Portfolio Evidence – The Good the Bad and the Ugly!

Evidence of Achievement - Registration

EVIDENCE OF ACHIEVEMENT

This section requires the internal assessor to sign that the trainee has successfully achieved fitness to practice. The trainee should collect and prepare supporting evidence as a separate portfolio and cross-reference the following statements to this.

i) Observed by trainer to work in accordance with HPC standard 1a.8.

Date of completion:

Assessed by (signature) ***Print name*** ***Position:***

Cross-referenced to ……

Trainee's signature:

ii) Answered questions and/or completed a set piece of work set by trainer related to the competency statement.

Date of completion:

Assessed by (signature) ***Print name*** ***Position:***

Cross-referenced to ……

Trainee's signature:

And/or

iii) Answered questions and/or completed a set piece of work set by academic tutor related to the competency statement.

Date of completion:

Assessed by (signature) ***Print name*** ***Position:***

Cross-referenced to ……

Trainee's signature:

Suggested examples of evidence:

Show how an area of your training can illustrate how a biomedical scientist can maintain fitness to practice.

Describe how the laboratory Health and Safety policy helps to protect your personal wellbeing and fitness to practice.

What is the purpose of the European Working Time Directive? What are the maximum hours per week that may be worked?

Show how you take responsibility for self-directed learning (e.g. reflective practice sheet).

Portfolio and evidence of competence for this standard verified and passed by:

External Verifier's Signature:	
External Verifier's Name:	
Date:	

Evidence of Achievement – Specialist

EVIDENCE OF ACHIEVEMENT

This section requires the trainer to sign that the specialist trainee has successfully achieved fitness to practice as a biomedical scientist at the specialist level. The specialist trainee is required to present the supporting evidence indicated below as a separate specialist portfolio of evidence.

Assessed by trainer to work in accordance with standard laboratory procedures.

Date of completion:

Trainer's name:

Trainer's signature:

Answered questions set by trainer on the principles and practice of named procedure.

Date of completion:

Trainer's name:

Trainer's signature:

One other piece of evidence chosen by the candidate as an example of their fitness to practice in performing the named procedure.

Date of completion:

Trainer's name:

Trainer's signature:

Evidence of competence for this standard has been assessed and passed by the internal person who has checked that the requirements in the Evidence of Achievement section have been met.

Internal Assessor's signature:

Internal Assessor's name:

Date:

‘Assessed by trainer….’

- Registration – Additional evidence required
- Specialist - You do NOT need any additional evidence for this. Signature alone is sufficient
- This can often be signed in conjunction with in house competency documents

Answered Questions and/or set piece of work (Registration Portfolio)

- Suggested examples in portfolio
- Relates to the competency statements

‘Answered questions set by trainer…’ (Specialist Portfolio)

- This ensures the candidates knowledge has been assessed at a specialist level
- What evidence?
  - Written questions and answers (not essays)
  - Verbal questions and answers (great practice for the examination)
  - MCQs/Quizzes

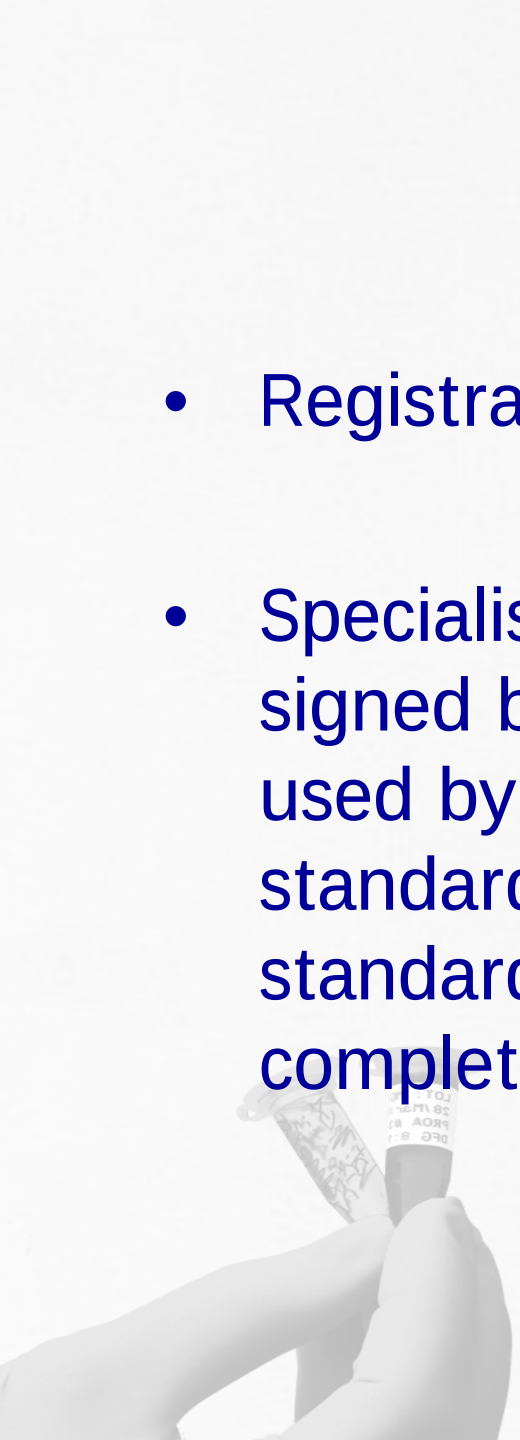
‘One other piece of Evidence...’ (Specialist Portfolio)

- To be selected by the candidate and justified in reflective log
- It should demonstrate application of knowledge and skill at a specialist level
- One piece of evidence will not cover the entire standard, so don’t bother trying!

Assessors Signature

- Registration – signed by verifier

- Specialist – signed by trainer. This is NOT signed by the examiner. This should be used by the trainer when reviewing each standard. It is a way of ensuring each standards has been reviewed as a whole and completed to the necessary level.



What counts as Evidence?

Bear in mind

- Is it appropriate to the standard?
- Is it at the right level? (registration vs specialist)

Examples

- In house assessments
- Annotated results
- Case study
- Reflective logs

Witness Statements

Objective observations that relate to a specific task or action that are independently written and verified by trainer

OR

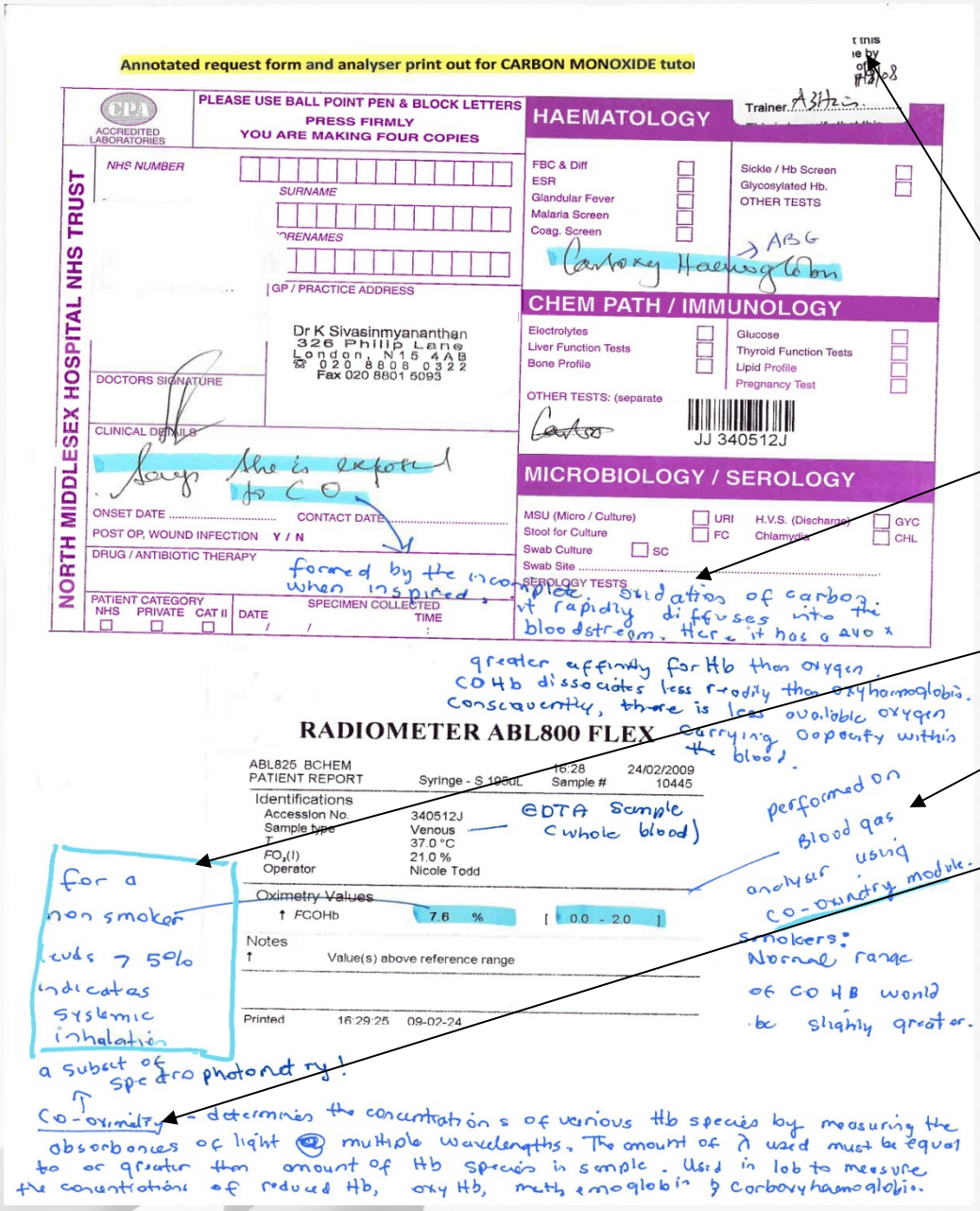
Self witness statement written by trainee and signed and authorised by trainer

Reflective Logs

A brief description of a process, incident or event undertaken by or involving the trainee that related to the standard. Should be accompanied by the personal thoughts of what has been learned and how this might be applied in the future to their benefit and that of their service users.

All of the evidence on the following slides has been anonymised - all evidence that you assess should be **signed** and **dated**.

GOOD EVIDENCE



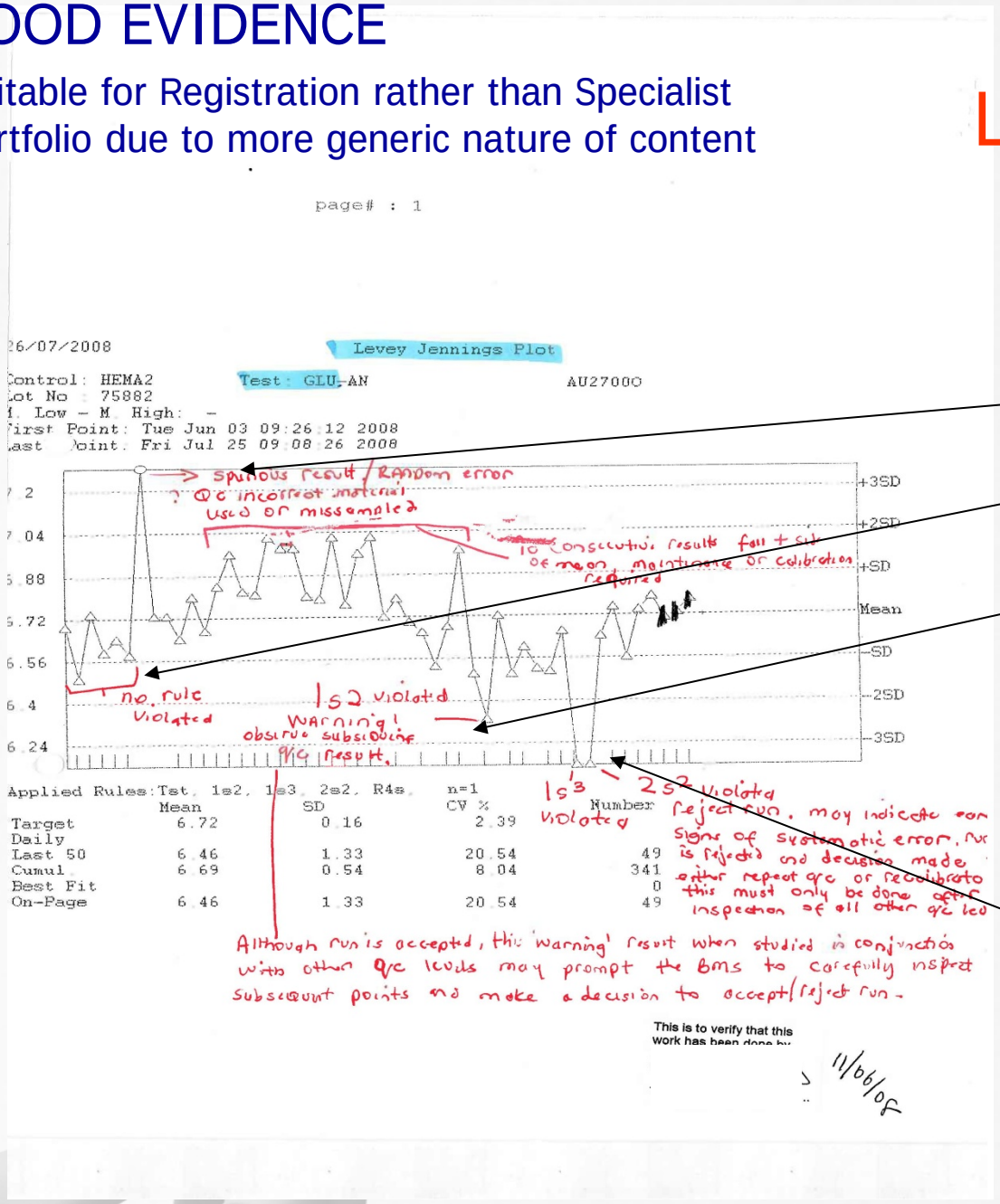
Carbon Monoxide Tutorial

- Assessed and dated
- Explanation of CO formation
- Comment on result
- Analyser
- Explanation of co-oximetry

GOOD EVIDENCE

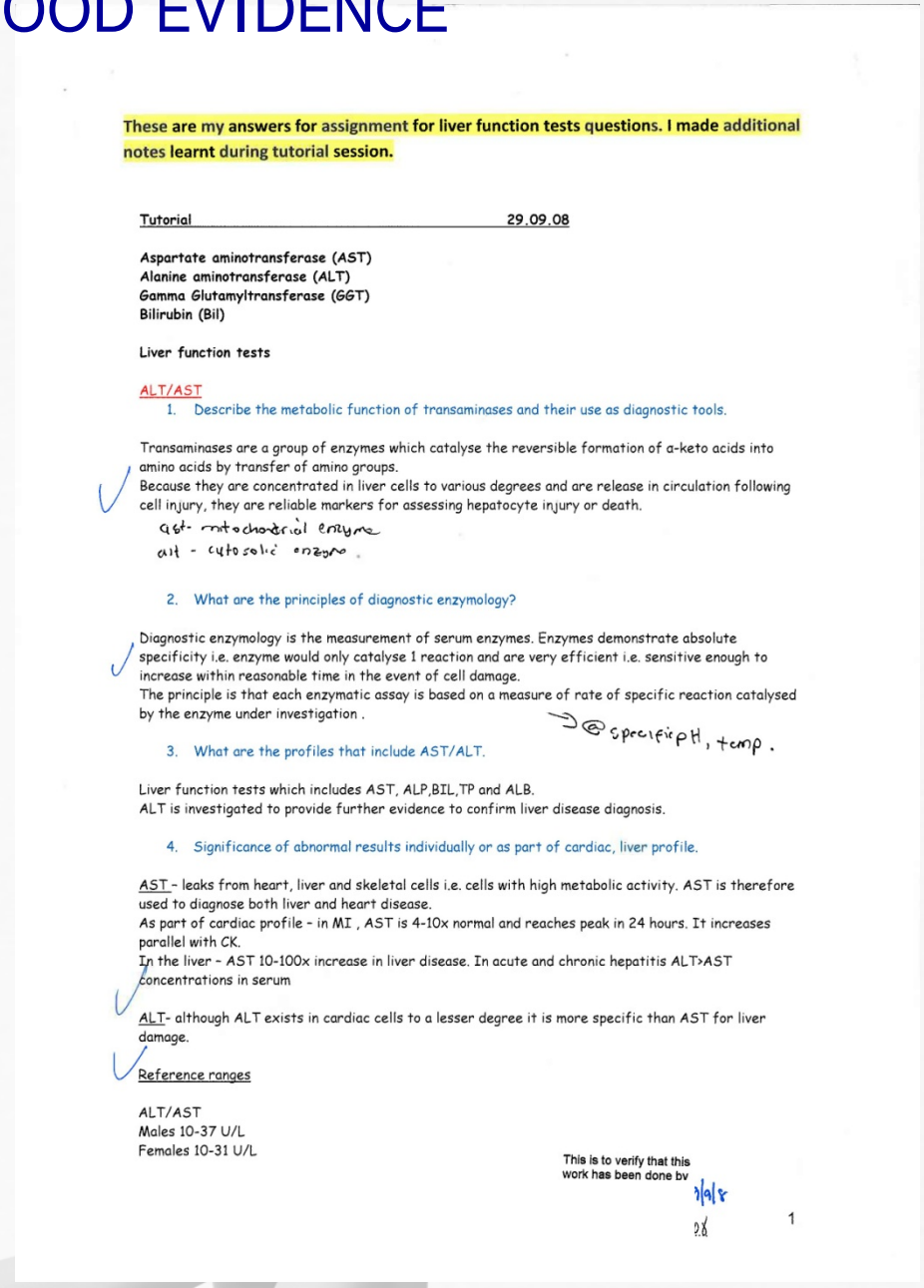
Suitable for Registration rather than Specialist Portfolio due to more generic nature of content

Levey Jennings Tutorial



- spurious result
- no rule violated
- Warning to observe subsequent results
- violation – reject run

GOOD EVIDENCE



These are my answers for assignment for liver function tests questions. I made additional notes learnt during tutorial session.

Tutorial 29.09.08

Aspartate aminotransferase (AST)
Alanine aminotransferase (ALT)
Gamma Glutamyltransferase (GGT)
Bilirubin (Bil)

Liver function tests

ALT/AST

1. Describe the metabolic function of transaminases and their use as diagnostic tools.

Transaminases are a group of enzymes which catalyse the reversible formation of a-keto acids into amino acids by transfer of amino groups.
Because they are concentrated in liver cells to various degrees and are release in circulation following cell injury, they are reliable markers for assessing hepatocyte injury or death.

ast - mitochondrial enzyme
alt - cytosolic enzyme

2. What are the principles of diagnostic enzymology?

Diagnostic enzymology is the measurement of serum enzymes. Enzymes demonstrate absolute specificity i.e. enzyme would only catalyse 1 reaction and are very efficient i.e. sensitive enough to increase within reasonable time in the event of cell damage.
The principle is that each enzymatic assay is based on a measure of rate of specific reaction catalysed by the enzyme under investigation .

@ specific pH, temp.

3. What are the profiles that include AST/ALT.

Liver function tests which includes AST, ALP,BIL,TP and ALB.
ALT is investigated to provide further evidence to confirm liver disease diagnosis.

4. Significance of abnormal results individually or as part of cardiac, liver profile.

AST - leaks from heart, liver and skeletal cells i.e. cells with high metabolic activity. AST is therefore used to diagnose both liver and heart disease.
As part of cardiac profile - in MI , AST is 4-10x normal and reaches peak in 24 hours. It increases parallel with CK.
In the liver - AST 10-100x increase in liver disease. In acute and chronic hepatitis ALT>AST concentrations in serum

ALT- although ALT exists in cardiac cells to a lesser degree it is more specific than AST for liver damage.

Reference ranges

ALT/AST
Males 10-37 U/L
Females 10-31 U/L

This is to verify that this work has been done by

2/9/8

1

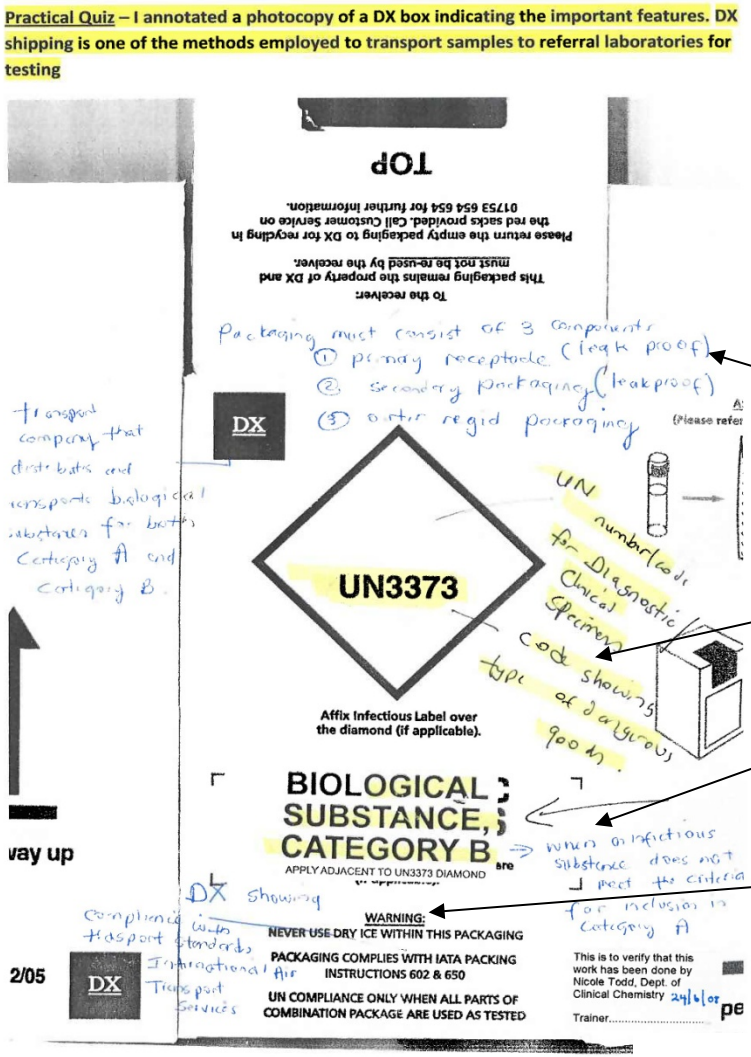
Liver Function Tutorial

- Function of metabolites
- Principles of technique
- Liver profiles
- Significance of results
- Evidence of marking and feedback

IBMS

GOOD EVIDENCE

Suitable for Registration rather than Specialist Portfolio due to more generic nature of content



Practical Quiz

Annotated to show important features:

- packaging
- significance of code
- significance of category B
- Significance of transport standards

BAD EVIDENCE

Not enough detail

6.2 HEALTH AND SAFETY

Be able to understand and apply health and safety requirements.

Competency a

Locate relevant health and safety procedures, guidelines and documents in the laboratory.

Evidence

Health and safety hand book
Sypol presentation

Reference

Question 3
Question 5
Competency c

How have you applied your training to your current role?

I am able to locate the health and safety handbook on Qualsys. As the system is computerised it is easily accessible. I have used it to look up the waste disposal policy.

How will you apply the learning to your future work?

I know where to find certain information so if there is a problem or a question I know where to look for the answer and I can show others.

Future development possibilities.

As Qualsys is a new system I was only aware of the printed health and safety handbook located in the manager's office. There could be a note on the cover raising awareness of the electronic version and the fact that it is not just SOPs on Qualsys.

BAD EVIDENCE

Reads like it has been taken from a textbook rather than candidates own words. Not applied to the context of the lab.

6.2 HEALTH AND SAFETY

Be able to understand and apply health and safety requirements.

1. **Describe the current safety legislation relevant to the laboratory including the USDAW "six pack".**

The USDAW "six pack" can be found at www.usdaw.org.uk. In January 1993 six health and safety at work regulations were introduced to give more detail on what an employer should do to comply with the 1974 health and safety at work act.

- Management of health and safety at work regulations: Applies to all workplaces and hazards.
- Manual handling and operations regulation: Manual handling of loads.
- Display screen equipment and regulations: Working with visual display units (VDU).
- Workplace health, safety and welfare regulations.
- Provision and use of work equipment regulations.
- Personal protective equipment (PPE) regulations: Relevant to health and safety issues.

Evidence: USDAW "six pack.

Reporting of injuries, diseases and dangerous occurrences (RIDDOR) 1995 can be found at www.hse.gov.uk. It is a legal requirement to report work related:

- Deaths
- Major injuries
- More than 3 day injuries
- Diseases
- Dangerous or near miss occurrences

To the incident contact centre (ICC).

Evidence: RIDDOR

Control of substances hazardous to health (COSHH) 2002 can be found at www.hse.gov.uk. Employers must control exposure to hazardous substances to prevent ill health.

Evidence: COSHH
Reference: Competency e

2. **What are the responsibilities of the employer and employee defined in the health and safety at work act?**

The health and safety at work act can be found at www.hse.gov.uk. It ensures health, safety and welfare at work as far as is reasonably practicable.

Employer	Employee
Make workplace safe and without risks to health.	Take care of your own and others health and safety.
Ensure machines are safe.	Cooperate with employer.
Ensure substances are used, moved and stored safely.	Use PPE and work items correctly.
Provide welfare facilities.	Not misuse health and safety equipment.
Give any information, training and supervision necessary.	

Evidence: Health and safety at work act.

SATISFACTORY EVIDENCE

Suitable for Registration Portfolio due to the level of subject matter

Reflective Log - Health & Safety

1. Safety lectures/course attended.

Sypol presentation
Spill kit training session
HTS review

Duration of training.
From Aug 2010
To March 2011

2. How have you applied your training to your current role?

I have attended a Sypol presentation. This database has taken over from the old COSHH sheets. The idea is that it uses a live website so the information is always current. I have used it several times for myself + colleagues, mainly to look up the specific PPE needed. The spill kit training session was very useful as I had never used one before + would not have known that the chemical spill would turn to jelly with the granules

3. How will you apply the learning in your future work?

I will be able to continue to use Sypol to ensure myself + others are working safely.
If the need ever arises I will be comfortable using a spill kit for all the different types + sizes of spills

4. Future development possibilities.

I found the HTS review difficult to follow as the slides were full of the exact legislation. I feel that it isn't necessary to know the exact wording of the law, just what we need to do to comply with it. This should make the next review shorter, simpler + hopefully people will pay more attention.

GOOD EVIDENCE

Excellent way of evidencing an oral tutorial / Q&A session

Oral Assessment on Transfusion Knowledge

- Questions with expected answers
- Answers ticked off

This is the oral examination I sat with the transfusion specialist practitioner to prove my knowledge in this area. This enabled my competencies to be signed off and is good evidence for my portfolio

Transfusion Oral Assessment 06 Jan 2009

1. What are the two major Blood Group Systems?
   ABO and Rh
2. Up to how many days can a sample be tested for a Blood Group and Antibody Screen?
   7 days
3. What is the optimum temperature for ABO antibodies?
   Room Temperature 18 degC
4. What structure are ABO antibodies?
   IgM
5. What is the optimum temperature for Rh antibodies?
   37 degC
6. What structure are Rh antibodies?
   IgG
7. How can you demonstrate IgG antibodies?
   Using the ICT technique. Adding albumin / macromolecular to Rh antibody relations.
8. What test would you do to test for Haemolytic disease of the Newborn?
   DCT
9. If the baby had a Positive DCT but the mother had a Negative Antibody Screen, what would that suggest?
   ABO Incompatibility
10. How would you test for ABO incompatibility?
    Haemolysins
11. What is a feature in the Blood film of babies with ABO incompatibility?
    Spherocytes
12. What temperature is blood stored at?
    4 degC +/- 2 degrees
13. What temperature are platelets stored at?
    22 degC +/- 2 degrees
14. When FFP is thawed, what is the expiry time if it is stored in the Blood Bank – or at room temperature?
    24 hrs in the Blood Bank 4 hours at room temperature
15. What is the expiry time of Cryo Precipitate when thawed?
    4 hours

GOOD EVIDENCE

Evidence of marking and feedback from Trainer

Multiple choice questions

Name..... ..... Date..30.12.10

ABO questions
More than one answer may be correct for each question

The terminal sugar for the group A antigen is

a) N-acetyl galactosamine
b) D-galactose
c) L-fucose
d) None of the above N-acetyl-D-galactosamine?

The terminal sugar for the group B antigen is

a) N-acetyl galactosamine
b) D-galactose
c) L-fucose
d) None of the above

The terminal sugar for the group H antigen is

a) N-acetyl galactosamine
b) D-galactose
c) L-fucose
d) None of the above

ABO blood grouping reagents used in the laboratory are

a) IgM antibodies
b) IgG antibodies
c) IgA antibodies
d) IgE antibodies
e) Monoclonal
f) Polyclonal
g) None of the above

Are the following statements TRUE or FALSE?

A & B blood groups are dominant over O ..True..

A & B blood group genes are co-dominant to each other ..True..

Page 1 of 2

VERY GOOD EVIDENCE

Evidence of marking and feedback

Written Questions and Answers

- Comments from training officers
- Responses from candidate

Combined with clinical details, ESR and PV can be used as a non-specific measure of inflammation and disease states. It is of particular significance in disorders producing large amounts of plasma proteins in the blood, including temporal arteritis (the ESR result is urgent for diagnosis), Polymyalgia rheumatica, juvenile arthritis and SLE. The ESR can take a long time to become raised or decrease with treatment and can be affected by many factors. PV will be affected rapidly and is not affected by gender, age or anaemia. The result and its non-specificity should never be used alone in diagnosis but always accompanied by other test results and clinical symptoms.

what about myeloma?

How would you prepare samples for testing and what/how do pre-analytical factors affect the accuracy of the results?

For ESR a minimum of 1.5ml of EDTA anticoagulated whole blood is required, PV requires only a small amount of blood (µl of EDTA anticoagulated blood). The sample must be labelled with three points of identification all matching that on the request card. The sample must be mixed to ensure homogeneity. Clotted samples cannot be tested and conditions such as lipaemia will affect the viscosity of the sample and thus alter the results, a more viscous sample will slow the rate of sedimentation falsely decreasing the ESR and altering the PV. Diluted samples (e.g. those taken from a drip arm) will also alter results of both PV and ESR due to the decrease in cell numbers and increased fluid.

how much? 40 µl

What are the limitations of the test and what further investigations would be required to overcome these?

ESR and PV can only be calculated using EDTA anticoagulated whole blood. Whereas a PV result can be available in 20 seconds it may actually take approximately 2 minutes per sample to allow for rinsing time. ESR takes a minimum of 30 minutes. ESR is the gold standard but is easily affected by anaemia, gender and age; it also requires a minimum of 1.5ml blood. PV is a modern standardised equivalent to ESR that is less affected by factors such as age and gender and requires anywhere between 50µl and 1000µl. ESR should be tested within 24hours but PV can be measured on samples up to one week old. Examination of the sample can identify problems such as dilute, underfilled or clotted samples and a FBC (full blood count) can indicate the haemoglobin level which may be affecting the result.

what about temperature? → thermometer ESR use temperature as a correction factor when converting a 30 minute result to a 60 minute result.

do you mean insufficient? insufficient

Explain the use of reference values and their clinical significance in the interpretation of abnormal results suggesting further tests as required.

Reference values are required in order to determine whether a patient result is normal or abnormal. Due to the effects age, gender and temperature have on ESR; in 1983 *Miller et al* devised an algorithm based on the Westergren method to define a normal range. This is still used on analysers today. However there are still differences dependent on gender and age. Abnormal PV and ESR results must not be used alone for diagnosis, but as confirmation alongside other test results and clinical details. A full blood count and blood film can be used to determine the presence of infection or

it is confusing determining the you are referring to ESR or PV

IBMS

BAD EVIDENCE

Poorly worded question.

Answer reads like a textbook and is not in the candidates own words.

What supravital stains do we use in haematology? Explain the principals and practice of staining blood cells by Romanowsky staining. Discuss the cellular component stained by the constituents of the Romanowsky stain and the impact of pH on the appearance of the red cells and the white cells.

The multiple stains are based on the Romanowsky stain is use in laboratory. Romanowsky used a mixture of old methylene blue and eosin to stain the nucleus of a malarial parasite purple and the cytoplasm blue. Subsequently, Giemsa modified the stain, combining methylene azure and eosin. The stain most commonly used in the UK is a combination of Giemsa's stain with May Grunwald stain, it is therefore designated the May-Grunwald-Giemsa (MGG) stain. The essential components of a Romanowsky-type stain are: (i) a basic or cationic dye, such as azure B, which conveys a blue violet or blue colour to nucleic acids (binding to the phosphate groups of DNA and RNA) and to nucleoprotein, to the granules of basophils and weakly, to the granules of neutrophils and (ii) an acidic or anionic dye, such as eosin, which conveys a red or orange colour to haemoglobin and eosinophil granules and also binds to cationic nuclear protein, thus contributing to the colour of the stained nucleus. A stain containing azure B and eosin provides a satisfactory Romanowsky stain as does a mixture of azure B, methylene blue and eosin. Staining must be performed at the correct pH. If the pH is too low, basophilic components for not stain well. Leucocytes are generally pale, with eosinophil granules a brilliant vermillion. If the pH is too high, uptake of the basic dye may be excessive leading to general over staining, it comes difficult to distinguish between normal and polychromatic red cells, eosinophil granules are deep blue or dark grey, and the granules of normal neutrophils are heavily stained, simulating toxic granulation.

Candidates must put evidence into their own words.

The answer in the previous slide has been copied from a textbook.

Plagiarism is not acceptable.

The candidate's training officer should pick this up.

eosin; the methylene blue has been heated, or 'polychromed', to produce analogues of methylene blue. Sometimes this is combined with Giemsa's stain to give a Wright–Giemsa stain, which is generally held to give superior results. It has been demonstrated by chromatography that dyes prepared by traditional organic chemistry methods are not pure, dyes sold under the same designation containing a variable mixture of five to ten dyes [30]. Variation between different batches prepared by the same manufacturer also occurs.

The essential components of a Romanowsky-type stain are: (i) a basic or cationic dye, such as azure B, which conveys a blue-violet or blue colour to nucleic acids (binding to the phosphate groups of DNA and RNA) and to nucleoprotein, to the granules of basophils and, weakly, to the granules of neutrophils; and (ii) an acidic or anionic dye, such as eosin, which conveys a red or orange colour to haemoglobin and the eosinophil granules and also binds to cationic nuclear protein, thus contributing to the colour of the stained nucleus. A stain containing azure B and eosin provides a satisfactory Romanowsky stain [29], as does a mixture of azure B, methylene blue and eosin [30]. The ICSH reference method for the Romanowsky stain [31], which uses pure azure B and eosin Y, gives very satisfactory results but such pure dyes are expensive for routine use. Satisfactory and reasonably consistent staining can be achieved using good quality commercial stains and an automated staining machine. This method has been used for staining the majority of blood films photographed for this book.

Traditionally, cytoplasm that stains blue and granules that stain purple have both been designated 'basophilic', and granules that stain violet or pinkish-purple have been designated 'azurophilic'. In fact all these hues are achieved by the uptake of a single basic dye such as azure B or A. 'Acidophilic' and 'eosinophilic' both refer to uptake of the acidic dye, eosin, although 'acidophilic' has often been used to describe cell components staining pink, and 'eosinophilic' to describe cell components staining orange. The range of colours that a Romanowsky stain should produce is shown in Table 1.2.

Staining must be performed at the correct pH. If the pH is too low, basophilic components do not stain well. Leucocytes are generally pale, with eosinophil granules a brilliant vermilion. If the pH is too high, uptake of the basic dye may be excessive leading to general overstaining, it becomes difficult to distinguish between normal and polychromatic red cells, eosinophil granules are deep blue or dark grey, and the granules of normal neutrophils are heavily stained, simulating toxic granulation.

Stain solutions may need to be filtered shortly before use, to avoid stain deposit on the blood film, which can be confused with red cell inclusions. If an automated staining machine is used, superior results are usually achieved with a dipping technique, in

BAD ANSWER

There are errors in the answer.

The answer is not well written making it difficult to understand.

The candidate does not fully answer the external quality assurance part of the question.

Describe the internal and external quality assurance procedures for the measurement of red cell folate.

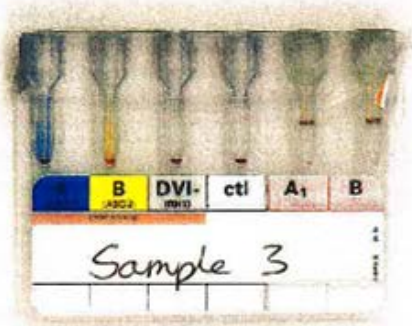
Internal QC performed every 24 hours. Which cover at least one level of controls. Quality control results that do not fall within acceptable ranges may indicate invalid test results. For that reason there are 2 types of ranges been setup if the QC fall in yellow ranges (i.e. 2 standard deviation from the main). Re calibrates the analyser and than re run the QC. And if QC>30 from mean. Also needs to documents as well.

For external QC laboratory participates in NEQAS. Results can be submitted online. And than NEQAS will send us a copy of reports, which can be stored on Q-Plus. Previous NEQAS report attached.

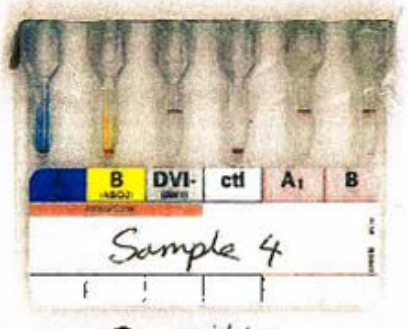
GOOD EVIDENCE

Good annotations that demonstrate that the candidate knows what they are looking at and what it means.

This scan shows two blood group cards ~~from~~ the Diamed analyser. In sample 3 the anti-A and anti-B sera has not reacted, showing that the patient's red cells do not have A and B antigens. The anti-D has not reacted, showing that the patient's red cells do not have the D antigen. In the reverse grouping the reagent red cells have reacted to the patient's sera, showing that the patient has anti-A and anti-B antibodies. This determines the patient's blood group as O Rh negative.



O negative

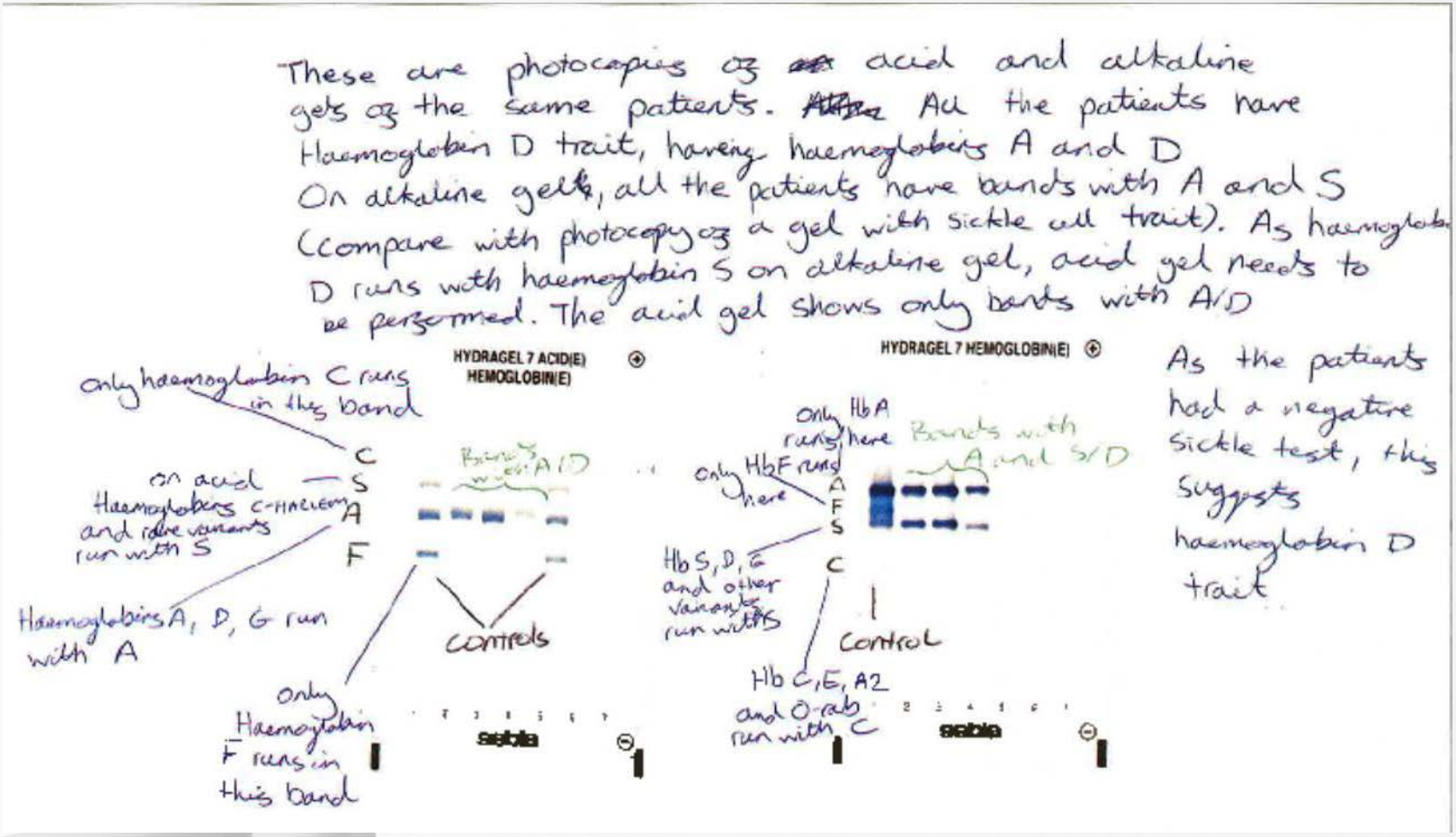


O positive

In sample 4 the anti-A and anti-B sera has not reacted, showing that the patient's red cells do not have A and B antigens. The anti-D has reacted, showing that the patient's red cells do have the ~~date~~ D antigen. In the reverse grouping the reagent red cells have reacted to the patient's sera, showing that the patient has anti-A and anti-B antibodies This determines the patient's blood group as O Rh positive

GOOD EVIDENCE

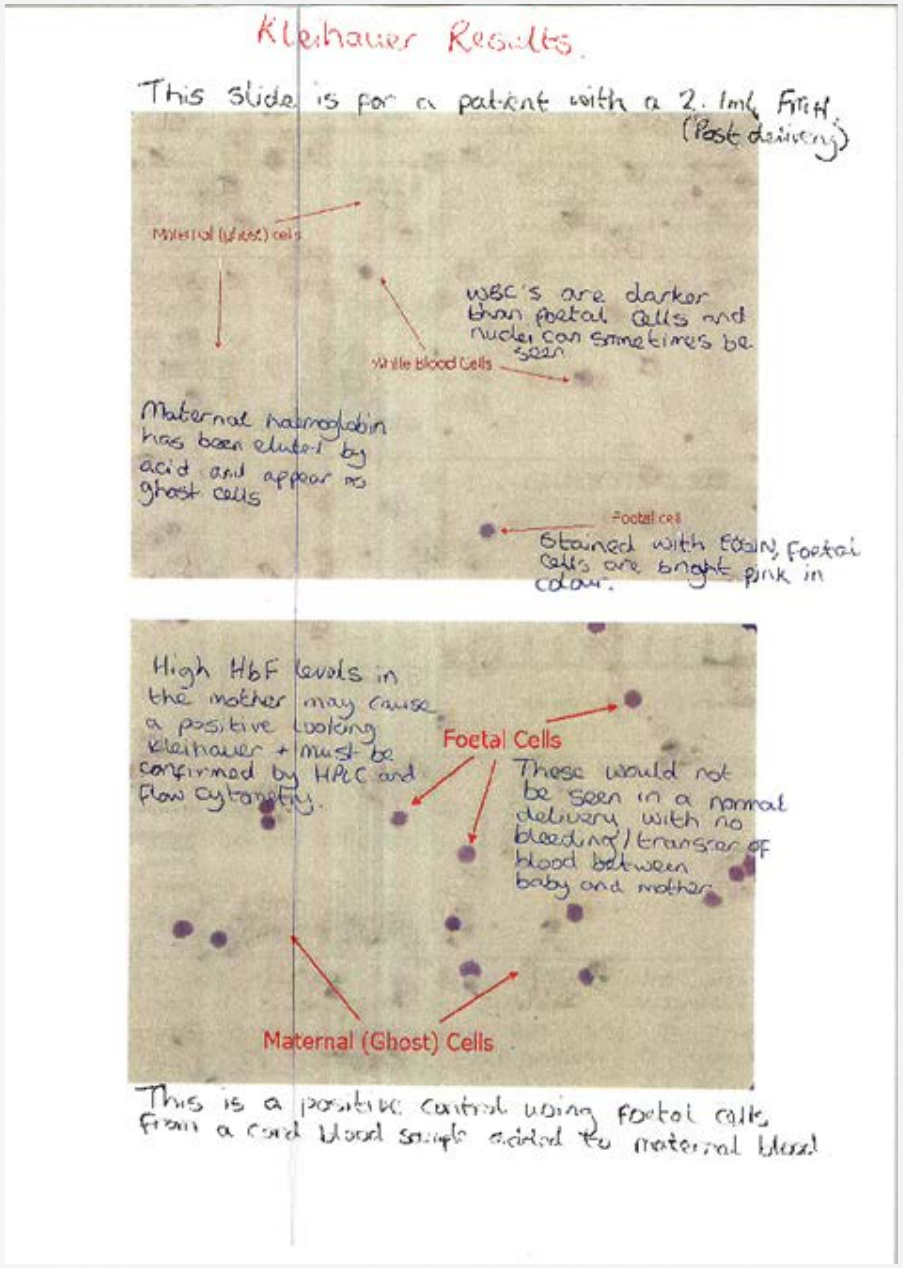
Good annotations. Even better than evidence in the previous slide as the candidate has used arrows to mark up and demonstrate their understanding of each part of the image.



GOOD EVIDENCE

Good annotations.

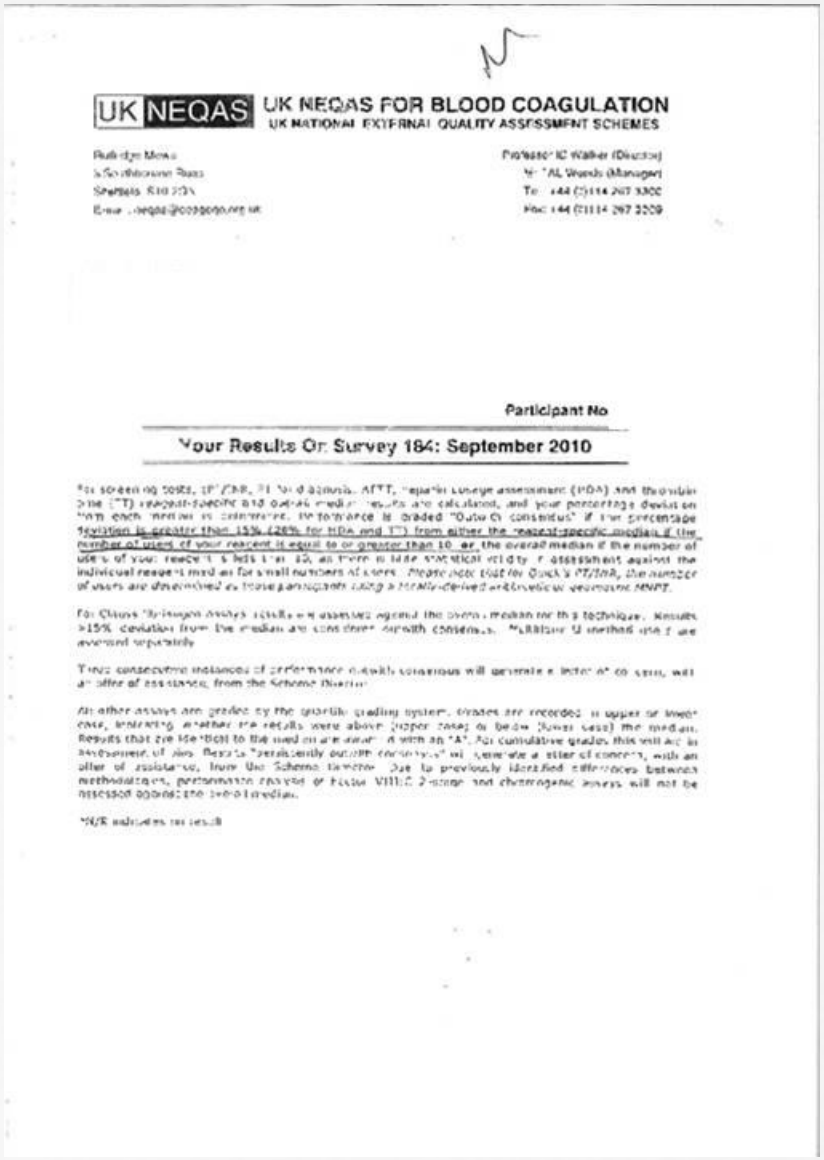
Good demonstration of candidate's understanding.



BAD EVIDENCE

No annotation.

No demonstration of candidate's understanding of the section they have underlined.



UK NEQAS UK NEQAS FOR BLOOD COAGULATION
UK NATIONAL EXTERNAL QUALITY ASSESSMENT SCHEMES

Participant No

Your Results Or Survey 184: September 2010