OPERATIONAL SUPPORT

Guide for designing and conducting in-action and after-action reviews

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In-action reviews (IARs) and after-action reviews (AARs) – referred to collectively in this guide as 'action reviews' – provide a structured way to capture and act on the lessons learned during an ongoing or past public health emergency response. Conducting action reviews is essential to ensure that emergency preparedness and response systems continually improve.

This guide provides organisations and institutions involved in public health emergency response with flexible, practical and easy-to-implement instructions for designing and conducting action reviews across various contexts.

How to use this guide

This guide is organised into two parts.

Part I provides an overview of the entire action review process. It is organised chronologically and divided into three sections that correspond with each stage of an action review:

- Preparation
- Action review
- Follow-up

Part II presents ECDC's methodology for conducting action review workshops, which is intended to be used during the 'Action review' stage described in Part I.

Editable templates for the various tools recommended in both parts of the guide can be found in the Supplementary materials.

A PowerPoint template for the Opening session of an action review workshop is also available.

Introduction

While every public health emergency response is novel in some way, they all offer practical insights into what worked, what did not work and how preparedness and response can be strengthened for future events. In-action reviews (IARs) and after-action reviews (AARs) – referred to collectively in this guide as 'action reviews' – provide a structured way to capture and act on the lessons learned during and after a public health emergency.

This guide presents a three-stage approach for conducting an action review. At the core of this approach is an action review workshop that brings together relevant stakeholders to map the events and actions of an ongoing or past public health emergency to identify instances of good practice, pain points and potential solutions. The findings and proposed corrective actions are collated into a final report. This report is used to develop an action plan that should be implemented to improve response activities.

Action reviews support preparedness and response planning by bringing together all the stakeholders involved in a public health emergency response to review their experiences and collaboratively generate concrete, actionable steps (e.g. changes to processes, measures or activities) that can be taken to improve response activities. Common areas that can be improved through an action review include:

- Timeliness and effectiveness of response activities
- Coordination and communication during public health emergencies
- Gaps or challenges observed in existing systems.

Preparedness and response plans should include requirements to conduct action reviews to systematically identify areas for improvement in preparedness and response activities. They should also include clear criteria for when action reviews need to be conducted and how this will be done (e.g. who will conduct them, what resources will be made available, etc.). Requirements regarding the methodology that should be used and how the action review should be documented (both its preparations and results) can be included in the plan to strengthen findings and harmonise the overall activity. Ensuring this level of detail is embedded into preparedness and response plans supports the development of multisectoral, institutional memory for the lessons learned through action reviews and minimises the likelihood of repeating similar mistakes in future responses.

In-action reviews are conducted during a public health emergency and after-action reviews are conducted after a public health emergency has ended. Both types of action reviews can use the approach described in this guide, including the methodology for conducting action review workshops. A comparison between in-action reviews and after-action reviews is presented in Table 1.

Table 1. **Comparison of in-action reviews and after-action reviews**

	In-action review	After-action review
Purpose	To identify **immediate** actions that can be taken to address pressing issues, to improve the **current** response	To review actions undertaken during a **previous** response and identify areas for improvement in **future** responses
Common questions	• What is happening? • Why is it happening? • What are the emerging issues? • What can be learned? • What should change?	• What happened? • Why did it happen? • What can be learned? • What should change? • Have changes been implemented?
Scope	Focuses on one or two specific response areas or only one phase of an event, as stakeholders are likely to face time constraints during an ongoing emergency.	Addresses all aspects of the response or focuses on specific areas.
Implementation	Conducted **during** an ongoing emergency response.	Conducted **three to six months after** the emergency response – whenever possible – but can still be effective if it must be conducted later.

Background

ECDC has been designing and facilitating action reviews for several years, in alignment with the European Union (EU) prevention, preparedness and response plan for health crises [1], which emphasises conducting action reviews to learn from every crisis. The importance of identifying lessons learned and embedding them into plans to improve practice is also reflected in the EU Regulation on Serious Cross-Border Threats to Health [2]. Under Article 8 of this Regulation, ECDC conducts Public Health Emergency Preparedness Assessments (PHEPA) to assess and support European Union/European Economic Area (EU/EEA) countries' readiness for health emergencies. One of the assessed capacities (Capacity 15. Recovery elements) focuses specifically on recovery planning and encourages countries to conduct action reviews to capture lessons learned and systematically implement improvements [3]. This guide – which represents the culmination of ECDC's experience in this area – can support countries to act on this recommendation.

Methods

This guide was developed based on a review of existing ECDC guidance documents [4–7].

The methodology presented in Part II was revised continually based on past experiences conducting action review workshops and feedback from participants and initiating organisations or institutions [8–14].

World Health Organization (WHO) guidance documents on action reviews were also consulted during the production of this guide [15–16].

Part I:
Overview of the action review process

Preparation
Action review
Follow-up

Preparation

Main actions to take

» **Action 1:** Appoint a lead
» **Action 2:** Define the scope and objectives
» **Action 3:** Set up a team to conduct the action review
» **Action 4:** Identify stakeholders
» **Action 5:** Tailor the action review workshop agenda to any specific needs
» **Action 6:** Estimate and allocate the budget
» **Action 7:** Conduct background research and document review, and gather materials
» **Action 8:** Ensure all team members are prepared for the action review workshop

Time required: The planning for an action review should begin at least one month in advance, depending on how comprehensive the review will be (e.g. number of response areas, length of the period under review) and how many external stakeholders will be involved. The more notice participants have the more likely they will be able to participate. In-action reviews might need to be planned in even less time due to urgency, although planning during an ongoing emergency response can be challenging.

Action 1: Appoint a lead

The initiating organisation or institution appoints someone from their staff to lead the overall activity. This person acts as the internal focal point and ensures ownership and follow-up. The overall lead's main responsibilities are to:

- Define the scope and objectives of the action review
- Identify the action review team and assign roles and responsibilities
- Oversee the logistics of the action review
- Identify relevant stakeholders to participate in the action review workshop
- Liaise with senior management and stakeholders (including from other relevant sectors)
- Share the final report with relevant stakeholders
- Facilitate the development of the subsequent action plan.

The action review team supports these activities, as needed.

Action 2: Define the scope and objectives

The appointed lead defines the scope and objectives of the action review.

The **scope** is important, as it determines the scale of the action review. In particular, the following elements should be defined:

- What time period will be reviewed?
- What phases of the event will be included (if a multi-phase event)?
- What response area(s) will be the focus?

Defining the time period the action review will address in advance ensures that the relevant stakeholders are invited to the action review workshop (i.e. those involved at the start of an event may be different from those involved later). If multiple response areas will be included, the workshop may need to take place over two or more days to allow additional time for discussions with a wider range of stakeholders.

The **objectives** of an action review should reflect the specific public health emergency and its context. Some possible examples include:

- To identify pain points (challenges) and good practice in the response
- To assess communication between stakeholders, especially for events that affected multiple sectors
- To assess existing systems
- To identify actionable recommendations to improve preparedness and response plans.

Senior management at the initiating organisation or institution should approve the scope and objectives. Follow-up steps should also be agreed on to ensure accountability; in particular, that the findings and subsequent action plan are discussed and implemented. The lead should schedule a debriefing with senior management that takes place after the action review workshop to ensure this discussion takes place.

Action 2

Tips

When defining the **scope,** a Response Area Matrix can be used to facilitate selecting the response area(s) fo focus on. An editable template can be found in the Supplementary materials.

Action 2

Examples

Slovenian national health authorities conducted an after-action review in 2023 [14]. The **scope** was the COVID-19 response from October 2020 to March 2021. The three response areas under review were:

- Vaccine deployment
- Risk communication and community engagement
- Public health and social measures in community settings.

The **objectives** were to:

- Share experiences
- Identify issues, challenges and instances of good practice from the COVID-19 pandemic response
- Propose short-, medium-, and long-term actions to improve coordination and communication, address preparedness gaps, and strengthen overall response capacity.

In 2021, Ireland conducted an **in-action review** focused on COVID-19 response [17–18] and narrowed the scope via a pre-survey distributed to key stakeholders.

Action 3: Set up a team to conduct the action review

The appointed lead sets up a team to conduct the action review (Table 2). The size of the team depends on the action review's scope and the workshop's format (i.e. face to face or virtual).

In general, an action review team should include:

- The appointed lead for the overall action review
- A lead facilitator
- Additional facilitators
- A note-taker
- A report writer.

The composition of an action review team is flexible. Responsibilities might overlap, some roles may not be required or one person may be able to fill several roles. Regardless of the team composition used, it is important to clearly define the roles and responsibilities at the outset. An overview of the key roles and responsibilities on an action review team is presented in Table 2.

The **lead facilitator** supports the overall lead where needed but is primarily responsible for guiding and coordinating the additional facilitators, briefing additional facilitators so they understand their roles (they can also develop a facilitator guide to support this), leading group discussions at the action review workshop, developing trigger questions to help guide discussions and coordinating the writing of the final report.

Table 2. Overview of the key roles and responsibilities on an action review team

Role	Main responsibilities
Lead	• Define action review's scope and objectives • Set up team and assign roles and responsibilities • Oversee logistics • Identify relevant stakeholders • Liaise with senior management and stakeholders • Share final report with relevant stakeholders • Facilitate development of action plan
Lead facilitator	• Support the overall lead • Lead facilitation of the action review workshop • Coordinate writing of final report • Provide an external perspective
Additional facilitator(s)	• Facilitate workshop sessions and/or moderate breakout groups • Provide an external perspective
Note-taker(s)	• Take notes during the workshop (both full group and breakout group discussions) • Document the results of the workshop exercises (e.g. take photographs, transcribe or recreate digitally) • Collect feedback forms, if used
Report writer	• Collate the findings gathered by the note-takers into a final report • Liaise with other team members and/or stakeholders to validate and finalise the report

Action 3

Tips

If the action review workshop will take place online, the team needs to have experience facilitating online meetings and be familiar with the necessary digital tools (e.g. collaborative whiteboarding software).

Additional facilitators offer support moderating and guiding the workshop, and moderate any breakout group discussions. The number of additional facilitators required will depend on the scope of the action review and the number of participants. When deciding how many facilitators are needed, a potential starting point would be at least one facilitator per 10 participants. If breakout groups will be used, plan for at least one facilitator per group.

A key responsibility of facilitators is to encourage open, non-judgemental, constructive reflection to generate insights into the response. They should steer discussions and keep them focussed on the aspects that participants can influence. Facilitators should have knowledge of the relevant response area(s) so they can support discussions but should not have been involved in the response under review so they can remain impartial. Staff from international public health organisations (e.g. ECDC and WHO) can support countries preparing action reviews and can also serve as facilitators.

The **note-taker** should ensure that all discussions, comments and feedback from the workshop are collected and provided to the report writer so they are reflected in the final report. It is important that each phase of the workshop is well documented. In addition to transcribing the discussions, note-takers should document the results of the exercises (e.g. by taking photos or recreating them digitally). Multiple note-takers will be needed if the action review workshop will use breakout groups for discussions; this may be necessary, for example, for action reviews that cover several response areas or have many stakeholders.

The **report writer** collates the information from the note-taker into a final report that outlines the findings from the action review workshop, as well as feedback from participants and the action review team. They liaise with the necessary team members and/or stakeholders to validate the report, implement any necessary revisions, and take responsibility for the coherence of the final version. For action reviews with a smaller scope, the note-taker can also be the report writer.

It is important to discuss any potential language barriers during the preparation of the action review. **Interpreters** or **bilingual note-takers** should be added to the team if required. This may be necessary, for example, if the action review workshop is conducted by facilitators from outside the host country (e.g. ECDC staff), as participants may feel most comfortable communicating in their country's most widely spoken language.

Additional information on creating a terms of reference for the team conducting an action review can be found in the World Health Organization (WHO) guidance for conducting after-action reviews [16].

Action 4: Identify stakeholders

The overall lead identifies the relevant stakeholders to participate in the action review workshop. In this context, 'stakeholders' are defined as those who were active during the public health emergency response under review.

A Stakeholder Mapping Matrix can be a useful tool to identify the relevant stakeholders to invite to the workshop (see Supplementary materials). Using a matrix to document the stakeholder selection process also improves the methodological validity of the action review.

Action 4

Tips

The range of **stakeholders** invited to participate in the workshop – for example, technical vs managerial roles and at appropriate administrative levels (local to national) – should reflect the scope and objectives of the action review.

Action 4

Examples

A **stakeholder mapping tool** [19] was used to identify participants during an in-action review of Ireland's COVID-19 response in 2021 [17–18].

Action 5

Examples

At the request of the Slovenian National Institute of Public Health (NIJZ), ECDC designed and facilitated an after-action review workshop using the ECDC methodology. The workshop was conducted from 19–21 September 2023 and focused on the country's COVID-19 response [14].

The workshop was conducted over two and a half days, in-person. The organising team prepared a preliminary timeline in advance to save time. Participants revised the timeline during the Revisit portion of the workshop until consensus was reached. For the Reflect and Revise portions of the workshop, the three response areas were explored in breakout groups, each with a facilitator and dedicated subject matter expert.

Action 5: Tailor the action review workshop agenda to any specific needs

The lead facilitator designs the action review workshop agenda, tailoring it to any specific needs. Step-by-step instructions for how to conduct the action review workshop are provide in the methodology for conducting action review workshops in Part II of this guide.

In general, an action workshop can range from a half-day meeting to a more comprehensive four- or five-day agenda comprised of plenary and breakout group sessions. For an action review covering only one response area, two days is usually sufficient. Regardless of the length of the workshop, the agenda should have separate blocks dedicated to each of the three phases in the methodology (Revisit, Reflect, Revise) and include an opening and a closing session (see Part II).

If more than one response area will be addressed during the workshop, it can be useful to use breakout groups to conduct the exercises for each of the response areas covered. Similarly, if there are many participants, it can be difficult to have meaningful group discussions in plenary; in these instances, breakout groups can be considered, with each group feeding back to the broader group to reach consensus. An illustrative agenda for an action review workshop – based on the methodology presented in Part II of this guide – is provided as an editable template in the Supplementary materials.

Action review workshops are most effective when they are conducted in person. If it is not possible to conduct the workshop in person, consider conducting it virtually. If key stakeholders cannot attend the workshop, they can be interviewed instead. The team should identify who will take responsibility for arranging and conducting any necessary interviews, ensuring that informed consent is correctly sought, and documenting the information collected.

For in-person workshops, the overall lead should ensure that an appropriate venue is booked (i.e. that it can accommodate the size and structure of the workshop, such as both plenary and breakout group sessions).

Action 6: Estimate and allocate the budget

Once the lead has determined the scope, duration, number of participants and venue for the action review workshop, and addressed language considerations, they estimate the budget required to host the workshop. Approval from senior management should be confirmed, following the processes in place at the organising institution. Typically, costs will include travel for facilitator(s) and participants, catering, office supplies and venue rental.

Action 7

Tips

Putting in place procedures for routinely collecting background information during public health events can make organisations or institutions better prepared to conduct action reviews.

Action 7: Conduct background research and document review, and gather materials

The overall lead ensures that roles and responsibilities are assigned regarding how background research and document review will be conducted. This step includes gathering any materials relevant to the response area and event that will be under review.

Relevant background information can include any available hot wash reports from the response event, national pandemic preparedness plans, past evaluation or action review reports, a trajectory of the outbreak and timeline of response activities, risk and situational assessments or relevant media reporting. These background materials are not intended for use during the action review workshop or to be referenced in the final report, but should provide the team with context ahead of the workshop.

The key response milestones and gaps identified during this process can be arranged to form a provisional timeline of events. The lead facilitator can also refer to the gathered information to prepare facilitation tools such as trigger questions that can be used to initiate or guide discussions during the workshop [6,16].

The amount of time needed for this step will depend on the scope and complexity of the action review; the overall lead should ensure that this step is done thoroughly enough, so that the team is well prepared for all stages of the action review workshop.

Action 8

Tips

It is important to agree on a dissemination plan during the Preparation phase so that everyone involved has the same expectations. The action review's final report should be shared as widely as possible. As a minimum, it should be shared with participants, but organisers can also consider sharing it within stakeholders' networks or via publication on the initiating organisation or institution's website.

Action 8: Ensure all team members are prepared for the action review workshop

Before the action review workshop, the overall lead and the lead facilitator provide all relevant materials to the team and conduct any necessary training (e.g. of facilitators, note-takers, etc.).

A dissemination plan for the final report should also be agreed on (with senior managers as well, if necessary), and all participants should be informed of this plan ahead of the workshop.

A preparatory briefing meeting should be held a few days before the workshop to ensure everyone is aware of their roles and responsibilities, and that the scope, objectives, agenda and trigger questions are clear.

Action review

Main actions to take

- **Action 9:** Conduct the action review workshop
- **Action 10:** Debrief the action review workshop with the team
- **Action 11:** Collate the findings into a final report
- **Action 12:** Share the final report

Action 9

Tips

If key stakeholders are not available for the workshop, it is also possible to collect their insights via interviews. These can be conducted by team members with the appropriate subject matter expertise and transcripts of the interviews (obtained digitally or by note-takers – depending on available resources and the preferences of the team and interviewee) can be provided to the report writer with the other documentation. Note that all interviewees must provide informed consent.

Action 12

Tips

A senior management briefing is important, as endorsement from the institution or organisation's decision-makers strengthens the likelihood that follow-up actions will be implemented. Increased awareness of efforts to capture lessons learned can also raise the profile of institutional learning, foster a culture of continuous improvement and support systematic critical reflection through regular action reviews.

Action 9: Conduct the action review workshop

The team conducts the action review workshop, using an established methodology. This guide was designed to be used with ECDC's methodology for conducting action review workshops, presented in Part II of this guide. Editable templates for all the required materials are also provided in the Supplementary materials.

Action 10: Debrief the action review workshop with the team

The overall lead or the lead facilitator guides the team in debriefing the action review workshop within one week after it closes. The debrief is an opportunity for the team to reflect on the methodology used and provide feedback for improvement. These discussions should also be documented by a note-taker. This step supports continued improvement for future action review workshops. This debrief can also occur at the end of the action review once participants have left, if there is time to do so.

At this meeting, the timeline for producing the final report should be confirmed (e.g. deadline for the first draft, deadline for validation by the overall lead and possibly others, deadline for the final version), and any particular roles or responsibilities during this process should be clarified.

Action 11: Collate the findings into a final report

The report writer gathers all the notes and any other forms of documentation taken by the note-taker(s) throughout the action review workshop, including the feedback from participants and the team. If any other methods were used for data collection, such as interviews, documentation from these should also be included. These can be saved as one file or folder of source materials.

The report writer must translate the documentation into clear, concise findings and collate these into a draft final report. The action review team can support this process to ensure that all discussions have been correctly captured, but the report writer should be empowered to lead the process and ensure that the final version is coherent. The final version of the report must be validated by the lead facilitator and approved by the overall lead.

Action 12: Share the final report

The overall lead presents the final report to senior management of the initiating organisation or institution at a debriefing session, which should have been scheduled during the action review's planning stage (see Action 2).

Once senior management has approved the final report, it should be shared as widely as possible. As a minimum, the report should be shared with participants, but a dissemination plan might also include sharing it with stakeholders' networks or publishing it on the organisation or institution's website. As described previously, a dissemination plan should have been agreed on during the Preparation stage and all participants should have been informed before the workshop. The overall lead is responsible for ensuring that the agreed dissemination plan is carried out.

Examples of action review documentation are readily available (e.g. from the Slovenian and Irish action reviews referred to in the Examples [14,17,18]).

Follow-up

Main actions to take

- **Action 13:** Coordinate the development of an action plan
- **Action 14:** Monitor and evaluate the action plan's progress

Action 13: Coordinate the development of an action plan

The overall lead coordinates the development of an action plan in collaboration with stakeholders to ensure that the priority actions identified in the Corrective Actions Table are implemented. The actions should also be integrated into institutional action plans or processes, such as a national action plan for health security [20–21].

For multisectoral action reviews, the overall lead should meet with the relevant stakeholders who participated in the action review to agree on ownership of each of the individual actions that will be included in the action plan. Assigning timelines and budgets to support an action's implementation is the responsibility of the designated stakeholder.

Action 14

Tips

If capacity permits, the overall lead can see if the stakeholders responsible for individual actions are interested in any support with monitoring and follow-up. This could be as simple as setting up a way for the relevant stakeholders to stay in communication about the action plan's progress.

Action 14: Monitor and evaluate the action plan's progress

The action plan's progress should be monitored and evaluated on a regular basis. Assigning roles and deciding how this will be done should be agreed on between the initiating organisation or institution and the stakeholders who have accepted responsibility for elements of the action plan.

Agreeing on a mechanism to monitor and evaluate the action plan can strengthen stakeholders' commitment to the project and increase the likelihood of follow-up and implementation.

Part II:
Methodology for conducting action review workshops

Phase 1: Revisit
Phase 2: Reflect
Phase 3: Revise

This methodology can be used to conduct an action review workshop as part of an in-action review (IAR) or after-action review (AAR). It has been tested in several countries and is intended to be easy to use, flexible and scalable. Users can easily adapt the methodology to their specific context to ensure that stakeholders can engage meaningfully and build a shared understanding of what happened during a public health emergency response and why, as well as a common view on the way forward. Using this established methodology can support the validity of a workshop's findings.

An action review workshop is conducted in the context of an action review. Please refer to Part I for guidance on the steps to take before and after an action review workshop. Preparatory actions (e.g. defining the scope and objectives, setting up a team and designing the agenda) are necessary to conduct the workshop. Subsequent actions (e.g. developing and following-up on an action plan) are also necessary to ensure that the recommendations generated at the workshop are implemented.

This methodology structures the action review workshop into three distinct phases that each contain two steps (Figure 1):

- Phase 1: Revisit – The first step is mapping the timeline of events, the second step is identifying the actions taken in response to these events or another action
- Phase 2: Reflect – The first step is identifying the pain points and instances of good practice, the second step is identifying which pain points are the highest priorities
- Phase 3: Revise – The first step is analysing prioritised pain points using the Impact x Feasibility Matrix, the second step is filling in the Corrective Actions Table (see Supplementary materials).

Figure 1. Overview of the three phases of the ECDC methodology for conducting action review workshops

Opening session

Tips

An editable Opening session PowerPoint presentation that explains the workshop process described in this methodology is available to download and use as a template.

Begin the action review workshop with an opening session. During this session, the lead facilitator (or another designated team member):

- Welcomes the participants
- Introduces the team
- Explains the process that will be undertaken during the workshop and what is expected of participants
- Presents the agenda
- Provides the scope and objectives of the workshop
- Describes the expected outputs (i.e. Corrective Actions Table and final report)
- Describes the dissemination plan for the final report
- Invites participants to introduce themselves, their organisation or institution and department, and their role in the public health emergency response under review.

Phase 1: Revisit

What happened and what actions were taken in response?

An illustrative example of 'Phase 1: Revisit' is provided in Figure 2.

Materials needed

- Two colours of sticky note pads (e.g. one yellow and one blue), enough for all participants
- Pen for each participant
- Access to a wall, whiteboard or table

Time required: The time needed for this phase should be determined by the scope of the action review (e.g. more time will be needed if there is a long time span to consider, if there are multiple response areas or if there are many stakeholders). Ensure that there is enough time for participants to freely express their opinions and gradually come to consensus. In general, a minimum of **90 minutes** is likely required.

Tips

If time is limited, the action review team can prepare a preliminary timeline in advance (i.e. as part of the background research conducted before the workshop) so that the exercise can focus on coming to consensus on a correct timeline and adding anything that is missing.

Step 1: Reconstruct the timeline of events

During this exercise, participants freely discuss relevant events that happened during the selected period of the response under review and collaboratively recreate the timeline.

An **event** is defined as anything that happened during the period under review that contributed to or affected the public health emergency. An event is external, meaning that it is not an action taken by or within the control of those undertaking the response. For example:

- WHO declares a Public Health Emergency of International Concern
- The first case of 'disease A' is identified in the country
- Surge in cases of disease A.

Instructions

Facilitators give each participant a set of sticky notes so they can write down as many events as they can recall. All participants need to use the same colour of sticky notes (e.g. yellow) to indicate an event. One event is represented by one sticky note, and participants place these along a wall, whiteboard or table in chronological order. Other participants can propose changes to the timeline, removing and re-attaching the sticky notes, until the group reaches a consensus. This interactive approach allows participants to better understand each other's roles and responsibilities, as they will likely discuss what they were doing and why, as events are placed on the timeline.

During this exercise, facilitators should offer support by moderating the discussions and ensuring that all participants have an opportunity to speak and offer their insights. Facilitators should also ensure that participants are following the previously described definition of an event, as occasionally participants may confuse events with actions (defined in Step 2). Facilitators can remove any sticky notes with actions written on them from the timeline and set them aside for the next step.

Step 2: Map the actions taken in response to the events

For the second part of this exercise, participants identify and list the actions that were taken during the response under review. At this stage, there is no need to assess the effectiveness of these actions.

An **action** is defined as any activity that was initiated in response to an event on the timeline. For example:

- WHO declares a Public Health Emergency of International Concern (EVENT)
  - » **risk communication activities are initiated (ACTION)**.
- The first case of disease A is identified in the country (EVENT)
  - » **risk communication activities are conducted (ACTION) and**
  - » **contact tracing is initiated (ACTION).**
- Surge of cases of disease A (EVENT)
  - » **public health and social measures are introduced (ACTION) and**
  - » **surge capacity – such as temporarily rehiring retired staff members – is initiated (ACTION).**

An **action** may also be defined as any activity that was initiated in response to another action. For example:

- The first case of disease A is identified in the country (EVENT)
  - » **contract tracing is initiated (ACTION) and**
  - » **staff are re-allocated to conduct the contact tracing (ACTION in response to previous action).**

Instructions

Participants and facilitators take the same approach as in the last step but using a different colour of sticky notes (e.g. blue) to map the actions that were taken. These sticky notes should be placed in a second row below the event sticky notes. Multiple actions can be attributed to the same event.

Discussions should focus on generating a factual recollection of actions, rather than offering opinions on organisational, institutional or individual performance (which should never be the goal of an action review). Facilitators can support maintaining this focus by effectively moderating the exercise.

Note-takers must ensure that the results of Steps 1 and 2 are documented; for example, taking a photograph or using collaborative whiteboarding software to digitally recreate the visualisation of the events and actions.

Action reviews with multiple response areas require some additional considerations regarding the approach:

- For a smaller group of participants (e.g. 10 or fewer people), multiple response areas can be addressed in plenary or via breakout groups. It can be possible to separate into breakout groups without the need for separate rooms if the main room is large enough. If conducted in plenary, use a different colour sticky note for the actions related to each area so it is easier to distinguish which action relates to which response area.
- For a larger group of participants (e.g. more than 10 people), use breakout groups to conduct separate discussions for each response area.

If breakout groups are used, each group will need a copy of the timeline. How this will be done should be decided in advance (e.g. note-takers could quickly reconstruct the timeline using collaborative whiteboarding software during a break or could replicate the timeline using sticky notes).

Tips

When working with larger groups (e.g. more than 10 participants), consider using a Think-Group-Share approach:

- **Think** – Provide a few minutes for individual reflection and noting down important points.
- **Group** – Arrange participants into small groups (5–6 participants) to compare and consolidate insights.
- **Share** – Have each group report back in plenary through a designated reporter, then allow other group members or groups to contribute or suggest changes.

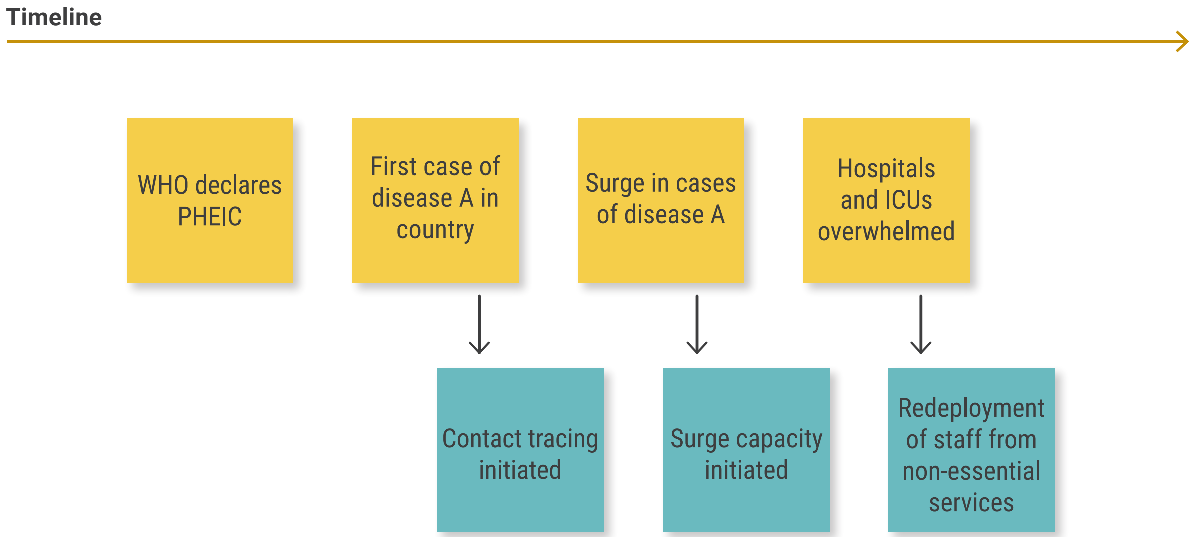
Figure 2. Illustrative example of the 'Revisit' phase of the action review workshop

Phase 1: Revisit

What happened* and *what actions were taken in response?
Aim: Reconstruct the timeline to achieve a shared understanding of key events and actions.

Step 1: Reconstruct the timeline of events.

Step 2: Map the actions taken in response to the events.



Event: **Action:**

ICUs: intensive care units; PHEIC: Public Health Emergency of International Concern; PHSM: public health and social measures; WHO: World Health Organization.

Phase 2: Reflect

What was challenging and what went well?

An illustrative example of 'Phase 2: Reflect' is provided in Figure 3.

Materials needed

- Two additional colours of sticky note pads (e.g. one pink and one green), enough for all participants
- Pen for each participant
- Dot stickers (enough for at least five per participant)
- The timeline of events and actions created in Phase 1

Time required: The time needed for this phase should be determined by the scope of the action review (e.g. more time will be needed if there is a long time span to consider, if there are multiple response areas or if there are many stakeholders). Ensure that there is enough time for participants to freely express their opinions and gradually come to consensus. In general, a minimum of **90 minutes** is likely required.

Step 3: Identify pain points and instances of good practice

Participants build on the timeline of events and actions created during the Revisit phase (Steps 1 and 2) by adding the pain points and instances of good practice that they observed.

Pain points are defined as challenges that participants experienced due to an event or in carrying out an action. For example:

- First case of disease A is identified in the country (EVENT)
  - Contact tracing is initiated (ACTION)
  - **Not enough trained staff are available to conduct contact tracing (PAIN POINT).**
- Surge of cases of disease A (EVENT)
  - Public health and social measures are introduced (ACTION)
  - **Poor compliance with public health and social measures (PAIN POINT)**
  - **Negative impact on mental health (PAIN POINT).**
- Surge of cases of disease A (EVENT)
  - Surge capacity, such as temporarily rehiring retired staff members, is initiated (ACTION)
  - **Training materials are insufficient (PAIN POINT).**

An instance of **good practice** is defined as an effective development or innovation enacted in response to a pain point. It could also be anything implemented that worked so well that no pain points occurred. For example:

- Lack of resources for contact tracing (PAIN POINT)
  - **System for contacts to self-report is put in place** (**GOOD PRACTICE**).
- Training materials are insufficient (PAIN POINT)
  - **New training materials are developed** (**GOOD PRACTICE**).
- Challenge communicating policies or rules to certain population groups (PAIN POINT)
  - **Involvement of community leaders and influencers in communication with those groups** (**GOOD PRACTICE**).

Instructions

Participants and facilitators take the same approach as in Phase 1 to identify pain points (using one new colour of sticky notes, e.g. pink) and instances of good practice (using another new colour of sticky notes, e.g. green), placing them in relation to the timeline of events and actions. Pain points can be placed in a third row below the actions and instances of good practice in a fourth row below that.

Participants should be encouraged to identify instances of good practice alongside every pain point. Ensuring that good practice is also documented in the workshop's findings helps to strengthen the eventual action plan by preserving aspects that are working well in addition to those learned from challenges.

Facilitators should support participants to examine the pain points more deeply and determine if these were truly the root cause of challenges or merely symptoms of other unidentified underlying issues.

Step 4: Prioritise the pain points

For the second part of this exercise, participants vote to select the most critical pain points so that these can be assessed further in the next phase of the workshop.

There is no set way to define **prioritised pain points**, as different types of stakeholders may have differing views. Facilitators may want to open this exercise with a warm-up discussion inviting participants to reflect on how they would define a high-priority pain point (e.g. highest impact on health outcomes, most costly, most resource intensive, etc.) but can ultimately allow participants to individually determine what they felt were the highest priorities.

Instructions

Facilitators distribute the same amount of dot stickers to each participant and explain the voting system. Participants use the dot stickers to vote on which pain points they felt were the highest priorities. They can choose to put all their votes on one pain point or to spread their votes across more than one.

The overall lead or lead facilitator can determine the number of dot stickers to provide each participant depending on the scope of the action review; in general, five stickers is likely sufficient for the average action review.

The pain points with the most votes are considered the ‘prioritised pain points’. The lead facilitator decides how many prioritised pain points to carry forward; this will depend on the scope and objectives of the action review, the time available and how many prioritised pain points were identified. Typically, up to five pain points can be selected for a 90-minute 'Reflect' session and participants can work through as many of these as they can within the time.

Note-takers must ensure that the results of Steps 3 and 4 are documented; for example, taking a photograph or using collaborative whiteboarding software to digitally recreate the visualisation of the events and actions.

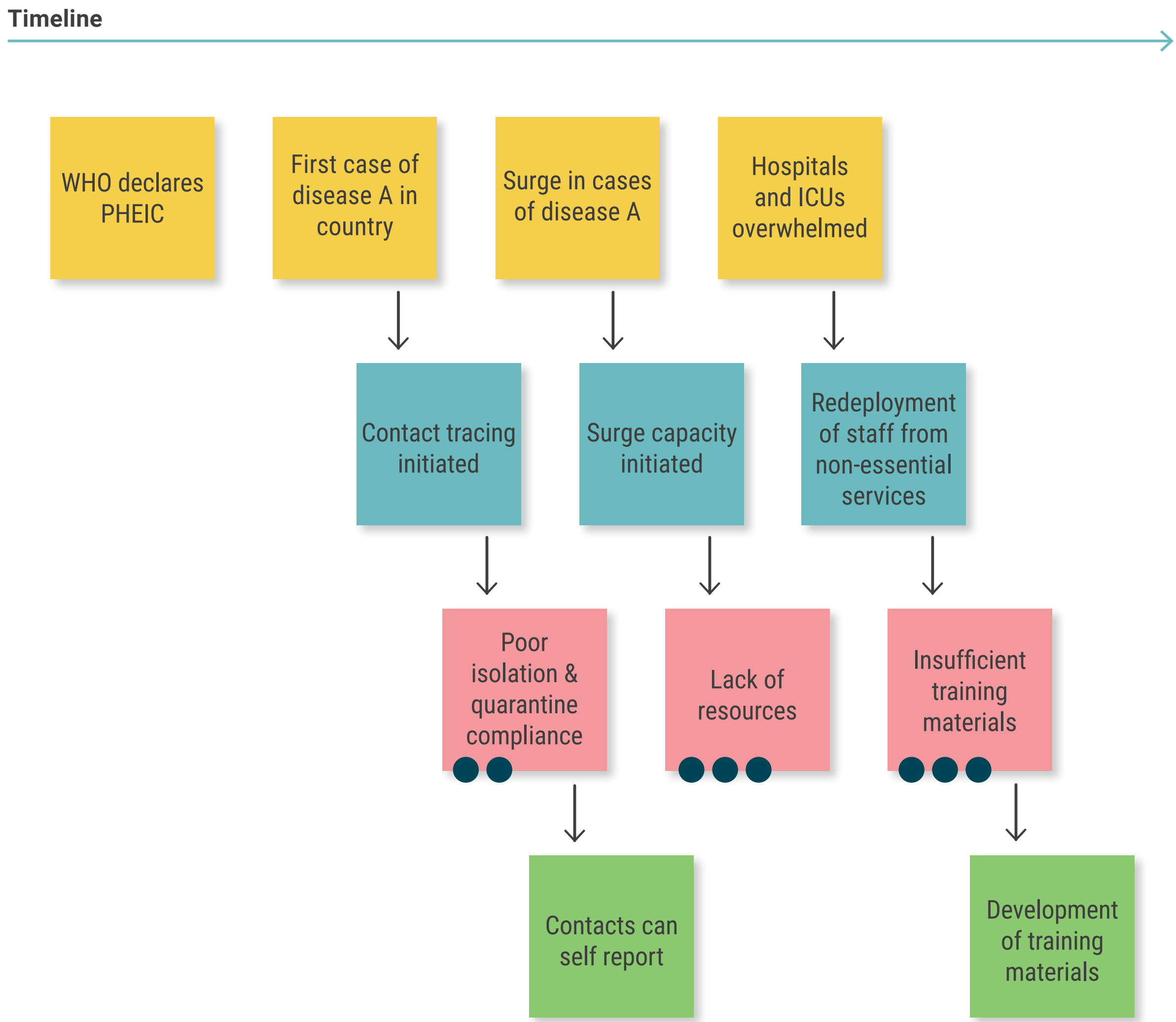
Figure 3. Illustrative example of the 'Reflect' phase of the action review workshop

Phase 2: Reflect

What was challenging* and *what went well?
Aim: Gather the lessons learned by identifying pain points and instances of good practice.

Step 3: Identify pain points and instances of good practice.

Step 4: Vote to select the most critical pain points.



Event: **Action:** **Pain point:** **Good practice:** **Vote:**

Epi: epidemiology; ICUs: intensive care units; PHEIC: Public Health Emergency of International Concern; PHSM: public health and social measures; WHO: World Health Organization.

Phase 3: Revise

What can be done to improve?

An illustrative example of ‘Phase 3: Revise’ is provided in Figure 4.

Materials needed

- The pain point sticky notes from Step 4
- One Impact x Feasibility Matrix (see Supplementary materials) per response area, which can be projected digitally or drawn on a whiteboard or large sheet of paper (so long as it is clearly visible to participants)
- One Corrective Actions Table (see Supplementary materials) per response area, which can be shared electronically or distributed as a print-out (as the completed tables will be collected and included in the final report, participants should ensure that their writing is legible)

Time required: The time needed for this phase should be determined by the number of response areas and pain points being assessed. Ensure that there is enough time for productive discussion. In general, a minimum of **90 minutes** is likely required.

Tips

While Quick wins and Long-term priorities could receive similar amounts of attention in an after-action review, in-action reviews will likely benefit from focusing more on Quick wins that support the ongoing response.

Step 5: Analyse prioritised pain points

In this exercise, the prioritised pain points from Step 4 are analysed using the Impact x Feasibility Matrix, which facilitates an assessment of the feasibility of addressing the issue on one axis and the potential impact of addressing it on the other.

The matrix requires participants to categorise the prioritised pain points as one of the following:

- **Long-term priorities:** High impact, low feasibility
- **Quick wins:** High impact, high feasibility
- **Deprioritise:** Low impact, low feasibility
- **Opportunities:** Low impact, high feasibility.

Instructions

Facilitators guide the participants in discussion to decide where on the Impact x Feasibility Matrix (see Supplementary materials) each of the prioritised pain points fits – and represent the choice by putting the sticky note from Step 4 into that quadrant. To determine which quadrant, participants must choose between ‘high’ or ‘low’ for both feasibility and impact. Facilitators may need to moderate to help the group reach consensus.

If multiple response areas are being addressed, a matrix should be created for each area, using the corresponding pain point sticky notes. Each group should be supported by a facilitator and a note-taker.

In addition to documenting the filled-in matrix, note-takers should be mindful to capture the reasons why each issue was placed in a particular quadrant, as these will support the discussions in Step 6 and should be described in the final report.

Step 6: Develop corrective actions

The final step in the workshop invites participants to take a forward-looking perspective focused on translating the insights from all the previous exercises into corrective actions. Practical actions and activities are proposed, resulting in short-, mid- and long-term recommendations. These will be included in the final report and will inform the subsequent action plan.

Appropriate recommendations should:

- Improve timeliness and effectiveness of response activities
- Improve coordination and communication during public health emergencies
- Address research gaps
- Include concrete, actionable steps
- Generate sustainable results
- Be feasible in the current context.

Instructions

Facilitators introduce the Corrective Actions Table (see Supplementary materials) and guide the participants in discussion to fill it in. For each pain point identified as a Quick win, Long-term priority or Opportunity in Step 5, the following should be filled into the table:

- What is the pain point?
- What is a proposed action or activity to address the pain point?
- What are the objectives of this proposed action?
- What can be done to ensure implementation or increase feasibility?

It is up to the preferences of the organisers or participants whether this is done collaboratively in plenary or using breakout groups. For example, breakout groups could address individual pain points or response areas, then report back in plenary so the broader group can reach consensus.

To maximise the potential effectiveness of the corrective actions, facilitators should encourage active participation from all participants. Ensuring that all points of view are considered and consensus is reached can lead to the most suitable and feasible solutions. Additionally, being involved in designing the solutions may make stakeholders more likely to support and advocate for their implementation. This is particularly important if stakeholders from multiple sectors are present, as the approach promotes cross-sectoral and functional understanding between sectors.

Figure 4. **Illustrative example of Step 5 of the 'Revise' phase of the action review workshop**

Phase 3: Revise

What can be done to improve?
Aim: Turn insights into action through concrete recommendations.

Step 5: Analyse prioritised pain points using the Impact x Feasibility Matrix.

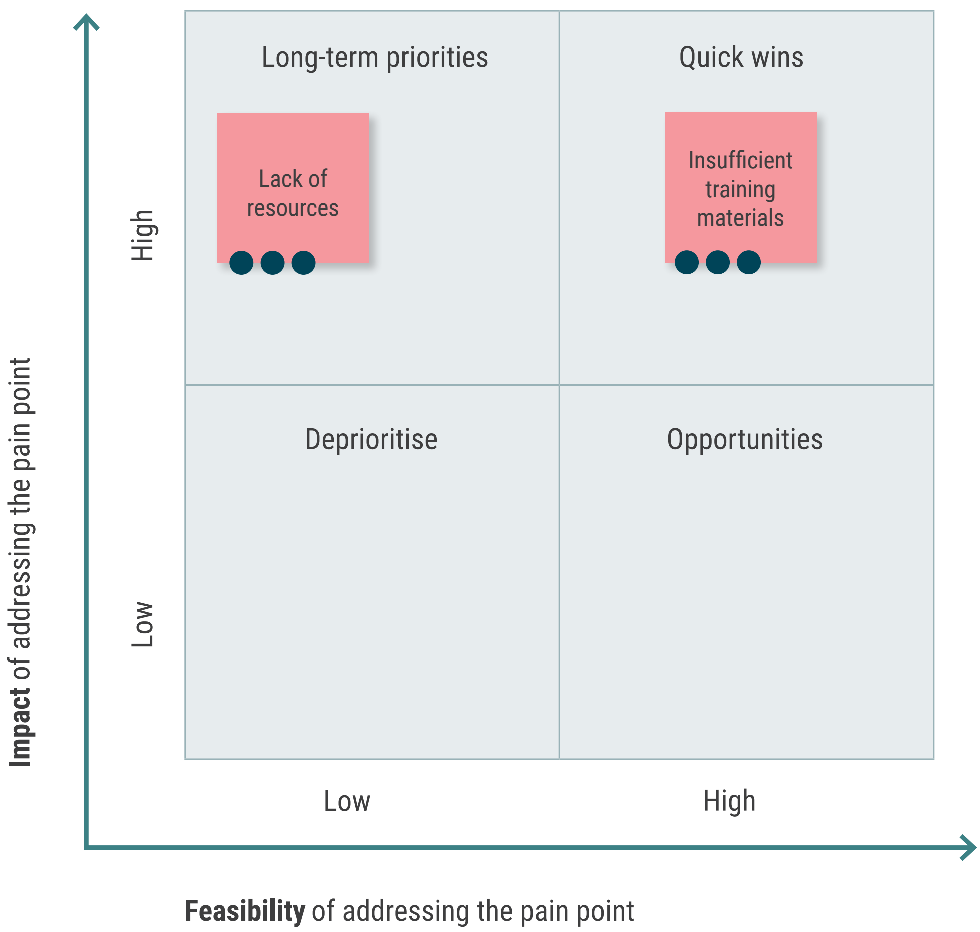


Figure 5. **Illustrative example of Step 6 of the 'Revise' phase of the action review workshop**

Phase 3: Revise

What can be done to improve?
Aim: Turn insights into action through concrete recommendations.

Step 6: Develop **corrective actions** for Quick wins, Long-term priorities and Opportunities.

	Time for implementation	Pain point (challenge)	Proposed action to address this issue	Objectives of the proposed action	How to assure implementation of this action, and/or increase feasibility?
Quick wins →	**For short-term implementation**	Insufficient training materials	Develop training materials	Ensure workforce is adequately trained and develop surge capacity in case of emergency	Include training as part of onboarding and professional development requirements
Opportunities →	**For mid-term implementation**				
Long-term priorities →	**For long-term implementation**	Lack of resources	Map resource requirements and where bottlenecks occur in emergencies	Establish a mechanism for internal mobility or resource transfers	Formalise the mechanism after approval from senior management

Closing session

The overall lead or the lead facilitator should conclude the workshop by summarising the main findings and reminding participants of the next steps in the action review process. They should also invite participants to evaluate the action review workshop methodology and make suggestions for how the process can be improved. Feedback can be collected orally via a group discussion, smaller breakout group discussions and/or via an Evaluation Form (see Supplementary materials). Note-takers are responsible for recording and collecting all feedback so it can be reflected in the final report.

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