

Abstracts

Out of Town Meeting of the Ulster Paediatric Society, Friday 8th and Saturday 9th May 2009.

Shandon Hotel, Dunfanaghy, Ireland



PROGRAMME:

Friday 8th May

6.30pm - Welcome – President: Dr Denis Carson

6.35pm - 7.00pm Presented Abstract 1

7.00pm - 8.00pm Guest speaker: Recent advances in the diagnosis and management of hyperinsulaemic, hypoglycaemia. Dr K Hussain, Institute of Child Health, University College Hospital, London.

8.30pm - Dinner

Saturday 9th May

9.30am - 10.00am Annual General Meeting

10.00am - 11.15am Presented Abstracts 2-6

11.15am - 11.30am Tea -Coffee

11.30am - 13.00pm Guest Lecturers: Assessment and treatment of breathing disorders during sleep. Prof. M Shields, Mr K Trimble

13.00pm – Lunch

18.00pm - Dinner

PRESENTED ABSTRACTS

A1. Aetiology of acute hypoglycaemia: Re-audit of procedures for diagnosis

TF Lang¹, D Cardy¹, H Leslie¹, B Sheridan¹, D Carson², CM Loughrey¹. ¹Department of Clinical Biochemistry, and ²Department of Paediatrics, Belfast Health and Social Care Trust, Belfast, UK.

Introduction: A protocol exists for the collection of samples to investigate non-diabetic hypoglycaemia, termed the “hypopack”. These packs are kept in A&E departments, most children wards and neonatal SCBUs throughout the region. A retrospective audit of 107 hypopacks received between July 2001 and Dec 2003 highlighted a numbers of problems: samples collected when patient was receiving dextrose, incomplete clinical history, insufficient and haemolysed samples and filing of reports in charts. These were addressed by redesigning the request form, updating the protocol and introducing a summative report. The new protocol was introduced in April 2006 and was supported by presentations to regional centres.

Methodology: A retrospective audit of 100 Hypopacks received between April 2006 and May 2007 was performed to assess whether all samples were analysed and reported, and were taken when the patient was hypoglycaemic. Charts were reviewed to determine the cause of hypoglycaemia and to check reports were filed appropriately.

Results: 49% of patient were hypoglycaemic (<2.6mmol/L) compared to 35% in the original audit. 64% of patients had samples taken before dextrose compared to 54% previously. Haemolysed insulin samples remained a problem with 21% of samples being rejected. In both audits 35% of laboratory reports were missing from patients charts. Intrauterine growth retardation was the most common problem in neonates and fasting due to gastroenteritis the most common in children. In the re-audit period, 1 case of isolated ACTH deficiency, 3 cases of hyperinsulinism of infancy (of which two were transient), 1 case of MCADD and 1 patient with a previous diagnosis of Morquio Disease were identified.

Conclusions: The new hypopack protocol has increased the number of appropriately performed investigations but there is still scope for improvement. Provision of clinical history and information concerning dextrose infusion has assisted with the interpretation of the hypopack results.

A2. Congenital Hyperinsulinism of Infancy in Northern Ireland: 1980-2009

NM Flanagan, DJ Carson. Royal Belfast Hospital for Sick Children, Belfast Health and Social Care Trust, Belfast, UK.

Background: Congenital Hyperinsulinism of Infancy (CHI) is the most common cause of persistent or recurrent episodes of hypoglycaemia in infancy. It is a complex genetic condition caused by activating mutations in a number of different genes resulting in continuous depolarisation of potassium gated channels in pancreatic beta cells, leading to dysregulated insulin release. Clinical manifestations range from life-threatening hypoglycaemia in the newborn to a milder degree of hypoglycaemia in older babies. All patients known to the Royal Belfast Hospital for Sick Children (RBHSC) from 1980 – 2009 have been reviewed.

Objective: To evaluate the clinical presentation, diagnosis, medical or surgical treatment required and long-term complications of CHI over a 29 year period in the RBHSC.

Results: Case notes were retrieved for 12 patients: 6 females and 6 males, 4 presenting in the 1980s, 8 since 2001. 7

presented within the first 4 days of life, the others up to age 12 months. 8 had hypoglycaemic seizures, all were symptomatic at presentation. Minimal glucose requirements were recorded between 8-20mg/kg/min prior to treatment. All had inappropriately raised insulin levels (5-39mU/l) with recorded plasma glucose levels below 2.6mmol/l. Genetic studies have been positive in 5 of 7 patients investigated, including a mother and son, and brother and sister. All patients were initially commenced on diazoxide (a potassium channel agonist in beta cells) and chlorothiazide (to reduce fluid retention) with dietary advice and a carbohydrate-enriched diet, but medical treatment failed in 7. Subtotal pancreatectomy (over 90% of the pancreas removed) was required for 4 patients with diffuse disease and 1 with histologically focal disease when symptoms recurred after the focal lesion was resected. Another patient had a 50% pancreatectomy with removal of a focal lesion. Long-term complications include 2 of the 5 medically treated patients with developmental delay -1 with autism, 1 with epilepsy. In the surgically treated group 4 have developmental delay, 1 with infantile spasms, 2 have insulin dependent diabetes, 2 have exocrine pancreatic insufficiency and 1 developed a stricture in his common bile duct. Of the 7 patients on long-term diazoxide 5 developed hirsutism. To date 3 of the 5 medically treated patients have successfully stopped diazoxide at age 3 years, 4 years and 5 years. The 2 patients on diazoxide post-operatively successfully discontinued the diazoxide at age 1 year and age 15 years.

Conclusions: Early recognition, appropriate investigation and medical management of CHI often fails to preserve neurological function. In severe CHI unresponsive to medical management pancreatic resection can be undertaken. Medical and surgical therapies have associated long-term risks, although recent genetic advances and the introduction of 18F-DOPA PET-CT imaging allows differentiation between focal and diffuse disease pre-operatively which permits limited resection and lowers post-operative complications.

A3. Impact of Congenital Heart Disease on Perinatal Services

S Millar, F Casey, D Sweet. Royal Maternity Jubilee Hospital, Belfast Health and Social Care Trust, Belfast, UK.

Aim: To determine numbers, time of diagnosis, delivery and management of babies with congenital heart disease in Regional Neonatal Intensive Care Unit (NICU).

Standard:

- All major congenital cardiac conditions antenatally diagnosed.
- All planned deliveries occur when planned.
- All planned deliveries take place during working hours i.e. 09:00-17:00.
- Minimum time in NICU post-discharge of mother.

Methods: Coding system in RMJH and Heartsuite (Paediatric cardiology coding) used to identify babies with major Congenital Heart Disease, Dysrhythmias, Trisomy-21, -18 and -13 over 5 years.

216 patients identified, of these 204 charts were available

for retrospective review. 179 had a congenital cardiac condition. The remaining 25 had no cardiac diagnosis or had Trisomy-21, -18 or -13 with no documented cardiac defect.

Charts were reviewed for date of birth, gestation, birth-weight, sex, time of diagnosis, delivery details including time of induction and delivery, whether antenatally or postnatally transferred from District General Hospital, investigations and management relevant to the cardiac condition, associated anomalies and time spent in Regional NICU.

Results:

- 64% of congenital cardiac conditions diagnosed postnatally, at least 35% of these with significant congenital heart disease.
- 44% of planned deliveries were due to cardiac condition.
- 8% delivered later than planned
- 6% due to lack of neonatal cots.
- 17% IOL of planned deliveries occurred between 12:01 and 00:00.
- 36% planned deliveries delivered between 17:01 and 08:59.
- 539 days taken in NICU due to cardiac conditions over the five-year period, i.e. 108 days/year.

Conclusions: Congenital Heart Disease has a significant impact on Regional Perinatal Services. Increasing antenatal detection rates will lead to more neonates with severe congenital heart disease being delivered in tertiary centres. This increased demand needs to be factored into resource planning for such centres.

A4. Hartmann's with glucose, saline with glucose and half normal saline with glucose; an audit of electrolytes children following appendicectomy

PC Stewart, KL McGrath. United Kingdom.

We audited electrolyte data in children undergoing unscheduled appendicectomy in a non specialist unit over a period of three years. Children received maintenance hydration as part of a strict protocol using one of three solutions; 25% of children maintained on 0.45% sodium chloride (n=53) were hyponatraemic throughout and more of them required fluids for longer, over 50% of children maintained on 0.9% sodium chloride and 5% glucose (n=57) were hyperchloraemic with a high incidence of hyperglycaemia. Those maintained on Hartmann's solution and 3% (n=62) glucose exhibited the best biochemistry with regard to major ions and glucose. We feel that this highlights the value of audit in better prescribing and advocate using a similar approach regionally.

A5. Peer Assessment of Foundation Doctors Ability to Record Injuries: An analysis of Results During Children Protection Training.

JM O'Donohoe, Erne Hospital, Enniskillen, United Kingdom.

Background: Recording of medical activity is widely accepted as being important. Because of the long term social services and legal relevance of child protection examination high quality of recording is likely to be particularly important,

The Northern Ireland Medical and Dental Training Agency

Question 1 Size	At least two dimensions:, internal sizes where appropriate	Recorded for All	Recorded for Most	Recorded for Some	Recorded for few	Recorded for None
		6/36 16.7 %	7/36 19.4%	10/36 27.8%	4/36 11.1%	9/36 25%
Question 2 Colour	A reasonable representation of the colour recorded	Recorded for All	Recorded for Most	Recorded for Some	Recorded for few	Recorded for None
		10/36 27.8%	7/36 19.4%	7/36 8.3%	5/36 13.9%	11/36 30.6%
Question 3: Shape	A reasonable representation of the outline	Recorded for All	Recorded for Most	Recorded for Some	Recorded for few	Recorded for None
		22/36 61.1%	8/36 22.2%	3/36 8.3%	3/36 8.3%	0/36 0%
Question 5 Number		All marks of relevance recorded	Most marks of relevance recorded	Some marks of relevance recorded	Few marks of relevance recorded	No marks of relevance recorded
		24/34 70.6%	6/34 17.7%	2/34 5.9%	1/34 2.9%	1/34 2.9%

(NIMDTA) has opted to make a days training in child protection mandatory for Foundation Doctors in their second year after qualification (FY1).

Results are presented from a training activity undertaken during such a training session designed to look at the ability of a group of FY1 doctors to record injuries.

Methods: NIMDTA has acquired a keypad system for real time analysis of questions asked to learners (Turning Point 2006, Turning Technologies, Ohio, USA). This allows questions to be asked of an audience and the results presented to them within a few seconds of the data being recorded. a training exercise was devised based on a picture of multiple injuries due to non-accidental injury which is in the public domain (fig 2 in Evaluation of Physical Abuse in Children, Presse DM. 2000 American Family Physician p 3075). The results from this exercise are reported here. A fictitious name was added and a date of attendance. A scale was superimposed on the picture to allow sizes to be identified.

Attendees at the training session were asked to make a record of the injuries in the figure above which was projected on a screen in the training room. When each trainee passed their record to another trainee to be scored.

Since there is no validated scale for assessing recording of injuries questions were devised to assess the recordings on a 1 to 5 point scale under the following headings: identifying information (name of recorder etc.), orienting information (right / left, front/back etc.); number of injuries recorded, shape of injuries recorded, colour of injuries recorded and localizing information (to describe where the injuries were situated). Scores were recorded via Turing Point, shared with the group as a whole and the diagrams returned to the original recorder.

Three summary questions were asked at the end about the scorers' opinion as to whether the diagram was good enough to allow an expert to review the situation later, if the scorer would be happy to rely on the record for court purposes and how well the record resembled the original photograph.

Results: 6 training days on child protection were held over the period October 2008 – April 2009. There were a total of 214 trainees for whom this training was mandatory. 41 trainees attended the last of a series of these 6 training days which was

the first time the above exercise was undertaken. The number of responses was less than 41 to all questions. It is not possible to identify if this shortfall was due to technical difficulties or trainees who didn't wish to participate.

Question: Site of injuries was scored as follows: for each of the following pieces of information one point was scored when the information was recorded and 0 when it was absent: top/ bottom, left/right, anterior/ posterior, some localizing anatomical features, all anatomical features necessary to locate.

Question 3: Site of Injuries	5	4	3	2	1
	15/36 41.7%	8/36 22.2%	10/36 27.8%	1/36 2.78%	2/36 5.6%

Question 6: Identifying information was scored as follows: for each of the following pieces of information present one point was scored when the information was recorded and 0 when it was absent : Patients Name, Patient DOB, Date of Recording, Name of Recorder, Signature of recorder.

Question 6: Identifying Information	5	4	3	2	1
	2/34 5.9%	1/34 2.9%	7 20.6%	12/34 35.3%	12/34 35.3%

Total Scores (out of 30)	26-30	21-25	16-20	11-15	6-10	0-5
	1/36 2.78%	19/36 52.78%	11/36 30.56%	5/36 13.89%	0/36 0%	0/36 0%

The answers to the summary questions are as follows:

Overall what is your opinion: This recording is good enough to allow the situation to be reviewed by an expert later?

Strongly Agree	4/36 (11.1%)
Agree	1/36 (41.7%)
Neutral	6/36 (16.7%)
Disagree	9/36 (25%)
Strongly Disagree	2/36 (5.6%)

What is your opinion? I would be happy to rely on this diagram for court purposes.

Strongly Agree	2/36 (5.6%)
Agree	11/36 (30.6%)
Neutral	5/36 (13.9%)
Disagree	12/36 (33.3%)
Strongly Disagree	6/36 (16.7%)

How Closely Does the Report represent the original picture?

Close to identical to it.	3/36	8.33%
A lot of similarity to it	9/36	25%
Similar to it	13/36	36.11%
Some points of similarity	8/36	22.22%
Little if any similarity	3/36	8.33%

Discussion: The doctors who took part in this exercise were 3 quarters way through their second year after qualification at the time of the exercise. Some will have had attachments where there is likely to have been particular emphasis on recording of injuries (e.g. casualty) whereas others may not have had such rotations.

Despite this limitation it is still disappointing to see that in 25% of cases no sizes for the injuries were recorded. In a similar vein colour was not recorded at all in 30.6% of records. This is echoed by the fact that in just over 30% of cases the scorer disagreed or strongly disagreed with the idea that the recording was good enough to allow a review of the situation by an expert later on. Similarly just over 30% of scorers felt that the report either bore little if any similarity to the original or only had some points of similarity. In only just over 35% of cases the scorers were agreed or strongly agreed they would be happy to rely on the diagram for court purposes.

No effort was made to identify to what extent attendees had formal training or supervision in the production of such reports or diagrams and it may be that the relatively low score may be a reflection of limitations in this regard.

The generalisability of the results is limited by the nature of the sample. However it is unlikely that results for those attending this training day earlier in year would have been better. This is partly on the basis that they would have had less clinical experience and is supported by the authors' observations of similar exercises undertaken on a pencil and paper basis with previous groups of trainees.

There is also a limitation in the sense that the tool used to examine this issue has not been subject to formal analysis in terms of reliability and validity. It would seem likely to have high face validity and there doesn't seem to be a gold standard with which to compare it. In the absence of any other technique for formally assessing such recording this tool may be of value in audit, assessment or in comparing the impact of different approaches to encouraging improved recording but each of these situations will need to be studied in its own right. Original records were returned to the recorder. It was not possible to examine the recorders attitude to the scores returned to him or her.

A6. Attitudes of Foundation Doctors To Mandatory Training in Child Protection

JM O'Donohoe, Erne Hospital Enniskillen, United Kingdom.

Background: Recent high profile cases have made it clear that no medical practitioner is immune from contact with child protection issues, either directly or indirectly. The Northern Ireland Medical and Dental Training Agency (NIMDTA) has decided to make a days training in child protection mandatory for Foundation Doctors in their second year after qualification (FY1). This extent of child protection is still relatively unusual within the NHS. When designing this training day there were various issues about which there was no background information for guidance. For example what would the attitude of Foundation Doctors, many of whom would not be intending to work in paediatrics feel about such training being mandatory? During the course of one such day an audience response system was used to address some of these ideas.

Methods: NIMDTA has acquired a keypad system for real time analysis of questions asked to learners (Turning Point 2006, Turning Technologies, Ohio, USA). This allows questions to be asked of an audience and the results presented to them within a few seconds of the data being recorded.

Attendees at one training session were asked to respond to a number of questions during the course of the day. These questions were originally designed to allow those teaching the day to identify where the trainees were starting from as trainees.

6 training days on child protection were held over the period October 2008 – April 2009. There were a total of 214 trainees for whom this training was mandatory. 41 trainees attended the last of a series of these 6 training days which was the first time the above exercise was undertaken. The number of responses was less than 41 to all questions. It is not possible to identify if this shortfall was due to technical difficulties or trainees who didn't wish to participate

Results: The first question asked, during an introductory session, was about whether this child protection training was considered to be relevant to them. 36 of 40 response said it was. Of the remaining 2 (2.5%) answered no and 2 didn't know.

The trainees were then asked to rate their ability to recognise a child protection concern by responding to the question: "I would recognize a child protection concern?" 22/39 56% believed they would be able to recognize a child protection concern, 3/39 (8%) thought not and 36% didn't know.

The extent to which they knew who to talk to if concerned was assessed with the question "If I am concerned about a child's welfare I know who to talk to:" 20/38 (57%) believed they did and the remaining 18 (47%) did not. When it came to know what to do (in response to "If I need to refer a child with a child protection concern, I know how to do so" 11/39 (28%) said they knew, 25/39 (64%) said they did not and 3/39 (8%) said this didn't apply to them since they didn't anticipate coming across such an issue during their professional life.

Self perceived ability to record child protection issues was measured with the responses to the question “**I know how to record my involvement in child protection issues**”. 5 (13%) said they 33 (85%) said they did not know how to do so and 2/40 (5%) didn’t know.

During a subsequent session on background issues the trainees were asked to rate their ability to work in a child protection situation with the question with the prompt: “**Your ability to work in a situation where there may be a child protection element**” by choosing between the categories in table I, which also includes the responses. The categories were based on Millars pyramid of competence¹.

I know nothing about this topic	4/39	10.3%
I know something about this topic but not enough to work with a case even with direct supervision	12/39	30.8%
I could work with a case if there is direct supervision.	20/39	51.3%
I could work with a child protection case with some supervision.	3/39	7.7%
I can work independently in child protection ...	0/39	0%

TABLE I:

Self-assessed ability to work in child protection.

During a session run by police questions were asked about a number of other areas related to child protection and summarised in Tables II-IV.

Certain	4	11.11%
Very Likely	9	25%
Likely	9	25%
Unlikely	14	38.89%

TABLE II:

Responses to the question: Domestic Violence – How likely are you to ask about it when dealing with injuries?

Agree	2/38	5.3%
Disagree	26/38	68.4%
Neutral	10/38	26.3%

TABLE III:

Responses to the question: Domestic Violence - I feel familiar with this issue and I am sufficiently skilled to launch direct questions regarding partner abuse

Yes	11/38	29%
No	27/38	71%

TABLE IV:

Responses to the question: ” I was aware before today of my legal obligation to report to police any crime carrying a sentence of 5 years are more that I become aware of”.

To assess the degree of discomfort associated with Child Protection Matters they were asked to score their degree of discomfort with various activities they might become involved with. They were asked to score in categories ranging from 1 to 10. Each category was described as being a sub-category of a scale of 1 to 100. Anchor points on the scale of 1 to 100

were given as follows: 1: Everything more uncomfortable, 25: Many things more uncomfortable, 50: Some things more uncomfortable, 75: Few things more uncomfortable and 100: Nothing more uncomfortable.

Two of the situations clustered at the lower end of the scale (doing a lumbar puncture and being called to a cardiac arrest) as in Fig 1 for the Degree of Discomfort at the Prospect of Doing a Lumbar Puncture.

In increasing order of discomfort were inserting an IV cannula into a HIV positive patient, relaying a diagnosis of carcinoma both of which were around the middle of the scale (fig 2 for example). Discussion with a patient about a medical intervention that has caused a serious, unexpected damage was towards the upper end of the discomfort scale (Fig 3).

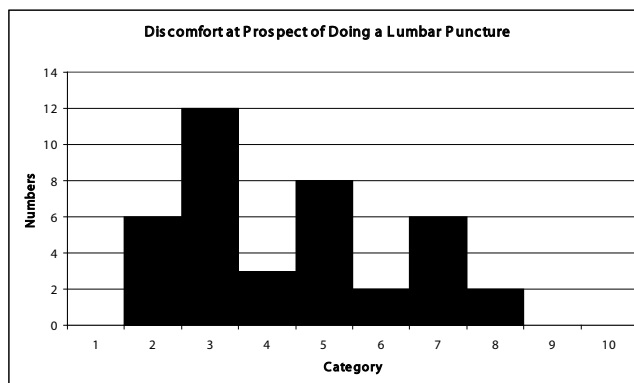


Fig 1. Discomfort at the Prospect of Doing a Lumbar Puncture.

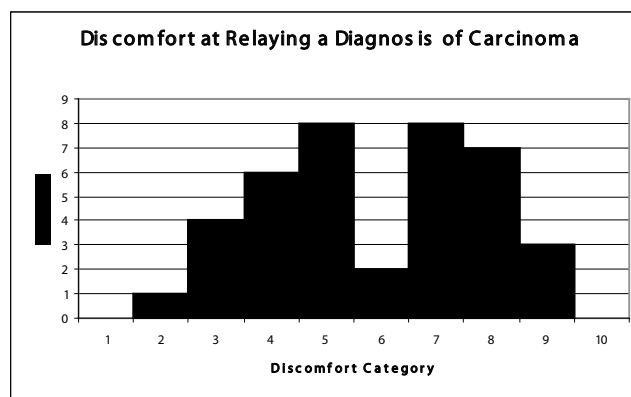


Fig 2. Discomfort at relaying a Diagnosis of Carcinoma.

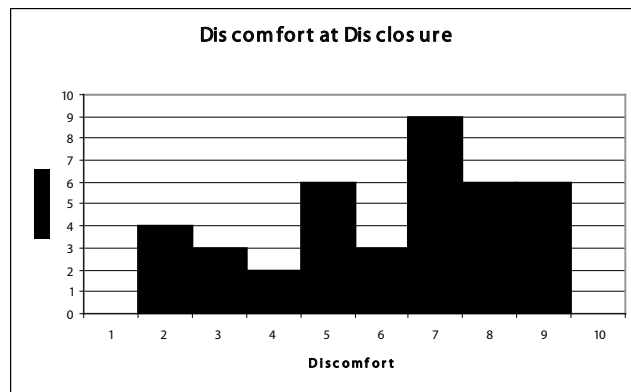


Fig 3. Discomfort at having to discuss with a patient about a medical intervention that has caused a serious, unexpected damage.

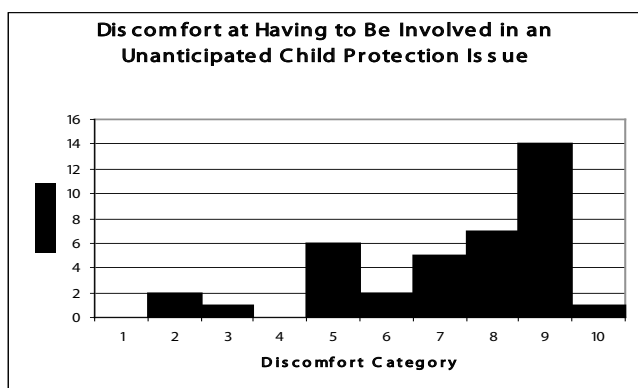


Fig 4. Discomfort at the prospect of being involved in an unanticipated Child Protection issue.

Discussion: One of the difficulties practitioners may experience when starting to become involved in teaching is to forget that what seems normal and would be anticipated to be widely known may not be so. Some areas of learning may be particularly susceptible to this effect and in some cases this may relate to the need for medical students to choose what to study. Sometimes areas may be chosen on the basis of their likelihood of not being examined or on the basis that there is little direct exposure to relevant clinical material as a student. Both of these may apply to child protection issues. The number of FY1 doctors (three quarters way through their second year after qualifying) who rated themselves as able to recognise child protection matters and to know who to talk to about such matters was only a little over a half.

Over 90% believed that at most they were capable of only dealing with child protection matters with direct supervision.

The degree of discomfort at the prospect of having to deal with child protection suggests that whatever knowledge had been acquired in the past it has not prepared doctors well for the task of dealing with such matters. It may be that different forms of training, possibly based on more real life types of training e.g. scenario based training may be more useful than traditional didactic teaching.

It may be possible to evaluate the training being offered by using a before and after approach using some of the methods described above.

The frequency of child protection issues in the population may contribute to the degree of discomfort that Foundation doctors feel about the prospect of being involved in such issues in the sense that it is likely that some of those attending have been affected either directly or indirectly by such matters. With further development it may be possible to identify if there is a valid “discomfort” scale such as is mentioned above. Such a scale may allow an open recognition of the intensity of the discomfort involved in some areas. This may promote a pedagogically safer learning environment within which learning may be more easily encourage.

Reference: 1: Norcini J. ABC of learning and teaching in Medicine: Work Based Assessment. *BMJ* 2003;**326**:753-755.