BBTS Specialist Certificate in Transfusion Science Practice Exam Report May 2011

The Specialist Certificate Examination took place on Saturday 14 May 2011. 40 candidates attended with 32 passes; 10 attaining distinction level.

To those who passed sincere congratulations and best wishes on your career progression for the future in transfusion science.

Feedback requests from any candidate who sat this exam are welcomed and encouraged. We also welcome your constructive comments on the exam paper! Please contact the BBTS office.

Title	First Name	Surname	Result
Mr	Timothy	Knapp	Passed
Mrs	Sukhjinder	Kaur	Passed
Ms	Helen	Cross	Passed
Mrs	Amanda	Whitbread	Passed
Mr	Gregory	Barber	Passed
Ms	Elizabeth	Kanengoni	Passed
Dr	Xiujie	Zhao	Passed
Miss	Kim	Hill	Passed
Mr	Sarran	Mahabir	Passed
Mr	Paul	Burford	Passed
Ms	Megha	Patole	Passed
Mr	Roderick	Lynn	Passed
Mr	William	Adjei	Passed
Mr	Ben	Church	Passed
Mr	Reginald	Norris	Passed
Mrs	Lata	Desai	Passed
Mr	Jan	Majkowski	Passed
Ms	Kerry	Winham-Whyte	Passed
Ms	Reshika	Gariblal	Passed
Ms	Pauline	Amire	Passed
Ms	Louise	Rogers	Passed

Ms	Claire	Fletcher	Passed
Miss	Natalie	Rugman	Passed with Distinction
Ms	Jane	Myburgh	Passed with Distinction
Mr	Jeffrey	Francis	Passed with Distinction
Mrs	Ismay	Humphreys	Passed with Distinction
Miss	Amanda	Watson	Passed with Distinction
Mr	Amanpreet Singh	Dhesi	Passed with Distinction
Ms	Jennifer	Landers	Passed with Distinction
Ms	Jennifer	Jeffrey	Passed with Distinction
Mr	Alan	Dearden	Passed with Distinction
Ms	Sarah	Gent	Passed with Distinction

The final marks ranged from 85% to 28% with the pass mark set at 60%.

Workplace	Candidates		
	Distinction (75%+)	Pass (60-74%)	Fail (<60%)
Hospital	**6**	**13**	**6**
Blood Services	**4**	**8**	**2**
University	**0**	**1**	**0**

Paper 1

In this multiple-choice question paper only 28/40 candidates achieved at least 60% with just six candidates managing to achieve 75% or higher.
A breakdown of the results did not reveal any particular topic to be an issue but rather a broad lack of underpinning knowledge.

Paper 2

31/40 candidates achieved at least 60% and higher in this short answer paper.
17 candidates achieved 75% (or higher).
Those candidates failing to reach 60% demonstrated wide gaps in their transfusion knowledge. The majority of those who passed showed excellent broad knowledge and understanding of transfusion science practice.

Example Questions & Answers

Note; any example answers given 'as written' by the candidate

Abbreviations & Acronyms	Correct answer given	Incorrect/ blank
MSBOS	23	17
SABRE	27	13
TTI	35	5
BCSH	30	10

HDFN	40	0
IAT	34	6
GMP	37	3
FFP	40	0
HTLV	17	23
vCJD	35	5

Effect of Irradiation on shelf-life of red blood cells	**Correct answer given**	**Incorrect/ blank**
Unit intended for adult use	17	23
IUT	29	11

Methylene Blue (MB) treatment of FFP		
What does this treatment do?		
Correct	**Incorrect/ blank**	**Examples of incorrect answers given**
23	17	‘inactivates white cells’ ‘for neonates’ ‘under 16yr olds’ ‘used to inactivate viable cells’ ‘vCJD’ ‘destroys bacteria in the FFP’ ‘stop antibody formation by passenger lymphocytes’ ‘inactivation of pathogens (leucocytes)’ ‘to identify the leucocytes left in the plasma’ ‘remove viruses carried in the WBC’
How does it work?		
Correct	**Incorrect/ blank**	**Examples of incorrect answers given**
22	18	‘ultra red light’ ‘kills microbe’ ‘attacks DNA’ inactivates pathogens by inactivating them’ ‘dyes the leucocytes’ ‘destroys viral envelope’ ‘deactivates the wbc in the donation’ ‘destroys the remaining leucocytes’ ‘destroys bacteria + viruses without affecting its quality’
Why is it critical to leucodeplete FFP prior to MB treatment?		
Correct	**Incorrect/ blank**	**Examples of incorrect answers given**
25	15	‘latent viruses may be present in white cells’ ‘viruses may be sheltering inside leucocytes & escape destruction by the MB treatment’ ‘the process is in place to identify remnant leucocytes, it becomes redundant if leucodepletion is not carried out first’ ‘to remove maximum amounts of leucocytes’

Other topics where candidates struggled to show underpinning knowledge:

- Changes that occur within a unit of red cells upon storage
- The H gene product & effect on the expression of A & B antigens.

- Circumstances that could result in a patient having a delayed transfusion reaction
- HT negative products and their use

NOTE:
For prospective candidates it is worth noting that the study guide details all the knowledge expected, and examined, in both papers 1 & 2 (i.e. familiarise yourself with the module one descriptor!)

Paper 3

This part combines data interpretation with case studies & scenarios. This paper gives the candidate the opportunity to show their depth of knowledge in either Immunohaematology or Donation Testing & Components.

Note; any example answers given 'as written' by the candidate

Section A is the common part giving varied data (ABO/ D/ Antibody Screening & panel results) on 10 samples for all candidates to interpret.

38 candidates achieved 60% and above in part A. 31 gained 75% or above.

ABO/ RhD
As in previous exams, the majority of candidates correctly interpreted grouping results. There were 14 incorrect ABO/D group interpretations given overall. Again, these were spread throughout the candidates showing it is most likely that this type of error is due to 'rushing' or misreading the question. While this is to be expected when under exam conditions, the situation is comparable to stresses experienced during urgent blood provision situations, and therefore cannot be excused.

Antibody identification
In section A candidates have five antibody panel results to interpret. A breakdown of results for each is given.

General observations:

Terminology continues to be a concern with many candidates omitting the prefix 'anti'. New for this exam set was the use, by several candidates, of the alpha symbol (α) to represent antibody. These are signs of poor elucidation with the potential to lead to result misinterpretation. Laboratory reporting must be clear for mistakes to be avoided.
Many candidates failed to demonstrate any obvious working-out/ rule-out process for identifying and excluding antibodies. In addition, the word 'probable' continues to crop up when identifying antibodies that are clearly present according to BCSH guidelines.

Antibody 1: Anti-c +/- anti-E

38/40 correctly identified anti-c +/- anti-E

1 stated 'anti-k'; 1 stated 'Jk^b, Fy^b, C, e'

Antibody 2: Anti-D + anti-K

36/40 correctly identified both antibodies

2 gave no answer; 2 stated anti-D only; 1 stated anti-K only

Antibody 3: Anti-M

In this case the anti-S could not be excluded in accordance with current BCSH guidelines *(section 7.7.2 Note that, wherever possible, the presence of anti-Jk^a, anti-Jk^b, anti-S, anti-s, anti-Fy^a and anti-Fy^b should be excluded using red cells having homozygous expressions of the relevant antigen)*

34/40 correctly identified anti-M

Only 13/34 correctly identified that anti-S had not been excluded.

1 claimed not to be able to exclude ten different antibodies
1 stated 'e, M, S, Le^b' as present
1 stated 'anti-D'
1 stated 'anti-H'

Antibody 4: Anti-Le^a

37/40 correctly identified anti- Le^a

1 stated 'anti-A_1 + anti'C''; 1 stated 'anti-A_1'; 1 stated 'Le^a, Fy^a, e, c'

Antibody 5: Anti-Jk^a

36/40 correctly identified anti-Jk^a

1 stated 'anti-E, Jk^a, Lu^a, Kp^a present'; 1 stated 'Jk^a, S, D'; 1 stated 'Jk^b'

Sections B (Immunohaematology) and C (Donation Testing & Components)

These two sections ask five questions requiring application of knowledge and problem solving skills in their subject areas.

30 candidates answered section B; 19 candidates achieved 60% and above.

Abbreviated example question & answers for section B:

Table 1 shows the ABO grouping results recorded for a batch of samples performed manually by tube technique.

Table 1

Sample ID	Forward Group		Reverse Group		
	Anti-A	Anti-B	A1 cells	B cells	O cells
Sample W	4	0	4	0	0
Sample X	0	4	0	4	0
Sample Y	0	0	4	4	0
Sample Z	4	0	4	0	0
Controls					
A1 cells	0	4			

B cells	4	0
O cells	0	0

Questions		
Interpret the results from table 1		
Correct	**Incorrect/ blank**	**Examples of answers given**
13	17	'W = A_2 with anti-A_1, X = B with anti-B, Y = O, Z = A with anti-A_1' 'Patient A_2 subgroup' 'Sample X – B – reacting with anti-D. ?auto, anti-M, old age' 'old patient' 'A, B, O, A' One candidate assumed that the anti-A & anti-B had been switched and interpreted on that basis
Describe any anomalous results		
Correct	**Incorrect/ blank**	**Examples of answers given**
18	12	ABO incompatible BMT Elderly patient Anti-A_1 Patient must be anti-A_2 Sample W + X patients must have been transfused a different group Patient W has produced anti-A which is against Landsteiner's law Age, diseases, transfusion of A or B with O Check patient ID on all 4 samples Mismatched BMTs Group B patient undergoing BMT Transposed samples but controls are fine Acquired B Cold antibody

Of the ten candidates choosing section C, 5 candidates achieved more than 60% in this part.

Abbreviated example question & answers given for section C:

Candidates were asked a series of questions based on the following scenario; a hospital blood bank has raised a query with their local blood centre regarding a new patient carrying a donor card. The donor card states the person is RhD positive but the hospital lab have repeatedly typed them as RhD negative (all possible errors have been ruled out at the hospital end).

What is the most probable D type of this person?		
Correct	**Incorrect/ part correct**	**Examples of incorrect answers given**
6	4	Rh-ve weak D RhD (weak) positive RhD weak
Explain how the donor testing laboratory result is 'RhD positive'		
Correct	**Incorrect**	**Examples of incorrect answers given**
4	6	Rouleaux formation in unwashed cells might

		probably misinterpreted as Rh+ve Monoclonal anti-D is much stronger Reagent can pick up weak Ds As a result reverse reaction in ABO grouping is not taking place
Explain how the hospital testing laboratory result is 'RhD negative'		
Correct	**Incorrect**	**Examples of incorrect answers given**
5	5	Du test Hospital lab uses polyclonal ab Reagent cannot pick up a weak D Hospitals don't test for weak D