common cold, shortness of breath, cough, fever → H5N1 positive*
- *Child 2: Boy, 8 years old, first day of illness 16 September, admitted to hospital with pneumonia on 19 September, fever/chills, cough, shortness of breath → H5N1 positive*
- *Child 3: Boy, 7 years old, first day of illness 17 September, elevated temperature, common cold, diarrhoea, general malaise → H5N1 positive*
- *Child 4: Boy, 7 years old, first day of illness 16 September, fever, nasal congestion, sore throat, cough → H5N1 positive*

Individuals who have been in contact with children who have tested positive for H5N1:
Child 1:

- *Mother: 35 years old, no symptoms*
- *Father: 35 years old, first day of illness 23 September, common cold, muscle ache → Sample taken on 24 September, sent to IDS, results pending*
- *Brother: Boy, 2 years old, first day of illness early September, nasal congestion → Sample taken on 22 September, influenza A negative, positive for enterovirus*
- *Cousin: Boy, 7 years old, first day of illness 24 September, nasal congestion, sore throat, cough → Sample will be taken today*

Child 2:

- *Father: 40 years old, no symptoms*
- *Sister: 12 years old, first day of illness 24 September, common cold, muscle ache → Sample will be taken today*

Child 3:

- *Father: 35 years old, first day of illness 25 September, common cold → Sample will be taken today*
- *Mother: 37 years old, first day of illness 23 September, common cold, muscle ache, shortness of breath → Sample taken on 24 September, sent to IDS, results pending*
- *Sister 1: 11 years old, first day of illness 22 September, sneezing → Sample taken, results negative*
- *Sister 2: 4 years old, first day of illness 24 September, common cold, muscle ache, shortness of breath → Sample will be taken today*
- *Grandfather: 72 years old, no symptoms*

Child 4:

- *Father: 55 years old, no symptoms*
- *Mother: 45 years old, no symptoms*

For all children, further contact tracing will take place aimed at school, sports clubs etc. The following facts have been established: Multiple children called in sick to primary school 'The Butterfly' today. In another group (aged between 9 and 10 years old), three children are ill (making a total of seven in this age category). There are currently five ill children in the group of 10-11 year-olds and two ill children in the group of 11-12 year-olds. Further source and contact tracing is being conducted by the GGD 2 region in cooperation with the school.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 2

EPI: Inject 2

One week later (25 September 2023)

A four-year-old boy living in the GGD 1 region in the east of the Netherlands was admitted to hospital with pneumonia and has tested positive for influenza A. The GGD has entered his data into Osiris due to a suspected H5N1 infection, although the boy has had no direct contact with infected poultry. Diagnostics are in progress at the RIVM-IDS lab.

H5N1 infections were confirmed in the four children from the GGD 2 region in the south of the Netherlands who became ill following a visit to a children's farm. This data has been entered into Osiris as well. Another notification in Osiris states that H5N1 (avian influenza) was found in the chickens and pigs at this same children's farm. One of the four children has become seriously ill and has been admitted to hospital with pneumonia. You have also received multiple Osiris alerts about suspected cases of HPAI among contacts of the four children who tested positive for H5N1. The local epidemiologist and the infectious disease control physician have already asked the REC for support in conducting the outbreak investigation.

Several days ago, the LCI informed the SO contact person of the item in the Daily Communicable Disease Threats Report that mentioned H5N1 having been found in cats in eastern Europe. The GGDs have nearly completed source and contact tracing for all individuals who had symptoms last week.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 2

IDS/COM member: Inject 2

One week later (25 September 2023)

Over the past week, various materials have arrived from the GGD 1 region (in the east of the Netherlands) and the GGD 2 region (in the south). Nearly all these materials tested positive for influenza A(H5N1).

The following results are known at this time:

- **Sample 1 (employee 1):** Male, 23 years old, first day of illness 18 September, common cold, cough, headache: PCR influenza A(H5N1) positive. Sequencing results followed 30 hours later: A(H5N1) with NA-H275Y amino-acid substitution (= oseltamivir resistance).
- **Sample 2 (employee 2):** Male, 37 years old, first day of illness 18 September, common cold, cough, muscle ache: influenza A(H5N1) positive. Sequencing results followed 30 hours later: A(H5N1) without the marker for oseltamivir resistance, but with PB2-E627K amino-acid substitution (= marker for adaptation to replication in humans)
- **Sample 3 (child 1):** Girl, 7 years old, first day of illness 17 September, headache, sore throat, common cold, shortness of breath, cough, fever: influenza A(H5N1) positive. Sequencing results followed 30 hours later: A(H5N1), with six out of eight genome segments identical to those of the two poultry farm employees, while two segments (PB2 and PA) resembled those found in swine flu viruses.
- **Sample 4 (child 2):** Boy, 8 years old, first day of illness 16 September, fever/chills, cough, shortness of breath: influenza A(H5N1) positive. Sequencing results followed 30 hours later: A(H5N1) positive, results identical to sample 3.
- **Sample 5 (child 3):** Boy, 7 years old, first day of illness 17 September, elevated temperature, common cold, diarrhoea, general malaise: influenza A(H5N1) positive. Sequencing results: A(H5N1) positive, results identical to sample 3.
- **Sample 6 (child 4):** Boy, 7 years old, first day of illness 16 September, fever, nasal congestion, sore throat, cough: influenza A(H5N1) positive. Sequencing results: A(H5N1) positive, results identical to sample 3.

Based on source and contact tracing, the following diagnostics have been or will be deployed for individuals with symptoms (partial results already available):

Sample 1/employee 1:

- **Sample 7** Wife of employee 1: female, 21 years old, first day of illness 23 September, common cold, muscle ache → Sample taken on 24 September. PCR: influenza A/H5, further typification and sequencing to follow.
- **Sample 8** Individual in contact with employee 1: male, 23 years old, first day of illness 24 September, fever, common cold, cough → Sample taken on 24 September. PCR: influenza A/H5, further typification and sequencing to follow.

Sample 2/employee 2:

- **Sample 9** Wife of employee 2: female, 35 years old, first day of illness 25 September, sneezing, chills → Sample will be taken today. Results to follow.
- **Sample 10** Individual in contact with employee 2: son, 4 years old, first day of illness 23 September, fever, cough, shortness of breath → Sample taken on 24 September. PCR: influenza A/H5, further typification and sequencing to follow.

Contact tracing for the poultry farm in the GGD 2 region:

- **Sample 11** Boy, 4 years old, hospitalised, first day of illness 23 September, conjunctivitis, common cold, cough, shortness of breath, headache, fever, pneumonia. PCR: influenza A/H5, further typification and sequencing to follow.

Sample 3/child 1:

- **Sample 12** Father: 35 years old, first day of illness 23 September, common cold, muscle ache → Sample taken and sent to IDS on 24 September. PCR: faintly positive for influenza A. Request for new material.
- **Sample 13** Brother: boy, 2 years old, first day of illness early September, nasal congestion → Sample taken on 22 September, influenza A results negative, positive for enterovirus. Typification to follow.
- **Sample 14** Cousin: boy, 7 years old, first day of illness 24 September, nasal congestion, sore throat, cough → Sample will be taken today. After consulting IDS, material will be sent to the lab by courier for rapid PCR.

Sample 4/child 2:

- **Sample 15** Sister: 12 years old, first day of illness 24 September, common cold, muscle ache → Sample will be taken today. After consulting IDS, material will be sent to the lab by courier for rapid PCR.

Sample 5/child 3:

- **Sample 16** Father: 35 years old, first day of illness 25 September, common cold → Sample will be taken today. After consulting IDS, material will be sent to the lab by courier for rapid PCR.
- **Sample 17** Mother: 37 years old, first day of illness 23 September, common cold, muscle ache, shortness of breath → Sample taken on 24 September and sent to IDS. PCR: influenza A/H5, further typification and sequencing to follow.
- **Sample 18** Sister 1: 11 years old, first day of illness 22 September, sneezing → Sample taken, negative for influenza A; PCR positive for SARS-CoV-2
- **Sample 19** Sister 2: 4 years old, first day of illness 24 September, common cold, muscle ache, shortness of breath → Sample will be taken today. After consulting IDS, material will be sent to the lab by courier for rapid PCR.

The H5N1 viruses found in the children from primary school 'The Butterfly' appear to be a mixture of avian influenza and swine flu viruses. While the typification of the contacts is not yet known, this is a worrying development because such variations may lead to transmission from one person to another. Sequences are being shared with the international reference laboratories. The sequences of employees 1 and 2 are also being seen in other countries and are consistent with distinct simultaneous emergences of HPAI H5N1 at different farms. The sequences of the four children (samples 3–6) have not been seen before and are causing serious concern among the various labs, ECDC, WHO and others.

Two individuals have been hospitalised to date: a four-year-old boy (sample 11) from the GGD 1 region in the east of the Netherlands and an eight-year-old boy (sample 4/child 2) from the GGD 2 region in the south. The GGD 2 region and the LCI are requesting advice regarding a testing policy for children at the 'The Butterfly' primary school who have not been in direct contact with the children who tested positive. GGDs are now also asking for advice because they are receiving many telephone calls from cat owners who are concerned and want to be tested for avian influenza. The quantity of respiratory samples that must be tested for HPAI is beginning to increase.
A few days ago, the LCI shared with you a Daily Communicable Disease Threats Report which contained a report about the presence of H5N1 in cats in eastern Europe.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Round 2

Communication: Inject 2

One week later (25 September 2023)

The chickens and pigs on the children's farm in the GGD 2 region (in the south of the Netherlands) have tested positive for H5N1 as well. The year-4 children from primary school 'The Butterfly' visited the children's farm ('Mother Nature') nearly two weeks ago.

Four children between 7 and 8 years old who visited the children's farm have tested positive for H5N1. Since then, the GGD has received reports of many more ill children at the primary school. A number of children in other years and their siblings have now developed flu-like symptoms as well. There is major unrest at and around primary school 'The Butterfly'. Can the virus now be transmitted from one person to another? The media is already talking about a new pandemic.

So far, two children have been admitted to hospital in the Netherlands. The lab results for one of these children are still pending. The hospitalised children are an eight-year-old boy at primary school 'The Butterfly' in the GGD 2 region (in the south of the Netherlands) and a child from the GGD 1 region (in the east): a four-year-old boy (who lives near the owner of poultry farm 'The Yolk'). Diagnostic testing for H5N1 is still pending in his case.

It has now been confirmed that the two ill employees of poultry farm 'The Yolk' in the GGD 1 region (in the east of the Netherlands) are infected with H5N1. In addition, two dead cats were found near the infected poultry farm. The Daily Communicable Disease Threats Report from a few days ago contained a report about the presence of H5N1 in cats in eastern Europe. This report was quickly picked up by the media, causing cat owners to become concerned for both their animals and themselves. The GGD and NVWA are receiving frequent phone calls from citizens about this matter.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

OMROEP ONDER DE RIVIEREN Home Voor mij Media Uitgaan Meer

Message from primary school 'The Butterfly': keep ill children at home

Primary school 'The Butterfly' is asking parents to keep children with flu-like symptoms at home. The reason for this is the avian influenza virus that has hit the school. A number of children in between 7 and 8 years old have tested positive for the virus. Other children in the year and children in other years are ill as well. An eight-year-old girl has been hospitalised due to the virus.

According to headmaster/headmistress xxx, there is an unusually large number of ill children at 'The Butterfly'. Two weeks ago, the 7- and 8-year-olds went to the children's farm where avian influenza was later found. Now that it has become known that various children have tested positive for avian influenza, many parents are opting to keep their children at home. 'About half of the children in the school did not attend last xxx.'

In consultation with the school board, the school has decided to ask parents to keep their children at home next week as well if the children are showing any flu-like symptoms. 'But parents are also keeping healthy children at home as a precaution' says xxx. Which they feel is a logical decision: 'We've learned from the coronavirus pandemic and we don't want to wait until it's too late to enact measures.'

Irfan_Aziz@staycurious: "How do we know it is only at this school? Why would it not be everywhere? How can we keep track? Is it measured in sewer surveillance?@RIVM"

Francis_Wap@nojabformychildren: Are those children vaccinated? That would explain everything…#vaccinfree

Hans_Tomcat@catslife: My cat is ill! Could this be bird flu? Should she be isolated and can she be tested? @ RIVM @ GGDRegion 1

Sylvia_Green @ mother of two: We live in the neighbourhood of a children's farm with chickens, ducks and geese. I often go there with my two sons. I was recently at children's farm "the two little goats" and now both my sons have a cold. Where can we be tested?

Johan_terwaard @ the critical father: "Bird flu can only be by contact with ill birds or animals" see RIVM-website. How does the RIVM explain the other ill children at "the Butterfly", who did not go to the children's farm?

Avian influenza outbreak strategy falls short, according to virologists

Among virologists, concerns regarding an avian influenza pandemic are increasing. This is because birds, cats, foxes and potentially pigs are becoming infected. Last week, several primary-school children became ill following a visit to a children's farm where avian influenza has been confirmed. The virus appears to be spreading among the children's contacts as well. Two children are in hospital and a cat has died.

In short: there is every reason to put our full efforts toward controlling the spread of this avian influenza outbreak. But as a country, the Netherlands is ill-prepared to do this, explained virologist Mutate in the talk show *Jinek*. 'That goes not only for the Netherlands, but for the rest of the world, too.'

Another virologist, Sekwensing, agrees that it is vital to take 'every possible measure' to prevent the virus from spreading across the Netherlands at a rapid rate. 'Because if that happens, we are not ready for it.'

Dangerous variants

For some time now, the avian influenza virus has been circulating worldwide in a 'highly pathogenic' form, i.e. a variant that is extremely dangerous to birds. It is not yet clear which variant of avian influenza is involved in the recent infections of animals and children. 'But we do know that the forerunners of this highly pathogenic form were capable of infecting humans on occasion,' says Sekwensing. 'That is bad news, plain and simple.'

Risk of pigs infected with avian influenza

At one of the farms, there is a suspicion that a pig was infected with the virus as well. According to the GGD/GD, 'this has not yet been definitively identified as avian influenza.'

'If avian influenza begins to circulate among pigs, there is a risk that it will hybridise with the flu viruses normally found in pigs. There have been cases in the past when flu pandemics started with a hybrid of avian influenza and swine flu,' Mutate explains. 'And we know that pigs are susceptible to avian influenza viruses. So this could lead to major problems in two different ways.'

Round 2

Z&O: Inject 2

One week later (25 September 2023)

The LCI has informed you that the chickens and pigs at the children's farm in the GGD 2 region (in the south of the Netherlands) have also tested positive for H5N1. In addition, two dead cats were found near poultry farm 'The Yolk' in the GGD 1 region (in the east of the Netherlands), where there is a confirmed outbreak of H5N1. The local veterinarian has requested that these cats be tested for H5N1. It is not yet clear who will conduct these tests and out of which budget they will be paid. During the meeting of the consultation body, you learned of the human infections among individuals who were in contact with infected poultry in the Netherlands and abroad. You were also informed that children had become ill following a visit to a children's farm in the south of the Netherlands, where the chickens and pigs tested positive for H5N1.

The LCI has forwarded you the Daily Communicable Disease Threats Report from a few days ago, which contains a report about H5N1 in cats in eastern Europe. Cat owners all across the Netherlands are contacting their veterinarians to ask about having their cats tested for and/or vaccinated against avian influenza. The subject is also receiving a great deal of attention in the media.

Assignment:

- Record all actions in the logbook (using the PDD-C structure) and answer the questions.
- Fill in the accompanying stakeholder form.
- Establish contact with the relevant organisation(s)/stakeholder(s), if these are present in the room, and write a summary of the findings, the actions you intend to take and your main message on the flip chart.

Discussion of the findings from round 2

Per organisation (group):

Feedback:

- What is the role of your organisation in this situation?
- Which stakeholders/chain partners are involved and how? (core cooperation)
- To which protocols/cooperative agreements did you refer/could you have referred/should you have referred?

Discussion points:

- Were the expectations and/or how the cooperation would proceed clear to all parties?
- Which parties were missing? What information would you have wanted to share with them?
- Were the existing protocols/collaboration agreements helpful? Which additional partners or agreements would you want to involve in the collaboration?

Stakeholder analysis each group led by a supervisor and a notetaker

Brief evaluation of exercise

Feedback from observers based on the observation form

Annex 2. Exercise forms

LOGBOOK

Name:	
Organisation:	
Department / position (if applicable):	

Please fill in the logbook during the exercise using the PDD-C structure.
Please fill in a form per organization.
Note: there is a separate form for round 1 and 2.

Overview per participant:

- PDD-C forms round 1
- Stakeholder inventory forms round 1 (x5)
- PDD-C forms round 2
- Stakeholder inventory form round 2 (x10)

Round 1

PDD-C form

Picture	
Describe the facts briefly: What is the situation?	
Discuss	
Discuss the facts shortly: What is the problem?	
What is the role of your organisation in this situation?	
Are there specific protocols or collaboration agreements that you would want to consult?	
Decision / action / communication	
What will you do? Which decisions are being taken?	
With which organisation do you expect to collaborate?	→ Give an overview using the **stakeholder inventory form** which chain partners you would involve or inform. Fill in one A4 per stakeholder. Think of the onion-diagram: stakeholders who are part of the exercise, stakeholders who are not, and stakeholders from other sectors.

Round 1

Stakeholder inventory form

Identified stakeholder of organisation (if relevant department / position)	

Why do you want to include or inform this stakeholder?	
In what way do you expect to collaborate? (multiple answers possible)	☐ Informing stakeholder (sharing information) ☐ Requesting information/data from stakeholder ☐ Advise stakeholder on an action ☐ Request stakeholder to take certain action ☐ Support stakeholder when taking an action ☐ Align with stakeholder on joint action ☐ Coordination of stakeholders ☐ Different, namely…
If the intended stakeholder is present in the room:	Find contact and briefly write down your findings & action/communication on the flap chart for joint feedback. When doing so, indicate which organization you belong to.
If the intended stakeholder is not present in the room: What is the desired action the identified stakeholder should take?	
Additional comments:	

Round 2

PDD-C form

Picture	
Describe the facts briefly: What is the situation?	
Discuss	
Discuss the facts shortly: What is the problem?	
What is the role of your organisation in this situation?	
Are there specific protocols or collaboration agreements that you would want to consult?	
Decision / action / communication	
What will you do? Which decisions are being taken?	
With which organisation do you expect to collaborate?	→ Give an overview using the **stakeholder inventory form** which chain partners you would involve or inform. Fill in one A4 per stakeholder. Think of the onion-diagram: stakeholders who are part of the exercise, stakeholders who are not, and stakeholders from other sectors.

Round 2

Stakeholder inventory form

Identified stakeholder of organisation (if relevant department / position)	

Why do you want to include or inform this stakeholder?	
In what way do you expect to collaborate? (multiple answers possible)	Informing stakeholder (sharing information) ☐ Requesting information/data from stakeholder ☐ Advise stakeholder on an action ☐ Request stakeholder to take certain action ☐ Support stakeholder when taking an action ☐ Align with stakeholder on joint action ☐ Coordination of stakeholders ☐ Different, namely…
If the intended stakeholder is present in the room:	Find contact and briefly write down your findings & action/communication on the flap chart for joint feedback. When doing so, indicate which organization you belong to.
If the intended stakeholder is not present in the room: What is the desired action the identified stakeholder should take?	
Additional comments:	

Annex 3. Observation forms

OBSERVER FORMS

Name:	
Organisation:	
Department/position (if applicable):	

Please fill in the forms during the exercise.
Please fill in a form per organization.
Note: there is a separate form for round 1 and round 2.

Overview:

- Observer form round 1
- Observer form round 2

Round 1

Observer form

Which chain partners / group(s) did you observe?	
What did you notice in general during the exercise?	
Were the roles of the different chain partners present during the exercise clear? Please elaborate.	
What are the obstacles to the collaboration in your opinion?	

Did you miss any chain partners / stakeholders at the table? Why? Which role could that stakeholder have?	
Which role do you see your own organisation having in the round (1)?	
Did the participants mention your organization and your (potential) role?	
Additional comments:	

Round 2

Observer form

Which chain partners / group(s) did you observe?	
What did you notice in general during the exercise?	
Were the roles of the different chain partners present during the exercise clear? Please elaborate.	
What are the obstacles to the collaboration in your opinion?	

Did you miss any chain partners / stakeholders at the table? Why? Which role could that stakeholder have?	
Which role do you see your own organisation having in the round (1)?	
Did the participants mention your organization and your (potential) role?	
Additional comments:	

Annex 4. Multistakeholder Collaboration Analysis with Sailboat Retrospective

Aim and approach

Overall aim and approach

Upon completing the two rounds of the tabletop exercise, the Multistakeholder Collaboration Analysis session will begin to reflect on the collaboration that took place during the tabletop exercise from a higher level, going beyond the existing collaboration agreements and guidelines. Working in groups of 4-8 people, the participants are expected to uncover insights that can enhance collaborative efforts during an infectious disease outbreak. This exchange between participants not only provides rich data on how to improve multistakeholder collaboration, but also provides a space for these stakeholders to communicate with each other on a structured exercise, thereby a step towards improving collaboration.

The process will center around the practical application of post-it notes, coupled with a visualization of a sailboat displayed on a flip chart or whiteboard. Engaged participants will be encouraged to translate their thoughts by writing down factors that resonated as either "anchors" or "winds" separately in post-it's with predetermined colours, then strategically placing these notes on the upper part of the sailboat visualization (wind) or below the surface, in the sea (anchor). The aim is to keep the focus of the participants on the collaboration that took place during the tabletop exercise (or potential future zoonotic outbreak). Should recollections of other situations or experiences emerge, for example those stemming from the COVID-19 pandemic, the facilitator can ask how this experience relates to today's case or why the participant finds it relevant here.

Importance of asking 'why'

After writing and placing winds and anchors, a discussion will be held with the participants about the post-it's that have been placed around the sailboat. The facilitator will delve into the different factors written down, while simultaneously placing factors that have a similar meaning together. The factors written down will be discussed with the participants who wrote them. This interaction will follow a gradual pattern: beginning with a broad and open conversation to understand the essence of the factor, followed by a more detailed exploration through specific questions, with the aim of discovering opportunities to improve multistakeholder collaboration.
At the end of the session, the aim is to not only unravel the bare 'list of barriers, facilitators and lessons learned', but to also understand how these barriers hinder collaboration, how these facilitators lead to better collaboration, and how the recommendations will improve the collaboration. Thus, understanding the **underlying context, mechanisms and outcomes** is important. See box 1 for examples.

Box 1: examples of asking 'why'

Example 1:

"In the context of outbreak response, the perception of frequent communication can vary greatly among participants. One individual might view it as a 'wind,' a positive force, while another considers it an 'anchor,' a hindrance. Upon further inquiry by the facilitator, it becomes apparent that the first participant values frequent communication for its role in enhancing awareness and facilitating more effective response activities. For this individual, it leads to a sense of security and better adaptation to the evolving situation.
Conversely, the second participant sees frequent communication as a 'fatigue.' The amount of meetings, emails, and phone calls has the potential to be overwhelming and distracting, preventing them from efficiently completing their tasks. The discussion may reveal that the first participant operates within a specific segment of outbreak response, whereas the second works in a department with a coordinating role at the intersection of various information streams. These differing roles and contexts contribute to their distinct experiences of 'frequent communication.'
This example illustrates that the same factor or label, such as 'frequent communication,' can yield contrasting outcomes based on individual circumstances and mechanisms at play.

Example 2:

Shared Goals and Vision post-its may be found in both the 'winds' and 'anchors' sections. Through participant discussions, it becomes evident that at the outset of their collaboration, stakeholders held differing goals and visions, leading to initial divergence. This divergence hindered their progress and led to some participants labeling 'shared goals/vision' as an 'anchor.'
However, as the stakeholders continued to collaborate and develop a common understanding, their goals and visions gradually aligned, resulting in convergence. This shared vision facilitated progress significantly. This dynamic process demonstrates that stakeholder collaboration is not static; it possesses a temporal component that evolves and improves over time.
Towards the conclusion of the exercise, the facilitator can bridge this discussion with practical recommendations by asking how stakeholders could expedite the early phases of achieving shared goals and vision. Are there specific measures that could accelerate the process of alignment during the initial stages of collaboration?

Example 3:

During the collaborative exercise, various participants may use the term 'experience' as a 'wind.' When questioned about their choice, one participant might explain that they were referring to the experience of stakeholders working together effectively in the past. In contrast, another participant might indicate that 'experience' for them implies the expertise of stakeholders in their respective fields or their prior involvement in managing outbreaks.
In such instances, the facilitator can add clarifying sub-notes to these 'experience' post-its. For instance, 'of working together' can be added beneath one, and 'of the experts' beneath the other, providing a more precise understanding of each participant's perspective.

Tip: Due to time constraints, it may not be possible to ask 'why' to each post-it or factor raised. Try to prioritize post-it's that are less obvious or look contradictory.

Probes
If the observation is made that the participants are not finding it easy to write winds and anchors on post its, first emphasize that there are no right or wrong answers and that their own collaboration experience is valuable.

Expected common themes
To trigger ideas, you can use the following probes, which are expected to emerge as common themes, as observed in various outputs of the SHARP project and other relevant literature.
“Have you experienced any of these as wind or anchor?”

- Shared aims and vision (or lack of)
- Resources/ capacity
- Trust
- Experience (can be about working together or experience of stakeholders in outbreak response)
- Culture (for example, openness)
- Implementation support
- Communication channels

Multisectoral collaboration
In the context of multisectoral collaboration, understanding the barriers and facilitators is essential, particularly when examining collaboration between various sectors. To facilitate this exploration, consider introducing the diagram below (Figure 1), which presents an onion diagram illustrating the proximity of infectious disease control (IDC) actors to the central infectious disease outbreak. In this depiction, core IDC actors closely associated with the outbreak occupy the central region, followed by IDC actors involved in related tasks, and extending towards the outer edges are actors from different sectors who are more distantly connected to the outbreak. The national public health center or authority on infectious disease control, for example, would possibly be placed in the core IDC actors on humanitary side. Hospitals, on the other hand, could be placed in the second ring (IDC actors not at the table), as they have an important role to prevent and respond outbreaks on humans but do not have a role in coordination. In the case of a zoonotic outbreak, the inner circle consists of not only organisations on human health, but also on animal health.

To delve deeper into this concept, you can pose probing questions related to the onion diagram:

- Do you notice variations in how you engage with stakeholders as you move towards the periphery of the diagram?
- Are there specific pressures or perceived risks that influence your collaboration with groups situated at a greater distance from the core?

It's important to note that these questions may not apply to sessions centered around the current outbreak scenario, especially if there were no participants from the outer rings of the onion diagram. However, participants can draw from their prior experiences that remain relevant to the context of the ongoing outbreak case.

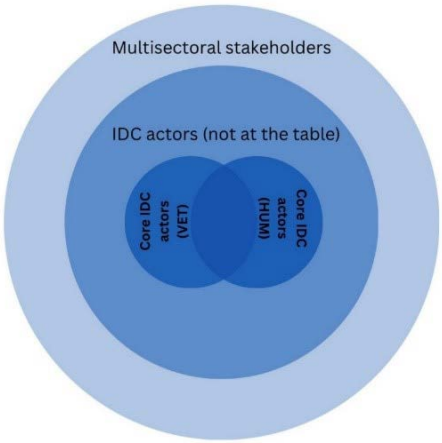

Figure 1. Stakeholder onion diagram relating to control of zoonotic outbreaks
IDC = infectious disease control, VET = veterinary, HUM = humanitary

Materials needed

Box 2. Materials needed

1. PowerPoint presentation of sailboat exercise
2. Laptop/notepad per notetaker/observer
3. Session guide per participant
4. Printed version of onion diagram per participant
5. Per group:
    a. 1 flip chart, incl. visualisation of a sailboat restrospective
    a. A set of different coloured chart markers
    b. Post-its in two different colours
6. Empty A4's (for note taking and any other purpose)

Preparations

Distribution of participants, facilitators and note takers to tables

For this final exercise, participants with the same roles can be distributed into separate groups of four to eight participants per group, to promote diversity and varied perspectives. For instance, if there are four participants from the same organisation, assign each of them to a different group. It is also advised to make mixed groups from veterinary and human experts, people from regional/local and national organisations. This approach ensures group heterogeneity, fostering a richer exchange of ideas and experiences among participants. This is not only valuable as a data collection means, but also creates a space for stakeholders from different backgrounds, sectors or levels to communicate with each other and thereby serve towards improving collaboration.

Session plan and time distribution

Before the session

- Prepare the necessary materials
- Sketch a boat on flipboards, as demonstrated in image 2.
  - Additionally, prominently label the flip charts with 'Table 1' and 'Table 2' in large, easily visible lettering.
- Put the latest version of participant distribution in the introductory presentation.

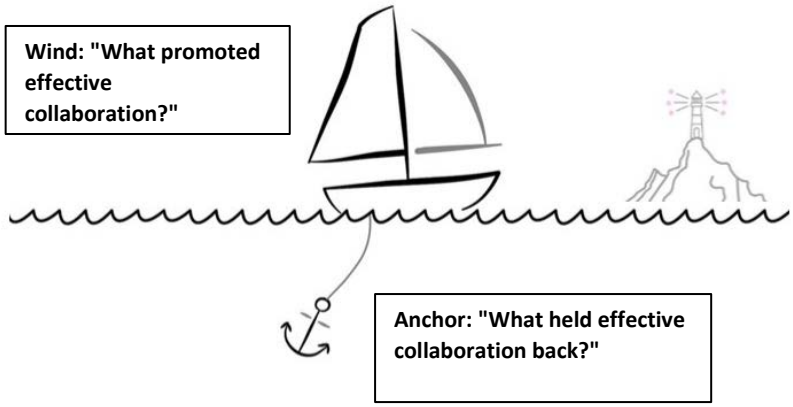

Figure 2. Sailboat retrospective in the context of effective collaboration

Session flow

1. Introduction to the Multistakeholder Collaboration Analysis by Sailboat Retrospective (see box 3 for example).

Box 3. Example of introduction to Sailboat Retrospective

"Imagine we're on a sailboat, navigating through stormy waters in today's infectious disease outbreak. All the people on the boat are the groups you've worked with today. Effective teamwork is crucial to responding to the outbreak. In this scenario, there are two key forces at work. There are strong winds pushing the boat forward, symbolizing positive collaboration factors like clear communication, shared goals, trust, and commitment. These winds move the boat toward success. On the other hand, there are anchors holding us back. These anchors represent challenges like confusion, isolated working, resistance to change, and disagreements among the groups. They slow our progress and can steer us off course. Our success in dealing with the outbreak depends on using the winds to our advantage and raising the anchors to clear the path. Your insights and actions have already set us on a course for smoother sailing and a stronger, united response to infectious diseases."

2. Display the participant lists for each group as the final slide in the presentation and ensure that it remains visible. Conclude by informing participants that they can now identify their groups and proceed to their designated seating areas.

3. Group discussion

Group discussion flow

Action	Script	Time
Instruct participants to fill out post-its **Give each participant the post-its (two colours, two sizes) and a pen**	"In your experience, what were the factors that helped to move and progress (the winds), and what were the factors that held you back or obstructed progress?" Write down winds (facilitators) on the X-coloured post-its and anchors (barriers/ obstacles) on Y-coloured post-its. Place them in the right areas.	5-10 min
Begin by gathering the 'winds,' and place them on the flipchart. Utilize one participant's 'wind' as a starting point, then inquire whether other participants have identified similar 'winds.' **Subsequently, transition to the 'anchors'. Initiate a comprehensive and open discussion to grasp the core of the factor, followed by a more in-depth exploration using more specific questions or 'probes'.** **The objective is to uncover opportunities for enhancing multistakeholder collaboration.**	"Why is this a wind?" "Why is this an anchor?" Keep the expected common themes and onion-diagram in mind and/or use them as probes as/when necessary.	15-20 min
Ending on a positive note: discussing how collaboration can be improved	"After discussing the positive and negative influences, what would be necessary to improve collaboration between different sectors? How can we achieve this?"	10-15 mins
Closure of group work **Thank the group** **Ask for a volunteer to present the pitch on the strongest wind and most pressing anchor (2, max 3 min)** **If there are no volunteers, the facilitator or note taker can do the pitch.**	"Thank you for collaborating on this exercise and contributing to a rich discussion." You can also give your own reflection. For example: "I gained interesting insights on how different organisations are collaborating withinin the current context of [country/region]. " "We will move to plenary session now. Can one of you give a two-minute pitch on the strongest wind and the most pressing anchor we have identified? Any volunteers?"	

If additional time can be spared, or a small debrief can be held with (a subset of) participants after the session, you can employ the following questions to collect feedback regarding the session.

Action	Script
Feedback moment	What were your general thoughts about this session? What did you think of the analogy? How did you experience collaborating with other participants on analogy with post-its? Regarding: • Promoting broader, more open-minded thinking? • Improving the discussion? • Identifying obstacles and facilitators?

Time distribution
Total time: 1 hour

- **Plenary introduction / presentation:** 5 minutes
- **Group discussion:** 40 minutes, which includes:
  - Post it writing: 5-10 minutes
  - Discussing and placing winds and anchors: 15-20 minutes
  - Discussing how collaboration can be improved: 10-15 minutes
- **Plenary pitches:** 10 minutes (3-4 minutes per group)

Note-takers can assist the facilitator in tracking time and provide reminders when it's time to start wrapping up each segment. This teamwork ensures a smooth and timely session.

Tip: To ensure you stay on track, consider noting the starting times for each segment, depending on when you begin the session. This will help you manage the session effectively. You can use the table below to fill this in.

Plenary introduction/presentation	5 minutes	Start time:
Post-it writing	5-10 minutes	Start time:
Discussion and placing winds and anchors	15-20 minutes	Start time:
Discussion on how collaboration can be improved	10-15 minutes	Start time:
Plenary pitches	2-3 minutes per group	Start time:

Nevertheless, please note that the group dynamics at times may lead to a slightly different set up. For example, before all winds and anchors are collected and discussed, the group may already move to identify points on how to improve collaboration, while discussing a specific (set of) anchors. The note taker is expected to capture these as well. One reminder to the facilitator here is to make sure post-its of all participants have been collected on the topic discussed, so that the discussion has a broad base with participants and no perspectives are left behind.

Data analysis

Aiming towards effective collaboration and continuous improvement, the goal is to uncover valuable insights that lead to positive change. During the discussions, both winds/facilitators and anchors/barriers are identified—as elements that shape collaborative efforts. In the end, these insights should not just be raw data but best used to develop a roadmap to areas of improvement, guiding the collaboration within the field of infectious disease control towards success.

The extent and the depth of the analysis is highly dependent on the purposes the results will be used for. Below a generic process for analysis is described. Please note that this needs to be tailored to the specific contexts and needs.

In the analysis process, begin by digitizing the physical post-it notes onto a digital platform such as Microsoft Excel or MaxQDA, ensuring that each post-it is accurately represented (Step 1). Next, go through the notes taken during the sailboat exercise, linking the context and mechanisms provided in these notes to the corresponding post-its to establish a connection between insights and their context (Step 2). Following this, systematically categorize the 'barriers' and 'facilitators' based on their nature or source to unveil patterns and commonalities within each theme (Step 3). This categorization can be approached through various methods, such as the use of established frameworks. For instance, consider utilizing frameworks such as the ecological model[3], customized to the context of infectious disease control. The ecological model, in this context, can provide a structured lens for assessing several factors specifically affecting collaboration within the field, and can help identify these influences on multiple levels, ranging from individual behaviours to organizational and policy factors. Other frameworks can be found on governance of multistakeholder collaborations in general[4] or specific to IDC[5]. Alternatively, you could opt for an inductive approach, which involves deriving categories directly from the data, offering a more open-ended exploration of the information without relying on pre-existing frameworks. Once the categorization is complete, the next step (Step 4) is to thoroughly examine the notes for opportunities for improvement. This phase entails identifying areas where barriers can be addressed and facilitators can be leveraged to enhance the overall process or system.

Additionally, there's an optional Step 5, where you can use the insights gained from the analysis to develop actionable recommendations that address the identified 'barriers' and leverage the 'facilitators,' ensuring alignment with the areas of improvement documented during the discussion.

[3] Valaitis et al., (2012). An Ecological Framework for Building Successful Collaboration between Primary Care and Public Health. Retrieved on 24 October 2023 from: https://toolkit2collab.s3.amazonaws.com/uploads/2016/07/Ecological-Framework-English.pdf
[4] Haarich, S. N. (2018). Building a new tool to evaluate networks and multi-stakeholder governance systems. DOI:10.1177/1356389018765797
[5] Akenroye et al., (2021). Modeling the barriers to multistakeholder collaboration for COVID-19 pandemic response: Evidence from Sub-Saharan Africa. https://doi.org/10.1080/10967494.2021.1970061

Annex 5. Evaluation form

Evaluation form Tabletop exercise SHARP/ ZOOver

Dear participant,
Thank you for your participation in the Tabletop exercise SHARP/ZOOver on the 18th of September. We highly appreciated your attendance.
We now ask you to fill in a short evaluation form. We hope to use the results of this evaluation to improve the Tabletop exercise and map the most important 'take home' points of the partners present . When filling in the form we ask you to think about the organization of the exercise, the scenario, the PDD-C form, the stakeholder inventory form, and the concluding sailboat exercise.

Thank you in advance,

The SHARP/ZOOver team

Questions

1. What went well during the exercise?
2. What are the biggest bottlenecks during the exercise? What can be improved next time?
3. What were the most important lessons (regarding the exercise and its content)?
4. Do you have better insight into your role and the role of others during an outbreak situation after completion of this exercise?
5. Will you update existing collaboration agreements after completion of this exercise?
6. How do you rate the following components: *(scale: very good, good, moderate, poor, very poor)*
    a. Overall organization
    b. Scenario
    c. PDD-C form / logbook (not applicable to everyone)
    d. Stakeholder inventory form
    e. Observation form (not applicable to everyone)
    f. Sailboat exercise (not applicable to everyone)
7. Do you have any additional remarks?