What’s to be done about the malaise in science training in paediatrics and child health?

The paper by Raine in this issue of the journal on the results of his analysis of the experiences of young paediatricians in obtaining the degree of MD between 1984–93 is not only thoughtful and provocative, but also a scathing indictment of our specialty in the support given to the brightest and most highly motivated of our young colleagues in pursuing training in clinical research. His article makes depressing reading, with a catalogue of difficulties and a litany of the hurdles experienced by those who managed to achieve the doctorate in due course. Since the paper does not give any information on the experiences of those who fell by the wayside and failed to deliver an MD, it is likely that the total picture is very much worse than that articulated.

Raine highlights a number of important issues, and they can be categorised into (a) the circumstances of the MD student, (b) the quality of the supervision given, and (c) the requirements and inefficiencies of different universities in processing the theses. The following deserve special emphasis.

It is thoroughly unsatisfactory that only 29% of those in research posts were able to submit the MD thesis by the end of the post. The fact that up to 80% of research time was spent on non-research related activities, including regular on call commitments, reveals the abuse of post holders to support service delivery. With this work load it is hardly surprising that so few theses were completed before the expiry of the post. Altogether 46% of submissions required revision. The need to resubmit while holding a full time clinical post probably accounts for the inordinately long length of time taken to obtain the MD—nearly a third of candidates did not obtain their MD until they were consultants, with a median time of 5.5 years from completion of the research post. These dismal statistics point to a lack of rigour not only in planning the timescale of the project—time must be built in to allow completion of the thesis before the expiry of the research post, but more importantly, in the quality of the initial submission.

It is disconcerting to read that one in five supervisors had neither an MD nor a PhD. How is it possible for a research fellow to be effectively supervised if the supervisor has not experienced personally the difficulties and discipline of preparing a thesis? The large number of theses that required revision and resubmission is also symptomatic of poor supervision, and this is further reinforced by the fact that 48% of research fellows met their supervisor less than once each month.

The time taken to obtain the MD is further compounded by the inefficiencies of the universities and their complex and differing regulations surrounding the supplication for the doctorate. There is, clearly, a need for universities themselves to reach a corporate view on the requirements for the MD and improve the efficiency of the process if the currency of the degree is to have any credibility. It is extraordinary that despite this litany, so many MDs were awarded! However, over one in 10 paediatricians who obtained a doctorate published no papers after the MD was awarded. Raine suggests that this reflects little interest in research per se, and that obtaining the MD was simply a hurdle to be crossed on the road to a consultancy.

Raine’s paper addresses only one facet of the experiences of young colleagues engaged in higher doctorates. To obtain a much broader perspective, a similar survey should be completed retrospectively of those paediatricians who obtained a PhD, combined prospectively with an analysis of MD and PhD students registered at the start of training to assess the attrition rate and the reasons for non-submission of theses. Whatever the magnitude of the total picture at present, none the less, Raine’s study paints a thoroughly unacceptable scenario for modern scientific training in paediatric medicine.

Is this a symptom of a wider malaise?

Raine’s paper coincides with the publication of the report by Sir Rex Richards and his task force on clinical academic careers across all specialties. This also makes gloomy reading, particularly against a national crisis in academic recruitment with 56 vacant chairs in important specialties, and in the performance of clinical departments in the most recent research assessment exercise of the Higher Education Funding Council. Dissatisfaction in research and academic training is clearly widespread and is having a devastating impact. Richards argues that clinical academics are required to “maintain the thriving academic and research base which contributes so much to undergraduate teaching and postgraduate education as well as to
acquiring new knowledge of disease processes and improving the quality of patient care*. These sentiments are no less true of paediatrics and child health and we ignore them at our peril.

That there is a major problem in our specialty is emphasised in the recent anonymous editorial in the *Archives of the Diseases in Childhood,* which reported the unhappy state of British paediatric clinical research at present, a view strongly reinforced by others*5,*6 and supported by the deliberations of the Association of Clinical Professors of Paediatrics (ACPP) in its two most recent business meetings. Raine’s paper on the deficiencies of the research training experience provides further ammunition for those of us who argue that there is a serious malaise in the stature and performance of British research in paediatrics and child health.

While recognising that the reasons for this crisis are complex and that there are no easy or quick remedies, none the less, the starting point for any improvement has to be the provision of robust and credible programmes with which to train our young colleagues adequately in the science base for paediatrics and child health. This will be essential not only for succession planning as the present senior academic staff retire but equally for the development of an evaluative culture in our specialty. The difficulty of succession planning was drawn forcefully to our attention in our institution two years ago, when new money was provided to create two new senior lectureships in important paediatric subspecialties. Despite a worldwide trawl, we were unable to appoint to either specialty a colleague who had the training to deliver the performance required of a senior lecturer in the present funding climate. This experience prompted me to perform an informal survey of all senior members of staff in the North Thames region who hold university titles of senior lecturer, reader, or professor. While recognising that some of these titles may be personal or honorary, none the less, I calculated that over 100 senior colleagues are in post, most of whom can be expected to retire within the next 5–10 years.* Where are the successors likely to be found? It would be reasonable for them to found in the ranks of the lecturer grade, but a concurrent survey of lecturer posts held in the seven North Thames teaching institutions shows that there were, until recently, only 20; of these, none was in community child health, few had secure funding, and only a minority had a formal auditable training programme with protected time to develop research as well as clinical skills. There is, therefore, a serious mismatch between the numbers of senior staff and the middle grade academics who are best placed to be the senior academic staff and specialist consultants with research responsibilities of the future.

I conclude, therefore, that unpalatable though the fact may be, none the less, the teaching institutions in central London will face a major shortfall soon in recruitment to academic posts, and since that shortfall cannot be made good by recruitment from other centres in the UK (which face equally intense pressures) the inevitable conclusion has to be that we must invest nationally now in the scientific training of the brightest of young people who will become the leaders of the future and give them a framework for career development which is not only attractive, but which delivers job satisfaction. Raine’s paper emphasises the urgency in addressing this issue.

The prescription to cure the problem is complex and difficult, but I would propose the following components of a way forward.

The need for a cultural change in the attitude towards training for research

In recent years there has been a welcome focus on clinical service training for senior house officers and registrars. This has transformed recruitment and career prospects as well as the quality of the training. Such training is now well organised through the appointment of local, specialty, and regional tutors and through specialist training committees which report to postgraduate deans. I argue that there is now a need for an equal transformation in the organisation and audit of training for research which demands a cultural change in the attitude of all involved in the training of junior colleagues. The need for this focus is exemplified by the fact that at the most recent meeting of the North Thames (East) specialist training committee, only five minutes out of an agenda lasting some two hours related to the needs of research trainees and lecturers! I propose that similar processes to those shown to be effective in improving clinical training should now be applied urgently to research training.

Why do any training in research?

Of course, it is important to ask the question why do research at all? Raine in his paper concludes that many who obtain an MD perform no further research and publish no papers, implying that the attainment of an MD has been seen to be essential for career progression. I argue that this view needs to be challenged and would propose, perhaps heretically, that the holding of an MD (let alone a PhD) should not be an essential prerequisite for a non-specialist hospital or community child health consultant post.

This does not, however, mean that general trainees should not have any exposure to the rigours, discipline, and interpretation of research. If Sir Michael Peckham’s vision of the NHS being transformed into an evaluative culture is to become a reality, it is of essential importance for young colleagues to have formal training (against a benchmark standard) which will prepare them for a life time understanding of research methodologies, the evaluation of scientific papers, and the evidence base for their clinical practice.

One means of ensuring such exposure is through participation in an MSc course such as that piloted at the Institute of Child Health and Great Ormond Street Hospital (M El Habbal, S Strobel, unpublished). In this model, all medical paediatric registrars who rotate through Great Ormond Street Hospital are offered the opportunity at the start of their rotation (usually in a peripheral centre) to enrol as a formal MSc student of the University of London. During the two year day release programme the students are given formal teaching and training in the fundamentals of good research practice, in the interpretation of research data, in evidence based practice, and in the definition of a personal research project. This concept is now in the third year of its implementation, and has proved to be immensely popular and successful with registrars, the quality of the work generated during the course being of a very high standard indeed. I would argue that the majority of future consultants can be given a rigorous exposure as part of Calman training to the research process without necessarily holding a full time training fellowship leading to an MD. This would overcome the pursuit of mediocre, poorly supervised projects as a passport to the consultant grade. This view needs to be supported by those involved in consultant appointments advisory committees.

One important advantage of our MSc programme is that through a well taught and structured insight into research, a number of the students have been so fired by the excitement of research that they have gone on to obtain training fellowships in open national competition to extend their
experience, and to aim for academic or teaching hospital positions in due course, for which the holding of a doctorate should usually be essential.

**The needs of the research fellow**

The dilemma highlighted by Raine's paper is how to improve the experience of those paediatricians who wish to gain a deeper and broader understanding of research through a dedicated period of time as a research training fellow. What can be done to improve this experience?

The starting point has to be the definition of the needs of the research fellow. I propose five essential requirements, namely, a research project, money to support a salary, a supervisor, an appropriate training environment, and an exit opportunity into the next stage of career training.

There should be little difficulty in defining the research project. Any self respecting regional academic centre should have a shelf full of potential projects ready to dust down and give to a fellow. There is every reason to encourage these projects being done in collaboration with district general hospitals and community trusts.

Research funding is, of course, a major headache and is likely to remain a formidable obstacle for the foreseeable future. It is unreasonable to expect young colleagues to generate ideas themselves which have sufficient insight to be credible competitors for local, let alone national, funding. It follows, therefore, that the potential fellow needs to hang on the coat tails of an established investigator who can generate research funding. This leads into what I argue is the most important aspect of this discussion, namely, the roles and responsibilities of supervisors.

The supervisor is key to the success or failure of the fellow's project. The responsibilities are substantial, but as so vividly documented by Raine are often shamefully prosecuted at present. The supervisor is mentor, counselor, strategist, and role model for the fellow. It is an onerous responsibility that demands the commitment of time. The supervisor must be a credible scientist with a track record of success. Moreover, with the implications of Calmanisation, the supervisor must be able to counsel the fellow on long term career opportunities in the discipline. This could create an immediate conflict of interest, with concern for the development of his or her own team being potentially at odds with the reality of career opportunities for the fellow, particularly in the smaller subspecialties. It could be argued that because of this potential conflict of interest, each fellow should have two supervisors, one for science and one for counselling and career development.

In the ideal world, no fellow should begin a research project without enough secure funding to guarantee at least two, and preferably three, years of full time study. This timescale is essential if one of the goals of the training is to ensure that a thesis is complete by the end of the fellowship. Time must be built into the project plan at the outset to allow completion and submission of the thesis before moving on to the next post, and the abuse of time in supporting clinical service must cease. In practice it is often difficult to guarantee funding at the outset but the responsibility of the supervisor must be made explicit in supporting the fellow and to apply for ongoing funding after a “pump prime”. Some departments, notably at University College, London, have an admirable track record of using the lecturer post to provide an initial one year of “proper” research experience thereby enabling the candidate to be a credible applicant for national training fellowships at the end of that time and to offer a re-entry point after the fellowship.

The training environment is of crucial importance. Ideally it ought to be in an institution with a critical mass of researchers that is large enough to support not only scientific expertise, but also an ethos and a camaraderie in the cohort of fellows and lecturers. In our institution we have created formally a clinical research fellows and lecturers committee which is owned, organised by, and accountable to its members. This committee is proving to be extremely important in the interface with the hospital's postgraduate medical education committee, with the regional postgraduate dean, and others. The committee has generated a series of training opportunities in leadership skills, time management, business case preparation, etc, all of which are essential aspects of the training of our future senior staff. The franchise for membership has now been extended to all research fellows and lecturers working in paediatrics and child health in North Thames, and it is a model I commend to other regions.

In our institution, all MD fellows are registered internally, with an obligation to enrol as an MD student at the University of London in order to obtain all the benefits of the institution. All MD students are regarded to be equivalent to PhD students in the allocation of two supervisors per student with a formal programme of appraisal and counselling accountable to the subdean for education, and the postgraduate education committee. With this approach, we intend to ensure that the MD programmes, which are usually timetabled for two years of whole time study, should have high scientific standing and credibility. Fellows are counselled at the outset over choice of MD or PhD, the latter demanding three years of study, usually with more basic science or laboratory involvement.

A legitimate preoccupation of research trainees is the exit opportunity into the next phase of career development. The heads of the seven North Thames academic departments and institutions have proposed a training “map” which has been accepted in principal by the postgraduate dean (fig 1).
This outlines possible career tracks for academic, specialist, and general trainees. Of central importance is the lecturer grade. I argue that this grade is the critical second of three stages in a research career. The first is the fellowship to doctoral level. The second, the lecturer post, offers up to four precious years during which the incumbent is given every opportunity to begin developing skills in generating grant income for original ideas and supervising the work of others, skills which are prerequisites for applying for the third stage, a senior lectureship in due course. I argue that it is the abuse of the lecturer in being regarded to be an “ordinary” registrar which is one of the main reasons for the poor standing of British academic medicine. Equivalent rigour needs to be applied to the training of lecturers who wish to develop a career in medical education.

Improvements in the cultural expectations of lecturers must be matched by more precise manpower planning for academics in general, and in subspecialties in particular, in order to provide hard fact to young investigators in planning their research topics, and in generating confidence of the end point of the training. Innovation is needed in generating seven year training programmes which progress seamlessly (depending upon performance) from research fellow to senior lecturer or specialty consultant.

What are the responsibilities of senior members of the specialty?
There is clearly a massive agenda to be tackled, and this has to be lead by senior colleagues. Action has already been taken in the last 12 months through the offices of the ACPP to work closely with our new Royal College of Paediatrics and Child Health (RCPCH) to improve the standing of science in our specialty. Thus, the voice of the ACPP has been given prominence in the new committee structure of the RCPCH, particularly through the creation of a Science Advisory Committee chaired by the Academic Vice President, Professor Richard Cooke. Its task is to provide advice, both strategic and practical, on matters relating to the development of a high science profile in the college and specialty. There will be a need for dialogue with academics in general, and in subspecialties in particular, in order to develop a high science profile in the college and specialty. There will be a need for dialogue with non-clinical scientists and with research active NHS consultants within the RCPCH’s specialty groups.

The RCPCH itself has created an Academic Panel which I have the privilege to chair, with a fourfold remit. First, to provide advice on entry into the Specialist Register through the academic route; second, to provide guidelines and criteria against which a period of time in research would be recognised as an appropriate component of specialist training; third, to provide the means for the counselling of individual junior staff in the structure of a research career, and finally, to provide guidelines for individual specialties on the training programmes for research within that specialty. This is a formidable work load, which will require much further thought. However, one possible way, for example, of delivering advice on research training could be through the formal appointment of Regional Advisors for Research Training, and linked to the registration of research fellows and a requirement for documented regular appraisal.

The Academic Panel is at the earliest of stages in its development and further reports will be made as appropriate through the RCPCH. None the less, these steps reflect a commitment from the British professoriat in paediatrics and child health, and from the College to address seriously at a national level the requirements for training in science.

Regional centres must be more proactive role in defining training programmes, monitoring the activity, and auditing the product. Perhaps it is going too far at this stage to propose that centres and units themselves should be accredited for research training. A more sensible approach might be to produce agreed minimum quality standards for training which research fellows and lecturers can expect to be delivered.

Finally, there must be a much greater requirement for academic unit heads to be more vigorous in the process of research organisation and rigorous in monitoring the quality of supervision if our specialty is to deliver the numbers of trained scientists that will be needed for the new millennium. Ultimately, it is the quality of supervision upon which the whole edifice of research performance is built.

Conclusions
Raine’s paper documenting the difficulties of obtaining an MD reflect but one facet of a highly complex problem. Of the threat to the future science of paediatrics and child health there can be no doubt. This is an issue which affects every paediatrician, not just those in erudite disciplines and rarefied regional centres. Improving the health of children depends upon research, and the delivery of services demands an evaluative culture. At last, there is a growing recognition of the urgency of the problem, and steps are now being taken at a national level to improve the profile and the reality of research training. There is much to be done, and despite the despondence expressed by others, I am optimistic that with good will, hard work, and above all commitment, the prospects for our trainees should be brighter than they have been for years.

Parents, parenting, and family breakdown
Most couples undertake the serious business of parenting with the belief that they will be able to provide their children with emotional and financial security. The major shifts in family life associated with social and economic changes have made these goals much harder to achieve. An increased emphasis on the desire for individual fulfilment may result in parents making decisions which they hope will improve their own lives, but which their children do not always view as positive. There have been frequent and simplistic attempts to explain the growing insecurities shown by children in educational and social settings simply by blaming changing family structures. Paediatricians,
when faced in practice by children presenting with a range of difficulties, will be well aware of the wide range of influences at work in producing "symptoms" or aggravating an organic disorder.

The media, in its crusade to explain family values in language that ascribes to a "black or white formula", has somehow demanded that allegiance be paid to one side or the other of an often acrimonious debate: either the nuclear family is the only answer for children, or that one family group can be as supportive to children and as effective as any other. Family professionals know the truth to be more elusive and complex. Acknowledging that family breakdown is disadvantageous to children has, in some way, become associated with a "right wing" reactionary view of society and has thus made the discussion of possible remedial action more difficult. We might hope that primary prevention may be assisted by the swing of the pendulum away from its present emphasis on personal freedom and fulfilment back towards responsibility and duty, neither of which are mutually exclusive. This paper presumes no such swing, but addresses issues of secondary prevention.

Doctors will wish to assist this process and, as esteemed members of society with considerable power to influence other service providers for families and children, they are in a position of advantage. Paediatricians, with their trusted and intimate contact with families, may be among those professionals who can inform and advise parents about the common outcomes associated with a range of life events which the child may experience. This will include ways in which children's anxiety may become manifest, how to build and maintain self esteem and self worth, and how to work towards developing the child's own protective mechanisms. Such interventions at the disposal of the paediatrician will at best ameliorate difficulties, but, if wrongly understood and applied, may actually exacerbate problems. Alternatively, an accurate and sensitive interpretation of a problem by a paediatrician, with a secure understanding of the issues that may be involved, can support both parent and child.

This annotation aims to give the practising clinician some insight into the complexity of the possible links between events in children's lives and the experience of wellbeing, functional disorder, and behavioural difficulty. This may assist paediatricians and others to provide parents with strategies with which to minimise the adverse effects of parental separation.

No longer under one roof: parenting in the 1990s

There is no dispute among sociologists, medical practitioners, or the legal profession that the huge increase over the last two decades in the number of children under the age of 16 who will experience their parents' separation presents a challenge. It presents a challenge to the children themselves, to their parents and relatives, to their teachers, to family doctors, legal advisers, and to those required to provide specialist support when the challenge threatens to overwhelm.

Long term adult relationships do not only include marriage; cohabitation, which has become almost universal at some stage of the partnering cycle, presents as an increasingly more attractive, but sociologically more risky, option. Cohabitations are four times more likely to break down than marriages. Thirty four per cent of all children born in England and Wales in 1994 were born to parents who were not married to each other. Twenty two per cent live in households headed by a lone parent. After separation, married fathers remain, on the whole, more committed to their children than departing cohabiting fathers or acquired stepfathers.1

Defining the problem

Birth cohort studies2 carried out in the UK have clearly shown over several decades that there are both short and long term disadvantages to children after parental separation.3 Early effects include lower self esteem and increased health, educational, and social difficulties. Longer term outcomes such as earlier school leaving, lower vocational achievement, earlier serious relationships, departure from the family home, pregnancy, marriage, and divorce. Published research gives a general consensus on outcomes.4 In contrast, the causal relation between these outcomes and the experience of parental divorce per se is hotly disputed.

Causes of disadvantage

Some research has suggested that economic factors and a change in physical circumstances such as home and school are associated with the greatest disadvantage to children.5 The fact of relative poverty in reformed lone parent families is beyond dispute, with such families over-represented (75%) among children living in poverty.6 In the USA research has shown that one year after separation mothers and children are living on an income reduced by 40%, and by as much as 30% five years after divorce.7 The fact that the rapid increase in particular social problems such as criminality and psychological ill health has coincided with periods of unprecedented prosperity for larger numbers of people and major reductions in absolute poverty for most in the late 1960s and 1970s, has led to questioning of the relevance of material disadvantage to general and, in particular, psychological wellbeing.8

The adjustments that parents need to make in their own lives when relationships fail and the necessity to look after their own psychological and social recovery means that they are less able to recognise the requirements of their children. There is a body of research that describes how the physical and mental health of adults also often suffers during the traumas associated with family breakdown.9 This is so for both partners, whether they chose to end the relationship or not. The parent who moves out (usually the father) faces challenges of loss of role and loss of contact and often cramped or shared accommodation, which limits the ability to offer overnight visits to children. Parents describe feelings of loneliness and of being distanced from involvement and decision making in their children's lives.10 Parents who are the main carers (usually the mothers), even if relieved at reduced marital tension, face the challenges of greatly increased responsibilities and the loss of practical support both in household tasks and child discipline. They often underestimate the amount of help that even an unwilling spouse had been able to provide. Wallerstein and Kelly11 and Hetherington et al12 have shown that reduced parental functioning which limits the parental resources available to the child often continues for two years after separation; for some parents the adjustment takes much longer.

Conflict

The importance of parental conflict has claimed the high ground as being the most damaging risk factor for children.13 14 The available data confirm that parental conflict within the family, or after family breakdown, is most strongly associated with adverse outcomes for the children. The correct interpretation of the data about conflict has been inappropriately extended by the well known adage: "Better a peaceful divorce than a conflictual marriage".15 This statement reinforces a simplistic view of family breakdown and has led to much misunderstanding. It is often produced as a justification for divorce. Many divorces, however, occur in previously non-conflictual marriages.
when one partner has an affair or becomes bored; because few divorces are peaceful the conflict is not resolved. In summary, there is no dispute that children do not flourish when exposed to parental conflict regardless of family type, but, equally, there is little evidence either in US or UK research that divorce removes children from parental conflict.

**Parental separation, loss, and repartnering**

Any breakdown of relationships involves loss, even when the expected gains offer recompense. For children, the loss is determined at least as much by paternity or residence as by legal marriage, so that the loss of a parent from a child-bearing cohabitation may be very significant for a child.

An increasing number of parents’ relationships end within the first 10 years, 8% in the first three years and 30% in five to nine years, affecting a higher proportion of younger children. This causes difficulties for two reasons. Firstly, it is harder for the departing parent to maintain a relationship with a young child, so there are subsequently more residence and contact problems. Under the present system these problems often stand in the way of solutions at an early stage, and vital weeks pass by when a pattern of little or no contact sets in. Secondly, the child is more likely to experience one or more episodes of parental repartnering. Although financially supportive for all the family and emotionally supportive for the mother, a new step parent is less likely to be so for the child, and more likely (in a small minority) to be abusive.

In one study, in which a group of children who had undergone multiple family breakdown was included, parental loss was found to have a marginally higher statistical association with adverse outcomes than had conflict: the subgroup who had had multiple reorganisation showed the highest rates of difficulty. These data reinforce US studies which found multiple breakdown to be associated with the most difficulty for children. Children can and do form warm and close bonds with step parents, only to experience added loss should this relationship subsequently breakdown.

**General risk factors for children**

Goodyer found that in the normal course of a year children will be exposed to an average of five “life events”, some of which will be positive, others negative. Some events, such as the birth of a sibling, may appear to be positive to the parents, but can be emotionally devastating to the child. If the overall balance of life events experienced swings towards the negative, or if the experience of one event, such as parental separation, leads to the exposure of the child to a range of other negative factors, the effects may be additive or even multiplicative and the child will become more vulnerable.

Other research with school age children has emphasised the kinds of support necessary to reduce vulnerability and promote adaptation. These include warm and loving parental and adult relationships, stability in the environment, and economic security; unfortunately, factors often threatened by parental separation.

In recent years the UK and other governments have introduced changes to their legal systems which emphasise the rights of children to parental care and support. These are consistent with the World Health Organisation Charter on the Rights of the Child. The most recent legislation in the UK, and the most relevant to this discussion, is the Family Law Act 1996.


The intensive debate that the preceding Bill stimulated in both Houses during the drafting stages was largely focused on the needs of children, with the positive outcome that children’s issues have achieved a high media and public profile. The introduction to the Act outlines its purpose to support marriages in the interests of children and contains a number of measures aimed to reduce the conflict associated with divorce, in particular the removal of fault as a fact to evidence the ground for divorce and encouragement (by information giving and fiscal support) for couples to actively consider mediation. Measures to encourage parents to cooperate in joint future planning include: time to debate the outcome of separation (minimum one year) and possible routes to reconciliation; an imperative to receive and digest information about the effects of the decision to separate on themselves and their children; effective ways of approaching domestic violence and the protection of mothers and children; assessment of suitability for mediation; and mediation, not adjudication, as a preferred option for most parents.

**Information giving and mediation**

Mediation services have been available in this country since 1978 following the Finer Committee recommendation that a more conciliatory approach to the ending of marriage would be of more assistance to parents than separate adversarial representation. Mediation affords the opportunity for both parents to meet together with trained mediator(s) to plan living and contact arrangements and, if they choose, future financial provision for the family. Few of the wide range of professionals who provide services for families and children are aware of the importance of mediation and the availability of services has been limited by financial constraints.

Setting up new services to provide information about the process and consequences of divorce and the expansion of mediation services were piloted by the Lord Chancellor’s Department and the Legal Aid Board in different parts of the country during 1997; phase II of piloting will begin in 1998.

One major advantage of identifying the problem areas for children in the present climate of family change and considering ways in which children may become vulnerable is to assist in the development of strategies to help parents support their children. It is important that paediatricians and other doctors understand both the philosophy and the practicalities of the Family Law Act 1996 and the associated information giving sessions and mediation services. They may also, however, be able to provide a different form of support in a clinical setting.

When parents contemplate separation, they often look first for support from within their own family circle and friendship networks. Unfortunately, just at a time when all their resources are needed, access becomes complicated by the secrecy which often surrounds the decision of one partner to leave.

Several studies have indicated that the family doctor is often the first person outside the family to be consulted by parents. Parents consider such a consultation as within the realms of normality and often produce physical symptoms as an outward sign of the inward emotional distress which is often the as yet unacknowledged trigger for the visit.

Parents recognise that help for the range of problems that they face, often for the first time, is hard to find, confusing, and often only available when crisis points are reached. In response to these findings that parents would welcome assistance at an early stage, One Plus One have developed a programme (Brief Encounters) which aims to provide health professionals with skills to enable the brief consultations possible in busy clinical practices to more
effectively support and direct couples to other services, and to use the time available to them to best advantage.

Doctors are aware of the front line part they play in the support of families, yet when they seek a service to which patients could be referred at an early stage of a relationship problem when there is still a commitment to resolve differences, they may find that they lack specific knowledge about the referral route to an effective service. Relate counsellors and others from similar organisations are increasingly providing services on primary health care premises, and in line with government directives have re-emphasised their role in persuading couples to reconsider their decision to separate. On the whole there is as yet little assistance for families as a matter of course when extraneous support is necessary. It is hoped that new initiatives will be encouraged by the philosophy of the Family Law Act 1996.

How can paediatricians support children

For children whose parents are going through, or have completed, divorce, there is little or no provision for separate advice and counselling outside the therapeutic setting in which paediatricians often see children. Because of their unique relationship with children and parents as trusted and non-labelling professionals they may have a real opportunity for diagnosis and treatment. Recognising the possibility of symptoms having a functional basis may be the key to making forward for a child or young person with recurrent pain, sleep disorders, school difficulties, chronic fatigue syndrome, eating disorders, anorexia nervosa, or a variety of other symptoms.

There are clearly situations where immediate presumptions that in reordered families these issues are responsible for symptomatology can be more damaging than therapeutic. The clinical appointment offers an occasion for these issues to be raised with parents and a possible “treatment” plan discussed, which may have more to do with the reorganisation of family dynamics than medical intervention. Few professionals other than general practitioners have the know how and ability to address most areas of a child’s life and paediatricians as “outside opinions” may have more clinical power and a more effective armamentarium of interventions at their disposal. Paediatricians as a group are also in a position where their power to lobby policy makers would be expected to result in new genuine initiatives to support children before recognised symptoms require orthodox treatment.

Some professionals consider that the school environment could provide a safe arena to discuss the shared problems of family separation and reorganisation. Successful small scale interventions involving parents and children have been introduced in the USA (N Kalter et al., Time limited developmental facilitation groups for children of divorce: early adolescence manual; unpublished manuscript, University of Michigan, 1993). In the UK there are pockets of good practice where family issues are part of a school personal and social education programme, but there is room for development. Organisations such as Relate have two pilot programmes to provide counselling for adolescents in Northern Ireland and the Midlands (Relate, details from Relate Marriage Guidance, Rugby).

Some mediation services provide the opportunity for children to be involved either directly or by being offered a separate mediation session. In both public and private law all ways of involving children raise important ethical issues surrounding confidentiality and the safeguarding of children’s interests which have yet to be addressed, but require urgent attention.

There is a growing recognition that all professionals who are concerned with children and families should develop closer links with each other for training and development and practice.

The implementation of the Children Act 1989 highlighted the fact that the medical and legal professions had important contributions to make to the practice of each other and allied professions. The National Council for Family Proceedings, based in Bristol, and the Family Justice Studies Committee under the direction of The Rt Hon Lord Justice Thorpe are promoting ways of developing interdisciplinary training and cooperation to promote understanding of the legal, medical, psychological, and social influences which affect families and children.

Marriage preparation and parenting: new initiatives

The public debate about marriage which surrounded the passage of the Family Law Bill through the UK Parliament has given a welcome emphasis to the necessity of preparing young people for long term adult relationships and parenting. Programmes which concentrate on the realities of marriage and the demands made by the arrival and management of children are being set up in various parts of the country in conjunction with Relate, the London Marriage Guidance Council, and One Plus One. Partnerships are also being formed with religious and ethnic groups such as the Jewish Marriage Council and the Afro-Caribbean support group, and those from the Asian community who represent and demand different beliefs and responses.

Education to communicate

A Schools Sex Education Programme at present being offered in some areas of the UK is based on methods of assisting pupils to acquire negotiation and communication skills within personal relationships and to withstand pressure more effectively. Evaluation has shown that it is possible to influence both beliefs and behaviour in a school based intervention.24 Conflict is a feature of every viable personal relationship. Concentration on the acquisition of skills to successfully resolve conflict rather than deny or ignore its existence in everyday life may help to reduce the increasing numbers of children who find themselves at the centre of such continuing adult disputes.

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Developing injury surveillance in accident and emergency departments

Injuries are the leading cause of death among children and young people in the industrialised world and are a major contributor to disability. In the early 1990s, both the UK Department of Health and the Scottish Office identified accidents as a priority area for action in their respective policy statements. However, efforts to formulate and implement local, national, and international preventive policies have been hindered, at least in part, by the paucity of reliable data on injury frequency, cause, and outcome.

Many countries compile routine data on injuries derived from mortality statistics, occupational records, or through incident reporting—for example, to police and fire departments. These data are of variable relevance and quality, however, and are often inaccessible. The establishment of specially designed injury surveillance systems is widely advocated as a prerequisite for the development and evaluation of injury prevention strategies, particularly at a local level.

This paper reviews the published literature on injury surveillance based at accident and emergency departments and attempts to identify the characteristics of a successful injury surveillance system (ISS).

What is injury surveillance?
Surveillance has been defined as the “continuous analysis, interpretation and feedback of systematically collected data”. It implies a proactive mechanism for identifying problems and implementing appropriate preventive strategies on a routine basis. Injury surveillance may be regarded as a specific form of public health audit. It can be designed to generate information on both the numbers and characteristics of injuries, such as the injury location, circumstances, cause, and mechanism. This information is crucial for detecting trends in injury incidence, identifying risk factors, developing injury control measures, and assessing their impact. This process is thus an epidemiological means to a public health end, namely prevention. As it is likely that most moderate and serious injuries present to hospital accident and emergency departments, many ISSs have been implemented in this setting.

Who needs injury surveillance?
Information about injuries is required at both national and local levels. Nationally, injury data are used by government departments for policy making and priority setting; by researchers investigating epidemiology, treatment, and prevention; and by a range of other voluntary and commercial organisations interested in injury. Locally, injury data are required for planning health services, developing and implementing safety policies and standards, and for evaluating the effectiveness of interventions.

National injury surveillance systems
Many industrialised countries now have national ISSs based within accident and emergency departments designed specifically to monitor injury events. Examples have been reported from the USA, Australia, Canada, and elsewhere in Europe (personal communication, Consumer Safety Institute, Amsterdam) (table 1). Other countries have identified the need for such a system. A national ISS is being developed in Sweden and a national minimum data set for emergency departments has been advocated in New Zealand.

Local injury surveillance systems
National systems are, however, often insufficient for effective injury prevention. Differences in local conditions are likely to contribute to differences in the distribution of injury, making local analyses important. As a result, many community based groups and professionals have attempted to establish local ISSs to fill this gap.

Pioneering work in this field has been carried out in North America and Australia. The UK has been slow to develop local accident and emergency based surveillance schemes, with a few notable exceptions. In 1993 the Canadian Hospitals Injury Reporting and Prevention Programme (CHIRPP) system was imported into the accident and emergency department at the Royal Hospital for Sick Children, Yorkhill in Glasgow, the largest children’s hospital in Scotland. In Wales, the All Wales Injury Surveillance System (AWISS) was established in 1995 (table 2).

Other studies
In some centres, local data on injury are compiled by merging conventional accident and emergency department records with information on injuries. In one study, E codes were prospectively assigned to accident and emergency patient records on a trial basis to assess their usefulness. The accuracy of these E codes was estimated to be 98% when manually checked with case notes. Although such initiatives may provide valuable local data on broad causal categories, they do not provide detailed information on the injury circumstances, location, and mechanism.

Methodological variations
Although most industrialised countries now operate some form of injury surveillance, there is little methodological consistency in their approaches. Sampling techniques, collection methods, collection location, data classification, and data coding vary between and within countries. Studies in the USA have identified wide variations in data collection...
Table 1  Selected national ISSs in accident and emergency departments

<table>
<thead>
<tr>
<th>Country</th>
<th>System</th>
<th>Injury type</th>
<th>Sample?</th>
<th>Age</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>National Electronic Injury Surveillance System (NEISS)</td>
<td>Product</td>
<td>Yes</td>
<td>Child</td>
<td>2</td>
</tr>
<tr>
<td>Australia</td>
<td>Injury Surveillance Information System (ISIS)</td>
<td>All</td>
<td>Yes</td>
<td>All</td>
<td>11</td>
</tr>
<tr>
<td>Canada</td>
<td>Canadian Hospitals Injury Reporting and Prevention Programme (CHIRPP)</td>
<td>All</td>
<td>No</td>
<td>All</td>
<td>12</td>
</tr>
<tr>
<td>Europe-wide</td>
<td>European Home and Leisure Accident Surveillance System (EHLASS)*</td>
<td>Home and leisure</td>
<td>Yes</td>
<td>All</td>
<td>13</td>
</tr>
<tr>
<td>UK</td>
<td>Home/Lesuire Accident Surveillance System (HASS/LASS)</td>
<td>Home and leisure</td>
<td>Yes</td>
<td>All</td>
<td>14</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Dutch Injury Surveillance System (LIS)</td>
<td>All</td>
<td>Yes</td>
<td>All</td>
<td>Consumer Safety Institute, Amsterdam, personal communication</td>
</tr>
<tr>
<td>Greece</td>
<td>Emergency Department Injury Surveillance System (EDISS)</td>
<td>All</td>
<td>Yes</td>
<td>All</td>
<td>15</td>
</tr>
</tbody>
</table>

* EHLASS contributors are Austria, Netherlands, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembour, Portugal, Spain, Sweden, UK.

practices in accident and emergency departments.26 27 The scope of the data and population coverage also vary widely. Some systems collect information on the whole population, others for specific age groups, normally children. Some collect information solely on injuries in the home, whereas others cover all injury types. Several overlook the scope of this paper collect information on the more serious end of the injury spectrum. For instance, data collected as part of the Childhood Injury Prevention and Promotion of Safety (CHIPPS) programme in Newcastle, UK, is based exclusively on admissions to hospitals.26 Until standardised variable definitions, classifications, and sampling techniques are developed and adopted nationally and globally, few opportunities for meaningful national and international comparisons will exist.28

Characteristics of a successful injury surveillance system

Research to date suggests that, to be successful, an ISS should be practical, valid, stable, relevant, accessible, and effective.22 30

PRACTICALITY

The installation, operation, and maintenance of an ISS usually requires an investment of additional resources, technical support, and staff.22 30 To a great extent the smooth running of the system depends on the enthusiasm and commitment of the staff involved. Prior consultation with staff is a crucial part of introducing such a system and data collection must become integrated into the daily work routine. The ISS duties will then be seen as a core responsibility rather than a secondary, optional function that has a low priority. From the patients’ point of view, evidence suggests that patients are willing to cooperate in giving accounts of injury events if the questionnaire is concise and easy to complete.22 30

VALIDITY

A valid ISS is one which generates information of a scientifically acceptable quality. Quality comprises several dimensions including representativeness, sensitivity, specificity, and accuracy. For epidemiological purposes the data collected should be reasonably representative of the reference population.7 Sensitivity is the capacity of the system to identify all cases of injury within the population and specificity is its capacity to exclude non-injuries. In practice, poor sensitivity is the most frequent defect. If only a minority of injured people are subject to surveillance (for example, only those admitted to hospital), the observed pattern of injury may bear little relation to the true pattern of incident injury in the population. While implementing an ISS in accident and emergency departments will identify greater numbers of injuries than an ISS using hospital admission data only, the large number of injuries presenting to primary care facilities remain excluded. The incompleteness of data collection at certain times of the day, or inaccurate coding of injury types, may also be problematic.30 A frequent source of inaccuracy arises because the ISS does not record severity, which is an important determinant of epidemiological characteristics.31 32 Incomplete or inaccurate data on injury severity may compromise the epidemiological potential of an ISS.

Table 2  Selected local ISSs in accident and emergency departments

<table>
<thead>
<tr>
<th>Country</th>
<th>System</th>
<th>Injury type</th>
<th>Age</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia (Victoria)</td>
<td>Victorian Injury Surveillance System (VISS)</td>
<td>All</td>
<td>All</td>
<td>18</td>
</tr>
<tr>
<td>Australia (ACT)</td>
<td>Australian Capital Territory Injury Surveillance and Prevention Programme (ACTISPP)</td>
<td>All</td>
<td>All</td>
<td>19</td>
</tr>
<tr>
<td>Australia (WA)</td>
<td>Western Australia Childhood Injury Surveillance System (WACISS)</td>
<td>All</td>
<td>All</td>
<td>20</td>
</tr>
<tr>
<td>Australia (Brisbane)</td>
<td>Queensland Injury Surveillance and Prevention Project (QISPP)</td>
<td>All</td>
<td>All</td>
<td>21</td>
</tr>
<tr>
<td>Scotland (Glasgow)</td>
<td>Canadian Hospitals Injury Reporting and Prevention Programme (CHIRPP)</td>
<td>All</td>
<td>Child</td>
<td>22</td>
</tr>
<tr>
<td>Wales</td>
<td>All Wales Injury Surveillance System (AWISS)</td>
<td>All</td>
<td>All</td>
<td>23</td>
</tr>
</tbody>
</table>
Classification of Diseases (ICD 9) to another (ICD 10) will inevitably produce spurious time trends due to the application of different diagnostic or causal codes to the same clinical entities.

ACCESSIBILITY

It is vital that an ISS is accessible. If potential users are unable to obtain information in a relevant and comprehensible format, the ISS will not fulfil its function. Some ISSs operate by pooling data centrally and generating aggregate tables which may exclude the possibility of local analyses, whereas others produce highly detailed data at a local level, making aggregation complex. Differences in local conditions are likely to contribute to the differences in the geographical distribution of injuries. Local analyses then become necessary. Those developing the ISS should first identify the needs of potential users of the ISS and then seek to optimise its accessibility.

EFFECTIVENESS

Despite anecdotal and indirect evidence, there are remarkably few published scientific data on which to judge the impact of injury surveillance on the frequency or pattern of injury in a population. This may, in part, be due to the relatively short periods of time over which ISSs have been operating, or to the methodological problems involved in designing such studies. The most likely explanation is that insufficient thought has been given to evaluating these systems at the planning stage. The choice of an appropriate method of evaluation depends on the objective of the ISS. If the objective is to inform the development of a local injury prevention programme, a process based evaluation should be designed. If, however, the objective is to reduce the incidence of mortality or morbidity due to injuries, an outcome based evaluation is necessary.

Conclusions

Evidence suggests that injury surveillance in accident and emergency departments is a worthwhile and achievable objective when coupled with professional commitment and appropriate operational conditions, particularly at a local level. This paper highlights several issues to be considered when embarking on the design and implementation of an ISS. By designing a system which is practical, valid, relevant, stable, accessible, and effective, the prospects for the implementation and evaluation of evidence based preventive programmes will be greatly enhanced. There has been little research to date, however, on the impact of ISSs on injury frequency or injury patterns.

National and international comparisons continue to be fraught with methodological difficulties. With a few exceptions, the scope and coverage of national systems lack the consistency required to allow valid comparisons to be made. By identifying and remediating the methodological variance in current ISSs, public health agencies could improve the quality of epidemiological data on injuries, thereby enhancing the prospects for more effective injury control. The development of an agreed standardised surveillance methodology would also greatly improve the validity and reliability of data generated by new national and local ISSs that may be introduced in the future.

It should be recognised that even high quality data collected by ISSs at accident and emergency departments will seldom be truly comprehensive or representative. Public health agencies should therefore seek to combine several sources of data to generate a profile of the pattern of injury in a population. Ideally, these would include data on mortality, admissions to hospital, accident and emergency presentations, injuries presenting to primary health care facilities, and injury related disability.