

# Safety is No Accident

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## **Having a safety management system (SMS) doesn't guarantee an organization won't have an accident, but it demonstrates good leadership, saves lives and reduces costs.**

The pilot was dropped off to recover an aircraft that had experienced a maintenance problem on a previous mission and was left at another airfield for repairs. The repairs had been completed, and the pilot was to ferry the aircraft back to its home airfield.

Normally, all flights for this unit consisted of a crew of three. Since this mission was not routine, the organization's instructor pilot, who also had the most experience flying through the hills between the two airfields, was selected to fly the mission. The risks of solo flight for this mission had been properly identified and assessed.

After takeoff, the pilot was cruising at 500 feet below a solid overcast with calm winds. The weather forecast was for VFR conditions with a 3,000-foot ceiling at the destination and a 1,000-foot ceiling over the hills. He planned to arrive 30 minutes before sunset. The pilot was familiar with the area, having flown the route for three years, and he knew that forecast weather and real weather were not always synonymous. He selected a route through a valley instead of going direct, giving him some options should the weather change and maximizing the availability of forced landing areas in the event they were needed.

As the flight progressed, the sky turned from light gray to dark gray, and the ceiling began to drop below what was forecast, forcing the pilot to descend closer to the tops of the hills. In a perfect scenario, he would have immediately turned 180 degrees and returned to the departure airfield. Instead, because the ceiling was dropping and he was almost through the hills, he descended over the valley, being careful not to drop below the top of the ridgeline. The valley turned 90 degrees from his course to destination, but there was a small saddle he could cross, pop over the ridge and break out over flat open terrain.

When he approached the last ridgeline, the pilot could see that the gap was closing between the base of the clouds and the tops of the trees on the hills. The race was on, and the intensity started to increase. As the aircraft approached the ridgeline, the pilot began to feel a sense of relief; it looked like he would make it. Beyond the final ridgeline, he could see rays of sunshine lighting up the flat terrain in the distance. The ceiling was dropping rapidly, and wisps of clouds were reaching down and touching the tops of the trees. As the aircraft cleared the crest of the ridgeline, barely maintaining VMC, the pilot lowered the collective to avoid the ragged bottom of clouds. He made it.

Then, all of a sudden, he saw it—one lone, thin and very tall dead tree a few feet in front of the aircraft. Its gray color had blended with the clouds in the background, and he hadn't seen the tree until it was too late. Panic set in, his stomach turned over and he became nauseated. He waited for the inevitable and immediately thought of his wife and son. In fractions of a second he recognized his mistakes, regretted not having turned around, and anticipated the blades hitting the tree, the resultant loss of control and the grief his family would go through. And then it happened. Nothing. No bang, no vibration. He had missed the tree. With a huge sigh of relief and his heart rate slowly returning to normal, he proceeded to clear the hills, climbed to a comfortable altitude and landed safely at his destination.

## Managing Safety

Safety management problems, like the one detailed above, were involved in 46 percent of the accidents analyzed in a recently published report by the Joint Helicopter Safety Analysis Team (JHSAT), a committee within the International Helicopter Safety Team (IHST). In the study, the team analyzed 197 reported helicopter accidents for the year 2000, as recorded in the National Transportation Safety Board's U.S. database. The JHSAT found that a major contributing factor in most accidents was the failure to adequately manage known risks. Due to the lack of a systematic process, defined by a safety management system (SMS) that includes leadership and accountability, organizations did not adequately prioritize and address the risks that led to most accidents.

Safety management problems were one of the broadest categories identified by the JHSAT as contributing to accidents. They identified 171 interventions targeting safety management that could have played a role in preventing an accident. Safety management problems included the operators' apparent attitudes toward assessing risk, as well as how organizations manage safety as part of their operation ethic.

A SMS is not a panacea or cure-all, providing 100 percent assurance you will not have an accident. It is, however, the foundation that is needed to properly identify and eliminate factors that lead to accidents. Without a SMS, you almost double the chances of having an accident.

## What Is a SMS?

A SMS can best be defined as a coordinated, comprehensive set of processes designed to direct and control resources to optimally manage safety. A SMS takes unrelated processes and builds them into one coherent structure to achieve a higher level of safety performance, making safety management an integral part of overall risk management. A SMS is based on leadership and accountability. It requires proactive hazard identification, risk management, information control, auditing and training. It also includes incident and accident investigation and analysis.

The Joint Helicopter Safety Implementation Team (JHSIT), another committee of the IHST, was chartered to develop cost effective strategies and action plans to implement the recommendations of the JHSAT. As one of its first initiatives, the JHSIT compiled a Safety Management System Toolkit. This toolkit identifies 11 core attributes that will assist in ensuring a SMS is effective for any organization. These core attributes are:

- SMS Management Plan
- Safety Promotion
- Document and Data Information Management
- Hazard Identification and Risk Management
- Occurrence and Hazard Reporting
- Occurrence Investigation and Analysis
- Safety Assurance Oversight Programs
- Safety Management Training Requirements
- Management of Changes
- Emergency Preparedness and Response
- Performance Measurement and Continuous Improvement

## Applying A SMS

In the incident discussed above, elements of the organization's safety program led to a risk assessment but did not provide the good risk management that comes from having a SMS. How could a comprehensive SMS have helped better manage the risks associated with this flight?

The organization thought they had a good safety program, yet they came very close to having an accident. They had assessed the risk of solo flight and picked the most qualified pilot for the situation. Perhaps, with a good SMS, they would have avoided the situation altogether. Had the organization's standard operating procedures required additional crew, even for ferry flights, another set of eyes may have avoided the near-miss with the tree. Having a minimum weather standard that accounted for the geography and propensity for sudden, unforeseen weather may have resulted in aborting the flight or perhaps not attempting it at all. One of the guiding principals of risk management is, "Never take unnecessary risks." Had management done a better job assessing the total risks associated with this flight, it may not have scheduled it. These are all issues that a good SMS would have identified and prevented.

The toolkit compiled by the JHSIT will help organizations understand the fundamentals of a SMS and serve as a guide for them to set up a system tailored to their size and mission. The toolkit, as well as examples and attribute resources are accessible on the ALEA website at [www.alea.org](http://www.alea.org).

Implementing a good SMS is fundamental to preventing accidents. Safety features that are designed into aircraft or safety kits that are purchased for installation on aircraft require funding. Implementing a SMS requires only commitment and good leadership. The lack of a SMS will diminish all of the safety gained by having the most advanced aircraft and safety options available. Having a SMS protects the organization's investment, makes it more efficient and can compensate for not having the most advanced aircraft and all available safety options.