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NATIONAL TRANSPORTATION SAFETY BOARD

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Commentary: Thank You For Not Flying

(3 Pages)

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Helicopter ambulances could be hazardous to your health.

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IN A SMALL COMMUNITY hospital in rural Indiana, a 63-year-old man is suffering from heart problems. The treating physician determines that the patient's condition is serious and makes arrangements to move the patient to a larger hospital with more resources and specialists. A medical helicopter is called to make the transfer. No one questions the increased cost of using the helicopter—or the extra risk inherent in flying.

There is nothing remarkable about this scenario. Every day, patients in communities across the United States are transported by medical helicopter. But the 63-year-old patient on this flight didn't arrive at the larger hospital; the helicopter transporting him crashed en route. With the others on board too seriously injured to help him, he strangled to death on a restraining strap. The injured crew and pilot were transported by another helicopter to a trauma center. The National Transportation Safety Board (NTSB) ruled the cause of the accident pilot error; before the flight, the altimeter was known to be malfunctioning.

This disaster is one of 35 medical helicopter accidents that occurred in the United States in 2004 and 2005. Since January 2005, nine crashes resulted in 23 fatalities, a rash of medical helicopter mishaps not seen since the 1980s.

It is widely assumed that medical helicopters provide a significant advantage for patients and save lives. However, recent studies have begun to demonstrate that few patients actually benefit from medical helicopter transport, even during most emergencies. Helicopter transport is appropriate for patients who have conditions that require a time-sensitive intervention, such as life-saving surgery or cardiac angioplasty. These conditions are rare.

Medical helicopters were first used for civilian health care in the 1970s. Initial scientific studies in the 1970s and 1980s indicated that patients transported by helicopter had improved outcomes over those transported by ground. Therefore, many hospitals purchased helicopters and began offering helicopter transport. Today, there are nearly 800 medical helicopters in the United States. In metropolitan Phoenix, Arizona, alone there are more medical helicopters than can be found in all of Canada.

One of the reasons for this proliferation is a change in health care regulations. In the late 1990s, the air ambulance industry was successful in pushing federal regulators to increase Medicare payments for air transports. With an improved reimbursement scheme, an opportunity suddenly opened up for commercial operators to enter the arena.

Many helicopter transport companies opted for less expensive, pre-owned, single-engine aircraft—scores of which had already put in decades of work ferrying oil rig workers to platforms in the Gulf of Mexico. Many of the commercial operators also kept salaries for pilots and medical personnel relatively low in order to field additional aircraft. Medical helicopters became commonplace.

Recently, researchers have again studied the helicopter transport of ill or injured patients and have drawn considerably different conclusions from those of the researchers working two decades earlier. There is increasing evidence that only a fraction of the patients transported by helicopter derive any significant benefit over patients transported on the ground, a change likely due to improved capabilities of land ambulances.

A 2002 Stanford University study evaluated 947 patients delivered consecutively to a California trauma center by medical helicopter and found that only 1.8 percent needed immediate surgery for life-threatening problems. The researchers concluded that only nine of the 947 patients possibly benefited from helicopter transport and that for five patients, helicopter transport was possibly harmful.

Last year, a group of university researchers, including myself, and state officials from Vermont and Wisconsin conducted a study of 37,350 trauma patients transported by helicopter from the accident scene to a hospital. We found that approximately two-thirds of the patients had injuries that, based on validated trauma criteria, are considered minor. (The abstract was published in the journal Prehospital Emergency Care, and the full article will soon be published in the Journal of Trauma.)

More research may be needed to demonstrate the scope of the problem, but questions about the utility of medical helicopters extend to the highest levels of the medical community. "There is simply not enough science [measuring the utility of medical helicopter transport]," says Richard H. Carmona, U.S. surgeon general and former medical director of the Arizona State Police medical helicopter program. "I am concerned that resources, such as medical helicopters, are used appropriately and cost-effectively for the benefit of the patient." Carmona suggests that air ambulances be incorporated into the emergency medical system and be dispatched using a common communications system and be held to standards that decrease expenses.

Right now, the air ambulances have a lot of influence over when and where they fly. Overworked hospital physicians will gladly authorize helicopter transport—just to get a patient out of the hospital so another patient can fill the bed. Cost is often forgotten or not considered.

Likewise, at accident scenes, helicopters are easy to call for. Helicopter operations often provide volunteer fire departments and ambulance squads with free pizzas, coffee cups, key chains, and even medical equipment, and encourage the rescue workers to call for the helicopter before they arrive at the scene—long before they have a chance to even lay eyes on their patients. This adds to a system already out of control.

Many families are now being left with air ambulance bills ranging from $8,000 to, as in one case in Arizona, $40,000. Patients are being billed because Medicare administrators and private insurance carriers are more carefully scrutinizing compensation for helicopter transport, possibly because the number of flights paid for by Medicare alone was 58 percent higher in 2004 than the number paid for in 2001. Many of the for-profit helicopter operators hire collection agencies to aggressively pursue patients for payments of these unexpected bills.

Besides cost, safety is a consideration. The proliferation of medical helicopters has been accompanied by a marked increase in the number of accidents, prompting the NTSB to issue a safety advisory for medical helicopter operators last January. The bulletin recommended that ambulance operators improve qualifications of dispatchers, enhance preflight risk assessment, use night-vision imaging, and install terrain awareness and warning systems in all medical aircraft. The air medical industry is slowly beginning to initiate measures to enhance safety and clearly wants to dissociate from the idea that operators are the sole source and solution to the problem.

“Air medical providers are taking the NTSB recommendations seriously,” says Edward Eroe, president of the Association of Air Medical Services. “We want to partner with them to improve safety, as we all have to work together to make real improvement.”

But the increase in the number of medical helicopters has also resulted in a marked decrease in the number of qualified pilots, flight nurses, and paramedics available for hire. The rise in demand, accompanied by the retirement of Vietnam-era pilots from the medical helicopter ranks, has caused many medical helicopter operators to drop the minimum number of flight hours they require of pilot applicants. Furthermore, because flights equal revenue, some pilots are being pushed to fly in questionable conditions.

The tremendous increase in the medical helicopter accident rate prompted Johns Hopkins School of Public Health researchers to evaluate emergency medical service helicopter crashes from 1983 through April 2005. They found that being a member of a medical flight crew is now among the most dangerous occupations in the United States—six times more dangerous than standard occupations and twice as dangerous as mining and farming—similar in riskiness to the duties of combat pilots in wartime.

Here in the land of plenty, we have created a system that has taken a useful tool—the medical helicopter—and transformed it into the most dangerous and most expensive transport modality available.

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