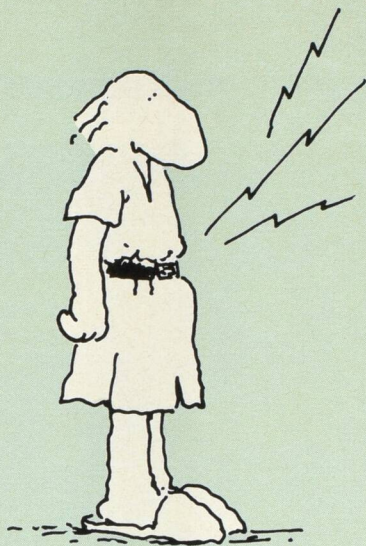


## Tags for Missing Persons

The problem is all too familiar in most large hospitals. Patients, dazed and confused, often wander and become lost inside or outside such huge buildings, and it may take days to find them. In one case, a man was found in a small basement room — dead — 48 hours after he was reported missing.

A tracking device, developed by Barry Bremner of BMA Ltd. near Ottawa, can prevent such tragedy. Originally designed to track animals in the wilds, the device has been adapted as a personal tag for patients or residents of hospitals and homes for the elderly. It can find a person quickly and easily, when time is crucial, especially if the patient requires medication. A field study undertaken at Toronto's Sunnybrook Hospital by NRC's Public Safety Project Office indicates that a patient outfitted with a transmitter can be found in as little as 20 min., within a range of two or three city blocks.

According to NRC's John Arnold, the device can be used in any situation where there is a risk of people becoming lost. For example, mentally handicapped children on a class trip to the zoo can be tagged in case some of them wander off. The device can help cut hospitalization costs as



well. In Canada, for example, over 350 000 people are known to have Alzheimer's disease, a mentally degenerative condition once mistakenly thought of as senility. The BMA tagging device allows such patients to stay with their families, since it is relatively easy to track them if they wander away from home.

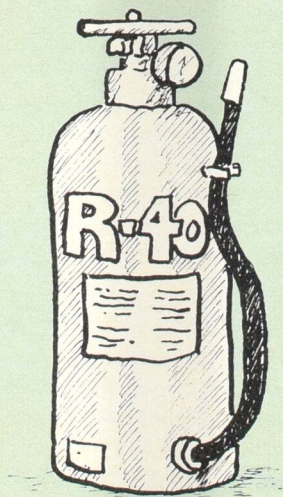
The system consists of a tiny transmitter about the size of a quarter, worn in the patient's belt or necklace, and a direction-finding receiver. Equipped with the receiver, security staff can locate a missing person by direction of the radio wave and inten-

sity of the generated audio signal. And, only one person is needed to operate the unit — a tremendous improvement over the usual situation where 20 to 30 police officers are called in to assist in a search. The system is soon to be manufactured by Orion Electronics Ltd. in Saunierville, Nova Scotia.

Another type of personal tracking device that interests NRC researchers is a computer chip placed in the patient's wristband. This sophisticated tag not only identifies the patient, but the location and time at which he or she left the building.

## Keeping Warm Without Burning

Do the occupants of private homes and commercial buildings run a higher risk in the event of a fire be-



cause of energy conservation measures? NRC's Division of Building Research has reviewed thermal insulation techniques and studied the role of insulating materials in the development of fires.

They began by considering the insulating envelope as a whole, which seals any openings and cracks that might allow air infiltration. When a fire breaks out, there is less risk of smoke propagation to adjacent areas, passageways, and elevator wells if there are no air currents within the enclosure. This is of considerable advantage to the occupants, since they run a higher risk from smoke inhalation than from the fire itself. Experts estimate that more victims fall prey to smoke asphyxiation than to burns; furthermore, smoke often blinds people, preventing them from finding an exit.

It has been observed that the location of the insulating membrane inside or outside the walls of a building has some bearing on the development of a fire. NRC studies have indicated that the most dangerous practice is to cover the inside walls of a building with insulating materials, even if these are fireproof. This type of surface insulation helps the fire develop more rapidly into a general conflagration.

With respect to retrofitting operations, experts recommend that the outside surface of the building envelope be insulated, and that low-combustion insulating materials be used. Otherwise, flames projecting from windows might set fire to such materials.

During recent years, rigid panels of polyurethane or polystyrene foam have been used increasingly for in-