Event-Based Surveillance Guidelines for South Africa

Early warning. Timely action.
Stronger communities.

Republic of South Africa, Pretoria, 2026

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Foreword by the Director-General

In the last two decades, the world has witnessed a rise in health emergencies, including infectious and zoonotic disease outbreaks, epidemics, and pandemics. Emerging infectious diseases may be entirely new or arise through the evolution of existing pathogens, re-emerging in humans or animals. Many of these diseases have the potential to cause devastating epidemics or pandemics, as was demonstrated by COVID-19.

Under the International Health Regulations (IHR, 2005), Member States are legally obliged to build and maintain the capacity to detect, assess, and respond to all events that may constitute a public health emergency of international concern. In 2024, South Africa experienced one of the deadliest foodborne illness outbreaks, which tragically claimed the lives of at least 22 children.

In response, the country is rebuilding a National Public Health Surveillance System that functions as an early warning mechanism, capable of detecting, reporting, and responding to any public health threat. To this end, in 2023, South Africa adopted the Integrated Disease Surveillance and Response (IDSR) Strategy to improve surveillance and response for priority events, diseases, and conditions at community, health facility, district, provincial, and national levels. IDSR has three components: Indicator-Based Surveillance (IBS), Event-Based Surveillance (EBS), and Community-Based Surveillance (CBS). Within the IDSR components, EBS strengthens early warnings and responses by facilitating the rapid detection of unusual events that may pose risks to population health and disrupt communities.

These guidelines provide a step-by-step approach to implementing the EBS Programme in South Africa, with the goal of improving early warning, accelerating response to public health threats, and ultimately saving lives.

In preparing these guidelines, the National Department of Health (NDoH) expresses deep gratitude to Africa CDC, the World Health Organization, the National Institute for Communicable Diseases (NICD), and Jhpiego for their technical expertise and guidance. Special thanks go to Ms. Thulile Zondi, Mr. Mbhekiseni Khumalo, and all NDoH colleagues who supported this work. The development of these guidelines would not have been possible without the full involvement of provinces and other stakeholders.



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Abbreviations and Acronyms

ABBREVIATION	FULL MEANING
Africa CDC	Africa Centres for Disease Control and Prevention
ARC	Agricultural Research Council
AU	African Union
BMA	Border Management Authority
CAHW	Community-Based Animal Health Worker
CDC	Communicable Diseases Control
CDW	Community Development Workers
CEBS	Community Event-Based Surveillance
CHC	Community Health Centre
CHW	Community Health Worker
COGTA	Department of Cooperative Governance and Traditional Affairs
COVID-19	Coronavirus Disease 2019
DA	Department of Agriculture
DFFE	Department of Forestry, Fisheries and the Environment
DIRCO	Department of International Relations and Cooperation
EBS	Event-Based Surveillance
ECDC	European Centre for Disease Prevention and Control
EFSA	European Food Safety Authority

ABBREVIATION	FULL MEANING
EHP	Environmental Health Practitioner
EI	Epidemic Intelligence
EIOS	Epidemic Intelligence from Open Sources
EMPRES-i	FAO Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (Information System)
EMRO	Eastern Mediterranean Regional Office (WHO)
EOC	Emergency Operations Centre
EURO	European Regional Office (WHO)
EWAR	Early Warning and Response
EWARN	Early Warning and Response Network
FAO	Food and Agriculture Organization of the United Nations
FEBS	Facility Event-Based Surveillance
FP	Focal Point / Focal Person
GCIS	Government Communication and Information System
IAEA	International Atomic Energy Agency
IBS	Indicator-Based Surveillance
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations (2005)
ILI	Influenza-Like Illness

ABBREVIATIONS AND ACRONYMS · CONTINUED

ABBREVIATION	FULL MEANING
INFOSAN	International Food Safety Authorities Network
IPC	Infection Prevention and Control
M&E	Monitoring and Evaluation
MCM	Multisectoral, One Health Coordination Mechanism
NGO	Non-Governmental Organization
NHLS	National Health Laboratory Service
NICD	National Institute for Communicable Diseases
NPHI	National Public Health Institute
OH	One Health
OHHLEP	One Health High-Level Expert Panel
ORT	Outbreak Response Team
PAHO	Pan American Health Organization
PHC	Primary Health Care
PHECS	Public Health Emergency of Continental Security
PHEIC	Public Health Emergency of International Concern
PHEOC	Public Health Emergency Operations Centre
RRT	Rapid Response Team
RSA	Republic of South Africa

ABBREVIATION	FULL MEANING
SADC	Southern African Development Community
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SAWS	South African Weather Service
SME	Subject Matter Expert
SOP	Standard Operating Procedures
SSA	State Security Agency
STAR	Strategic Toolkit for Assessing Risk
TWG	Technical Working Group
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
US CDC	United States Centers for Disease Control and Prevention
WAHIS	World Animal Health Information System (WOAH)
WHO	World Health Organization
WHO DONS	WHO Disease Outbreak News
WHO-AFRO	WHO Regional Office for Africa
WOAH	World Organisation for Animal Health
WPRO	Western Pacific Regional Office (WHO)

Glossary of Terms

Community Event-Based Surveillance (CEBS): The detection and reporting of unusual events or health risks at the community level by CHWs, CAHWs, ward councillors, traditional leaders, civil society, faith-based organisations, and other community structures. Signals detected through CEBS are reported to health facilities, OTLs, RRTs, and ORTs for verification and response.

Community Structures: Groups and individuals at community level (e.g., CHWs, CDWs, CAHWs, traditional leaders, ward councillors, civil society, and faith-based organisations) who contribute to early warning by detecting and reporting signals to health authorities.

Early Warning and Response (EWAR): A system for detecting abnormal health events (e.g., outbreaks, disasters, unrest) as early as possible, in line with agreed procedures, to trigger timely and coordinated response actions.

Emergency Operations Centre (EOC) / Public Health Emergency Operations Centre (PHEOC): A dedicated physical location where information and resources are coordinated during public health emergencies. PHEOCs provide structured procedures and an Incident Management System (IMS) to support preparedness, response, and recovery.

Epidemic Intelligence (EI): The process of collecting, verifying, assessing, and analysing information from multiple sources (EBS, IBS, vaccination coverage, demographics, etc.) to detect, investigate, and respond to public health threats. EI underpins early warning and rapid decision-making.

Epidemic Intelligence from Open Sources (EIOS): A WHO-led platform that automates the scanning of media and online sources to detect signals of potential public health threats, complementing national epidemic intelligence and EBS activities.

Event (IHR Definition): A manifestation of disease or an occurrence that creates a potential risk to human health. Events may be infectious, zoonotic, chemical, radiological, or nuclear in origin, and may spread through people, animals, goods, food, or the environment.

Event-Based Surveillance (EBS): The organised collection, monitoring, and analysis of mainly unstructured or ad hoc information from communities, media, health facilities, hotlines, and other sectors. EBS focuses on immediate detection, rapid reporting, and verification of signals that may represent acute public health risks.

Facility Event-Based Surveillance (FEBS): A component of EBS conducted in health and other sector facilities (e.g., hospitals, veterinary facilities, wastewater treatment plants, weather stations). Facility staff, including IPC coordinators and designated focal persons are to detect, triage, verify, and report unusual events to strengthen early warning and response.

Hotline: A toll-free phone service used by the public to report unusual health events, concerns, or suspected outbreaks. Hotline reports serve as key signals in EBS and are subject to triage, verification, and response.

Human-Animal-Environment Interface: The points of interaction between humans, animals, and the environment that can enable the emergence and transmission of zoonotic and other shared health threats.

Indicator-Based Surveillance (IBS): The systematic and routine collection of structured data from formal sources, mainly health facilities and laboratories, using standardised case definitions. IBS complements EBS by monitoring trends in priority diseases and conditions.

Glossary of Terms

Integrated Disease Surveillance and Response (IDSR): A WHO African Region strategy to strengthen surveillance and response systems by integrating EBS, IBS, and other approaches. IDSR ensures priority diseases, conditions, and events are detected, reported, analysed, and responded to effectively at all levels.

International Health Regulations (IHR, 2005): A legally binding agreement among 196 States' Parties, including all WHO Member States, that provides the framework for preventing, detecting, and responding to public health threats with potential international spread.

Media Scanning (MS): The systematic monitoring of newspapers, radio, television, and online platforms to detect signals of unusual events. Media scanning is one of the formal sources of signals for EBS.

One Health (OH): An integrated, unifying approach that recognises the interconnectedness of human, animal, plant, and environmental health. OH promotes cross-sectoral collaboration to prevent, detect, and respond to health threats.

Public Health Emergency of Continental Security (PHECS): An Africa CDC mechanism that allows rapid mobilisation of resources and collective action by African Union Member States during major health emergencies.

Public Health Emergency of International Concern (PHEIC): A formal declaration by the WHO of an extraordinary event that poses international public health risk and may require coordinated international response.

Technical Working Group (TWG): A formal group of subject matter experts who provide technical guidance, review progress, and coordinate surveillance and response activities, often across multiple sectors.

Scope of the Guidelines

- These guidelines are applicable to all employees of the Department of Health from national to health facility level and will be implemented in collaboration with the Department of Agriculture and Department of Forestry Fisheries and Environment.

Purpose

- To outline and describe the steps for the implementation of EBS to improve and strengthen early detection and response to any public health threat.
- To describe the flow of surveillance data (signals and events) from communities to health facilities, district, province and national levels.
- To outline roles and responsibilities for all the key role players involved in the implementation of EBS.

CHAPTER 1

01

Introduction to Event-Based Surveillance System (Concepts and Methods)

IN THIS CHAPTER

1.1 Introduction

1.2 Steps in the EBS Implementation

1.2.1 Signal Detection

1.2.2 Triage

1.2.3 Verification

1.2.4 Risk Assessment

1.2.5 Alert

1.1 Introduction

The International Health Regulations (2005) as revised by World Health Organization require a core set of surveillance, detection and outbreak response capabilities developed by Member States. In 2014, the WHO published a global guidance document to provide general guidance for the enhancement of Early Warning and Response (EWAR) within the framework of national surveillance systems, which operationalises the IHR for national surveillance systems. This document introduces and focuses on Event-Based Surveillance (EBS) as a part of Epidemic Intelligence (EI) needed to detect, verify, assess, and investigate events and other health risks with an early-warning objective. EI integrates multiple sources of information, such as EBS and routine indicator-based surveillance (IBS), as well as other contextual information, such as vaccination coverage and demographics, for the early and efficient detection of acute public health events or threats.

EBS is the organised collection of mainly unstructured, informal, ad hoc information regarding health events that may cause an acute risk to the health of the population. Data for EBS systems can originate from a variety of sources, including communities, media sources, health facilities (i.e., hospitals and laboratories), other facilities (e.g., water treatment plants and veterinary facilities), weather or climate readings, and hotlines. EBS data is usually sporadic or ad hoc, suggesting that it is reported when a situation arises and not necessarily on a daily, weekly, or monthly basis. The key characteristic of EBS is its emphasis on the immediate or early detection of public health threats or events, coupled with rapid reporting and verification of events.

Whilst EBS is primarily for early warning purposes, IBS consists of the systematic and routine collection of structured data from mainly health facility-based, formal sources, and is the conventional form of surveillance systems.

Both IBS and EBS complement each other, each system has a distinct purpose and role to play in the mainstream national surveillance system. EBS is designed to assist the health system to detect outbreaks early, and IBS is better suited for monitoring disease trends over time, as well as signalling the start of seasonal outbreaks of endemic diseases. As an example, data gathered through an Influenza-Like Illness (ILI) sentinel surveillance system can be used to generate seasonal and epidemic alert thresholds by comparing trends over several years. Designating alert thresholds for influenza or other immediately notifiable or reportable diseases (e.g., cholera, viral haemorrhagic fevers etc.) within an IBS system creates an opportunity to detect an EI “signal.” However, IBS may not be very useful for detecting smaller events because such signals are often not easy to detect in large data sets. This is where EBS becomes more useful as it is better suited to detect signals on time even where access to healthcare is limited. When implemented correctly, EBS provides a simple and flexible form of surveillance that can be tailored to different settings and sectors according to the needs of South Africa.

The *Africa CDC Event-Based Surveillance Framework* outlines how various types of EBS steps and modalities can be implemented by Members of States. These guidelines therefore provide the implementation approach for EBS steps and modalities in the South African context.

1.2 Steps in the EBS Implementation

EBS consists of five main steps: signal detection and reporting, triage, verification, risk assessment, and alert for action and response. It is important to note that although the final step, alert, is the act of reporting to a responsible health official for appropriate action, reporting occurs throughout all steps of EBS, especially when information must be passed from one focal point to another within the defined reporting structure. All EBS steps will be reported using the electronic platform, the eIDSR system.

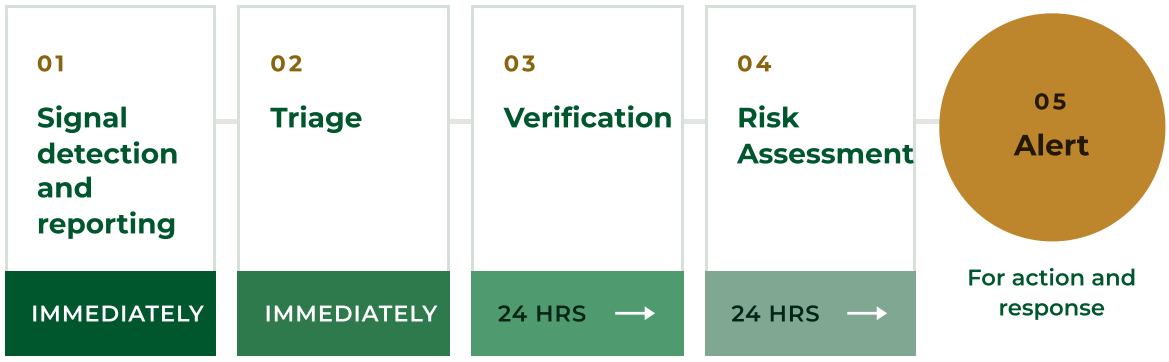


Figure 1. Steps in the EBS Implementation (Source: Africa CDC EBS Framework).

1.2.1 Signal Detection

Detection is the process of collecting and reporting information about signals or events using various modalities, which may include community structures, media reports, health facility reports, and hotlines. Officials from the Department of Health (DoH), Department of Agriculture (DoA), and Department of Forestry, Fisheries and Environment (DFFE) implementing the EBS Programme utilise a predefined list of signals to identify potential health events. A signal is data and/or information as part of Early Warning and Response (EWAR) that indicates a potential acute health risk, such as an outbreak. Signals may consist of reports of cases or deaths (individual or aggregated), potential human exposure to biological, chemical, or radiological and nuclear hazards, or the occurrence of natural or man-made disasters. Signals can be detected through various sources, whether formal (e.g., official websites such as the DoH website, WHO, Africa CDC, and NICD) or informal (e.g., media, community, etc.).

As part of detection, key information on signals or events must be collected and recorded in the electronic platform for immediate reporting across the levels of the health system. The person or official (i.e. CHWs, CAHW, CDWs) involved in detection of signals or events should ensure that the following minimum variables or information are collected (see Annexure 1):

- Name and contact number of the person detecting the signal/event
- Geographical area or location of signal/event
- Date and time when the signal/event occurred
- Date and time when the signal/event was detected
- Description of signal
- Any actions taken

Signals detected through media will be managed through the Epidemic Intelligence from Open Sources (EIOS), which will be integrated into the Event Management System.

1.2.2 Triage

After a signal has been detected, triage should be conducted to assess the information and ensure only the information relevant for early detection purposes remains. Triage involves two steps:

- Assessing signals to select only those relevant for EWAR requiring immediate and rapid response.
- Filtering or screening out irrelevant or duplicate signals.

There may be instances where information for the same event is reported simultaneously from different sources or is reported repeatedly from the same source, which may represent the severity of the threat. Due to its high sensitivity, EBS is likely to generate information that may not be relevant for early warning. It is therefore important that reports or information on signals are triaged and assessed for relevance to early warning. South Africa's established priority list of signals or events should be used to guide the decision on whether information could signify a genuine health threat.

> **NB:** EBS operates as a sensitive surveillance system and as such officials detecting signals should continue to report information even if it may later be discarded as "not true event" or "false signal". Any signal that is relevant for EWAR and is not a duplicate must then be verified as an event.

1.2.3 Verification

Verification is the process of ensuring the authenticity of a reported signal (i.e., confirming that it is not a false alarm or a rumour). As a rule, all signals should be verified within 24 hours of detection in South Africa. Criteria for verification may include asking questions of those who reported the signal to ensure that they have correctly understood the signal (e.g., information regarding person, place, and time). All signals detected must be verified before they can be considered an event. However, signals from official sources (e.g., the DoH website, the DoH official social media account, Africa CDC website, the WHO website, NICD, etc.) do not have to go through the verification step because they are already considered verified and therefore should be categorised as events.

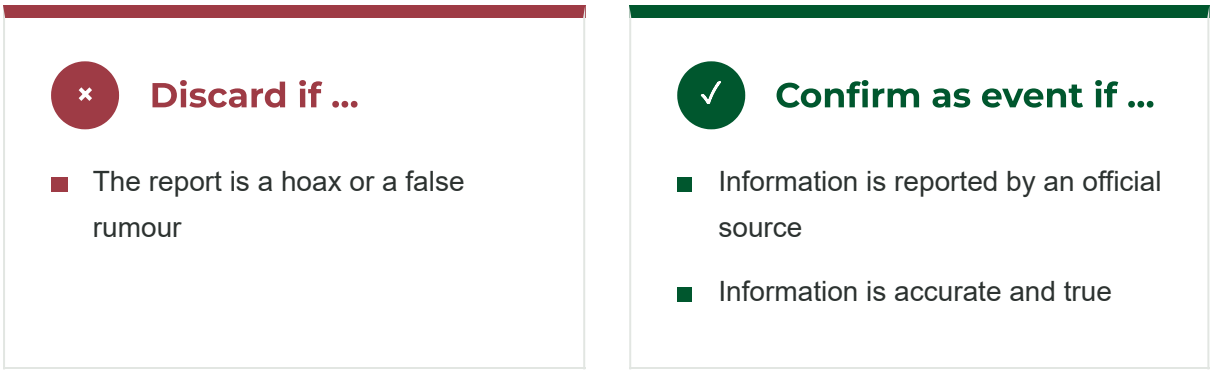


Figure 2. Determining the Outcome of Signal Verification. This model can be used to determine the outcome of signal verification once sufficient information has been collected and validated (Source: Africa CDC EBS Framework).

In South Africa's current surveillance system, all signals should be verified by the health facility or at sub-district level, as this is the closest level to the signal's location. Verification of signals may involve any of the following modalities, depending on the source and the signal or event:

- Visiting the site of occurrence to establish the authenticity of the information.
- Contacting the CHWs, CAHWs, or any relevant officials using the fastest available means.

Request for Verification

Requests for signal verification may be initiated when signals or events are detected through media or hotlines. These requests can be directed to the relevant officials within the Department of Health (e.g., Provincial CDC Managers or equivalents), or to counterparts in the Department of Forestry, Fisheries and the Environment (DFFE) or the Department of Agriculture (DoA), to support the verification process. All detected signals must be registered in the eIDSR platform.

The electronic platform is designed to automatically send email alerts to relevant officials who are responsible for verifying the signal. In some cases, an email communication should be sent directly to officials to request verification of signals.

Systematic verification of all signals detected through EBS is essential to avoid overburdening the surveillance or health systems with false-signal investigations or responses, or with unreliable information. It is important to note that, during the verification process, the responsible authority could perform a second level of triage to determine again whether the reported signal is relevant to EWAR. Once a signal is verified as true and becomes an event, this information should be updated in the eIDSR. At this point, relevant officials at the local level should promptly start collecting further information in the field in accordance with existing guidance to inform a risk assessment.

1.2.4 Risk Assessment

In an EBS system, all events must undergo the process of risk assessment. Risk assessment is the systematic and ongoing process of gathering, evaluating, and documenting information that will form the basis of the actions required to manage and minimise the negative consequences of a serious health event. The process results in assigning a level of risk that an event presents to humans, animals, plants, and/or the environment.

The process of risk assessment should be conducted within the first 24 hours of signal verification. It should be repeated as new information becomes available until the end of the response to an event. As new information about the situation can arise at any time, the ongoing risk assessment ensures that the appropriate response is triggered and it reflects the level of risk the event poses to health.

Risk assessment should be performed at the lowest level, depending on the magnitude of the event or where capacity exists across the levels of the sector(s) implementing EBS (e.g., health facility, sub-district, district, or province), to minimise the negative consequences of a public health event.

The NDoH will provide oversight to ensure compliance with these guidelines and timelines for verification and, where possible, preliminary assessment, to make the system more responsive. For all suspected events where risk assessment has been conducted through the Strategic Toolkit for Assessing Risk (STAR), there is no need to conduct another risk assessment, as the risk would already be known.

QUESTIONS TO ASK WHEN CONDUCTING A RISK ASSESSMENT

Does the suspected event have a high potential for spread (e.g., cholera, avian influenza)?	Is there a higher-than-expected mortality or morbidity reported for the event?
Is the event unusual or unexpected in the community?	Is there a cluster of cases with similar symptoms?
Does the event have possible consequences for trade or travel?	Does the event have possible consequences for human health?
Does the event affect livestock/wildlife?	Are there environmental consequences?

Risk assessment can have two different outcomes:

- No new investigation or action is required as the risk is moderate or low. What is required is to monitor for future changes in risk; or
- An investigation and a response should be initiated if the risk of an event is high or very high.

Once risk questions are decided upon, the team would be ready to undertake the risk assessment process. When gathering, assessing and evaluating information regarding the risk, the following three elements are to be considered: hazard, exposure, and context.

Hazard assessment is the identification and understanding of the characteristics of a health hazard. These includes possible aetiologies, causes, and/or sources and the associated adverse health effects. Hazards can include biological, chemical, radiological, nuclear and climate change-related events.

Exposure assessment is the evaluation of the vulnerability of individuals and populations to likely hazards. The key output of the assessment is an estimate of the population that may have been exposed and an estimate of those that may be susceptible. For example, these may include evaluating the vaccination coverage in the population exposed.

Context assessment is an evaluation of the environment or situation in which an event is taking place. This may include the physical environment (climate, vegetation, land use, and water systems and sources), the health of the population (nutritional status, disease burden and previous outbreaks), infrastructure (including transportation, clinical, and health systems), and cultural practices and beliefs. Context assessment also considers social, ethical, technical, scientific, economic, environmental, and political factors that can affect the potential severity of the event.

Risk Characterisation

When the hazard, exposure, and context assessments phases have been completed, a level of risk should be assigned, this process is called risk characterisation. In some instances, risk characterisation results in a mathematical output from a quantitative model or comparison with an external standard value. However, an equally acceptable process may result in a risk characterisation based on expert opinion, with input from subject matter experts. Several tools have been developed to assist with the risk assessment and characterisation process (e.g., the WHO manual for the rapid risk assessment of acute public health events, ECDC Operational Tool on Rapid Risk Assessment, Tripartite Joint Risk Assessment Operational Tool). Below is the risk algorithm, which has been adapted from the Africa CDC EBS Framework.

This risk algorithm is a series of questions that reflect upon the hazard, exposure, and context assessments and allows for risk determination to be made based on the responses to these questions.

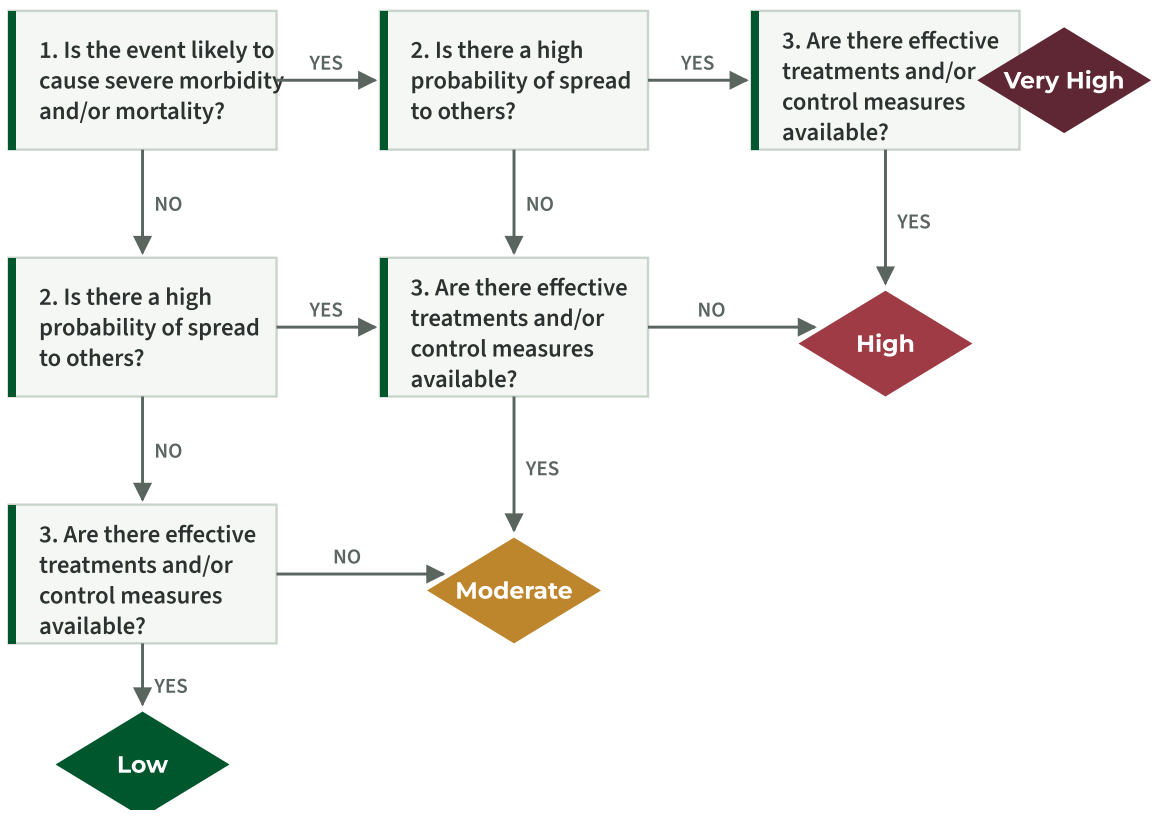


Figure 3. Risk Assessment Algorithm. Where specific groups are at increased risk of infection, perform a separate risk assessment for each group; if in doubt on any question, select the higher-risk answer.

NB: The risk assessment team should decide how frequently the risk assessment should be updated. The risk of an event may change at any point in time. Therefore, it is important that the team observe, review, and update changes in the risk to either escalate or de-escalate interventions following the new risk assessment.

1.2.5 Alert

Regardless of the source, once an event has been verified and the risk assessment is done, the responsible officials in the respective levels of government will be alerted to respond to the event accordingly. The alert will be sent through an email to relevant officials from the electronic Integrated Diseases Surveillance and Response (eIDSR) platform. The type of action taken will be dependent on the level assigned from the rapid risk assessment (Table 1).

Table 1. Rapid Risk Assessment.

RISK LEVEL	RECOMMENDED ACTION
Low	Monitor the situation through routine surveillance systems.
Moderate	Monitor the situation through routine surveillance systems and inform local outbreak response teams.
High	Respond by activating the local outbreak response teams.
Very high	Respond by activating the local outbreak response teams. There may be a need for the provincial and national outbreak response teams to intervene.

The most critical component of early-warning and response systems is the response element. This has been widely covered in IDSR manuals, the Public Health Emergency Operations Centre (PHEOC) Handbook and outbreak response guidelines.



CHAPTER 2

02

Broad Framework for EBS Implementation

IN THIS CHAPTER

2.1	EBS as Part of Broader IDSR Implementation
2.2	Multisectoral One Health Approach
2.3	Cross-Border Considerations
2.4	Consultations and Signal List Development

The National Department of Health (NDoH), through the Director of Epidemiology and Surveillance, leads and coordinates the EBS implementation in the country. Careful considerations have been given to multisectoral and cross-border collaboration as well as the requirements needed to initiate and sustain EBS. This chapter highlights some of the key areas considered when establishing and strengthening EBS within South Africa.

2.1 EBS as Part of Broader IDSR Implementation

At National level, the EBS Programme will be placed and coordinated within the Directorate of Epidemiology and Surveillance. The Directorate is tasked with the ongoing support of collection, monitoring, analysis, and actioning of the information collected through each type of EBS. At provincial and district level, EBS will be coordinated and managed by the Communicable Diseases Control (CDC) or Surveillance Programme or equivalent. The PHEOC managed and coordinated under this directorate will act as an Epidemic Intelligence (EI) unit or hub that receives, analyses, and visualises data from multiple sources, including EBS and IBS surveillance data. EI units will be staffed with a trained workforce capable of analysing and interpreting data in real-time to inform effective decision-making. The EI under PHEOC will be staffed with a team of trained epidemiologists, data managers and eIDSR Technical Experts who will be performing national surveillance activities. There will be inclusion of a multisectoral team especially those in the One Health approach for event monitoring and response.

2.2 Multisectoral One Health Approach

As of 2024, the WHO has declared eight Public Health Emergencies of International Concern (PHEICs), seven of which are concerning zoonotic diseases, or diseases that can be transmitted between animals and humans. In parallel, Africa CDC declared one of the PHEICs as a Public Health Emergency of Continental Security (PHECS). Given that most emerging and re-emerging diseases in humans are zoonotic or of animal origin, there is increasing awareness that early-warning and response measures need to be initiated further upstream. Looking at how events impact the environment or animal population, EBS not only supports the early detection and prevention of disease spillover into human populations but also enhances EWAR for priority events involving the environment, plants and animals.

Several global and continental One Health initiatives have been established to support and strengthen the integration of the One Health approach in Member States. To help strengthen governments and organisations with mainstreaming One Health policies at global, regional, and country level through a multisectoral EBS systems, the Food and Agriculture Organization of the United Nations (FAO), World Organisation for Animal Health (WOAH), United Nations Environment Programme (UNEP) and the WHO, referred to as the “Quadripartite”, have established a One Health High-Level Expert Panel (OHHLEP). Further, to advance the One Health approach in mitigating health threats on the African continent, the African Union established a One Health Coordination Group on Zoonotic Diseases.

In alignment with these global and continental agencies, the department established an EBS Technical Working Group (TWG) to lead and guide the implementation of EBS. The composition of the TWG ensures collaboration across programmes and sectors to support a multisectoral, One Health approach.

The One Health team members from the Department of Health (DoH), Department of Agriculture and Department of Forestry, Fisheries and Environment (DFFE) will collaborate to share relevant signals and events essential for early warning and response (EWAR). The eIDSR platform has been developed to integrate data systems from the three sectors. The multisectoral coordination committee should be established to strengthen collaboration and communication among the One Health sectors.

2.3 Cross-Border Considerations

The implementation of the EBS Programme is critical for strengthening cross-border surveillance programmes. This is because the cross-border ecosystem remains particularly vulnerable and at risk from health threats due to a variety of factors, including intensified movements and interactions between countries. The cross-border ecosystem refers to a territorial area composed of adjacent districts that are geographically co-located but belong to different countries.

The EBS Programme can be implemented through Port Health Programme and Border Management Authority (BMA) as part of the cross-border surveillance. NDoH together with BMA will implement EBS at Points of Entry (PoE) as part of detecting and reporting of all events identified at PoE. In addition, the NDoH has adopted a WHO initiative called Epidemic Intelligence from Open Sources (EIOS) to support the establishment of a systematic communication mechanism that enables effective information exchange on events occurring across borders. The NDoH continues to organise bilateral agreements through the International Health Liaison (IHL) with neighbouring countries. At the same time, the African Union and Southern African Development Community (SADC) provide a platform for countries to collaborate on strengthening of cross-border surveillance systems.

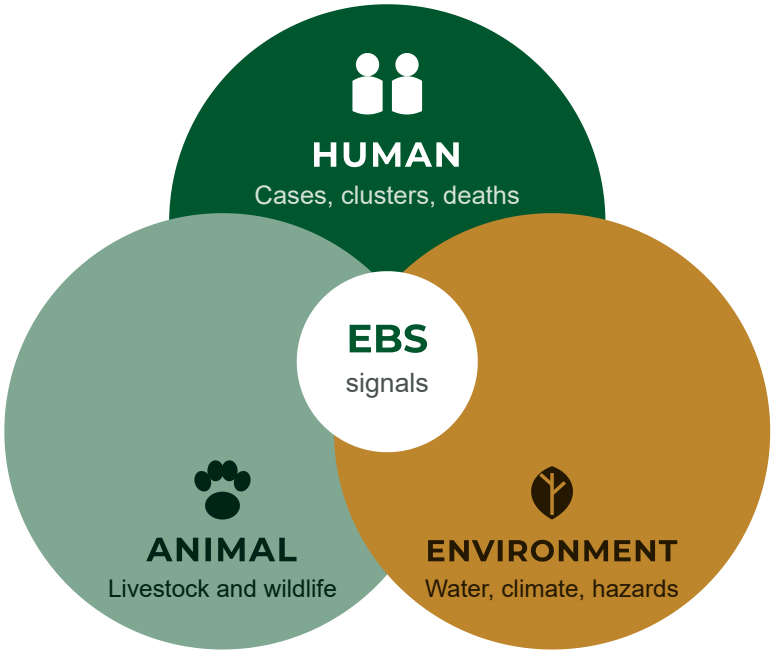


Figure 4. Multisectoral One Health Approach. Signals reach EBS from the human, animal and environmental sectors. Most emerging and re-emerging diseases in humans are zoonotic or of animal origin, so the overlap between the three is where early warning is won.

Table 2. Examples of EBS Collaboration Partners within the Department of Health, across Sectors, and with Other Entities.

COLLABORATION BETWEEN PROGRAMMES WITHIN DEPARTMENT OF HEALTH	COLLABORATION ACROSS MULTI-SECTORAL ONE HEALTH PARTNERS
Surveillance is a cross-cutting issue working with many various programmes including the below-mentioned programmes	
Disease surveillance and control programmes e.g.: Epidemiology & Surveillance · Environmental Health · Health Promotion · Food Control · Communicable Disease Control · Quality Improvement (Infection Prevention and Control) · Expanded programme on immunisation · Port Health · Laboratories · Community Based Health Services/District Health Services · Emergency Medical Services and disaster medicine · Forensic pathology services · Occupational Health and Safety · Communication · HRD (Regional Training Centres)	Department of Agriculture · Department of Forestry, Fisheries, and Environment · Department of Basic Education · Department of Tourism · Department of Defence (Military Health Services) · Department of Water and Sanitation · Department of Cooperative Governance and Traditional Affairs · Other relevant Sector Departments and entities
Collaboration with other entities	
Implementing partners · Donor organisations · Multilateral organisations · Non-governmental organisations · Factories and trade unions · Private medical practice including veterinarians and pharmacies · Civil society organisations · Border Management Authority (BMA) · Other relevant private sector entities · Traditional organisations · Public entities · National Institute for Communicable Diseases (NICD) · Regional Economic Communities	

2.4 Consultations and Signal List Development

The NDoH through the Health Information, Epidemiology, Research, Monitoring and Evaluation (HIERME) cluster coordinated a series of workshops and meetings towards the development of these guidelines. This included the development of the pre-defined signal list and events to facilitate the detection and reporting of signals and events. This process involved gathering input from various government sectors namely the DoA, DFFE, and BMA.

CHAPTER 3

03

Media Scanning And Hotline

IN THIS CHAPTER

3.1	Introduction
3.2	Official Sources
3.3	Unofficial Sources
3.4	Steps Involved in Implementing EBS through Media Scanning
3.5	Hotlines: Public-Facing Reporting Lines Operated by Provinces

3.1 Introduction

Media channels which include websites, newspapers, magazines, TV, radio, bulletins, other printed and digital media (Facebook, X, WhatsApp, TikTok, Instagram, etc) are forms of communications in the society. These communication platforms are becoming an important tool for reaching diverse audiences and therefore serve as a critical source for the early detection of public health events.

Media scanning has become a rapid process of detecting signals through scanning information from a wide variety of digital media sources. For enhanced media scanning, sources from South Africa alongside cross-border, regional and global are monitored. To facilitate this, South Africa has adopted a WHO initiative called Epidemic Intelligence from Open Sources (EIOS) as a tool for media scanning. Media sources are classified into official and un-official sources.

3.2 Official Sources

Signals detected through official sources are reliable and do not need further verification to be classified as events. The following are examples of official sources:

- Official websites and social media accounts of governmental departments including, but not limited to Department of Health, Agriculture, Forestry Fisheries and Environment, COGTA, Municipalities, State Security Agency (SSA), GCIS.
- Official public health agencies or research institutions such as NICD, NHLS, ARC, WHO, Africa CDC, US CDC, ECDC, China CDC, UKHSA, UNICEF, BMA, websites of SADC, SAMRC, SANBI, SAWS.
- WHO official websites [(IHR Event Information Site for National Focal Points) Disease Outbreak News (DONs), AFRO, EMRO, EURO, SEARO, WPRO, PAHO].
- Disease-specific sources (e.g., Global Influenza Surveillance and Response, OFFLU).
- World Organisation for Animal Health (WOAH); World Animal Health Information System (WAHIS).
- Food and Agriculture Organization (FAO) of the United Nations; EMPRES-i.
- International Food Safety Authorities Network (INFOSAN), European Food Safety Agency (EFSA).
- The International Atomic Energy Agency (IAEA) for environmental events (radiological and chemical).
- Network of WOAH reference laboratories.

3.3 Unofficial Sources

There will continue to be a substantial number of signals detected through unofficial sources. Such signals must be verified with the appropriate and relevant officially authenticated sources before any further action is taken. The following are examples of unofficial sources:

- Newspapers and magazines.
- Unofficial online content (e.g., websites, TV, and radio channels, podcasts, blogs, online publications).
- Official websites of private healthcare agencies (e.g. pharmacies, private hospitals and laboratories).
- Social media for unofficial sources (e.g., Facebook, X, YouTube, Instagram, TikTok, WhatsApp).
- Websites for official organisations such as universities, local and internationally recognised centres of research and partners (NGOs such as Right to Care, BroadReach Healthcare Solutions, Anova, etc.).
- Traditional medicine social media platforms (traditional health practitioners, faith-based organisations, etc.).
- ProMed.
- Social Listening reports.
- Talkwalker: www.talkwalker.com
- ViralFactsAfrica: www.facebook.com/viralfacts

3.4 Steps Involved in Implementing EBS through Media Scanning

3.4.1 Signal Detection

For EBS implementation, media scanning is used to detect signals through EIOS and other media social platforms i.e. Beacon in South Africa. The list of priority events and signals monitored (refer to Annexure 1) is the predefined list of signals. The list of signals and other priority diseases or conditions are incorporated into the EIOS Boards for South Africa. The use of EIOS for media scanning is currently at the national health level, and the plan is to have it used at all levels of the health system, animal health, and the environment sector. This suggests that DoH, DoA, and DFFE should work together to detect signals following the One Health approach.

Online information sources are scanned daily, or more frequently through EIOS, by regularly reviewing pre-defined sources/boards and searching for relevant information based on the established list of signals and priority events. This function is carried out by the Communication Office and the IDSR or Surveillance and Epidemiology teams operating under the PHEOC or equivalent. Searches will be conducted automatically on the EIOS tool that aggregates online information from multiple sources using keywords compiled from a list of signals. EIOS will be integrated into the eIDSR as an automated method of detecting signals with less time and effort. However, information captured by the integrated platform must be triaged by the surveillance team and a decision should be made whether the information is a signal that should be verified or otherwise acted on. There may be signals that are not detected through EIOS and will require a manual search. A separate Media Scanning Standard Operations Procedure (SOP) has been developed to provide detailed steps on the use of EIOS and manual media search.

> **NB:** EBS media scanning was not introduced to replace the media scanning conducted by the Communications Offices of national departments or provincial departments; rather, it was introduced to complement their work by adding a public health focused layer of media review that supports early detection and timely reporting of potential health events.

Manual Media Scanning for Detection of Signals

Manual media scanning complements the automated searches and increases the possibilities of detected signals and events. The following steps describe the manual search:

- A checklist of online sources has been developed for daily scanning and review.
- This manual search utilises the prioritised or predefined list of signals. This means that any signal identified on media platforms that forms part of the predefined list will be considered for verification.
- A set of keywords related to the list of priority signals, events, diseases, syndromes, and conditions was developed, and processes are in place to translate these keywords into the official local languages.
- Visit all predetermined websites in the checklist of online sources to scan for keywords.
- Audit the source checklist continuously to ensure that newly available sources are added to the predefined source list and that non-working/non-useful sources are removed.

Registration of Signals

All signals detected through media will be registered or entered in the eIDSR platform. An email communication will also be sent to notify the provinces implicated in the signal.

3.4.2 Triage

Triaging involves ensuring that the signals identified during signal detection are relevant to EWAR. If the information matches one of the predefined signal definitions for the country and is not a duplicate, the signal should immediately undergo verification. If the signal is generically defined and constitutes an unusual event that may pose a health threat, it may be considered for verification. Signals detected from official sources do not need further verification and can be logged and undergo risk assessment immediately after detection. Daily meetings are to be held to discuss signals, and a report is to be compiled weekly.

3.4.3 Verification

All signals detected through media scanning must be verified before they are classified as events. Signals from official or formal sources do not require further verification and can be registered on the eIDSR and undergo risk assessment immediately after detection. Verification of signals requiring confirmation should be completed within 24 hours of detection.

For media scanning at the national level, verification will be done through this pathway:

- A top-down approach will be followed (national → province and district → sub-districts) to ensure notification and follow-up at all levels, which will facilitate a response to the event.
- Verify signals against reliable sources for accuracy. This may include contacting or requesting more information from the Provincial or District Office managers, contacting local health authorities, visiting the site, or conducting further internet searches.
- If the signal is verified, gather accurate and/or further information.
- Verification should be conducted through official emails and other official online tools.
- If a signal is true, it becomes an event and should be reported for public health response and control. If a signal is not true, discard it.

3.4.4 Risk Assessment

The process of risk assessment involves assessing the gathered information to assign a risk level to a public health event and documenting the information. Risk assessment is conducted within 24 hours after signal verification (i.e., within 48 hours of detection). The risk assessment is conducted by the team, i.e., the Outbreak Response Team or Rapid Response Team (ORT or RRT), or equivalent. A similar process for assessing risk is followed for all events identified through media, as for the other modalities. A separate Risk Assessment SOP has been developed to provide detailed guidance on how risk assessment is conducted.

In addition, for all events identified through media, the information collected must be sufficient to support hazard, exposure, and context assessments. As daily media signal detection and monitoring continue, new information may emerge on previously detected signals. Each time new information is obtained, the risk assessment process is repeated. The risk level is then assigned based on predefined questions that consider the exposure, hazard, and context associated with the public health event.

3.4.5 Alert

Regardless of the source, once an event has been verified and the risk assessment is done, the responsible officials in the respective levels of government will be alerted to respond to the event accordingly. The alert will be sent through an email to relevant officials from the electronic Integrated Diseases Surveillance and Response (eIDSR) platform. The type of action taken will be dependent on the level assigned from the rapid risk assessment.

3.5 Hotlines: Public-Facing Reporting Lines Operated by Provinces

In several provinces, public-facing hotlines are already operated through provincial disaster management centres and/or Emergency Medical Services (EMS) call centres. In this guideline, these communication lines are recognised as official hotlines for EBS. Calls, messages, and web submissions received through these platforms (e.g., voice calls, WhatsApp, web chats/forms, email inboxes) should be captured and triaged in accordance with the national list of priority signals and then routed into the eIDSR platform. This approach leverages existing provincial infrastructure, multilingual operators, and 24/7 coverage, while avoiding the creation of a parallel hotline system. Provinces may retain their current numbers and operating models; the key change is that signal reports from these lines are treated as part of EBS implementation and feed into the same EBS workflow (triage → verification → risk assessment → alert → feedback), with confidentiality maintained in line with South African legislation (e.g., POPIA).

How the Linkage Works (Governance, Data Flow, and Accountability)

Each province designates a call centre official within the disaster management or EMS call centre to serve as the interface with the surveillance system. The designated official will register signals in the call log, and all signals relevant to the predefined list and/or EWAR must be captured in the eIDSR within the same working day and no later than 24 hours. Signals are triaged to check for duplication and relevance for EWAR. Once a signal is entered into the eIDSR system, an email will be automatically generated to notify the relevant officials responsible for verifying whether the signal represents a true event or a false signal. Provinces should formalise this linkage through a short SOP that clearly outlines how their hotlines interface with the surveillance system and includes training requirements for call centre officials.

CHAPTER 4

04

Facility Event-Based Surveillance

IN THIS CHAPTER

4.1	Introduction
4.2	Steps of Facility EBS
4.3	Process Flow
4.4	Roles and Responsibilities
4.5	Conclusion

4.1 Introduction

Facility Event-Based Surveillance (FEBS) is an important component of Event-Based Surveillance and complements CEBS. FEBS ensures that any unusual event presenting at or is observed in health facilities is immediately detected and reported. Health care workers are fundamental to the successful implementation of FEBS as they play a key role in detecting and identifying emerging or re-emerging public health threats. In addition to routine Indicator-Based Surveillance (IBS), all facilities, both public and private are required to maintain an active FEBS system.

FEBS extends beyond the Department of Health (DoH) and health facilities such as clinics and hospitals and includes facilities under the Department of Agriculture (DoA) (e.g., veterinary clinics, veterinary laboratories), the Department of Water and Sanitation (e.g., wastewater treatment plants), and the DFFE (e.g., weather stations). Officials working in these facilities play an important role in the detection, reporting, and verification of signals.

This chapter outlines how EBS is implemented at the facility level within the FEBS framework, aimed at strengthening the early detection and reporting of signals for early warning and rapid response. It also outlines the roles of health care workers and designated professionals in signal detection, triage, verification, and reporting. FEBS is integrated into the national IDSR system, and an electronic platform (eIDSR) has been developed to facilitate and strengthen the flow of surveillance information within the facilities.

4.2 Steps of Facility EBS

4.2.1 Signal Detection

Signal detection for FEBS is specific to each sector and facility type. Infection Prevention and Control (IPC) coordinators have been designated as primary focal points for implementing FEBS within health facilities. For other sectors, an equivalent or relevant official must be identified. All designated officials have been trained on EBS and there should be continuous training to ensure full coverage across all provinces. All FEBS leads (i.e., IPC coordinators or equivalents in health facilities) should sensitise staff working in different units such as wards, pharmacy and laboratory on signal detection and reporting. All trained staff should immediately report any identified signals to the IPC coordinator or equivalent. Reporting may be done via phone call, SMS, in person, through paper-based registers, or by capturing the information directly in the eIDSR platform. If detection and reporting occur outside the eIDSR platform, the IPC coordinator or equivalent must enter the signals into the eIDSR platform.

4.2.2 Triage

It is possible for the same signal to be reported by different health care workers within the same facility. To avoid duplication and ensure efficiency, the designated IPC coordinator or equivalent must triage all reported signals before proceeding to verification. Below are the steps that should be followed to ensure the triage process has been completed:

Step 1	Review all signals received to check for duplication or relevance for early warning.
Step 2	Discard signals that are duplicates or irrelevant for early warning.
Step 3	Proceed to verification only if the signal is unique, credible, and may pose a threat to public health.

This process ensures that only valid and actionable signals move to the next step.

4.2.3 Verification

All signals deemed relevant for early warning must undergo verification to determine the validity of the signals reported. The IPC coordinator or equivalent is responsible for verifying signals in close collaboration with the reporting staff. Verification must involve communication with the staff who reported the signal to confirm accuracy and obtain additional details. For example, patient records may be used to gather more information about the signal or event. If the signal is confirmed, it is classified as an event; if it is found to be false or not relevant, it is discarded.

> **Note:** The process of verification and reporting should be completed within 24 hours of signal detection.

4.2.4 Risk Assessment

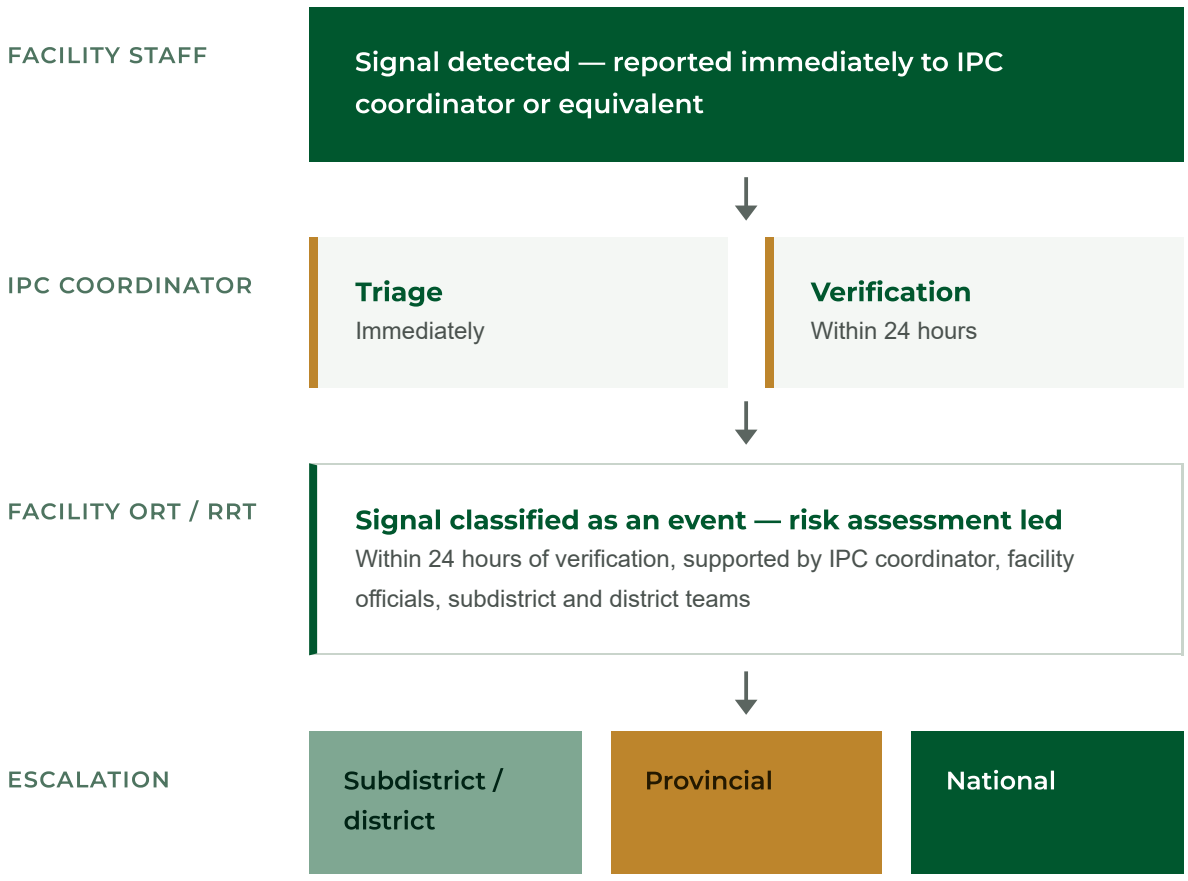
Risk assessment in FEBS is the systematic process of gathering, analysing, and documenting information to assign a level of risk to an event detected in a health facility. This is an important step for guiding timely public health action and must be completed within 24 hours of event verification. Risk assessment is conducted as part of the investigation of an event by the ORT/RRT with support from the IPC coordinator or equivalent, relevant facility officials and the subdistrict or district depending on the capacity. The risk assessment process uses the EBS risk assessment algorithm built into the eIDSR platform and should be reviewed and updated as new information becomes available. The process involves assessing the hazard (the nature, severity, and novelty of the detected event), the exposure (number of cases, potential contacts, and populations at risk within or beyond the facility), and the context (the facility's ability to respond, existing infection prevention and control measures, and the potential for further spread).

4.2.5 Alert

Once an event has been verified and the risk assessment is done, the responsible officials in the respective levels of government will be alerted to respond to the event accordingly. The alert will be sent through an email to relevant officials from the electronic Integrated Diseases Surveillance and Response (eIDSR) platform. The type of action taken will be dependent on the level assigned from the rapid risk assessment.

4.3 Process Flow

Signals detected at the facility level must be reported immediately to the FEBS IPC coordinator or equivalent. The IPC coordinator or equivalent conducts triage and, if relevant, verification in collaboration with the reporting staff. Once verified, the signal is classified as an event and the facility ORT/RRT teams supported by IPC coordinator or equivalent and relevant facility officials, lead the risk assessment. The subdistrict and district teams provide support as needed depending on capacity. The assigned risk determines alerting and escalation to the subdistrict/district, provincial, or national level and guides the response actions.



Alerts are generated from the eIDSR platform; the assigned risk level determines the level of escalation and the response actions taken.

Figure 5. Facility Event-Based Surveillance Process Flow.

4.4 Roles and Responsibilities

The effective implementation of FEBS requires the coordinated participation from all staff working in health, animal health, laboratory, and environmental facilities. Each stakeholder has a defined role to ensure that signals are promptly detected, reported, triaged, verified, and escalated for appropriate response.

For FEBS to function optimally, all designated staff should be trained in their roles and responsibilities. IPC coordinators or equivalents, as well as relevant officials require additional training in triage, verification, risk assessment, and the use of the eIDSR platform, while all facility staff should be sensitised to signal detection and reporting. Regular orientation and refresher training should be conducted to maintain awareness, strengthen accountability, and ensure timely reporting. Table 3 outlines the main roles and responsibilities of FEBS role players. All officials should be aware of their roles.

Table 3. Main Roles and Responsibilities of Stakeholders That Actively Participate in FEBS.

FEBS ROLE PLAYERS	ROLES AND RESPONSIBILITIES
Facility staff (HCWs, veterinarians, laboratory, environmental staff)	Detect signals and immediately notify the IPC coordinator or equivalent. Share information on signals with the IPC coordinator or equivalent. Implement immediate infection prevention and control (IPC) measures when necessary. Participate in training on FEBS.
IPC coordinator or equivalent	Train facility staff on FEBS. Detect and capture signals on the eIDSR platform. Lead signal triage and verification for signals detected at the facility. Ensure capturing of signals and/or events in the eIDSR platform and regularly update information as required. Support risk assessments as needed, in collaboration with ORT/RRT/subdistrict/district. Provide feedback to facility staff on signals and events reported.
Subdistrict / district / DoA / provincial	Participate in risk assessments and response activities where applicable. Train stakeholders involved in FEBS within the sub-district/district. Participate in FEBS training, facilitated by provincial/national DoH. Monitor and ensure signals are verified within 24 hours and activate response when necessary. Support and follow up with sub-district/district and ensure signal triage, verification, and risk assessment are conducted as required. Support response activities, where applicable. Monitor and follow up with facilities and districts on eIDSR usage to ensure timely and complete reporting. Provide regular feedback to sub-district/districts and facilities. Conduct data analysis, reporting, and dissemination.
National	Provide technical guidance on FEBS implementation. Manage the eIDSR ensuring regular updates and system improvements. Develop and review FEBS data collection tools. Monitor implementation of FEBS across provinces, districts, and facilities. Support provinces and sub-district/districts in rollout and training. Conduct data analysis, reporting, and dissemination. Provide feedback to all lower levels (province, sub-district/district, and facility).

4.5 Conclusion

FEBS strengthens the health system's ability to detect, verify, and respond to unusual events that may pose a public health threat. By integrating FEBS within the broader IDSR framework, facilities become critical for early warning and complement community event-based surveillance and routine IBS. Effective implementation depends on trained staff, clear roles and responsibilities, and timely reporting through the eIDSR platform. Regular feedback and supportive supervision are important to sustain FEBS implementation. When properly implemented, FEBS enables timely detection, supports rapid response, and ultimately contributes to improved preparedness and resilience against emerging and re-emerging public health threats.

CHAPTER 5

05

Community Event-Based Surveillance

IN THIS CHAPTER

5.1	Introduction
5.2	Steps of Community EBS Implementation
5.3	EBS Implementation in Congregate Settings in the Community
5.4	CEBS Workforce, Roles and Responsibilities
5.5	Community Structures
5.6	Information Flow
5.7	Training and Support
5.8	Conclusion

5.1 Introduction

One of the core principles and objectives of IDSR is to strengthen community participation in the implementation of surveillance systems. This helps the health sector improve the early detection, reporting, and response to emerging and re-emerging public health threats. Routine IBS systems primarily collect surveillance data from healthcare facilities, which means they often miss health events or emerging outbreaks occurring within communities. This is particularly true in areas with limited access to healthcare or low utilisation of formal health services.

This chapter describes the implementation of EBS at the community level as part of Community Event-Based Surveillance (CEBS), to strengthen early detection and reporting of signals for rapid response. Furthermore, it highlights the role of community structures in the implementation of CEBS as part of EWAR. It outlines how community structures contribute to the detection and reporting of signals or events. CEBS is incorporated into the national IDSR system, and reporting occurs through established community platforms, including CHWs, CDWs, ward councillors, traditional health practitioners, traditional leaders, civil society organisations, and faith-based organisations, among others. An electronic platform has been developed to facilitate and strengthen the flow of surveillance information from communities.

5.2 Steps of Community EBS Implementation

5.2.1 Signal Detection

The detection and reporting of signals at community level relies on existing community structures and a predefined list of community signals. This list (as shown in Annexure 1) is broad, non-disease-specific, and simple to support easy comprehension by community structures. Signals detected in the community are reported to the health facility using a paper-based signal log, phone calls, or messages from CHWs to the Outreach Team Leader (OTL) or equivalent. The facility data clerk or equivalent must then capture the signal or event information in the eIDSR platform.

All animal or environmental signals will be redirected by the animal health worker or equivalent to the designated facility (i.e., the DoA District Office or equivalent) for capturing and reporting.

When any of the following is observed in the community, it is considered a signal. In addition to the list below, a more comprehensive predefined list of signals is available in Annexure 1:

- Two or more people presenting with similar signs and symptoms from the same household, community, school, mass gathering, or workplace within one week.
- A cluster of unexplained domestic or wild animal deaths.
- An unexpected change in behaviour of animals (appearing sick or dying).
- An illness with unusual or rare symptoms (signs and symptoms not previously seen in the community).
- Abnormal colour or odour in a community water source (e.g., river, well, spring).

5.2.2 Triage

Once a signal is captured in the eIDSR platform, the OTL or equivalent staff member will conduct a triage. Triage is the process of reviewing information to determine its relevance for early warning, eliminate duplicates, correct obvious errors, and ensure that reported signals align with the predefined community signal list. It is important to note that a reported signal may fall outside the predefined list; however, if it has potential early-warning value, it should still be considered during triage. Triage is carried out in the eIDSR platform by the OTL or equivalent at the health facility level, with participation from CHW teams where applicable.

5.2.3 Verification

Verification is the process of confirming whether a detected signal is true or false. This may involve contacting the original source through a physical site visit, a telephone call, or any other rapid means of communication (e.g., WhatsApp, email, or SMS). The relevant OTL, Operations Manager, ORT/RRT member, EHP, or equivalent responsible for verification may undertake a second-level triage to assess whether the reported information corresponds to one or more predefined signals. Community health worker teams may participate in the verification process. Once the verification process is completed, the outcome could either be a confirmed event or a discarded signal.

The OTL or any person conducting verification will update the eIDSR with the outcome, classifying the signal as an event if confirmed or as a false signal if it is not valid. False signals are recorded in the system as misinformation and then discarded. This verification process must be completed within 24 hours of signal detection.

Please note that some events identified at the community level may not require verification. For example, an event or person presenting at a health facility after being brought in by an ambulance, family member, or school principal may be considered immediately evident. In such cases, the information should be captured in the eIDSR system as an event, and a risk assessment should be conducted immediately within 24 hours.

5.2.4 Risk Assessment

Risk assessment is the process of gathering, assessing and documenting information to assign a level of risk to an event. This step is conducted at the lowest appropriate administrative level where capacity exists (e.g., sub-district, local municipality or district level) and should take place within 24 hours of event verification. The ORT, RRT, EHPs or equivalent officials conduct the assessment using the EBS risk assessment algorithm within the eIDSR platform. The risk assessment process may be reviewed and updated as new information becomes available.

The risk assessment for community events involves gathering information to understand the hazard, exposure, and context. When conducting a risk assessment for community events, context is particularly important and should always be considered. This includes understanding the economic, political, physical environment, business, cultural practices, and infrastructural factors, as well as the population at risk within the community. More detailed guidance on conducting risk assessments will be provided in the separate Risk Assessment Standard Operating Procedure (SOP).

Conditions that have already been assessed for risks using the Strategic Toolkit for Assessing Risk (STAR) do not need to be reassessed, as a risk level has already been assigned.

5.2.5 Alert

Events assessed as high or very high through the risk assessment process are automatically alerted via email to the relevant responders (ORT/RRT) at the health facility, district, provincial and national levels. Events assessed as moderate or low should be monitored for any change in risk. The Spot Report (SpotRep) is prepared by the ORT/RRT and must be submitted to the relevant authorities.

5.3 EBS Implementation in Congregate Settings in the Community

EBS plays a critical role in congregate settings by assisting with a collection of signals and events. A congregate setting is an environment where several people meet and share the same space for a period of time. Whilst community health workers focus on serving household units within a community, special consideration should also be given to congregate settings when implementing EBS. Congregate settings may include schools, places of worship, shebeens, mining community, retirement villages, children's homes and correctional facilities, among others. Each setting should have staff or leaders who manage the establishment and can serve as key informants for signal detection and reporting. These congregate settings have the potential for rapid spread of infectious disease due to factors such as large gatherings and close-contact settings. They also provide effective channels for the rapid dissemination of information to the population at risk and for understanding potential chains of transmission.

The implementation of EBS at congregate settings is enabled by the collaborative efforts of CHW teams and existing community structures. These efforts should be further supported by key informants working within the congregate settings, thus strengthening the detection and reporting of signals and events. All signals or events detected in congregate settings should be immediately reported to the nearest clinic or hospital for capturing, triage, verification and risk assessment. The ORT or RRT should respond when required.

5.4 CEBS Workforce, Roles and Responsibilities

All Department of Health employees should be trained to detect any signals of public health importance. The success of CEBS relies on officials from the DoH, DoA, and municipalities at district or local levels working closely with communities and existing community structures. The most critical component of CEBS implementation is the involvement of CHWs and community structures, who play a primary role in detecting and reporting community signals.

The officials or key role players listed in the table below play a critical role in the implementation of CEBS. Their roles and responsibilities are outlined below for reference.

Table 4. Main Roles and Responsibilities of Stakeholders That Actively Participate in CEBS.

CEBS KEY ROLE PLAYERS	ROLES AND RESPONSIBILITIES
Community structures	Detect and report signals working with CHWs and the local clinic or hospital. Participate in the training on CEBS, facilitated by health authorities and other authorities (DoA, DFFE and others).
Community Health Workers or Community Animal Health Workers / teams or equivalent	Sensitise community members and key informants on CEBS. Detect and report signals, working with CHWs and the local clinic or hospital. Report the signal immediately to the OTL/supervisor/health facility manager or equivalent. May participate in triage and verification. Receive feedback from OTL/supervisor/health facility manager or equivalent. Share feedback on the signal with members of the community.
CHW team supervisor / facility manager / operational manager / OTL or equivalent	Receive reports of detected signals from CHW teams. May capture signals on the eIDSR system. Triage and verify all signals to determine whether they are events. Participate in or conduct risk assessments. Provide feedback to the relevant lower level. Ongoing training/orientation of CHW teams. Regularly update information in the eIDSR as required (verification and risk assessment).
Health information office (FIO and DIOs) or data capturer	**Data capturer:** capture signals on the eIDSR platform; regularly update information in the eIDSR as required (verification and risk assessment). **Health information office:** create user access for relevant officials; assist with data analysis and drafting of reports; monitor and follow up with health facilities on eIDSR system usage ensuring regular capturing of signals/events; support ongoing training on the eIDSR system; work with clinics to ensure good quality data and uphold relevant DQA standards.
Sub-district / district CDC / surveillance / EHP / DoA	Monitor detected signals and ensure signals are verified within 24 hours. Monitor EBS progress implementation in line with national guidelines. Training and support of CHW or CAHW or equivalent teams. Lead joint risk assessments (and update information in the eIDSR as required). Data analysis and reporting. Activate response where needed. Work with clinics to ensure good quality data and uphold relevant DQA standards. Register and verify all signals detected through media.
Province	Monitor detected signals and ensure signals are verified within 24 hours. Monitor EBS progress implementation in line with national guidelines. Support districts on training of CHW or CAHW or equivalent teams. Lead joint risk assessments (and update information in the eIDSR as required). Data analysis and reporting. Activate response where needed. Register and verify all signals detected through media.
National	Provide guidance on EBS implementation. Monitor detected signals and ensure signals are verified within 24 hours. Monitor EBS progress implementation in line with national guidelines. Support provinces and districts on rollout of EBS. Data analysis and reporting. Activate response where needed. Ensure eIDSR is maintained. Ensure system updates/developments are effected and communicated to provinces/districts. Register and verify all signals detected through media.

5.5 Community Structures

Community structures are an important resource for the implementation of CEBS and already exist within communities, either supporting or carrying out community-level activities. Depending on the context, community structures may include ward councillors (and ward committees), traditional leaders (inkosi, izinduna), traditional health practitioners (THPs), local farmers and small traders, community-based organisations (CBOs), and leaders of faith-based organisations (FBOs), among others. In addition, clinic committee and hospital board members will play a fundamental role in the implementation of CEBS and should be considered part of the community structures. Members of community structures, clinic committees, and hospital board members reside within communities and regularly interact with residents. They serve as the “eyes and ears” on the ground to support signal detection in their communities. Therefore, district offices and clinics or hospitals are encouraged to strengthen communication channels between community structures and the health system. Clear data-flow processes must be established between communities and local clinics and/or hospitals.

5.6 Information Flow

The reporting and feedback process for CEBS is illustrated in Figure 6.

Detection: Signals are first identified at the community level by designated community informants and structures.

Reporting: All detected signals must be reported immediately to the nearest health facility (e.g., OTL/Supervisor, health facility manager, or designated equivalent).

Recording: The notified signals must be captured in the eIDSR system without delay.

Digital reporting: All local health facilities are required to use the eIDSR system for reporting. Paper-based reporting will not be accepted beyond the point of facility entry.

OTLs/RRTs/ORTs/EHPs/sub-districts/districts/DoA officials must triage and verify all signals that come to the local health facility and/or to their attention. A risk assessment must be conducted for all signals verified as true events, and the appropriate response must be initiated. Regular feedback should be provided to CHWs/CAHWs or equivalent. The detailed steps on how the information will flow and how the eIDSR platform will be used are provided in Chapter 7.

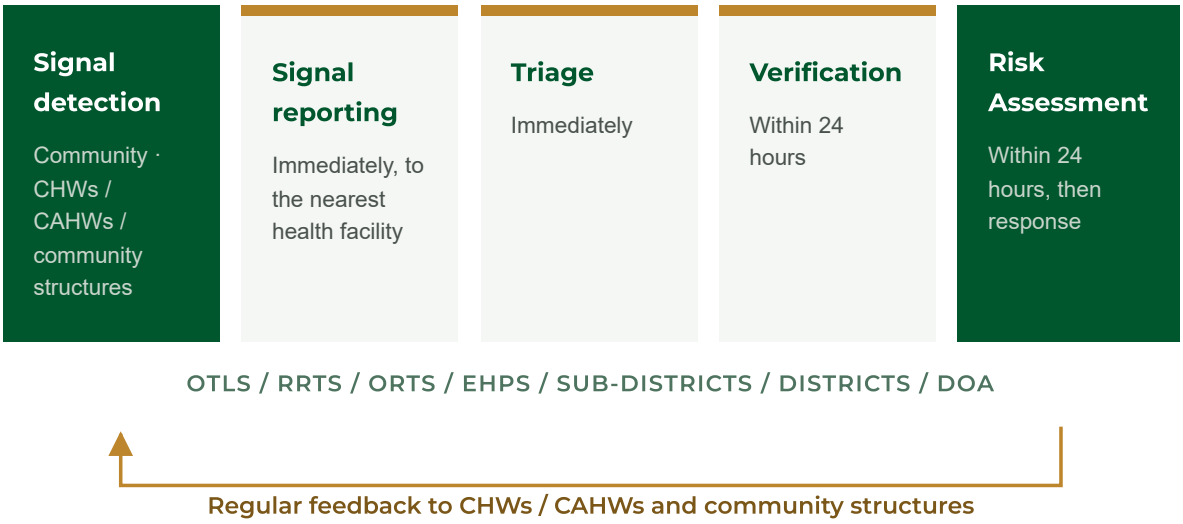


Figure 6. Sample Flowchart for CEBS Implementation, Indicating the Flow of Information Collected and the Feedback Loop.

5.7 Training and Support

A critical component of CEBS is the provision of initial training, followed by refresher training conducted as needed. Regular refresher training sessions will be offered to CHW/CAHW or equivalent teams on the EBS Programme. These sessions may be combined with ongoing or routine monitoring visits conducted by relevant provincial, district, or sub-district officials. The training may be coordinated in collaboration with relevant training structures, such as Regional Training Centres (RTCs).

5.8 Conclusion

Collaboration between community members, community structures, key informants, and CHW teams fosters trust and strengthens the implementation of CEBS at the community level. Routine supervision of CHW teams is essential to the success of CEBS, and supervisory visits provide opportunities for refresher training, mentorship, and continued motivation. OTLs or equivalents should also ensure that CHW teams receive regular feedback on the status of signals reported from their communities. Overall, CEBS is fully integrated into the national eIDSR system, a streamlined approach that enhances the detection of potential acute public health risks and enables a timely and coordinated response.

CHAPTER 6

06

Monitoring and Evaluation for Event-Based Surveillance

IN THIS CHAPTER

6.1 Introduction

6.2 Evaluation Methodology and Considerations

6.1 Introduction

A Monitoring and Evaluation (M&E) plan for EBS systems provides timely information and indicates whether the system is functioning properly. The EBS M&E system will also assist tracking progress by assessing whether all targets are met. Where targets are not met, ongoing guidance will be provided to support performance improvement. This M&E plan will describe why, how, and when changes towards the desired surveillance goal are achieved.

Monitoring is the process of continuously tracking progress or delay in inputs, activities, outputs, and outcomes. Monitoring helps keep track of implementation processes and provides a basis for re-adjustments based on performance achieved.

Evaluation is the process of periodically assessing the relevance, effectiveness, and impact of a programme or system. Evaluation ensures that the EBS system meets the objectives for which it was set by providing evidence-based explanations for achievements and shortcomings and recommendation for improvement.

The EBS M&E framework is based on a logic model or theory of change that aligns with a results-based framework. The plan will monitor the EBS Programme by tracking inputs, activities, outputs, outcomes, and impacts. This framework illustrates how actions taken within the EBS Programme leads to the desired results or outcomes over time.

6.2 Evaluation Methodology and Considerations

Different methodologies will be used to evaluate the EBS system and programme. An observational evaluation approach, incorporating both quantitative and qualitative methods, will be used to evaluate the EBS system attributes, including timeliness, completeness, accuracy, usefulness, simplicity, acceptability, flexibility, sensitivity, specificity, positive predictive value, and representativeness. A South African Field Epidemiology Training Programme (SAFETP) student may be requested to conduct the evaluation of the EBS surveillance system.

Table 5. Elements of the Logic Framework or Theory of Change.

INPUTS	ACTIVITIES	OUTPUTS	OUTCOMES	IMPACTS
EBS SOP	Development of SOPs and guidelines	Knowledge and understanding of EBS concepts improved	Early warning and integrated disease surveillance and response strengthened	Increased life expectancy
HR DoH / DoA / DFFE / other stakeholders' staff	Development of data collection tools including pre-defined community signal list	Rollout of EBS	Early detection, reporting and rapid response to public health threats improved	Increased life expectancy
Stakeholders – community structures	Training of staff across sectors together with stakeholders	Signals detected from communities are reported immediately	Early detection, reporting and rapid response to public health threats improved	Increased life expectancy
Computers and internet	Conducting EBS workshops	Community signals verified as events within 24 hours	Early detection, reporting and rapid response to public health threats improved	Increased life expectancy
DHIS2 eIDSR Human resources	Development of job aids for CHWs	Risk assessment conducted within 24 hours of signal verification	Early detection, reporting and rapid response to public health threats improved	Increased life expectancy
	Development of facility flowcharts	Signals detected from facilities are reported immediately	Early detection, reporting and rapid response to public health threats improved	Increased life expectancy
	Procurement of job aids for CHWs	Facility signals verified as events within 24 hours	Early detection, reporting and rapid response to public health threats improved	Increased life expectancy
	Development and design of the eIDSR	Outbreaks detected early	Early detection, reporting and rapid response to public health threats improved	Increased life expectancy

Table 6. EBS Outcomes, Outputs, Indicators, 5-Year Target and Annual Targets.

OUTCOME	OUTPUT	INDICATOR	5-YEAR TARGET	ANNUAL TARGETS				
				2025/26	2026/27	2027/28	2028/29	2029/30
Early warning and integrated disease surveillance and response strengthened	Rollout of EBS	Number of districts implementing EBS	**52**	11	22	33	44	52
	Knowledge and understanding of EBS concept improved	Number of EBS workshops held	**5**	1	1	1	1	1
		Number of officials (DoH, DoA, DFFE) trained on EBS	**3 380**	676	1 352	2 028	2 704	3 380
Early detection, reporting and rapid response to public health threats improved	Signals detected from communities are reported immediately	Percentage of community signals registered into the eIDSR	**90%**	90%	90%	90%	90%	90%
		Percentage of signals triaged	**100%**	100%	100%	100%	100%	100%
	Community signals verified as events within 24 hours	Percentage of community signals verified as true events after triage within 24 hours	**100%**	100%	100%	100%	100%	100%
	Risk assessment conducted within 24 hours of signal verification	Percentage of community events with risk assessment conducted within 24 hours post verification	**100%**	100%	100%	100%	100%	100%
	Signals detected from facilities are reported immediately	Percentage of facility signals entered in the eIDSR system	**90%**	90%	90%	90%	90%	90%
Early detection, reporting and rapid response to public health threats improved	Facility signals verified as events within 24 hours	Percentage of facility signals verified as true events after triage within 24 hours on eIDSR	**100%**	100%	100%	100%	100%	100%
	Signals detected through EIOS	Percentage of signals detected through EIOS	**30%**	30%	30%	30%	30%	30%
	Outbreaks detected early	Percentage of outbreaks detected through EBS	**70%**	70%	70%	70%	70%	70%
	Timely initial effective and rapid response	Proportion of events for which an initial effective response was completed within 7 days of notification	**100%**	100%	100%	100%	100%	100%

CHAPTER 7

07

EBS Data Management and Event Management Systems

IN THIS CHAPTER

7.1	Introduction
7.2	Data Sources and Data Collection
7.3	Data Storage and Security
7.4	Event Management System (DHIS2 User Guide)

7.1 Introduction

EBS will generate a large volume of data that must be collected, analysed, interpreted and disseminated in a manner that enables timely and effective action or response. EBS surveillance data will be collected electronically using the eIDSR built on the DHIS2 platform. The eIDSR tracks the signals and events from the time they are detected until the events are closed or the signals are discarded.

EBS data management involves the collection, analysis, and dissemination of information to support decision-making. EBS data collection should be carried out with subsequent analysis and use in mind. It is important to consider how EBS reporting data (the process of reporting signals and verifying events) links to systems for tracking events and capturing data outcomes (e.g., number of cases, hospitalisations).

It will be ensured that EBS surveillance data collected is of high quality, accurate, complete, and timely.

Accuracy involves how well the data reflects reality. This will be ensured by verifying whether the events available from sources at health facility level are the same as those captured in the eIDSR.

Completeness considers whether the information available in source documents is also captured in the eIDSR platform.

Timeliness considers whether data on priority events are available in the eIDSR platform when needed.

Regular data quality audits will be conducted to improve data accuracy, completeness, and timeliness. This will be a process of routinely reviewing, checking, and assessing the quality of the EBS data collected.

7.2 Data Sources and Data Collection

The EBS Programme forms an integral part of the IDSR surveillance system in the country to ensure sustainability and cost-effectiveness. EBS data will be collected from communities, health facilities, and through media scanning. All signals and events will be entered into the eIDSR platform.

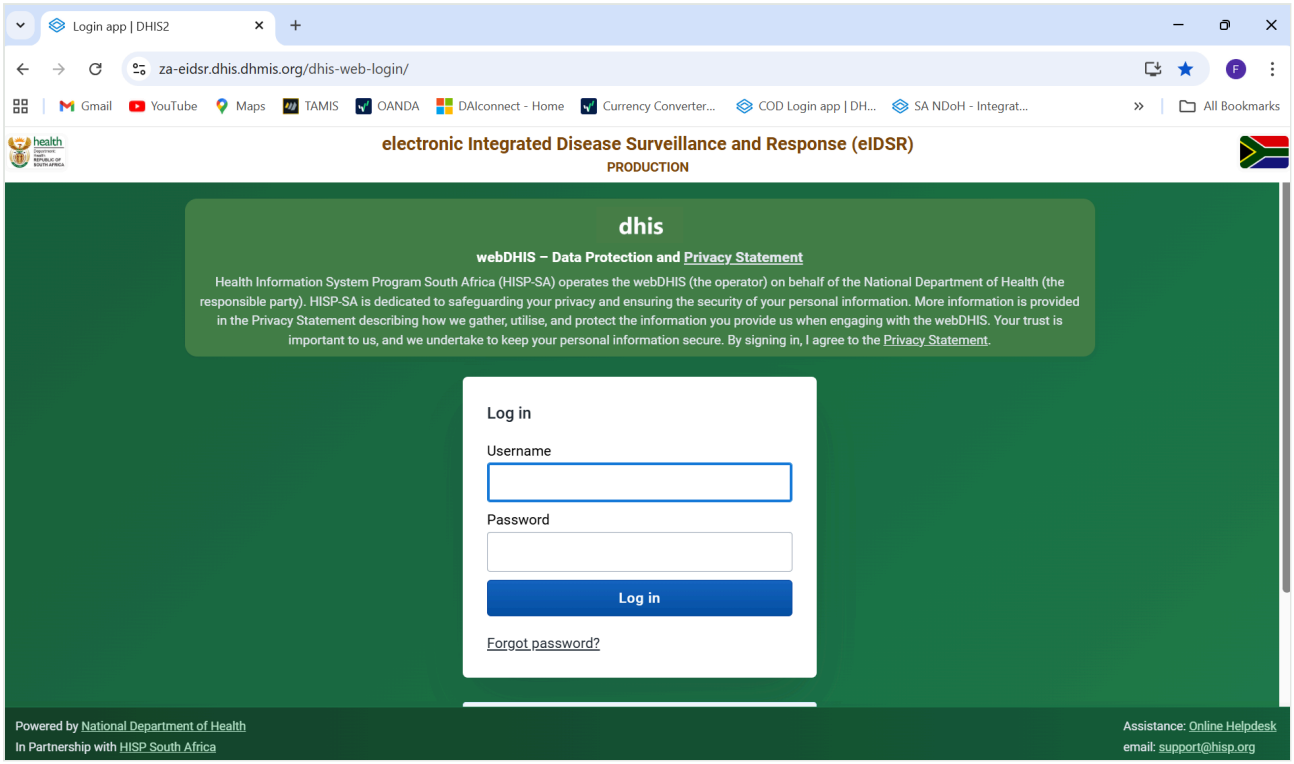
7.3 Data Storage and Security

Data security is critical to protecting confidential information, respecting the privacy of subjects, and complying with applicable protocols and requirements. The storage and security of EBS data will be guided by the POPI Act and other related legislation. EBS surveillance data will be collected and stored on password-protected computers that are securely kept and regularly backed up. All users of the eIDSR system will be created by the District Information Office after completing a user registration form. When a user resigns or leaves the service for any reason, their access will be deactivated in the system. All surveillance data collected through EBS will be shared only after obtaining the necessary approvals from the Director-General of the Department of Health.

7.4 Event Management System (Event Based Surveillance DHIS2 System User Guide)

Opening DHIS2

- DHIS2 is a web-based application that requires an active internet connection to access.
- Google Chrome is the recommended browser for using DHIS2.
- To open the system, type the DHIS2 URL into the browser address bar: https://za-eidsr.dhis.dhmis.org/
- The DHIS2 login screen will appear once the page loads.



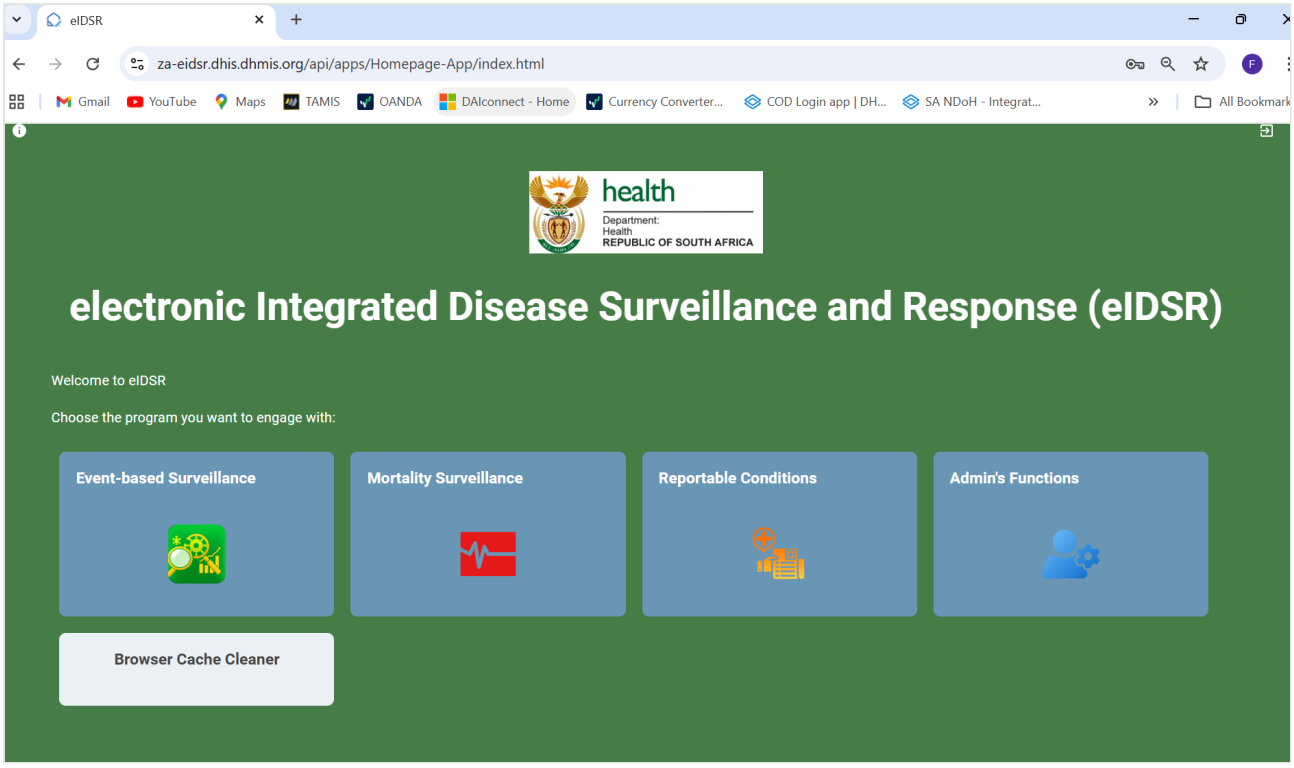
Screen 1. DHIS2 eIDSR login page.

Logging In and Out of the Application

Once the DHIS2 login screen appears, the user must enter their username and password to access the eIDSR system. If the login attempt is unsuccessful, the system will display a notification indicating that the username or password is incorrect and prompt the user to re-enter their credentials.

If the user has forgotten their password, they should click on the Forgot Password icon. This will redirect them to a page where they can enter their username or email address to request a password reset. An email containing a password reset link will then be sent to the user's registered email address.

Once the user has successfully logged in, the DHIS2 dashboard will appear on the screen, displaying the various eIDSR modules (EBS, Mortality Surveillance, and Reportable Conditions). When the user has finished capturing data in DHIS2, it is recommended that they log out before closing the browser. Selecting the Log Out link in the upper right corner of the screen will return the user to the login page.

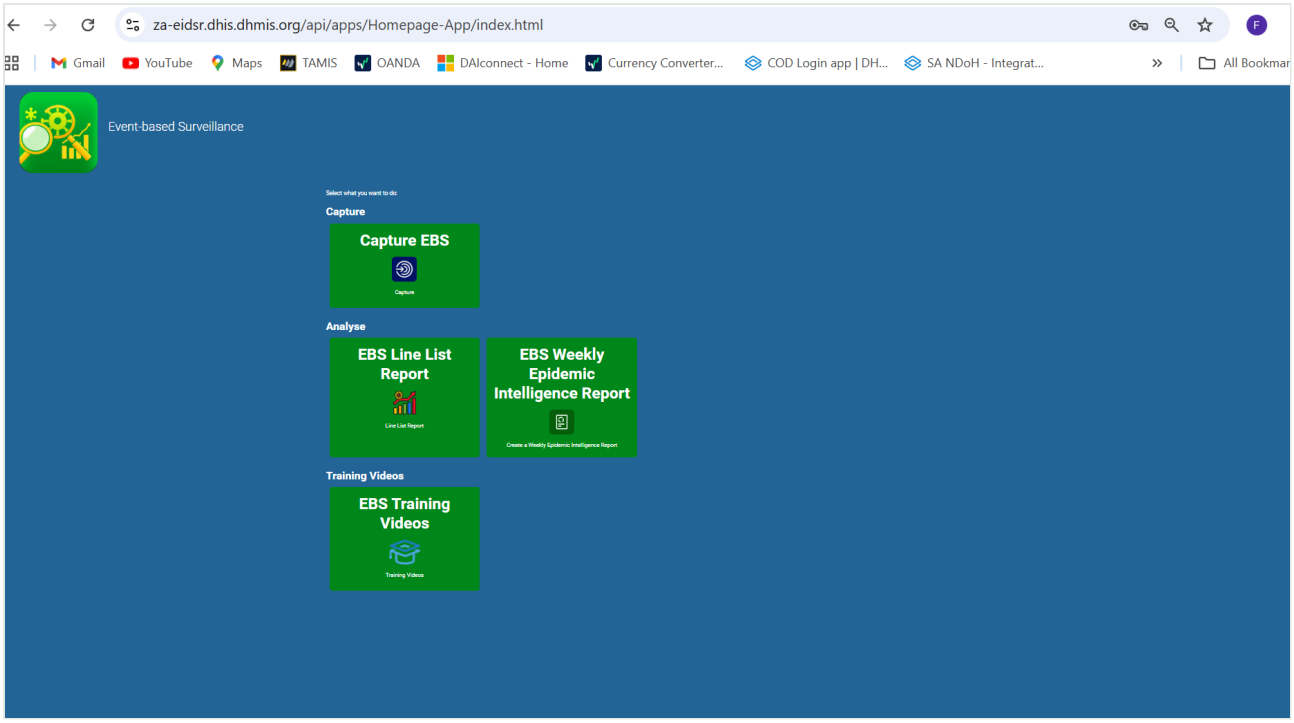


Screen 2. DHIS2 eIDSR landing page for modules.

In the DHIS2 dashboard, select the Event-Based Surveillance (EBS) module to begin entering signals or events. After selecting the EBS module, the following options will appear:

Table 7. EBS Module Options.

OPTION	DESCRIPTION
Capture	Capture EBS — click to capture data
Analysis	EBS Line Report — case-based reports in a line list format EBS Weekly Epidemic Intelligence Report
Training videos	EBS training videos

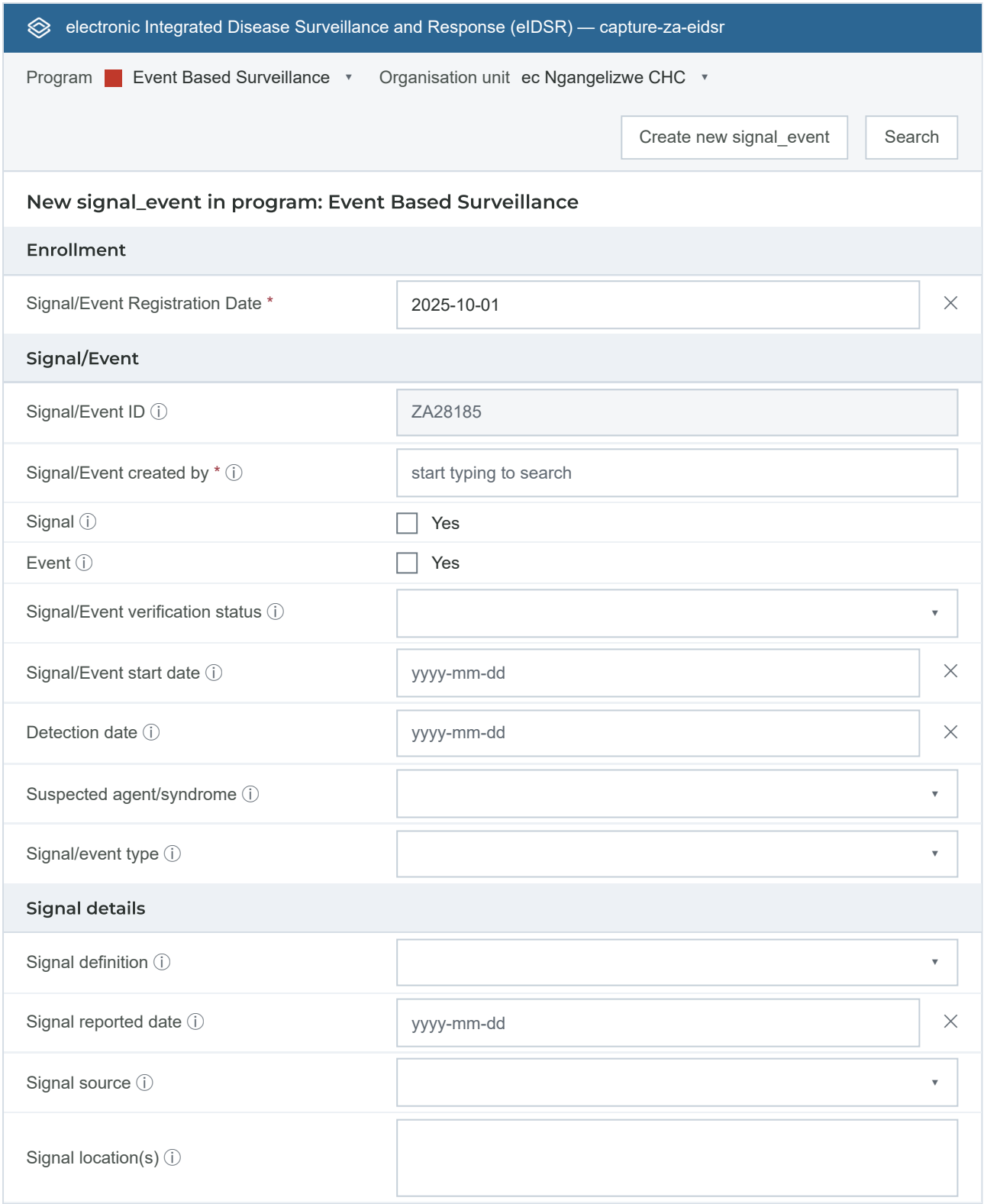


Screen 3. Event Management System EBS capturing page.

Capturing a Signal or Event

Click on Capture EBS to start capturing signals or events.

Step 1	On the Program menu, you will find Event-Based Surveillance and Case Registration. Click on Event-Based Surveillance to begin capturing the signal.
Step 2	On the organisational unit menu, click the drop-down arrow and select your province, district, sub-district and facility for which you want to capture data. For all users at facility level, the respective assigned facility will automatically appear.
Step 3	Click on the Create Signal or Event tab to capture a new signal or event.



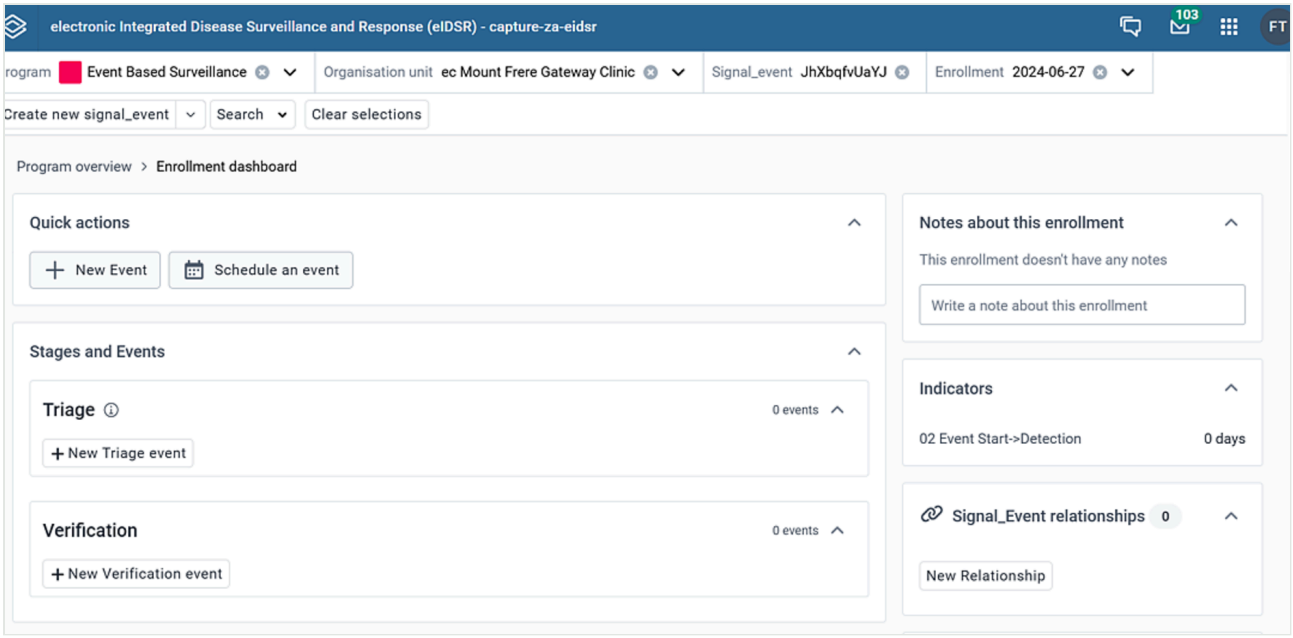
Screen 4. New signal or event registration form.

Fields on the Registration Form

Table 8. Fields on the Registration Form.

FIELD	DESCRIPTION
Signal/Event registration date	The date you capture on the system.
Signal/event ID	This will be automatically allocated by the system.
Signal/event created by	This will be the person capturing on the system.
Signal	Please click to tick when it is a signal.
Event	Please click if it is an event.
Signal/event verification status	This will be completed automatically. When the user selects signal, it will show “Pending verification” and when clicking event, it will automatically show “verified”.
Signal/Event start date	It is when the signal or event occurred.
Detection date	The date when the signal or event is first reported to any source, i.e. it is the date the department is made aware of the signal or event.
Suspected agent/syndrome	It describes the condition of affected people, i.e. diarrhoea or vomiting etc.
Signal/event type	It shows whether it is a human, animal, human and non-human, or an environmental and bio-warfare signal.
Signal definition	It describes and defines the actual signal observed at community level.
Signal reported date	Date when the signal or event was reported.
Signal source	It shows where the signal originated from, i.e. community or school etc.
Signal location(s)	The name of the place where the signal occurred must be included.

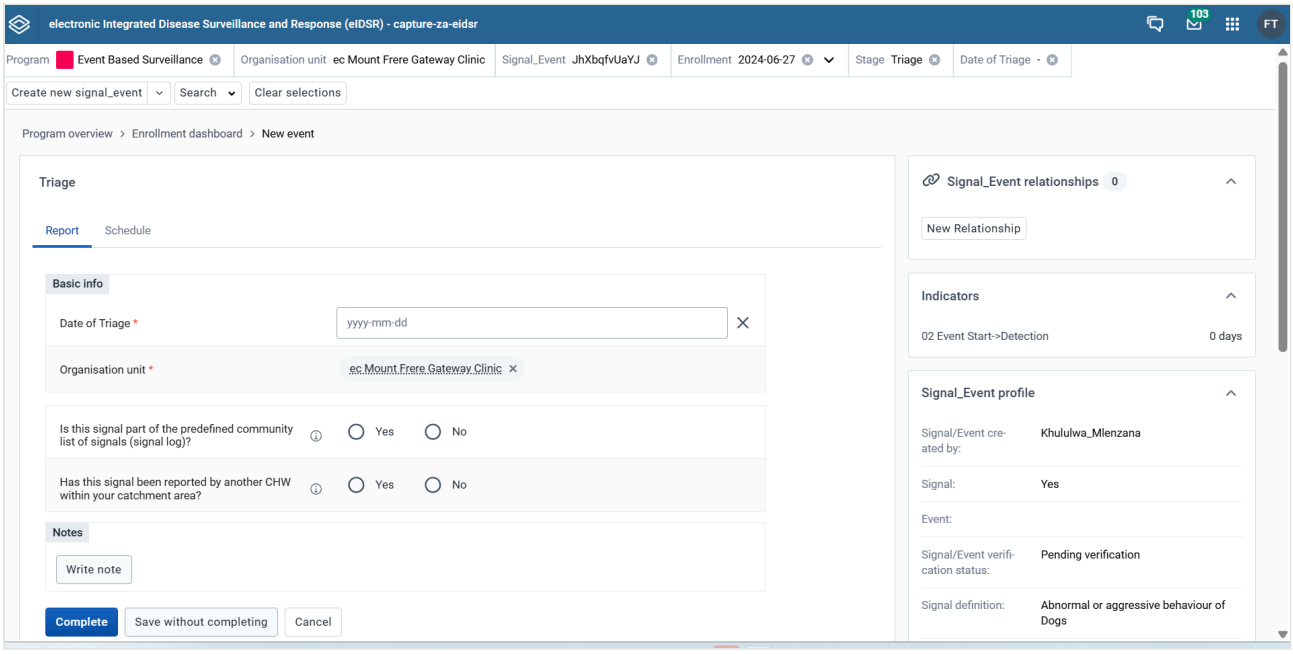
Click on the Save Signal_Event button to save the signal or event. Once the signal has been saved, the next step is to triage the signal, which will be followed by verification.



Screen 5. To start triage, click on New Triage Event.

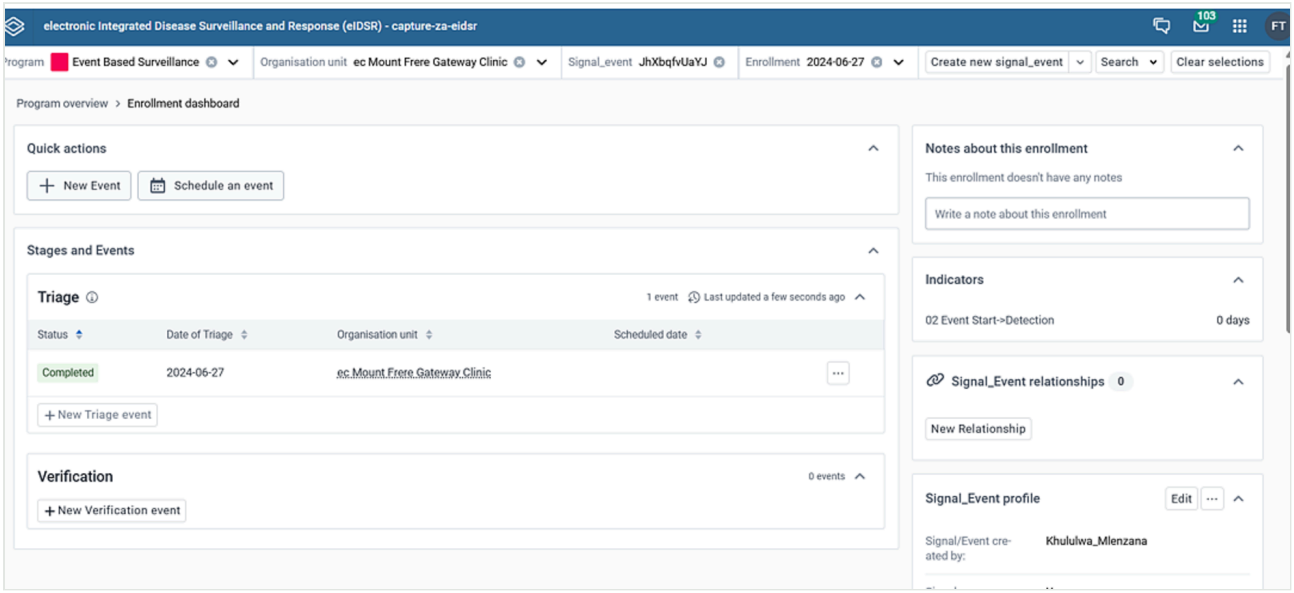
Triage

Capture the date the signal was triaged, answer the two questions and proceed to click Complete Triage.



Screen 6. Triage form — date of triage and the two triage questions.

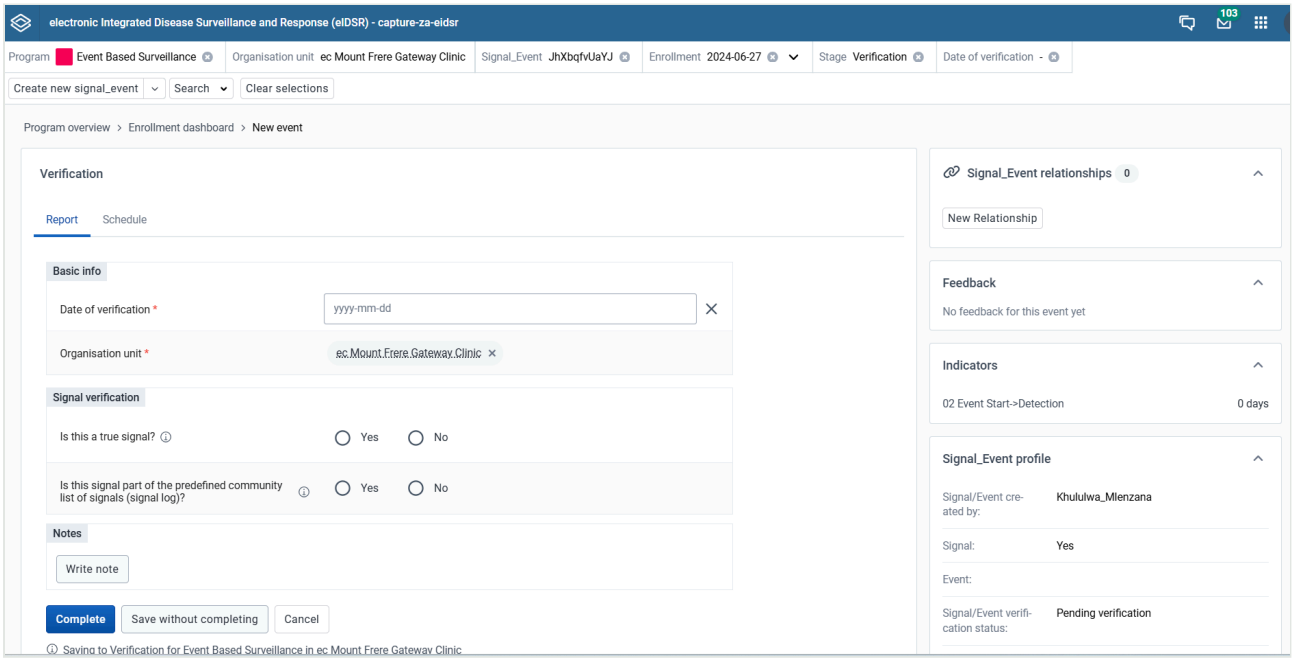
Once the triage has been completed, the status will automatically update to Completed. This indicates that the user should proceed to the verification step.



Screen 7. Triage completed — proceed to verification by clicking New Verification Event.

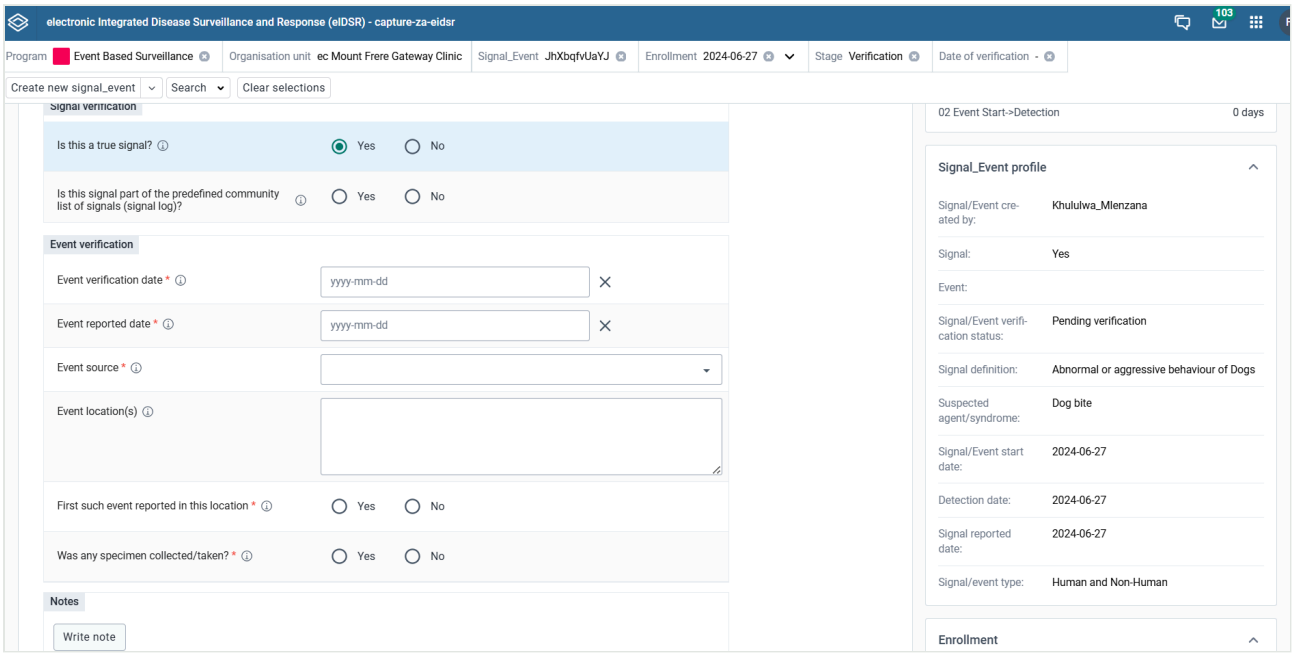
Verification

Capture the date the signal was verified. There are two questions that must be answered, as they determine the outcome of the verification process.



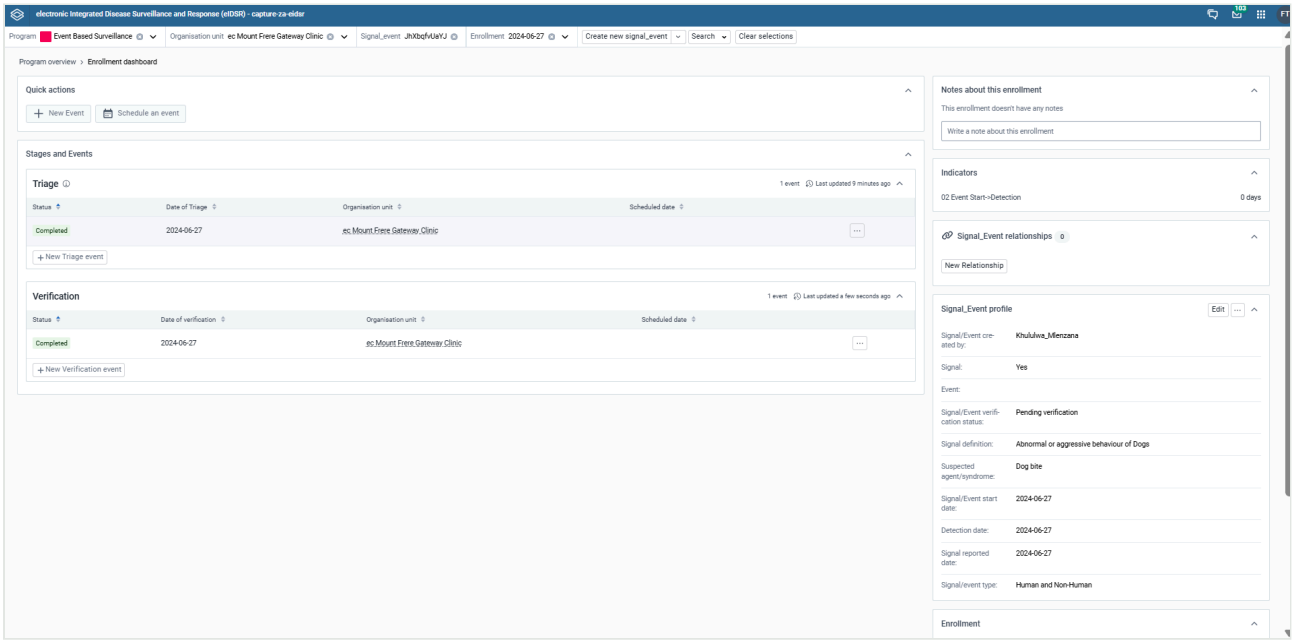
Screen 8. Verification form — date of verification and the two verification questions.

If you determine that it is not a true signal, click Complete.



Screen 9. Signal found not to be true — click Complete.

If you confirm that this is a true signal, this becomes an event. Proceed to answer the questions that follow and click Complete.

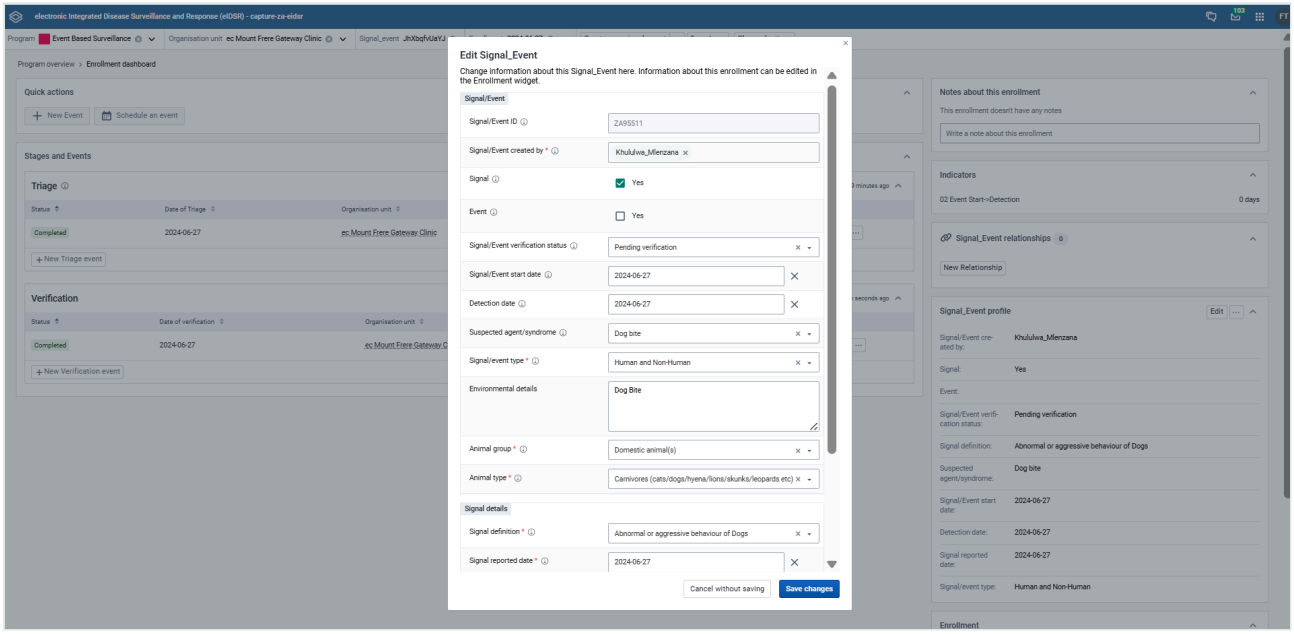


Screen 10. Signal confirmed as a true event — answer the remaining questions and click Complete.

Confirming the Signal as an Event

Once verification is complete, on the right-hand side click Edit on the Signal_Event profile to start the process of confirming the signal as an event or rumour. The Edit Signal_Event profile window will pop up. Select Yes for Event and click the Save Changes tab at the bottom of the screen.

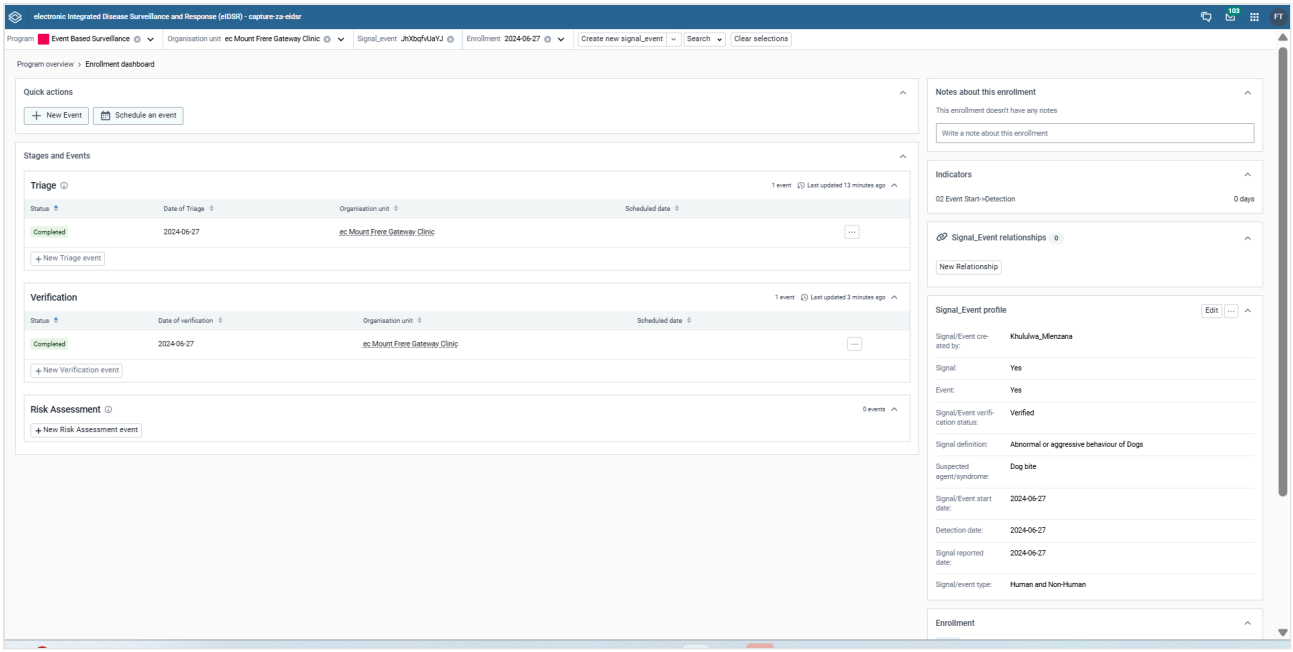
> **NB:** Do not untick Signal; keep it selected.



Screen 11. Edit Signal_Event profile — select Yes for Event and save changes.

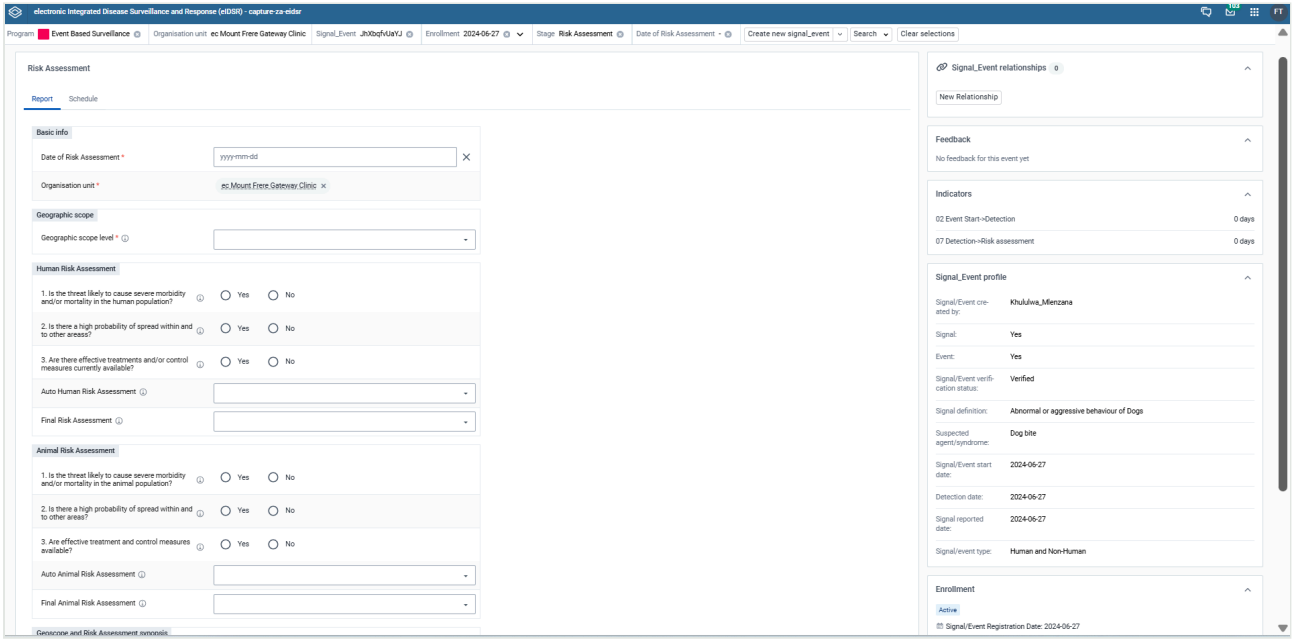
Risk Assessment

Once saved, the Risk Assessment tab will appear. Click on the New Risk Assessment Event tab.



Screen 12. Risk Assessment tab — click New Risk Assessment Event.

Complete the risk assessment. Depending on the type of event, complete the relevant risk assessment (e.g., animal risk assessment, human risk assessment). The risk assessment follows the algorithm described in Figure 3 of these guidelines.



Screen 13. Risk assessment form, following the risk assessment algorithm.

ANNEXURE 1

08

Predefined Signal List

IN THIS ANNEXURE

A1 Community Focal Signal Lists (CHW, CAHW/T, CDW, Ward Councillor, Traditional Leaders)

Community focal signal lists (i.e. CHW, CAHW/T, CDW, ward councillor, traditional leaders, etc.)

Name _____ **Contact number** _____

Date/time signal began _____ **Date/time signal detected** _____

> **Instructions:** When you detect one or more signals in your community, please report immediately to your local-level supervisor.

DESCRIPTION OF THE SIGNAL — DOES IT MEET THE FOLLOWING CRITERIA?	TICK
Clustered human cases of disease or syndromes	☐
Food poisoning	☐
Unusual disease patterns	☐
Unexpected cluster deaths at community level	☐
Unusual drug uptake patterns reported by private pharmacies	☐
Cluster of student absenteeism because of illness	☐
Death of a mother or new-born	☐
Stock out on essential medicines or vaccines at health facility reported by community members	☐
Abortion/miscarriage in livestock	☐
Sudden death in livestock	☐
Multiple sudden deaths in livestock	☐
Abnormal or aggressive behaviour of dogs	☐
Abnormal or aggressive behaviour of cats	☐
Abnormal or aggressive behaviour of livestock	☐
Abnormal or aggressive behaviour of wildlife	☐
Floods and storms	☐
Population displacement	☐

DESCRIPTION OF THE SIGNAL — DOES IT MEET THE FOLLOWING CRITERIA?	TICK
Fires	☐
Landslides	☐
Earthquakes	☐
Extensive crop failure or crop diseases/pests	☐
Toxic dump on land or water body	☐
Mass casualty events	☐
Hand pump breakdown	☐
Attacks on health workers, health facilities or other health	☐
Non-compliant water quality	☐
Sewerage spillage, breakdown of sewerage plants	☐
Aquatic deaths	☐
Rat infestation	☐
Waste non-collection	☐
No water in the health facility	☐
No electricity in the health facility	☐
Others	☐

Location of the signal (community) _____

Contact information of those affected, if applicable _____

Signature _____ **Date** _____

Early warning.
Timely action.
Stronger communities.

Event-Based Surveillance complements Indicator-Based Surveillance by detecting acute public health events early, from communities, media, health facilities, hotlines, and the animal and environmental sectors.

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