

## Emergency transport by aeromedical blimp

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### Abstract

Recently there has been an explosive growth in the use of helicopters and fixed wing aircraft for the transportation of patients who are ill and injured. Although using such methods of transport may result in faster access to health care centres, their ultimate role for the civilian population is unclear. Unfortunately, there are many problems associated with aeromedical transport, particularly with rotary wing aircraft, which have shown an alarming tendency to crash. The use of lighter than air vehicles (blimps, hot air balloons) might offer most of the advantages of conventional aeromedical transport, with an appreciable improvement in safety.

### Background

The ever increasing use of aeromedical transport has been stimulated by three factors: the development of regional trauma centres, the current competitive nature of health care in the United States, and the positive military experience with aeromedical evacuation, particularly helicopters, in remote areas. In North America hospitals are now the third largest group of civilian rotorcraft operators after the off shore oil industry and television stations.<sup>1</sup> Over 200 hospitals operate aeromedical programmes, and this number is expected to double in the next decade. The continued slump in worldwide prospecting for crude oil, coupled with the development of cable television, should offer hospitals a chance to move up in this ranking.

There are many expected benefits from aeromedical transport services, including more rapid transit, enlargement of the service area, and greater public

awareness. Indeed the glamour and publicity generated by helicopters may be their greatest features. One expert has stated that "There's nothing quite as glitzy as having a helicopter land on the roof."<sup>2</sup> Unfortunately, there are few data to support benefits to patients from these services,<sup>2,3</sup> and some patients may do worse.<sup>4</sup> In addition, helicopters are noisy, cramped, and very expensive to both purchase and operate. The noise levels inside may exceed 100 db. The transport of obese patients may require crew to be left at the scene to permit take off on hot days. Real expenditures may exceed £1000 per patient transported. Moreover, in 1986 between 22 and 28 civilian medical helicopters had major accidents resulting in at least 15 deaths and 18 non-fatal injuries.<sup>5,6</sup> Preliminary statistics for 1987 and 1988 suggest a slight improvement. Nevertheless, the accident rate for aeromedical helicopters remains triple that of other commercial helicopter operations.

### Proposal

We believe that hospitals have overlooked the obvious advantages offered by lighter than air machines in the aeromedical role. Blimps, although they are not without certain drawbacks, have several advantages. They are safe, quiet, offer increased patient comfort, and draw fewer complaints from the neighbours. This is particularly true of the newest models with turbine power, composite gondolas, and ducted fans (figure). Such technology clearly gives marketing a head start in reaching desirable, medically insured, status conscious, young urban professionals.

Blimps are highly visible and could more than adequately support the hospital's advertising programme. With so many hospitals flying helicopters it is increasingly difficult to distinguish "St John's Lifestar" from "County's Medstar" and "Mt Sinai's Lifeflight." We are confident that the blimp's ability to flash messages to the populace below ("Same Day Surgery," "2 for 1 Special on Stress Tests"), while clearly showing its hospital affiliation, may help better inform health care consumers.

Although blimps represent an appreciable capital investment, we are hopeful that the potential size of the market would lead to cost competition between manufacturers. Operating costs could be offset if hospitals engaged in a variety of ancillary services. These options might vary in different areas of the world but include filming sporting events, safely observing rioting soccer fans, providing radar surveillance against drug smugglers and short range nuclear weapons, as well as perhaps selling photographic film and tyres. In addition, as one of the leading manufacturers of airships is located in the United Kingdom it might improve the trade balance.

Blimps are not a panacea, however. There are few "blimp qualified" airmen, and competition for pilots could result in a great increase in operating costs. Urban "blimp pads" are few in number, and more are

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needed. We believe, however, that the decreased noise and increased safety offered by these machines over rotary wing aircraft would justify the effort.

Finally, the potential of hot air balloons must not be overlooked. Although rather dependent upon prevailing winds, these devices may hold promise for the future. In old, historic cities, where either blimps or helicopters would intrude upon the city skyline, the hot air balloon would be more aesthetically pleasing. Beyond the aesthetic, however, hot air balloons have other advantages. There is no need to store large amounts of expensive helium. There are many more qualified aircrew for balloons. Most importantly, a preliminary assessment at one institution suggested that in the event of a fossil fuel shortage a custom designed aeromedical hot air balloon could be kept aloft almost indefinitely by health care administration staff. This ability may vary from institution to institution.

To further test these concepts, and as there has

been great reluctance to compare helicopter and ground transport directly, we propose a multicentre trial that would compare aeromedical evacuation using helicopters and blimps. Rickshaws, the ultimate "scoop and run" vehicle, would serve as our ground ambulance control. Interested investigators are invited to contact the authors directly.

- 1 McGinley L. Medical airlifts: rise in crashes draws scrutiny. *Wall Street Journal* 1986 Oct 27.
- 2 Reddick EJ. Evaluation of the helicopter in aeromedical transfers. *Aviat Space Environ Med* 1979;50:168-70.
- 3 Urdaneta LF, Miller BK, Ringenberg BJ, Cram AE, Scott DH. Role of an emergency helicopter transport service in rural trauma. *Arch Surg* 1987;122:992-6.
- 4 Schneider S, Borok Z, Heller M, Paris P, Stewart R. Critical cardiac transport: air versus ground. *Am J Emerg Med* 1988;6:449-52.
- 5 Ver Berkmoes R. Aeromedical helicopter accident rate "devastating." *American Medical News* 1987 Jan 9.
- 6 Proctor P. Aeromedical aircraft accidents register sharp increase in 1987. *Aviation Week and Space Technology* 1987 July 13.

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## Is an information booklet for patients leaving hospital helpful and useful?

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### Abstract

**Objective**—To determine whether a booklet given to patients being discharged from hospital giving details of their admission and treatment increased their knowledge and recall when reviewed in outpatient clinics.

**Design**—Patients alternately allocated to receive a booklet or to serve as controls. Assessment by a questionnaire at first attendance at outpatient clinic after discharge. Data were collected over nine months.

**Setting**—One general medical and cardiological ward in a large teaching hospital and associated outpatient clinics.

**Patients**—One hundred and thirty one patients discharged taking at least one drug and scheduled to return to clinic within 12 weeks. Patients stratified by age and by the number of weeks between discharge and outpatient appointment.

**Intervention**—A booklet was given to 65 patients at discharge from the ward; 66 patients served as controls.

**Main results**—Of the patients who received the booklet, 56 (86%) knew the names of their drugs, 62 (95%) the frequency of the dose, and 55 (85%) the reasons for taking each drug. The numbers in the control group were 31 (47%), 38 (58%), and 28 (42%) respectively. These differences were highly significant ( $p < 0.001$ ). Twenty six (40%) who received the booklet brought all their drugs to clinic compared with 12 (18%) control patients. Appreciably more of the first group of patients than control patients knew the reason they had been in hospital, and more of the first group indicated that they would take the correct action when their prescribed drugs ran out. Most general practitioners thought that the booklet was a good idea, that it was helpful, and that it was better than the existing interim discharge letter.

**Conclusions**—Giving patients an information booklet at discharge from hospital appreciably increased the accuracy and thoroughness of their recall of important medical details concerning their illness and its treatment. The booklet was shown to

be feasible, helpful in the outpatient clinic, and preferred by most general practitioners.

### Introduction

A recent draft circular from the Department of Health on procedures for discharging patients from hospital<sup>1</sup> emphasises the need to inform patients of their treatment and follow up; to provide the necessary drugs, ensuring that the patient clearly understands how and when to take the drugs by providing written instructions where possible; and the need to communicate quickly with the patient's general practitioner. Written information has long been considered beneficial in increasing patients' knowledge, but it must be simple and clear.<sup>2</sup> We have designed a patient information booklet, incorporating the initial hospital discharge letter, the prescription given to the patient at discharge (including brief information about the reason for taking each of the drugs), and clear indications of the arrangements for follow up.

We report the results of a pilot study of the use of this booklet to determine whether it is useful to the patients, their general practitioners, and the hospital doctors who subsequently see the patients in the outpatient clinic.

### Methods

#### INFORMATION BOOKLET

A four page booklet with a card base was produced. Each page was covered by two similar but detachable sheets of "no carbon required" paper. Thus anything that was written firmly on the top sheet of each page was copied on to the middle page and also on to the card base, which after the top two copies were removed could be folded to form the booklet for the patient.

The first page of the booklet was an adaptation of the usual interim discharge summary giving details of the dates of the patient's admission and discharge, the ward, and the consultant. It also indicated what the patient had been told about why they were in hospital and on the patient's booklet said: "You were in hospital

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