

## Hip protectors

### *Prevent fractures but adherence is a problem*

**F**or an older person a hip fracture is a devastating injury that greatly increases disability and mortality.<sup>1</sup> Most hip fractures in older people occur due to a fall on to the greater trochanter of the femur.<sup>2</sup> Clinicians and others have suspected this for a long time and logically have thought about methods of protecting this area. The first patent for a device designed to protect the hip was granted in the United States in 1959.<sup>3</sup>

Hip protectors are devices that reduce the force transmitted to the proximal part of the femur through the greater trochanter in a fall. A pad or shield is held in place over the greater trochanter as shown in the figure. There are many types of these devices marketed around the world, and they fit into two broad categories. The first type pads the area of the hip with an energy absorbing material. The second type uses a semi-rigid plastic shield to divert force from the trochanteric region to the soft tissues of the thigh. In vitro testing of these devices shows a range of energy diminution, and some controversy exists about the extent of reduction of energy needed to prevent the fracture.<sup>4</sup>

After considerable biomechanical development the first large scale randomised trial of hip protectors was conducted in 1991.<sup>5</sup> This study showed a 56% risk reduction through use of hip protectors on an intention to treat basis, although adherence with use of the hip protectors was only 24%. In this and subsequent studies the ward or facility in which the older person was living was randomised rather than the individual user. A Cochrane review on this topic concluded that use of hip protectors appeared justified in certain high risk populations, but cost effectiveness was unclear and "acceptability by users of the protectors remains a problem."<sup>6</sup> Another recently published large scale cluster randomised trial has reported broadly similar conclusions as earlier trials.<sup>7</sup>

Hip protectors should be used at all times when the person is at risk of falling. For many older people this will mean use both during the day and night, and this requires strong commitment from the user or the person providing care for them. Adherence with the use of hip protectors is an important area that requires further investigation and discussion.<sup>8,9</sup> In the setting of residential care, where all the reported trials have been based, adherence will be largely determined by the commitment of nursing and personal care staff in the institution. In community settings adherence

will be dependent on the users themselves and may be more problematic.

Practical issues should be considered when using hip protectors. At least three pairs of hip protector underwear will be needed for each user. Women have been the main participants in the clinical trials reported and hip protector underwear is generally a modified women's continence garment. Hip protectors for men are now available from some manufacturers. Many users of hip protectors are incontinent, and continence pads can be used inside hip protector underwear. As the figure shows, some users of hip protectors prefer to wear other underwear under the hip protectors. This reduces the amount of laundering of the hip protectors and also the number of hip protector garments that need to be purchased. When used in institutions it is recommended that the hip protector shields are sewn into the underwear to reduce staff effort and time. Shields can be supplied that are removed from the garment for laundering. This can reduce the cost of hip protectors and underwear, which is about £40 per pair, for the most widely marketed hip protectors in the United Kingdom. The cost of hip protectors is an impediment to use for some people. It is hoped that they will be accepted for subsidy by schemes supplying equipment.

Hip protectors seem to be an effective technology at this stage of their development. Some improvement in design is necessary to encourage greater acceptance



by users. There is also a small but documented failure rate for hip protectors.<sup>7-10</sup> Adverse local skin and other effects also occur but appear to be rare.<sup>7</sup> Some frail older people require help while dressing and using the toilet while wearing hip protectors and thus lose independence in these activities.<sup>11</sup>

Many clinical trials of hip protectors are in progress, and some have been reported at recent international meetings.<sup>6</sup> One has found that people in the community who use hip protectors feel more confident that they can avoid injury by wearing them.<sup>12</sup> Hip protectors are an emerging and promising technology that can reduce the chance of hip fractures in the setting of residential aged care and for highly motivated community users. They are potentially suitable for use by older people at high risk of hip fracture rather than older people generally.

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IC has been a chief investigator in research studies of hip protectors that have received funding from the Australian National Health and Medical Research Council, and the Northern Sydney Area Health Service. Tytex Pty Ltd provided hip

protectors at reduced cost for some of these studies. Hornsby Ku-ring-gai Hospital, where IC has an honorary position, has developed and manufactures hip protectors for research and retail sale.

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## Thoracic surgery in a crisis

*New report outlines dire shortage of thoracic surgeons*

In the United Kingdom all specialties and primary care are calling out for more doctors. The government's response has been to open more medical schools and increase the places in existing schools. Clearly this will not address today's problems and the numbers may be too small to address tomorrow's. One response should be for us all to examine whether we currently deliver care in the most effective manner. Some specialties have been more innovative than others in sharing the workload with nursing colleagues, but a shortage of nurses means that this is only a partial solution. Making patients more equal partners and enhancing their ability to care more for themselves is another approach, but is applicable only to certain aspects of care.

The recent report from a joint working party of the British Thoracic Society and the Society of Cardiothoracic Surgeons of Great Britain and Ireland suggests that thoracic surgery especially deserves an increase in numbers.<sup>1</sup> Possibly this specialty may have been neglected in the same way that respiratory medicine appears to have been. Respiratory disease kills one in four people in the United Kingdom—nearly twice the average for the European Union. Within Europe, only Kyrgyzstan, Kazakhstan, Turkmenistan, Uzbekistan, and Ireland have higher mortality from respiratory illnesses than the United Kingdom. Morbidity imposes a similar burden, and respiratory illness is the most common illness responsible for emergency admissions to hospital. Respiratory diseases cost the National Health Service £2576m in 2000.

Given these figures one might imagine that tackling respiratory illness would be a government priority. Priority in the national service frameworks introduced by the government is given, however, to heart disease, cancer, diabetes, renal disease, chronic—mainly neuromuscular—conditions, children, and the elderly. The absence of a specific national service framework for respiratory illnesses seems a strange omission. Setting priorities in this way may also create unexpected pressures. For example, in the management of lung cancer the same surgeons who are being pressurised to deliver results in coronary artery bypass surgery are also being asked to provide prompt surgery for lung cancer. As the report makes clear, we may be doing particularly badly in the United Kingdom in this respect.<sup>1</sup>

Each year 40 000 new cases of lung cancer are diagnosed in the United Kingdom. The best chance of cure lies with successful surgical resection. Less than 10% of patients with lung cancer in the United Kingdom have lung resections. How far this reflects advanced disease at presentation, comorbidity, an elderly population, a nihilistic approach to lung cancer, or lack of resources is unclear. However, resection rates of 24% and 25% have been reported in Dutch<sup>2</sup> and American<sup>3</sup> patients. This must make us concerned that the low figure for resections in the United Kingdom in some way reflects pressures on the service. Faced by competing demands from a waiting list for coronary artery surgery one must worry that reasons such as a "touch of comorbidity," "being a bit old," or "tumour being a bit near the midline" might be subconsciously influencing decisions regarding operability.

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