



# USHST

United States Helicopter Safety Team  
Our Vision: A Civil Helicopter Community With Zero Accidents



## **SMS for Certificated Flight Instructors**

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With all the information about Safety Management System (SMS) available today, adding SMS instruction to a pilot in training may seem overwhelming. It doesn't have to be, and it is a CFI's responsibility to train & produce safe pilots. In most flight training the following key elements already exist:

- *Training Objectives*
- *Syllabi for training courses*
- *Standard Industry Practices*
- *Operational Control of Aircraft Policies*
- *Aircraft Maintenance Procedures*
- *Risk Management*

Students and pilots receiving instruction or flight reviews usually have heard of SMS and Risk Management concepts.



However, they are often unsure exactly how to include those ideas into their daily flight operations. Others may wonder what the benefits of SMS really could be for them. As is the case with many aviation skills, the CFI is critical in showing practical SMS application and benefits that help bridge the gap between textbook theory and the student's real life situation.

At the ab initio flight training level, a SMS or Personal Risk Management System allows you to build a formal process for ground & flight operations. SMS is based on four pillars: safety policy, risk management, safety assurance & safety promotion. Start with the first two vitally

important components of a SMS in teaching pilots in training about SMS. Pilots that are trained in being dedicated to Safety and managing risk will easily move forward in the helicopter industry and more complex company or Corporate SMS.

The first two components can be accomplished very simply.

### **Step 1: Safety Policy**

Often we do not have an active role in policy creation and it is regarded as something created by others for us to follow. Pilots should understand that we can create our own safety guidelines when we have a basic understanding of what makes good safety policy. This active involvement allows us use policy to enhance our own safety instead of simply following it out of obligation.

A pilot brings policy into their SMS by defining their personal limitations for weather, rest, proficiency & currency. Show them how taking the time to think through these issues beforehand will help them make safe decisions as opposed to waiting until the moment decisions need to be made at which time human error generated by incomplete situational awareness is more likely. A simple, but thought out Risk Management process can help guide policy so it has real safety benefits.

### **Step 2: Risk Management**

Risk management begins with Hazard Identification, assessing the risks associated with those hazards and then mitigating & managing those risks continually.

Some definitions:

**Hazard** – something that might cause injury or damage, or an undesirable event.

**Risk** – The product of the likelihood that an event will occur and the severity of the consequences of that event.

**Mitigation** – A way to reduce the level of risk.

The CFI might be asked, “Why would I go through such a complicated effort? I know what is dangerous, right?” This process can identify previously unknown hazards, uncover dangerous error chains and help to prioritize which safety issues need to be addressed in order to focus limited time and resources.

There is a published Perceive, Process & Perform method of identifying hazards, assessing risks and managing risks. This is called the “3Ps” method, it uses the acronyms of:

- **PAVE** to ID hazards,
- **CARE** to assess the risks &
- **TEAM** to manage risks.

A full description of the 3Ps method is published and explained in the following FAA publications:

- *The Pilot’s Handbook of Aeronautical Knowledge, FAA-H-8083-25A, Chap. 17, ADM*
- *The Helicopter Flying Handbook, FAA-H-8083-21A, Chap. 14, Effective ADM and*
- *The Risk Management Handbook, FAA-H-8083-2.*

CFIs can easily bring SMS Risk Management to the training of all pilots, ab initio to advanced levels. Have the pilot use one of the above models to do a Hazard Survey of their current flying environment, or use accident reports as case studies. Once they have collected a list of hazards, explain that it is not ideal to simply respond to every hazard with some sort of safety policy or other mitigation. Introduce them to a simple Risk Matrix.

The purpose of a Risk Matrix is to determine a level of risk and assign a value to it, which helps with prioritization. The definitions of each level of likelihood and severity should be defined in terms that are realistic for your individual operational environment.

There are various forms of this matrix, but they all have a common objective, which is to analyze the potential consequences (or severity) of the

hazard versus the likelihood (or probability) of the hazard.

### Example Risk Matrix:

Risk Scale	Severity					Probability
	Catastrophic	Hazardous	Major	Minor	Negligible	
Frequent	5	5	5	4	3	
Occasional	5	4	4	3	2	
Remote	5	4	3	2	1	
Improbable	5	3	3	2	1	
Extremely Improbable	4	3	2	1	1	

Green = Acceptable  
Yellow = Acceptable with mitigation  
Red = Unacceptable

Explain to the student how the scores from this Risk Analysis can guide them when they set their own safety policy, training or equipment purchasing goals, which are examples of Mitigations.

A Mitigation should be aimed at decreasing the Likelihood and/or Severity of the targeted high risk Hazard. This kind of systematic Risk Management will deliver the greatest safety ‘bang for the buck’.

CFIs are the closet link to the development of pilots in training. Bringing forward a SMS or Personal Risk Management System will prepare pilots to apply Industry Best Practices in safety throughout a flying career.

Resources available for the flight instructor in taking SMS instruction further are:

- *FAA SMS video series*
- *FAA AC*
- *IHST*
- *HAI*
- *ICAO*
- *NTSB accident reports*

CFIs should note that having a sound knowledge of SMS and Risk Management is a desired skill recognized by helicopter operators and employers as an Industry Best Practice.

This document is a peer reviewed publication by an expert panel of the USHST SMS Committee. More information about the USHST/IHST, their reports, safety tools, and presentations can be obtained at the web site: [www.USHST.org](http://www.USHST.org).