isolation, breaking with tradition, and the quality of teaching but became more positive when they considered the implications of learning in the community. The authors say that "telling is selling"; discussion with interested groups tended to increase support.

One important barrier to any change of site for medical education is the cumbersome funding system, whereby the complex funding provided jointly by the Department of Health and the Higher Education Funding Council is divorced from educational accountability, which is itself unclear. In addition, the provision of the service increment for teaching and research is governed by rules that do not allow the increment to be transferred outside the hospital system. At present the Department of Health (through the family health services authorities) provides small fees for the teaching of undergraduates in general practice but makes no formal provision for the supervision of house officers. The report from King's College recommends that medical education should be both funded and monitored for quality by the Higher Education Funding Council. Medical schools would allocate funds to the various sites where students learn.

Two further proposals should be considered. Firstly, teachers need training to develop their abilities. This is a task already taken seriously in the education of postgraduate trainees in general practice, and without it consistently high quality teaching is unlikely to be maintained in any context.[7] Because formal training in educational skills has been largely absent in hospital settings, reorganisation of the present funding system might not cover staff development and new ways to teach teachers might have to be devised.

Secondly, teaching and research in the community requires an infrastructure, including space, administration, and information technology. Teachers and researchers in general practice need an ability to appraise evidence from scientific research and clinical examination. Because they share these needs and research is likely to be more effective when clinicians and researchers share priorities and values,[8] closer links between clinical teachers, researchers, and clinicians should also pay dividends in the development of primary care. One way of doing this would be to set up academic practices with an additional partner to reduce service loads and contracts to provide both teaching and research.[9] This would also help to prevent the potential isolation of students outside a hospital base but would again require funding additional to that proposed at King's College.

In all these developments there is a risk that primary care departments may be seen as competing with hospital specialties and basic sciences for both curricular time and funding. It is vital that all change is underpinned by a clear educational philosophy related to the aims of the overall curriculum. Hospital specialists also serve the community, but their views were not sought in the King's College project. Examples of good teaching in the present curriculum and house officer posts should not be lost but reinforced. Combined staff development sessions, such as those reported at King's College, could both reduce any tension and improve the confidence of staff working outside the hospital setting. Finally, all change must be carefully evaluated. Evidence based education is as important as evidence based medical practice.

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The shaken infant syndrome

Parents and other carers need to know of its dangers

In children less than 1 year, non-accidental injury is the commonest cause of serious head injury[1]—much of it resulting from shaking and impact. Last week saw the launch of a leaflet, "Handle with Care," produced by the National Society for the Prevention of Cruelty to Children and the Department of Health, in response to increasing professional concern over the dangers of shaking babies.

John Caffey first drew attention to the association of fractures of the long bones and subdural haematomas, and he implicated whiplash injury as the cause of the intracranial trauma.[2] It is accepted that shaking alone can cause the brain damage,[3] and it is now recognised that the infant's head also undergoes rotational forces as well as whiplashing during shaking.[4] Injuries may result from single or multiple episodes of shaking.

The severity of the shaking force is such that shaking injuries cannot occur in any form of playful activity (as Caffey originally suggested[2]). A recent description of the act of shaking states that it is so violent that neutral observers would recognise it as dangerous.[5]

The clinical presentation of a shaking injury may not suggest abuse—signs include irritability, lethargy, vomiting, convulsions, apnoea, shock, and fluctuating consciousness. The history may be confusing if the adult bringing the child to medical attention has no knowledge that the child has been shaken or withholds information. Shaking injuries that produce subtle clinical changes may never be brought to medical attention. There may be a delay in seeking medical help because the perpetrator believes that the shaken child is asleep rather than unconscious. After a variable time, the infant will develop signs of cerebral irritation, cerebral oedema, or intracranial haemorrhage.[4] Acute deterioration, convulsions, or respiratory or circulatory arrest may follow.

Although clinical examination of the infant may reveal bruising or other evidence of neglect in addition to the neurological signs, it often shows nothing unusual. Retinal haemorrhages are present in between 50% and 80% of patients,[6] and when other causes have been excluded are virtually pathognomonic of child abuse. Ideally, the fundi should be examined by an ophthalmologist who frequently examines children. If the cerebrospinal fluid is examined frank haemorrhage or xanthochromia indicate acute or recent

haemorrhage, but this investigation is not done when there are concerns about raised intracranial pressure. Where safe, a subdural tap should be done as the analysis of cerebrospinal fluid is helpful in the dating of injuries.

During the shaking episode the infant is often held by the thorax[4] and the compression forces on the ribs may result in fractures. Alternatively, the child may be held by the shoulders and upper arms or feet.[7] The squeezing and violent movement associated with the shaking may cause the typical fracture patterns of child abuse.[8] Brain damage is often multifactorial with direct shaking injury to the brain being compounded by hypoxic and ischaemic injury, infarction, coning, and the pressure effects of subdural haematomas and impact trauma.[7]

Computed tomography in suspected cases of shaking injury is essential. Subdural haematomas, sometimes of different ages; subarachnoid blood; intracerebral and intraventricular bleeding; cerebral oedema; diffuse loss of differentiation between grey and white matter; and cerebral laceration and contusional tears may all be found in shaken infants.[9] Skull radiology is essential as fractures may be missed on computed tomography.[10] Magnetic resonance imaging supplements computed tomography by showing small subdural collections or identifying subdural haematomas of different ages and shaking injuries that are not visible on computed tomography.[11] Owing to its availability computed tomography remains the primary imaging procedure. More recently, high resolution ultrasonography performed through a patent fontanelle has been shown to be very sensitive in showing shearing injuries and subdural and subarachnoid fluid.[12] Late results of brain injury include multicystic encephalomalacia, obstructive or communicating hydrocephalus, cerebral atrophy, infarctions, and gliosis.

The most severe shaking injuries tend to occur in younger infants as the head is relatively large in relation to the body. As body weight increases and neck muscles strengthen the incidence of brain damage due to shaking falls and is rare after the second year of life.

The outcome depends on the severity of the shaking injury; morbidity and mortality are high when the infant is comatose on presentation.[3,5] Long term sequelae include profound mental retardation, spasticity, motor dysfunction, blindness, convulsions, and hydrocephalus.[5] In one series of children shaken to unconsciousness 60% died or had profound mental retardation, spastic quadriplegia, or severe motor dysfunction. Others who had convulsions, irritability, or lethargy but no lacerations, cerebral infarction, or severely raised intracranial pressure had subtle neurological sequelae or persistent convulsions.[13]

Who shakes their child? The shaking may represent a response to tension and frustration generated by the infant's incessant crying, which may be exacerbated by ignorance of appropriate infant care. People experiencing stress may be more prone to impulsive and aggressive behaviour.[14]

Until now social and medical effort has focused mainly on diagnosing and treating the shaken infant, with little emphasis on prevention. Studies in the United States have shown that although between a quarter and a half of the public did not know of the dangers of shaking infants, they retained information given in an awareness campaign.[15]

We do not know how many infants are shaken in Britain each year, but over 100 deaths occur from child abuse or neglect and in many of these children death is due to brain injury. Increased public awareness of the dangers of shaking should reduce this number and reduce the disabilities of survivors.

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New treatments for multiple sclerosis

May delay deterioration

Encouraging progress has been made in the development of treatments that reduce disease activity in multiple sclerosis. The relation between disability and such activity (as reflected in the relapse rate or the appearance of new lesions on magnetic resonance imaging) is complex, but recent evidence suggests that it may be possible to delay, though not yet abolish, the progress of irrecoverable neurological deficit.

The results of three large randomised controlled trials in ambulant patients with little or moderate disability have been announced during the past 18 months. Only one has been fully reported in the medical literature,[1] but two others were widely discussed at a joint meeting of the American Neurological Association and the Association of British Neurologists held last October. Because much uncertainty exists about the potential role of these very expensive treatments it is important that the present position is clearly understood. In the review that follows, the figures for the two recent reports have been derived from information provided by the sponsors of the trials[2,3]; the data on which the conclusions of these two studies are based have yet to be subjected to peer review.

In a trial of interferon beta-1b 372 patients with relapsing and remitting disease were allocated to placebo or a low dose (1·6 MIU) or high dose (8 MIU) of the drug, which was given by subcutaneous injection on alternate days. After two years the relapse rate (the primary end point) was significantly