

Hospital Helipad Safety and Management

by Michael Middleton, MBA, PMP

Air transport of patients via helicopter is sometimes necessary to ensure that patients can receive the care, treatment, and services they need in a timely fashion at the right facility. When an aircrew carrying a critically ill patient lands on a hospital helipad—with security personnel ready to secure the area and clinical staff standing by to receive the patient—much could go wrong if risks are not managed carefully.

An aviation accident can have a serious negative impact on a health care organization and the community it serves, as well as a lasting effect on a hospital's reputation. Most passengers on air ambulance flights are critical care patients, many of them unaware that they are on a helicopter. As the use of emergency medical services (EMS) aircraft grows, preparedness for potential emergencies must increase. Currently more than 1,000 medical aircraft are in service in the United States, and during 2014, helicopters transported more than 400,000 patients.¹ These numbers are expected to grow.

Air transport of patients requires careful attention to safety. The rules and regulatory oversight related to hospital helipads are not as robust as those for public airports. Hospitals need to ensure that the helipad is a safe environment for patients, air crews, and hospital staff. Risks associated with helipads include potential crashes; vertical obstructions; lack of personal protective equipment (PPE); and slips, trips, and falls. Even minor aircraft accidents could result in serious injuries or fatalities, as well as long delays in emergency air medical transport to the community and damage costs.

Hospitals and health systems can take steps to ensure that this vital, often life-saving resource is as safe as possible for patients, staff, and aircrews. To maintain

a safe environment, hospitals should work to reduce unnecessary complexities for aircrews and staff who are landing and working at the hospital helipad.

Given the potential for an aircraft incident to become catastrophic, the return on investment (ROI) for helipad safety is justifiable. A recent poll among staff of one helicopter EMS company found that 72% of respondents felt that the design, construction, and maintenance of the hospital helipads in their operating areas did not meet the generally accepted or current guidelines.

Moreover, a 2011 survey by the National Emergency Medical Services Pilots Association provides insight into the state of hospital helipad safety and maintenance. The 1,314 respondents indicated the following:¹

- 49% of aircrew did not know who in the hospital was responsible for oversight of helipad design, construction, licensing, and safety
- 33% of aircrew had been involved in one or more accidents at a hospital helipad that involved personal injury or property damage
- 41% of aircrew reported having witnessed one or more accidents at hospital helipads involving aircraft damage

Fortunately, the aviation and health care industries have developed a number of best practices to identify and mitigate risk. These include proactive risk assessment, hazard vulnerability analysis, improved training and procedures, greater situational awareness, and increased investment in safety.

Safety issues are best addressed proactively, by anticipating potential hazards or incidents and mitigating them through training and improved processes before harm can reach patients, aircrews, or staff. If an incident does occur, this level of preparedness and mindfulness of

risk can also improve an organization's response and mitigation efforts.

The “black swan”

Cognitive behavioral psychologists have observed a tendency in human beings called the *illusion of explanatory depth*. This occurs when we believe that we fully understand something when we actually do not.² In some circles this tendency is called the “black swan.” An individual may believe he or she has a good understanding of risks and potential exposures until an incident occurs.³ Many times after an incident, those involved say, “I never saw that one coming.” This is often a result of the illusion of explanatory depth.

Assessing risk

Fortunately, hospitals have methods of systematically identifying risk using familiar and cost-effective means. Among these is the proactive risk assessment, or a failure mode and effects analysis (FMEA). Hospitals can use a risk assessment (or FMEA) to evaluate the following risk points:

- Helipad design
- Regulatory compliance, including US Occupational Safety and Health Administration standards and US Federal Aviation Administration requirements
- Procedures for helipad operations for aircrews, clinical staff, security, and facility maintenance staff
- Staff training on helipad operations and safety
- Environmental factors such as location, geography, weather patterns, and surrounding air traffic

Such recurring risk assessment serves a number of purposes. It identifies risks to the system on a recurring schedule that allows for proactive improvements. It

(continued on page 10)

also sends the message from leadership to patients and staff that the hospital takes safety very seriously. Risk assessments can also be used to enhance training because they identify hazards, build awareness about potentially negative situations, and suggest resolutions to those situations.⁴ In addition, risk assessments can be used to evaluate questions or situations where there is no clear answer.

The actions of health care organizations often are guided by regulations, best practices, lessons learned, and other factors; however, situations may emerge where little guidance is available. A risk assessment can help a hospital formulate questions or scenarios and identify potential solutions. It can help an organization make an educated guess and at least start down the road toward a solution.⁴

Risk assessments are best performed by multidisciplinary teams that include staff from all areas potentially affected by the issue. The stakeholders should represent a range of perspectives to ensure an unbiased approach and that all bases are covered.⁴ Hospitals should also consider working with their air EMS providers as well as local emergency response agencies to ensure comprehensive analyses. A variety of methods exist for performing a risk assessment, but most follow a basic structure that includes the following seven steps:

1. **Identify the issue(s).** The first step in conducting a proactive risk assessment is to clearly define the issue under study. This issue becomes the focus of the risk assessment. It is important to avoid combining several issues in a risk assessment, or the process could become complicated and confusing.
2. **Develop arguments that support the proposed process or issue.** Collect evidence that shows how and why a process is believed to be safe and effective.
3. **Develop arguments that disagree**

with the proposed process or issue.

These arguments may be perceived concerns or situations that may pose potential risks or impact a situation negatively.

4. **Objectively evaluate both arguments.** The risk assessment team (with any additional subject matter experts) conducts an impartial comparison, in which advantages and disadvantages of a process are thoroughly examined.
5. **Reach a conclusion.** After the team reaches a conclusion, it can inform hospital leaders, and submit the risk assessment to a standing multidisciplinary committee, such as the safety committee or a performance improvement committee, to ensure organizational consensus relative to the resolution of the issue.
6. **Document the process.** Submittal of the risk assessment to a multidisciplinary committee provides appropriate documentation of the risk assessment process. The risk assessment and committee discussion should appear in the multidisciplinary committee minutes.
7. **Monitor and reassess the conclusion to ensure that is the best decision.** A monitoring strategy should be included in the risk-assessment document that is submitted to the multidisciplinary committee. The strategy should include a specific date to reassess the conclusion drawn.

Hazard vulnerability analysis

One specific type of risk assessment that organizations should employ is the hazard vulnerability analysis (HVA). To be effective at emergency response, an organization must use an approach that is planned and structured yet flexible and scalable. The HVA is a critical component of an organization's emergency preparedness program, and it is required under The Joint Commission's Environment of Care (EC) and Emergency Management (EM) standards.⁴ An HVA should be based on an all-hazards

approach, meaning that the HVA should list all possible disasters that could impact the health care organization and the community it serves, including any potential aviation or helipad incidents.

The HVA also benefits from a multidisciplinary approach involving EC staff as well as organization leadership, nurses, physicians, support staff, and so forth. The EM standards require organizations to coordinate and prioritize potential threats with the community and include the community in the HVA process. To do this, an organization may want to have the fire chief, police chief, and other emergency preparedness personnel participate on the multidisciplinary HVA team. At the very least, an organization should share its HVA with local agencies.

The team should develop a list of possible emergencies, being sure to think outside the box and consider not only probable emergencies—such as natural disasters, multiple casualty transportation accidents, and chemical spills—but also emergencies that, although unlikely, could wreak havoc on the organization if it is not prepared for them, such as an influenza pandemic or a terrorist event.

After they are identified, hazards should be categorized into areas such as natural hazards, technical hazards, human events, and hazardous materials. Then the multidisciplinary team should determine each risk's probability of occurrence and possible impact, as well as the organization's level of preparedness to respond to the risk.⁴

For each emergency identified in an HVA, an organization should implement mitigation activities designed to reduce the risk of any potential damage due to the emergency. The Joint Commission requires organizations to reevaluate their HVAs every year to ensure a current and comprehensive risk analyses of potential emergencies and their effects.

Safety management systems

Organizations must guard against complacency and be continually vigilant

when it comes to helipad safety. In addition to the proactive risk assessment methods, hospitals should work with internal staff and aircrews to ensure that an adequate safety management system is in place for the helipad. A hospital can improve safety by ensuring that it has an integrated safety system for the helipad that addresses accountability and oversight, safety issue reporting, training, maintenance, and inspections.

The good news is that many of these steps are economical and practical to implement. The costs of prevention are far lower than the human and economic

costs of a helipad incident, which could include injury to patients and staff, damage to aircraft, property damage, litigation, increased insurance costs, and negative publicity. 

References

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