ABSTRACT

Air medical services are a part of prehospital emergency medical services (EMS) that plays an important role in many health care systems. Air medical services can be categorized according to the vehicle used: airplane air ambulance service, search and rescue (SAR) helicopter service that also fulfills ambulance missions, and helicopter emergency medical service (HEMS). HEMS is an important part of prehospital emergency medical response in many industrialized countries and studies have shown their increasing usage worldwide.

Iceland has an airplane air medical service base in Akureyri. The Coast Guard’s SAR helicopter base in Reykjavik occasionally fulfills ambulance missions. Both services are staffed with physicians 24/7. There is no HEMS base in Iceland.

The Icelandic government has focused on operating SAR helicopters that are sufficiently large to rescue large ship crews. However, that scenario is extremely unlikely nowadays, and it may be logical to shift the focus to smaller helicopters in different locations that can provide modern helicopter HEMS, in addition to SAR services.
The location of air ambulance bases is crucial to ensure good coverage. Helicopters have the advantage over airplanes of being able to land almost anywhere. We believe it is likely that new helicopter ambulance bases (SAR or HEMS) will be established outside Reykjavík within a few years. In a recent report, a broad group of experts recommended setting up a HEMS base to cover the South-West part of Iceland for a one to two-year trial period. This has not yet occurred and we see an opportunity for applying advanced mathematical models ahead of this development to find optimal locations for one or more new ambulance helicopter bases and thereby reducing the likelihood of unsatisfactory base locations.

Our research question is: What is a good and fair set of ambulance helicopter base locations for Iceland? To find this configuration, we will use incident data for the past five years from the National Emergency Number and population density data from Statistics Iceland. We are not aware of other studies using incident data for as long a period for this purpose.

(Paper is a not available at this time)