Situational Awareness & High-Risk Decision Making

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Before we begin...
Complex topic
New Information
Be open minded
Ask questions
Participate
Handout
No emergency responder ever goes to a call thinking to him or herself…

Today is the day!
Today is the day that...

“I’m going to lose my situational awareness…
Make some bad decisions…
Jeopardize my safety…
And the safety of my crew.”
But it happens… a LOT!
The goal of this program...

To help you to understand the...

WHAT, HOW, & WHY of situational awareness and high-risk decision making.

DEEP KNOWLEDGE
The foundation for high-risk decision making is situational awareness.
#3 Contributing Factor to casualty events:
Human Error
(Human Factors)
#2
Contributing Factor to casualty events:
Poor Decision Making
#1 Contributing Factor to casualty events:
Flawed Situational Awareness
Contributing Factors

Reporters can select up to five of 20 contributing factors. Factors are based on frequently encountered terms in standard injury reporting systems and human factors research.

NEAR MISS

LESSONS LEARNED BECOME LESSONS APPLIED
Stressed brains function differently than non-stressed brains.
Under stress…

Your brain is on drugs!
Under stress...

Hereditary instincts kick in.
FIGHT or FLIGHT
Freeze!
Under stress…

Rational judgment is impaired.
Under stress...

Intuitive judgment dominates.

(Primal thinking)
Under stress...

Attention narrows.
Under stress...

Hyper vigilant.
Under stress…

Struggle to process and understand complex, detailed, & mass information.
Under stress...

Revert to behaviors that are comfortable, routine and/or habitual.
Realistic and repetitive training builds muscle memory that can be life saving.
Sadly…

Many firefighters have been trained to fail too!

We’ll cover that later.
Situational awareness

Ability to **perceive** AND **understand**
what is happening around you
(in context to how time is passing)
and then, in turn, being able to accurately **predict** future events…
in time to avoid bad outcomes.
Perception

Using the senses to capture information... (clues and cues) about the current situation.

- I pay attention...
- I keep my head on a swivel...
- I look up, down, and all around...
- I actively listen...
- I complete a size-up...
Visual

Audible

Smell

Taste

Sensation
Understanding
Making sense out of what you:
See, hear, feel, taste & smell

Comprehension
Moment of clarity
Best Practice

Ask yourself:

“What does this mean?”
Ask yourself: “Is this what I expected?”
It seems so easy...

See... and understand.

Hear... and understand.
Sensory Conflict
Mind Drift
Where in your brain does your puzzle of understanding get assembled?
It truly is your Magic Screen
There are two kinds of puzzle pieces:

Positive = can see/hear

Negative = cannot see/hear

Only experts can comprehend the meaning of the missing information.
Memory Recall
The capacity of long-term memory:

10x all the information on the Internet.
You can only consciously access: 5% of our long-term memory data base.
Can trigger the 6th sense.
Intuition
Knowing...
Without knowing...
How you know.
Your Red Flag Warning System

Intuition
Demonstrating the power of intuition.
There are some problems with intuition:

It is easy to dismiss or distrust intuition.

It is hard to justify decisions based on “feelings” (without facts & data).

Intuition can be wrong!
Prediction

Anticipating future events before they happen.
Prediction

Begin... with the end in mind.
Prediction

Where is this event headed?

If...

We do nothing but watch.
Prediction

How long is it going to take for an undesirable outcome to occur?
Prediction

Every event unfolds at a certain pace (speed).

Keeping track of the passage of time.
The ability to perceive AND understand what is happening in your environment (in context to how time is passing) and then, in turn, be able to accurately predict future events... in time to avoid bad outcomes.
Prediction

Setting Expectations
Prediction

Can we change the outcome?
Don’t get in the way of outcomes you cannot change.

If you do...

You will become a victim of the outcome.
Prediction

Are the conditions right?
Do we have the right resources?
Five situational awarenesses

1. Personal Awareness
2. Team Awareness
3. Resource Awareness
4. Big-picture Awareness
5. Shared Awareness
Prediction

Can we operate faster than conditions are changing?
Prediction

How much time do we have?
Your Mind’s Eye
Situational Awareness Development Process.
Sensory inputs

Sight + sound + taste + smell + feel
Visual imagery

Pictures drawn on the mental sketch pad.
Memory Search

Explicit & Tacit Knowledge

Doom - Bliss - Nothing
Forecasting

Visualize outcomes prior to engagement.
How we make decisions
Traditional Decision Making Process

1. Define the problem
2. Identify decision criteria
3. Allocate weights to the criteria
4. Develop alternatives
5. Evaluate the alternatives
6. Select the best alternative
7. Evaluate the effectiveness of your decision.
Then...
The military commissioned a study... that would forever change the way we looked at... decision making under stress.
How do you use this process at fire scenes?

1. Define the problem
2. Identify decision criteria
3. Allocate weights to the criteria
4. Develop alternatives
5. Evaluate the alternatives
6. Select the best alternative
7. Evaluate the effectiveness of your decision.
What did the commander say?

“I don’t use that process!”
Rode along again.

What did the next commander say?

“I don’t use that process!”
What do you do?
Dynamic Decision Making Process

Step 1:

Size-up the situation quickly.
Dynamic Decision Making Process

Step 2:

Focus on the most relevant information.
Dynamic Decision Making Process

Step 3:
Compare the current situation to past experiences.
Identify typical solutions.
Dynamic Decision Making Process

Step 4:

Detect atypical/unusual problems & seek explanations for them.
Dynamic Decision Making Process

Step 5:

Run mental options of decision choices in my head.
Dynamic Decision Making Process

Step 7:

Make a decision and implement an action plan.
Monitor conditions and compare them to expectations.
Dynamic Decision Making Process

Repeat situational awareness process continually.
Dynamic decision making requires...

1. Situational awareness.

2. Tacit knowledge.

3. Ability to predict future events.

4. Self confidence to trust your intuition.
A situational awareness case study
Be thinking about…

Perception

Understanding

Prediction
Flawed situational awareness…

Is never the root cause of an accident.

Flawed situational awareness a symptom.

The barriers…
That flaw awareness…
are the root cause.
Situational Awareness Barriers

Anything that blocks:

Perception
Understanding
Prediction
Shared Awareness

When two or more people have the same understanding about what is going on.
Shared awareness

Demonstration
Heuristics Bias

Mental rules and shortcuts.
Are You Smarter Than A 5th Grader?
Your brain can be stubborn.

Once it locks on to something like an action plan (or .99 cents)

it can be very difficult to change direction or see alternate solutions.
Pre-arrival lens
The pre-arrival lens sets up expectations.

(This may cause you to filter out information.)
Best Practice

Say to yourself...

“Maybe”
Conduct an original size-up
Best Practice

Avoid pre-mature decision making.
Best Practice

Have dispatch prompt arriving company for a 360 degree size-up.
“On completion of the 360 size up, we have…”
Urgency
Avoid shortcuts related to SA and decision making.
Avoid the...

“No time to waste!” mindset.
Over Confidence

CONFIDENCE LEVEL

INVINCIBLE
STRONG
STEADY
BUILDING
FAIR
Complacency
Assumed risk is unavoidable.

Created risk is avoidable.
Best Practice

Learn from near-miss events.
Never let your guard down.
Confabulation
In the absence of facts your brain can assume.

(Make up it’s own reality.)
In the absence of facts we can assume.

(The brain makes up its own reality.)
Your perceptions may not match reality.
And you may not know it.
Be alert for flawed perceptions of reality.
Best Practice

Use a Devil’s Advocate.
Short-Term Memory Overload
Your working memory has a very limited capacity.

We’re not good at remembering a lot of detailed information.
Your brain prioritizes incoming information.

And for the most part, you cannot control what it keeps and what it dumps.
The information overload exercise
Respect your short-term memory limits.
Focus on the most important information.
Use memory aids:
Worksheet
Checklist
Time Distortion
Best Practice

Keep track of the passage of time.
Best Practice

Elapsed Time
Notifications
Auditory Exclusion
Best Practice

Radio traffic audit: Critical Essential Non-Essential
Build radio communications into training evolutions.
Use standardized terms and phrases.
BEWARE!

Sensory Domination.
Task Fixation
BEWARE!

Task fixation is extremely common.
Practice meta-awareness.
Multitasking
The conscious brain cannot multitask.

This includes paying attention in a dynamically changing environment.
Email
As attention shifts... information can be lost.
Prioritize & Delegate
Prioritize & Delegate
Your subconscious brain can multitask... and it’s REALLY good at it.
The conscious task vs. the subconscious task

Experiment
Automaticity (robotic action)
Automatic action is taught and reinforced in our training and culture
Muscles learn from muscle movement.

Muscles don’t learn from verbal instructions.
An example of how training routines, stress & muscle memory can lead to acting without thinking.
ACCIDENTAL SHOOTING CAUGHT ON TAPE
My confession...
Patient Care Drill
Scene Safe.

BSI.
Two of the most likely ways a firefighter will die while fighting a house fires?
Flashover
Every firefighter should be concerned about the potential for:

Flashover.
Collapse
Every firefighter should be concerned about the potential for:

Collapse.
Every building on fire is in the process of falling down.
Ready? Let’s GO!
Go or No Go
Decision Making
How to speak-up.
1. Address the person by formal title.
2. State “I have a concern.”
3. Provide details of the concern.
4. State an alternative course of action.
5. Seek approval to implement the alternate course of action.
Hose line selection
My first training fire.
Vertical ventilation.
Vertical ventilation.
Vertical ventilation.
Learned behavior
Learned behavior.
Sounding the roof
Collapse/Mayday Training
Blind search
These behaviors can be changed but it requires understanding how, and a desire to change.
We need to teach and practice decision making.
Every hands-on training evolution should be teaching and practicing:
Size-up
Thinking
Decision making
Hands-on skill practice
Decision making exercise
Lessons from fatality incidents.
Mistakes
Mistake

1. Performing high-risk activities without proper staffing and equipment.

When firefighters died…

It often happened within 12 minutes of arrival and there were less than eight members on the scene.
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Mistake

2. The person in-charge performing hands-on activities.

When firefighters died…

The person who was supposed to be in charge was performing firefighting duties instead.
3. No one was in-charge.

When firefighters died...

Oftentimes there was no one person in-charge coordinating all of the activities.
Mistake

4. Failing to conduct a 360-degree size-up.

When firefighters died…

The first-arriving crew often failed to completely walk around the structure and missed seeing critical clues.
Mistake

5. Failing to know when to be defensive.

When firefighters died...

Firefighters were often engaged in offensive operations when the strategy should have been defensive operations.
Mistake

6. Trying to fight a large fire without enough water.

When firefighters died...

They often did not have an adequate supply of water or the size of their hose lines were too small to overwhelm the fire.
Mistake

7. Missed communications or misunderstood communications.

When firefighters died...

Often times their updates and maydays were not heard the first time communicated or their communications were misunderstood.
Mistake

8. No Standard Operating Procedures (SOPs) or Standard Operating Guidelines (SOGs).

When firefighters died…

Many times the department did not have a common set of procedures to guide operations. They had no play book. They were flying by the seats of their pants.
Mistake

9. Short cuts in training.

When firefighters died…

It was often attributed to inadequate training or the department officers had taken shortcuts when leading training sessions.
Mistake

10. Failing to learn from near-misses and injury events (error creep).

When firefighters died…

The catastrophe was linked to persistent mistakes the department had been making for a long period of time (and were getting away with it).
Best Practice

Straight Ahead
Best Practice

1. Ensure you have the proper amount of help responding immediately to the call.

Implement an automatic aid program – ensuring you have 15-25 firefighters responding to structure fires (immediately), 24-hours-a-day.
Best Practice

2. The person in-charge should remain far enough back from the action to maintain a big-picture view of the incident.

Command from a vehicle or from a location remote enough to see the big picture scene.
3. Conduct a complete size-up to ensure an understanding of what is happening.

Walk all the way around the building and look for cues and clues that tell you what is happening.
Best Practice

4. Match the strategy and tactics based on the size of the enemy. Overwhelm the fire.

Big fires require large hose lines and lots of water. Don’t fight big fires like you fight the small fires.
5. Train firefighters to conduct a risk-benefit assessment.

Not every fire is an interior attack fire. Sometimes victims are not savable.

Discuss and practice (in advance) “No Go” scenarios.
Best Practice

6. Have a clearly defined commander & aide.

One person in-charge
Supported by an aide
Hands off
With command presence
Setting strategy
Making decisions
Coordinating actions.
Best Practice

7. Develop and use common radio terminology and radio discipline.

Communications must be clear, concise, commonly understood, controlled... and practiced!

Full communications loop!
8. Conduct your training based on Standard Operating Procedures (SOPs) / Standard Operating Guidelines (SOGs).

Training should be based on a game plan.

Train with mutual aid partners.
Best Practice

9. Conduct training that is realistic and repetitive.

Training should be as real as safely possible and repetitive to build brain and muscle memory.
Best Practice

10. Perform pre-incident and post-incident evaluations.

Even when things go well (no injuries), there are opportunities to learn from minor mistakes.
7 SA Lessons

1. You can have poor SA can still have good outcomes... if only by luck.
2. You can have great SA can still have a bad outcomes.
3. Stress can challenge your SA.
4. What you should be paying attention to... is NOT always intuitive or obvious.
5. Under stress, you can only hold about 5-7 pieces of unrelated pieces of information in your short-term (working) memory.
6. Your attention is drawn to things that are perceived as threatening.
7. You will rarely realize you’re losing your SA... until it’s too late - making it a stealth killer.
5 common SA mistakes:

1. Failing to process the meaning of critical information.
   - For example: Not reading the smoke or the building properly.

2. Underestimating the speed of the incident.

3. Overestimating the abilities of crews.

4. Feeling pressured to take “heroic” actions without conducting a risk-benefit assessment.
5 common SA mistakes:

1. Failing to process the meaning of critical of the clues and cues.
2. Underestimating the speed of the incident.
3. Overestimating the abilities of their crews.
4. Feeling pressured to take “heroic” actions without conducting a risk-benefit assessment.
5. Fixating on the wrong information or trying to process too much information.
SA Best Practices

1. Prioritize incoming information.
   • Smoke (fire) condition.
   • Construction / decomposition of structure.
   • Speed the incident is moving.
   • Realistic assessment of savable lives.

2. Set strategy and tactics based on the quality and quantity of staffing.
   • Conduct a 360 degree size-up.
     – Size-up must be on-going.
   • Do not lock on to a strategy or tactics until adequate help arrives.
   • Consider the risk to your personnel versus the benefit of their actions.
SA Best Practices

3. Ensure the commander stays focused on the big picture incident.
   • Command from a vehicle or a remote location but maintain a visual fix on the incident.

4. Ensure commanders remain “hands off”.
   • You cannot effectively command while performing firefighting duties.

5. Never miss the communications from the most at-risk companies.
   • You cannot effectively listen to, and comprehend, multiple conversations simultaneously.
   • The stimulus closest to you will occupy your attention.
SA Best Practices

6. Control distractions and interruptions.
   - Call a personal time out
   - Avoid being a high-profile target

7. Use a command team.
   - Fight fires in teams. Command in teams.
   - Command Advisors, aides.
   - Use worksheets and checklists

8. Establish and maintain a strong command presence.
   - Control your emotions (excitement, frustration, anger, ego).
   - Direct your crews (no freelancing)
   - Be clear and concise with your orders.
   - Keep track of your people and what they are doing.
   - Keep track of the passage of time.
   - Practice “meta-awareness.”
9. Develop expert knowledge

- Habits and routines:
  - Conduct training that is realistic.
  - Train in repetition.
  - The brain can be “tricked” using simulation.
  - Create realistic incident simulations (with stress).

(Captain Sullenberger’s Interview…)}

- Develop habits and routines:
  - Training that is realistic and repetitive.
  - Realistic incident simulations.
- Pre-load your experiences:
  - Near-Miss Reports.
  - Case Studies.
  - LODD Reports.
- Reinforce best practices & learn from mistakes
  - Mentorship program.
  - Post-incident evaluations.
SA Best Practices

10. Conduct a pre-incident safety assessment to identify and correct error creep.

- Independent evaluation:
  - Operations
  - Training
  - Policies and procedures
  - Equipment
  - Communications
  - Inspections
  - Hiring and promotional practices
  - Organizational culture
You will also receive the SAMatters monthly newsletter.
Helping you see the bad things coming... in time to avoid bad outcomes.

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