The After Action Review

The After Action Review (AAR) is a post-shift team discussion that incorporates and integrates both technical information and human factors.

The AAR...

- Is the primary tool for incorporating the action's or day's events into the learning cycle.

- Provides a forum for determining the roots of crew performance successes and failures. In the event of failure, it provides a forum for developing strategies for mitigating causal factors in the future.

- Assists in establishing a common crew perception of the events of the day.

- Provides practice for crew communication and for conflict resolution between team members.

- Provides a place to establish, emphasize, and reinforce group norms.

Guidelines for the AAR

The AAR should detail the actions of the crew during the assignment. Technical, operational, and human elements of crew performance should be discussed as appropriate. Both good and sub-standard performance should be addressed and analyzed. The content of each AAR may vary widely, depending upon the events.

Subjects discussed or mentioned during an AAR may include the following:

• Technical performance	• Equipment performance
• Techniques used	• Lessons learned
• Planning	• Procedures adherence
• Communication of directions, events, changes	• Environmental attributes or changes
• Perception of events	• Coordination
• Communication	• Attitude impacts
• Environmental problems	• Safety concerns
• Stress impacts	• Roles and Responsibilities
• Fatigue impacts	• Environmental indicators
• Questions and answers	• Organizational issues or cultural problems as they impact the team
• Adapting	

In general, an AAR answers these questions:

1. What was planned?
2. What really happened?
3. Why did it happen?
4. What can we do better next time?

Some days are more exciting than others, and the AAR should reflect this reality. As a crew leader, you will need to focus the AAR to make it effective.

Adjust the content of the AAR to reflect the events of the day, but don't assume *nothing* happens on a quiet day. A crew can fall down on quiet days as easily as it can on busy ones. Low stress can breed complacency. Keep the AAR straight-forward and focused on task.

Following are some watchouts to keep in mind during AARs:

• Don't over-analyze the day's events. Short of a catastrophic problem that really needs to be torn down and examined, discuss only the most important factors and move along. In some cases, you may need to guide or limit the discussion so that it does not get too deep or convoluted.

• Don't allow the AAR to bog down with trivia or unnecessary details that do not relate to the unit's actions and events. If nothing happened, don't feel obligated to extract a 30-minute AAR from it.

Timing the AAR

The AAR is a learning tool. Time it to occur when the crew is ready and able to learn. As a leader or supervisor, you need to plan the AAR so that it can be as effective as possible.

- **End of the day**—Generally, AARs conducted immediately after the shift provide the best learning. This is the time when most things are still fresh in the mind both technically and emotionally. Unless the feelings associated with an event are very strong, crew members will not retain an emotional memory of it for long.

> ### Emotion and Memory
>
> *If human factors performance is important for effective learning, discussing the emotional aspect of an experience right away is critical. Terms such as frustrated, confused, unsure, apprehensive, and pissed off can indicate the emotional manifestation of a human factors breakdown. After time passes, most people forget that they were confused or frustrated about a specific situation. The emotional aspect of the event fades, and the event itself can be reduced to its technical aspect only.*

- **Split format**—This format is the second-best choice when a full post-shift AAR cannot be implemented: for example, when you have a tired crew but also have important things to discuss.

  In the split format, the "What really happened?" part of the AAR is explored at the first opportunity, but the remaining part of the briefing is postponed until later. The "What really happened?" stage requires the most emotional recall and focuses only on recalling the events of the action. Analysis and creative thinking are needed for the latter stages, and a crew with no mental energy will have difficulty with these. In this format, these stages are delayed until the crew is ready to learn.

- **Start of the day**—Conducted prior to morning briefing, this type of AAR enables crew members to retain many details from the previous day. Crew members are generally not as interactive or engaged as they would be right after the event. Although better than nothing, an AAR conducted the next morning is hard to get started and to keep moving.

- **End of assignment**—Unlike the post-shift AAR, this AAR is usually is more academic and global in nature because most of the emotional aspect and much of the detail is missing. This type of briefing does not have to be conducted in the four-question AAR format. Since the post-shift AAR is concentrated on daily performance, the post-assignment briefing may concentrate more on large events, operational procedures, shelved, or organization-related issues.

Location

An AAR can be conducted nearly anywhere as long as the crew has some privacy and all the crew members can hear and be heard. An AAR can take place on assignment to departure, in the truck headed back to headquarters, or in a quiet spot after dinner. It is more important *that* it is conducted, not *where* it happens.

Formality

Make the AAR a standard operating procedure for your team—as important as any other required activity. Informal conduct may threaten the importance of the AAR in the crew's eyes. As any formal activity, make sure you have the time and the place to accomplish it effectively.

Confidentiality

Advocate and demonstrate privacy and confidentiality. What happened in the AAR and who said what should stay within the confines of the AAR. Although specific information may come out as a result of the AAR, the details about what was said by individual crew members should be kept confidential.

This code of conduct should be strongly enforced, as it is the foundation that enables all crew members to speak freely and confidently without fear of retribution or attribution.

You can reinforce this conduct by taking the following kinds of action:

- Selecting a private place to conduct the AAR

- Purposely removing or destroying drawings and other information that is used or constructed during the AAR

- Allowing other parties to view the AAR only if all crew members have given permission and are comfortable with it.

- Reprimanding crew members who disclose inappropriate information concerning the AAR to others or otherwise undermine the confidentiality of the AAR.

Issues that need to be brought to the attention of higher-ups should be done so independently by the supervisor. Supervisors should try to concentrate and disclose the *what* not the *who* of issues that need to be elevated from an AAR.

AAR Format

The AAR answers, as a minimum, the following questions:

1. What was planned?

2. What really happened?

3. Why did it happen?

4. What can we do better next time?

1. What was planned?

What were the goals and objectives?

- Incident action plan
- Crew incident goals
- Other crew goals
- Individual goals
- Additional unstated goals

What barriers did we expect?

- Safety hazards or dangers identified in the incident action plan
- "Experience tells us" problems

2. What really happened?

Discover the events of the day through your crew member's eyes. Collectively, the crew probably knows what happened, but each individual may not.

Use facilitation techniques to have the crew rebuild what happened. Recount the day's events and ask questions that promote and encourage crew members to fill in the blanks.

In situations where you were the primary observer and decision maker, help the crew fill in the blanks through your eyes and experiences. Add context and perspective where appropriate to make the situation clearer.

Ask questions. Find out whether the crew was unsure about what they we supposed to be doing at times or if they were not clear about what was happening around them. Ask specifically about anything you noticed during the day that indicated people had inaccurate or poor situation awareness.

Listen carefully. Resolve inconsistencies, and be an active listener.

Examine your team's performance:

- Compare it against established standards for crew effectiveness.

- Analyze whether crew members deliberately stepped through key components of the decision making model.

  - **Recognition:** When was the problem realized and by whom? Were there indicators? If so, what were they? Was there information in the plan that keyed us to the presence of the indicators?

  - **Situation Awareness:** Who was aware of the situation, and who was not? How was the problem communicated? Did different crew members perceive the situation differently? If so, why? What was the *reality* of the situation? What resources were used (or should have been used) to fill in gaps in the information?

  - **Option Development:** How effective was the selected option or options? If formally discussed, what was the reasoning that led to the final decision? Was it valid?

  - **Risk Assessment and Analysis:** Were the critical risks identified? If not, why? Were the risks weighed appropriately?

  - **Action:** Was the action communicated to the crew in an effective, clear, and timely manner? Was the technical execution to standard? How successful was the action at achieving the desired result?

Identify significant barriers

- Unanticipated barriers

- Team-related barriers (communication barriers, perception barriers, attitudes that presented barriers)

- Individual barriers (stress, fatigue, exhaustion, attitude)

- Did the team recognize and respond to any problems?

Examples:

- Did the team recognize a changing environmental factor or a Watch Out Situation?

  - Did people recognize it when it occurred? If yes, what was working that enabled the team to stay safe? If no, what should have happened that didn't?

  - Did people communicate the situation to all the affected crew members?

- Was the strategy that was deployed effective? If not, were there (in retrospect) indications that the course of action should have been reconsidered? If yes, were there indications that supported the strategy? Were these in the plan?

- Were there times when crew members were out of contact, or were unsure about the big picture? If so, what factors contributed to this situation? If people generally had good situation awareness, what practices helped in keeping everyone on the same page?

- Were there external factors that helped or hindered the effort? How did the team respond to these factors? Was it possible to anticipate the change? Why?

ALWAYS discuss all non-textbook actions.

Examples:

- The crew or command—or both—not using Standard Operating Procedures (SOPs) to accomplish a task.

- Situations that resulted in safety violations, the loss of safety margins, or presented unnecessary risk.

Turn sub-standard actions and results into good lessons about what not to do, and good actions into an opportunity for advanced training. Be prepared to admit mistakes.

3. Why did it happen?

Find the root causes behind identified performance successes and failures. In many cases, the crew's performance will contain both good and poor performance. As a leader you should attempt to keep these balanced and in perspective. By providing this emphasis, you have an opportunity to teach your crew members some of your experience in ranking the priority of various factors.

Successes

It is often much easier to determine the cause for a failure than for a success, and the natural tendency is to concentrate on what was wrong. The need to determine why a crew was successful or effective is just as important as discussing failures, as these are the actions and behaviors you are trying to replicate in the future.

Take time to discuss these kinds of successes:

- A situation was sized up correctly.

- A potential danger was noticed and communicated immediately.

- A maneuver or action was executed exactly as planned or taught.

- Someone had a good idea or an option about how to handle an emerging situation.

Focusing on what went right presents an excellent opportunity to reinforce behaviors, procedures, warnings, guidelines, or experiences that promote safety and effectiveness in your crew. Don't overlook these opportunities.

Failures

Inquiries and analysis should concentrate on *what* is right, not *who* is right. When a failure is identified, determine what should have happened, and secondly what didn't happen (or happened wrong).

Individual Failures

Identifying an individual crew member's failure is permissible, as long as it goes to the source of the problem. Discussion needs to focus on what should have happened, not at the personal integrity of the individual or individuals involved.

Personnel reprimands should be left out of the AAR because such actions are disciplinary and do not further the learning of the AAR. That is not to say, however, that a disciplinary action may need to be taken as a result of information that comes out of an AAR.

Out of Range

What seemed to have happened (perception):

A couple crew members got out of voice range. When the conditions changed and the crew had to move, the leader had to send someone out to find the crew members and bring them back before the crew could move out.

What really happened (reality):

All crew members were communicating less than usual all day. Many were tired from a poor night's sleep and were working "with their heads down."

Two crew members drifted out of voice range due to inattention from the two crew members as well as the other crew members who were supposed to be communicating with them.

Noise from the fire and the saws also contributed to the communications and situation awareness problems.

The leader noticed that the fire had started to move in a direction that could eventually endanger an escape route. When the leader called for the team to get ready to move, people noticed that two crew members were missing. The leader decided not to move the crew until all were accounted for.

The AAR is this situation could go many directions, and could encompass several different factors.

Possible areas for discussion:

- **Losing contact with the two crew members:** What are the standard communication procedures for crew members without radios? How many on the crew were experiencing the same communications problems?

- **Fatigue:** How many people didn't sleep well? How widespread was this barrier? Was the crew up to the task? Physically? Mentally?

- **Situation awareness:** Did anyone notice or consider the position of the two crew members? Who noticed the missing crew members? Was this information communicated in a timely manner?

- **The fire movement:** Who noticed changes in the fire behavior? What was noticed and when? Was it communicated? Who was aware of it? What were the indications that the fire movement could present a danger? Was the perceived danger communicated effectively?

- **The attack and subsequent withdraw:** Was the crew up to the task technically? Did the situation demand more effort than expected? Were there problems? Were problems and issues communicated?

- **Contingency planning:** Was there a better option than delaying the entire crew until the missing crew members returned? What was planned if the crew members did not come back right away? What were the criteria for moving vs. staying? Were trigger points identified? Was a contingency plan sent with the crew member who was sent to find the others?

4. What can we do better next time?

Once you have identified the root causes, develop remedies that concentrate on improvement strategies. Avoid making up new procedures, rules, or processes unless absolutely necessary. In most cases the outputs from this portion of the AAR come in the form of enhanced recognition cues that should be folded into the planning phase of the next action, keeping the "crew memory" intact.

Crew goals or objectives for improvement should be incorporated into the next day's planning session. Assist individual crew members to identify goals for their own improvement when necessary, and encourage crew members to help each other with these goals.

Although the AAR is designed to construct a common understanding of the day's events, individual crew members will still learn different things from the same incident or action. This is normal, expected, and necessary. However, this learning will be centred on the common "reality" and the group consensus on the action's results.

Out of Range—*continued*

Identify root causes: *After discussion, this crew generally agreed that fatigue stemming from a hard couple of days and no good sleep played a significant role in the issue. Communications procedures were not followed closely; the two crew members who moved out of range along with the other crew members who were supposed to remain in contact with them had a reduced level of awareness. The leader was also slow to realize what had happened.*

Strategies: *As a result of the AAR, this crew may have an increased awareness of the dangers of fatigue. If the advance indicators of the situation were identified, the crew members will also carry those indicators to the fire tomorrow.*

Individual strategies may be developed, especially on the part of the leader, who may modify the way these factors are weighed in the risk-benefit equation for this crew. These strategies should be incorporated into the next planning sessions if applicable.

AAR Benefits

Following are some of the benefits for institutionalizing standardized and formal post-shift AARs:

- Crew members acquire a more complete knowledge of both the technical and human factors problems that they confront, enabling them to develop plans for doing better in the face of similar problems in the future.

- Crew members obtain a higher level of experience because their behavior and actions are constantly being evaluated for quality and correctness.

- Crews will be more adept at setting realistic and achievable performance goals.

- Team members gain confidence in both themselves and their teammates, knowing that corrective action is taken when problems present themselves.

- Through discussions, team members develop a common perspective or perception regarding the successes or problems that were encountered. This provides the team with a common reference point from which they can build on in the future.

Practice Makes Perfect

In the beginning, a crew WILL NOT conduct an AAR easily or well—it takes practice. After time, crew members will learn what to expect from an AAR and will begin to use it to their advantage.

Do not expect to AAR a serious failure unless your team has had practice talking about both technical and human factors issues in advance and has developed trust in the process. After you have established the AAR as part of the team's culture, secondary crew leads should be given the opportunity to conduct AARs.

Again, practice makes perfect.