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Investigation protocol for human exposures and cases of zoonotic influenza in Belgium

Case management part

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CONTENTS

ABBREVIATIONS

AIV	Avian influenza virus

CDC	Centers for Disease Control and Prevention
ECDC	European Centre for Disease Prevention and Control
EWRS	Early Warning and Response System
FAMHP	Federal Agency for Medicines and Health Products
FAVV/AFSCA	Federal Agency for the Safety of the Food Chain
FPS SFC	Federal Public Service for Safety of the Food Chain and Environment
GsGD	Goose/Guangdong (Gs/GD)
HPAI	Highly Pathogenic Avian Influenza
IHR	International Health Regulations
LPAI	Low Pathogenic Avian Influenza
NRC	National Reference Centre respiratory pathogens
NRL	National Reference Laboratory for Avian Influenza
NFP	National Focal Point
NGS	Next Generation Sequencing
PCR	Polymerase Chain Reaction
PPE	Personal Protective Equipment
PEP	Post-exposure prophylaxis
RADT	Rapid Antigen Detection Tests
RAG	Risk Assessment Group
RAG-V-EZ	Risk Assessment Group Veterinary and Emerging Zoonoses
RHA	Regional Health Authorities
RCT	Randomised controlled trial
RMG	Risk Management Group
RNA	Ribonucleic Acid
OIE-WAHIS	World Animal Health Information System
WHO	World Health Organisation
ZOOIS	Zoonotic Influenza Surveillance (pilot study)

SUMMARY

In Belgium, zoonotic infections in humans must be reported to the Regional Health Authorities (RHA). Any sample collected from a suspected or confirmed human case must be sent to the National Reference Center (NRC) for Respiratory Pathogens for laboratory confirmation (contact details are provided in Annex 3). Each sample must be accompanied by a completed analysis request form (see Annex 5).

This protocol outlines harmonized procedures across all federated entities for the follow-up and management of individuals exposed to infected animals or human cases of zoonotic influenza, as well as for the public health management of suspected and confirmed human cases.

Recommendations for individuals exposed to infected animals (potential case)

- Voluntary testing is available through ZOOIS project, a Belgian pilot study, for surveillance and research purposes for individuals with high level of exposure to infected animal. Testing is highly recommended for individuals with moderate to high exposure to infected non-human mammals. Participant recruitment is coordinating through the designated RHA (see Annex 3 for contact information).
- Regardless of the level of exposure, only passive follow-up is recommended. Individuals should be instructed by the RHA to self-monitor for the development of symptoms for 10-14 days after last exposure. In case of symptoms they should contact the RHA.
- Post-exposure prophylaxis (PEP) should be administered to all individuals with a high levels of exposure to a confirmed or highly suspect animal case.
- Quarantine and contact mapping (identification of contacts of the potential case) of individuals exposed to infected animals or humans regardless of low, moderate, or high levels of exposure, are not recommended.

Recommendations for asymptomatic individuals exposed to infected human (potential case)

- For individuals with moderate-high exposure to a confirmed human case(s), upper respiratory tract sampling should be taken 2 to 5 days after exposure again on days 6–7 after exposure.
- Active follow-up is recommended for individuals with high exposure to a confirmed human case.
- Individuals with a high level of exposure should remain in quarantine until the RT-qPCR test results are available and negative or for a period of 10 to 14 days after the last exposure. Self-quarantine can end if both test results (from days 2–5 and 6–7) are negative. For individuals exposed to a confirmed human case with a moderate or a low level of exposure, quarantine is not routinely recommended. However, for those with a moderate level of exposure, self-quarantine can be considered based on individual risk assessment based on duration of exposure and type of contact and setting.
- PEP should be administered to all individuals with a high levels of exposure to a confirmed or highly suspected human case. In situations involving moderate exposure to infected humans, PEP should also be considered on a case-by-case basis for individuals with underlying medical risk factors (e.g., immunocompromised conditions, chronic pulmonary disease) that increase the risk of severe disease.
- Considering the current absence of documented asymptomatic human-to-human transmission of zoonotic influenza, contact mapping (identification of contacts of the potential case) of individuals exposed to infected animals or humans regardless of low, moderate, or high levels of exposure, is not recommended.

Recommendations for possible human case (symptomatic or/and with suspicious laboratory results)

- Possible human cases should be tested as soon as symptoms emerge and within 14 days after exposure.
- Isolation should be initiated immediately.
- Treatment should be initiated as soon as possible (preferably within 24-48 hours after symptom onset) for possible cases even while waiting for

laboratory confirmation. If laboratory testing is negative then treatment can be halted.

- The RHA should initiate contact tracing to identify all contacts of the possible case and assess the level of exposure.

Recommendations for confirmed human case

- Isolation should be initiated immediately. It may be discontinued on day 14 after symptom onset or after the date of laboratory confirmation (for asymptomatic cases or when the date of symptom onset is unknown). Isolation can be ended earlier if symptoms have resolved and the patient has two consecutive negative RT-qPCR tests at days 7 and 8.
- Treatment should be initiated as early as possible. Antiviral drugs are most effective if administered early within 24-48 hours from onset of symptoms. Therefore, treatment may be started before laboratory confirmation.
- Oseltamivir is the recommended first-line antiviral.
- Contact tracing should be initiated by the RHA by reaching out to all contacts of the confirmed human case (low, moderate and high exposure) to assess the need for symptom monitoring, self-quarantine, testing, and/or post-exposure prophylaxis (PEP).

SCOPE OF THIS DOCUMENT

It is mandatory to notify the Regional Health Authorities (RHA) of possible and confirmed human infections with zoonotic influenza. If a human infection with a zoonotic or novel influenza virus is detected, it is mandatory to notify EWRS and WHO within 24 hours in accordance with the Implementing Regulation (EU) 2020/690 and the International Health Regulations (IHR).

This document outlines a national protocol for a harmonized follow-up and management of individuals exposed to influenza infected animals and human cases of zoonotic influenza, as well as for the public health management of possible and confirmed human cases in Belgium. The approach is mainly based on the ECDC Investigation protocol for human exposures and cases of avian influenza in the EU/EEA 2023 and the WHO Clinical Practice Guidelines for Influenza.

The scope of this protocol covers the following aspects of zoonotic Influenza:

- General background on zoonotic influenza;
- Applied case definitions (potential, possible or confirmed);
- Definitions of exposure levels;
- Necessary steps for testing and diagnosis;
- Management steps for potential, possible and confirmed cases;

1. GENERAL BACKGROUND ON ZOONOTIC INFLUENZA

1.1. Pathogenic agents

Zoonotic influenza is an infectious disease caused by the enveloped RNA virus, influenza. Influenza type A viruses are widespread with many different avian and mammalian host species. Influenza viruses are species-specific, yet occasionally transmission from one species to another species or to humans can occur. Avian and swine influenza viruses have been known to infect humans directly or indirectly through an intermediate host (eg seal, bovine).

Humans can be infected sporadically with novel influenza A viruses of animal origin (zoonotic influenza), such as avian influenza A virus (AIV) subtypes A(H5N1), A(H5N6), A(H7N9), A(H7N7) and A(H9N2), and swine influenza A virus subtypes H1N1v, H1N2v and H3N2v[1].

In their avian host, avian influenza A viruses are described as highly pathogenic (HPAI), meaning they cause severe clinical signs and possible high mortality rates in gallinaceous birds vs. low pathogenic (LPAI), meaning they cause no or little clinical signs in infected birds. Zoonotic influenza virus infection associated with mortality in humans, include HPAI A(H5N1), HPAI A(H5N6) virus; and HPAI and LPAI A(H7N9)[i]. Notably, there appears to be no direct correlation between the virulence of avian influenza (LPAI, HPAI) in birds and its impact in humans. LPAI infections have caused mild clinical signs in chickens, but severe clinical signs in humans and the other way around for HPAI.[ii]

The risk of a large-scale epidemic by a new/emerging influenza A virus is increased by potential reassortment between avian, swine and seasonal human or other mammalian influenza viruses (EFSA and ECDC, 2024). Human adaptative mutations may be acquired via reassortment without the need for a gradual adaptation like via

[1] *Sporadic human infections with influenza viruses that circulate in swine and not humans have occurred. When this happens, these viruses are called "variant viruses." They also can be denoted by adding the letter "v" to the end of the virus subtype designation. Human infections with H1N1v, H3N2v and H1N2v viruses have been detected worldwide.*

point mutations. This risk is highest in mammalian hosts that harbor mammalian-adapted influenza viruses (primarily humans and pigs but also mustelids).

1.2. Epidemiology

The epidemiological situation of avian influenza has changed markedly over the past decades, in particular due to the emergence of the HPAI A(H5Nx) goose/Guangdong (Gs/GD) Eurasian lineage in 1996. This lineage has led to widespread transmission among and between poultry, wild birds and mammals, with sporadic human cases [iii]. Since its initial detection in human in 1997, a total of 989 human cases have been reported globally, according to ECDC data as of April 2025.

Persistent detection of HPAI A(H5Nx) in poultry and constant findings of different viral subtypes in wild birds, even during the summer months in northern European countries, are signals of the potential endemicity of these HPAI viruses in Europe, posing a constant threat to birds and mammals [iv].

In early April 2024, an outbreak of highly pathogenic avian influenza (HPAIV) H5N1 clade 2.3.4.4b was reported in dairy cattle in Texas, with high virus concentrations detected in raw milk. This outbreak led to sporadic transmission events to humans and various mammalian species (e.g., raccoons, cats) and resulted in spillback into both domestic and wild avian species associated with the same clade. These events underscore the transmissible nature of HPAIVs, significantly expanding their potential host range and clearly demonstrating their ability to adapt to new host environments.

No mutations associated with viral adaptation to mammals have been identified in viral sequences derived from dairy farms. However, the PB2-E627K mutation, which indicates mammalian adaptation, has been detected in an individual infected through dairy cattle (CDC, 2024).

Human infections with swine influenza have been sporadically identified and at least documented in the literature since the late 1950s. These cases have typically involved individuals with direct or indirect contact with pigs, such as those working on pig farms [v]. The majority of reported human infections with swine influenza viruses

come from the United States, largely due to mandatory reporting requirements and systematic surveillance in both human and animal populations, measures that are not consistently implemented across Europe. Although swine influenza is not notifiable in the EU and there is no coordinated global surveillance system, several countries, including Austria, The Netherland [vi] and France, are engaged in pilot studies under European initiatives (e.g., *United4Surveillance EU project*) to develop and implement surveillance frameworks for swine influenza.

Due to the risk of the emergence of new influenza viruses with pandemic potential, swine influenza is one of the 10 most important zoonoses according to EFSA and ECDC , for which improved surveillance is indicated.

EFSA's quarterly reports provide the latest overview of animal-origin influenza cases. These reports include cases in birds, mammals, and humans, covering both European and non-European countries (Quarterly reports on avian influenza: EFSA Journal).

1.3. Route of transmission

Zoonotic infections in humans are primarily transmitted through direct contact with infected animals, close exposure to them, or indirect contact with contaminated environments. Humans can become infected with animal-derived viral material if it enters the eyes (conjunctiva), nose, mouth, or throat, or if viral particles are inhaled. Inhalation may occur, for instance, when airborne dust contains particles from contaminated animal faeces or secretions. According to the WHO, a few human influenza cases may have been linked to the consumption of dishes prepared with raw, contaminated poultry meat.

The probability of infection with zoonotic influenza viruses varies with the type of interaction between human and infected animal (e.g. culling, bird ringing) and depends on the contact type (duration and route) and viral dose.

Currently circulating zoonotic influenza viruses have not yet demonstrated sustained human-to-human transmission. However, zoonotic spillovers remain rare and

human-to-human transmission remains inefficient as long as the viruses are not adapted to human receptors, body temperature, and pH [vii].

1.4. Transmissibility

Information available on the transmissibility of AIV infection in humans is very limited and infections from viruses of older clades might be different.

A preprint rapid review assessed currently available evidence on epidemiological parameters of GsGd-like HP H5N1 Influenza [viii]. It found lower transmissibility (R0 <0.2), longer incubation period (4 days versus 2 days) and serial interval (6 days versus 3 days), but higher severity compared to human influenza subtypes. Incubation period estimates vary from 2 to 9.5 days.

There is limited evidence on the latent period (time from infection to infectiousness) and duration of infectiousness. Four studies found a latent period of 0.4 days to 2.62 days and one study found a duration of infectiousness of 5 to 13 days for a household outbreak. The longer incubation period compared to seasonal human influenza likely reflects that the currently circulating H5N1 virus is less adapted to mammalian transmission compared to human influenza A. The aforementioned transmissibility parameters are liable to change if mammalian adaptations occur. Based on the limited available evidence from human infections, the incubation period of A(H5N1) is estimated to be up to 7-9 days, usually 3−5 days after last known exposure [ix] [x].

1.5. Clinical manifestations

The clinical manifestations of zoonotic influenza infections in humans is diverse and can range from asymptomatic to mild or severe disease.
Common signs and symptoms may include:

- Fever;
- Mild upper respiratory symptoms (runny nose or nasal congestion, sore throat);
- Flu-like symptoms including muscle or body aches, headaches, fatigue, shortness of breath, cough or difficulty breathing;
- Pneumonia requiring hospitalization;

- Eye redness or irritation (conjunctivitis).

Less common signs and symptoms may include:

- Gastrointestinal symptoms including diarrhea, nausea, vomiting;
- Neurological symptoms including altered consciousness or seizures as a result of meningoencephalitis.

The case fatality rate for A(H5) and A(H7N9) subtype virus infections among humans is much higher than that for seasonal influenza infections with up to 40% [xi]. However, as seroprevalence data suggest that many mild cases are probably undetected, severity and fatality rates might be overestimated [xii].

For human infections with swine influenza viruses, most cases have been mild, resembling seasonal influenza, and only a few cases have required hospitalization. Health conditions such as asthma or other lung diseases, diabetes, obesity, auto-immune disorders, immunosuppressive therapy, neurological or cardiovascular disorders or pregnancy are predisposing factors for hospitalization [iv].

1.6. Population at risk

Influenza transmission from infected animals to humans remains a rare event. According to the last European Centre for Disease and Control (ECDC) surveillance report (June 2025), the overall risk of zoonotic influenza transmission to the general public in EU/EEA countries is considered low, while the risk for occupationally exposed individuals is assessed as low to moderate.

High-risk groups include[2] individuals who have direct or indirect contact with an infected animal, their secretions or their environment (e.g. dust) without following the appropriate technical and organizational protective measures. This group includes individuals who are:

Exposed to animals and their environment, including

- Farmers, especially those raising chickens, pigs or mustelids, including their families residing in farms as illustrated in **table 1.**

[2] These high risk groups might change according to potential risk assessments from ECDC or RAG and RAG-V-EZ

- Veterinarians and other professionals with occupational exposure to infected animals
- Individuals involved in cleaning contaminated areas following culling operations or exposed to animal faeces or secretions, particularly during clean-up, waste disposal, or in backyard settings with poor biosafety and biosecurity measures
- Hunters, volunteers, or staff who handle wild animals or their carcasses
- Forestry workers who may come into contact with sick or dead animals
- Meat processing industry workers, especially those handling live or recently slaughtered animals

Exposed to isolated virus and positive specimens, including

- Laboratory personnel handling specimens that test positive for zoonotic influenza viruses
- Public health professionals, inspectors (e.g. AFSCA), and others involved in animal and human screening and sample collection

Exposed during patient care and sampling, including

- Healthcare workers treating patients with confirmed zoonotic influenza virus infections
- Close contacts of infected patients, particularly in healthcare or caregiving settings

Travelled to regions with high virus circulation, including

- Individuals living in or traveling to areas where H5N1 or other zoonotic influenza subtypes are known to circulate widely, especially for professional reasons. Risk is particularly elevated in live/wet poultry markets, where large numbers of birds are kept and slaughtered under stressful, crowded conditions.

Table 1: Examples of populations at risk of being occupationally or recreationally exposed to avian or swine influenza viruses

Possible exposure to:	
Avian influenza virus	**Swine influenza virus**
Poultry farmers, bird breeders and farm workers	Swine farmers and farm workers
Backyard farmers	Backyard farmers
People involved in the breeding and feeding of birds or poultry and the cleaning of farms	People involved in the breeding and feeding of pigs and the cleaning of pig farms
Workers involved in culling and waste disposal at poultry establishments or other bird farms	Workers at pig slaughterhouses and those involved in waste disposal
Wild bird hunters	Hunters exposed to wild boar
Bird ringers	
Workers at wildlife conservation, recovery centres or zoos	Workers at wildlife conservation, recovery centres or zoos
Veterinarians	Veterinarians
People visiting live bird or animal markets and animal shows	People visiting animal markets, agricultural fairs and animals shows
Healthcare workers dealing with infected patients	Healthcare workers dealing with infected patients
People in close contact with dead or sick birds potentially infected with avian influenza without wearing protective equipment	People who are in close contact with pigs without wearing protective equipment
Health care or laboratory workers taking or analysing specimens.	Health care or laboratory workers taking or analysing specimens.

Source: *European Centre for Disease Prevention and Control. Testing and detection of zoonotic influenza virus infections in humans in the EU/EEA, and occupational safety and health measures for those exposed at work. Stockholm: ECDC; 2022.*

2. PREVENTION

2.1. Preventive protective measures

Measures to prevent and control zoonotic influenza outbreaks should primarily focus on minimizing the introduction of the virus into farms and livestock (biosecurity). Once introduced, efforts should then aim to reduce viral circulation, thereby lowering the risk of human infection and disease (see **Annex 1**).

As a general precaution, it is recommended to avoid any contact with dead/sick birds or to use appropriate personal protective equipment (PPE) if contact is unavoidable. Special care should be taken to avoid contact with mucous membranes such as the mouth, nose and eyes. Always wear disposable gloves and a face mask, and follow proper hygiene measures when handling carcasses and sick animals. When entering the premises of a poultry or swine farm, the biosecurity precautions and clothing have to be adopted by the visitor if entering the barns or technical locals (see **Annex 2**).

Properly cooked poultry meat and eggs do not pose a risk of avian influenza infection. However, as a general precautionary measure, animals that are sick or have been culled as a result of the implementation of control measures in response to an avian influenza outbreak and their products are not allowed to enter the human food and animal feed chain [xiii].[3]

2.2. Vaccination

a) Seasonal influenza vaccination

Although a seasonal influenza vaccine may not fully protect people against infection with animal variant influenza A viruses, vaccination is important to reduce the risk of spreading human seasonal influenza A viruses to animals. Seasonal influenza

[3] Risk might change according to potential risk assessments from ECDC or RAG and RAG-V-EZ

vaccination can reduce the risk for humans to become infected and transmit seasonal flu to other humans and pigs [xiv].

However, reduction of severity of A(H5N1) illness has not be proven. Recent studies do not prove that existing immunity following seasonal influenza vaccination or natural infection would protect the population against A(H5N1) [xv].

Also, contracting seasonal and animal influenza at the same time may create an opportunity for reassortment between the viruses and, consequently, a potential adaptation of the virus leading to more transmissibility between humans.

For further details or updates on seasonal influenza vaccination, including for at-risk populations, consult the Superior Health Council recommendations.

b) Zoonotic influenza vaccination for humans

Some vaccines against zoonotic influenza are available on the EU market. The zoonotic influenza vaccine Seqirus containing the strain H5N8 (clade 2.3.4.4b), is currently considered to be the best candidate to provide protection against circulating H5 influenza A strains [xvi]. The H5 avian influenza vaccine Zoonotic Influenza Vaccine Seqirus was granted a marketing authorization in the EU in April 2024 (EMA 2024). The vaccination series consist of 2 doses. The second dose is given no earlier than 3 weeks after the first one.

In Belgium, routine vaccination against zoonotic influenza is not recommended for the general population, neither for individuals considered to be in high-risk groups.

3. CASE DEFINITIONS

Epidemiological criteria

Exposure to influenza of animal origin by at least one of the following

- Close contact with a possible or confirmed human case
- Close contact with animals* that have a lab-confirmed animal influenza (H5, H7, H9 or other subtype of animal origin) infection without adequate use or breach of PPE
- Residence in an area/zone where animal influenza is currently suspected or has been confirmed AND at least one of the following two :
  - Contact with sick or dead animals* or contaminated materials in areas where animal influenza circulates
  - Visiting a farm where sick or dead animals* have resided (e.g a barn that has been culled within the past weeks)

Animals that are known to be susceptible to zoonotic influenza include (but are not limited to**):*

- Wild birds as a primary reservoir for avian influenza viruses
- Poultry
- Wild carnivore mammals (foxes, bats,…), including marine mammals such as seals
- Farmed animals including pigs, fur animals (mink, ferrets), cattle (bovines, goats, alpacas, horses)
- Domesticated mammals including pets (cats and dogs)

Clinical criteria

One of the following:

- Fever
- Signs of unexplained acute respiratory infection
- Unexplained viral encephalitis
- Unexplained viral gastrointestinal symptoms
- Unexplained conjunctivitis.
- Death due to unexplained acute respiratory infection or unexplained viral encephalitis.

Laboratory criteria

Suspect laboratory test:

- Positive Rapid Antigen Diagnostic Test (RADT) for influenza A performed in the context of exposure to animal influenza virus.
- Preliminary laboratory results suggesting animal influenza (type A positive, but negative for the seasonal human subtypes H1N1pdm09 or H3N2).

Laboratory confirmation:

- Positive real-time PCR for any animal influenza A virus, including A/H5Nx, A/H7Nx, A/H9Nx or any other subtype of animal origin.
- OR; if no possibility of PCR:
  - **Virus isolation** of an animal influenza A virus, including A/H5Nx, A/H7NX, A/H9Nx or any other subtype of animal origin from a clinical sample;
  - AND/OR **next generation sequencing** indicating a subtype of animal origin**;**
  - AND/OR **seroconversion**: four-fold titer increase or single high titer of specific antibodies to animal influenza virus.

Case classification
Potential case: Epidemiological criteria
Possible case: • Epidemiological criteria AND Clinical criteria • Epidemiological criteria AND Suspect laboratory case
Confirmed case: Laboratory confirmation*

**Positive RT-PCR of zoonotic Flu (H5, H7, etc) at a non-NRC also considered as laboratory confirmation of zoonotic influenza for the purposes of this outbreak management protocol. Sample still has to be sent to NRC for confirmation.*

4. EXPOSURE LEVEL DEFINITION

Depending on the situation and the level of exposure, the contact may be assessed as presenting a low, moderate or high risk of exposure as defined in the **table 2** below.

Table 2: Level of exposure to an infected animal or a human case

Sources of exposure	Level of exposure	Examples
Animals	High	The level of exposure is classified high if an individual has **direct** contact with an animal that is infected (alive or dead) or indirect contact through their secretions (e.g inhalation of infected droplets or dust) without adhering to appropriate prevention measures or with breach of PPE. High-risk exposure also includes consuming infected animal products, such as drinking unpasteurized (raw) milk or eating undercooked eggs or meat.
	Moderate	**Not directly in contact** with infected animals or their secretions such as workers in occupational groups who do not directly handle infected animals, but who are in close proximity to them or in infected environments, without the use of appropriate prevention measures. This category may cover inspectors, observers, police officers, as well as farm workers and veterinarians who are not directly involved in risk activities such as the ones listed above (see "high").
	Low	Persons in **direct or indirect** contact who have taken adequate protection measures and correctly used the appropriate PPE (refer Annex 2). An individual from the general public who incidentally encounters a sick or dead animal.
Human	High	People who have **direct contact** with a possible or confirmed human zoonotic influenza case. This situation occurs in particular in the following cases: - family members and others sharing a household with the possible or confirmed human case; - people who, from the day before the onset of symptoms in the possible or confirmed human case, have been in the same room as the case for >15 min and <1meter distance.

		- healthcare workers caring for a possible or confirmed human case without use of appropriate PPE.
	Moderate	Co-workers of a symptomatic human zoonotic influenza case sharing the same workspace, particularly if enclosed, but not having such prolonged close contact as with a high-level exposure.
	Low	Incidental encounter (without direct contact) with an infected person, or for workers in the health sector not directly/indirectly in contact with infected individuals or their environments (e.g. hospital administration staff). Exposed individuals protected by adequate measures and correctly using appropriate PPE (e.g. healthcare workers)

5. SAMPLE COLLECTION AND TRANSPORT

Each sample collected from a possible or confirmed human case must be sent to the National Reference Center (NRC) for respiratory pathogens for laboratory confirmation (contact detail available in Annex 3).

The sample type, storage and transport conditions are detailed in the **table 3** below. Specimens for transport must be placed in leak-proof triple specimen bags, which have a separate sealable pocket for the specimen (i.e. a plastic biohazard specimen bag).

Personnel who transport specimens should be trained in safe handling practices and decontamination procedures in case of a spill. Specimens should be delivered by hand wherever possible. The laboratory must be notified by telephone when the specimen is on its way (see contact details on NRC reporting form in Annex 3). Time between sampling and delivery at the laboratory should be as short as possible.
Samples must always be accompanied by a completed analysis request. The analysis request form for analysis of human zoonotic influenza by the NRC is available on the Sciensano website (see **Annex 5**). Special attention should be provided to fill in data on possible animal contacts, symptoms and epidemiological links.

Table 3: Sample type, storage and transport conditions

	Sample type	Matrix and sample volumes	Storage before transport	Transport
Respiratory samples	Nasopharyngeal swab Bronchial aspirate Broncho-alveolar fluid Conjunctival wash	UTM (virus transport medium) Minimal 500µl	If <24h: store at 2-8°C If >24h: -20°C or -70°C	Room temperature Dry ice
Serum samples	Serum	3-5 ml	Refrigerated at 2-8°C OR Frozen -20°C	Room temperature Dry ice

Do not send samples for zoonotic influenza testing in the same package as samples for detection of human seasonal influenza.

6. TESTING AND DIAGNOSIS

6.1. Sampling

Testing for potential and possible cases will be organized at the regional level (e.g., through hospitals, organizational teams, or general practitioners) and will not be detailed in this protocol. Healthcare workers who collect specimens from infected patients should wear PPE as detailed in Annex 2.

- For **potential cases** eligible for testing (**see table 4**), upper respiratory tract sampling should be taken 2 to 5 days after exposure.

- For **possible cases** upper respiratory tract (including nasopharyngeal or combined nasal and throat swabs) and, if feasible, lower respiratory tract samples (including sputum, endotracheal aspirate or bronchoalveolar lavage fluid) should be taken immediately after symptom onset. Lower respiratory tract samples can be obtained from severely ill patients that have been hospitalized or as needed based on symptom progression.
  In addition, ocular samples can be taken for RT-qPCR testing in case of conjunctivitis. Faecal sampling can be additionally considered on top of respiratory sampling in case of gastrointestinal symptoms.

- For **confirmed cases**, a second respiratory tract sample should be taken on day 7-8 to conclude isolation (two consecutive RT-qPCR tests need to be negative in order to release from isolation).

Table 4: Recommended testing strategies for diagnosing zoonotic influenza in potential and possible cases.

Types of test	Sample type	Potential case			Possible case
		Moderate-high exposure to infected birds[1]	Moderate-high exposure to infected non-human mammals[2]	Moderate-high exposure to a confirmed human case(s)	
PCR	Nasopharyngeal/ swab or combined nasal and throat swabs	Not recommended	If feasible, perform PCR testing as described in the ZOOIS protocol	RT-PCR testing should be conducted on days 2–5 and again on days 6–7 after exposure	RT-qPCR on D0 of symptom onset
	Sputum	Not recommended	Not recommended	Not recommended	D0 after symptom onset (if feasible)
	Broncho-alveolar fluid	Not recommended	Not recommended	Not recommended	If the patient is hospitalized and nasopharyngeal- or sputum sample is negative
	Conjunctival wash	Not recommended	Not recommended	Not recommended	D0 after symptom onset in case of conjunctivitis
Serum samples		Not recommended*	Not recommended	Not recommended	Not recommended
RADTs		Not recommended	Not recommended	Not recommended	Not recommended

[1] *Voluntary testing available through ZOOIS project for surveillance and research purposes – individuals exposed to any infected animals may be included in the protocol testing*

[2] *Voluntary testing recommended for individuals exposed to infected mammals through ZOOIS project for surveillance and research purposes*

When swabs are used, the preferred choice is swabs with a plastic shaft (i.e. not a cotton swab with a wooden shaft)[xvii].

If a person is tested positive for seasonal influenza, further contact with non-human mammals in particular with pigs and minks should be strictly avoided because of the risk of virus reassortment.

6.2. Test methods

The gold standard for detection and identification of zoonotic influenza from respiratory samples is RT-qPCR. Therefore, RT-qPCR is recommended when performing laboratory testing.

If a suspected zoonotic influenza sample tests positive for influenza A, but negative for seasonal influenza (H1N1pdm09 or H3N2) by RT-qPCR at the NRC for Respiratory Pathogens, further viral characterization is conducted (see **Annex 4**). This includes HxNx subtyping and depending on the result, the NRC may also perform further testing such as next generation sequencing and/or virus isolation.

6.3. Rapid antigen detection tests

Rapid antigen detection tests (RADT) can provide a more rapid result (within 15-30 minutes) compared to RT-qPCR, but have lower sensitivity and specificity [xviii]. In addition, none of the commercially available RADTs can differentiate between human or zoonotic influenza virus subtypes. Thus, regardless of whether a RADT is positive or negative, it should be confirmed by RT-qPCR through the NRC for respiratory pathogens. RADTs are therefore not recommended for testing of asymptomatic nor symptomatic individuals. We emphasize that in a setting of low pre-test probability (e.g. asymptomatic individuals) the accuracy of the test is even further reduced.

6.4. Serological testing

Serum sampling is not recommended within the scope of outbreak management as described in this protocol.

Serum sampling can be considered for other purposes outside the scope of this protocol, such as surveillance and research or to aid in clinical diagnosis independent of outbreak management (e.g. individual with clinical presentation consistent with zoonotic influenza, but with symptom onset >14 days ago). If serological testing is performed, acute-phase serum specimens should be taken at exposure and 2-4 weeks after symptom onset to identify seroconversion.

In case specimens are suspected to be positive as a result of environmental contamination, serological testing can be used as a tool in combination with other evaluations to help distinguish between true infections and environmental contamination of the mucosa. However, the limitations of serological tests need to be considered, such as the possibility of cross-reactions between subtypes or lineages of subtypes [xix].

7. MANAGEMENT OF HUMAN CASES

7.1 Management of asymptomatic individuals (potential case) exposed to zoonotic influenza

Management of asymptomatic potential cases (in terms of symptom monitoring, testing, quarantine, contact tracing and post-exposure prophylaxis (PEP)) will depend on the type (contact with non-mammalian animals, non-human mammals or humans) and the level of exposure (low, moderate or high) as described in the **table 5** below.

Table 5: Guidance for the management of an exposed person, depending on the type and level of exposure

Human exposed to :	**Exposure level**	**Symptom monitoring**	**Testing**	**Self-quarantaine (10-14d)[1]**	**Antiviral post-exposure prophylaxis (<48h after contact)**
Lab-confirmed infected birds	High	Yes, passively	No[2]	No	Yes
	Moderate	Yes, passively	No	No	No
	Low	Yes, passively	No	No	No
Lab-confirmed infected mammal (excluding humans)	High	Yes, passively	Yes[3]	No	Yes
	Moderate	Yes, passively	Yes[3]	No	No
	Low	Yes, passively	No	No	No
Potential human case	High	No	No	No	No
	Moderate	No	No	No	No
	Low	No	No	No	No
Possible human case	High	Yes, passively	No	No	No
	Moderate	Yes, passively	No	No	No
	Low	No	No	No	No
Confirmed human case	High	**Yes, actively**	**Yes**	**Yes**	**Yes**
	Moderate	Yes, passively	**Yes**	No[4]	No[5]
	Low	Yes, passively	No	No	No

[1] *Until the test result available or for a period of 10 to 14 days*

[2] *Voluntary testing available through ZOOIS project for surveillance and research purposes.*

[3] *Voluntary testing recommended through ZOOIS project for surveillance and research purposes.*

[4] *Quarantine is not routinely recommended, but can be considered based on individual risk assessment based on duration of exposure and type of contact and setting.*

[5] *See chapter 7.1.5 Post-exposure prophylaxis on individuals with medical risk factors*.

7.1.1 SYMPTOM MONITORING

Clinical manifestations as described previously should be followed either passively of actively. Active follow-up should only be implemented in cases of high exposure involving a confirmed human case. For animal exposures, regardless of the level of exposure, only passive follow-up is recommended.

- Active symptom monitoring

In case of high exposure to a confirmed human case, individuals should be actively monitored for symptom development by the Regional Health Authorities (RHA). Active monitoring consists of daily contact by telephone between the RHA and the individual to check whether the latter has developed any symptoms compatible with zoonotic influenza. It is recommended that symptoms are monitored with a minimum period of 10 and up to 14 days[4] after the last exposure.

- Passive symptom monitoring

In case of exposure to infected animals (bird or mammalian) or low-moderate-high exposure to possible human cases or low-moderate exposure to confirmed human cases, individuals should be instructed by the RHA to self-monitor for the development of symptoms for 10-14 days after last exposure. In case of symptoms they should contact the RHA.

If symptoms develop during active or passive monitoring, the exposed individual is classified as a “possible human case” and managed accordingly (refer to paragraph 7.2).

7.1.2 TESTING

Potential cases should be tested by PCR in case of moderate or high exposure to a confirmed human case. Types of testing and samples are detailed in chapter 6 of this document.

Furthermore, individuals with high-level exposure to a lab-confirmed infected animals might be eligible to participate on a voluntary basis in a Belgian pilot surveillance

[4] *At present, the information available on the incubation period of AIV infection in humans is very limited and infections from viruses of older clades might be different. Based on the limited available evidence from human infections and due to the lack of evidence for the currently circulating A(H5) virus, which has also been presenting with delayed onset of clinical symptoms in infected animals, a precautionary approach is recommended*.

study called ZOOIS, which involves testing asymptomatic individuals exposed to infected animals. Participant recruitment is coordinating through the designated RHA (see Appendix for contact information).

More information is available here:

- FR version https://www.sciensano.be/fr/projets/surveillance-active-de-la-transmission-de-la-grippe-zoonotique
- NL version : https://www.sciensano.be/nl/projecten/actieve-surveillance-om-de-overdracht-van-zoonotische-influenza-te-monitoren
- EN version : https://www.sciensano.be/en/projects/active-surveillance-monitor-zoonotic-influenza-transmission-events

7.1.3 SELF-QUARANTINE

Individuals with high levels of exposure to a confirmed human case should quarantine until the results of a RT-qPCR test on upper respiratory samples are available and negative or for a period of 10 to 14 days after the last exposure. RT-PCR testing should be conducted on days 2–5 and again on days 6–7 after exposure. Self-quarantine can end if both test results (from days 2–5 and 6–7) are negative. For individuals exposed to a confirmed human case with a moderate or a low level of exposure, quarantine is not routinely recommended. However, for those with a moderate level of exposure, self-quarantine can be considered based on individual risk assessment based on duration of exposure and type of contact and setting.

Considering the current absence of documented asymptomatic human-to-human transmission of zoonotic influenza, quarantine of individuals exposed to infected animals (including non-human mammals), regardless of low, moderate, or high levels of exposure is not recommended. Similarly, individuals exposed to a possible human case should not be placed in self-quarantine, regardless the level of exposure.

However, enhanced hygiene measures are advised. This includes frequent and thorough hand disinfection with hand sanitizer, as well as cleaning of objects and clothing that have come into contact with the laboratory confirmed animal. Regular cleaning and disinfection products are effective against orthomyxoviruses; a 0.05% to 0.1% hypochlorite solution can be used for disinfection purposes.

7.1.4 CONTACT MAPPING

Considering the current absence of documented asymptomatic human-to-human transmission of zoonotic influenza, contact mapping (identification of contacts of the potential case) of individuals exposed to infected animals or humans regardless of low, moderate, or high levels of exposure, is not recommended.

7.1.5 POST-EXPOSURE PROPHYLAXIS (PEP)

PEP should be administered to all individuals with high levels of exposure to a confirmed or highly suspected human case or animal case as illustrated in the **table 5**. In situations involving moderate exposure to infected humans, PEP should also be considered on a case-by-case basis for individuals with underlying medical risk factors (e.g., immunocompromised conditions, chronic pulmonary disease) that increase the risk of severe disease.

PEP should be initiated within 48 hours of the first exposure. For adults, the recommended regimen is **oseltamivir 75 mg twice daily for 10 to 14 days**. Oseltamivir is not contraindicated during pregnancy [xx].

For children over 1 year of age, the suggested once-daily dosing is as follows:

- 15 kg: 30 mg once daily
- 15 to 23 kg: 45 mg once daily
- 23 to 40 kg: 60 mg once daily
- 40 kg: 75 mg once daily

Since a twice-daily regimen is recommended for treatment in children, and twice-daily dosing is well-supported in pediatric populations, it may also be considered for PEP in this group.

Notes: The decision to administer PEP should be based on the type and level of exposure, the time elapsed since exposure (<48 hours), the known infection status of the animal or human to which the individual was exposed, underlying medical risk factors of the exposed individual, and the antiviral susceptibility of the circulating zoonotic influenza strain.

In line with WHO recommendations [xxi], higher doses of oseltamivir should be administered. The rationale for this approach, in the absence of human studies on the efficacy of prophylaxis against novel influenza A viruses, is based on supportive animal data and the aim to reduce the likelihood of resistance development during once-daily chemoprophylaxis.

Management of possible and confirmed human cases

The **table 6** below outlines the key management steps for possible and confirmed cases including, isolation, antiviral treatment, contact tracing measures and case reporting.

Table 6: Measures for possible and confirmed human cases

Human cases	Isolation	Contact tracing	Antiviral treatment	Case reporting to Sciensano
Possible	Yes	Yes, identify contacts for symptom monitoring	Yes	Yes
Confirmed	Yes	Yes, identify contacts for symptom monitoring, testing and quarantine	Yes	Yes

7.2. Possible human cases

7.2.1 TESTING & ISOLATION

Possible human cases should be tested as soon as symptoms emerge and within 14 days after exposure following the protocol detailed in part 6 of this document. Isolation should be initiated immediately.

7.2.2 TREATMENT

Treatment should be initiated as soon as possible (preferably within 24-48 hours after symptom onset) for possible cases even while waiting for laboratory confirmation. If laboratory testing is negative then treatment can be halted. More information on treatment can be found in chapter 7.3.2. Treatment.

7.2.3 CONTACT TRACING

The RHA should initiate contact tracing to identify all contacts of the possible case and assess the level of exposure. Based on this information, the RHA must reach out to individuals with high or moderate exposure to the possible human case to provide guidance on self-monitoring of symptoms, including which symptoms to watch for and the required monitoring duration.

In cases of occupational exposure, employees are required to maintain a register of exposed workers, adhering to occupational health and safety regulations. When applicable, RHA should collaborate with farm operators and with FAVV-FAMHP, to gather comprehensive lists of individuals exposed to the zoonotic influenza virus.

7.3 Confirmed human cases

7.3.1 ISOLATION

Isolation should be initiated immediately. Isolation can be halted at day 14 after symptom onset or date of laboratory confirmation (for asymptomatic cases or if date of symptom onset is unknown). Isolation can be ceased earlier if symptoms resolve and they have two consecutive negative RT-qPCR tests at days 7 and 8.

7.3.2 TREATMENT

Treatment should be initiated as early as possible for confirmed cases. Antiviral drugs are most effective if administered early within 24-48 hours from onset of symptoms. Therefore, treatment may be started before laboratory confirmation. However, initiating treatment at a later stage should be considered for patients with severe zoonotic influenza or those at high risk of deterioration due to underlying comorbidities.

Oseltamivir is the recommended first-line antiviral. The current circulating A(H5) clade 2.3.4.4b avian influenza viruses remain broadly susceptible to all three categories of influenza antiviral drugs: neuraminidase inhibitors oseltamivir and zanamivir, M2 blockers amantadine and rimantadine, and PA inhibitors such as baloxavir.

Recommended dosage of orally oseltamivir (capsules or oral powder for reconstitution)[xxii]:

- Adults and children >13 years: 75 mg orally twice daily for 5 days.
- Children <12 years: twice daily for 5 days
    - Bodyweight <10kg: 3mg/kg orally twice daily for 5 days;[xxiii]
    - Bodyweight 10-15kg: 30mg orally twice daily for 5 days;
    - Bodyweight 15-23kg: 45mg orally twice daily for 5 days;
    - Bodyweight 23-40kg: 60mg orally twice daily for 5 days;
    - Bodyweight >40kg: 75mg orally twice daily for 5 days.

Dosage adjustment may be necessary based on kidney function. Longer treatment durations can be considered on a case-by-case basis.

Oseltamivir be administered to pregnant and lactating women and children, including neonates [i].

Notes: According to WHO guideline [xxi], patients with novel Influenza A (zoonotic influenza) associated with high mortality or with unknown risk of severe disease should be considered as severe influenza, even if they do not otherwise fulfil the clinical criteria. During the initial phases of a zoonotic influenza outbreak, oftentimes the risk of severe disease will be unknown, so these patients should be classified as severe influenza.

The decision to initiate immediate antiviral treatment for laboratory-confirmed asymptomatic cases versus waiting until symptoms develop will depend on potential benefits: earlier treatment can lead to more favourable clinical outcomes, can decrease viral load and subsequent transmission, and could be started as soon as possible before symptoms develop among high risk patients (such as older age, pulmonary disease or immunocompromised status).

7.3.3 CONTACT TRACING

Contact tracing should be initiated by the RHA by reaching out to all contacts of the confirmed human case (low, moderate and high exposure) in order to assess the

need for symptom monitoring, self-quarantine, testing, and/or post-exposure prophylaxis (PEP) according to the measures described in part 7.1 in this protocol.

ANNEX 1: PREVENTIVE PROTECTIVE MEASURES

The competent authority responsible for prevention and control of zoonotic influenza in animals is the Federal Agency for the Safety of the Food Chain (FASFC).

Measures to prevent and control animal influenza outbreaks should primarily focus on minimizing the introduction of the virus into farms and livestock. This involves implementing strict biosecurity protocols for both animal and human entry, as well as isolating livestock during periods of high environmental pressure, associated with increased circulation among wild birds, to prevent contact. It is worth noting that these measures are more stringent for commercial poultry operations than for recreational farms, as avian influenza infections in commercial operations have far greater consequences and impacts, including significantly higher infectious pressure.
These preventive measures are regularly adjusted by the FASFC. During periods of high viral circulation among wild birds, and consequently high environmental pressure around poultry farms, the measures are made more stringent; conversely, they may be relaxed during periods of low viral pressure.

Subsequently, efforts should aim to reduce virus circulation, thereby lowering the risk of human infection and disease. As soon as a zoonotic influenza case is suspected or when an outbreak of animal influenza viruses is confirmed, the workplace biosecurity and hygiene measures should be immediately reinforced in accordance with FAVV/AFSCA procedures and the working protocols implemented by contractors. Exposure should be prevented as much as possible through source shielding. If exposure cannot be ruled out, specific measures must be taken, such as the use of personal protective equipment as detailed in Annex 2.

Because of the risk of reassortment, if a person tests positive for seasonal influenza or presents respiratory symptoms, further contact with the animals without PPE should be strictly avoided.

Under Directive 2000/54/EC, employers are responsible for implementing preventive measures in accordance with a workplace risk assessment that is regularly updated.

FASFC guidelines:

- **Prevention of notifiable contagious animal diseases**
  FR version :https://favv-afsca.be/fr/themes/animaux/sante-animale/prevention-des-maladies-animales-contagieuses-declaration-obligatoire
  NL version : https://favv-afsca.be/nl/themes/dieren/dierengezondheid/preventie-van-besmettelijke-aangifteplichtige-dierziekten

- **Biosecurity**
  FR version: https://favv-afsca.be/sites/default/files/2023-11/Biosecurite_2019.pdf
  NL version: https://favv-afsca.be/sites/default/files/2023-10/Bioveiligheid_2019.pdf

- **Avian influenza**
  FR version: https://favv-afsca.be/fr/themes/animaux/sante-animale/maladies-animales/grippe-aviaire#Mesures.
  NL version:
  https://favvafsca.be/nl/themas/dieren/dierengezondheid/dierziekten/vogelgriep

ANNEX 2: PERSONAL PROTECTIVE EQUIPMENT (PPE)

A. In case of contact with an infected animal

The use of personal protective equipment (PPE) is recommended to reduce individual risk of infection. In general, sick or dead wild birds and mammals should not be handled without appropriate precautionary measures at a minimum, gloves should be worn. Individuals with high-risk exposure, as outlined in Section 1.6 of the protocol, should wear appropriately selected PPE as follows:

- Well-fitting filtering face piece class-2 mask (FFP2) or respirator
- Goggles;
- Disposable gloves or thicker rubber gloves that can be disinfected;
- Coverall or full body suit that can be disposed or washed and disinfected (gown);
- Boots that can be cleaned and disinfected according to the national or local guidance.

In addition, other equipment such as an apron can be considered. PPE should be provided in different sizes as appropriate. Respirators have particular limitations for persons with different face shapes or facial hair. If respirators do not fit well, then the use of positive-pressure respirators should be explored. Staff should be trained to don (put on) and doff (put off) the PPE appropriately.

Data show that ocular conjunctival inoculation of seasonal and avian influenza viruses in ferrets can lead to productive and transmissible infection. Viruses can then be shed via direct contact or through aerosol. This underlines the importance of protecting the eyes and using goggles when in contact with infected animals, particularly related to occupational or culling activities where contaminated dust particles could enter the eye.

B. In case of an exposure to suspect or confirmed human case

The choice of PPE will depend on the level of exposure. Recommended PPE for the care of hospitalised patients or in case of aerosol-generating procedures include

- a well-fitted FFP2 or FFP3 respirator
- gown
- gloves
- eye protection

When performing a nasopharyngeal swab, PPE may be limited to a respiratory mask, eye protection, and gloves. For symptomatic patients, particularly those with respiratory symptoms, wearing a gown is recommended.

Recommended guideline: European Centre for Disease Prevention and Control. Considerations for infection prevention and control in relation to respiratory viral infections in healthcare settings. 6 February 2023. ECDC: Stockholm; 2023 https://www.ecdc.europa.eu/sites/default/files/documents/Considerations%20for%20IPC%20respiratory%20viral%20infections%20in%20HC%20settings.pdf

Recommended guidelines:

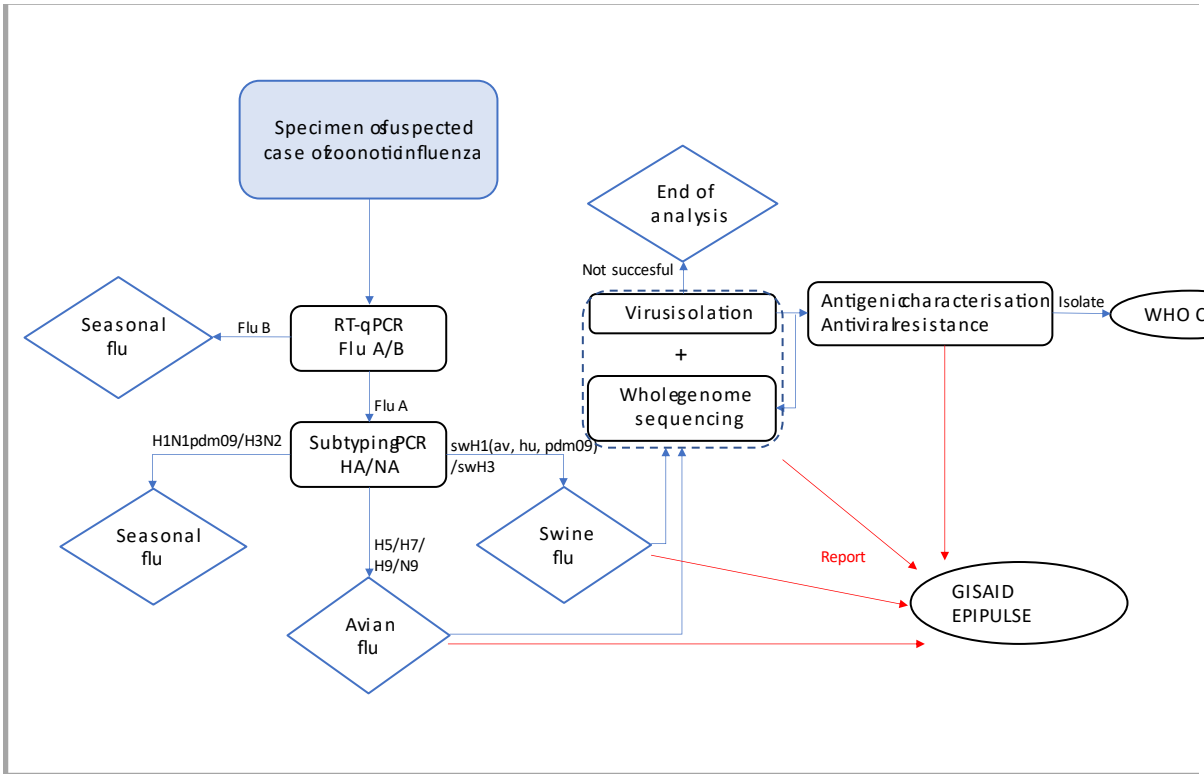
Confirmed human cases should be isolated to prevent further transmission. ECDC has published a guidance on 'Infection prevention and control practices in relation to respiratory virus infections in healthcare settings', including high-threat pathogens.

Another guidance published by ECDC – 'Guidance for wearing and removing personal protective equipment in healthcare settings for the care of patients with suspected or confirmed COVID-19' – is also relevant for high-threat pathogens like avian influenza in humans.

ANNEX 3: CONTACT DETAILS

Departement Zorg Flanders	• contact: infectieziektebestrijding@vlaanderen.be • Telefonisch melden aan arts van wacht buiten kantooruren: 02 512 93 89 • https://www.departementzorg.be/
AVIQ - Wallonie Direction Surveillance des Maladies Infectieuses de l'AVIQ	• contact: surveillance.sante@aviq.be • telephone: 071/33 77 77 en semaine entre 9-12h et 13h-16h30
Vivalis - Brussel Region Cellule de Médecine préventive et gestion des risques sanitaires de Vivavlis	• contact : notif-hyg@vivalis.brussels • téléphone au 02 552 01 91 en semaine entre 9h et 17h. En dehors des heures du bureau vous serez redirigé vers la garde de la veille sanitaire. • Si besoin d'un contact direct avec un médecin : maureen.mooken@vivalis.brussels david.hercot@vivalis.brussels adrae.taame@vivalis.brussels
Ministerium der. Deutschsprachigen Gemeinschaft Hygieneinspektion der Deutschsprachigen Gemeinschaft	• contact: infektionen@dgov.be • téléphone au 087 87 67 00 en semaine entre 8.30h et 17.30h, le weekend et jours férieres entre 9.00h et 17.00h.
National Reference Center (NRC) for respiratory pathogens	• contact: respirvir@sciensano.be • contact forms : - https://www.sciensano.be/nl/nrc-nrl/nationaal-referentiecentrum-nrc-voor-respiratoire-pathogenen - https://www.sciensano.be/fr/nrc-nrl/centre-national-de-reference-cnr-dinfluenza-virus • 02/373.31.11 • T.a.v. Sarah Denayer • Engelandstraat 642 1180 Brussels - België

ANNEX 4: FLOWCHART ON TESTING PROCEDURES TO CONFIRM A CASE OF ZOONOTIC INFLUENZA BY THE NRL RESPIRATORY PATHOGENS



ANNEX 5: REQUEST FORM FOR ANALYSIS OF HUMAN ZOONOTIC INFLUENZA

The request form for analysis of human zoonotic Influenza by the NRC for Respiratory pathogens is available on the Sciensano website.

Analysis request forms available here :

- NL version: https://www.sciensano.be/nl/nrc-nrl/nationaal-referentiecentrum-nrc-voor-respiratoire-pathogenen
- FR version : https://www.sciensano.be/fr/nrc-nrl/centre-national-de-reference-cnr-dinfluenza-virus

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Centre National de Référence Pathogènes respiratoires
Centre National INFLUENZA (OMS)
Rue Juliette Wytsman 14, 1050 Bruxelles
Contact: respivir@sciensano.be
Tel: 02/373 31 11
Sarah Denayer - François Dufrasne - Anna Parys

Ce formulaire est réservé à l'envoi par les laboratoires hospitaliers d'échantillons de patients hospitalisés dans les cas suivants :
•détresse respiratoire aigüe avec suspicion d'infection par un virus de la grippe et nécessitant une admission en soins intensifs
•détresse respiratoire aigüe avec suspicion d'infection par un virus grippal hautement pathogène zoonotique (grippe aviaire)

IDENTIFICATION DU LABORATOIRE DEMANDEUR

Nom: ……

Adresse: ……

Tel/Fax: ……

Email: ……

☐ **Le patient s'oppose à l'utilisation, par le CNR, de l'échantillon pour des activités R&D en lien avec la Santé Publique**

ECHANTILLON

Date du prélèvement : ……/……/……

Type de prélèvement :: ☐ écouvillon nasopharyngé
☐ aspiration nasopharyngée
☐ lavage broncho-alvéolaire
☐ autre, précisez: . . . .

Votre référence échantillon : ……

DONNEES CONCERNANT LE PATIENT (ou étiquette)

Votre référence : ……

Date de naissance : ……/……/…… **ou Age :** ……**ans**
si < 2ans :. . . . . Mois

Sexe: ☐ homme ☐ femme ☐ X

Code postal: . . . .

Code NISS : . . . . . .

DONNEES EPIDEMIO-CLINIQUES

Date d'admission : . . . / . . . / . . . . .

Symptômes:

date de début : . . ./. . ./. . . .

Définition de cas :

☐ température ≥ 38 °C
☐ historique de température
☐ toux ☐ dyspnée

Respiratoires:

☐ rhinite ☐mal de gorge
☐ sifflement ☐apnée
☐ crépitations ☐désaturation
☐ œdème pulmonaire ☐mucus
☐ bronchospasme ☐ronchi
☐ douleur thoracique

Généraux :

☐mal de tête ☐malaise
☐déshydratation ☐conjonctivite
☐ asthénie, fatigue
☐hypothermie ☐myalgies
☐chute soudaine ☐bradycardie
☐confusion aiguë ☐tachycardie

Digestifs :

☐diarrhée ☐nausée
☐vomissements ☐anorexie
☐anosmie ☐agueusie

Autres: ……

Vaccination anti-grippale 2024-2025 :

☐ oui ☐ non ☐ inconnu
Si oui: ☐ <2 semaines?

Traitement antiviral anti-grippe :

☐ oui ☐ non ☐ inconnu
Si oui: ☐ date de prescription
. . ./. . . /. . . . .
ou ☐ avant le prélèvement ?
lequel? ☐ oseltamivir
☐ autre, précisez : . . . . .

Traitement antibiotique :

☐ oui ☐ non ☐ inconnu
Si oui: ☐ avant admission
☐ endéans 48h post-admission
☐ pendant le séjour (>48h)

Raisons de la notification :

☐ soins intensifs / ICU
☐ ARDS
☐ ECMO
☐ décès (date:…./…./……..)
☐ suspicion de résistance aux antiviraux
☐ retour de l'étranger (date:……)
☐ suspicion d'infection influenza zoonotique *
☐ encéphalite virale/ méningoencéphalite sans agent étiologique*
☐ autre, précisez:……

Facteurs de risque :

Merci de sélectionner au moins 'aucun' ou 'inconnu'

☐aucun
☐inconnu

☐maladie respiratoire chronique *hors asthme*
☐asthme
☐maladie cardio-vasculaire chronique *hors hypertension*
☐hypertension
☐obésité (BMI>30)
☐diabète de type I ou II
☐insuffisance rénale (modérée à sévère)
☐insuffisance hépatique (modérée à sévère)
☐ immunodéficience
☐maladie constitutive ou acquise
☐cancer or chimiothérapie
☐ traitement immunosuppresseur
☐grossesse
☐troubles neuro-musculaires
☐fumeur (arrêt endéans les 2 ans)
☐prématurité

☐autre, précisez : . . . . . .

VOS RESULTATS DE LABORATOIRE

Pour recherche de virus influenza :
……

Pour recherche d'autres virus respiratoires :
……

Pour recherche d'autres pathogènes respiratoir
……

**** VEUILLEZ EGALEMENT COMPLETER PAGE 2**

IDENTIFICATION DU MEDECIN PRESCRIPTEUR

Nom: ……

Numéro INAMI : ……

DEMANDES DE TESTS CNR

☐caractérisation:
☐sous-typage influenza A ou lignée influenza B
☐séquençage HA / NA
☐isolement et test susceptibilité aux antiviraux
☐sérologie
☐diagnostic différentiel (grippe aviaire, MERS-CoV et principaux virus respiratoires)

RUBRIQUE A COMPLETER SEULEMENT EN CAS DE SUSPICION D'INFECTION AVEC INFLUENZA ZOONOTIQUE (grippe aviaire)

Source d'infection suspectée:

- ☐ oiseaux sauvages (morts ou blessés inclus)
- ☐ volaille
- ☐ cochons
- ☐ bétail
- ☐ chèvres/moutons
- ☐ chevaux
- ☐ chats/chiens
- ☐ mammifères sauvages (ex : renards, sangliers)
- ☐ mammifères marins (ex: phoques)
- ☐ Alpaga / camélidés
- ☐ autre:…….

- ☐ consommation du lait cru / non-pasteurisé
- ☐ contact avec un échantillon suspect/infecté
- ☐ contact avec des personnes infectées

Lieu d'exposition:

- ☐ à domicile
- ☐ zoo/ferme (pour enfants)
- ☐ lieu de travail. Spécifiez: …..
- ☐ à l'étranger. Spécifiez lieu et période: …..
- ☐ marché/foire aux animaux
- ☐ autre: ……

Délai entre l'exposition suspectée et les symptômes cliniques:

- ☐ <3 jours
- ☐ 3-7 jours
- ☐ >1 semaine

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Nationaal Referentiecentrum Respiratoire pathogenen
Nationaal INFLUENZA centrum (WHO)
Juliette Wytsmansstraat 14, 1050 Brussel
Contact: respivir@sciensano.be
Tel: 02/373 31 11
Sarah Denayer - François Dufrasne - Anna Parys

Dit formulier is voorbehouden voor de verzending van stalen van ziekenhuispatiënten voor ziekenhuislaboratoria in de volgende gevallen:
- acute respiratoire insufficiëntie met vermoeden van griepinfectie en nood aan intensieve zorg
- acute respiratoire insufficiëntie met vermoeden van infectie met een hoog-pathogeen zoönotisch griepvirus

IDENTIFICATIE AANVRAGEND LABORATORIUM

Naam: ……

Adres: ……

Tel/Fax: ……
E-mail: ……

☐ **De patiënt geeft het NRC niet de toestemming om het staal te gebruiken voor onderzoeksactiviteiten in volksgezondheid**

STAAL

Datum staalafname: ……/……/……

Type staal: ☐ nasofaryngeale wisser
☐ nasofaryngeaal aspiraat
☐ broncho-alveolaire lavage
☐ andere, preciseer: . . . .

Uw staalreferentie: ……

GEGEVENS BETREFFENDE DE PATIENT (of label)

Uw referentie: ……

Geboortedatum: ……/……/……

of leeftijd: ……j
indien <2j:……m

Geslacht: ☐ M ☐ V ☐ X

Postcode: . . . .

INSZ nummer: . . . . . .

EPIDEMIOLOGISCHE GEGEVENS

Datum opname: . . . / . . . / . . . . .

Symptomen:

Start: . . ./. . ./. . . .

Casusdefinitie:

☐ koorts ≥ 38°C
☐ voorgeschiedenis van koorts
☐ hoest ☐ dyspneu

Respiratoir:

☐ rhinitis ☐keelpijn
☐ piepende ademhaling
☐ desaturatie ☐crepitaties
☐ slijmen ☐apneu
☐ ronchi ☐longoedeem
☐ bronchospasm ☐thoracale pijn

Algemeen:

☐hoofdpijn ☐malaise
☐myalgie ☐conjuctivitis
☐ asthenie, vermoeidheid
☐hypothermie ☐dehydratatie
☐tachycardie ☐bradycardie
☐verwardheid ☐plotse val

Digestief:

☐diarree ☐braken
☐nausea ☐anorexie
☐anosmia ☐ageusie

Andere: ……

2024-2025 vaccinatie tegen influenza:

☐ ja ☐ nee ☐ onbekend
Indien ja: ☐ <2 weken geleden?

antigriep antivirale behandeling:

☐ ja ☐ nee ☐ onbekend
Indien ja: ☐ datum van voorschrift
. . ./. . ./. . . . .
of ☐ voor staalafname?
welke? ☐ oseltamivir
☐ andere, preciseer: . . . . .

Antibiotica behandeling:

☐ ja ☐ nee ☐ onbekend
Indien ja: ☐ voor opname
☐ binnen 48u na opname
☐ tijdens verblijf (>48u)

Reden van melding:

☐ intensieve zorgen/ICU
☐ ARDS
☐ ECMO
☐ overlijden (datum:…./…./……..)
☐ vermoeden antivirale resistentie
☐ terugkeer buitenland (datum:…..)
☐ vermoeden dierlijke influenza*
☐ virale encefalitis/ meningo-encefalitis zonder etiologisch agens*
☐ andere, preciseer:……

Risicogroepen:

Selecteer ten minste 'geen' of 'onbekend'

☐geen
☐onbekend

☐chronische resp. ziekte uitgezonderd astma
☐astma
☐chronische hart- en vaatziekte uitgezonderd hypertensie
☐hypertensie
☐obesitas (BMI>30)
☐diabetes type I of II
☐nierinsufficiëntie (matige of ernstige)
☐ leverinsufficiëntie (matige of ernstige)
☐immunodeficientie
☐constitutieve of verworven
☐kanker of chemotherapie
☐ immunosupp. behandeling
☐zwangerschap
☐neuromusculaire aandoening
☐roker (gestopt <2j)
☐prematuriteit

☐andere, preciseer: . . . .

UW LABORATORIUM RESULTATEN

Voor onderzoek naar influenzavirus:
……

Voor onderzoek naar andere virussen:
……

Voor onderzoek naar andere pathogenen:
……

***Gelieve ook p2 in te vullen**

GEGEVENS VAN DE AANVRAGENDE ARTS

Naam: ……
RIZIV-nummer: ……

AANGEVRAAGDE TESTEN NRC

☐karakterisering:
☐subtype influenza A of lineage bepaling influenza B
☐sequenering HA/NA
☐isolatie en test antivirale gevoeligheid
☐serologie
☐differentiële diagnostiek (zoonotische influenza, MERS-CoV, en relevante respiratoire virussen)

Vermoeden van besmettingsbron:

- ☐ wilde vogels
- ☐ pluimvee
- ☐ varkens
- ☐ runderen
- ☐ geiten/schapen
- ☐ paarden
- ☐ katten/honden
- ☐ wilde zoogdieren (vb vossen, everzwijnen)
- ☐ zeezoogdieren (vb zeehond)
- ☐ alpaca/kameelachtigen
- ☐ andere dieren:…….

- ☐ consumptie van rauwe melk/ niet-gepasteuriseerde melk
- ☐ contact met mogelijks besmet staal
- ☐ contact met besmet persoon

Plaats van blootstelling:

- ☐ thuis
- ☐ dierentuin/(kinder)boerderij
- ☐ werkomgeving, specifieer:…...
- ☐ buitenland, specifieer plaats en periode: …….
- ☐ dierenmarkt/-beurzen
- ☐ overige:…….

Tijdstip tussen vermoedelijke blootstelling en klinische symptomen:

- ☐ <3 dagen
- ☐ 3-7 dagen
- ☐ >1 week

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