

EDITORIAL

Telemedicine, New Technologies and Care Management

The trend towards health care at home is unstoppable. The hospital as the focus for acute medical care may be 'no more than an uninvited detour to satisfy a set of circumstances that may no longer apply' (Valins and Salter, 1996). This is not to deny the future role of some hospitals as specialist institutions, but others will give way to locally based resource and response centres that support a wide array of medical and social needs.

There is a threefold justification for this assertion.

First is the challenge posed by the growing proportion of very old people in all western nations and its consequences in terms of the numbers of people who are very frail, may have dementia, and in need of particular care and support. Good practice affirms such care and support being provided in familiar and homely environments.

Second is the recognition that the provision of care and support must give consideration to the rights of patients. The notion of patients as passive recipients of medical care is being discarded in favour of partnerships that ensure courses of treatment reflect informed choices made by the patient or, where the patient lacks capacity, negotiated with the carers.

Third is the appreciation of the extent to which technologies are becoming available to facilitate the achievement of both social and clinical objectives in the home. Issues arise concerning the intrusiveness of such technologies and the extent to which they are understood by patients. Important where communications technologies are used are the parameters for data collection and transmission and any effect on the frequency or nature of personal contact with care providers. There can be no denying, however, the opportunities such technologies can bring.

TELECARE

'Telecare' embraces both telemedicine and personal response systems (Gott, 1995). Both operate over

cable networks and increasingly utilize their interactive capability, transmitting and receiving data, speech and visual images. They may require miniature sensors to be worn, carried or implanted.

There is a plethora of telemedicine projects but the focus here is on responsive telemedicine as opposed to consultative telemedicine. Responsive telemedicine enables remote patient monitoring and the transmission of key patient data. The patient will normally have chosen to be monitored in this way and may have personally initiated an alarm call or the sending of information.

Responsive telemedicine has much in common with personal response (or community) alarms (Fisk, 1995). Both are utilizing increasing arrays of sensors capable of monitoring the physiology of patients (movement, respiration, blood pressure, etc), their living environment (temperature, energy use, property security, etc) and personal well-being.

NEW ENVIRONMENTS OF CARE

Telecare technologies cannot be seen in isolation from the environments in which they are installed. A careful eye must be kept on parallel agendas of technological development that include intelligent (or 'smart') homes and active badges (electronic tags). Such technologies may operate entirely within buildings or be linked to cable networks that give access to other services.

The intelligent or 'smart' house

Technologies associated with automation in the home have focused, until recently, on security and energy efficiency. Recognition of the realities of demographic change and the need for better designed dwellings to maximize the potential for independent living has, however, resulted in substantial investment (notably through European Union programmes) to steer such technologies towards the needs of older and disabled people (Sixsmith, 1994; Fisk, 1996a). This emphasizes a

holistic view of health and personal well-being and reflects awareness of services potentially available via cable networks.

An example of this is the BESTA smart house project in Norway, where the Tønsberg municipal authority has fitted eight dwellings with automated technologies to facilitate independent living for people with mild dementia. Real freedoms to individuals are provided but there are safeguards in place to alert support staff in the event of wandering, cookers being left on, etc (Kaasa, 1997). The cost of the technologies is estimated at £2500 per flat but initial evaluations point to financial savings when compared to nursing homes.

The intelligent or 'smart' ward

Those same technologies for utilization in the home also have their place in hospitals and nursing homes. Intelligent systems that utilize sensor technologies have a clear, and as yet unrealized, potential to assist in the management of care for people with dementia by alerting staff when they wander, monitoring physical health and assisting in patient orientation. Importantly, such technologies could facilitate a more flexible approach to patient confinement by monitoring movement and well-being beyond the confines of the ward, nursing home or residential care facility (McShane *et al.*, 1994).

ETHICAL AND LEGAL ISSUES

There are crucial issues regarding the use of such technologies, especially where they involve the wearing or implanting of sensor devices. The ethical dilemmas are of importance where patients no longer have the capacity to make judgements or exercise choices. Some of the legal dilemmas regarding care for demented patients have been explored by Parkin (1995), who reminds us that electronic tagging, however applied, brings about *de facto* detention. He laments the lack of guidance on what is the reasonable use of such devices.

In exploring the merits of such technologies, the term 'active badges' is preferred. This responds to the fact that electronic tags carry a stigma on account of their use for offenders and stray dogs. They, along with closed circuit television, have been given some attention by the Royal College of Nursing (1994), who called for guidelines regarding their use. Cautious preference has been expressed

for the use of electronic monitoring devices (though not cameras) given the alternative of physical restraint, locked doors or sedative medication at a recent forum in London (November 1996) of the Old Age Section of the Royal College of Psychiatrists.

A further consideration is the intrusiveness of such technologies—whether in relation to primary (ie carried or worn) or secondary (installed in the dwelling) devices. Intrusiveness relates to the presence of such technologies and the extent to which the patient understands and is able to control them. Greater intrusiveness results in lower levels of acceptance and can undermine the achievement of clinical and broader health care objectives (Fisk, 1996b).

For primary equipment that is implanted, there is the possibility that, though invasive, such devices will be considered less intrusive by virtue of their invisibility. They may be more acceptable to patients who are increasingly used to medical devices such as replacement body parts and pacemakers. Since, once installed, there is no ready option to remove implanted devices, their functionality becomes crucial, with issues of patient choice assuming substantial importance. Again there are particular issues affecting the use of such technologies for patients with orientation problems, these requiring to be negotiated in consultation with carers and kin (Bjørneby, 1997).

For secondary equipment acceptance will depend, in part, on its intrusiveness, this in turn being affected by the extent to which it is available in the guise of familiar items of household furniture (eg operating via inconspicuous receiving or control devices that link to or are integrated with the telephone or television).

CONCLUSION

Demographic and technological change will dramatically affect the way in which care services are configured for older people, those with dementia and others with acute medical needs. The home will increasingly be the focus for such care supported by an array of technologies the potential of which is not yet fully developed or understood.

For those with dementia the potential benefits of such technologies may be particularly great. The dilemmas about their use are heightened by the diminished capacity of demented people to understand or give consent and the absence of guidelines

regarding technology applications. The task of configuring such guidelines is not helped by the lack of authoritative studies to assess the effects of such technologies on the management and well-being of people with dementia. The importance of both must be acknowledged as the number of people with dementia increases and the context for their care and support moves from the hospital, nursing and residential home to the wider community.

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