

# Higher Specialist Trainee LogBook

Produced by

The National Metabolic Biochemistry Network

and

The Association of Clinical Biochemists

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## Introduction

This log book is intended for Grade B clinical biochemists in paediatric Higher Specialist Training posts. The content has been based on HST job book produced by The Association of Clinical Biochemists and the paper produced by Jim Bonham and Anne Green 2002 'Specialist Training for Clinical Scientists Metabolic Biochemistry (Biochemical Genetics).

### **Training Aims**

Training has twin aims, progress towards membership of The Royal College of Pathologists and competence in the practice of metabolic and paediatric laboratory medicine. This logbook is intended as a guide to the breadth of topics that need to be covered during the training and should be used to structure personal training plans. The training path for each trainee will vary according to background, the local environment and personal ambition. The logbook must not be interpreted as prescriptive, but it may well be helpful to identify significant gaps in experience or knowledge that need to be addressed. This may necessitate secondments to other departments locally or nationally.

### **Using the Logbook**

Trainees should attempt to keep a comprehensive record of their training by using this logbook. It is not necessary to complete every section and table. The needs of trainees will vary and this will be taken into account by the Trainers. In particular the training needs of those preparing for part 2 of the examination will be different to those preparing for part 1. However, it is a good discipline to be in the habit of recording achievement and experience as it is happening. This will become standard practice for all state registered clinical scientists as part of the Personal Development Plans and in compliance with Continued Professional Development.

### **Annual Review**

Progress of training will be assessed for each trainee on an annual basis. This will be by interview at which the following should be represented: the supervisor, the MetBioNet local trainer and an ACB Regional Tutor. The latter will pay particular attention to progress towards the MRCPATH examination. This process is a supplement to the regular reviews of progress that should take place between the trainee and supervisor in collaboration with the MetBioNet local trainer.

Mick Henderson  
National Lead Trainer  
MetBioNet

July 2005

NAME .....  
BASE LABORATORY .....  
SUPERVISORS .....  
LOCAL TRAINER .....  
REGIONAL TUTOR .....

SECONDMENTS  
(Give summary of places, dates, supervisors)  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

INTENDED DATE OF TAKING MRCPPath Part 1.....  
DATE OF PASSING MRCPPath Part 1.....  
  
INTENDED DATE OF TAKING MRCPPath Part 2.....  
DATE OF PASSING MRCPPath Part 2.....

## Reassessment of previous training

The trainee, in conjunction with his or her Supervisor, should review training achievements during the Grade A training period, and agree those areas that have not been covered adequately, those that need expanding, and those where the trainee feels least competent and wishes to repeat and review earlier training. These should be listed and appropriate time allocated to achieve adequate training.

The trainee may find it helpful to carry out a SWOT analysis by thinking carefully about his or her Strengths and Weaknesses with respect to training and education, and what Opportunities and Threats there are to accomplishing the goals required. In addition some time should be taken in considering this training record and noting his/her areas of strengths/weaknesses in each of the sections. This exercise should form part of the initial assessment with the Supervisor during the first week in the Grade B HST post.

### Pre-Grade B training SWOT analysis

<b>Strengths</b>	<b>Weaknesses</b>
<b>Opportunities</b>	<b>Threats</b>

## Reassessment of previous training

Topics to be addressed should be agreed at the beginning of the Grade B training period and dated and initialled by the Supervisor on completion.

Topic	Date	Initials

**1. EXPERIENCE IN LABORATORY PRACTICE**

**1.1 Analyses related to areas of general biochemical interest in a Paediatric context including:**

1.1a) Liver disease	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.1b) Disturbances of water and electrolyte metabolism	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.1c) Disturbance of calcium, phosphate and magnesium	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.1d) Disturbances of oxygen/ CO <sub>2</sub> transport and H <sup>+</sup> metabolism	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----

1.1e) Kidney and urinary tract disease	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----
1.1f) Disease of the gastrointestinal tract and pancreas	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----
1.1g) Clinical enzymology	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----
1.1h) Disturbances of lipid and carbohydrate metabolism	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----
1.1i) Disease based on nutritional disturbances	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----

1.1j) Nervous system disorders	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----
1.1k) Disorders of haemoglobin and porphyrin synthesis	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----
1.1l) Disorders of the endocrine system	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----
1.1m) Toxicology	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----
1.1n) Drugs and therapeutic monitoring	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- -----

	<i>Date</i>	<i>Competency Achieved/General Comments:</i>
1.1o) Biochemical aspects of malignancy		----- ----- ----- ----- ----- ----- ----- ----- -----

**1.2 Laboratory investigation of inborn errors of metabolism including:**

1.2a) Simple screening tests and TLC	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.2b) Gas chromatography/ mass spectrometry	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.2c) Automated amino acid analysis	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.2d) High Pressure Liquid Chromatography	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----

<p>1.2e) Tandem Mass Spectrometry -for population screening -for diagnosis and follow up</p>	<p>Date</p>	<p>Competency Achieved/General Comments:</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
<p>1.2f) Specialist assays of intermediary metabolites, carnitine and acyl carnitines,</p>	<p>Date</p>	<p>Competency Achieved/General Comments:</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
<p>1.2g) Red cell enzymes, tissue culture and enzyme assay for selected disorders, white cell enzymes</p>	<p>Date</p>	<p>Competency Achieved/General Comments:</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
<p>1.2h) Relevant DNA techniques</p>	<p>Date</p>	<p>Competency Achieved/General Comments:</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>

1.2i) Requirements for QA in investigation of inborn errors	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- -----
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1.3e) MCAD	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
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**1.4 Molecular Genetics**

Completion of this section may require secondment to a genetics laboratory.

1.4a) DNA Structure and function (from genes to proteins) including mutation nomenclature, structure and function of the human genome	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.4b) Use of web based services and databases, use of relevant software	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.4c) Principles of Mendelian inheritance including chromosome structure, function and linkage	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
1.4d) Principles of DNA technology	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----

<p>1.4e) Extraction of DNA, RNA and preparation of DNA including measurement from a variety of tissues including blood and chorionic villus tissue</p>	<p><i>Date</i></p>	<p><i>Competency Achieved/General Comments:</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
<p>1.4f) Understand and undertake PCR and southern blotting</p>	<p><i>Date</i></p>	<p><i>Competency Achieved/General Comments:</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
<p>1.4g) Understand and perform a range of mutation analysis techniques across a variety of disorders</p>	<p><i>Date</i></p>	<p><i>Competency Achieved/General Comments:</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
<p>1.4h) Understand and perform microsatellite analysis</p>	<p><i>Date</i></p>	<p><i>Competency Achieved/General Comments:</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>

<p>1.4i) Understand and perform sequencing reactions</p>	<p><i>Date</i></p>	<p><i>Competency Achieved/General Comments:</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
<p>1.4j) Understanding of Bayesian Calculation and estimation of genetic risk and reporting policies encompassing confidentiality and checking</p>	<p><i>Date</i></p>	<p><i>Competency Achieved/General Comments:</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>

<b>1.5 Other analytical work</b>	
<b>Date</b>	<b>Work carried out</b>

**1.6 Troubleshooting**

This should cover as broad a range as possible including instrumentation, specimen handling and processing, 24 hour staffing and handling mistakes and complaints.

<b>Date</b>	<b>Problem</b>



**Duty Biochemist**

Indicate the number of sessions involved each week (1 session = ½ day)

<b>Year</b>	<b>Week number</b>																	
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
<b>1</b>																		
<b>2</b>																		
<b>3</b>																		
	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>
<b>1</b>																		
<b>2</b>																		
<b>3</b>																		
	<b>37</b>	<b>38</b>	<b>39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>50</b>	<b>51</b>	<b>52</b>		
<b>1</b>																		
<b>2</b>																		
<b>3</b>																		

**Duty Biochemist**

Indicate the number of sessions involved each week (1 session = ½ day)

Year	Week number																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4																		
5																		
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
4																		
5																		
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
4																		
5																		

**2.2 Interpretation and use of protocols and function tests related to paediatric biochemistry, e.g.:**

2.2a) Sweat tests	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2b) Pancreatic function tests	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2c) Water deprivation test	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2d) Urine acidification test	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----

2.2e) Phosphate excretion indices	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2f) Combined testing of anterior pituitary function	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2g) TRH test	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2h) LHRH test	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----





2.2q) Investigation of hypoglycaemia in children	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2r) Ischaemic and non-ischaemic exercise tests in suspected muscle glycogenoses	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2s) Fructose tolerance test	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.2t) Investigation of carrier status for OTC deficiency	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----

2.2u) Biochemical monitoring of patients receiving total parenteral nutrition	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
---	-------------	--

**2.3 Interpretation and planning of investigations to identify suspected inherited metabolic disorders including:**

2.3a) Disorders of amino acid metabolism and transport	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.3b) Organic acid disorders	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.3c) Disorders of carbohydrate metabolism	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.3d) Peroxisomal disorders	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----

2.3e) Lysosomal disorders	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.3f) Disorders of mitochondrial function	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.3g) Disorders of lipid and bile acid metabolism	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.3h) Disorders of purine and pyrimidine metabolism	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----

2.3i) Disorders of metal transport	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
2.3j) Other disorders	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----

**Interpretation of Metabolic Investigations**

Indicate the number of sessions each week and type of session (eg. AA/OA/TMS)

<b>Year</b>	<b>Week number</b>																	
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
<b>1</b>																		
<b>2</b>																		
<b>3</b>																		
	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>32</b>	<b>33</b>	<b>34</b>	<b>35</b>	<b>36</b>
<b>1</b>																		
<b>2</b>																		
<b>3</b>																		
	<b>37</b>	<b>38</b>	<b>39</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>50</b>	<b>51</b>	<b>52</b>		
<b>1</b>																		
<b>2</b>																		
<b>3</b>																		

**Interpretation of Metabolic Investigations**

Indicate the number of sessions each week and type of session (eg. AA/OA/TMS)

Year	Week number																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4																		
5																		
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
4																		
5																		
	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		
4																		
5																		



**2.6 An appreciation and understanding of other laboratory non-biochemical tests, especially haematology and histology in the context of paediatric metabolic biochemistry, eg, histology/histochemistry in the investigation of certain storage disorders, inherited disorders presenting with anaemia**

	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
--	-------------	--

<b>Record below any placements in other laboratory medicine departments</b>			
<b>Department &amp; Location</b>	<b>Grade A/B</b>	<b>Duration</b>	<b>Details of placement</b>







**3. EXPERIENCE IN PATIENT CARE TO INCLUDE:**

**3.1 Attendance at ward rounds relating to:**

3.1 a) Paediatric TPN	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
3.1 b) General Clinical Specialist Rounds	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
3.1 c) Special Care Neonatal Unit	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
3.1 d) Other rounds (endocrinology, oncology, neurology, hepatology)	<i>Date</i>	<i>Competency Achieved/General Comments:</i> ----- ----- ----- ----- ----- ----- ----- ----- ----- -----





**4. DEVELOP MANAGEMENT AND COMMUNICATION SKILLS**

**4.1 Laboratory organisation and policies**

Understand departmental, Trust and national NHS management structures.	Date	Competency Achieved/General Comments: ----- ----- ----- ----- ----- ----- ----- ----- ----- -----
--	------	---

<b>Date</b>	<b>Management meetings attended</b>

<b>Date</b>	<b>Management courses attended</b>



**4.4 Audit**

**a) Audit meetings attended**

<b>Date</b>	<b>Audit Meeting</b>

**b) Audits conducted**

<b>Date</b>	<b>Type e.g clinical, laboratory management</b>	<b>Topic</b>



**4.7 Personnel**

	Date	Competency Achieved/General Comments:
<b>Strategic planning for services</b>		----- ----- -----
<b>Man power planning</b>		----- ----- -----
<b>Employment of staff</b>		----- ----- -----
<b>Constructing job descriptions</b>		----- ----- -----
<b>Person specifications</b>		----- ----- -----
<b>Interview processes</b>		----- ----- -----
<b>Employment and the law</b>		----- ----- -----
<b>Staff appraisal interviews</b>		----- ----- -----
<b>Personnel development plans</b>		----- ----- -----
<b>Continuing professional development</b>		----- ----- -----

**4.8a) Local presentations (e.g. departmental, grand round)**

<b>Date</b>	<b>Type</b> e.g. case report, research project, journal club	<b>Level</b> e.g. departmental, grand round	<b>Title</b>

**4.8b) Other presentations (regional/national/international)**

<b>Date</b>	<b>Type</b> e.g. case report, research project, poster	<b>Level</b> e.g. regional, national, international	<b>Title</b>



**4.10 Attendance at meetings**

**a) Tutorials and departmental seminars (summary)**

<b>Date(s)</b>	<b>Details</b>

**b) Scientific meetings and training courses**

Date	Details of meeting/course attended



**5. RESEARCH AND DEVELOPMENT**

**5.1 Ethical approval, research design and R&D governance**

	<i>Date</i>	<i>Competency Achieved/General Comments:</i>
		----- ----- ----- ----- ----- ----- ----- ----- ----- -----

**5.2 Literature appraisal (critical appraisal of relevant literature as part of investigative projects)**

	<i>Date</i>	<i>Competency Achieved/General Comments:</i>
		----- ----- ----- ----- ----- ----- ----- ----- ----- -----

**5.3 Statistics**

	<i>Date</i>	<i>Competency Achieved/General Comments:</i>
		----- ----- ----- ----- ----- ----- ----- ----- ----- -----

**5.4 Investigational project work including clinical projects**

<b>Date</b>	<b>Title</b>	<b>Outcome</b>

**5.5 Dissertation (Towards Part 2 MRCPATH)**

**Title**

**Details (outcome, skills learnt)**

<b>5.6 Publications</b>
1) Title
Authors
Journal details
Personal contribution
2) Title
Authors
Journal details
Personal contribution
3) Title
Authors
Journal details
Personal contribution

## **6. ASSESSMENT**

There should be continual assessment of progress by the trainee and supervisor. In addition there should be a formal annual appraisal by a panel that comprises the supervisor, the local trainer and an ACB Regional. The latter will pay particular attention to progress towards membership of The Royal College of Pathologists. A written summary of the assessment will be produced by the local trainer and after verification by all present will be copied to the National Lead Trainer for the record.