



Helicopter emergency medical services

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The first helicopter flight took place on Sept 14, 1939, when Igor Sikorsky lifted his open-cockpit VS-300—a conventional single-rotor model—off the ground in Connecticut, USA. Sikorsky recognised the potential of the rotary-wing aircraft as a platform for humanitarian operations. The first helicopter mercy flight occurred only 5 years later on Jan 3, 1944, during which blood plasma was ferried from Lower Manhattan to New Jersey for victims of a steamship explosion. In 1945, the usefulness of rotary-wing aircraft as a rescue and medical transport platform were progressively defined. The first true helicopter emergency flight was on Jan 15, 1945, when test pilot Floyd Carlson flew Dr Marriot to a snow-bound farmhouse in upstate New York to treat an injured airforce test pilot. 2 months later, Carlson rescued a fisherman trapped on an ice-flow on Lake Erie who had been given up for dead. The ice prevented rescue by boat and was too soft to allow rescue by any other means. The first civilian helicopter winch rescue was done on Nov 29, 1945, when two seamen were rescued from a sinking barge off the Connecticut coast.

As the helicopter has continued to evolve, so has the continuing debate on issues related to its use for medical rescue and transport, such as medical staffing. In countries with a low population density, such as Australia, helicopters staffed with critical-care specialists can deliver a critical-care service over a 200 km radius within 1 hour. When this service is combined with the ability to then rapidly transport a seriously ill patient back to a tertiary hospital, without any reduction in the standard of medical care, it creates equity of access to critical-care services that would otherwise not be possible in a country such as Australia. Providing critical-care specialist support to small peripheral hospitals is arguably the greatest life-saving role of physician-staffed helicopters.

Staffing of winch-equipped helicopters with a combination of critical-care specialists and senior paramedics allows helicopter emergency services to be used for many tasks. This combination of medical skills and clinical judgment delivered to the patient in the prehospital environment reduces the time to definitive therapy and allows therapy to be tailored, within the operational circumstances, to the patient's needs. In this context it is the time until patients receive appropriate definitive medical therapy, rather than the actual prehospital time, that becomes the major determinant in patients' outcome.

Helicopters staffed with critical-care specialists who have prehospital experience and an established working relationship with paramedics are in a unique position to provide a rapid on-site medical response in the event of a multiple casualty incident. With suitable arrangements, there might be no need to have hospital disaster medical teams, and a highly trained medical group for specialised

operations such as urban search and rescue can be provided. The emergence of the threat posed by terrorist use of chemical weapons presents new challenges for health services around the world. Helicopter emergency medical services are ideally placed to provide medical support to these incidents by the delivery of antidotes and specially trained medical personnel to facilitate casualty triage and treatment on site.

Helicopter emergency medical services are potentially hazardous operations and must be conducted with a due regard for safety. Safety revolves around the training of both the medical staff and the flight crew, good management of crew resources, and the appropriateness of equipment to the circumstances of each individual mission. Concerns for patients never justify placing pressure on pilots to fly against their judgment. Practically, safety is a costly asset in helicopter operations and extends from the airworthiness of the aircraft to the crash-worthiness of the medical crew and their

equipment. However, the appropriate considerations for safety above competing budget priorities must be part of an organisation's culture.

Helicopter emergency medical services should be regarded as part of the health service. Hospital designs should ensure that helicopter operations can be conducted safely, which must include assessment of whether it is appropriate to include a helipad at a particular hospital within the overall needs of the health service. Noise abatement is increasingly emerging as a priority especially for helicopter emergency medical services on 24-hour operations. Reducing the impact of aircraft noise on the community is an important environmental consideration that can influence aircraft selection, flight operational procedures, and the design and siting of helipads.

On Oct 25, 1972, the day before Igor Sikorsky died at the age of 83, he dictated a letter saying: "I always believed that the helicopter would be an outstanding vehicle for the greatest variety of life-saving missions, and now, near the close of my life, I have the satisfaction of knowing that this proved to be true." The challenge today is not to lose sight of Sikorsky's vision, and to ensure that helicopter emergency services are safely and appropriately used within the communities they serve.



Scene response to a motor-vehicle accident in rural New South Wales, Australia

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