FAQ: Common questions when evaluating an event against the 7-1-7 target

General questions

1. **What scientific assumption/data led to the development of the 7-1-7 target?**

   As part of our development of the 7-1-7 target, we conducted a review of existing outbreak timeliness data. This included a study that reviewed timeliness for 296 outbreaks that occurred during 2017-2019 and found a median 8 days to detection and 3 days for notification. These historical data were triangulated with median incubation periods for epidemic-prone pathogens. In comparison with data on detection and notification, fewer published data are available for the timeliness of response actions. A review of 41 public health events found that 54% percent of events met a target of 7 days to detect (median 6 days), 71% of events met a target of 1 day to notify (median 0 days), and 49% of events met a target of 7 days to complete all early response actions. These data suggest that the 7-1-7 target is ambitious yet achievable for most events. For the full scientific justification for the 7-1-7 target, please see our existing publication.

2. **For outbreaks that impact more than one location, should the first case in each location be treated as a unique event and assessed separately against the 7-1-7 target?**

   For outbreaks that impact multiple locations, at a minimum, countries should assess the 7-1-7 metric in the location (e.g., district, state, county, city) where the event initially emerged. If there is an interest in understanding how effectively event detection, notification, and initial response occurred when the event spread to additional locations, the 7-1-7 approach may be applied to the first case in these additional locations (e.g., the first case in a new district). Each instance when the 7-1-7 approach is applied creates an opportunity to identify bottlenecks and remedial actions that can lead to performance improvement.

3. **How does the 7-1-7 target align with existing Integrated Diseases Surveillance and Response (IDSR) timeliness metrics developed for the WHO African Region (AFRO)?**

   The WHO AFRO IDSR 3rd Edition Technical Guidelines (2019) include sample indicators for timely detection, notification, and response. These have been translated at country level but not fully implemented for monitoring and evaluation. As described below, the 7-1-7 approach was designed to align with and simplify measurement of timeliness in the IDSR:

   - The 7-days-to-detect target aligns with the IDSR: “Cumulative interval between onset of index case (or occurrence of an unusual cluster at the community or health facility [date 1] and notification to the district [date 2] (target <7 days))” [IDSR Section 7, p. 142]
   - The 1-day-to-notify target aligns with the IDSR: “If an immediately reportable disease, condition, or other public health event is suspected, the health facility must report case-based information to the next level within 24 hours” [IDSR Section 2, p. 57]

- The 7-days-to-complete-an-early-response target is an extension of the IDSR, which calls for action to be taken within 48 hours of notification. The 7-1-7 approach includes two response measurements: taking at least one response action within 1 day of notification and completing all 7 early response actions within 7 days of notification. The 1-day target to begin the investigation or response aims to identify bottlenecks that prevent immediate early response action. The actions to be undertaken within 7 days further define what should be done in response to both smaller and larger public health events. Countries meeting the early response completion metric of 7 days may wish to implement more ambitious targets, but a review of existing literature on timeliness indicated that 7 days was an ambitious but achievable target.

4. How does the 7-1-7 approach support implementation of IDSR developed for the WHO African Region?

The 7-1-7 approach supports IDSR implementation by:

- Simplifying measurement of performance;
- Evaluating the performance of IDSR systems involved in event detection, notification and early response;
- Identifying performance gaps and bottlenecks that require remedial action to strengthen IDSR implementation.

The 7-1-7 approach uses simple metrics to measure performance in countries implementing the IDSR, which in turn improves accountability and transparency. For these reasons, WHO AFRO adopted the 7-1-7 approach in its Regional Strategy for Health Security and Health Emergencies 2022-2030.

5. For endemic diseases in countries implementing the IDSR, should "alert" or "response" thresholds be used when evaluating events against the 7-1-7 target?

In all settings, we recommend using the first threshold that, once exceeded, should trigger a public health investigation or response according to existing guidelines and standard operating procedures (SOPs). Generally, we anticipate that the "alert" thresholds will be used, given that the IDSR Technical Guidelines Third Edition states that "an alert threshold suggests to health staff and the surveillance team that further investigation is needed." The alert threshold may be based on suspected and/or confirmed case incidence depending on reporting guidelines.

6. Why doesn't the 7-1-7 approach contain metrics for an outbreak response beyond the first seven days?

The 7-1-7 approach was intentionally designed to focus on improving the subset of systems required to detect and initiate an early effective response to a public health event. These systems are critical to controlling new outbreaks before they become epidemics or pandemics. The 7-1-7 approach was not extended to include actions and targets for later stages of the response because later response actions are highly variable depending on the specifics of an event. For larger events requiring a sustained response, it is best practice to apply the 7-1-7 approach in real-time shortly after notification in order to identify bottlenecks and required actions. At a later time, countries may conduct an Intra- or After Action Review (IAR/AAR) to identify bottlenecks and remedial actions to improve systems involved in later stages of the response. WHO's country implementation guidance for AARs includes the timeliness metrics on which 7-1-7 is based and a minimum reporting template.

7. Why do you apply the 7-1-7 target to all diseases rather than having disease-specific targets?

The aim in establishing a single target was to simplify and standardize assessment of the systems involved in public health event detection, notification, and early response. The 7-1-7 approach was developed based on a review of available timeliness metrics and was designed to be ambitious but achievable. The ultimate purpose of implementing the 7-1-7 approach is to improve performance by identifying bottlenecks that delay appropriate action and competing remedial actions to resolve them. The approach can be applied to any public health event.

At the same time, there are differences between diseases. Rapid detection and response actions are more easily accomplished for some pathogens than others. Stratification of data by disease type is one way to further elucidate a country's performance and help prioritize resource allocations. Because of differences between diseases, caution is warranted when using the 7-1-7 metrics to compare capabilities between jurisdictions based on data from a small number of events. The landscape of public health events experienced in a jurisdiction may make it easier, or more difficult, to achieve the target.

8. How can 7-1-7 data be used during an After Action Review (AARs)?

WHO's country implementation guidance for AARs includes the timeliness metrics on which the 7-1-7 target was based. Countries implementing the 7-1-7 approach will have obtained improved documentation of the events leading up to a larger scale response. AARs often include event timelines and identification of challenges that different pillars faced. Use of existing 7-1-7 documentation can help surface early barriers to detection and response in events that then resulted in a larger scale emergency requiring an AAR. The performance metrics for 7-1-7 allow for specific types of bottlenecks and actions to be prioritized for discussion and subsequent integration into follow-up planning. WHO is currently developing guidance on the application of a 'bottlenecks and root causes' approach to AAR planning as facilitated by the 7-1-7 framework.

9. How is the 7-1-7 approach different from an After Action Review (AAR)?

The 7-1-7 approach has similarities with an AAR to the extent that both attempt to review performance, identify areas for improvement, and inform planning. The 7-1-7 approach focuses on detection, notification, and early response actions undertaken within the first 7 days after notification. 7-1-7 can be used for immediate and real-time evaluation of both small and large events, while AARs are typically only conducted for large events. 7-1-7 and AARs are complimentary and may both be performed on the same event. Most importantly, recommendations from both types of performance reviews should be included in national planning to prioritize and accelerate implementation of remedial actions.

10. How can the 7-1-7 approach be used across different level of public health governance?

Each country must decide on the roles that different levels of the public health system will have in implementing the 7-1-7 approach. When determining roles and responsibilities, considerations should include which levels of the public health system are expected to be immediately notified of a new public health event, which levels of government are typically responsible for the seven early response actions including the initial investigation, which levels of government possess the financial resources to resolve bottlenecks during an ongoing response, and which levels of government are involved in developing National Action Plans for Health Security or other operational plans that identify what is needed to improve the systems involved in detection, notification, and response.

In most settings where the 7-1-7 approach has been implemented, responsibility for the initial investigation and response lies at local level (e.g., municipal, district). It has therefore been deemed important to train rapid response teams at this level to use the approach. Higher levels of government have typically provided technical and financial support to the local level. Convening higher level stakeholders shortly after notification, in order to review progress towards completing the seven early response actions, can be instrumental in accessing the resources needed to address bottlenecks and improve the ongoing response. In addition, higher levels of government can use the 7-1-7 approach to monitor the performance of local public health jurisdictions and identify those requiring additional support, as well as identifying bottlenecks common to multiple jurisdictions that require prioritized action.

Date of public health event emergence

11. For endemic diseases, how do you determine the date of public health event emergence?

Imagine a scenario in which a malaria outbreak is detected as a result of indicator-based surveillance on 02 May 2022, the regional health authority is notified on 03 May 2022 and, as per national protocol, a regional rapid response team (RRT) is then deployed to the district to conduct an initial investigation on 04 May 2022.

In the country in question, malaria cases are reported on a weekly basis (by epi week). The alert threshold that triggers an investigation is considered to have been exceeded if 50 or more suspected cases occur in a district during an epi week. A RRT conducts an investigation, and on reviewing health facility records, identifies 292 cases in the district over the prior four weeks, including many not previously reported through the indicator-based surveillance system.

Epi Week	Diagnosed Malaria Cases
14: 3-9 April 2022	25
15: 10-16 April 2022	37
16: 17-23 April 2022	78
17: 24-30 April 2022	152

Given that the alert threshold of 50 suspected cases per week was exceeded for Epi Week 16: 17-23 April 2022, 23 April 2022 should be treated as the date of public health threat emergence. This would be the first date when the number of malaria cases meet the criteria for a reportable event, based on country reporting standards.

Date of detection

12. What is the role of laboratory confirmation in detection?

The date of detection is the date the public health event is first recorded by any source or in any system. Each jurisdiction implementing 7-1-7 will have their own criteria to define specific reportable public health events. For some jurisdictions, suspected cases of diseases will be reportable events, and detection will usually occur before laboratory confirmation when a clinician identifies and records a suspected case in a clinical record or laboratory requisition form. For some jurisdictions, confirmed rather than suspected cases of disease will be reportable events, and detection will usually occur on the date a laboratory test is performed and positive result recorded.

13. What is the date of detection for media-scanning event-based surveillance (EBS)?

In a scenario where a media-scanning EBS system (e.g., EIOS) logs an article on 04 January 2023 and, on 06 January 2023, an EBS analyst identifies the article as a signal and records it in their logbook, the date of detection would be 06 January 2023, which is the date that the event was first recorded by any source or in any system.

14. What is the date of detection for indicator-based surveillance for endemic diseases?

The date of detection is the date the event is first recorded by any source or in any system. In a scenario where an indicator-based surveillance system (e.g., DHIS2) contains data indicating that a district exceeded an alert threshold on 04 February 2023, but a surveillance analyst does not notice that a threshold was exceeded until 06 February 2023, the date of detection would be 04 February 2023, the date when it was recorded in the surveillance system that the threshold had been exceeded. Delays caused by the surveillance analyst failing to review the data daily and identify that the threshold had been surpassed would be a bottleneck for notification rather than detection.

15. What if a clinician identifies a suspected case of one reportable disease, but it turns out the client has a different reportable disease?

The date the clinician identified a suspected case that meets the definition for reporting would be the date of detection. It does not matter if the true etiology ends up being different from that initially suspected. This includes any type of disease cluster that meets guidelines for reporting, including those of unknown etiology.

Date of notification

16. What should be done if a country's SOPs indicate that an event detected at local level should be reported immediately to multiple levels of government (e.g., district, regional, and national levels)?

The 7-1-7 implementation toolkit indicates that the date of notification is when the event is first reported to a public health authority responsible for action. Each jurisdiction's reporting guidelines should determine which governmental levels should be immediately notified of an event. If country SOPs indicate that district, regional, and national levels should be immediately notified and take appropriate actions, the date of notification would be the date when the first of these three levels is notified.

For jurisdictions whose guidelines require immediate simultaneous notification to multiple levels of government, reviewing if notification to all levels meets the 1-day target may be useful for identifying additional bottlenecks and remedial actions. However, when calculating 7-1-7 performance, the earliest date on which a level of government responsible for action was notified should be used.

17. How is the date of notification determined for media-scanning event-based surveillance (EBS)?

The date of notification is the date the event is first reported to a public health authority responsible for action. In a scenario where an event-based surveillance (EBS) analyst at national level detects a signal, if the national level of the public health system is responsible for early response action, such as deploying a rapid response team, the date of notification would be the date when the EBS analyst notifies the Response Department or responsible unit at national level. If the municipal rather than the national level of the public health system is responsible for early response action, the date of notification would be when the EBS analyst notifies the appropriate municipality of the event.

18. Does notification refer to suspected or confirmed cases?

Notification refers to any event that a country or other jurisdiction determines to be notifiable. Existing guidelines should describe what events are notifiable, based on, for example, suspected cases, confirmed cases, or events beyond human health such as clusters of animal deaths. Clear guidance defining notifiable events are critical for 7-1-7 implementation. The 7-1-7 approach can also be used to identify when guidelines are not sufficiently specific and would benefit from improved reporting definitions.

Date of effective response

19. What should you do if the dates of some of the effective response actions are unknown?

Whenever possible, estimates of when actions occurred should be based on available data. If no estimates are available, the early response should be considered to have been completed on the last known date when an early response action was completed. However, in documents and presentations of the event, it will be important to document the fact that a date(s) could not be determined, in order to promote discussion on how data collection can be improved.

20. What do you do if all but one of the effective response action items were completed quickly, say within 7 days, but one effective response action item was completed much later, say on day 30?

The key determinant is deciding if the action done on day 30 should have been undertaken as part of the early response. At times, an effective response action may not be appropriate for the initial response, but may become appropriate at a later time after the event has changed or the outbreak has spread. It is up to stakeholders to determine, based on their professional judgment, if an action should have been done as part of the early response or if that action was not initially applicable. So, if the action completed on day 30 should have been done as part of the early response, then a score of 30 days would be appropriate. If the action completed on day 30 would not have been appropriate as part of the early response, but became necessary later, then a score of 7 days would be appropriate.