MRCOG Part 2: 500 SBAs and EMQs

SECOND EDITION

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Chapter 3

Information technology, clinical governance and research

Questions: SBAs

For each question, select the single best answer from the five options listed.

1. A 54-year-old patient has had a transvaginal tape inserted the previous day. You are the oncall specialist registrar for the gynaecology team who is seeing her on the gynaecology ward. She is extremely unhappy with the care she received on the ward after the procedure.

What would you do in this situation?

A Advise the patient to contact the Patience Advice and Liaison Service (PALS)
B Ask other patients on the ward if they also have been treated poorly
C Ask the patient to write a letter of complaint to the ward
D Complete an incident form
E Talk to the staff involved and find out what exactly happened

2. Which aspect of clinical governance relates to ensuring that patient notes are up to date and accurate, and that patient data are confidential?

A Risk management
B Research and development
C Patient and public involvement
D Clinical audit
E Information management

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3. A baby was stillborn after a delay in performing a category 1 lower segment Caesarean section for acute fetal distress. The subsequent inquiry found that the anaesthetist's arrival had been delayed because the wrong pager had been bleeped, and that this had happened three times in preceding months, although without a serious or fatal outcome.

Which component of clinical governance might have avoided this tragedy?

A Risk management
B Research and development
C Patient and public involvement
D Clinical audit
E Information management

4. Clinical audit is part of a quality improvement process that aims to improve patient care.

Which one of the following describes the audit cycle?

A Select a topic, collect data and choose a standard, compare the data with the standard, implement changes if necessary, collect data again
B Select a topic, compare data with a standard and implement changes
C Select a topic, implement changes, collect data and compare with a standard
D Select a topic, identify an appropriate standard, collect data, compare the data with a standard, implement changes if necessary, collect data again
E None of the above

5. You are the obstetric specialist registrar on call, and your junior colleagues asks you what the evidence is for using antibiotics in prolonged preterm rupture of membranes.

Which is the best source to search for the most robust information?

A RCOG clinical guidance
B Google Scholar
C MEDLINE
D ClinicalTrials.gov
E Cochrane database

6. Which is the most appropriate research design to determine whether oral or intravenous hydration is better in labour?

A Randomised control trial
B Survey
C Cohort
D Case–control
E Cross-sectional

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7. Choosing the correct research design is extremely important. Which is the most appropriate research design to determine the likelihood of an epidural causing lower back pain in the future?

A Randomised control trial
B Survey
C Cohort study
D Case–control study
E Cross-sectional study

8. Which is the most appropriate research design to determine the incidence of Caesarean section after a previous instrumental delivery?

A Randomised control trial
B Survey
C Cohort study
D Case–control study
E Cross-sectional study

9. Which is the most appropriate research design to determine the prevalence of cervical cancer?

A Randomised control trial
B Survey
C Cohort study
D Case–control study
E Cross-sectional study

10. Ethics and conflict of interest are very important in research.

Which of the following is correct when it comes to a conflict of interest?

A It can occur in any part of the team, including the investigators, authors, reviewers or editors
B The concept of a financial conflict of interest does not apply to medical research
C Only the main authors have to disclose personal or financial relationships with other people or organisations that may affect the reporting of the work submitted
D The conflict of interest policy should adopt a closed framework so that only some readers can make objective judgements about the study's conclusions
E The researcher is always neutral, therefore there is never any conflict of interest

11. It is essential to put research into practice. What is the correct order of steps in this process?

A Knowledge, persuasion, decision, implementation, confirmation
B Persuasion, decision, knowledge, implementation, confirmation
C Persuasion, knowledge, decision, confirmation, implementation
D Persuasion, decision, implementation, confirmation, knowledge
E Implementation, confirmation, knowledge, persuasion, decision

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12. Evidence-based medicine is the use of the best current evidence to make decisions about the care of individual patients. 'Levels of evidence' refers to a system that classifies evidence into a hierarchy based on scientific rigor and quality.

Which level of evidence includes a case series?

A Level 1
B Level 2
C Level 3
D Level 4
E Level 5

13. 'Levels of evidence' refers to a system that classifies evidence into a hierarchy based on scientific rigor and quality.

Which type of study will provide level 2a evidence?

A Expert opinion without explicit critical appraisal
B A systematic review of randomised controlled trials
C A combination of case–control and poor quality cohort studies
D Individual cohort study
E A systematic review of cohort studies

14. Clinical guidelines are developed by combining research evidence with the consensus view of experts. There are several methods for developing a guideline.

Which method is described as a questionnaire that is sent out to a panel of people and therefore covers a large geographical area?

A Delphi survey
B Nominal group technique
C Combination of Delphi and nominal techniques
D 'Fish bowl' technique
E None of the above

15. Which one of the following is a Caldicott principle?

A Access to patient information should be available to all
B One must act in the patient's best interest regardless of the law
C One must justify the reason for every proposed use or transfer of information
D Only the person ultimately responsible for the patient should have access to the patient's information
E Use as much information as you want from a patient's records

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Questions: EMQs

Questions 16–20

Options for Questions 16–20

A Abortion Act 1967
B The case should be individualised and registered as a stillbirth in case of doubt
C England and Wales: Stillbirth (Definition) Act 1992
D Female Genital Mutilation Act 2003
E Female Genital Mutilation Act 2004
F Stillbirth (Definition) (Northern Ireland) Order 1992
G Registration under the Stillbirth (Definition) Act 1992 not required
H Registration under the Abortion Act 1967 not required
I Scotland: Stillbirth (Definition) Act 1992
J Human Fertilisation and Embryology Act 1990
K Human Fertilisation and Embryology Authority's Code of Practice 1995
L Human Rights Act 1998
M Human Tissue Act 2004
N Human Organ Donation Act 2003

Instructions: For each of the scenarios described below, select the single most appropriate British Act from the list of options above. Each option may be used once, more than once, or not at all.

16. A 39-year-old woman with 3 children presents to the labour ward at 32 weeks' gestation with pre-term labour. She progresses very quickly and proceeds to have a normal vaginal delivery. The baby is admitted to the special care unit for prematurity. Following delivery a fetus papyraceus is found coincidentally.

17. A 25-year-old primiparous woman presents to the labour ward at 23 weeks' gestation with abdominal pain and reduced fetal movements. Clinical examination reveals a soft abdomen and closed cervical os. An ultrasound scan reveals no fetal heart activity. She is in denial and refuses to accept the death of the baby. She goes home and returns 8 days later with abdominal pain and vaginal bleeding. The fetus and the placenta are expelled and the patient is discharged home the following day.

18. A 39-year-old woman with two children presents to the labour ward at 28 weeks' gestation with multiple pregnancies. Clinically, she is contracting four times every 10 minutes with a 4 cm cervical dilatation. An ultrasound scan reveals twin 1 and twin 2 are in breech presentation. Therefore, an emergency Caesarean section is performed. The babies are admitted to the special care baby unit due to extreme prematurity. The woman had triplets and had selective feticide of one baby at 20 weeks' gestation for fetal abnormality.

19. A 28-year-old woman with three children presents to the labour ward. She is unbooked (she has had no prior appintments, scans or blood tests) and is unsure of the first day of her last period. Clinically, the contractions are strong and uterine fundal height measures 25 cm. An ultrasound scan reveals no fetal heart activity. On questioning she gives a history of recent travel to Africa where she was treated for malaria.

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20. A 29-year-old woman comes to London for her summer holidays with her 5-year-old child. She is brought to a hospital in an ambulance straight from the airport because she is pregnant and complains of abdominal pain. Clinically, her fundal height measures 39 cm and the midwife calls you because she cannot locate a fetal heartbeat. An ultrasound scan by an obstetric registrar reveals the absence of fetal heart activity. The woman is in denial because she felt fetal movements the previous morning. She is induced the next day followed by delivery of a macerated fetus 16 hours later.

Questions 21–25

Options for Questions 21–25

A 1–2%
B 2–3%
C 5%
D 6–10%
E 12%
F 10–20%
G 30%
H 32%
I 30–40%
J 56%
K 77%
L 88%
M 85%
N 99%
O 100%

Instructions: For each scenario described below, choose the single most appropriate percentage for the events described from the list of options above. Each option may be used once, more than once, or not at all.

21. A 24-year-old primigravid woman presents to the labour ward at 25 weeks' gestation with contractions. She does not give any history of rupture of membranes. Clinical examination reveals palpable contractions (two to three contractions in 10 minutes) and a cervical dilatation of 2 cm. An ultrasound scan reveals breech presentation. A diagnosis of pre-term labour is made and intravenous atosiban is commenced with steroids in accordance with local protocol because this produces a certain percentage improvement in neonatal survival.

22. A 24-year-old woman presents to the labour ward at 28 weeks' gestation with labour pains. Clinical examination reveals palpable contractions (one to two contractions in 10 minutes) and closed cervical os with minimal effacement. She does not give any history of rupture of membranes. A vaginal fibronectin test is positive. The patient is told the positive predictive value (PPV), expressed as a percentage, this has for pre-term labour (chance of going into labour).

23. A 24-year-old primigravid woman presents to the labour ward at 28 weeks' gestation with labour pains. Clinical examinations reveal palpable contractions (one to two in 10 minutes) and open cervical os. She does not give any history of rupture of membranes. Her C-reactive protein (CRP) is 55 mg/L. It has been explained to her that CRP may predict amniotic fluid infection if a sample is taken for culture (having a particular percentage sensitivity).

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24. A 24-year-old multiparous woman presents to the labour ward at 28 weeks' gestation with labour pains. Clinical examination reveals palpable contractions (two to three in 10 minutes) and a 3 cm cervical dilatation. She gives a strong history of rupture of membranes. A discussion is undertaken with the patient as to the chance (expressed as a percentage) of going into premature labour in women with rupture of membranes at this gestation.

25. A 24-year-old primigravid woman presents to the labour ward at 28 weeks' gestation with labour pains. Clinical examination reveals palpable contractions (two to three in 10 minutes) and a 2 cm cervical dilatation. She does not give any history of rupture of membranes. A diagnosis of pre-term labour is made and intravenous atosiban is commenced to buy time for the administration of corticosteroids. Her percentage risk of amniotic infection at this stage is discussed.

Questions 26–30

Options for Questions 26–30

A Abandon surgery and discuss with the patient
B Ask the patient to sign a new consent form
C Ask the hospital solicitor
D Abandon the surgery and arrange a clinic follow-up in 3 months
E Abandon the surgery and contact the partner
F Call consultant for second opinion
G Check the consent form
H Perform a laparotomy to remove the ovary
I Perform a laparotomy to remove the endometriosis
J Perform a laparotomy to do an internal iliac artery ligation
K Do nothing
L Discharge to the GP
M Perform a laparoscopic ovarian cystectomy
N Perform a laparoscopic oophorectomy
O Repeat the scan in 4 months

Instructions: For each scenario described below, choose the single most appropriate course of action from the list of options above. Each option may be used once, more than once, or not at all.

26. A 32-year-old woman with 5 years of infertility is booked for a laparoscopic dye test with or without treatment of endometriosis on a registrar list. While doing the laparoscopy, you are alarmed to see a 4 cm haematoma in the right infundibulopelvic ligament which is expanding and starts bleeding while you are manipulating the uterus.

27. A 40-year-old woman gives consent for laparoscopic sterilisation. You have finished the sterilisation procedure and notice a 3 cm cyst on the left side. Her scan report from 8 months ago showed an incidental finding of a dermoid cyst.

28. A 19-year-old woman presents with pain in the right iliac fossa (RIF). The on-call surgical team performs a diagnostic laparoscopy for suspected appendicitis. On examination the appendix looks normal with few omental adhesions to

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the anterior abdominal wall. The surgical team also find a small 3 cm simple left ovarian cyst which is mobile with a smooth surface and looks benign. The surgeons request the removal of the left ovary.

29. A 65-year-old woman presents with postmenopausal bleeding. The ultrasound scan shows endometrial thickness of 2 mm and also a 4 cm simple cyst on the right side. A review of the notes reveals the same findings 1 year ago with a normal CA-125 level and a risk of malignancy index (RMI) of 22.

30. A 50-year-old postmenopausal woman is referred to the fast track gynaecology oncology clinic for an incidental finding of a 4.5 cm right-sided simple ovarian cyst with a CA-125 level of 8 U/mL. She is quite anxious.

Questions 31–35

Options to questions 31–35

A Analysis of variance
B Appraisal
C Assessment
D χ_2 test
E Four sample (unpaired) *t*-test
F Fraction regression
G Multiple regression
H One sample (paired) *t*-test
I π^2 test
J Pearson's correlation test
K Subanalysis of variance
L Two sample (unpaired) *t*-test
M Three sample (paired) *t*-test
N Type 1 error
O Type 2 error
P Type 3 error
Q Type 4 error

Instructions: For each question described below, choose the single most appropriate answer from the list of options above. Each option may be used once, more than once, or not at all.

31. What type of error is made when one mistakenly rejects the null hypothesis?

32. What type of error is made when one mistakenly accepts the null hypothesis?

33. Which statistical test would you use to compare the incidence of cervical intra-epithelial neoplasia in a population before and after a smoking cessation programme is introduced?

34. Which statistical test would you use to compare the times taken by a group of senior house officers to conduct a diagnostic laparascopy to the times taken by a group of registrars to do the same procedure?

35. Which statistical test would you use to calculate the strength of the relationship between age and sentinel lymph node count in a sentinel study for cervical cancer?

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Answers: SBAs

1 C Clinical effectiveness

The NHS has a complaints system which, if used effectively, can result in vast improvements both locally and nationally. Complaints are a good means to identify problematic areas, and should be used as a way of improving the system and not as a means to place blame. Patient advisory service [e.g. the Patient Advice and Liaison Service (PALS), see page 10] are available at all hospitals and offer support and advice in a confidential manner. In this example the patient should be advised to speak to PALS who will advise her appropriately.

2 E Information management

Information management involves ensuring that all patient information is kept up to date and accurate, whilst maintaining confidentiality. The General Medical Council expects doctors to 'keep clear, accurate and legible records' and to 'make records at the same time as the events you are recording or as soon as possible afterwards'.

General Medical Council. Good medical practice. London: General Medical Council; 2013.

3 D Clinical audit

Clinical governance is a systematic approach to maintaining high-quality health care. It is 'a governance system for healthcare organisations that promotes an integrated approach towards management of inputs, structures and processes to improve the outcome of healthcare service delivery where health staff work in an environment of greater accountability for clinical quality' (Som, 2004).

Clinical governance ensures accountability for quality of care, an integrated approach and an enabling environment for implementing change. It is made up of seven pillars:

- Clinical effectiveness and research: the refinement of practice in view of new evidence. It ensures that the right person does the right thing (evidence-based practice), in the right way (using skills and competencies), at the right time (when the patient needs it), in the right place and with the right result for the patient. It encompasses holistic care and continuity of care, and is sensitive to patients' needs
- Risk management: a robust system that aims to understand, monitor and minimise the risks to patients and staff by learning from mistakes. One example is carrying out root cause analysis of a mistake to discover if there were avoidable issues and then rectify them to avoid repeating the mistake
- Information management: ensures that patient data are accurate and up to date, and that patient confidentiality is respected
- Education: also known as continuing professional development. The RCOG defines this as a 'continuing process, outside formal undergraduate and

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postgraduate training, that enables individual doctors to maintain and improve standards of medical practice through the development of knowledge, skills, attitudes and behaviour'. Continuing professional development is a mandatory requirement for all obstetricians and gynaecologists.

- Clinical audit: this is defined by the RCOG as 'a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change'. It is a cyclical process in which local clinical performance is compared with an agreed standard. Changes are implemented to enhance performance, and performance is then reassessed. It usually assesses one or more of: the structure of care, process of care or outcome of care.
- Patient and public involvement: ensures that the services suit the patients' needs. Patient and public feedback is used to improve and develop services. This could be in the form of local questionnaires, involvement of the local hospital patient advisory service (e.g. PALS) or national patient surveys organised by the Care Quality Commission.
- Staffing and staff management: the appropriate recruitment of staff, ensuring that underperformance is identified and that there are good working conditions.

Som C. Clinical governance: a fresh look at its definition. Clinical Governance 2004; 9:87.
Royal College of Obstetricians and Gynaecologists (RCOG). CPD guide: a guide to RCOG continuing professional development. London: RCOG Press; 2010.

4. D Select a topic, identify an appropriate standard, collect data, compare the data with a standard, implement changes if necessary, collect data again.

The RCOG (2003) defines clinical audit is 'a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change'. It is a cyclical process in which local clinical performance is compared with an agreed standard, changes are implemented to enhance performance, and performance is then reassessed. It usually assesses one or more of the structure of care, process of care or outcome of care.

Royal College of Obstetricians and Gynaecologists (RCOG). Understanding audit. Clinical governance advice 5. London: RCOG Press, 2003.

5. E Cochrane database

Cochrane reviews are systematic reviews of research in health care. They are internationally recognised and are the highest standards of evidence-based health care. They investigate the effect of investigations, prevention, treatment and rehabilitation on patients, as well as the accuracy of a diagnostic test on a specific patient group. Each systematic review answers a clearly formulated question.

6. A Randomised control trial

This is an experimental study whereby participants are randomly assigned to different intervention groups to assess their effectiveness. It may be double-

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blinded, whereby the subjects and the researcher do not know what each subject is receiving. This is the gold standard of clinical trials.

Sibbald B, Roland M. Understanding controlled trials: why are randomised controlled trials important? BMJ 1998; 316:201.

7. D Case–control study

In this approach, the cases, i.e. people with the disease, are compared with controls, i.e. people without the disease, and examined for exposure to certain attributes. This study can be completed quickly and is relatively cheap to run. However, it is prone to bias as confounding factors cannot be controlled for. It is a good study type for rare diseases and conditions with a long latency between exposure and manifestation.

8. C Cohort study

Cohort studies are longitudinal studies and follow subjects over a period of time, with or without exposure to a certain elements. The two sets of participants are then compared on, for example, the development of a certain disease. Cohort studies are time-consuming, and participants are often lost to follow-up over time. They are, however, good for measuring incidence rates and relative risks.

9. E Cross-sectional study

A cross-sectional study collects data at a single defined timepoint from a whole study population. It can be used to assess the prevalence of a disease and can calculate absolute risks, relative risks and odds ratios.

10. A It can occur in any part of the team, including the investigators, authors, reviewers or editors

A conflict of interest occurs when influences other than science affect the research in any way. It can occur at any point of the research and therefore may involve investigators, authors, editor's reviewers, etc. There are different types of conflict of interest:

- It may be financial, e.g. one drug being given more importance over another because the manufacturer has invested more in the research
- There may be a negative or positive bias of the researcher towards the subject
- The reviewers or the editors may have a negative or positive bias towards the author
- The conflict of interest policy recommended by the International Committee of Medical Journal Editors states that all authors must disclose financial or personal relationships that might affect the conduct or results of the study. The policy aims to create transparency so that readers can make an objective judgement about the study. Reviewers must not, for example, accept work from authors with whom they have either a positive or negative relationship.

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11. A Knowledge, persuasion, decision, implementation, confirmation

When research has proven the benefits of a certain diagnostic tool or treatment, this information must be transferred into clinical practice. This is done in a step-by-step process:

1. Knowledge. People must be made aware of new trials, guidelines or systematic reviews and then be convinced of their value and recommendations that they be initiated.
2. Persuasion
3. Decision. The people with authority in a department must then be persuaded and convinced to develop a care pathway or protocol that can lead to a change of practice
4. Implementation. This is when these pathways or protocols are put into practice. Clinicians will need to be reminded of their presence and encouraged to use them
5. Confirmation. The practice will then need to be audited to ensure compliance

12. D Level 4

Level 4 evidence includes a case series. **Table 3.1** describes levels of evidence.

Table 3.1 Levels of evidence relating to therapy or therapeutic studies

Level of evidence	Type of study
1a	Systematic review of RCTs
1b	Individual RCTs with narrow confidence intervals
2a	Systematic reviews of cohort studies
2b	Individual cohort studies and low-quality RCTs
3a	Systematic review of case-controlled studies
3b	Case-controlled studies
4	Case series
5	Expert opinion

RCT, randomised controlled trial.

13. E A systematic review of cohort studies

A systematic review of cohort studies is Level 2a evidence.

Burns PB, Rohrich RJ, Chung KC. The levels of evidence and their role in evidence-based medicine. Plast Reconstr Surg 2011; 128:305–310.

14. A Delphi survey

There are different ways to develop a guideline. The most common are:

- Nominal group technique. A group of experts and consumers meet, decide what questions need to be answered in the guideline, express their views and then

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