

Improvement Cymru Academy Toolkit Guide



Situational Awareness

What is Situational Awareness?

In its simplest terms, situational awareness is about understanding what is happening around you, what others are doing and what will happen next ([Share2Care Human Factors FINAL WEB 180119.pdf \(elht.nhs.uk\)](#)). Situational awareness is crucial for optimising clinical performance. Situational awareness - what it means for clinicians, its recognition and importance in patient safety. ([Situational awareness – what it means for clinicians, its recognition and importance in patient safety - Green - 2017 - Oral Diseases - Wiley Online Library](#)). Situational awareness is a concept that is rooted deeply in industries such as the military and aviation. The United States (U.S) coast guard training manual defines situational awareness as the ability to ‘identify, process and comprehend critical elements of information about what is happening...knowing what is going on around you ...’ (Aten, 2020). The goal of situational awareness is not to focus on everything in your surroundings, it is about being familiar to what does belong. An example of situational awareness in a healthcare setting begins with collecting information in a systemic way, this is followed by an analysis of the information you are collecting and sharing it with the relevant clinic team allowing a united understanding to what is abnormal ([Situational awareness – what it means for clinicians, its recognition and importance in patient safety - Green - 2017 - Oral Diseases - Wiley Online Library](#)). Because there is an understanding this allows for potential risks to be identified and clinicians can plan ahead to take action to mitigate against these risks in a timely fashion.

Rationale

The way in which we interpret situations is influenced by factors such as your level of experience, relevant information at your disposal, tiredness, stress, hunger, and distractions. Having situational awareness allows detection of early deterioration of a patient is important for improvement patient outcomes and this can be achieved through increased situational awareness. Having an awareness of your surrounding is also important for staff safety and enables a good patient safety culture to be established. In complex adaptive healthcare systems, there are latent weaknesses within the system, which are hidden in the design of the system or equipment. Some examples of this are inadequate training, inadequate supervision, inadequate staff, inadequate communication, and a poor organisational culture. These weaknesses

create an increased likelihood of error. Having an awareness of a situation and its inherent limitations can increase patient safety.

Background

Situational awareness was recognised as an essential tool for military aircrafts during World War 1 but appears in the literature as early as 1983 and was developed by Dr Mica Endsley. In air combat, having a sound situational awareness was a decisive factor. For survival in air combat, you would need to observe your opponents' movements, understand the situation and plan ahead to anticipate the opponents next move – critical to survival. Dr Mica Endsley developed Endsley's Cognitive Model of Situational Awareness which has been the most widely cited and accepted model of situational awareness. It describes three levels of situational awareness which are perception, comprehension, and projection. Using Endsley's Model, Rosenorn-Lannng and Michell developed the 'SHEEP' structure as an acronym for classifying the human variables that influence error:

S - Systems

H – Human Interaction

E – Environment

E – Equipment

P – Personnel

The SHEEP model can be applied to each of the three stages of situational awareness by asking what? So what?, and what next?, at each step. The purpose is to provide a summary that can help increase situational awareness.

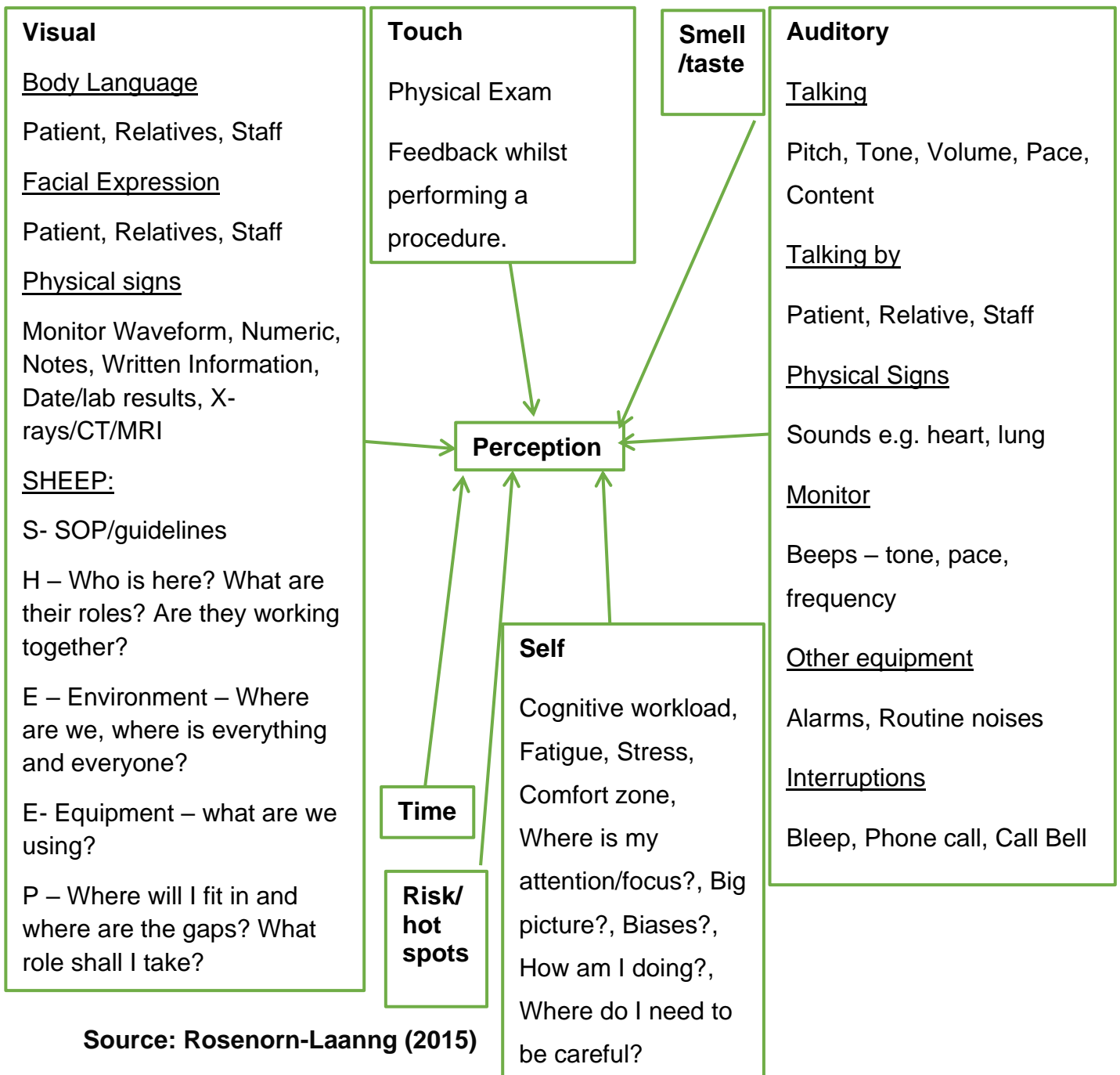
Endsley's Cognitive Model of Situational Awareness

Perception

Perception defined by the Oxford dictionary as 'the ability to see, hear or become aware of something through our senses and a way of regarding, understanding and interpreting something'. This is the first step of situational awareness. We perceive

through our senses, and this could be by visualising, listening, touching, smell and taste and self-awareness. Table one shows examples of how we perceive things in healthcare using our senses. How you perceive things is important and sometimes your perceptions can be wrong or misleading, or you can portray things in a certain way that lead to misperception. Our brains can sometimes allow us to think that we have seen something that is not there or allows us to miss information because the focus of our attention is somewhere else (known as inattention blindness).

Diagram 1: Examples of what we perceive in Healthcare



Applying the SHEEP model to the perception phase

Using the SHEEP model, we can identify several questions that will help you recognise what you have perceived, understand what this means and how to plan for the next steps.

Table One: Applying the SHEEP mode to the perception phase.

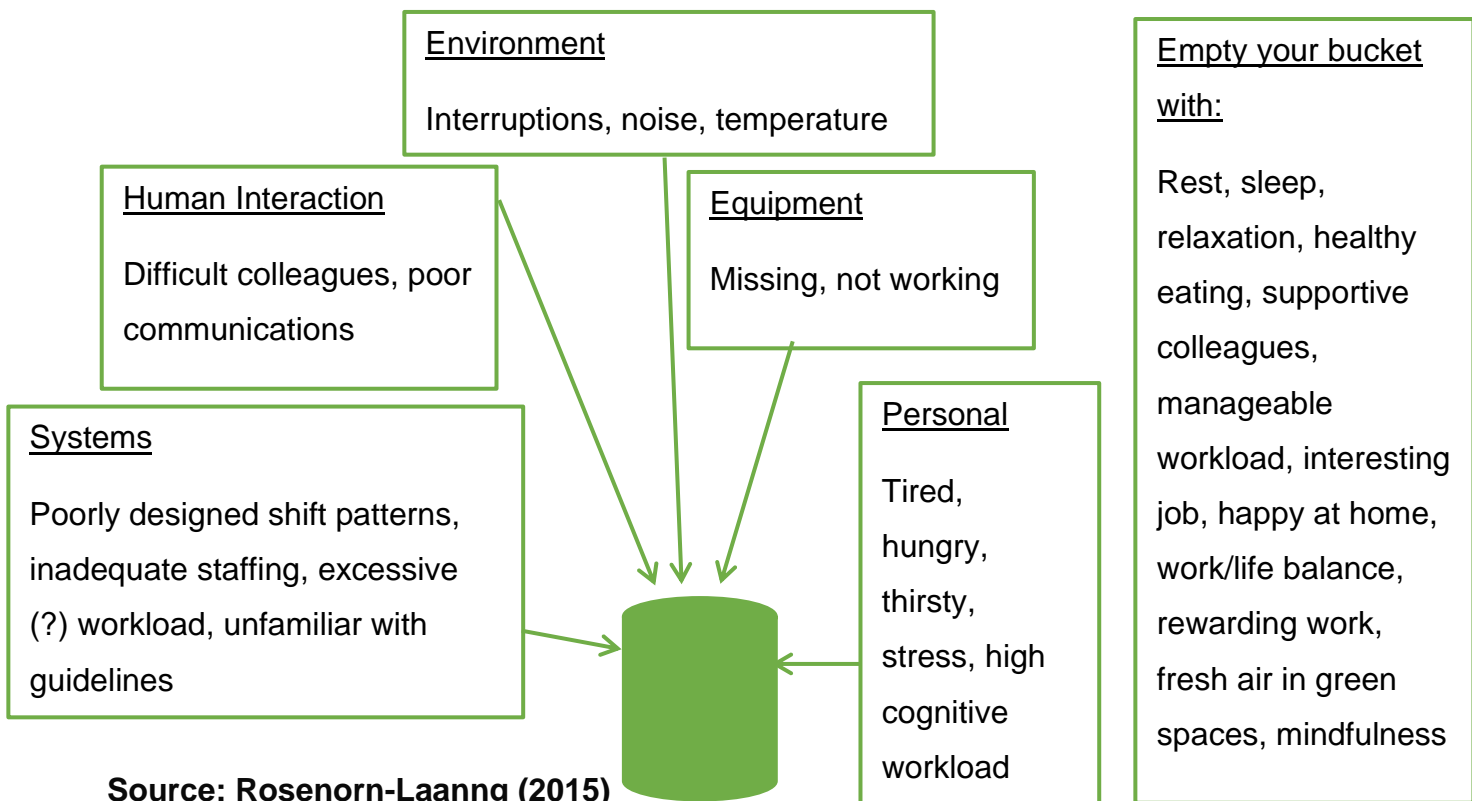
	What? (Perception)	So What? (Comprehension)	What next? (Plan ahead)
Problem/Issue	What is the problem or issue identified?		
System		What system is in place? Management/Standard Operating Procedures (SOP)	What guidelines/SOPs are in place to tell you what you will need to do next?
Human		What are the staff doing? How are we working together?	What other staff will you need? Who else would know about this situation?
Environment		Is this an appropriate area to deal with the perceived information? What influence will this have on other areas?	What environment would be more suitable? Will you have to move?
Equipment		What equipment are we using? Is it appropriate? Has it been checked?	Will we need any other equipment soon?
Personnel		What about you? How is your workload, fatigue?	What about you? Where is your focus?

		Where is your focus? Do you need help?	Are you fatigued? How long have you been going? Will you need help as this unfolds?
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Comprehension

The second step in Endley’s model is comprehension. This step is when we make sense of what we have perceived, and need to continue to perceive to understand when things change. To understand we need to recall information from our memory and understanding how fallible the human memory is can be useful. Our memory becomes fallible when we have no more capacity in our brains to cognitively process information. To understand this further you could imagine your brain as a bucket and as your bucket increased with things like stressful situations, poor shift patterns and difficult colleagues, there is less space for cognitive processing of understanding what is going on around you. Using the SHEEP model, you can identify what can cause a reduction in cognitive processing and how you can alleviate some of that.

Diagram 2: The SHEEP stress bucket



Source: Rosenorn-Laang (2015)

Projection

When you have perceived and understood information, you need to understand what to do with the information now you have it and how to plan for the next steps. In healthcare there are several situations you may need to prepare for. If your perception and understanding is that something is improving (for example is a patient improving; within a team, is team communication improving), then you need to ask what will we do if things improve? This is where you make a plan – it could be that the patient no longer requires an Intensive Care Unit (ITU) bed and can go to a high dependency unit instead. If the perception and understanding is that nothing has changed then you need to ask what will we do if we maintain the current state? If the perception and understanding is that there is a deterioration, you need to ask what will be do if things continue to deteriorate? There is a traffic light approach that is used to approach the future state using the SHEEP acronym.

Diagram 3: Traffic light system questions for the future state

Green – things improve.

S – Treatment plan – What?

H – Staff – Who?

E – Location – where?

E – equipment – with what?

P – Do I need help?

Reassess – who, how, and frequency?

Are we still improving/stable?

Amber – We are managing to maintain current state but remain concerned.

S – Treatment plan – What could be missing? What else could we try?

H – Staff – Who?

Do we need more people? How many? Different skills?

E – Location – where?

Are we in the best place?

E – equipment – with what?

Do we need monitoring, tests, or equipment?

P – Do I need help?

What are my stress levels like? Am I tired?

Reassess – who, how, and frequency? Any change?

Red – Things are deteriorating.

S – Treatment plan – what else could this be? What could we be missing? What else could we try?

H – Staff – Who? Do we need more people? Different skills?

E – Location – where? Do we need to a more specialised area?

E – equipment – with what?

Do we need monitoring, tests, or equipment to gather more information. If so, what?

P – Do I need help? Is there someone more senior to deal with this? Is this beyond my skills and capability?

Benefits of Situational Awareness

There are many benefits to having situational awareness as an individual and within your teams:

- Increases safety
- Identifies risks
- Better patient outcomes
- Improves decision-making
- Promotes effective communication
- Facilitates teamwork
- Improves patient satisfaction
- Improves staff morale

What next?

For situational awareness to be achievable, there needs to be a positive safety culture that encourages psychological safety for staff to speak up about what they perceive. At the perception level, you could perform a Failure, Modes, and Effects Analysis (FMEA) where you ask your team to input any high-risk activities that you perform where if you get it wrong there will be serious consequences. You could then use the table to identify hot spots with your team so they can focus on the at-risk steps so they have an increased awareness and prevent errors from happening (See FMEA toolkit guide).

Helpful tips

There needs to be a positive patient safety culture for staff to raise information they have perceived. You can do this by using the Institute of Healthcare Improvement (IHI) framework for safe, reliable, and effective care that promotes culture as one of the foundations for patient safety. You can create a culture by encouraging psychological safety, a just culture, promote effective teamwork and communication and through working collaboratively. Start by using the FMEA tool to identify hot spots that your team can focus on and find ways to mitigate against them.

Additional Resources

If you are interested in learning more about how improvement practices can benefit your workplace, we offer a range of training courses. Visit our website for more information. <https://phw.nhs.wales/services-and-teams/improvement-cymru/improvement-cymru-academy/> or email us improvementcymruacademy@wales.nhs.uk to find about the improvement courses we offer.

Further reading

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