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## The Norwegian Aeromedical System - A Visitor's Perspective

### Introduction and Disclaimer

This paper is written from the author's perspective as a visiting medical student following visits to various aeromedical facilities in Norway during January and February 2005. The opinions presented are personal and do not seek to represent those of any organization, company or academic institution.

### Norway and New Zealand

There is no doubt that Norway has the terrain, environmental conditions and population distribution to make aeromedical transport highly desirable. New Zealand has comparable issues with long distances between patient and hospital, but uses a system of locally operated helicopters with a regional responsibility; this is very different to the nationalized aeromedical systems in Norway.

### Advantages of a Nationalized System

There were a few systemic strengths which became apparent in the Norwegian system. The size and breadth of the system was truly national: it did not rely on one aircraft type or supplier but used both fixed wing and rotary assets to their best advantage.

These assets were nationally funded and centrally managed to allow best use of the resources such as daily flight schedules for the fixed wing fleet. Also there were appropriate levels of management for each service – daily schedules are a cost effective way to efficiently use a national fleet of fixed wing aircraft, whereas Helicopter Emergency Medical Services (HEMS) or Search and Rescue (SAR) helicopters can be used as required to support the needs of the local community.

A national service has some clear logistical advantages such as interoperability and commonality of equipment which is not possible with a regionalized system. This makes transporting patients between assets – such as between road ambulances and aircraft – a simple and standardized process and free from irritating glitches which test the ingenuity of the medical crew. One would hope that during the establishment of a large aeromedical system – such as this – the purchase of a number of similar airframes or aeromedical cabins would allow for a generous bulk order discount during the procurement phase: hopefully this would provide better quality for the operators at a better price for the fund holders.



Photo: Edward Bebb



*Photo: Edward Bebb*



*Photo: Norwegian Air Ambulance/Akuttjournalen*

It was also noticed that all of the equipment on the aircraft was of a particularly high standard including equipment for personal safety such as immersion suits and helmets, the latest clinical equipment, as well as equipment for many other capabilities such as mountain and river rescue. It was very pleasing to see that there were no adverts on the helicopters which sometimes make HEMS services into ‘flying billboards’ and change their colour schemes as often as their principal sponsors change.

The Norwegian system had a peculiar dignity without such advertising, and gave the impression that the service was more about well funded patient care than about carrying the latest profitable advertising slogan.

#### **Co-ordination and Integration**

A large and multi level national system needs proper co-ordination to efficiently integrate and manage its assets. The Norwegian system was particularly impressive in this area for the following reasons:

##### **a. Centralized control centres.**

- i. For HEMS aircraft the dispatch centre was co-located with the hospital, telephones were answered by nurses, and oversight provided by a Doctor with a particular interest in emergency and pre-hospital care. Involving medical staff at all levels of patient care meant that optimum care started at the time of the telephone call and not at the time of arrival of the patient at hospital.
- ii. For search and rescue (SAR) flights an integrated regional control centre worked as a focus for all available assets. Individual SAR flights (such as at Banak in the north of Norway) had a dedicated doctor on site who was able to provide telephone advice and practical assistance to the rural medical community. As these doctors were often of consultant level, the system had the added advantage of placing an experienced hospital Doctor in regions where secondary care facilities were geographically distant and provided the capability to rapidly transport the doctor to any part of the local area.

**b. The principle of ‘co-operative organization’ for SAR.**

There was an active contribution from many organizations who gave much to the synergy of a combined SAR effort. Amongst the many crucial participants in the system, the capability which the military delivered to SAR was astonishing: capability for flying in all weather, highly professional and specialized crews and equipment, extended reach, capacity and endurance of military aircraft, and an endless supportive ‘tail’ to provide maintenance, communication, and supply of materiel. It would be a difficult task for a civilian contractor to compete with this capability under a moderate budget. The military crews received invaluable operational experience in return for this contribution, as well as playing an important role in supporting the wider rural community.

Holding the supply of assets under centralized control to ensure that their use is maximized and delegating clinical responsibility to the lowest level is both efficient and desirable. This ‘centralization’ is only possible with an effective communication system, a well funded and cohesive collection of assets, and pragmatic leadership which – with some initiative and foresight – has the flexibility to deliver an efficient and appropriate response to virtually any imaginable

size or type of task. The SAR system as a whole showed an excess of capability which has a mutual benefit for both the operators and the wider aeromedical service – in times of need this excess of capability becomes an essential requirement. The medical bridging link and clinical focus of the integrated aeromedical service would seem to be ‘Norsk Luftambulans’. Their corps of doctors share a common ethos, purpose and uniform, and work within one national organization where knowledge and ideas can be shared in an environment of complementing experiences.

**Conclusion**

The Norwegian system gave the impression of being driven by clinical needs, as opposed to being driven by commercial interest. The system had many well managed tangible assets as well as much intangible capital such as good morale, cohesion and experience.

I am privileged to have seen several aspects of the Norwegian system, and I am most grateful to all of the facilities at Banak, Tromsø, Oslo and Stavanger which welcomed me and hosted me so very well. From a geographically distant country I will always think fondly of the Norwegian system with wonder and envy.