ORM The Essentials

a tool for making smart decisions

Each Person Plays a Role in Managing Risk

Naval Safety Center

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From Secretary of the Navy Donald Winter's opening statement before the Senate Armed Services Committee, March 29, 2007: "Fundamental to taking care of our Sailors, Marines and DON civilian employees is establishing a culture and environment where safety is an intrinsic and critical component of all decision making, both on and off-duty. Safety directly affects the readiness of our fighting forces, and significant mishap reductions remain a key department-wide objective in FY 2008. We are refining our concept of Operational Risk Management (ORM), which calls for assessing risks prior to an evolution and then implementing mitigating actions during the evolution, to ensure it is more widely accepted and employed by our younger Sailors and Marines when making decisions off duty."

what's inside...

Editor's note: This special-edition magazine focuses on both the basics and the time-critical level of ORM, exploring the personal and team skills needed to effectively use the ORM process. This issue contains tools and resources to help you understand and apply ORM, improve existing processes, and gauge success. Also included are some ORM initiatives submitted by your shipmates.

Charged with reinvigorating Operational Risk Management throughout the Navy and Marine Corps, the Commander of the Naval Safety Center has launched intensive efforts to improve ORM training, resources and assessment. In the following interview, Rear Admiral George Mayer offers an overview of risk management and how it relates to mishap prevention and mission readiness.

How often do Sailors and Marines face risks?

Our personnel constantly deal with risk, and not just because we are in the business of warfighting. Risk—resulting in losses, mishaps and waste—is a fact of modern life. We control most of those risks, but the mishap rates and mishap reports document the risks that aren't controlled. Preventable mishaps continue to kill more than 200 Sailors and Marines every year. Mishaps directly cost some $800 million each year, and the indirect costs are several times that amount.

Are there other costs?

Yes. Mishaps, both on and off the job, take away the tools of our trade. Losses from mishaps eat away at our ability to take the fight to our enemies. They steal from the fabric of our force and from our families. We need to fight against the causes of mishaps with the same energy we put into fighting our military enemies.

Is ORM just another safety program?

No, it is an integral part of warfighting. To win in combat, we need to think, plan and perform better than our enemy. We need to understand the threats we face, the things that stand in the way of the successful accomplishment of our missions. We need to execute, sometimes under extreme stress, and we need to do it as a team. We prepare to go into battle by developing tactics and procedures to counter our adversaries. Then we hone the skill necessary to use those tactics and procedures.

The "O" in "ORM" used to stand for "Operational." Has that changed?

Since traffic wrecks remain the leading peacetime killer of military personnel, we've recognized that Sailors and Marines have to recognize and control risks while on liberty and at home. Whether a Sailor is lost on the flight deck or outside the gate, it reduces our readiness to the same extent. So the "O" now stands for both "Operational" and "Off-Duty."

Can you sum up the purpose of ORM?

ORM is a key tactic in our long-term war on mishaps. In this struggle, our enemy is, in most cases, ourselves and our own errors. The threat isn't "red" (the enemy). It is "blue": ourselves, our habits, our sometimes limited knowledge and poor planning, and our acceptance of unnecessary risk. ORM teaches people how to recognize risk, evaluate it, control it and still get the job done. Looking at how we live and work in these terms, and making myriad smart decisions, we can achieve a mishap-free Navy and Marine Corps team.

Managing Risk To Operate:
Making ORM Part of Navy Culture

While service-wide initiatives come and go, ORM has been around for more than a decade. Why? Because its simple, common-sense approach is a uniquely useful tool for achieving excellence while preventing mishaps.

So why is it that the highest-ranking leaders in the Navy continue to espouse the virtues of ORM, and yet the youngest of our Sailors and our junior leaders have trouble rattling off the basic steps of the process?

This special issue is a navigation aid to help us change course and make ORM an integral part of Navy and Marine Corps culture. It is a guide to changing our perceptions of what ORM is and what it is not.

ORM is not about avoiding or eliminating all risk in what we do. We face risk every time we get into our cars, man an aircraft or take in lines from a pier. These risks don't keep us from doing our jobs. When Admiral John Nathman coined the phrase "Managing Risk to Operate," he made it clear that ORM is about getting the job done while keeping our people and equipment capable of doing it again tomorrow. But this phrase is more of a goal than a sitrep, because the ORM effort fleet-wide needs to be reinvigorated and standardized.

Where We Want To Be

We want everyone to understand risk management. We want them to know how to apply the principles and the process at the right level in their specific tasks and activities, on and off duty. We need every Sailor and Marine to understand that every death on the highway robs us of a vital part of our team every bit as much as a loss in combat.

A critical step is changing people's perceptions of ORM:

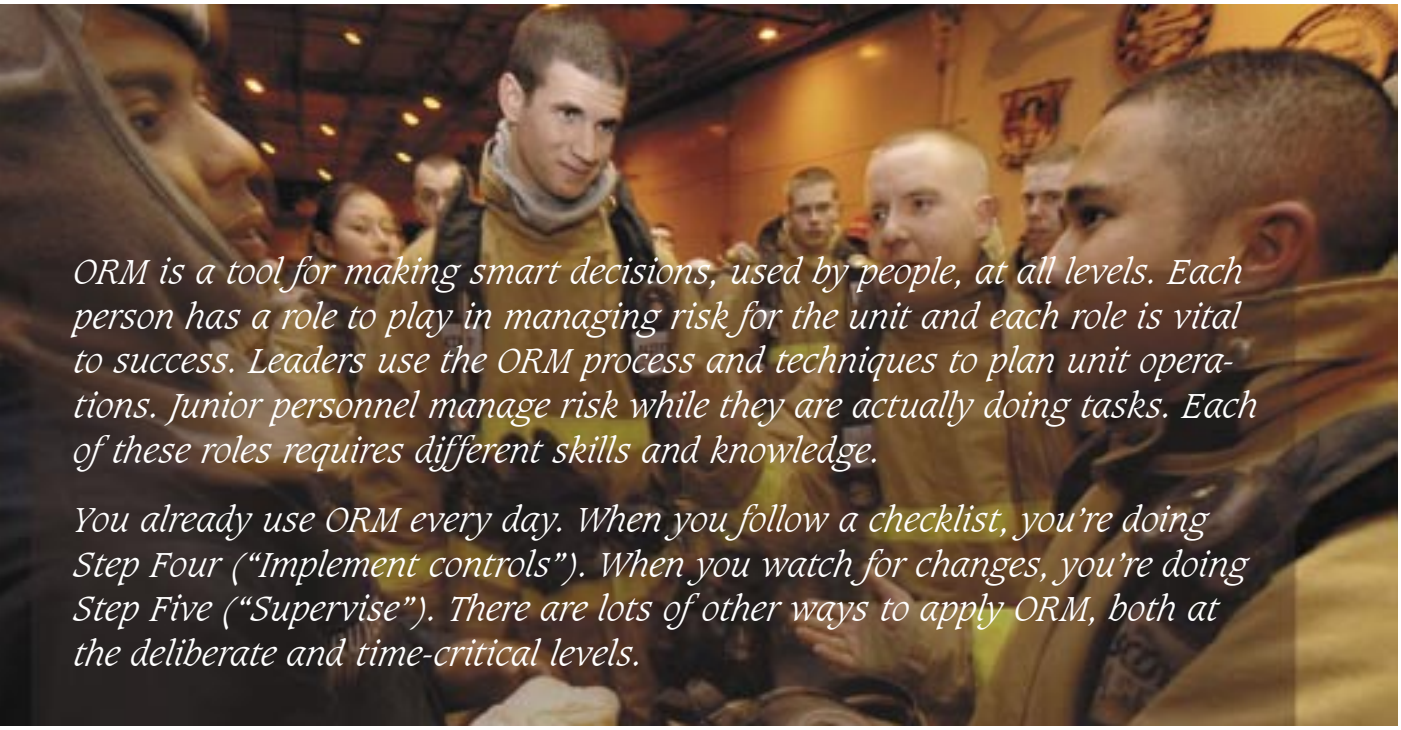
- ORM is a tactic, not a safety program. It is a way to deal with the threats (hazards) we face every day. These threats are almost always under our control, and the deadliest ones are our own human errors.
- We use ORM all the time, we just don't recognize it. The article on page 30 uses driving to work as an example. By taking advantage of the ingenuity of others, by following procedures, and by using the tools provided for us, we are managing risk.
- We all must learn to ask, "What's different today?" as a way to anticipate changes in "routine" tasks. In ORM terms, this question transitions us from planning (deliberate ORM) to action (time-critical ORM). It allows us to alter our plans and deal with unexpected hazards.

The Way Ahead

Ingraining ORM into our culture will require leaders to think and plan with the principles and concepts of ORM fully integrated. Leaders must teach ORM techniques to our newest service members. Junior personnel must understand that they need to master a simple set of skills to effectively play their positions on the team, watch for changes, and communicate what they see to their teammates. All hands must know and use ORM terms so everyone knows the process is in action.

Through this ORM issue, we give you a guide to understanding and applying ORM, and a road map to shaping Navy and Marine Corps culture—a culture where managing risk is key to operating… and winning. ■

By Capt. Ken Neubauer
Aviation Safety Programs, Naval Safety Center



ORM is a tool for making smart decisions, used by people, at all levels. Each person has a role to play in managing risk for the unit and each role is vital to success. Leaders use the ORM process and techniques to plan unit operations. Junior personnel manage risk while they are actually doing tasks. Each of these roles requires different skills and knowledge.

You already use ORM every day. When you follow a checklist, you're doing Step Four ("Implement controls"). When you watch for changes, you're doing Step Five ("Supervise"). There are lots of other ways to apply ORM, both at the deliberate and time-critical levels.

What ORM Is

- A mindset and methodology that applies to any activity
- Accomplishing the mission with acceptable risk
- Planning using a standard, five-step process
- A continuous process
- Based on people's experiences
- Following procedures (controls)
- Watching for change (supervising)
- Flexible
- Best when applied as a team
- Asking "What's different today?"
- A process that depends on skill and knowledge
- Sharing experiences and lessons learned
- Using available tools and resources
- Applied, standardized common sense
- "Looking before you leap"
- As in-depth as you have time for

What ORM Isn't

- A way to avoid risk
- A safety-only program
- Limited to complex, high-risk evolutions
- A program rather than a process
- Only for on-duty
- Just for your boss
- Just a planning tool
- Automatic
- Static
- Difficult
- Someone else's job
- A fail-safe process
- A bunch of checklists
- A bullet in a briefing guide
- TQL

ORM 101

THE BASICS

In today's Navy, whether you're a seaman or a captain, you're making decisions that affect you and those on your team. Part of your decision-making responsibilities includes using the Navy's ORM process to ensure mission success by weighing the risks with the benefits. An essential part of everyday business and every Sailor's responsibility is to know and use ORM.

Risk management is a common-sense approach to thinking about everything we do. Managing risk is as simple as making and following a plan.

The starting point for learning about ORM is to know the basic steps. There are five:

1. Identify hazards.
2. Assess hazards.
3. Make risk decisions.
4. Implement controls.
5. Supervise.

We use the steps of ORM as a basic plan for determining the benefits of taking the risk involved. After going through those steps, you apply the four principles (see the sidebar).

Let's look at an incident that happened not too long ago, and I'll show you how easy it is to use ORM in any situation. Aboard a destroyer, a lieutenant junior grade was in the midst of a safety walk-around. He opened a fuse panel to make sure the fuses were the right kind, and he found an open discrepancy.

He tried to point out his discovery to a fellow division officer, which would have been fine, except he stuck his finger into the empty fuse holder, at which point the difference between pointing and touching became clear.

Since fuse boxes are live equipment with more voltage than your average J.G. can take, they entail a certain amount of training, equipment, personal protective equipment (PPE) and tagout authorization before monkeying around with them.

Now let's go back in time. Imagine that you are the lieutenant junior grade. Your first step is to identify the hazard: exposed electrical current. That was not too tough.

Now let's assess the hazard. If we have electricity, we know it can be dangerous. So we'll need a subject-matter expert on electricity and some PPE to protect ourselves from shock. So far, nobody has gotten injured.

Let's make some decisions based on the first two steps. Using the performance maintenance standards, the right person can tag out the panel. Even though our panel seems to be off, you can't tell if electricity is present just by looking at it. However, we can tell that people are wearing the right PPE by looking at them.

It is important for someone to supervise the events to

ORM is a systematic way to manage risks so that you increase the likelihood of a successful mission and minimize losses. The ORM process involves identifying and assessing hazards, controlling risks, supervising and revising.

The terms "hazard" and "risk" aren't interchangeable. A hazard is something that can injure or kill someone, damage property, or interfere with a mission. Risk is an expression of possible loss in terms of severity and probability.

Levels of the Process

- In-Depth – Formally applying all five steps with a very thorough hazard identification and risk assessment through such things as research, testing and simulation.
- Deliberate – Formally applying the complete five-step process and documenting hazards, risks, controls, and supervision.
- Time Critical – Applying the process during an actual task or operations, or when you don't have time to plan.

Principles of the Process

- Anticipate and manage risk by planning. Risks are more easily controlled when identified early.
- Make decisions about risk at the right level. Risk-management decisions should be made by the leader directly responsible for the operation. If the risk cannot be controlled at his level, that leader must elevate the decision to their chain of command.
- Accept risk when benefits outweigh the costs. The goal is not to eliminate risk, which is inherent in what we do, but to manage it so that we can accomplish the mission with minimal losses. Leaders must consider benefits and costs associated with a hazard's risks to make informed decisions.
- Accept no unnecessary risks. Accept only those risks that are necessary to accomplish the mission.

make sure everything is going well. It is also the responsibility of the Sailors doing the work to let the supervisor know of more discrepancies.

With the steps in place, we can apply the principles to have some control over the outcome. The goal in this case would be a working and safe electrical panel. The risk would be minimal, because we have taken enough precautions to reduce the chance and severity of electrical shock.

Unless we're unable to find the proper tools, equipment or knowledgeable people, there will be no unnecessary risk. Without the right people and tools to do the job, we would have to use our best judgment to determine whether the risk is worth the outcome. In this case, death by electrocution is not worth the benefit of checking a panel. Immediately inform a supervisor.

A good way to apply the principles is to document the problem and write down how you use ORM to fix it. Making sure there is a subject-matter expert present is part of making decisions at the right level, because they can let you know who needs to know, and when to notify the proper people.

Today, the Navy has some of the smartest and most dedicated Sailors I ever have had the privilege of knowing. However, it is critical for all personnel to have the tools necessary to take advantage of this decision-making process that will ensure a safe and successful mission.

Safety is everyone's business. If it doesn't look right or feel right, it probably isn't. Stop what you're doing and "ask the Chief." Stay safe—the Navy needs every Warrior.

By FLTCM(SS/SW) R. D. West
U.S. Pacific Fleet Master Chief

About Those Principles

Recent ORM assessments suggest that the practice of ORM is not fully realized. This stumbling block is not due to a lack of understanding the steps. Missing in the way we teach, learn, and use ORM are the founding principles, which provide context to the five-step process.

Accept risk when benefit is greater than risk involved. The first principle asks us to make a comparison between operational necessity and level of risk. Does the benefit of conducting the operation outweigh the risk associated with the hazard? This comparison suggests an on-going assessment between benefit and risk throughout the event or activity. In practice, Step 3 ("Make risk decisions") turns into a yes/no, go/no-go, decision based on the loss and not necessarily based on the loss as applied to the operation. In theory, "making risk decisions" implies an understanding that the loss has an outcome that affects operations and readiness.

Accept no unnecessary risk. If the benefit doesn't outweigh the risk, does the operation continue? While the five steps should identify and assess the risk associated with hazards, risk-managers may not clearly understand the extent of their responsibility within the risk-management process. A strong organizational culture is required to empower personnel to stop, or pause an operation based on the identified hazard. The concept of "unnecessary" is a moving scale based on operational conditions. The risk-manager must have a strong understanding of this principle in order to make sound risk decisions.

Anticipate and manage risk by planning. Planning has always been a critical step in the process of understanding the operational environment, operating conditions, and capabilities. However, risk-managers sometimes misunderstand this principle. Milestones for events and operations, and critical risk-decision points, must be an embedded step in the planning process. We must identify levels of risk acceptance, and standardize how we communicate and elevate risk decisions. Applying this principle leads one to continue to identify, assess, and modify throughout the operation.

Make risk decisions at the right level. This principle also centers on step 3, which cannot stand alone in an ORM checklist. Is the operator in a position of authority to apply step 3 without further oversight? Applying this principle requires that the unit (and all those who supervise risk within the unit) understand when risk-decision thresholds have been exceeded. In practice, standardizing risk-decision thresholds becomes cumbersome due to the open-ended nature of risk management. However, command climate and an active risk-management program can go a long way to provide risk-managers with the necessary guidance.

The five-steps of ORM do not complete the risk-management process. The four principles provide the foundation for a strong risk-management program. They provide context and help the risk-manager apply the five steps more effectively. ■

By Cdr. Douglas Hamilton
Naval Test Wing Atlantic Aviation Safety

Ten Steps to the ORM MINDSET

ORM should be a vital part of a unit's culture: the way things are done by the leaders and members, something that is at the forefront of all activities. Here are the vital elements of this shared mindset:

1. Leaders know that managing risk is an integral part of mission success.

2. Everyone understands that any loss of personnel (on duty or off), equipment or capability degrades the unit's ability to accomplish its missions.

3. Everyone recognizes the factors that might lead to loss or mission failure. They view these factors as threats.

4. Everyone understands that ORM is a tactic to defeat these threats.

5. Everyone abides by the principles of ORM. They accept risk when the benefits outweigh the cost. They accept no unnecessary risk. They make risk decisions at the proper level. And they anticipate and manage risk through planning.

6. Everyone realizes that they may not know whether an associated risk is acceptable. Therefore, they need to ask their immediate supervisor or higher so the decision to accept risk can be made at the proper level.

7. Everyone understands that they already use ORM every day through such risk controls as standard operating procedures, personal protective equipment, seat belts, speed limits, and qualification standards.

8. Unit planning includes deliberate risk assessments, using assessments previously developed for recurring events, as well as developing new assessments for new tasks.

9. Before executing a plan or an evolution, unit members ask "What's different today?" This is time-critical ORM: a way to recognize last-minute changes to a "routine" evolution and identify any new hazards.

10. ORM isn't seen as an administrative burden that is only applied when time allows. Personnel are constantly aware, watching for change and putting controls in place to ensure success.

Ideally, Here's What We'd Do

The big-picture goal here is easy to describe: Every member of the command—from the most junior E-1 to the skipper—exercises risk management in everything they do, both on and off duty.

Every scheduled operation goes through a planning process. Some are command-wide, such as getting underway. Other operations and jobs are at the level of a division or a work center. Risk management should be part of that planning. Hazards are identified and discussed; your plans must include ways to minimize these hazards. Just because the CO or a senior officer isn't present for an operation doesn't remove the importance of risk management and risk control.

After the planning process, the operation or task is then briefed to the participants. Risks and risk-control plans must be included.

Once the operation begins and people start to work, participants should ask a series of questions:

- "What is different from the brief?"
- "Is any equipment broken?"
- "Is the weather getting worse, and will that affect us?"

This is where time-critical risk management becomes very important. Supervisors and leaders should be engaged and watching for both the identified hazards and for anything new or different. Complacency is a potent enemy at this stage. Even if the job has been done successfully a thousand times before, you still must remain alert and aware. The reasons for previous success were active, engaged leadership, good planning, and good training.

After the job or operation is done, debriefs are essential. An honest review and assessment is key. Identify the goods and bads. What worked? What didn't work? Were any hazards missed during the planning? You implemented controls for the hazards that were identified—did the controls work? Was supervision adequate at all stations? The answers to these questions offer lessons learned, which should be part of the next planning process and can help you update existing procedures.

There are desired behaviors away from work, too, involving simple, everyday tasks such as driving a car, making a road trip, playing sports, mowing the lawn, or doing home repairs. Every year, these activities injure and kill Sailors and Marines, thanks to obvious and easy-to-control hazards that someone either ignored or underestimated. Everyone must learn to take a few minutes to review basic precautions and instructions. If you are climbing a ladder, for example, read and heed the warning label on the side. Before any do-it-yourself job or recreational activity, ask yourself if anything is different than normal. Take a few minutes to analyze the situation and make sure everything is ready. Have a plan in case something goes wrong. ■

How a Leader Manages Risk:
Be Engaged

THE BASICS

From day one in the service, you are constantly reminded that the Navy is about developing leaders, officer and enlisted alike. It isn't just the top end of the spectrum: senior officers intimately involved in planning and executing complex operations involving myriad units over a long period of time. The seaman in charge of a small work detail, doing routine daily maintenance, is equally a leader.

In all cases and nearly every day, you are given chances to exercise and develop your leadership skills. As you gain knowledge and experience, your skills mature. You start making the sound decisions essential to high-quality leadership. Not all decisions revolve around hazards, yet understanding hazards and the risk they present is a central part of what you do every day.

Risk is inherent in any job. Whether you are doing the task or assigning it to someone else, as a leader you must assess the hazards and manage the risk. One of the simplest ways to do that is to be an engaged leader. There are three hallmarks of this kind of leader:

1. They teach risk-management techniques to the people who work for them.
2. They clearly define acceptable risk and the consequences of not managing that risk effectively.
3. They find the resources required to support decisions about acceptable and unacceptable risk.

Everyone is responsible for identifying hazards and communicating the risks. Therefore, you must take every opportunity to educate those who work for you in this process. ORM provides the framework and some tools that can make this process easier, but it is not a stand-alone "program." It must be integrated into the basic tactics, techniques and procedures taught at all levels across the Fleet, both in formal classroom settings and on the job.

Often individuals or small groups must make risk decisions within the context of tasking or orders. They must understand the risk-management process and be able to communicate information about those hazards through the chain of command. If you tolerate a situation where junior personnel are unaware of hazards—or underestimate those hazards—you're asking for trouble.

Good communication is essential to risk management. Everyone must understand they have a role to play. Knowing about a hazard isn't enough. It must be communicated to the right people so that the risk may be assessed and appropriate decisions made. Communication is critical to ensure your have the resources necessary for you to manage risk and implement controls.

Asking questions is perhaps the single most powerful and easiest technique to opening the lines of communication. Remember that risk is inherent in action; action has consequences; and consequences drive behavior. The consequences, good and bad, of decisions about risk should be spelled out and individuals held accountable for their decisions.

Resources are always limited, but as leaders it is your responsibility to ensure that the people working for you have everything they need to do the job. They need formal and informal education. You have to provide personal protective gear and monitor whether they're using it. You also have to make sure that your workers have the tools they need to manage risk off-duty, as well.

You are operating in a world full of hazards, but you have the opportunity everyday to practice engaged leadership and hone your skills at managing the risk those hazards present. We can't prove how many accidents or mishaps have been prevented by good risk management, but you can see the consequences of not managing it. Perhaps it's the guy who usually wears a seat belt but didn't do it for that short drive to the grocery store, and that was the time he got in a wreck. Maybe it was a pilot's unusual decision to fly low through a canyon for the sake of the thrill—a flight that ended in a Class A mishap.

Take the time to accept the philosophy of risk management, lead by example and make managing risk an essential element of all that you do. Provide the tools and resources required to do the job. Communicate the expectation that risk management is everyone's responsibility. Educate those who work for you in the techniques and procedures that are the tools of risk management. Making good decisions based on an understanding of risk is a learned skill. Cultivate it in yourself and others. Live it on and off duty, whether someone is watching or not. Make it personal. Stay engaged. ■

By Cdr. Allen McCoy
ORM Division Head, Naval Safety Center

Organizing Your Local Program; Roles and Responsibilities

Commanders, commanding officers and officers in charge:

1. Apply the ORM process to all command operations and activities, on and off duty.

2. Designate the chief staff officer or executive officer (or the civilian equivalent) as the activity ORM manager to oversee command ORM training and implementation.

3. Designate at least two people (officer, senior enlisted, or civilians) to serve as ORM assistants. Larger commands may need more.

4. Assess all unit-level operations to evaluate and control hazards.

5. Conduct a deliberate or in-depth risk assessment for all new or complex operations, defining acceptable risk and contingencies.

6. Submit ORM lessons learned to Commander, Naval Safety Center.

7. Inform your chain of command about hazards that cannot be controlled or mitigated at your level.

8. During unit-level assessments, check to see if ORM is being implemented effectively.

Chief staff officers and executive officers (or the civilian equivalent):

1. Complete the training*. Act as command ORM manager: coach, teach and lead by example.

2. As the ORM process identifies hazards and controls, incorporate them into briefs, notices and written plans.

3. Make sure that ORM is part of unit-level orientation and training of military and civilian personnel. Document it.

4. Work with the senior leaders in your unit to enforce off-duty risk management for military members and encourage it for civilians.

5. Collect and publish lessons learned to make sure they carry over from task to task. Include comments on hazards, risk assessments, and the effectiveness of controls.

6. Supervise and evaluate the unit's execution of risk controls during a mission or task.

7. Assess the effectiveness of the unit's risk-managment program. Evaluate the success or failure of ORM efforts. Modify procedures to reflect best practices.

ORM assistants (one officer, one senior enlisted):

1. Complete the training*.

2. Conduct unit-level training as directed by the ORM manager.

3. Help plan, prepare and coordinate ORM assessments and unit-level evaluations.

4. Evaluate the success or failure of ORM efforts. Modify procedures, SOPs, operations manuals, and governing procedures to reflect best practices.

Department heads, division officers, work-center supervisors (LCPO/LPO):

1. Complete the training*.

2. Assess risks, make risk decisions, and implement controls.

3. Ensure plans, SOPs, local operating instructions, and briefing guides apply ORM concepts.

4. Apply the ORM process to operations and tasks. Encourage personnel to use it off-duty.

5. Elevate risk issues to higher authority when necessary.

6. Evaluate the success or failure of ORM efforts. Modify the procedures used by your personnel to reflect lessons learned and best practices.

Everyone:

1. Complete the training*. Make maximum use of NKO courses.

2. Apply risk-management processes—especially time-critical—both on- and off-duty.

3. Ask three critical questions: What can go wrong? What can I do about it? If I can't do anything about it, whom do I tell?

4. Stay alert for changing risks during an operation or task. Assertively notify supervisors. Recommend changes to procedures and SOPs based on ORM successes or failures. ■

* Training required for ORM is defined in OPNAVINST 3500.39 (series).

Time-Critical ORM Scenarios

"Pop quiz, hotshot. There's a bomb on a bus. Once the bus goes 50 miles an hour, the bomb is armed. If it drops below 50, it blows up. What do you do? What do you do?" – Dennis Hopper as Howard Payne in "Speed"

Sure, this was a movie, and sure, it is never going to happen to us, but this scene is an excellent (if extreme) example of time-critical ORM. ORM is useful in almost every situation, and it boils down to two questions. What are the risks? What are you going to do to manage those risks?

We often hear variations of the phrase "bad stuff happens," but it doesn't just happen. We all have some control over our environment and nearly always can prevent bad stuff from happening to us and those around us if we pay attention and think.

Nothing is unusual about the following events—until something breaks the usual pattern. As the events unfold, ask yourself some questions. Who will act first? Will it be the person who has the most experience? The one who first recognizes the emergency or who recalls their immediate-actions training? If everyone involved was using ORM, it would be the right person with the right experience. That doesn't always happen.

Scenario 1:
Weapons Quals
"Hey, that guy's aiming his pistol at me!"

A command is doing weapons-qualification firing. All personnel have attended their familiarization training, and most have qualified before. Ten shooters are on the line. The range safety officer (RSO) provides the expected course of fire and starts the course. "Ready on the right," he calls. "Ready on the left. Ready on the firing line."

Before the RSO commences fire, a shooter fires the weapon into the ground in front of the firing line. Almost instantly, realizing he has jumped the RSO's command, the shooter turns and thoughtlessly points his weapon at the person standing next to him. The RSO must use time-critical ORM to manage this unexpected event. His actions—and those of the other shooters—will determine the outcome.

Important Questions

1. Who realizes that something is wrong—the shooter? The person he's aiming at? The RSO? The line coaches who are observing?

2. If the RSO has a whistle, does he want to use it on the line when he has just briefed the shooters that the course of fire will start when he blows the whistle?

3. Does the RSO have a bullhorn or PA system?

4. Should the RSO draw his own weapon?

5. Have the next shooters on the line done anything to protect themselves?

The RSO quickly must consider what resources he has at his disposal. The RSO, the line coach, the other shooters will also be considering their resources, but everyone should be calling out "Cease fire!"

What Actually Happened

In this case, the RSO has a bullhorn and commands, "Cease fire, cease fire, point all weapons down range!" He repeats it until everyone complies. The line coaches acted on the RSO orders and assisted in making the line safe. The nervous shooter followed the order with the assistance of a line coach.

The RSO quickly *Assessed* the situation, *Balanced* the resources available, *Communicated* to everyone in the group his orders and intentions. He acted (*Do*) on his resources and removed the threat. The RSO followed up the action by *Debriefing* everyone who was qualifying. The incident was recorded in lessons learned and repeated for that unit at subsequent qualification shoots.

Scenario 2:
Shipboard Engineering Casualty
"Uh oh, that's not covered in EOSS!"

A ship is returning to port after a two-week training event. The engineering watch team has been running basic engineering casualty control (BECC) drills for the past week. The ship also has been operating the damage control training team (DCTT) for an expected main-space fire-drill assessment later in the month. The sea-and-anchor detail is stationed. Restricted-maneuvering is set in the engineering plant, and extra watch standers are on station throughout the ship to add "experienced" personnel to the event. The engineering officer of the watch (EOOW), for example, will have the engineer officer available in main control, and the officer of the deck will have the commanding officer on the bridge.

The ship enters the inbound traffic scheme. The throttleman reports, "Main-reduction-gear lube-oil pressure high, out-of-spec." The top-watch moves in to work on this problem, while the EOOW refers to the casualty section in the Engineering Operational Sequencing Systems (EOSS) and checks the required immediate actions (which are supposed to have been memorized). The EOOW quickly realizes that he hasn't been trained on this specific problem. In fact, this situation isn't covered in EOSS.

Although casualties occur in engineering, this problem is unexpected. The EOOW has trained for various casualties during the BECC drills in the previous week. He has practiced immediate actions for each casualty in the EOSS. Nevertheless, he or she now must rely on time-critical ORM. The EOOW's actions—or the actions of others—will determine the outcome.

Important Questions

1.Who else has realized that something is wrong—the EOOW? The lower-level watch (most likely alerted by the top-watch)? The chief engineer? The OOD, because the EOOW can't answer bells?

2.What dynamics will the CO and the engineer officer bring as they interact with their OOD and EOOW?

3.How will the actions of the EOOW and OOD affect the ship's safety?

What Actually Happened

Working in the time-critical mode, the OOD decides to maneuver the ship to a safe location with available propulsion. The EOOW must limit the ship's bell in order not to damage the main reduction gears.

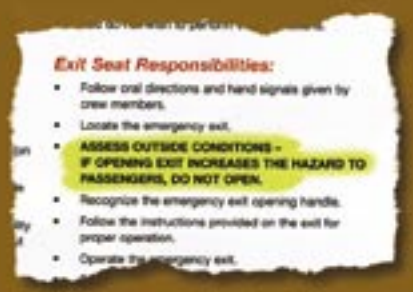
The EOOW quickly *Assesses* his resources: the EOSS, the watch section, the engineer officer, the OOD, the CO. The EOOW is also one of the OOD's and CO's resources. The EOOW *Communicates* the problem and his course of action to the watch section. He alerts the OOD. He requests a 1/3 bell to slow down the condition. He also advises the OOD that propulsion may be lost at any time.

Next he calls upon the engineer officer (his next resource) to brief the situation and get concurrence. The EOOW moves on to the machinist's mate of the watch (MMOW) to determine the cause of the casualty. The MMOW reports that the lower-level watch has taken manual control of the main-reduction-gear lube-oil regulator valve and is maintaining pressure manually. Once the EOOW communicated the problem to the watch section, the lower-level watch got the situation temporarily under control.

Although there is no specific EOSS EOCC procedure for "lube-oil pressure high, out of spec," a good EOOW should refer to his EOCC and review the actions for "loss of lube oil pressure." The most likely cause of this casualty is a faulty or misadjusted lube-oil unloader regulator. The time-critical decision that needs to be made by the EOOW and engineer officer is to place the lube-oil unloader in manual and adjust it. If this isn't done correctly, it could result in loss of lube-oil pressure.

Most importantly, the ship's propulsion was maintained, and the ship navigated to a safe location at an anchorage point until repairs could be made. The EOOW debriefed

Time-Critical ORM in Real Life



Once you start paying attention, you'll notice that society surrounds us with the results of risk-management efforts, ranging from elaborate traffic controls to sprinklers in motel rooms. Here's a great example of a time-critical aspect of the familiar airline-safety card. In spite of general rules and precautions, you still have to maintain situational awareness and make some decisions.

the watch section and recommended that this casualty be installed in EOSS. The engineering casualty training team (ECTT) has installed this as a training item (the ship had been reconfigured from a single set of reduction gears).

Scenario 3:
Shipboard Refueling at Sea (RAS)

A ship is conducting routine pre-deployment exercises in the Cherry Point Op Area with an expeditionary strike group in late January. The expected weather is overcast with a sea state of 2 to 3, with swells up to 8 feet. An LHD is first in line, 1,000 yards astern of the unrep ship. The ship comes alongside and steadies at 13 knots with a 220-foot lateral separation. The distance line is across.

The plan is to take on 350K gallons of DFM at stations one and two, and 85K gallons of JP-5 at station two. The initial hookups proceed as expected on both the DFM rigs and the JP-5 rig. As both ships continue preparations to commence pumping, the sea increases to about a steady state 4, with swells increasing to 10-12 feet.

Both DFM rigs start pumping at minimum pressure. While personnel take initial samples, a wave soaks everyone at station one. All personnel are wearing PPE, and no one is hurt. The first lieutenant arrives on station at station one and assesses the situation. He reports to the bridge that the sea state is increasing, that he sees wave wash and that he has reports of the same at station two. The bridge acknowledges and increases lateral separation to 230 feet. Station two starts pumping at maximum pressure and is receiving fuel normally.

Immediately upon increasing to max pressure at station one, the probe unseats as the ship takes a heavy roll. The hose veers 4-6 feet away from the receiver. The same thing occurs at station two. Main control and the bridge both acknowledge these reports, and riggers try to reseat the probes at both stations. Pumping hasn't yet started at the JP-5 receiver. Riggers reseat both DFM probes, but before they can resume pumping, the probes unseat again.

Important Questions

1. Who else had realized that something was wrong—the OOD? The engineer officer?
2. Should they try to reseat the probes again?
3. Should the ship conduct an emergency breakaway?

What Actually Happened

The first lieutenant contacts the bridge via J-dial. Working in the time-critical mode, the CO, XO, and OOD decided (based on a recommendation from the first lieutenant and consultation with the engineer officer) to stop the unrep and break away. They would then look for a window of opportunity with a better sea state so they could conduct the refueling safely. They based the decision on the facts that the ship was not in danger due to low fuel levels, and they expected weather the following day to be much better.

The XO announces on the 1MC that because the sea state has increased beyond the expected and safe conditions, the ship will conduct an emergency breakaway and coordinate with the oiler to determine a revised RAS time and rendezvous point. The ships breaks away. No one is injured, and less than 15 gallons of DFM has been spilled—

all of it caught in the drip pan.

In terms of time-critical ORM, once the sea state increased, they *Assessed* the worsening situation. The watch section, the first lieutenant, the engineer officer, the OOD, the XO and CO all recognized and *Communicated* the risks associated with this hazard. They changed their course of action. The unrep detail and bridge teams *Debriefed* and agreed this was the best course of action. They also took the opportunity to train their teams to effectively assess and manage risk. The ship refueled 24 hours later without a hitch.

The next time similar events occur, anyone who was caught off-guard (or who didn't know what to do) this time stands a much better chance of being prepared and ready to act. The LHD involved in this event built this exact situation into their ORM briefings.

Scenario 4:
The SAR Mission
"Do you think we ought to launch?"

Several years ago, an East Coast unit sent a detachment out west for a missile exercise. The in-depth ORM applied in preparation for the upcoming detachment was remarkable: a critical analysis of anticipated hazards, along with intensive risk matrices and control measures to minimize risks associated with the upcoming missile exercise.

One day, a crew briefed and completed their deliberate ORM of the missile-exercise mission and was on a weather hold due to a persistent low pressure system in the area. Twelve hours earlier, this same weather system (unbeknown to the mishap crew) had claimed its first victim: a civilian pilot who had crashed into the nearby mountains. As the detachment was preparing to scrub the scheduled exercise due to the bad weather, a query came in from base operations: "Possibility of an overdue aircraft. Are you guys SAR-capable?"

Important Questions

1. Do you launch?
2. Since the crew already had briefed and had ORMed the day's mission (a missile exercise in the low-lands), does that mean they were good to go?
3. If you make the wrong choice, will you survive?

What Actually Happened

The mention of a bona fide SAR to helicopter pilots is analogous to blood in the water to a shark. They get a little excited and tend to broaden the acceptable risk limits. The answer to the query was a strong affirmative. What self-respecting helicopter crew ever would admit that they were not SAR-capable?

They immediately took off into the wild blue yonder. Well, it actually was an overcast, snowing, icing, granite-cloud-filled, unfamiliar gray yonder.

Meanwhile, on the other side of the flight-line, the duty station SAR crew had received the same request. Gathering the facts on the incident, the station SAR crew analyzed the hazards and given facts:

- The private plane had gone down in the high Sierras more than 12 hours earlier.
- The weather was IMC with freezing precipitation forecast for the search area.
- The mountainous terrain included peaks of more than 12,000 feet.
- There was no ELT, and there had been no mayday or call from the pilot.

This experienced SAR crew correctly deduced that this was more likely a search and body-recovery evolution rather than a search and rescue mission. Familiar with the area, they concluded it would be a high-risk mission with a low probability of success. After consulting with the air station CO, they decided to launch but would carefully analyze the hazards that they encountered in flight and make prudent, time-critical ORM decisions along the way.

The CO directed them to terminate the mission when the risk exceeded that which the mission merited. Once airborne and flying into the high Sierras toward the search area, they soon encountered the forecast freezing precipitation and IMC conditions several thousand feet below the intended search elevation. Exercising time-critical ORM and continually *assessing* the flight hazards, they aborted the mission and returned to base.

Once on deck, the SAR crew was challenged with another mission: a SAR for an overdue H-60, same search area. The det aircrew had crashed. There were now two crashed aircraft instead of one, and two of the four aircrew in the H-60 had been killed, all a direct result of the lack of prudent risk decisions.

Analysis of the FLIR videotape from the crashed H-60 showed the crew picking their way through the craggy mountainous terrain and going in and out of IMC. The last 30 seconds of video shows the H-60 entering "presumably" inadvertent IMC conditions followed by a 180-degree right turn into up-sloping mountainous terrain that flashes onto the screen seconds prior to the crash.

In this real-world illustration, all three levels of ORM were practiced. Unfortunately the original, in-depth ORM analysis, once completed, was filed away and left at home, along with the spouses and kids, as the detachment headed west. The time-critical level was done well by the station SAR crew but omitted by the East Coast crew. As is true in most Class A mishaps, the hazards that killed them were the ones they did not anticipate.

Naval aviation is a dynamic environment. How many times has your flight gone exactly as planned? How often have you encountered hazards that you did not perceive when you briefed and ORMed the mission? Your risk analysis is only as timely or as applicable as the last time you did it. ■

By Cdr. Bob Standley
Aircraft Mishap Investigator, Naval Safety Center.

TIME-CRITICAL

Handling the Unexpected

There are unknowns in unexpected conditions. Train people to use the time-critical mnemonic, A-B-C-D: ***Analyze*** the risks, ***Balance*** your resources, ***Communicate*** during the event, ***Do*** and ***Debrief***. Part of the assessment should be contingency planning—what could go wrong and what to do if it does—and a review of emergency procedures. Part of the balancing is making sure all players know what to do and are alert. Part of communicating is what to say (and to whom to say it) when something starts going wrong.

The next time similar events occur, anyone who was caught off-guard (or who didn't know what to do) this time stands a much better chance of being prepared and ready to act.

ORM BY THE NUMBERS

www.safetycenter.navy.mil/orm

5 FIVE STEPS

1. Identify hazards 2. Assess hazards 3. Make risk decisions 4. Implement controls 5. Supervise

4 FOUR PRINCIPLES

1. Accept risks when benefits outweigh costs
2. Accept no unnecessary risk 3. Anticipate and manage risk by planning 4. Make risk decisions at the right level

TIME-CRITICAL *and*

Time-Critical Process and Mnemon

A **Analyze**

What can go wrong? What's different?

B **Balance Your Resources**

Do you have the time, knowledge, personnel and/or equ
control the risk? Does a governing instruction or proce

C **Communicate**

If you can't control a risk at work, let someone in your
command know right away. If you can't control a risk o
stop what you are doing and find an alternative.

D **Do and Debrief**

Discuss how it went and capture the lessons. Were risk
during planning? Did controls work?

Deliberate ORM

www.safetycenter.navy.mil/orm

ic

5-Step Deliberate Process

uipment to
dure apply?

chain of
ff-duty,

ks missed

1 Identify Hazards

2 Assess Hazards

3 Make Risk Decisions

4 Implement Controls

5 Supervise

at the right level.

THREE LEVELS

1. in-Depth 2. Deliberate 3. Time-Critical

TWO GOALS

1. Mission success 2. Minimal loss of resources

ONE KEY

1. Use the risk-management process and principles on- and off-duty.

Assessing ORM

Last fall, the Human Performance Center analyzed why the Navy had not yet fully implemented ORM. They identified three things that were lacking: standardization, feedback mechanisms, and accountability. One solution was to develop a standardized process that would measure and help improve risk-management practices in the fleet.

Working with fleet assessment commands, the Naval Safety Center (NSC) has developed two tools: an ORM application assessment and an ORM program assessment. The former looks at how well a unit applies the ORM process during operations. The latter measures how well a unit complies with guiding instructions.

The two assessments depend on a third tool: the evolution ORM assessment sheet (page 20). This sheet lists 20 specific ORM tasks that make up the entire ORM process cycle. It is used to evaluate how well the command applies risk management. It can be used for any type of evolution by grading only those tasks that apply or can be readily observed ("not applicable" or "not observed" doesn't affect the overall score).

The Application and Program Assessments

The ORM application assessment is a collection of evolution grade sheets from various functional areas within the command. These sheets are combined on a single spreadsheet showing ORM task averages along with fleet averages, task proficiency levels, an overall percentile score, and an overall ORM proficiency level. The four levels of proficiency are: O1 (90% or higher) is "exceptional"; O2 (80%-89.9%) is "proficient"; O3 (70%-79.9%) is "needs improvement"; and O4 (lower than 70%) is "not proficient."

An ORM program assessment evaluates a command's ORM organization, training, implementation, and feedback using 14 traits. From one to three evolution grade sheets are combined into a single score for ORM application. The program assessment doesn't provide comparative scores like the application assessment, but it does give an overall percentile score and an overall ORM program level. The four levels of program strength are "exceptional," "good," "fair," and "weak."

Who Does ORM Assessments and When?

Unit commanders should have their ORM managers and ORM assistants do an internal assessment to establish a baseline for their command. Commanders can expect to have ORM assessed externally by the same evaluators who visit them during various phases of the training cycle. Because each community has a different training cycle and are assessed by different commands, we still are working out the details with the individual type commanders.

For training on how to use the ORM assessment tools, information on TYCOM plans for ORM assessments, data on fleet and class averages, assessment observation trends, or to give us feedback on how to improve the ORM assessment process, visit: http://www.safetycenter.navy.mil/orm/ORM_Explanation/ORM_assessment.htm ■

By LCdr. Marc "Milt" Carlson
ORM Assessment and Feedback Team Lead, Naval Safety Center

Better Planning = Better Execution

The first ORM application assessment trials began at five units in February 2007, looking at 49 complex evolutions. We've found a strong correlation between the task scores for ORM planning and the scores for execution. The better you plan, brief, and use ORM, the more likely your execution will be better. This was true whether planners used a deliberate or in-depth risk assessment, or if they used an informal ORM process during planning (walking through the basic ORM steps). We've seen the same correlation between the task scores for ORM briefing and execution.

Evolution ORM Assessment Sheet

Unit/Group: USS Sample **Assessor:** LCDR Carlson, NSC

Evolution: Getting Underway, NAV Dept **Date:** 29 FEB 07

	Planning	Max.	Pts.	Comments
1	Identified and incorporated lessons learned, best practices, ORM risk assessments or other data from previous or similar evolutions during planning.	10	10	Excellent job of incorporating lessons learned and previous ORM risk assessments into planning.
2	Involved operators from every functional area necessary to conduct the evolution in planning.	10	10	Brief demonstrated that all functional areas required were involved in planning.
3	Conducted and documented a Deliberate or In-Depth ORM risk assessment during planning.	10	10	Good use and documentation of deliberate ORM planning process.
4	Conducted an operational analysis, identified hazard root causes and assessed for risk, implemented controls, and prioritized resources based on residual risk.	25	24	Not sure how well resources were prioritized based on residual risk during planning based on the brief… could have been emphasized more.
5	Weighed risks for benefits vs. costs, made risk decisions at the appropriate level, and accepted no unnecessary risks.	15	15	Clear that risk decisions were made at the appropriate level during planning based on weighing benefits vs. costs.
	Briefing			
6	Participants from every functional area necessary to conduct the evolution attended the brief.	10	10	All required members present at NAVOPS brief.
7	Briefed the specific and implied tasks of the evolution effectively.	5	3	Briefed specified but not implied tasks (e.g., no injury, mishap, or environ. impact)
8	Briefed all evolution participants of identified hazards, risk controls, residual risks, risk control supervision, and individual responsibilities effectively.	25	21	Good job of hazard ID and risk assessment. Risk control supervision was weak and individual responsibilities could have been more thorough.
9	Briefed "what's different today" hazards and controls effectively.	10	8	Great job w/"long weekend" hazard but no controls mentioned other than brief itself.
10	Explained how and when participants should communicate new hazards and recommend additional controls during the evolution.	5	2	Not enough emphasis on letting folks know they can speak up at any time if they see something that's not right.
	Execution			
11	Communicated changes to the briefed plan during execution effectively.	10	10	Great job w/communicating low vis., equip. alibis, & deep channel plan.
12	Assessed new hazards during execution for error potential, **B**alanced resources, **C**ommunicated risks and intentions, and took actions and monitored (***D*o & Debriefed) effectively.	20	19	Outstanding use of Time Critical ORM… Especially w/low vis., equip. alibis, & deep channel plan. Watch team was pimped twice on slightly late BTB comms.
13	Made risk decisions to **B**alance resources and took actions (***D*o) for new hazards during execution at the appropriate level.	10	10	CO and OOD made all risk decisions w/inputs from XO, GATOR, CIC, harbor/bar pilots, lookouts, displays, etc.
14	Completed the specific and implied tasks of the evolution successfully.	5	5	Well done.
	Debriefing			
15	Participants from every functional area necessary to conduct the evolution attended the debrief.	10	8	All but JOOD and Boatswain at debrief.
16	Debriefed the specific and implied tasks successes and failures effectively	10	9	Excellent job of debriefing successes & failures w/exception of late BTB calls.
17	Identified the root causes of the conditions that led to failures in the debrief.	20	18	Debriefed conditions that led to most failures: lookout NAVAID & small boat reporting; AIR BOSS honors heads-up.
18	Identified and recorded actionable solutions to prevent future failures for this evolution.	20	20	Outstanding job of recording actionable solutions to prevent future failures.
	Lessons Learned / Best Practices			
19	Retained ORM risk assessments, lessons learned, and/or best practices for this evolution in a centralized, readily accessible location at the unit/group.	10	10	Well done.
20	Shared ORM risk assessments, lessons learned, and/or best practices for this evolution with relevant external unit(s)/group(s).	10	N/A	
	Maximum Possible ⇨	240	222	**⇦ Evolution Score**

Additional Comments, Lessons Learned, or Best Practices continued on reverse è

ORM Program Assessment

Sample Unit Assessment

Internal, 23 April 2007

	Organization	Max.	Pts.	Comments
1	Has the unit/activity XO/Chief of Staff/Civilian equivalent been designated as the ORM Manager?	5	5	
2	Is OPNAVINST 3500.39B on hand or readily available?	5	5	
3	Does the unit/activity have minimum required qualified ORM Assistants (formerly ORM Instructors: 1 officer and 1 senior enlisted)?	10	8	No senior enlisted, although several officers.
	Training			
4	Have ORM Assistant(s) trained command personnel, military and civilian, to a level commensurate with rank, experience and leadership position on ORM during the past year?	10	8	Annual ORM GMT is given but it's not really tailored to the different experience/rank levels.
5	Has the unit/activity included ORM in orientation training?	10	10	Fully implemented.
6	Does the unit/activity document ORM training in member's training records?	5	4	About 80% of the command has proper documentation.
	Implementation			
7	Has the unit/activity incorporated identified hazards, risk assessments and controls into briefs, notices and written plans?	5	3	Command Safety Program instruction requires ORM briefed on every event but not used for det LOIs.
8	Has the unit/activity conducted deliberate or in-depth risk assessments for new or complex evolutions during the past year, to include defining acceptable risk and possible contingencies (e.g., TRACS)?	10	7	Used during individual complex events but not detachments or onload/off-loads.
9	Assess one or more evolutions using attached Evolution ORM Assessment Sheet(s) for ORM process application.	10	7.5	3 evolutions assessed: self-escort strike event, hangar aircraft move, and CQ onload.
10	Have any off-duty risk assessments been documented or controls implemented during the past year?	5	4	Liberty/Leave beyond 300 miles requires command risk assessment sheet be filled out. Only OPS has not incorporated.
	Feedback			
11	Does the unit/activity address the ORM process in safety, training and lessons learned reports, to include comments on hazards, risk assessments and effectiveness of controls?	5	3	ORM addressed in all mishap and hazard reports submitted. Can be better implemented in training and lessons learned reports.
12	Have root causes of conditions that led to mission failures been identified and actionable solutions implemented to prevent recurrence during the past year?	10	7	Some root causes identified and solutions implemented during mission failures (recent CQ det but not for other dets or other complex evolutions).
13	Were hazards that could not be controlled or mitigated to acceptable levels reported to appropriate higher authority during the past year?	5	5	Reported two HAZREPs and our EMIR when controls could not mitigate hazards to acceptable levels.
14	Has the unit/activity submitted ORM "lessons learned" or "best practices" to CNO (N09F) for inclusion into ORM data bases?	5	0	No lessons learned or best practices submitted.
	Maximum Possible ⇨	100	76.5	**⇦ Program Score**
	ORM Program Level ⇨	**O3**	**77%**	**Fair**

Additional Comments, Lessons Learned or Best Practices

ASSESSMENT

ORM Application Assessment

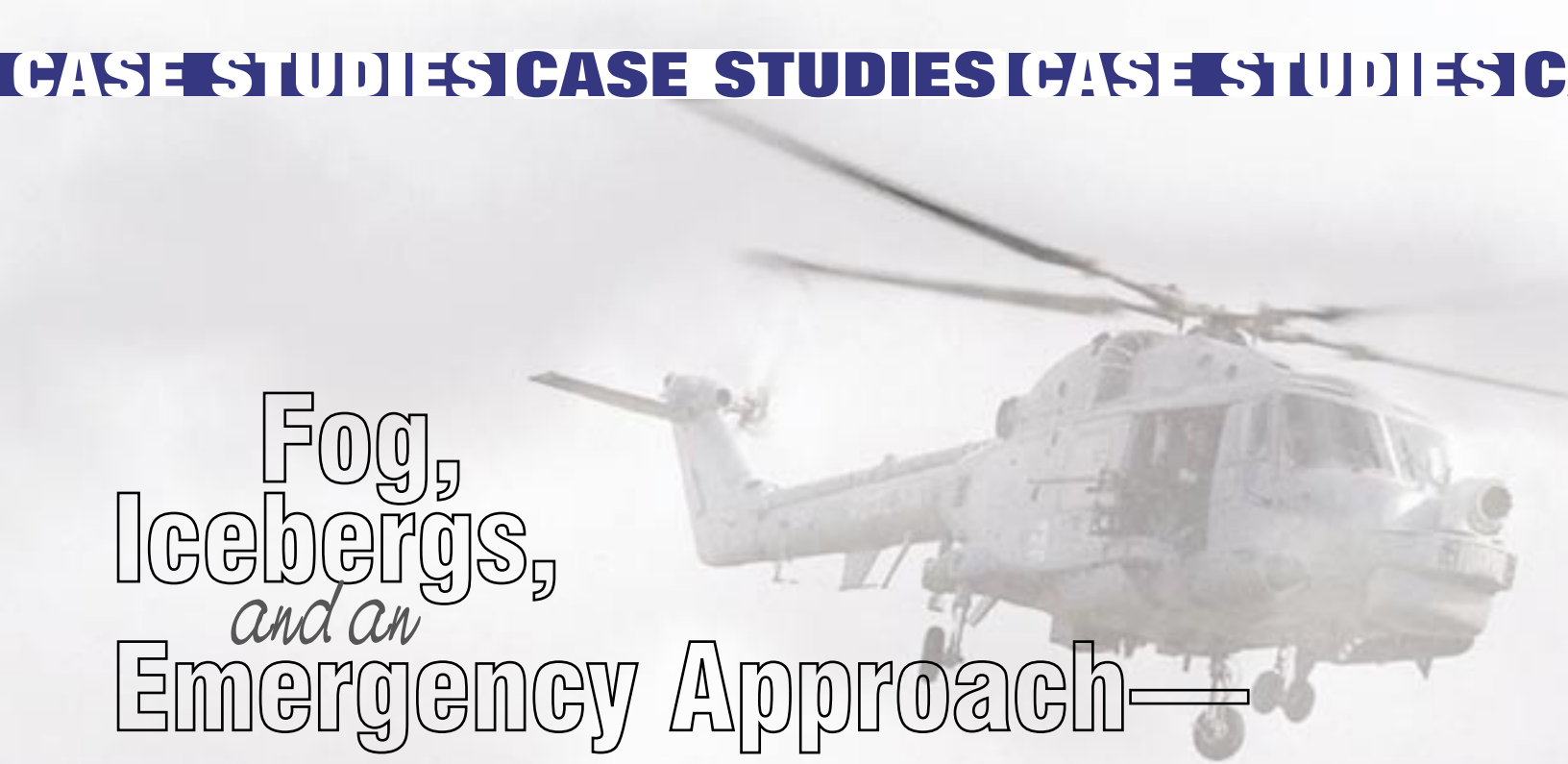
Aircraft Carrier

Tailored Ship's Training Availability/Final Evaluation Problem

	Planning	Max.	Pts.	Class	Fleet	Comments
1	Identified and incorporated lessons learned, best practices, ORM risk assessments or other data from previous or similar evolutions during planning.	10	8.929	8.929	7.974	Proficient
2	Involved operators from every functional area necessary to conduct the evolution in planning.	10	9.833	9.833	9.56	Exceptional
3	Conducted and documented a Deliberate or In-Depth ORM risk assessment during planning.	10	8.286	8.286	5.667	Proficient
4	Conducted an operational analysis, identified hazard root causes and assessed for risk, devised controls, and prioritized resources based on residual risk.	25	20.83	20.83	16.73	Proficient
5	Weighed risks for benefits vs. costs, made risk decisions at the appropriate level, and accepted no unnecessary risks.	15	13.43	13.43	10.39	Proficient
	Briefing					
6	Participants from every functional area necessary to conduct the evolution attended the brief.	10	9.444	9.444	9.287	Exceptional
7	Briefed the specified and implied tasks of the evolution effectively.	5	5	5	4.271	Exceptional
8	Briefed all evolution participants of identified hazards, risk controls, residual risks, risk control supervision, and individual responsibilities effectively.	25	16.78	16.78	16.42	Not proficient
9	Briefed "what's different today" hazards and controls effectively.	10	6.667	6.667	5.255	Not proficient
10	Explained how and when participants should communicate new hazards and recommend additional controls during the evolution.	5	4.588	4.588	2.787	Exceptional
	Execution					
11	Communicated changes to the briefed plan during execution effectively.	10	8.889	8.889	6.302	Proficient
12	Assessed new hazards during execution for error potential, Balanced resources, Communicated risks and intentions, and took actions and monitored (Do & Debriefed) effectively.	20	18.06	18.06	12.63	Exceptional
13	Made risk decisions to Balance resources and took actions (Do) for new hazards during execution at the appropriate level.	10	8.667	8.667	7.376	Proficient
14	Completed the specified and implied tasks of the evolution successfully.	5	4.556	4.556	4.405	Exceptional
	Debriefing					
15	Participants from every functional area necessary to conduct the evolution attended the debrief.	10	9.722	9.722	8.771	Exceptional
16	Debriefed the specified and implied tasks successes and failures effectively.	10	9.111	9.111	8.941	Exceptional
17	Identified the root causes of the conditions that led to failures in the debrief.	20	15.31	15.31	12.91	Needs improvement
18	Identified and recorded actionable solutions to prevent future failures for this evolution.	20	12.5	12.5	11.58	Not proficient
	Lessons Learned / Best Practices					
19	Retained ORM risk assessments, lessons learned, and/or best practices for this evolution in a centralized, readily accessible location at the unit/group.	10	6.667	6.667	6.067	Not proficient
20	Shared ORM risk assessments, lessons learned, and/or best practices for this evolution with relevant external unit(s)/group(s).	10	7.125	7.125	4.365	Needs improvement
	Maximum Possible ⇨	250	204.4	⇦ Overall Score		
	ORM Proficiency Level ⇨	O2	81.8%	**Proficient**		

Executive Summary

18 measures. 326 data points observed.



Fog, Icebergs, and an Emergency Approach—Who Needs ORM?

Here's a chance to put your ORM skills to work. Think about the five steps as you read this story from the September 2001 issue of Approach. What steps did the people involved follow? Did they skip any steps? Did they make any mistakes? What would you have done differently? Record your answers at the end. Then compare them with someone else's answers and discuss the differences.

As the only pilot on a Lynx "flight" (the British Royal Navy term for "detachment"), I was tasked to fly in all kinds of weather on all types of missions. My Lynx training had been in the typically rainy, foggy, and windy British weather. I had launched and landed in heavy seas during both day and night. I'd flown my NATOPS check in 500 and 1 conditions and worse. I'd conducted night missions at 100 feet and 120 knots, without goggles. Before my seven-month deployment patrolling the Falkland Islands and surrounding areas, I thought I was prepared for everything.

I woke up one day to an awesome, CAVU morning. We were anchored in Grytviken Harbor in the South Georgia Islands (900 nm ESE of the Falklands). Our mission was to look for illegal fishing boats. The weather brief included a dew point spread of one to two degrees, a water temp of nine degrees Celsius, and a high-pressure system hanging over the area.

A dense fog bank lurked outside the entrance to the harbor. Since I was also trained as the ship's weather-guesser, I recommended that even though the weather seemed great over the islands, we shouldn't fly until the fog burned off. Everyone concurred.

The ship pulled out of the harbor into the fog. While we waited in the hangar, the CO called down and told us to launch because the weather had improved to approximately 500 and

3. I looked outside and saw he was correct, but I told him that what he was seeing was the proverbial "sucker's gap."

However, upon further discussion with the flight commander and our flight observer under training, we decided to launch and increase the ship's radar coverage of the area. The flight observer and I launched to starboard and pulled power straight into the clouds at 200 feet. We descended to 100 feet and emerged from the clouds. We decided to continue the mission: Our radar was working, visibility was three miles, and we were the only aircraft within 900 nm.

I forgot to mention why we needed radar: The several hundred icebergs in the area reached up to 300 feet. We thought it would be a good idea to know where they were.

Forty-five minutes later, we found ourselves once again in and out of the fog. "Are we clear of all the icebergs?" I asked the flight observer.

"Yes we are," he replied. We slowly descended to 50 feet (minimum height for Lynx missions over water) as the cloud base kept lowering. At 50 feet, we were in continuous fog. What to do, what to do, what to do? Climb, climb, climb!

We climbed up through 2,000 feet with no clear sky in sight. I'd finally had enough and leveled off, because the winds were making us crab. I called the ship and told them we were RTB. They replied, "CO concurs with your RTB. We're in a fog bank. Recommend ELVA *[emergency low-visibility approach]* recovery." Great!

The flight observer gave us a steer to mother and kept us away from the icebergs. As we approached our ship, we asked for the ELVA with smoke lights. They were waiting for us and took control while the flight observer monitored our progress on radar. Our aircraft controller brought us in exactly on lineup with only minor corrections. Slowing to 40 knots and leveling at 40 feet, we came upon the first of five smoke lights. Normally we should've had the ship in sight after the fourth smoke light, but we didn't. We saw the fifth light and continued to motor forward at 40 feet. Our aircraft controller asked if we could see the flight deck yet. We looked out the window. No dice.

Just as we were about to wave off to try it again, I caught sight of the top of the hangar through the chin bubble. "Hangar in sight," I radioed back. "We're comin' down." I glued my eyes to that spot. We slowly lowered our hover and let the ship pull away. With the flight deck now partly obscured and indeed below us, the tension in the cockpit eased.

After we landed and shut down, I vowed to myself to never get suckered in by the weather or the perceived need to complete an unwarranted mission given the circumstances. A very worried-looking flight commander awaited us in the hangar. "I'm so glad you're back safely," he said. So were we.

by LCdr. Krist Zimmerman

LCdr. Zimmerman wrote this article when he was the safety officer at HSL-43. This event occurred while he was attached to HMS Northumberland flight as a Navy Personnel Exchange Program Officer flying the Lynx helicopter.

Identify the 5-step process as it was used (or should have been used) in this article. Here's a final hint from the author: "If an ORM tool—such as the flight-risk management worksheet we use in HSL-43—would have been available that foggy day, I would've been sitting in the ship's wardroom drinking a Guinness and staring out at the fog, rather than flying through it."

1. Identify hazards. _____

2. Assess hazards. _____

3. Make risk decisions. _____

4. Implement controls. _____

5. Supervise. _____

Answers on page 31.

What Happens When the Brief Gets Too Brief

Identify Hazards

Inadequate planning for the mission
Poor visibility
Difficult communications
Low on fuel
Non-standard procedures
Pressure to complete a flight

Every crew brief covers ORM, but the ORM part often lacks depth. Mission commanders and flight leads simply ask if everyone has had enough crew rest. ORM is much more than that. On one flight in the skies over Macedonia, the crew had gotten plenty of sleep, but still came a split-second from disaster.

I was ECMO 1 in an EA-6B during a night-strike mission over southern Kosovo. After the strike, we headed toward our tanker. The communications with AWACs were unusually weak and full of static. A layer of broken clouds was just below the tanker altitude. Without air-to-air radar or night-vision devices, finding the tanker was next to impossible. With our fuel getting close to bingo, we finally found the tanker and commenced the join-up on the left, which is the standard side for the Navy, but not standard for the Air Force.

Assess Hazards

Since the hazard of non-standard procedures wasn't covered in the brief, they didn't have a chance to do this step. The resulting near-midair dramatically answers the question, "What could happen as a result of this hazard?"

We hadn't briefed which side of the tanker we would join on—during the brief, mission planning had overshadowed that level of detail. Once joined, we realized that two British Tornados were already on the tanker, one taking fuel and the other on the right side. After they finished, I saw Dash 2 disconnect and apparently clear off below us. As we slid back, anticipating getting in the basket, a bright flash filled our cockpit, accompanied by severe buffet. The Tornados had tapped burner right in front of us, instead of exiting down and aft. They had turned off their lights and had moved left into us. My pilot dumped the nose and avoided them. We climbed back to the tanker, got our gas, covered another strike, and returned to Aviano.

Implement Controls

There was no chance to put in place a control over the hazard of non-standard procedures. The control that was needed became crystal clear in retrospect.

Once on deck, I told the operations officer what had happened. Tanking briefs started getting a lot more attention. In the 45 days we were over the skies of Bosnia, this near-midair was one of the most hazardous flight events I experienced. Our crew had wanted to complete the air refueling, avoid a bingo divert into an unfamiliar airfield, and support the last of the night strikes. The internal drive to complete a mission, whether combat or peacetime, can cloud aircrew's judgment. ORM easily could have lessened the severity of the problem or broken the chain of events leading to it. ■

by Capt. David Levenson, USAF

Parts of this article appeared under the title "More Than Just Crew Rest" in the December 2000 issue of Approach.

Make Risk Decisions

This aircrew worked through several problems, deciding to accept the risk as they went along. In retrospect, it was both unacceptable and avoidable to show up at the tanker with a bunch of other aircraft following different procedures for joining up and departing.

Supervise

You can't see if controls are working when you don't have any in place. All you can do is recognize impending disaster and react.

CASE STUDIES

Best Practices

or "ORM in the Fleet"

HS-5 Creates New Department

To integrate standardization and ORM into everything HS-5 does on a daily basis, the squadron created a STORM (standardization, training, operational risk management) department, combining safety and training departments. The goal is to make ORM everyone's responsibility, not just that of a few select individuals. The STORM department works closely with maintenance and operations to improve and standardize processes. They start with making sure that personnel are trained and have resources available to them, such as checklists and procedures. There is monitoring during the process. Finally, they improve future cycles by submitting and archiving lessons learned and changing publications as required. The new department distributes a weekly ORM scenario called "The STORM Corner." A recent issue dealt with the process of acclimating the large percentage of inexperienced HS-5 personnel to the life and dangers aboard a carrier. Details at: _http: //safetycenter.navy.mil/bestpractices/aviation/HS-5_ STORM.htm.

Multi-Faceted ORM during USS *Carl Vinson's* Refueling Complex Overhaul

In 2006, *Vinson* entered Newport News Shipyard for a refueling complex overhaul (RCOH). *Vinson* implemented several proactive and preventive safety initiatives that focused on work-related and off-duty risk assessments. ORM was applied pervasively throughout the ship and within each of the 18 departments. An ORM game plan and risk matrix was required prior to most on-duty and off-duty activities. For example, before starting the ship's force work package and the subsequent assignment of 2,000 personnel to RCOH work teams, ORM checklists were developed for diverse on-duty tasks that included tile removal, demolition, rehabilitation, paint, and work on scaffolds. These risk-mitigation checklists helped to ensure every Sailor was trained and proficient in the procedures for their newly assigned tasks. *Vinson* implemented an aggressive motor-vehicle-mishap prevention program–including two all-hands, high-impact safety stand-downs—designed to educate the crew on the dangers of poor driving choices, including

drinking and driving, speeding, and not wearing seat belts. Among the positive data points was a substantially lower number of "driving while intoxicated/under the influence" events (less than five per month, vice 20 to 40) compared to previous RCOHs involving other CVNs. Details at: http://safetycenter.navy.mil/bestpractices/orm/Vinson_overhaul_shipyard.htm.

Naval Beach Group One (NBG-1) Creates Risk Change Analysis Templates

During a Joint Logistics over the Shore exercise in Guatemala, NBG-1 used a series of templates to guide leaders through the ORM process. JLOTS is a highly dispersed operation, with many high-risk evolutions going on at once. The joint group consisted of 1,000 Army and Navy personnel and involved many kinds of Army and Navy craft. The templates help share knowledge and create understanding of risk management among coxswains, craft masters, beach-party team leaders and other personnel from disparate backgrounds and rates. The template system gets ORM out of the conference room and operationalizes it. During the 24/7 operations, preparing for shift change, deckplate leaders used a template to conduct an ORM analysis based on current conditions. Risks were recalculated based on changes in conditions. The result was an operational pause every 12 hours for the chain of command and the commander to consider the risks involved in continuing operations for the next 12 hours. During the exercise, in conditions that often approached the upper limits of sea state 3 and with heat indexes approaching 110, only one person suffered a serious operational injury. Details at http://safetycenter.navy.mil/bestpractices/orm/NBG1_templates.htm.

HSL-44 Publishes Traffic-Safety Program Instruction

The instruction says, in part, "Along with being a health hazard when consumed irresponsibly, alcohol becomes a catalyst of danger when mixed with motor vehicles. Not only automobiles, but boats and aircraft, shall not be operated while under the influence of alcohol." The instruction gives guidance and tools for personnel to make the right decisions when faced with a potentially bad situation. The instruction describes the squadron's safe-driving practices Incentive Program. The instruction lists incentives for work centers that go 90 days without an alcohol-related incident. It also specifies the responsibilities of the commanding officer, executive officer, safety officer, ground safety officer and safety petty officers. "The aim of this instruction is to ensure that our valuable asset of personnel is not squandered in needless accidents," the text continues. Details at: http://safetycenter.navy.mil/bestpractices/traffic/HSL-44_traffic.htm.

Yokosuka Traffic-Safety Program Paying Off

The command reduced all categories of drinking and driving incidents at Yokosuka by 39 percent in calendar year 2006, and reduced the number of accidents by 65 percent during the last five years. Cornerstones of the program include strong leadership in the military and civilian communities; equally strong traffic-safety-committee participation; and a free flow of communications, so that anybody may quickly and effectively get their ideas to decision-makers for consideration and action. "We would not be successful without the support of local commanders embracing our traffic-safety program," said Michael Kretschmer, traffic-safety officer for Commander Fleet Activities, Yokosuka. The command partners with the Japanese police to identify and correct common traffic-safety issues, such as those related to drinking and driving, wearing seat belts, traffic infractions, and licensing criteria. The program also has productive interactions with base security, public health, fire and public works officials to ensure that traffic-safety issues are addressed and corrected. Details at: http://safetycenter.navy.mil/bestpractices/traffic/Yokosuka_traffic.htm.

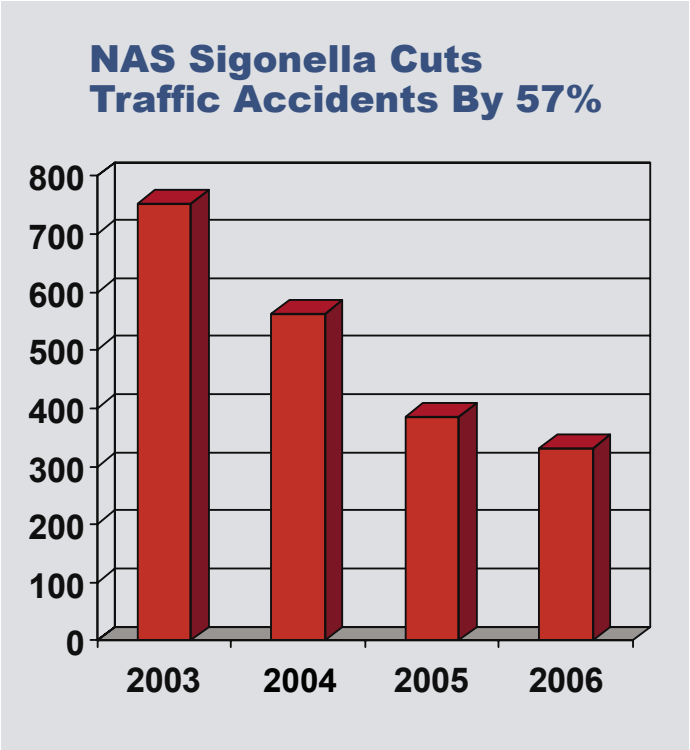
Naval Air Station Sigonella, Sicily, Makes Major Reduction in Traffic Accidents

In 2003, NASSIG had 751 traffic accidents, an average of 2.1 per day. In 2004, Capt. Joe Stuyvesant took command. On his first day as the new skipper, he was on the scene of a serious traffic mishap involving an American. His security and safety staffs confirmed that traffic mishaps were a chronic issue. Capt. Stuyvesant made traffic safety a prior-

ity, involving management and base leadership in a campaign to reduce the number of mishaps. The campaign had three prongs: rewarding positive behavior, educating people, and holding employees accountable.

Numerous intervention and buy-in initiatives have been launched through the years.

In 2003, early efforts were made to provide AAA-DIP



instruction for all incoming personnel/dependents and tailored for local driving conditions. These courses are required before someone can be licensed to drive in Italy. The courses are also provided monthly and required for employees who were involved in a mishap, have gotten a ticket or who were recommended by their command/department for additional training. These efforts were increased in 2004 and 2005.

Efforts in 2004 included:

• Media blitz using both TV and radio to inform personnel of traffic hazards.

• Live TV programming featuring the CO to keep the focus on traffic safety.

• Increased security efforts and patrols. Increased local presence and ticketing.

• Random breathalyzer use at all gates/inbound and outbound vehicle checks.

• Banners at all gates to encourage Sailors and civilians to do the right thing (slow down, don't drink and drive).

• Improved vehicle-safety-inspection program based on stateside requirements.

• Twice-a-year stand-downs focused on traffic safety.

• Increased frequency of motorcycle safety classes (Basic Rider Course) and added the Experienced Rider Course (ERC) for advanced riders.

The command's goal of a reduction to just one mishap per day was achieved in 2005. Activities and initiatives in 2005 included:

• Key chain breathalyzer program initiated as a buddy system to prevent DUI.

• Initiated base's "96 for 96" program to reward commands that go 96 days without a DUI with 96-hour liberty for all hands.

• Annual child-seat inspection and traffic-safety booth set up at commissary/exchange during the spring.

• Reactivated duty-driver program to ensure Sailors a safe way home from local pubs.

2006 set new record mishap low of .9 traffic accidents per day. Efforts in 2006 included:

• Biannual base festivals, with a traffic-safety booth where key chain breathalyzers and other safety materials are handed out and explained.

• Annual motorcycle safety stand-downs for all riders.

• New instruction requiring motorcycle riders to wear reflective vest at all times.

The goal for 2007 is no more than 20 mishaps per month (a rate of .6 mishaps per day).

As a result of these efforts, NAS Sigonella has reduced traffic accidents by 57%. More importantly, accidents with injuries have declined by 71% (in part because fewer people are speeding and more are wearing seat belts). During the same period, DUI mishaps declined 77.5%.

VAQ-132 Applies Maintenance ORM in the Work Center

VAQ-132 has created a series of ORM briefing cards for common maintenance tasks. The ORM briefing card is not intended to assign probability, severity and RAC codes—rather, it is a way for LPOs to take five minutes to focus on specific hazards before mechs start a task. The cards help an LPO do three things:

• Brief his personnel on potential risks of performing the job before they start the job.

• Identify ways to mitigate these risks.

• Implement controls that will reduce the likelihood of a mishap or improper maintenance.

The cards were laminated and placed in the squadron shops. For a copy of the ORM briefing cards, please contact the CVWP safety officer: Robert.d.wood3@navy.mil. Copies and more information are also available at http://safetycenter.navy.mil/bestpractices/orm/VAQ-132_maintenance_ORM.htm. ■

Training Air Wing Five Uses ORM to Make 156 Safety Improvements

From May 2005 to June 2006, Training Air Wing Five's two advanced helicopter training squadrons had a string of eight flight mishaps that destroyed two helicopters, killed one aviator, and did more than $1.5M in aircraft damage.

There didn't seem to be any common causal factor that could be blamed for all (or even most) of the crashes. The mishaps involved a variety of maneuvers and a diverse group of instructor pilots. Everyone was motivated to end the streak of crashes, but there wasn't a clear starting point.

Enter ORM—a perfect tool for taking a critical look at an event, figuring out all the ways it can go wrong, and coming up with controls to keep the same thing from happening again. The whole Contact ("Familiarization" for those of you who are old school) phase of helicopter training would have to be scrutinized. The HT squadrons analyzed every facet of the typical Contact flight, from ground procedures to facilities to published training manuals. Their main focus was to dissect 16 individual "high-risk" maneuvers, identifying ways to make the maneuvers safer while still providing effective training.

For step 1 of ORM—Identify Hazards—the panel tried to come up with everything that could possibly go wrong (the mishaps already had pinpointed several different ways). To standardize the hazard-identification process, 18 points were covered for each maneuver, including standardization between squadrons, step-by-step procedures, course training standards, currency and proficiency, and crew-resource management.

For step 2 (Assess Hazards), the panel came up with both initial and residual Risk Assessment Codes, and prepared a detailed report of proposed modifications to the airfield, syllabus, and procedures. Each hazard control was identified as critical, non-critical, or long-term.

The Commodore did step 3, Make Risk Decisions, considering cost, ease of implementation, impact, and time-to-train constraints. Step 4, Implement Controls is still ongoing for some of the long-term recommendations. The final step (Supervise) continues as any changes are observed, new hazards are identified, or control measures don't work as planned.

The panel's evaluation resulted in an extraordinary list of 156 separate improvements to student curricula, flight-training instruction, and Wing SOP. A new instruction called the "Flight Instructor Guide" was generated, giving guidance to instructors concerning how much latitude to give students in allowing them to make and learn from their own mistakes. Classroom and computer-aided instruction were modified to improve understanding of helicopter aerodynamics—specifically the factors that contributed to the mishaps.

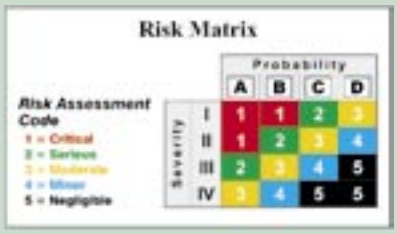
Helicopter flight training has been conducted by these two squadrons at Whiting Field for more than 30 years. This ORM review revealed that, even though there was a wealth of experience, knowledge, tradition, and history, many things could be changed to increase safety without sacrificing mission effectiveness. To date, the two helicopter training squadrons have amassed nearly 36,000 flight hours, 19,000 student X's, and eight months of incident-free flying. ■

New Color Scheme for Risk Matrix

This familiar card has been around a long time, but this new version gets the green part in the right place: opposite the red, instead of beside it.

Risk Management Matrix OPNAVINST 3500.39B		PROBABILITY			
		A Likely	B Probable	C May	D Unlikely
SEVERITY	I Death, Loss of Asset	1	1	2	3
	II Severe Injury, Damage	1	2	3	4
	III Minor Injury, Damage	2	3	4	5
	IV Minimal Threat	3	4	5	5
1-Critical 2-Serious 3-Moderate 4-Minor 5-Negligible					

New Version



Old Version

ORMing the Commute: Boy, This Is Easy

Yesterday at quitting time, my boss told me that I'm supposed to start using ORM while I drive to and from work. I said, "Aye, aye." I must not have been very convincing, because he then asked if I knew what ORM was. I replied, "Absolutely."

He didn't ask any more questions, but I figured I'd probably better find out before he asks again.

So here I am at 0700, preparing to hop behind the wheel of my Civic hatchback. It's only six miles to my command—a few lights and a couple miles of interstate.

I glance at the tires as I walk to my driveway. I had a low tire during a trip three weeks ago, and I always like to catch those leaks before I get stuck with a flat in traffic, especially if there isn't a good place to pull over or pull off. I hate driving with that little doughnut spare. It feels weird, it's only good for a couple hundred miles, and you aren't supposed to drive with them over about 50 miles per hour (good luck on a highway).

I don't check the oil every day, but I check it pretty often. A former senior member of the Naval Safety Center staff once spent six grand on an engine rebuild for his new Dodge Durango, all for a lack of checking the old dipstick and changing the filter.

I'm leaving a little early because I hate being in a hurry. I just want to get to work as quickly as possible, without getting all hung up with cops, tickets, tow trucks, and insurance agents. I know some guys whose insurance costs them more than their rent and electric bills combined. Not good.

The neighborhood part of my commute is easy, but I still have to keep an eye out for skaters or kids darting out between cars on their way to school.

I take a right on a busier street—three lanes in either direction—and here's where I meet the biggest risk: the other drivers. A lot of them are either in a hurry or just plain incompetent, or both. It always seems that some of them ought to get themselves a race car, take some driving lessons, and find the nearest track. And by the way, the track won't have a number for a name with a capital I and a dash in front of it. I-564 in Norfolk, in other words, isn't a NASCAR venue.

The weather today is fine. I'm not hearing the fog horn from the terminal, and it isn't cold enough to freeze. I'm never concerned about myself in bad weather. It's the other knuckleheads who don't even slow down that worry me. They seem to think that speed limit signs are some sort of guarantee, not something based on good conditions.

It amazes me how many people drive while distracted. There's one eating a breakfast biscuit. Yesterday, I saw a woman putting on mascara. Last week's prize went to a guy doing a crossword puzzle that he had propped on his steering wheel. Hmm, better make sure I don't get distracted while cataloging other people's distractions.

Here I am on the interstate, accelerating up to speed. For starters, I'm going to back off from behind this tractor-trailer—I hate not being able to see what is ahead of the vehicle ahead of me. Never know when the guy in front is going to swerve around a cinderblock or a piece of lumber, leaving you no time to react.

I arrive at work unscathed. The day passes quickly, and soon I'm in my car, just about to head to the dentist. I'm running late, because I couldn't seem to get away on time. Hmm. Maybe I'll take the back way and just skip the interstate—the traffic is always worse on the highway in the afternoon, the other drivers are frazzled, and they always seem to be in even more of a hurry than they were in the morning, if that's possible. And since I got the word that we aren't supposed to drive on base and talk on a cellphone, before I start the engine, I'll call my dentist and let him know I might be a few minutes late. Anyone who doesn't think cellphones are distracting isn't paying attention.

There was something that I was supposed to do today, what was that? Oh yeah, look up ORM. I'll do that first thing tomorrow. ■

By Derek Nelson

Head, Media Division, Naval Safety Center

Training Resources

Applications and Integration Training

The current ALNAV message about the Applications and Integration Training is at http://safetycenter.navy.mil/orm/downloads/271940ZOct06.txt

Request this training by using this on-line form: http://safetycenter.navy.mil/orm/request.htm

Registering on NKO

You must register for an online account at https://wwwa.NKO.navy.mil/. Follow the instructions for "New Users." Then select "Navy e-Learning" under the horizontal "Learning" tab at the top of the page, On that page, in the left navigation bar under "Content," select "Browse Categories," then select "US Department of the Navy," then "ORM" (the final item in the right-hand column).

Other ORM training is available by selecting the "Personal Development" tab along the top, then clicking "Risk Management/Safety" in the left navigation bar (the fourth item down). You will find eight traffic-safety items (two are specifically ORM-related), as well as two ORM topics (FY05 GM Topic 1-1, an introduction to the operational risk management process and principles, with a practical application to a long-distance driving scenario), with a facilitator's guide and a large zip file to download.

ORM 101

A 46-slide presentation that introduces the basics of ORM (on-duty and off-duty) is at http://safetycenter.navy.mil/orm/downloads/USN_ORM_101.ppt

ORM Courses (located on the NKO website)

ORM All Navy Essentials for Leaders Course	CNET11969
ORM All Navy Executive Overview Course	CNET11973
ORM All Navy Fundamentals	CNET11977
ORM Aviation Fundamentals Course	CNET1198
ORM Aviation Executive Overview Course	CNET11985
ORM Aviation Essentials for Leaders Course	CNET11989
ORM Aviation Applications and Integration Course	CNET11993
ORM All Navy Application and Integration Course	CNET11997

FY07 General Military Training Unit 1.1

Operational Risk Management	CPD-GMT07-011

Answers from page 24.

1. Identify hazards. Fog (check that dew point). Icebergs. Cold water (would rather not have to ditch). Unpredictable weather. Pressure to complete the mission. **2. Assess hazards.** Colliding with an iceberg will be a Class A mishap. If the fog gets bad enough, at some point it will be impossible. Why, after everyone "concurred" with the ship's weather-guesser, did they go ahead and launch instead of waiting for the fog to burn off? **3. Make risk decisions.** Is finding some illegal fishing boats worth the loss of a helo and aircrew? What part of "sucker's gap" did the skipper not understand? **4. Implement controls.** The control for the iceberg hazard is the radar—better hope it keeps working. The control for low visibility during an approach is the ELVA. Is there a control for "no visibility"? Flying at 40 feet when the minimum is 50 feet is not good. **5. Supervise.** Whenever someone has to say "I'd finally had enough," you have to wonder if the process of establishing and monitoring controls is satisfactory. Granted, this flight shouldn't have launched when it did. Maybe it should have been cut short earlier.

Frequently Asked Questions ?

Who is responsible for ORM in my unit?

Commanding officers and commanders are responsible for ORM within their commands. The executive officer, chief of staff, or civilian equivalent are the unit ORM managers and primary agents of ORM implementation.

What's the best way to implement ORM at my command?

Make sure you meet the existing requirements of OPNAVINST 3500.39B. You need at least one officer and one senior enlisted trained as ORM assistants (we used to call them "instructors"). Train all command personnel commensurate with their rank and experience. Identify new and complex evolutions at your command, assemble a planning team made up of operators from the various functional areas necessary to complete the evolution, and conduct a deliberate or in-depth Risk Assessment. Brief the hazards, controls and individual risk-control supervision responsibilities to all evolution participants prior to execution. Identify root causes of conditions that led to failures, recommend actionable solutions to the chain of command to prevent future failures, then retain internally and disseminate externally lessons learned, best practices, and the risk assessments for future planners.

How do I sign up for ORM training?

There are two web sources for ORM training: Navy Knowledge Online and the Safety Center ORM homepage. There is also the ORM Application and Integration course, which is two days long and led by an instructor. You can sign up for the A&I course on our website at: www.safetycenter.navy.mil/orm/request.htm. It is intended for your ORM manager and assistants. If there is room for others, we fill the class on a standby basis.

How should I document my ORM training?

Document ORM training in both individual training jackets [or Relational Administration (RADM) folders] and at the command-level. A typical entry might be "Last ORM GMT training occurred on …"

How often should service members and civilian employees receive ORM training?

At least annually, commensurate with their rank or experience level, according to OPNAVINST 3500.39B. ORM training is also directed to be included in command orientation, as well. Currently, everyone is required to receive annual refresher training. The ORM GMT satisfies this requirement.

I've heard ORM described as both a program and a process. What exactly is it?

ORM is both a program and a process. An ORM program refers to a command's compliance with ORM instructions directives, with regard to its organization, training, implementation, and feedback mechanisms. The ORM process is a systematic approach to managing risks to increase mission success with minimal losses. This involves identifying and assessing hazards, controlling risks, supervising and revising as needed. When commands are assessed for ORM, it will either be an ORM program assessment (compliance-based) or an ORM application assessment (process-based).

What is a risk assessment?

A risk assessment is a documented five-step ORM process. Minimally, this involves a list of hazards assessed for risk, the risk controls for those hazards, the residual risks, and who is responsible for supervising the risk controls.

What is time-critical risk management?

This level of ORM is when you are in the execution of the event or do not have time to plan. You have to make risk decisions on the fly. It is using the ORM process when limited by time constraints.

How can I prepare for an ORM audit?

Use the ORM Program Assessment checklist at: www.safetycenter.navy.mil/orm/ORM_Explanation/ORM_assessment.htm.

How do you order ORM business Cards?

You may download the files off of our website at www.safetycenter.navy.mil/orm/generalorm/businesscards.htm. The Safety Center may be able to send limited quantities to commands, depending on availability; email safepao@navy.mil.

Just a click away–

Your Web Tools & Resources

On the Naval Safety Center Website

ORM Model: This is a multi-faceted explanation of ORM, with expanded versions of many of the sections contained in this magazine, as well as others (for example, tools and methods). These web pages will continue to be updated and to grow, so visit often: http://safetycenter.navy.mil/orm/ORM_explanation.htm.

OPNAVINST 3500.39B: www.safetycenter.navy.mil/instructions/orm/3500_39B.pdf.

Presentations, including various types and levels of training, at www.safetycenter.navy.mil/presentations/orm/default.htm. There are 19 of them.

A 10-page general **introduction to ORM** at http://safetycenter.navy.mil/orm/generalorm/introduction/default.htm.

Information about (and a request form for) the ORM **Application and Integration Training** at http://safetycenter.navy.mil/orm/request.htm

"ORM Corner" articles from *Approach* magazine—31 articles, annotated with aircraft type: http://safetycenter.navy.mil/orm/ORM_Corner.htm.

Links to 33 ORM **best practices**, divided into on-duty and off-duty initiatives, at http://safetycenter.navy.mil/bestpractices/orm/default.htm.

Links to the Army and Air Force ORM sites, as well as the Army, Air Force and Coast Guard RMIS (risk management information system) sites.

On the Army CRM site

The Army calls it **"Composite Risk Management."** This site contains basic information, training tools, traffic-safety initiatives and news: https://crc.army.mil/RiskManagement/default.asp?iChannel=25&nChannel=RiskManagement. It contains a PDF version of its 108-page **Field Manual** 5-19 ("Composite Risk Management"); an appendix contains some excellent examples of applying risk management to specific kinds of operations.

On the Air Force ORM site

The Air Force site has sections devoted to ORM training, guidance, media, tools and lessons learned: http://afsafety.af.mil/orm/orm.asp. It has **downloadable ORM training** in the form of four modules (three study guides—Fundamentals, Essentials for Leaders, and Application and Integration—and an Executive Overview). It also contains the Air Force **ORM Pocket Guide**, a quick reference to basic ORM principles, steps, and techniques.

Other Resources

CNAF's ORM University is being phased out in favor of **Navy Knowledge Online** (NKO) for future online training. Personnel just starting their ORM training must use NKO. If you already have an account with ORM University, you can finish previously started courses and view your certificates at the CNAF ORM University website: https://www2.cnap.navy.mil (note that you need a PKI certificate to visit this secure site).

- An overview of the NKO **classes** is at http://safetycenter.navy.mil/orm/articles/NKO_courses.htm.
- A list of the **course titles** and CNET course numbers is at http://safetycenter.navy.mil/orm/ORM_Explanation/ORM_Courses.htm.

Managing risk

should be a **continuous** and **developing** **process** that **pervades** our strategy… it must be **integrated** into our **culture,** our **approach to problem solving** and our **decision making.**

Admiral Michael G. Mullen