

Detection and confirmation of a public health event

All Member States have surveillance systems that detect outbreaks of infectious diseases. As a result of the emphasis in the IHR on strengthening this core capacity, many Member States have expanded these systems to include public health events caused by other hazards. Surveillance systems detect public health events through:

- **Indicator-based surveillance:** The routine collection of pre-defined information about diseases³ using case definitions (e.g. weekly surveillance of cases of acute flaccid paralysis). Predetermined outbreak thresholds are often set for alert and response.
- **Event-based surveillance:** The rapid collection of ad hoc information about acute public health events. Event-based surveillance uses a variety of official and unofficial information sources to detect clusters of cases with similar clinical signs and symptoms that may not match the presentation of readily identifiable diseases. Official sources include national authorities and other agencies such as the UN system. Unofficial sources include media reports, other unofficial public information (e.g. internet sites), reports from the public

Not all event reports and alerts generated through indicator and event-based surveillance systems describe real events, nor are all real events of public health importance. The number of ‘false positives’ (i.e. reported events that cannot be confirmed as real or when alert thresholds of indicator-based surveillance systems are exceeded but an outbreak does not result) depends on the objectives and design of the surveillance system and the organizational level at which the event is assessed.

Guidance should be developed to assist staff in the triage and assessment of newly detected events (see Box 1). Event triage uses the same principles for assessing the risk an event may pose to public health as the more formal risk assessment described in this manual.

Box 1: Example of guidance to surveillance staff for triaging incoming signals from surveillance activities

Question	Answer
Has the event been reported by an official source (e.g. local health-care centre or clinic, public health authorities, animal health workers)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Has the event been reported by multiple independent sources (e.g. residents, news media, health-care workers, animal health staff)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Does the event description include details about time, place and people involved (e.g. six people are sick and two died three days after attending a local celebration in community X)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is the clinical presentation of the cases described (e.g. a cluster of seven people admitted to hospital with atypical pneumonia, of whom two have died)?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Has a similar event been reported previously (e.g. with a similar presentation, affecting a similar population and geographical area, over the same time period)?	Yes <input type="checkbox"/> No <input type="checkbox"/>

Incoming signals are more likely to describe real events if there are one or more ‘yes’ answers to the questions tabled above.

3 The term ‘disease’ is used in its broadest sense, including syndromes.

If the event is detected quickly, initial information may be limited and non-specific. The initial triage process focuses on assessing the credibility of the incoming signal(s) and whether the event described is a potential risk to public health that warrants investigation. The accuracy of the reporting of the event may be assessed at the same time. Confirmation of an event does not automatically mean that it presents a risk to public health. Some events may have little or no effect on human health or may be related to chronic diseases or issues that do not pose an acute public health risk. As a result, different actions may result from the initial risk assessment (see Table 1).

Table 1: Example of action taken as a result of triage and confirmation of an event

Outcome of triage and confirmation	Action
Reported event is proved to be a false rumour	Discard the event Risk communication and media communication about the event may be needed to address the public perception of risk (e.g. smallpox rumours)
Event is confirmed but is not an immediate public health risk	Monitor the event and undertake risk assessments as new information becomes available Risk communication and media communication about the event may be needed to address the public perception of risk
Event is confirmed and may be considered an immediate public health risk	Undertake a full risk assessment and state the level of confidence in the assessment Provide recommendations for decision-makers, including which actions should be taken and which should have the highest priority (e.g. recommended control measures, key communication messages) Undertake additional risk assessments and modify recommendations for decision-makers as new information becomes available. The actions taken as a result of the risk assessments will differ at different organizational levels