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Knowledge Based Assessment in Cardiovascular Medicine

The Knowledge Based Assessment (KBA) in Cardiovascular Medicine is an exam administered by the British Cardiovascular Society in conjunction with the Specialist Advisory Committee in Cardiology of the Joint Royal Colleges of Physicians Training Board. The Society has collaborated in the question-writing process with the European Board for the Specialty of Cardiology, a body under the joint aegis of the Cardiology Section of the Union of European Medical Specialties and the European Society of Cardiology. The ultimate objective is to develop a European-wide KBA, for which the UK is the pilot. Although the question writing has been undertaken as a European project, the selection of questions and standard setting are UK-specific (see below).

Structure of the KBA
The KBA will be sat for the first time by ST5 trainees in June 2010, and annually thereafter. The examination is computer-based, allowing for the use of still and video images as well as text as the stem of the questions. The KBA will comprise 120 best-of-five questions. It will be held at a single site, under invigilated conditions, during the Annual Conference & Exhibition of the British Cardiovascular Society. The software used allows for quick and accurate calculation of the candidate score, and generation of a spreadsheet of the summary data for the whole examination including performance of each candidate and each question.

Purpose of the KBA
The objective of the Cardiology KBA is to complement the workplace-based assessments to ensure that Cardiology trainees demonstrate adequate knowledge of the Core Cardiology curriculum. The KBA is only one of several forms of assessment that trainees will have to undergo, and it is not expected to present an unreasonably difficult challenge to numbered UK trainees who meet their other milestones. Trainees will sit the KBA for the first time during ST5.

Failure to pass the KBA will not be an automatic obstacle to progression into ST6&7: it will be one element of evidence considered at the Annual Review of Competence Progression (ARCP) and a trainee who is satisfactory in other respects will commence their subspecialty modules as planned.

Such individuals will resit the KBA during ST6, and again, if necessary, before the end of ST7. However, ultimate success at the KBA will be required for the award of a CCT. The processes used to develop and evaluate question material, to set examination papers and to determine an objective pass mark are derived from those used in the production of MRCP(UK) written exams.
Governance of the KBA

The KBA has been developed and is managed through three groups: the KBA Board; the Standard Setting Group; and the Question Writing Group.

KBA Board
The Cardiology KBA is overseen by an examining board chaired by the Vice-President for Training of the British Cardiovascular Society, who is also the Chair of the Specialist Advisory Committee in Cardiology. The membership of the Board comprises 9 members, including *ex-officio* the Chairs of the Question-setting and Standard-setting Boards, the Secretary of the Specialist Advisory Committee in Cardiology and a lay/patient member. Members of the Examining Board meet to discuss and select 120 best-of-five questions for the examination paper.

For terms of reference of the KBA Board, see appendix one.

Standard Setting Group
The Standard Setting Group carries the responsibility of setting a criterion-referenced pass mark using the modified Hofstee compromise method. The Group is chaired by an experienced MRCP standard-setter, and comprises members chosen from the membership of the British Cardiovascular Society. Of these, not more than four shall be question-setters, there must be two or more members of the Specialist Advisory Committee in Cardiology, and up to three trainee members (who must already have passed or not be required to take the KBA). All members undergo two hours’ training in advance of this meeting. Throughout their deliberations, members keep in mind the probability that a borderline (just-passing) trainee would have the level of knowledge required to answer each question correctly, with a view to establishing a clear ‘cut score’. They are also reminded that the KBA is a pass/fail exam and the process does not allow for ranking or grading of candidates.

The procedure is identical to that used in the setting of pass marks for the MRCP(UK) Part 1 and Part 2 written examinations prior to the adoption of equating. However, as the KBA is a new exam, there has as yet been no opportunity to use peer referencing to inform the pass/fail standard; this will be incorporated in due course.

Criteria for membership of the KBA Board and Standard Setting Group
Medical members of the KBA Board and Standard Setting Group must:
• be Fellows or Members of one of the Royal Colleges in active clinical practice;
• provide evidence of an interest and regular participation in educational activities;
• provide a current CV and confirm that they are up to date with their employer’s equality and diversity training and appraisal procedures;
• confirm that they have been actively engaged in the training of junior doctors within the last two years and are up to date with relevant National Guidelines, and that they have fulfilled their CPD requirements; and
• sign a declaration in respect of preserving the confidentiality of examination material and avoiding conflicts of interest.

Question Writing Group
Question writers were recruited by the British Cardiovascular Society and the European Society of Cardiology from among its members and trained at a one-day workshop on the drafting of one-from-five multiple choice questions, run by experienced MRCP(UK) question writers. Recruitment included a number of specialists with experience of drafting questions for the MRCP(UK) written examinations, to act as role models.
Standard Operating Procedure for the
British Cardiovascular Society’s Knowledge Based Assessment

Question writers prepare draft questions in advance of a series of meetings, at which all material is subject to peer-group review and editing by the question-writing group. The question topics are selected to cover all aspects of the Cardiology syllabus. The group meets twice yearly to review the performance of questions, and to process new draft questions for addition to the question bank.

Criteria for membership of the Question Writing Group
Medical members of the KBA Board and Standard Setting Group must:
• be nationally recognised specialists in cardiovascular medicine (or cardiology)
• be Fellows or Members of the European Society of Cardiology;
• provide evidence of an interest and regular participation in educational activities;
• provide a current CV and confirm that they are up to date with their employer’s equality and diversity training and appraisal procedures;
• confirm that they have been actively engaged in the training of junior doctors within the last two years and are up to date with relevant National Guidelines, and that they have fulfilled their CPD requirements; and
• sign a declaration in respect of preserving the confidentiality of examination material and avoiding conflicts of interest.

Question writing and the ESC
The Education Committee of the ESC has created a sub-committee for question writing (the MCQ task-force) with the aim of producing a bank of multiple choice questions suitable for use in the assessment of trainee cardiologists. It will focus both on core training and the specialty curricula currently under development by the ESC Associations and working groups. The creation of this question bank will both enable exams like the KBA to take place and produce a consistent assessment framework across Europe of trainee cardiologists. The ESC aim is for this question bank to be made available to their member National Societies to push forward improvements in universal assessment in Europe.

The Question Writing group is made up of Consultants from various ESC member National Societies, with a majority from the UK. Administration and financial support to the group is provided by the ESC. BCS set up online question writing software for the group which the ESC further developed. The chair is a longstanding member of BCS, and past President, Dr Nicholas Brooks.

Reliability and validity of questions
To provide content validity, all questions are drafted by active specialists in the discipline, who are briefed to ensure that question material is relevant to trainees approaching the end of their core specialty training, at the level of knowledge required by a newly appointed consultant. To provide face validity, question writers are required to set each question as far as possible within a relevant clinical context, representative of a candidate’s everyday activity.

Knowledge to be tested in KBA
See Appendix Two - Map of UK Core Curriculum Knowledge items mapped against the ESC Curriculum

See Appendix Three - Frequency distribution of topic areas within each diet of the exam

Exam Setting
See Appendix Four - Selecting the questions from the question bank
Pilot KBA, 2009

A pilot examination took place at the BCS Annual Conference and Exhibition in May 2009. This used software written by the Swedish software company Orzone to support a KBA comprising 120 best of five questions. Sixty volunteer candidates, mostly ST3 or ST4 and some SpR trainees, sat the examination. The results of the examination were provided in the form of an Excel spreadsheet, and analysis was undertaken by Professor Chris McManus of University College London. The Cronbach’s alpha co-efficient of reliability was 0.75, and the standard error of measurement was 3.4%. These results were felt to be quite satisfactory for this pilot. Improvements may well be attainable with better item selection and greater experience with question writing, although there will be inevitable limitations due to modest numbers of candidates taking the KBA (approx 100 per annum) and a narrow range of candidate ability. The logistics associated with the examination were successful.

Feedback for candidates
Volunteers in the pilot KBA were notified of the mark they achieved. The Standard Setting Group met in late 2009 to set the criterion-referenced pass mark retrospectively, and volunteers were notified whether they “passed” the pilot examination. For the 2010 exam, the criterion-referenced pass mark will be set after the exam has taken place, using the same methodology and informed by experience from the pilot criterion referencing exercise.

It is planned that feedback will be provided on the candidate’s performance in each major area of the curriculum in due course. The coding systems necessary to attribute each question to a particular section of the curriculum have been developed for question selection in setting the KBA, and can be used to provide an enhanced detail of feedback to candidates.

Review & Development

The KBA Board will be responsible for conducting an annual review of the KBA, working closely with both the Question Writing Group and the Standard Setting Group. The KBA Board will also consult with the European Society of Cardiology to ensure that their exam is kept relevant and up to date with developments in European Cardiology, both in terms of content of the exam and the process of the assessment overall.

It is likely that in time other European Societies may follow BCS’ lead in setting up a Knowledge Based Assessment Exam as part of their assessment of their Trainee Cardiologists. Initial interest has been expressed by the Netherlands and Greek Cardiology Societies. The KBA Board will invite Presidents from National Societies interested in running a KBA in their country to attend a meeting to gain adequate information on the set up and development of this exam.

Access to the question bank is governed by ESC Education Committee. Currently, access to the questions is granted only to those countries that have contributed to the question bank, through the Question Writing Group. As BCS has put significant work into both the Question Bank and into developing its KBA, it will be consulted prior to any access to the Bank being provided, (see ESC section above).

As part of the annual review of the KBA, BCS will review the costs of the exam and the charge set for candidates. The charge is set to enable BCS to recover its costs in developing and running the exam: BCS does not aim to make a profit from running the mandatory KBA.
Standard Operating Procedure for the British Cardiovascular Society’s Knowledge Based Assessment

Structure and Operating Procedures for the KBA

1. Structure and operating procedures for the Exam
   i. The KBA 2010 will be held in a suitable venue which can accommodate the expected number of candidates (e.g. Exchange Hall of Manchester Central).
   ii. The KBA will run for 3 hours (usually from 14.00 to 17.00.)
   iii. Candidates must arrive no later than 13.30 at the venue, in order to have adequate time to register and take their allocated seat.
   iv. The KBA is a 3 hour exam, with 120 multiple-choice questions.
   v. The exam is paperless and will run on laptops, using software developed by Orzone.
   vi. The exam has been designed to cover all core components of the UK Higher Specialist Training Curriculum in Cardiology (this will also be congruent with the Core European Cardiology Curriculum, as published by the European Society of Cardiology).

2. Registration
   i. Registration for the KBA will be made online via the BCS website.
   ii. There will be a deadline for all candidates to register in early May.
   iii. Full payment must be received by BCS to secure a candidates’ place on the exam.
   iv. Candidates must ensure that all information given via the online registration system is correct, including their GMC number, NTN, contact details and Deanery.
   v. Any changes to candidates’ registration information should be reported to BCS immediately.
   vi. Full refunds can be given upon request within four weeks of the exam date. If less than four weeks to the exam date, refunds will not be given.

3. The Exam Hall
   i. Candidates will be allocated a desk number upon arrival at the exam hall; candidates must sit in their allocated desk.
   ii. Candidates should observe silence throughout the three hours of the exam and must not attempt to communicate with any other candidate.
   iii. Candidates may not leave the exam hall within the first half hour or the last half hour of the exam period.
   iv. If a candidate wishes to use the toilets during the exam they must signal to an invigilator who will accompany them to the nearby facilities.
   v. Candidates should not leave their seats; if they need assistance they should first signal an invigilator.
   vi. Candidates must check all baggage, coats and outerwear and all electronic devices into the cloakroom, provided outside of the exam hall.
   vii. No paper materials are allowed in the exam hall, except instructions given on the exam software and one sheet of blank paper for notes. At the end of the exam, no paper materials can be taken out of the exam hall – the invigilators will collect all paper before candidates can leave the hall.
viii. Desks will be a set distance of 1 metre away from each other, with gangways in between the banks of 4 and in between the columns of desks.

4. Invigilators
   i. There will be up to four invigilators present in the exam hall, including one senior invigilator who has overall responsibility for the running of the exam.
   ii. Each invigilator will cover a bank of 35 candidate desks.
   iii. Invigilators will register candidates on the registration desks (outside of the exam hall), checking their photo i.d. and email verification against the list of candidates.
   iv. Once photo id and email verification have been successfully seen, invigilators will distribute the candidates' desk number card which should be displayed on candidates' desk throughout the exam.
   v. Throughout the exam Invigilators will:
      1. ensure that silence is maintained;
      2. ensure that all personal property of the candidates is checked into the cloakroom, including all electronic devices;
      3. ensure that no food is consumed in the exam hall;
      4. answer questions of candidates on navigation through the exam software;
      5. aid candidates in the unlikely event of laptop/software failure (with assistance from the three technicians from the software and IT companies);
      6. accompany candidates to the toilet facilities during the exam time;
      7. walk through their allocated candidate desk area every 15 minutes;
      8. monitor their candidate area throughout the exam period;
      9. report any suspected cheating or suspicious behaviour to the senior invigilator immediately;
      10. collect all paper materials from candidates desks at the end of the exam or from those candidates themselves for anyone leaving the exam hall before the end of the three hours (these papers will be the software instructions and one piece of blank paper for candidates notes during the exam, as per point 3 viii above);
      11. distribute water to candidates upon their request;
      12. give an announcement when there is 40 minutes remaining of the exam time.

5. Results
   i. The KBA is a pass/fail exam. Candidates will be given their overall score and the breakdown of their scores across the six categories within the exam. This information is given to aid the Candidate in their understanding; it is not intended for use in any ranking purposes.
   ii. Results will be given 2 months after the exam has taken place: in 2010 this will be by the Friday 6 August.
   iii. Results will be given via email to the address that all candidates provide BCS in the registration system.
iv. A certificate to confirm passing the KBA will be sent in the post to candidates within 14 days of the result being emailed.

v. For those candidates that fail, feedback will be given on which areas were their lowest performances.

vi. It is the duty of the candidate to report their result to their Training Programme Director and their Deanery.

vii. Results will be calculated by BCS through the following process:
   1. Results from the exam are exported to BCS from the Orzone exam software;
   2. Results are calibrated with a psychometrician with a special interest in post-graduate exams and lead members of the Standard Setting Group;
   3. Calibrated results are reviewed by the KBA Board who will then agree the passmark with a corresponding pass rate;
   4. Notification of results sent to candidates via email within one week of the KBA Board meeting and certificates produced;
   5. Anonymised exam result data sent to PTB.

6. Passmark and pass rate
   i. The passmark for the KBA will be set following the Hofstee compromise method.
   ii. The passmark and pass rate are agreed by the KBA Board, following the advice of the lead members of the Standard Setting Group of the KBA and the psychometrician.
   iii. The KBA Board has sought advice on setting up an equitable and efficient examination system. Furthermore, the pilot KBA that ran in 2009 was analysed by leading UK Examinologist and approved by the PTB.

7. Certificates
   i. The certificate for candidates passing the exam will contain the GMC and NTN number provided by candidates in their registration. It is therefore vital that candidates check their registration details.
   ii. The certificates will be individually signed by a member of the KBA Board.
   iii. Reprints of certificates will be charged at £50.

8. Appeals
   i. Appeals can be made against the results for only the following reasons:
      1. if there was a valid reason for poor performance, such as illness, that had not been previously reported
      2. if the candidate believes there was an error in the software or questions
   ii. Appeals against results should be directed to Dr Jim Hall at the British Cardiovascular Society, 9 Fitzroy Square, London, W1T 5HW. Appeals should be made in writing, stating the candidates’ full registration details and giving the reason(s) for the appeal being made.
   iii. BCS will confirm receipt of the submitted appeal within 5 working days.
iv. Appeals will be put before the KBA Board for their consideration; their response to the appeal will be given to the candidate in writing within 28 days of receipt of the appeal.

v. The KBA Board decision will be final.

9. Candidates’ behaviour during the exam
   i. Candidates must bring accepted valid photo identification with them to the Exam, these to be either a passport or driving license.
   ii. Candidates must display their candidate number card throughout the exam (given at registration);
   iii. Candidates must not attempt to communicate with other candidates throughout the exam period.
   iv. It should be noted that the software randomises the question order, so each candidate will see the questions in a different order.
   v. Any candidate found to be cheating by the invigilators will be removed from the exam hall.

10. Illness
   i. In the case of illness, candidates need to produce a sickness certificate from a doctor with a covering letter written by the candidate explaining their absence.
   ii. Candidates’ registration fees will not be refunded in the case of illness, but a place in the following years’ exam will be reserved for them.
   iii. Candidates who do not attend the exam through illness, but do not provide BCS with a sick certificate will not be entitled to a place on the following year’s exam and will not be refunded.
   iv. Candidates who are unwell at or during the exam should notify the senior invigilator.

11. Re-sitting the exam
   i. Resits of the exam will be charged at £150 per candidate, per resit.
   ii. There is no maximum number of resits that a candidate can take. However, all UK St Trainees must pass the KBA by the end of their time in St7 (before completion of CCT).
   iii. The KBA will be held once per year on a date/time/location set by BCS, in agreement with the KBA Board.
Appendix One – KBA Board Terms of Reference

Terms of reference and constitution

1. Terms of reference

1.1 To define and approve the development of the BCS Knowledge Based Assessment Exam (KBA), including a pilot exam to be held in 2009;
1.2 To review and agree all logistics and processes for the KBA;
1.3 To review revisions to the curriculum and their impact on KBA;
1.4 To advise on regulatory and professional matters which could affect the KBA in the UK;
1.5 To review the questions produced by the Question Writing Group and set the exam questions for the KBA in the UK;
1.6 To review work of the Standard Setting Group for the KBA, taking their advice into consideration in points 1.1 and 1.2 above;
1.7 To have overall approval of communications on the exam, including results notification.

2. Constitution

2.1 The Board shall be called the KBA Board;
2.2 The Board is accountable to the Executive of BCS and the SAC;
2.3 The officers of the Board will include a Chair and deputy Chair;
2.4 The Chair of the Board will be the BCS Vice President Training (and also SAC Chair)
2.5 The Chair will serve for a period of four years;
2.6 The Chair and Deputy Chair will appoint the members of the Board, who will serve for a period of three years;
2.7 The President of the British Cardiovascular Society, the Vice-President Elect for Training and the Chair of the Question Writing Group of the ESC will be members of the Committee;
2.8 The Board can invite experts to attend particular meetings;
2.9 All members, except invited experts (referred to above), will have voting rights;
2.10 The Committee will generally meet three times a year. One of these meetings should take place one month after the KBA has taken place, in order for the Board to review and agree upon the exam passmark and passrate.
2.11 Extraordinary meetings may be convened on the authority of the Chair with the approval of the BCS President.

3. Proposed membership 2009

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
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<tbody>
<tr>
<td>Prof Stuart Cobbe</td>
<td>Chair</td>
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<tr>
<td>Dr Nicholas Brooks</td>
<td>Ex-officio Question Writing Group of ESC</td>
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<tr>
<td>Dr Jim Hall (V-P Elect Training)</td>
<td>Ex-officio Deputy Chair</td>
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<tr>
<td>Prof Keith Fox</td>
<td>Ex-officio President BCS</td>
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<tr>
<td>Dr Rob Wright</td>
<td>Member, lead on Standard Setting</td>
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<tr>
<td>Dr Peter Mills</td>
<td>Member, lead on European Education</td>
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<tr>
<td>Reinhard Greibenow</td>
<td>Invited Chair, Education Committee, EBSC</td>
</tr>
<tr>
<td>Celine Carrera</td>
<td>Invited ESC Education, Question Writing Group</td>
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<tr>
<td>Steven Yeats</td>
<td>CEO of BCS</td>
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<tr>
<td>Kirsten Bradbury</td>
<td>Head of Development</td>
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<tr>
<td>Paul Kalra</td>
<td>Question Writer</td>
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<tr>
<td>Clive Lawson</td>
<td>Question Writer</td>
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### Appendix Two - Map of UK 2010 Curriculum Knowledge Items against ESC Core Cardiology Curriculum (and hence the ESC question bank categorisation)

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<th>UK Cardiology Core Knowledge</th>
<th>ESC Chap</th>
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<td>1. Chest Pain</td>
<td>1</td>
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<td>2. Stable Angina</td>
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<td>3. Acute Coronary Syndromes and Myocardial Infarction</td>
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<td>4. Acute Breathlessness</td>
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<tr>
<td>5. Chronic Breathlessness</td>
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<tr>
<td>6. Heart Failure</td>
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<tr>
<td>7. Cardiomyopathy</td>
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<tr>
<td>8. Patients with Valvular Heart Disease</td>
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<tr>
<td>9. Pre-Syncope and Syncope</td>
<td>22</td>
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<tr>
<td>10. Arrhythmias</td>
<td>20</td>
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<tr>
<td>11. Atrial Fibrillation</td>
<td>21</td>
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<tr>
<td>12. Pericardial Disease</td>
<td>11</td>
</tr>
<tr>
<td>13a. Primary and Secondary Prevention of CV Disease</td>
<td>7i</td>
</tr>
<tr>
<td>13b. Hypertension</td>
<td>7ii</td>
</tr>
<tr>
<td>13c. Lipid Disorders</td>
<td>7iii</td>
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<tr>
<td>14. Adult Congenital Heart Disease</td>
<td>13</td>
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<tr>
<td>15. The Prevention and Management of Endocarditis</td>
<td>16</td>
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<tr>
<td>16. Diseases of the Aorta and Cardiac Trauma</td>
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<td>17. Cardiac Tumours</td>
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<tr>
<td>18. Cardiac Rehabilitation</td>
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<td>19. Assessment of Patients with CV Disease Prior to Non-Cardiac Surgery</td>
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<td>20. Assessments of Patients Prior to Cardiac Surgery</td>
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<td>21. Care of Patients Following Cardiac Surgery</td>
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<td>22. Management of Critically Ill Patients with Haemodynamic Disturbances</td>
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<td>23. Heart Disease in Pregnancy</td>
<td>14</td>
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<td>24. Resuscitation – Basic and Advanced Life Support</td>
<td>23</td>
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<tr>
<td>25. Radiation Use and Safety</td>
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<tr>
<td>26. Community Cardiology</td>
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<tr>
<td>27. Pulmonary Arterial Hypertension (PAH)</td>
<td>18,26</td>
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<tr>
<td>28. Clinical Genetics</td>
<td>5</td>
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</tbody>
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**Core Procedures and Investigations**

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<table>
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<tbody>
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<td>1. Basic Investigations</td>
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<td>2. Echocardiography (Core)</td>
<td>3</td>
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<td>3. Nuclear Cardiology (Core)</td>
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<td>4. Cardiac Magnetic Resonance (Core)</td>
<td>3</td>
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<tr>
<td>5a. Cardiac CT</td>
<td>3</td>
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<tr>
<td>6. Heart Rhythm Training (Core)</td>
<td>20</td>
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<tr>
<td>7. Invasive and Interventional Cardiology (Core)</td>
<td>4</td>
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<tr>
<td>8. Pericardiocentesis</td>
<td>11</td>
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</tbody>
</table>
Appendix Three - Categorisation of the Exam Template

Category 1 - Valvular and Myocardial Disease (approximately 20% of the questions)
15 Valvular disease
16 Infective endocarditis
10 Myocardial Disease
17 Heart Failure

Category 2 - Ischaemic Heart Disease (approximately 20% of the questions)
4 Invasive cardiac imaging
7 Cardiovascular Disease Protection i) risk factors iii) dyslipidaemia iv) diabetes
8 Acute Coronary Syndromes
9 Chronic IHD
19 Rehabilitation and exercise physiology

Category 3 - Rhythm Disorders (approximately 20% of the questions)
2 Basic Investigations – ECG, ambulatory ECG, exercise testing
20 Arrhythmias
21 Atrial fibrillation
22 Syncope
23 Sudden Cardiac Death and Resuscitation

Category 4a – Adult Congenital Heart Disease (approximately 6% of the questions)
13 Adult congenital heart disease
14 Heart disease in pregnancy

Category 4b - Non-invasive Investigation (approximately 14% of the questions)
3 Non-invasive imaging

Category 5 - General (approximately 20% of the questions)
1 Clinical skills history and examination
24 Diseases of the Aorta and Trauma
25 Peripheral Vascular Disease
11 Pericardial disease
12 Cardiac tumours
18 Pulmonary hypertension
5 Clinical Genetics
6 Clinical Pharmacology
7 Cardiovascular Disease Protection ii) hypertension
26 Venous thrombo-embolism
27 The Cardiac Consult (Non-cardiac disease and the heart)

The percentage per category given above is the desired aim for the exam; a variance of 10% between the categories is acceptable.

The ratio of image/video questions to non-image questions is 1:3 (25% of questions should have image or video). In 2010 the percentage of image/video questions was 27.5%.
Appendix Four - Selecting Questions for the KBA

Section Lead 1 will select questions from the following sections of the curriculum:

4 Invasive cardiac imaging
7 Cardiovascular Disease Protection i) risk factors iii) dyslipidaemia iv) diabetes
8 Acute Coronary Syndromes
9 Chronic IHD
19 Rehabilitation and exercise physiology

The KBA will include about 18 (out of the 24) questions on ischemic heart disease diagnosis, treatment and intervention and the rest more or less equally divided between the other topics.

Section Lead 2 will select questions from the following sections of the curriculum:

13 Adult congenital heart disease
14 Heart disease in pregnancy
15 Valvular disease
16 Infective endocarditis
24 Diseases of the Aorta and Trauma
25 Peripheral Vascular Disease
11 Pericardial disease
12 Cardiac tumours
18 Pulmonary hypertension

The KBA will include about 8 of questions on valve disease and endocarditis, 8 on congenital, pregnancy and pericardial disease 8 on the rest.

Section Lead 3 will select questions from the following sections of the curriculum:

5 Clinical Genetics
6 Clinical Pharmacology
7 Cardiovascular Disease Protection ii) hypertension
10 Myocardial Disease
17 Heart Failure

The KBA will include about 8 on heart failure, 8 on myocardial disease and 8 on the rest.

Section Lead 4 will select questions from the following sections of the curriculum:

2 Basic Investigations – ECG, ambulatory ECG, exercise testing
20 Arrhythmias
21 Atrial fibrillation
22 Syncope
23 Sudden Cardiac Death and Resuscitation

The KBA will include about 6 on AF, 6 on syncope/sudden death, 6 on tachycardias, 6 on bradycardias.

Section Lead 5 will select questions from sections:

1 Clinical skills history and examination
3 Non-invasive imaging
26 Venous thrombo-embolism
27 The Cardiac Consult (Non-cardiac disease and the heart)

The KBA will include about 18 on imaging, echo (50%) nuclear (25%) and CMR (25%), and 6 on the rest.
Appendix Five - Candidate Rules provided to all exam candidates

Candidates are reminded of the following rules governing the conduct of the KBA:

1. Only UK Cardiology Trainees may sit the exam: it is to be taken by all trainees during the St5 year. There will be occasional St6 or St7 trainees that started an StR programme after August 2007 who will also need to take the exam as part of completing the 2007 curriculum.

2. Candidates cannot sit the exam if the full registration fee (in 2010, this was £475 for BCS Members, £525 for non-members) has not been received by BCS.

3. The registration fee is for one exam sitting. If a candidate needs to take the exam again, this will be charged at £150.

4. Candidates must update BCS with any changes to their contact details.

5. Candidates will receive a confirmation email of their registration from BCS, informing them where and when the exam will take place. This confirmation should be checked very carefully, particularly for any incorrect name spelling, and any corrections should be drawn to the attention of BCS immediately. A fee will be charged for any name amendments requested after certificates have been issued.

6. Candidates are responsible for noting correctly the time, date and location of the KBA.

7. Candidates must bring valid photo identification (a passport or UK driving license). Access to the KBA will be denied if valid photo identification is not seen by the Invigilators.

8. Candidates must bring their registration confirmation email to the KBA.

9. Without the special permission of the exam invigilator no candidate may enter the exam room more than 30 minutes after the exam has begun, or leave it until 30 minutes of the exam period has elapsed.

10. To keep disruptions to a minimum, no candidate may leave their desk during the last 30 minutes of the exam period without the special permission of the exam invigilator.

11. All personal effects such as bags, outerwear, papers and any electronic devices must be stored in the cloakroom provided.

12. No books, writing paper, notes or any other material may be taken into the exam room. Note paper will be provided on each desk (all paper will be collected before candidates leave the exam hall).

13. Candidates are forbidden to communicate with anyone except the invigilators during the exam.

14. Smoking & eating are prohibited. Candidates may take a drink and a small packet of sweets into the exam room.

15. All mobile telephones should be switched off during the exam and stored in the cloakroom.