INTRODUCTION:

The ethics of learning intimate examination by medical students and junior doctors has been a topic of discussion in recent years. Both ethical and legal considerations have reduced some of the traditional opportunities to learn such examinations. There have been various efforts made to replace traditional approaches, ranging from simulators to patient or volunteers acting as teachers.

Little attention has been paid to the impact of this change on doctors’ attitudes to examination of the genitalia of pre-pubertal children and there is relatively little information about children’s views on genitalia examination nor on that of junior doctors.

METHODS:

In the United Kingdom (including Northern Ireland) newly qualified doctors are enrolled for two years in a generic skills training rotation referred to as Foundation Training. Various arrangements have been made for formal training activities in different regions of the UK. In Northern Ireland all such Foundation Trainee Doctors have to attend eight mandatory training days and one of these is devoted to child protection.

During one such session the Foundation Doctors were asked about their opinions on what young children would feel about examination of the external genitalia. Doctors attended this session, one of seven sessions on the topic of child protection for the cohort of 235 doctors in their 2nd year of foundation training in 2010/2011.

The information about children’s views were taken from a study involving Norwegian children and their parents in 2007. For this study the authors devised two scales, which were published in English translation in the original article. Children’s were asked to indicate on a ‘smiley faces’ scale (Fig 1) what they felt about the experience of examination. Parents were asked for their observations as to the degree of anxiety / restlessness on a scale ranging from ‘none’ to ‘a whole lot’.

During the course of the session on Child Sexual Abuse the Foundation Doctors were asked to indicate on the same scales how they believed children would describe their experiences and how parents felt their children reacted during the examination.

Statistical Analysis was undertaken using WINPEPI. Effect size was also calculated using WINPEPI.

RESULTS:

The data are presented in three ways: as scores and 95% confidence intervals; differences between groups were analysed by chi-squared analysis and effect sizes were calculated to summarise the size of the differences between groups.

SCORES AND 95% CONFIDENCE INTERVALS

The results are summarised in Tables 1 and 2. For ease of comparison the 95% confidence intervals for the comparisons are presented graphically in Figs 2 and 3.
As indicated in Tables 1 and 2, the difference between children’s views and doctors opinions was statistically significant as was the differences between parents opinions and doctors opinions.

EFFECT SIZE

The effect sizes for the difference between Children and FY2 doctors perceptions was calculated as Cohen’s $w = 0.68$ (corrected for table size = 1.316). By Cohen’s criteria, this is a large effect size. The effect size for the difference between FY2 doctors and parents was calculated as Cohen’s $w = 0.604$ (corrected for table size = 1.073). By Cohen’s criteria, this is also a large effect size.

DISCUSSION:

These findings suggest a significant gap between the views of children about intimate examination and the views of junior doctors, with junior doctors anticipating it will be experienced as producing more anxiety than it does produce. This discrepancy may result from a natural reluctance about intrusion into a private domain, a reluctance that may only be overcome with experience.

However it may also represent one of the consequences of the apparently restricted access to learning such examinations that may be the case in recent years. The study guide provided by the medical school which the vast majority of the doctors had attended defined intimate examinations as involving ‘breast, external and internal female genitalia, penis, scrotum and rectum’ and also says that such examination is ‘Not appropriate’ in Minor(s) (aged <18years) who are conscious and Gillick incompetent’ and that “Students are always at liberty to refuse to examine a patient for educational purposes’. These findings parallel the findings about limited knowledge of anatomy of the genital area described for colleagues of this group in preceding years.

The existence of such an area about which doctors are not knowledgeable and are reluctant may be one of the factors producing a reluctance about engaging with child protection matters in general, for example by inducing a fear of stumbling across an area of which the individual doctor has little knowledge or experience. At the same time the limitations of the evidence needs to be recognised – the sample of children from whom the above values are taken were a small percentage of those approached, although the study in question has been described as “good science”.

It may also be that attitudes to such examinations are different in the Norwegian population from which the original data comes. There is good evidence for different response styles (i.e. tendency to use the extremes or the middle values of a

### Table 1:

**Perception of Examination of Genitalia - Comparison of perceptions of Children examined with opinions of Foundation Doctor’s (FY2)**

| Category - Perception of Examination of Genitalia | FY2 Doctors | Children |
|-------------------------------------------------|-------------|----------|
|                                                 | Number | Proportion | 95% Confidence Interval for Proportion | Proportion | 95% Confidence Interval for Proportion |
| Positive                                        | 0/37 | 0*          | 0.000 to 0.078                         | 77         | 0.49*    | 0.410 to 0.565 |
| Somewhat Positive                               | 0/37 | 0*          | 0.000 to 0.078                         | 35         | 0.219*   | 0.162 to 0.291 |
| Neutral                                         | 14/37 | 0.3784*     | 0.234 to 0.541                         | 34         | 0.213*   | 0.156 to 0.284 |
| Somewhat negative                               | 15/37 | 0.4054*     | 0.257 to 0.568                         | 7          | 0.045*   | 0.020 to 0.086 |
| A Whole Lot                                     | 15/37 | 0.4054*     | 0.257 to 0.568                         | 5          | 0.032*   | 0.012 to 0.069 |

* chi squared = 103.8, d.f. = 4 p = 0.000

### Table 2:

**Perception of Stress produced - Comparison of perceptions of Parents examined with opinions of Foundation Doctor’s (FY2)**

| Category of Stress of Examination | FY2 Doctors | Parents |
|----------------------------------|-------------|---------|
|                                  | Number | Proportion | 95% Confidence Interval for Proportion | Parents (No) | Parents (% of 158) | 95% Confidence Interval for Proportion |
| None                             | 2      | 0.0571*    | 0.010 to 0.176                         | 105         | 0.664*   | 0.588 to 0.735 |
| Little                           | 17     | 0.4857*    | 0.325 to 0.649                         | 48          | 0.303*   | 0.235 to 0.379 |
| Some                             | 12     | 0.3429*    | 0.201 to 0.510                         | 4           | 0.026*   | 0.008 to 0.060 |
| A Lot                            | 2      | 0.0571*    | 0.010 to 0.176                         | 1           | 0.007*   | 0.000 to 0.031 |
| A Whole Lot                      | 2      | 0.0571*    | 0.010 to 0.176                         | 0           | 0*       | 0.000 to 0.019 |

* chi squared = 66.3, d.f. = 4 p = 0.000
scale) in different cultures. Children and adults may also have different response styles with young children tending to use the extremes more than older people. However the distribution of results does not suggest that differing response styles are responsible for the differences described. For example there is no evidence of such clustering of the distributions of answers in Figs 2 & 3.

The determinants of a patient’s anxiety about a particular type of examination is likely to be related to characteristics of the examiner as well as that of the examinee. It is possible that an unwarranted anticipation of anxiety may produce reluctance on the part of the examiner that will in turn make the examinee more anxious. Since the attitude of the parent is also likely to be one of the determinants of the child’s response to such examination there is likely to be a group of interacting factors relevant. A review of the presence of parents during painful procedures suggests that their presence does not have any clear-cut advantage but there is no evidence to suggest it causes extra difficulties. The factor that is most amenable to change is probably that of the doctor and the need to help doctors acquire attitudes which minimise patients discomfort with examination is likely to be a valuable contribution to doctors training, helping them overcome their fear that they “might break one”.

The author has no conflict of interest.

REFERENCES:

1. Jha V, Setna Z Al-Hity A, Quenton ND, Roberts TE. Patient involvement in teaching and assessing intimate examination skills: a systematic review. Med Educ. 2010; 44(4): 347–57
2. Wilson, RW. Autonomy suspended: using female patients to teach intimate examination skills without their knowledge or consent. J Health Care Law Policy. 2005; 8 (2): 240-63
3. Geyoushi B, Apte K, Stones RW. Simulators for intimate examination training in the developing world. J Fam Plann Reprod Health Care. 2003; 29(1): 34-5
4. Gulla K, Fenheim GE, Myhre AK, Lydersen S. Non-abused preschool children’s perception of an anogenital examination Child Abuse Neglect. 2007; 31(8): 885–94
5. Abrahamson JH. WINPEPI (PEPI-for-Windows): computer programs for epidemiologists. Epidemiol Perspect Innov. 2004, 1: 6. Available online from: http://www.epi-perspectives.com/content/pdf/1742-5573-1-6.pdf. Last accessed May 2011.
6. Cohen J. A power primer. Psychol Bull. 1992; 112(1):155-9
7. O’Donoghue DO. (Department of Child Health, Queen’s University, Belfast, N. Ireland). Letter to Jarlath O’Donohoe. 2011 May 31. Re confirmation of the content of Queens University School of Medicine. Inhouse study guide regarding the healthcare of children. Belfast: Queen’s University. October 2009.
8. O’Donohoe JM. Knowledge and attitudes to child protection issues in Northern Ireland. [eLetter]. Pediatrics. 2009; 123(4):e595. Available from: http://pediatrics.aappublications.org/content/123/4/e595.abstract/reply#pediatrics_el_44350. Last accessed July 2011.
9. Adams JA. Normal studies are essential for objective medical evaluations of children who may have been sexually abused. Acta Paediatr. 2003; 92(12): 1378-80
10. Harzing, AW. Response style in cross-national survey research international: a 26-country study. J Cross Cult Manag. 2006;9(2):243-66
11. Chambers CT, Johnson C. Developmental differences in children’s use of rating scales. J Pediatr Psychol. 2002; 27(1): 27–36
12. Allard-Dansereau C, Hébert M, Tremblay C, Bernard-Bonnin, AC. Children’s response to the medical visit for allegations of sexual abuse: maternal perceptions and predicting variables. Child Abuse Review. 2001;10(3):210-22
13. Piria T, Sugira T, Champion GD, Donnelly N, Cole AS. The role of parental presence in the context of children’s medical procedures: a systematic review Child Care Health Dev. 2005; 31(2): 233–24
14. Craze J, Hope T. Teaching medical students to examine children. Arch Dis Child. 2006; 91(12): 966-68
Mucopolysaccharidosis Type I

Mucopolysaccharidosis type I is a lysosomal storage disorder that is caused by a deficiency of the lysosomal enzyme α-L-iduronidase and it is inherited in an autosomal recessive manner. In affected individuals, decreased activity of the α-L-iduronidase leads to the accumulation of glycosaminoglycans (GAG) dermatan and heparan sulphate. This abnormal storage affects cellular functioning and ultimately causes multi organ involvement.

MPS I is a markedly heterogeneous disorder with a wide spectrum of disease. Historically, it tended to be referred to as Hurler, Hurler Scheie and Scheie depending on the severity. These days, we recognize that there is a lot of overlap and tend to view it as a spectrum. At the more attenuated end of the spectrum, intelligence is usually normal. Many paediatricians in Northern Ireland will be familiar with the severe end of the spectrum, commonly known as Hurler disease, as this is common in, though not confined to, the Irish Traveller community.

The more attenuated forms of the disorder may not be so familiar, particularly as the facial appearance is very normal and so the possibility of an MPS disorder may not be apparent.

Features which should alert the clinician to the possibility of MPS I
- Clawing of the hands
- Carpal tunnel syndrome especially in a young person
- Joint stiffness
- Hip dysplasia
- Corneal clouding.

If a diagnosis of MPS I is suspected then a sample of urine should be sent for GAG testing. It is very likely to show GAG's. If this is positive then a blood sample can be tested to look for α-L-iduronidase deficiency.

Patients with MPS I require multidisciplinary follow up co-ordinated by a specialist clinic. They should be sent o cardiology because of the risk of valvular involvement, ENT, ophthalmology and orthopaedics. Anaesthetics are more problematic in MPS I so anaesthetists need to be aware of the diagnosis before any surgery is undertaken. For patients with the sever Hurler form of the disease, the treatment of choice is a bone marrow transplant with enzyme replacement therapy (ERT) prior to the transplant and for a limited time afterwards. ERT on its own is not a suitable treatment for severe MPS I as it does not cross the blood brain barrier and cannot prevent the neurocognitive decline seen in these patients. ERT is a suitable treatment for the more attenuated forms in which neurocognitive decline is not a feature.

As MPS I is inherited in an autosomal recessive manner it is important that families are offered genetic counselling.

For further information on MPS I (and other MPS and related disorders) please contact the MPS Society at 0845 3899901 www.mpssociety.co.uk