

One Health Timeliness Analysis (OHTA) Toolkit

Contents

- One Health Timeliness Analysis (OHTA) Toolkit Overview.....2
- Human Health 7-1-7 Assessment Tool.....4
- Domestic Animals & Agriculture Timeliness Assessment Tool5
- Reference Guide: Domestic Animals & Agriculture Timeliness Analysis.....9
- Wildlife Timeliness Assessment Tool13
- Reference Guide: Wildlife Timeliness Analysis.....17
- Environment Timeliness Assessment Tool21
- Reference Guide: Environment Timeliness Analysis25
- One Health Timeliness Analysis (OHTA) Tool.....28
- Reference Guide: One Health Timeliness Analysis (OHTA)34

The One Health Timeliness Analysis (OHTA) Toolkit was developed by the U.S. Centers for Disease Control and Prevention (CDC) One Health Office, in collaboration with governmental and technical One Health partners.





One Health Timeliness Analysis (OHTA) Toolkit Overview

Applying the 7-1-7 approach to improve detection, notification, and response across One Health sectors including public health, animal health (domestic animals and wildlife), and environment sectors

Summary

- Emerging health threats often involve complex interactions among people, animals, and the environment. Responding effectively requires close coordination across One Health sectors.
- One Health Timeliness Analysis (OHTA) is a review process to understand detection, notification, and response timeliness across One Health sectors during outbreaks or events.
- This process helps participants monitor and identify opportunities to improve cross-sector One Health coordination for current and future responses.

Background

One Health Timeliness Analysis (OHTA) is a structured, multisectoral review process that builds on the [7-1-7 approach](#) to analyze outbreak or event timeliness for detection, notification, and response within individual sectors and across public health, animal health, and environment sectors.

The OHTA toolkit includes standardized tools to document when key actions occurred, identify factors that delayed or supported timely action, and recommend improvements to strengthen sector-specific and cross-sector One Health coordination for current or future responses. Time periods to reach key milestones are captured, including the time to:

- Detect an event or outbreak
- Notify responsible authorities and relevant One Health sectors
- Start applicable sector-specific and coordinated cross-sector One Health response actions

Who should use the One Health Timeliness Analysis Toolkit

The OHTA toolkit can be used by a variety of people involved in emergency response and management across One Health sectors.

When to use One Health Timeliness Analysis

Use OHTA for an outbreak or event that requires action, communication, or coordination by two or more One Health sectors. Cases or events do not need to occur in every participating sector to conduct the analysis. The OHTA can be conducted:

- During an ongoing response to support timely improvements
- After an outbreak or other One Health event
- As part of an early action review or after-action review
- After a simulation exercise
- As part of broader preparedness improvement efforts

Examples include zoonotic and emerging infectious diseases, foodborne outbreaks, antimicrobial resistance events, wildlife mortality events, and other One Health threats requiring coordination across sectors.

About the One Health Timeliness Analysis process

1 Conduct Sector-Specific Timeliness Analyses Each participating sector (human health, domestic animal/agriculture, wildlife, and environment) uses a sector-specific tool to record key milestone and response-action dates. Each sector also identifies its bottlenecks, enablers, and corrective actions.	2 Integrate and Analyze Participants enter sector-specific dates into the standardized OHTA tool. This tool brings the information together into a single timeline to help users review cross-sector One Health notification, information sharing, coordination, and response.
3 Identify Bottlenecks and Enablers Participants agree on the most important factors that delayed action and the practices or resources that supported timely action across sectors. They use these findings to identify practical improvements.	4 Identify and Prioritize Corrective Actions One Health sectors work together to identify and prioritize corrective actions, identify responsible organizations, and propose timelines. Where appropriate, the actions can then be incorporated into existing sector-specific or cross-sector One Health preparedness and response plans, procedures, training, or coordination mechanisms to support implementation.

One Health Timeliness Analysis Process



Expected Outputs

- A timeline of sector-specific and joint One Health milestones and response actions
- Shared understanding of conditions that improved or delayed timely detection, notification, or response
- A list of prioritized actions for improvement of future responses within and across One Health sectors
- Recommendations for strengthening preparedness and response using the One Health approach

These outputs help sectors turn lessons from an event or outbreak into practical improvements for current and future One Health responses and preparedness.

For more information, please visit: <https://www.cdc.gov/one-health/php/toolkit/timeliness-analysis> or contact us at OneHealth@cdc.gov

Human Health 7-1-7 Assessment Tool

- Please visit <https://717alliance.org> for the most current version of the 7-1-7 assessment tool.
- **Direct link to 7-1-7 assessment tool:** https://717alliance.org/resources/7-1-7-assessment-tool-docx/?_gl=1*bglzqp*_up*MQ..*_ga*MjYwMzc3NzQ4LjE3ODgyODM5Njc.*_ga_FVLGHP4R54*_c_zE3ODgyODM5NjckbzEkZzEkdDE3ODgyODQwMjgkajYwJGwwJGgw

Domestic Animals & Agriculture Timeliness Assessment Tool

Rapid performance improvement for outbreak detection and response

For a disease outbreak event, use this tool to:

1. record key milestone dates for the detection, notification, and early response intervals;
2. calculate performance against the targets;
3. identify bottlenecks and enablers for each interval;
4. propose immediate and longer-term actions to address the bottlenecks.

This tool can be used at any country level, from local administrative units to national domestic animal health authorities.

Event name: _____

Event location(s): _____

Date this report completed: _____

Name of person(s) completing this report: _____

Documentation

Step 1. Record dates for milestones

Milestones	Date DD/MM/YY	Narrative Briefly describe key observations in this interval and how the date was determined.
Date of emergence¹ <u>For Non-endemic or epidemic diseases:</u> date on which the index case or first epidemiologically linked case first exhibited clinical signs <u>For endemic diseases:</u> date when a predetermined increase in case incidence over baseline rates occurred <u>For other animal health events (including animal bites):</u> date the threat first met criteria as a reportable event based on reporting standards		
Date of detection Date the event is first recorded by any source or in any system		
Date of notification Date the event is first reported to a domestic animal health authority responsible for action		
Early response action dates Date on which each applicable action occurred (note that some are the dates of initiation)		
Initiate investigation or deploy investigation/response team		
Conduct situation analysis of burden, severity and possible risk factors, or perform initial risk assessment		

Obtain laboratory confirmation of the outbreak etiology		
Initiate personal protection measures for personnel in contact with affected animals		
Initiate appropriate veterinary control measures ² in affected areas		
Initiate appropriate risk communication and community engagement activities		
Establish a coordination mechanism		
Date of early response action completion Date on which the last of the applicable early response actions listed above were initiated		

¹ Date of emergence may change as data are updated through the course of the epidemiologic investigation

² Disinfection, carcass disposal, culling, movement control, ring vaccination, treatment, quarantine & isolation, outbreak announcement, community surveillance, etc.

Step 2. Calculate timeliness intervals

Calculations are based on the difference between dates (e.g., August 3 – August 1 = 2 days). Report “timeliness” as “<1” if calculated to be 0 (e.g. detection and notification occur on the same day).

Interval	Calculation In days	Timeliness In days	Target* In days	Was the timeliness acceptable? Yes / No / Uncertain
Detection	Difference between dates of emergence and detection			
Notification	Difference between dates of detection and notification			
Response	Difference between dates of notification and complete initiation of all early response actions			

* Evidence-based timeliness targets comparable to the human health 7-1-7 targets have not yet been established for domestic animals. Users may apply nationally defined, disease-specific, or context-specific targets, as appropriate. Regardless of whether a target is available, consider whether there are opportunities to improve timeliness for each interval.

Step 3. Identify bottlenecks and enablers

Interval	Bottlenecks Factors that prevented timely action. Identify max 3, if applicable. Propose remedial actions in Step 4.	Enablers Factors that enabled timely action. Identify max 3, if applicable. Document for advocacy and to demonstrate impact.
Detection		
Notification		
Response		

Step 4. Propose corrective actions to address bottlenecks

Immediate actions

Actions for immediate implementation (e.g., where resources are available or anticipated)

Proposed action	Bottleneck addressed	Responsible authority	Target start date	Target end date

Longer-term actions

Actions for longer-term planning and funding (e.g., through planning and budget cycles)

Proposed action	Bottleneck addressed	Responsible authority	Opportunities for planning and funding (e.g., incorporate in NAPHS, funding proposals)

Reference Guide: Domestic Animals & Agriculture

Timeliness Analysis

Detailed definitions and examples

- This reference guide is intended for use by implementers of the Domestic Animal Timeliness Analysis Worksheet, including technical staff who are tasked with identifying and recording timeliness analysis dates. It includes the definitions of the key milestone dates (dates of emergence, detection, notification, and immediate response action completion) as well as the early response actions upon which the early response action completion milestone is based.
- Examples are provided for how the dates may be determined based on various factors such as type of event, surveillance system, or scenario for notification. Examples of actions for each of the early response actions are also provided; note that this list is not comprehensive but should provide a sense of what constitutes each immediate response action.

Date of Emergence

The date of emergence varies by how the disease type is classified in the country/jurisdiction:

- Endemic diseases (regularly occurring in the country with existing surveillance): the date when a predetermined increase in case incidence over baseline rates occurred
- Non-endemic or epidemic diseases: the date on which the index case or first epidemiologically linked case first was observed with clinical signs
- For other animal health events (include animal bites): the date the threat first met criteria as a reportable event based on existing reporting standards

Note that the date of emergence is often unknown when an event is first detected. Information gathered during the outbreak investigation should be used to determine the date, based on whatever data is available. The date may then change as more information is learned and earlier cases are identified.

Event type	Example of date of emergence
Endemic disease	Brucellosis routinely occurs in country X and is monitored by animal health surveillance with approximately 20 cases reported per month. An outbreak is defined as more than 100 cases reported per month. During month Z, 200 Brucellosis cases were reported. The date of emergence is defined as the first date of month Z.
Epidemic disease (e.g., Anthrax)	A farmer notices many goats in his herd have died suddenly. Animal health service staff from the Ministry of Agriculture is called out to investigate the suspected anthrax case. The farmer reports he first noticed the dead goats the week before. Because there is no other data available to record when the first goat became sick or died, the date of emergence is when the farmer first noticed the sickness or death, which was the week before.
Other animal health events (e.g., contaminated animal feed product)	An outbreak of illness is noted in animals due to the consumption of contaminated feed. The date of outbreak emergence would be the earliest date of onset of symptoms among animals exposed to the contaminated product.

Date of Detection

The date of detection is the date the animal health event was first recorded by any source or in any system. The sources and systems should be related to animal health. This may happen at the farm or veterinary clinic level, through a lab, through the surveillance system, or elsewhere.

For indicator-based surveillance, the date of detection would be when case or incidence data were recorded (e.g., in a logbook, case investigation form, laboratory requisition form). For event-based surveillance (EBS), the date of detection would be when the event information was first recorded (e.g., recorded by veterinarian, recorded by a community animal health worker, etc.).

Note that detection for the date of detection is not based strictly on laboratory confirmation; rather, obtaining laboratory confirmation is an early response action. The date of detection includes **suspicion** of the event (e.g. entry in a logbook, differential diagnosis on a laboratory requisition form, record by community animal health worker). However, in contexts where the definition of a notifiable event is a confirmed case, lab confirmation may come on or before the same date as the date of detection.

Detection type	Example of date of detection
Indicator-based surveillance of non-endemic disease (e.g., highly pathogenic avian influenza)	A suspected highly pathogenic avian influenza outbreak is recorded by a local veterinarian when she is called to a commercial farm experiencing a poultry die-off in town Y. The date of detection of the avian influenza outbreak in town Y would be the date that the local veterinarian completed an intake form for the suspected avian influenza event in her field book (e.g., symptoms, number dead, etc.)
Event-based surveillance (e.g., community event-based surveillance)	A community animal health worker notices livestock with oral and interdigital ulcers. Foot and Mouth disease is suspected. The date of detection is the date that the community animal health worker recorded the suspected Foot and Mouth Disease case (e.g., in a logbook, a mobile application, an investigation form).

Date of Notification

The date of notification is the date of the event is first reported to an animal health authority responsible for action.

Oftentimes, the most immediate animal health jurisdiction (city, district) will be the animal health authority responsible for action and the first public animal authority to be notified. Notification of responsible animal health authorities could be from a clinical setting to a district veterinary officer. In the case of event-based surveillance or when outbreaks are detected centrally (e.g., at a national surveillance unit), notification to a responsible authority might be from the central level to the subnational level.

For countries that require notification of reportable events to multiple levels of government that are tasked with different actions, the earliest date that any of these animal health authorities were notified would be the date of notification. In some guidance, this step may be referred to as 'reporting' to an animal health authority or district team.

This step should not be confused with international notification to World Organisation for Animal Health (WOAH), which is typically only done after local or national animal health authorities have become aware of and confirmed an event.

Notification scenario	Example of date of notification
Event detected by a community animal health worker (e.g., African Swine Fever)	A community animal health worker suspects a herd is impacted by African Swine Fever due to their clinical signs. The community animal health worker submits an electronic health form to a local animal health surveillance officer, and the officer contacts the department of agriculture to inform them of the suspected cases. The date the surveillance officer contacted the department of agriculture about the suspected cases is the date of notification.

Date of Early Response Action Completion

The latest date on which any of these seven early response actions are all started:

1. Initiate investigation or deploy investigation/response team
2. Conduct situation analysis of burden, severity and possible risk factors, or perform initial risk assessment
3. Obtain laboratory confirmation
4. Initiate personal protection measures to protect responders in contact with affected animals
5. Initiate appropriate veterinary control measures** in affected areas
6. Initiate appropriate risk communication and community engagement activities
7. Establish coordination mechanism

**Veterinary control measures: e.g., disinfection, biosecurity, carcass disposal, culling, movement control, vaccination, treatment, quarantine & isolation, outbreak announcement, community surveillance, etc.

As shown in the Timeliness Analysis worksheet, the dates for each of these separate early response actions should be recorded, and the date of early response action completion recorded as the last of these dates. Note that most of the early response actions are focused on initiating rather than completing an action (e.g., if vaccine rollout begins on May 5 and ends on May 20, the date for “Initiate appropriate veterinary control measures in affected communities” would be May 5).

All seven early response actions may not be applicable for some animal health events. For example, an event that is determined to be low risk may not require laboratory confirmation or risk communication. For events where some early response actions are not applicable, the latest date among the applicable actions should be used as the date of early response completion. “N/A” should be recorded in the data collection platform for these in order to differentiate them from early response actions with missing data.

The table below includes some examples for each of the seven 7-1-7 early response action categories. Note that the actions below are not listed in order of priority and may be initiated in any sequence. If multiple actions are taken within one category, the earliest date should be used for the purposes of 7-1-7.

Early response actions	Examples (the earliest date should be used for timeliness analysis purposes) Note: these examples are not comprehensive
Initiate investigation or deploy investigation/response team	• Date the district initiated an investigation of a suspected outbreak or in response to a signal • Date a rapid response team was deployed
Conduct situation analysis of burden, severity and possible risk factors, or perform initial risk assessment	• Date when the first situation analysis was completed, with disease severity and risk factors outlined • Date when the first risk assessment level was indicated

Obtain laboratory confirmation	• Date when laboratory confirmation of the pathogen was completed and communicated Note: additional variables relating to lab confirmation are often evaluated in timeliness and may be considered as alternatives: Date specimen was collected, Date specimen was received at the laboratory, Date lab confirmation was completed
Initiate personal protection measures for personnel in contact with affected animals	• Date when appropriate PPE use was started for personnel in contact with affected animals • Date when access to affected animals was restricted to reduce exposure of unprotected people
Initiate appropriate veterinary control measures in affected areas	• Date when control measures to prevent outbreak spread were initiated (e.g., biosecurity, vaccination, movement control, disinfection, treatment, quarantine and isolation) • Date when disposal measures were initiated (e.g., culling, carcass disposal)
Initiate appropriate risk communication and community engagement activities	• Date when an animal health official announced the outbreak • Date when messaging to reduce risk or prevent spread was published or communicated • Date when two-way dialogue with impacted communities was initiated • Date when community sentiment or knowledge, attitudes, or perceptions of the event were assessed
Establish coordination mechanism	• Date when event is escalated to ministry leadership • Date when the emergency operations center (EOC) was activated • Date when a task force or technical working group was initiated • Date when an action plan was drafted

Wildlife Timeliness Assessment Tool

Rapid performance improvement for outbreak detection and response

For a disease outbreak event, use this tool to:

1. record key milestone dates for the detection, notification, and early response intervals;
2. calculate performance against the targets;
3. identify bottlenecks and enablers for each interval;
4. propose immediate and longer-term actions to address the bottlenecks.

This tool can be used at any country level, from local administrative units to national wildlife health authorities.

Event name: _____

Event location(s): _____

Date this report completed: _____

Name of person(s) completing this report: _____

Documentation

Step 1. Record dates for milestones

Milestones	Date DD/MM/YY	Narrative Briefly describe key observations in this interval and how the date was determined.
Date of emergence¹ Estimated onset date based on field evidence: observed necropsy/presentation/lesions on wild animals, camera trap, etiology, etc.		
Date of detection Date the event is first noticed or detected by any source in • At least 1 endangered or threatened wild animal, or • More than 1 unthreatened wild animal of the same species with related sickness or death		
Date of report/record Date the event is first reported /recorded by any source or in any system.		
Date of notification Date the event is first reported to a wildlife/forestry authority responsible for action		
Early response action dates Date on which each applicable action occurred (note that some are the dates of initiation)		
Initiate investigation or deploy investigation/response team		
Initiate epidemiologic analysis of burden, severity and risk factors and perform initial risk assessment		
Obtain laboratory confirmation of the outbreak etiology		
Initiate personal protection measures for personnel in contact with affected animals		
Initiate control measures as appropriate: movement restriction, disinfection, treatment, and vaccination in wildlife (if available)		

Initiate appropriate risk communication and community engagement activities		
Establish coordination mechanism		
Date of early response action completion Date on which the last of the applicable early response actions listed above were initiated		

¹ Date of emergence may change as data are updated through the course of the epidemiologic investigation

Step 2. Calculate timeliness intervals

Calculations are based on the difference between dates (e.g., August 3 – August 1 = 2 days). Report “timeliness” as “<1” if calculated to be 0 (e.g. detection and notification occur on the same day).

Interval	Calculation In days	Timeliness In days	Target* In days	Was the timeliness acceptable? Yes / No / Uncertain
Detection	Difference between dates of emergence and detection			
Reporting/Recording	Difference between dates of detection and report/record			
Notification	Difference between dates of report/record and notification			
Response	Difference between dates of notification and complete initiation of all early response actions			

* Evidence-based timeliness targets comparable to the human health 7-1-7 targets have not yet been established for wildlife. Users may apply nationally defined, disease-specific, or context-specific targets, as appropriate. Regardless of whether a target is available, consider whether there are opportunities to improve timeliness for each interval.

Step 3. Identify bottlenecks and enablers

Interval	Bottlenecks Factors that prevented timely action. Identify max 3, if applicable. Propose remedial actions in Step 4.	Enablers Factors that enabled timely action. Identify max 3, if applicable. Document for advocacy and to demonstrate impact.
Detection		
Reporting/Recording		
Notification		
Response		

Step 4. Propose corrective actions to address bottlenecks

Immediate actions

Actions for immediate implementation (e.g., where resources are available or anticipated)

Proposed action	Bottleneck addressed	Responsible authority	Target start date	Target end date

Longer-term actions

Actions for longer-term planning and funding (e.g., through planning and budget cycles)

Proposed action	Bottleneck addressed	Responsible authority	Opportunities for planning and funding (e.g., incorporate in NAPHS, funding proposals)

Reference Guide: Wildlife Timeliness Analysis

Detailed definitions and examples

- This reference guide is intended for use by implementers of the Wildlife Timeliness Analysis Worksheet, including technical staff who are tasked with identifying and recording timeliness analysis dates. It includes the definitions of the key milestone dates (dates of emergence, detection, notification, and immediate response action completion) as well as the early response actions upon which the early response action completion milestone is based.
- Examples are provided for how the dates may be determined based on various factors such as type of event, surveillance system, or scenario for notification. Examples of actions for each of the early response actions are also provided; note that this list is not comprehensive but should provide a sense of what constitutes each early response action.

Date of Emergence

Date of emergence refers to the estimated onset date of an event of concern in wildlife. Date of emergence is often unknown when a wildlife event is first detected. Field evidence gathered during the outbreak investigation, including necropsy details, presentation, or lesions of affected animals, camera trap data, and outbreak etiology should be used to determine the date, based on whatever information is available. The date may then change as more is learned and earlier cases are identified.

Event type	Example of date of emergence
Disease directly observed in wildlife (e.g., avian influenza in common wild birds)	A flock of 10 common wild birds of the same species is found dead on a farm. Further investigation finds that the birds died of avian influenza. The date of outbreak emergence would be based on knowledge of avian influenza epidemiology and clinical progression in that species.
Disease not directly observed in a wild animal	A tiger displays signs of illness in a forest as observed by a camera trap. The date of emergence is the earliest estimated date of illness onset for the tiger.

Date of Detection

The date of detection is the date sickness or death in wildlife was first noticed or detected by any source. For wildlife, this does not need to also be the date that it was reported or recorded.

For endangered wildlife, an event occurs when sickness or death is detected in at least one endangered or threatened wild animal. For non-endangered wildlife, an event occurs when sickness or death is detected in more than one related animals of the same species.

Note that detection for the timeliness analysis target is not based on laboratory confirmation; rather, laboratory confirmation is an early response action. The date of detection includes suspicion of the event (e.g. tourist finding dead animals washed up on beach, ranger detects sick wildlife while on patrol, farmer finds dead wild birds on their property).

Detection type	Example of date of detection
Field-based surveillance	A forestry ranger is on patrol in a remote part of the country when they notice dead fish floating in a pond. The date of detection would be the date the ranger notices the dead fish.
Indicator-based surveillance (e.g., case of avian influenza suspected at wildlife clinic)	A tourist finds a sick seal pup in a group of dead seals on the beach. They contact a wildlife rehab clinic for treatment. The veterinarian suspects avian influenza. The date of detection would be the date when the tourist noticed the sick seals on the beach.

Event-based surveillance (e.g., media scanning)	A local newspaper reports on a cluster of deaths among deer likely due to chronic wasting disease, which is then picked up by an event-based surveillance (EBS) analyst at the national wildlife health institute. The date of detection of the outbreak would be the earliest known date that affected deer were noticed by someone in the community.
---	--

Date of Report/Record

The date of report/record is the date the wildlife event was first reported by any source or recorded in any system. This may happen at the community, zoological park or wildlife facility level, through a laboratory, through the surveillance system, in official reporting software, or elsewhere (e.g., reporting to community health official or wildlife supervisor, recording detection in the Spatial Monitoring and Reporting Tool (SMART) or similar app, recorded by a hotline operator).

Date of report/record is NOT the same metric as date of detection, although they might occur at the same time. For instance, a wildlife ranger may notice sick or dead wildlife while on patrol. If the ranger records this detection in an app like SMART immediately, detection and reporting occur simultaneously. If the ranger does not report or record their observation until they return to their station, these dates may be days apart.

Detection type	Example of date of report/record
Field-based surveillance	A forestry ranger is on patrol in a remote part of the country when they notice dead fish floating in a pond. The ranger returns to their station the following day and records their findings in an online reporting tool. The date of report/record is the day the record their findings in the online tool.
Indicator-based surveillance (e.g., case of avian influenza suspected at wildlife clinic)	A tourist finds a sick seal pup in a group of dead seals washed on the beach. They bring the seal to a wildlife rehab clinic for treatment. The veterinarian suspects avian influenza and alerts a local wildlife office. The day of report/record is the day the veterinarian reports the event to the wildlife office.
Event-based surveillance (e.g., media scanning)	A local newspaper reports on a cluster of deaths among deer due to chronic wasting disease, which is then picked up by an Event-Based surveillance analyst at the national wildlife health institute. The analyst records the detection in their event recording tool. The date of report/record is the day the analyst records the detection in the tool.

Date of Notification

The date of notification is the date of the event is first reported to a wildlife/forestry authority responsible for action.

Oftentimes, the most immediate wildlife/forestry health jurisdiction (city, district) will be the authority responsible for action and the first authority to be notified. Notification of responsible health authorities could be from a local wildlife officer or ranger to a director or unit head. In some cases, this may be the same as the date of report/record, as the first report from the individual who detected the event may be to an authority responsible for action.

For countries that require notification of reportable events to multiple levels of government that are tasked with different actions, the earliest date that any of these wildlife/forestry authorities were notified would be the date of notification. In some guidance, this step may be referred to as 'reporting' to a health authority or district health team.

This step should not be confused with international notification to World Organisation for Animal Health (WOAH), which is typically only done after local or national animal health authorities have become aware of and confirmed an event.

Notification scenario	Example of date of notification
Field-based surveillance	A forestry ranger is on patrol in a remote part of the country when they notice dead fish floating in a pond. The ranger returns to their station the following day and records their findings in an online reporting tool, which automatically sends an alert to the wildlife health authority in the region. The date of notification is the day the alert is sent to the wildlife health authority.
Indicator-based surveillance (e.g., case of avian influenza suspected at wildlife clinic)	A wildlife center is informed by the public of a sick seal pup on the beach. The center staff suspect avian influenza and alerts the regional wildlife management department. The date of notification is the day the local wildlife center reports the event to the regional wildlife management department.
Event-based surveillance (e.g., media scanning)	A local newspaper reports on a cluster of deaths among deer possibly due to chronic wasting disease, which is then picked up by an EBS analyst at the university. The EBS analyst records the detection in their event recording tool. The analyst sends a report on the increased cases of deer mortality to partners at the national wildlife health authority at the end of the week. The date of notification is the day the analyst sends the report to the wildlife health authority.

Date of Early Response Action Completion

The latest date on which all applicable of the seven early response actions were started:

1. Initiate investigation or deploy investigation/response team (i.e. Sample collection and testing/rapid test)
2. Initiate epidemiologic analysis of burden, severity and risk factors and perform initial risk assessment
3. Submit samples for laboratory confirmation of the outbreak etiology
4. Initiate personal protective measures to protect personnel in contact with affected animals
5. Initiate control measures as appropriate: movement restriction, disinfection, treatment, and vaccination in wildlife (if available)
6. Initiate appropriate risk communication or community engagement activities
7. Establish coordination mechanism

As shown in the Wildlife Timeliness Analysis worksheet, the dates for each of these separate early response actions should be recorded, and the date of early response checklist completion recorded as the last of these dates. Note that most of the early response actions are focused on initiating rather than completing an action (e.g., if vaccine rollout begins on May 5 and ends on May 20, the date for “Initiate control measures as appropriate” would be May 5).

All seven early response actions may not be applicable for some wildlife health events. For example, an event that is determined to be low risk may not require control measures or risk communication. For events where some early response actions are not applicable, the latest date among the applicable actions should be used as the date of early response checklist completion. “N/A” should be recorded in the data collection platform for these in order to differentiate them from early response actions with missing data.

The table below includes some examples for each of the seven 7-1-7 early response action categories. Note that the actions below are not listed in order of priority and may be initiated in any sequence. If multiple actions are taken within one category, the earliest date should be used for the purposes of 7-1-7.

Early response actions	Examples (the earliest date should be used) Note: these examples are not comprehensive
Initiate investigation or deploy investigation/response team (i.e. Sample collection and testing/rapid test)	• Date the district initiated an investigation of a suspected outbreak or in response to a signal • Date a rapid response team was deployed • Date samples were collected from dead animals
Initiate epidemiologic analysis of burden, severity and risk factors, and perform initial risk assessment	• Date when epidemiologic analyses/risk assessment was initiated • Date when situation report was initiated
Submit samples for laboratory confirmation of the outbreak etiology	• Date when samples for laboratory confirmation of the pathogen were sent Note: additional variables relating to lab confirmation are often evaluated in timeliness and may be considered as alternatives: Date specimen was collected, Date specimen was received at the laboratory, Date lab confirmation was completed
Initiate personal protection measures for personnel in contact with affected animals	• Date when appropriate PPE started to be used for people in contact with affected animals • Date when access to affected animals was restricted to reduce exposure of unprotected people
Initiate control measures as appropriate: movement restriction, disinfection, treatment, and vaccination in wildlife (if available)	• Date when procurement or distribution of commodities to prevent outbreak spread in communities was initiated (e.g., vaccines, antimicrobial agents, personal protective equipment, trap and transport equipment) • Date when restrictions on wildlife movement or transportation are announced
Initiate appropriate risk communication and community engagement activities	• Date when a local or wildlife health official announced the outbreak • Date when messaging to reduce risk or prevent spread was published or communicated • Date when two-way dialogue with communities was initiated • Date when community sentiment or knowledge, attitudes, or perceptions of the event were assessed
Initiate coordination within your sector and if necessary other sectors	• Date when an incident management system (IMS) was activated • Date when the emergency operations center (EOC) was activated • Date when a task force or technical working group was initiated • Date when an incident action plan was drafted • Date when officials from other relevant sectors are contacted and informed

Environment Timeliness Assessment Tool

Rapid performance improvement for outbreak detection and response

For a disease outbreak event, use this tool to:

1. record key milestone dates for the detection, notification, and early response intervals;
2. calculate performance against the targets;
3. identify bottlenecks and enablers for each interval;
4. propose immediate and longer-term actions to address the bottlenecks.

This tool can be used at any country level, from local administrative units to national environmental health authorities.

Event name: _____

Event location(s): _____

Date this report completed: _____

Name of person(s) completing this report: _____

Documentation

Step 1. Record dates for milestones

Milestones	Date DD/MM/YY	Narrative Briefly describe key observations in this interval and how the date was determined.
Date of emergence¹ <i>For normal/routine monitoring:</i> Date the event that goes above the standard/baseline/threshold or started to threaten the community/environment <i>For emergency/severity:</i> Date the event threatened the community/environment		
Date of detection Date the event is first recorded by any reliable source or in any system		
Date of notification Date the event is first reported to an environmental health authority responsible for action		
Early response action dates Date on which each applicable action occurred (note that some are the dates of initiation)		
Initiate investigation or deploy investigation/response team		
Conduct analysis of burden, severity and conduct risk assessment		
Initiate appropriate confirmation of the source or location of the incident/event		
Initiate safety measures to protect personnel in contact with affected environment		
Initiate appropriate environmental health countermeasures, response efforts, or remediation		

	Initiate appropriate risk communication and community engagement activities		
	Establish a coordination mechanism		
Date of early response action completion Date on which the last of the applicable early response actions listed above were initiated			

¹ Date of emergence may change as data are updated through the course of the epidemiologic investigation

Step 2. Calculate timeliness intervals

Calculations are based on the difference between dates (e.g., August 3 – August 1 = 2 days). Report “timeliness” as “<1” if calculated to be 0 (e.g. detection and notification occur on the same day).

Interval	Calculation In days	Timeliness In days	Target* In days	Was the timeliness acceptable? Yes / No / Uncertain
Detection	Difference between dates of emergence and detection			
Notification	Difference between dates of detection and notification			
Response	Difference between dates of notification and complete initiation of all early response actions			

* Evidence-based timeliness targets comparable to the human health 7-1-7 targets have not yet been established for environment. Users may apply nationally defined, disease-specific, or context-specific targets, as appropriate. Regardless of whether a target is available, consider whether there are opportunities to improve timeliness for each interval.

Step 3. Identify bottlenecks and enablers

Interval	Bottlenecks Factors that prevented timely action. Identify max 3, if applicable. Propose remedial actions in Step 4.	Enablers Factors that enabled timely action. Identify max 3, if applicable. Document for advocacy and to demonstrate impact.
Detection		
Notification		
Response		

Step 4. Propose corrective actions to address bottlenecks

Immediate actions

Actions for immediate implementation (e.g., where resources are available or anticipated)

Proposed action	Bottleneck addressed	Responsible authority	Target start date	Target end date

Longer-term actions

Actions for longer-term planning and funding (e.g., through planning and budget cycles)

Proposed action	Bottleneck addressed	Responsible authority	Opportunities for planning and funding

Reference Guide: Environment Timeliness Analysis

Detailed definitions and examples

- This reference guide is intended for use by implementers of the Environment Timeliness Analysis worksheet, including technical staff who are tasked with identifying and recording timeliness analysis dates. It includes the definitions of the key milestone dates (dates of emergence, detection, notification, and immediate response action completion) as well as the early response actions upon which the early response action completion milestone is based.
- Examples are provided for how the dates may be determined based on various factors such as type of event, surveillance system, or scenario for notification. Examples of actions for each of the early response actions are also provided; note that this list is not comprehensive but should provide a sense of what constitutes each early response action.

Date of Emergence

The date of emergence varies by how the event type is classified in the country/jurisdiction:

- Normal/routine monitoring: the date when indicators of an environmental event go above a standard or baseline and starts to threaten the community or environment
- Emergencies and severe events: the date the event threatens the community/environment

Note that the date of emergence may be unknown when an environmental event is first detected. Information gathered during the event investigation should be used to determine the date, based on whatever information is available. The date may then change as more is learned.

Event type	Example of date of emergence
Routine monitoring (e.g. air/water pollution)	An air quality monitoring station detects a spike in PM 2.5 particulate matter. The date of emergence is the date when the particulate matter indicator goes above the standard for a health alert.
Emergencies and severe events (wildfires, severe chemical spills)	A truck carrying hazardous chemicals crashes and overturns on a highway. The event poses an immediate threat to the local community. The date of emergence would be the day the incident occurred.

Date of Detection

The date of detection is the date the environmental event is first recorded by any reliable source or in any system.

Note that detection for the timeliness analysis target is not based on laboratory or other confirmation of the source; rather, source confirmation is an immediate response action. The date of detection includes **suspicion** of the event (e.g. stream monitoring station detects unusual levels of toxins, fire lookout notices smoke coming from a forest).

Detection type	Example of date of detection
Event-based surveillance	A toxic gas leak occurs at a fertilizer plant, releasing harmful fumes into the surrounding environment. The date of detection is when local authorities receive immediate reports of the leak and record the event.
Indicator-based surveillance	A network of soil moisture sensors detects a significant decrease in moisture levels in a region near a large industrial waste disposal site. The date of detection is when the sensor data is reviewed and the moisture loss is noticed and recorded.

Routine monitoring (e.g. air/water pollution)	An air quality monitoring station detects a spike in particulate matter. The date of detection is the date when the station monitor notices and records the indicator goes above the standard for a health alert.
Emergencies and severe events (wildfires, severe chemical spills)	A truck carrying hazardous chemicals crashes and overturns on a highway. The event poses an immediate threat to the local community. The date of detection would be when someone records the event's occurrence.

Date of Notification

The date of notification is the date of the event is first reported to an environmental health authority responsible for action.

Oftentimes, the most immediate environmental health jurisdiction (city, district) will be the authority responsible for action and the first authority to be notified. Notification of responsible environmental health authorities could be from a local environmental officer or scientist to a regional environmental office.

For countries that require notification of reportable events to multiple levels of government that are tasked with different actions, the earliest date that any environmental authorities were notified would be the date of notification. In some guidance, this step may be referred to as 'reporting' to an environmental health authority or district health team.

Notification scenario	Example of date of notification
Routine monitoring (e.g. air/water pollution)	An air quality monitoring station detects a spike in particulate matter. The station automatically sends an alert out to an environmental health authority. The date of notification is the date when the notification is sent to the authority.
Emergencies and severe events (wildfires, severe chemical spills)	A truck carrying hazardous chemicals crashes and overturns on a highway. The event poses an immediate threat to the local community. A local first responder calls the environment authorities responsible for responding to the situation. The date of notification is when the responder notifies the environmental authorities.

Date of Early Response Actions Completion

The latest date on which all applicable of the seven early response actions were started:

1. Initiate investigation or deploy investigation/response team
2. Conduct analysis of burden, severity and risk factors and conduct risk assessment
3. Initiate appropriate confirmation of the source or location of the incident/event
4. Initiate appropriate environmental health countermeasures, response efforts, or remediation
5. Initiate appropriate risk communication or community engagement activities
6. Establish a coordination mechanism
7. Initiate safety measures to protect responders in contact with affected environment

As shown in the Environment Timeliness Analysis worksheet, the dates for each of these separate early response actions should be recorded, and the date of early response checklist completion recorded as the last of these dates. Note that most of the early response actions are focused on initiating rather than completing an action (e.g., if remediation measures are started on May 5 and completed on May 20, the date for "Initiate appropriate environmental health countermeasures, response efforts, or remediation in affected communities" would be May 5).

All seven early response actions may not be applicable for some environmental health events. For example, an event that is determined to be low risk may not require control measures or risk communication. For events where some immediate response actions are not applicable, the latest date among the applicable actions should be used as the date of immediate response checklist completion. "N/A" should be recorded in the data collection platform for these in order to differentiate them from immediate response actions with missing data.

The table below includes some examples for each of the seven 7-1-7 early response action categories. Note that the actions below are not listed in order of priority and may be initiated in any sequence. If multiple actions are taken within one category, the earliest date should be used for the purposes of 7-1-7.

Early response actions	Examples (the earliest date should be used) Note: these examples are not comprehensive
Initiate investigation or deploy investigation/response team	• Date the district initiated an investigation of a suspected event or in response to a signal • Date a rapid response team was deployed • Date samples were collected
Conduct analysis of burden, severity and conduct risk assessment	• Date when analyses/risk assessment were initiated • Date when the first situation report was initiated
Initiate appropriate confirmation of the source or location of the incident/event	• Date when sample collection or other methods were initiated
Initiate appropriate environmental health countermeasures, response efforts, or remediation in affected communities	• Date when procurement or distribution of commodities to contain or mitigate incident began (e.g., remediation/clean up equipment, personal protective equipment) • Date when evacuation measures initiated
Initiate appropriate risk communication and community engagement activities	• Date when a local or environmental health official announced the event • Date when messaging to reduce risk or prevent spread was published or communicated • Date when two-way dialogue with communities was initiated • Date when community sentiment or knowledge, attitudes, or perceptions of the event were assessed
Establish a coordination mechanism	• Date when an incident management system (IMS) was activated • Date when the emergency operations center (EOC) was activated • Date when a task force or technical working group was initiated • Date when an incident action plan was drafted • Date when officials from other relevant sectors are contacted and informed
Initiate safety measures to protect responders in contact with affected animals	• Date when appropriate PPE started to be used for responders in contact with affected environment • Date when access to affected environment was restricted to reduce exposure of unprotected people

One Health Timeliness Analysis (OHTA) Tool

Documentation

Step 1. Record dates for One Health milestones

Working together, sectors should identify and record the One Health milestone dates and One Health early response action dates.

Milestones	Date DD/MM/YY	Narrative Briefly describe key observations in this interval and how the date was determined.
Date of Notification Date the event is notified across 2 or more relevant One Health sectors (public health, animal health, or environment) or other sectors (i.e. security/defense)		
Date of Notification Date the event is notified across all One Health sectors		
Early response action dates* Date on which each applicable action occurred (note that some are the dates of initiation)		
Initiate joint and/or coordinated response		
Initiate multisectoral sharing of incident reports & information		
Conduct joint risk assessment and prioritize response activities (e.g., joint pre-deployment meeting)		
Initiate coordinated resource and logistics management (e.g. PPE)		
Initiate joint and/or coordinated field activities (e.g. deployment)		
Initiate joint and/or coordinated risk communication and community engagement (e.g. community meeting, public awareness)		
Initiate coordinated sampling and testing(e.g. another sector's laboratory testing)		
Initiate joint and/or coordinated response countermeasures		
Initiate multisectoral sharing of incident, epidemiologic, and laboratory data		
Initiate coordinated, multisectoral surveillance		
Date of early response action completion Date on which the last of the applicable early response actions listed above were initiated		

**Not all Early Response Actions may be applicable depending on the One Health event. Sectors should fill out all Early Response Actions that were initiated and completed as part of the One Health response.*

Step 2. Compile dates for Sector-Specific and One Health milestones

Directions: Copy the milestone dates from the completed Human Health, Domestic Animal, Wildlife, and Environment worksheets, and the One Health milestones into the table below.

	Milestones	Date DD/MM/YY	Narrative Briefly describe key observations in this interval and how the date was determined.
Date of emergence	Human Date of Emergence in Humans		
	Domestic Animals Date of Emergence in Domestic Animals		
	Wildlife Date of Emergence in Wildlife		
	Environment Date of Emergence in Environment		
Date of detection	Human Date the event is first recorded by any source or in any system		
	Domestic Animals Date the event is first recorded by any reliable source or in any system		
	Wildlife Date of Detection: Date of detection of sickness or death in at least 1 endangered wild animal or more than 1 unthreatened wild animal of the same species		
	Date of Report/Record: Date the event is first reported /recorded by any source or in any system		
Date of notification	Environment Date the event is first recorded by any reliable source or in any system		
	Human Date the event is first reported to a public health authority responsible for action		
	Domestic Animals Date the event is first reported to an animal health authority responsible for action		
	Wildlife Date the event is first reported to a wildlife/forestry authority responsible for action		
	Environment Date the event is first reported to an environmental health authority responsible for action		
	One Health Date the event is reported across 1 or more relevant One Health sectors (public health, animal health, or environment) or other sectors (i.e. security/defense)		
	One Health Date the event is reported across all One Health sectors		

Date of early response action initiation	Human Date on which the first immediate response action occurred		
	Domestic Animals Date on which the first immediate response action occurred		
	Wildlife Date on which the first immediate response action occurred		
	Environment Date on which the first immediate response action occurred		
	One Health Date on which the first immediate response action occurred		
Date of early response action completion	Human Date on which all applicable early response actions were started		
	Domestic Animals Date on which all applicable early response actions were started		
	Wildlife Date on which all applicable early response actions were started		
	Environment Date on which all applicable early response actions were started		
	One Health Date on which all applicable early response actions were started		

Step 3. Calculate timeliness intervals

Sectors collaborate to calculate the One Health timeliness intervals within the One Health worksheet.

Directions: Copy the sector-specific timeliness intervals from the completed Human Health, Domestic Animal, Wildlife, and Environment worksheets. Then calculate the One Health timeliness intervals by comparing milestone dates across all sectors involved in the event, according to the interval definitions provided in the table below.

Unless otherwise specified, “first” or “earliest” refers to the earliest applicable date recorded across any involved sector, regardless of sector or species.

Interval	Calculation In days	Sector	Timeliness In days
Detection	Difference between dates of emergence and detection	Human	
		Domestic Animals	
		Wildlife	
		Environment	
	Difference between date of first emergence and first detection	One Health	
Notification	Difference between dates of detection and notification	Human	
		Domestic Animals	
		Wildlife	
		Environment	
	Difference between date the event was first detected in any sector to when the event was notified across 2 or more relevant One Health sectors	One Health	
Response	Difference between date the event was first detected in any sector to when the event was notified across all One Health sectors	Human	
		Domestic Animals	
		Wildlife	
		Environment	
	Difference between dates of notification and completion of the last sector-specific early response checklist action	One Health	
Response	Difference between dates of notification to 1 or more relevant One Health sectors or other sectors and completion of the last One Health early response checklist action	One Health	
	Difference between dates of notification across all One Health sectors and completion of the last One Health early response checklist action	One Health	

Step 4. Identify One Health bottlenecks and enablers

Sectors collaborate to determine **One Health** bottlenecks and enablers for detection, notification, and response. The purpose of this section in the One Health worksheet is to document **One Health specific** bottlenecks and enablers (e.g., joint field deployment was delayed due to financial constraints [bottleneck], Responders from each sector met daily in the field because a group messaging platform was activated [enabler], etc.). All **sector-specific bottlenecks and enablers that do not include One Health elements** should be captured in the **sector-specific worksheets only**.

Interval	Bottlenecks Factors that prevented timely action. Propose remedial actions in Step 5.	Enablers Factors that enabled timely action. Document for advocacy and to demonstrate impact.
Detection		
Notification		
Response		

Step 5. Propose One Health remedial actions to address bottlenecks

Sectors collaborate to fill Immediate One Health Actions and Longer-Term One Health Actions that can address the identified bottlenecks and enablers.

Note: There is no limit to the number of One Health actions the collaborating sectors would like to add.

One Health Immediate actions

Actions for immediate implementation (e.g., where resources are available or anticipated)

Proposed action	Bottleneck addressed	Responsible authority	Target start date	Target end date

One Health Longer-term actions

Actions for longer-term planning and funding (e.g., through planning and budget cycles)

Proposed action	Bottleneck addressed	Responsible authority	Opportunities for planning and funding (e.g., incorporate in NAPHS, funding proposals)



Reference Guide: One Health Timeliness Analysis (OHTA)

- This reference guide is intended for use by implementers of the One Health Timeliness Analysis Worksheet, including technical staff from public health, animal health (domestic animals and wildlife), and environment sectors who are tasked with identifying and recording timeliness analysis dates. It includes the definitions of the key One Health milestone dates as well as the One Health early response actions upon which the early response action initiation and completion milestones are based.
- Examples are provided for how the dates may be determined based on various factors such as type of event, surveillance system, or scenario for notification. Examples of actions for each of the One Health early response actions are also provided; note that this list is not comprehensive but should provide a sense of what constitutes each early response action.

Overview of the One Health Timeliness Analysis (7-1-7) Approach



Completing the One Health Timeliness Analysis

- 1. Complete sector-specific timeliness analyses separately:**
 - a. Sectors involved in a One Health event should first complete their respective sector-specific worksheet (e.g., [Human Health worksheet](#), [Domestic Animal worksheet](#), [Wildlife worksheet](#), [Environment worksheet](#)).
- 2. Jointly complete the One Health Timeliness Analysis:**
 - a. Representatives from the sectors involved in the event should then jointly complete the [One Health Timeliness Analysis worksheet](#).
- 3. Record sector-specific and One Health milestone dates:**
 - a. Copy each involved sector's milestone dates and early response action dates from the completed sector-specific worksheets into the One Health worksheet. If a sector was not involved in the event (e.g., wildlife was not involved), the corresponding fields may be left blank.
 - b. Sectors should then jointly identify and record the One Health-specific milestones and early response actions, including:
 - I. One Health notification milestone dates
 - a. Date the event is reported across 2 or more One Health sectors
 - b. Date the event is reported across all One Health sectors
 - II. One Health early response action milestone dates
 - a. **Note:** Not all Early Response Actions may be applicable depending on the One Health event. Sectors should fill out all Early Response Actions that were initiated and completed as part of the One Health response.
 - III. One Health date of early response action initiation
 - IV. One Health date of early response action completion

4. Calculate timeliness intervals:

- a. Copy the sector-specific timeliness intervals from the completed sector-specific worksheets. Then jointly calculate the One Health timeliness intervals by comparing milestone dates across all sectors involved in the event, according to the interval definitions in the One Health worksheet. Unless otherwise specified, “first” or “earliest” refers to the earliest applicable date recorded across any involved sector, regardless of sector or species.

5. Identify One Health bottlenecks and enablers:

- a. Sectors jointly identify bottlenecks and enablers affecting detection, notification, and response across sectors. This section should capture factors related to multisectoral coordination, communication, information sharing, or joint action (e.g., a joint field deployment was delayed due to financial constraints [bottleneck]; responders from multiple sectors communicated daily through an established group messaging platform [enabler]). Sector-specific bottlenecks and enablers that do not involve cross-sector interactions should remain in the respective sector-specific worksheets.

6. Propose actions to address bottlenecks:

- a. Sectors jointly identify immediate and longer-term One Health actions to address identified bottlenecks and strengthen multisectoral detection, notification, and response. There is no limit to the number of actions that may be identified.

Detailed definitions and examples

Date of Notification

There are two dates for One Health notification:

- Date the event is reported across two or more relevant One Health (public health, animal health, or environment) or other relevant sectors.
- Date the event is reported across all One Health sectors.

These dates may be the same if all One Health sectors are notified on the same day.

Notification to other One Health sectors could be formally or informally from one sector leader to another (e.g., Minister of Health notifying Minister of Agriculture), between technical points of contact, or even by dissemination of laboratory results to relevant sectors. In the case of Event-Based surveillance or when outbreaks are detected centrally (e.g., at a national surveillance unit), notification across One Health sectors might be from a sector's central level to another sector's subnational level, and vice versa.

For countries that require notification of reportable events to multiple levels of government that are tasked with different actions, the earliest date that any of these government authorities notify another government authority from another One Health sector would be the date of notification. In some guidance, this step may be referred to as ‘reporting’ to another health authority (i.e., environmental, public health, or domestic animal) or district team.

These One Health notification dates should not be confused with notification to intergovernmental organizations (e.g., WHO or WOA), which is done for reportable/notifiable diseases after local or national public health or animal health authorities have become aware of an event.

Notification scenario	Example of date of notification
Disease detected by a community health worker (e.g., trichinosis)	A community health worker suspects a family is impacted by trichinosis. The community health worker submits an electronic health form to a local public health surveillance officer, and that officer contacts the provincial Department of Agriculture to inform them of the suspected pig cases. The public health surveillance officer sends the report of the case to the national public health surveillance team who shares this information with the One Health coordination body in the government, which includes public health, agriculture, wildlife, and environment sectors. The date the public health surveillance officer contacted the provincial Department of Agriculture about the suspected pig cases is the first date of notification to one or more relevant One Health sector (event is reported to another sector). The day the report is sent to the One Health coordination body is the date of notification to all One Health sectors.
Emergency or Severe Event	A truck carrying hazardous chemicals crashes and overturns on a highway. The event poses an immediate threat to the local community. A local first responder calls the environment authorities responsible for responding to the situation. Environmental authorities alert the Ministry of Health to put out a health alert to local hospitals. They immediately call the other involved One Health agencies (wildlife and agriculture) to inform them of the event. Both dates of One Health notification are the same, as the environmental authorities notify public health authorities of the emergency event (event is reported to another sector) and notify the wildlife and agricultural agencies (event is reported to all One Health sectors) on the same day.
Field Based Event	A bird die-off event is detected by a local wildlife authority, and samples are collected. Samples are then sent to the national veterinary laboratory under suspicion of HPAI. The results come back positive for avian influenza. The wildlife authority emails a contact at the national agricultural authority to alert them to the event and share the positive laboratory results with them. The next day, the agricultural agency sends an alert to the public health agency as they know there is a potential for HPAI to be transmitted to humans. The first date of notification to one or more relevant One Health sectors is the date when the wildlife health authority sends a message with lab results to the agricultural authority (event is reported to another sector). The date of notification to all One Health sectors is the following day when the public health agency receives the alert from the agriculture agency (event is reported to all One Health sectors).

Date of One Health Early Response Action Initiation

The date on which the **first** One Health early response action occurred started (see checklist below):

1. Initiate multisectoral sharing of incident reports & information
2. Initiate joint and/or coordinated response
3. Conduct joint risk assessment and prioritize response activities
4. Initiate coordinated resource and logistics management
5. Initiate multisectoral sharing of epidemiologic and/or laboratory data
6. Initiate joint and/or coordinated response countermeasures
7. Initiate joint and/or coordinated risk communication and community engagement
8. Initiate coordinated sampling and testing
9. Initiate coordinated multisectoral surveillance

Date of One Health Early Response Action Completion

The date on which the **last applicable** One Health early response checklist action started (see checklist above). These activities can involve at least 2 sectors or extend to all One Health sectors.

As shown in the One Health Timeliness Analysis worksheet, the dates for each of these separate One Health early response actions should be recorded, and the date of One Health early response action completion recorded as the last of these dates.

All early response actions may not be applicable for some One Health events. For example, an event that is determined to be low risk may not require laboratory confirmation or sharing of results. For events where some immediate response actions are not applicable, the latest date among the applicable actions should be used as the date of immediate response completion. "N/A" should be recorded in the data collection platform for these in order to differentiate them from immediate response actions with missing data.

Note that the actions below are not listed in order of priority and may be initiated in any sequence.

Early response actions	Examples (the earliest date should be used for timeliness analysis purposes) <i>Note: these examples are not comprehensive</i>
Initiate multisectoral sharing of incident information	• Date when a mechanism for routine information sharing or joint situational awareness is established • Date when One Health sectors begin regularly exchanging situation reports, line lists, laboratory results, case summaries, or other event-related information
Initiate joint and/or coordinated investigation	• Date when One Health sectors determine the event requires a multisectoral investigation • Date when a joint investigation team (e.g. a One Health Rapid Response Team or other team comprised of members from >1 sector) is activated or deployed • Date when One Health sectors jointly establish investigation objectives
Conduct joint risk assessment and prioritize response activities	• Date when sectors conduct their first joint review of epidemiologic, laboratory, surveillance, or investigation findings • Date when a multisectoral risk assessment for the event is conducted across One Health sectors • Date when sectors jointly determine the level of risk posed by the event • Date when One Health sectors identify priority response actions based on shared risk findings • Date when a joint response planning or pre-deployment meeting is convened
Initiate coordinated resource and logistics management	• Date when two or more sectors agree to share personnel, equipment, transportation, supplies, or other resources to support the response • Date when a joint resource mobilization or logistics plan is established • Date when one sector provides operational support or resources to another sector as part of the response

Initiate multisectoral sharing of epidemiologic and laboratory data	• Date when One Health sectors exchange epidemiologic, laboratory, surveillance, or investigation findings • Date when One Health sectors establish a mechanism for routine sharing of incident, epidemiologic, laboratory, surveillance, or investigation data • Date when sectors establish a shared platform, dashboard, repository, or reporting process for event information
Initiate joint and/or coordinated response countermeasures	• Date when One Health sectors jointly implement agreed field interventions to prevent or mitigate transmission, spread, or exposure • Date when sectors convene a joint field coordination meeting with community leaders, local organizations, or other stakeholders at the affected location(s) • Date when joint control measures to prevent outbreak spread was initiated (e.g., vector control, ring vaccination, movement control, disinfection, treatment, quarantine and isolation) • Date when joint disposal measures are initiated (e.g., culling, carcass disposal)
Initiate joint and/or coordinated risk communication and community engagement	• Date when sectors jointly develop or approve public messaging, talking points, or communication materials • Date when sectors release coordinated public advisories or risk communication messages • Date when sectors jointly engage communities, stakeholders, or affected populations
Initiate coordinated sampling and testing, if necessary	• Date when sectors agree on a coordinated sampling strategy across human, animal, wildlife, and/or environmental sources • Date when samples are shared or referred between sector laboratories for testing support • Date when sectors jointly determine laboratory testing priorities, protocols, or diagnostic approaches
Initiate coordinated, multisectoral surveillance	• Date when sectors agree to conduct coordinated, multisectoral surveillance activities related to the event • Date when sectors adopt and implement common coordinated, multisectoral surveillance guidelines • Date when surveillance information from multiple sectors is reviewed jointly