doctors are over cautious in diagnosis. In Leeds in 1989 there were 823 referrals to paediatricians for suspected abuse or neglect. This included 475 children with suspected sexual abuse in which a definite or probable diagnosis was made in 237 children.[2]

Joint medical examination by a paediatrician and police surgeon was introduced at the time of Cleveland. The method has never been properly evaluated but is used in Liverpool (and some other centres) for sexual abuse cases and oddly in some cases of physical abuse (non-accidental injury) where criminal investigations are likely to proceed. Many cases of non-accidental injury were seen by paediatricians alone, the examination took on average a little longer than a joint examination, and a positive diagnosis was substantially more likely. It cost the tax payer less, as there was only one doctor to pay. It must be time to assess the joint examination as it may be an ineffective (in terms of diagnostic accuracy), expensive, and sometimes inconvenient practice (25% of examinations were performed after 6 pm, but it is unknown how many were joint). Whatever the reason, sexual abuse diagnosis in Liverpool as judged by these data has yet to get off the ground.

Although comparisons are always difficult, recent incidence studies in the USA suggest that approximately 1% of American children will experience some form of sexual abuse each year.[3] That sort of incidence would give Liverpool or Leeds 2000 cases per year. Obviously child protection starts with the family, the community, and school. Doctors often come at the end of a line of other professionals who may respond to the child's difficulties.

Summers and Molyneux remind us that protecting children is costly, but with the numbers seen are they getting good value from the staff of the Rainbow Centre? Referral has increased rapidly in recent times, but much unmet need remains and to what level we do not know. There has not been the increase in staffing medically which this expansion deserves. The authors have shown that above all the work takes time. Paediatric middle grade staff can be used to absorb some of this work but they need training, supervision, and support from consultants if the work is to be done well.

In addition to the initial medical examination and investigation, medical time is spent in case conferences, attending court, in follow up (it is not clear how this is done in Liverpool), re-examination, and treatment (psychological/physical).

Recently there have been attempts to put a price tag on the consequences of child abuse for society, again in the USA. With increasing evidence of the long term consequences accumulating, it seem likely that this will amount to very much more than our current expenditure on intervention.[4] As the expenditure increases it will become important that outcome measures to assess the results of strategies for prevention or intervention are developed and applied.

The arguments for and against special centres will continue. As 'there are few areas of paediatrics that have so rapidly expanded in clinical importance in recent years as the sexual abuse of children'[5] it is important that all paediatricians are trained, willing, and able to diagnose this as well as other types of abuse. The danger of the special centre is that the problem is seen as someone else's, in 'the unit over there'. It is to be hoped that the Rainbow Centre proves as solid and permanent in reality as the concept is attractive and appealing.

C J HOBBS
St James's University Hospital, Beckett Street, Leeds LS9 7TF

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2 Frothingham TE, Barnett R, Hobbs CJ, Wynne JM. Child sexual abuse in Leeds and before and after Cleveland. *Child Abuse Review* (in press).
3 US Department of Health and Human Services. *National study on the incidence of child abuse and neglect.* Washington DC: US Department of Health and Human Services, 1988.
4 Mullen PE. The consequences of child sexual abuse. *BMJ* 1991;**303**:144–5.
5 American Academy of Pediatrics: Committee on Child Abuse and Neglect. *Guidelines for the evaluation of sexual abuse of children. Pediatrics* 1991;**87**:254–60.

Response from the authors

Dr Hobbs raises several issues; some of these concern our data and some are of more general interest. We will try to answer the former and comment on the latter.

Firstly we agree with Dr Hobbs that our figures for child abuse would be low if they represented all cases of child abuse in our catchment area. In our paper we pointed out that *'not all injured or abused children from this area are seen in the RLCH: staff in other hospitals and police stations within the area also see and diagnose child abuse'*. We also believe that due to the difficulties in collating data from several sources within the hospital our figures are incomplete.

Secondly Dr Hobbs is surprised by the absence of neglect in our series. Again in the paper we try to make clear that failure to thrive, neglect, and emotionally abused children are investigated by medical paediatricians or the mental health team. These children were not 'picked up' in our study.

Thirdly he is surprised at the low level of confirmation of diagnosis, especially in sexual abuse. As stated in the text, in physical child abuse parents and carers of children on the child protection register are very diligent about referring children for examination if they are injured. The parents do this because they fear the accusation of neglect, the carers because they are anxious not to miss a repeat of the abuse. In sexual abuse we report *'clear physical findings of child sexual abuse'* in 13% of children examined. We did not analyse our findings for probability of abuse in view of the history given. We report 19 cases of positive physical findings which would corroborate but are not diagnostic of child sexual abuse. We do not know on what grounds the diagnosis of definite or probable child sexual abuse was made in Leeds. We doubt if Hobbs is comparing like with like.

In Liverpool we do joint examinations as recommended in a British Paediatric Association/Association of Police Surgeons statement after Cleveland. The police surgeon's role is to collate forensic evidence and take part in criminal proceedings. The paediatrician's role is to see to the general care of the child and be involved in civil proceedings. In difficult cases two opinions are valuable. If only one doctor is present at the first examination, another examination may be requested by the defence. If it is granted, is this fair to the child? If it is not granted, is this fair to the defendant? Joint examinations could be carried out by two paediatricians instead of a police surgeon and paediatrician.

We agree that all paediatricians should be trained in the diagnosis of child abuse. An important function of the Rainbow Centre is medical and multidisciplinary training.

Our aim was to highlight the medical time child abuse needs to be allocated. In doing so several other issues have been aired. We will be pleased if discussion leads to more committed funding, training and medical input into this important field.

Pertussis (3): non-acceptance of vaccine

In the 1980s pertussis became more common in the United States (0·5 cases per 100 000 population in 1981 and 1·4 in 1988). A paper by Paul Etkind and his colleagues in Massachusetts (*American Journal of Diseases of Children* 1992;**146:**173–6) points to two factors possibly involved in the increase: the failure of some groups to accept immunisation for religious or other reasons and failure to accept antibiotic prophylaxis.

In four small outbreaks of the disease in Massachusetts between 1986 and 1988, 17 adults and 96 children (less than 18 years) were involved. Seventy five percent of the children had not been immunised because their parents objected on religious or philosophical grounds. Many came from families who adhered to a macrobiotic diet. In these outbreaks compliance with public health measures including the administration of prophylactic erythromycin was poor. Children who had not been immunised against pertussis were at least three times more likely than immunised children to contract the disease.

Although American children are expected to be fully immunised before they start school, most states have a religious exemption clause and during the 1980s doubts about the safety of pertussis vaccine led to more people claiming such exemption for their children. The religion seemed to be restricted to a specific article of faith in the non-acceptability of pertussis immunisation as the children were invariably fully immunised against other diseases. Public health doctors in Britain have often looked with some envy at the laws in the United States which make immunisation of preschool children compulsory but clearly compulsoriness can be a flexible commodity. Perhaps we are as well off continuing to rely on persuasion and the good sense of parents. It's against my philosophical principles to do gardening or household chores at the weekend but I'm not allowed an exemption clause. Most problems in life are amenable to good sense and negotiation (but there is wisdom in knowing when to submit!).

ARCHIVIST