# Mock SCE Exam 2021 Answers

1. **Answer c) -** refer for consideration of left atrial appendage occlusion. This gentleman is high risk for further bleeding. Atrial ablation is unlikely to be successful in terminating his atrial fibrillation (AF) in the context of his other comorbidities. NICE guidelines state that left atrial appendage occlusion should be considered if oral anticoagulation is contraindicated or not tolerated in patients with AF at high risk of stroke.
2. **Answer d) -** Fischer stick is likely to be most use with rheumatoid hands
3. **Answer e) -** peripheral vascular disease has the highest weighting on the Waterlow score for development of pressure ulcers
4. **Answer d) –** midodrine He still has moderate bradykinesia and some rigidity, so reducing his co-benedopa is likely to affect his mobility. Whilst conservative management may help and should be first line, his Parkinson's associated dementia makes it likely that he will forget to adapt his standing regime. Wheeled zimmer frames are preferred to non-wheeled frames in Parkinson's disease as they promote flow in walking and reduce the chance of freezing. Midodrine is first line for postural hypotension in Parkinson's disease (see NICE guidelines NG71), and in addition in this gentleman would be preferred as his ischaemic heart disease would be a relative contraindication to starting fludrocortisone.
5. **Answer c)-** mild cognitive impairment. He has an objective memory deficit on his MMSE, and had the difficultly answering crosswords significantly interfered with his quality of life then a diagnosis of dementia may have been appropriate. However, he has adjusted well to this change and a diagnosis of mild cognitive impairment would be more appropriate in this instance with further review in 6-12 months.
6. **Answer b) -** cataracts are the most likely cause of glare when driving
7. **Answer d) -** subcutaneous midazolam 25mg/24hrs (sign guidelines, 20-30mg/24hrs). Midazolam doses in seizure activity are much higher than those given for agitation. Intramuscular, rectal or intravenous medications are not appropriate routes of administration in end of life situations.
8. **Answer e) -** vitamin D. A DEXA scan is not required as this lady is over the age of 70 and has had a fragility fracture, so osteoporosis is assumed. Whilst it is important to exclude secondary causes of osteoporosis, the test that is most likely to change your management is vitamin D. With previous oesophageal disease, she is likely to be a candidate for IV bisphosphonate (if eGFR allows) or subcutaneous denosumab. Both of these require you to be vitamin D replete before initiating treatment.
9. Answer – b) tuberculous meningitis. Fibrin strands and monocytosis both suggest a TB or Cryptococcus meningitis. If the India Ink stain was positive, this would suggest Cryptococcus. As it is negative, TB becomes the most likely diagnosis.
10. Answer- Difficult, but I'd be inclined to say A). The document needs to be specific, witnessed and signed to be a valid advanced directive in this situation. In the absence of a valid advanced directive, the decision should be made in her best interests, in discussion with the next of kin. The next of kin may have more insight as to what Mrs S would have wanted in this situation, but it is unlikely that she would have foreseen a situation with a broken hip and the resulting pain relief requirements. If an urgent decision cannot be made in A+E, then the least restrictive option would seem to be admission whilst attempting to discover more information. Committing this woman to either surgery or discharge without further exploration of her wishes and discussion with the next of kin would seem premature and is unlikely to be achieved within the timescales within A+E.
11. Answer a) - oxybutynin scores highest on the Anticholinergic assessment score (3 rather than 2 or 1) and is therefore likely to have the biggest impact on her cognition. [ACB scale - (idhca.org)]

12. Answer d) - Intramedullary nail for subtrochanteric fractures. Dynamic hip screws are used for trochanteric fractures or non-displaced intracapsular fractures. Displaced intracapsular fractures can be treated with hemiarthroplasty (if frail or comorbid) or total hip replacement (if active and few comorbidities)

    https://www.nice.org.uk/guidance/cg124/chapter/Recommendations#surgical-procedures

13. Answer e) – post-operative anaemia. Whilst the raised ferritin could be due to an acute phase response, the normal iron binding saturation excludes iron deficiency as a cause of his anaemia. Myelodysplastic syndrome tends to have a raised mean cell volume. The B12 levels in this gentleman are in the normal range.

14. Answer b) - Pelvic examination looking for prolapse. This lady has symptoms of mixed incontinence. Both an examination for prolapse and a bladder diary will be useful in this lady, but the examination can be done in clinic and is therefore the 'next' most appropriate test. Urodynamic studies may be required if the bladder diary or history suggests urge incontinence.

    https://www.nice.org.uk/guidance/ng123

15. Answer a) – best describes antagonistic pleiotropy

    B = disposable soma theory

    C = Hayflick limit

    D = free radical theory

    E = not a known theory of ageing

16. Answer b) - PO prednisolone

    Uric acid/ urate levels are normal in 25-50% of cases of acute gout, so this does not exclude the diagnosis. CRP can be raised in both gout and septic joints.

    The knee aspirate confirms acute gout – raised WCC are common in both gout and septic joint, but often >50 000 in a septic joint, and the negative gram stain and confirmed crystals supports the diagnosis. NSAIDS are not advised for this lady (GORD and chronic kidney disease). Codeine would help the pain but not treat the underlying problem. Intra-articular steroid injection may be of benefit, but first line oral steroids are generally used.

17. Answer e) - Gerstmann syndrome

    Gerstmann syndrome = damage to the angular gyrus. Causes agraphia, acalculia, finger agnosia and left-right disorientation.

    Wallenberg Syndrome = lateral medullary syndrome, or posterior inferior cerebellar artery syndrome. Causes vertigo / diplopia and multidirectional nystagmus; sensory symptoms affecting pain and temperature sensation on the contralateral side and ipsilateral bulbar muscule weakness.

    Anton syndrome = cortical blindness due to occipital lesion. Patients deny any visual loss and often confabulate.

    Dejerine-Roussy syndrome = neuropathic pain following a contralateral thalamic stroke

    Charles-Bonnet syndrome = visual hallucinations in patients with reduced visual acuity

https://www.bmj.com/content/348/bmj.g3175#:~:text=Some%20stroke%20patterns%2C%20specifically%20isolated%20posterior%20cerebral%20artery,a%20cardioembolic%20mechanism%20in%20the%20New%20England%20registry.

http://www.strokecenter.org/professionals/stroke-diagnosis/stroke-syndromes/

18. Answer a) - cerebellar stroke. The negative head impulse test suggests an intact vestibule-occular reflex and thus makes this less likely to be a peripheral nerve lesion. orizontal head impulse testing involves rapid head rotation by the examiner with the subject's vision fixed on a nearby object (often the examiner's nose). With rapid low-amplitude rotation of the head toward the midline, the patient's eyes should remain fixed on the target. In cases of peripheral vertigo, in which the vestibulo-ocular reflex is impaired, rapid rotation of the head toward the affected side will result in loss of fixation and movement of the eyes away from the target. This is followed by a corrective saccade as the subject looks back toward the target. Observation of this corrective saccade is abnormal, and considered a positive test. There is typically no corrective saccade in patients with central vertigo, in whom the vestibulo-ocular reflex usually remains intact.

    HINTS assessment of sudden onset acute vestibular syndrome

19. Answer c) - discharge home with a package of care.

    An IMCA is not required as this gentleman has a next of kin to speak on his behalf. The lasting power of attorney for finances does not have LPA powers to make a decision on discharge destination - this applies to finances rather than place of care. In a patient who lacks capacity and has not got an LPA for health and welfare, a best interests decision must be made. A community hospital is unlikely to be of benefit as this gentleman is at his baseline. In this situation a plan for discharge with a package of care would appear to be in this gentleman's best interests - it is the least restrictive option; in line with his wishes; and has not been tried before. It may be that he ultimately needs 24hr care, but it would be reasonable to trial him at home with a package of care in the first instance.

20. Answer b) - Posture and balance training.
    Brisk walking, yoga and dancing do not have any evidence that they reduce the risk of falls. Vitamin D supplementation reduces fracture risk but not falls risk in studies to date.

21. Answer c) - Linagliptin

    Metformin is usually first line, but should be used with caution if eGFR <45 and is contraindicated in eGFR<30. If metformin is contraindicated, NICE guidelines state that either a sulphonylurea (gliclazide), DPP-4 inhibitor (linagliptin) or pioglitazone can be started. Pioglitazone increases the risk of heart failure and should be used with caution in older patients with a history of heart disease. Either gliclazide or linagliptin could be used, but given this lady's worries about driving then linagliptin would be more suitable as it does not have any risk of hypoglycaemia.

    Ezetamibe is a medication to lower cholesterol.

    https://www.nice.org.uk/guidance/ng28/resources/algorithm-for-blood-glucose-lowering-therapy-in-adults-with-type-2-diabetes-pdf-2185604173

22. Answer e) - pressure ulcer assessment within 6 hours of admission. Whilst this may be NICE guidelines for pressure ulcer prevention (and therefore should be done in all hip fracture patients), it is not part of the best practice tariff with standards of care specifically for hip fractures. Delirium and nutritional assessment are both specifically mentioned in the best practice tariff.

23. Answer c) - calculate his pulmonary embolism (PE) risk using a validated tool

He does ultimately need admission to hospital as he is requiring oxygen. His CRB-65 score is 1 (we are not told his urea) so oral antibiotics is likely to be appropriate. However, a chest infection is not the only possible cause of this gentleman's low oxygen saturations – a pulmonary embolism (PE) needs to be excluded. Again, whilst he may well need a D dimer +/- CTPA, the first step in this process should be a PE risk assessment which will then guide further investigations and management.

24. Answer – e) Pulmonary Rehabillitation.
Carbocisteine may improve quality of life and reduce total number of exacerbations but does not reduce the risk of readmission. Similarly pneumococcal vaccination has been shown to reduce the risk of acute exacerbations of COPD and community acquired pneumonia – but had NO effect on the rate of hospital admission in a Cochrane review in 2017. Pulmonary rehab as yet is the only one of these interventions which has been shown to reduce hospital admissions. She is unlikely to need home oxygen as her saturations are 93% on air. She is already on maximal inhaler therapy (Trelegy is a triple inhaler)

25. Answer e)-

The Fried clinical phenotype of frailty is characterized by the following features:

- Weight loss
- Fatigue/Exhaustion,
- Low energy expenditure
- Slowness
- Weakness

People with none of the above features are considered robust. People with one or two features are considered pre-frail while those with three or more features are considered frail. Those with a Mini-Mental State Examination (MMSE) of less than 18 were excluded from the study from which the Fried model was created so the relationship between the frailty phenotype and cognitive impairment is unknown.

26. Answer a) –

NICE recommends the following criteria for identifying patients at high risk of refeeding problems.

Either the patient has one or more of the following:

- BMI <16
- Unintentional weight loss >15% in past 3-6 months
- Little or no nutritional intake for >10days
- Low level of potassium, phosphate or magnesium before feeding

Or the patient has two or more of the following:

- BMI<18.5
- Unintentional weight loss >10% in the past 3-6 months
- Little or no nutritional intake for >5 days
- History of alcohol misuse or drugs including insulin, chemotherapy, antacids or diuretics

NICE CG32: Nutritional support in adults. Clinical guideline CG32, 2006.

27. Answer c) –

NICE guidelines NG128. Stroke and transient ischaemic attack in over 16s: diagnosis and initial management.

28. Answer- e) atropine eye drops

    First line management of sialorrhoea in Parkinson's disease is conservative treatment with sweets / prompted swallowing, followed by sublingual atropine. If these are unsuccessful then botulinum A is an option. Surgery should only be considered if all other options have been unsuccessful or are contraindicated.

29. Answer a) - Attendance allowance is a non means tested benefit which is available to help with personal support if a person has a physical or mental disability that is severe enough to need support and is over state pension age. There are two rates of weekly pay depending on level of need- the lower is £59.70 whilst the higher is £89.15.

    https://www.gov.uk/attendance-allowance/eligibility

30. Answer: b) - https://www.dlf.org.uk/factsheets/walking

31. Answer d) Typical presentation of transient global amnesia where patients experience a loss of memory for recent events and are unable to retain new information resulting in the patient asking recurrent questions of current circumstances. Patients are often anxious. Symptoms typically last less than 24 hours.

    There is no indication of focal neurological deficit so unlikely TIA.

    The question indicates that the wife has been with him and there is no indication of seizure activity.

    www.emedicine.medscape.com/article/1160964-overview#

32. Answer: b) Pemphigus vulgaris

    Pemphigus vulgaris is a serious autoimmune blistering disease which presents with widespread flaccid superficial blisters. The patient tends to be systemically unwell. It does tend to present in middle aged individuals but can occur in older adults.

    In patients with bullous pemphigoid, patients tend to be systemically well. The blisters are thicker walled and tend to stay intact. It is more common in older patients.

    Blistering drug eruption is unlikely in this case as the patient is established on medications and the medications are not associated with blistering drug reaction.

    In toxic epidermolysis, the patient would be much more unwell with associated fevers. The skin would also be erythematous associated with blisters.

    https://patient.info/skin-conditions/bullous-pemphigoid-leaflet/pemphigus-vulgaris

33. Answer – E)

    This gentleman has microscopic colitis, as evidenced by the normal colonoscopy on visual inspection but intra-epithelial lymphocyte infiltration on biopsy. Possible contributing medications include lansoprazole and ibuprofen.

    First line management for microscopy colitis is budesonide +/- loperamide as required

    https://www.uptodate.com/contents/microscopic-lymphocytic-and-collagenous-colitis-clinical-manifestations-diagnosis-and-management

34. Answer: c)

    In patients with Lewy body dementia who have distressing hallucinations, the recommended treatment is with an atypical antipsychotic drug such as quetiapine. Benzodiazepines would unlikely to have an influence on his hallucinations but would likely make the number of falls more frequently.

    Older antipsychotics such as haloperidol would be more likely to have extrapyramidal effects and more likely to cause other side effects such as postural hypotension.

L-dopa would be unlikely to have an effect on hallucinations but may be of benefit if prominent Parkinsonian features.

https://www.nice.org.uk/guidance/ng71

35. Answer d) - rehydrate with fluids

    This gentleman will need a CT chest, abdomen and pelvis and his vitamin D and parathyroid hormone levels checking, but currently he is confused and acute management should not wait until the underlying cause of his hypercalcaemia has been discovered.

    First line treatment is IV fluids – 4-6l/24hrs according to RCEM guidelines but slower in the elderly. IV bisphosphonates (zolendronic acid and pamidronate) are used only when the patient has been rehydrated for 24hrs to reduce risk of side effects. Stopping adcal alone is unlikely to be the underlying cause of a calcium level greater than 3, and regardless of cause in the context of acute confusion then IV hydration should be first line.

    https://cks.nice.org.uk/topics/hypercalcaemia/diagnosis/assessment/

    https://www.rcem.ac.uk/docs/External%20Guidance/10R.%20Acute%20Hypercalcaemia%20-%20Emergency%20Guidance%20(Society%20for%20Endocrinology,%20Jan%202014).pdf

36. Answer b) – CPET

    CPET is cardiopulmonary exercise testing. It can be useful preop to assess a patients cardio-pulmonary reserves and help with shared decision making; however in this semi-emergency situation this gentleman is too ill for this assessment.

    The other scoring systems are all risk assessment tools used in perioperative medicine.

    https://pmj.bmj.com/content/87/1030/535.full

37. Answer b) -

    SIGN guidelines advice alfentanyl for patients with stage 4 or 5 chronic kidney disease (eGFR <30). Levomepromazine and haloperidol both have anti-dopaminergic effects so cyclizine should be first line antiemetic for this gentleman. Hyoscine butlybromide is less sedating than hyoscine hydrobromide so should be used in preference.

    https://www.palliativecareguidelines.scot.nhs.uk/guidelines/end-of-life-care/renal-disease-in-the-last-days-of-life.aspx

38. Answer c) - refer for mechanical thrombectomy.

    In practice you would want to clarify if this lady has taken her morning rivaroxaban if you can– but as she was fit and well at lunch time, there is no reason from the information given to assume she hasn't. INR is not an accurate indicator of rivaroxaban use, so thrombolysis is contraindicated in this situation.

    However- you are in a tertiary centre in hours and this lady has a large middle cerebral artery (MCA) clot, so referral for mechanical thrombosis would be appropriate (procedure to start within 5.5hrs of symptom onset).

    There is no suggestion that this is a stroke mimic- the CT head confirms MCA thrombus and blood sugars/ CRP are normal.

39. Answer – a) -

    Life expectancy at birth in 2018 was 79.9 years for men and 83.4 years for women

    By 2030, 21% of the population was estimated to be over the age of 65. Of course, these estimates did not take into account a pandemic.

    Rural areas tend to have an older population than urban areas.

Socio-economic differences in life expectancy are widening. Males in the least 10% deprived areas of England can expect to live 10 years more than men in the most 10% deprived areas of England.

https://www.ageuk.org.uk/globalassets/age-uk/documents/reports-and-publications/later_life_uk_factsheet.pdf

https://www.kingsfund.org.uk/publications/whats-happening-life-expectancy-uk

40. Answer c) - ivabradine

    https://www.nice.org.uk/guidance/ng106/chapter/Recommendations#treating-heart-failure-with-reduced-ejection-fraction

    Furosemide will not improve this lady's mortality, but will improve her symptoms and the paroxysmal nocturnal dyspnoea and pitting oedema suggests that furosemide would be reasonable in this situation.

    Bisoprolol is indicated in all patients with heart failure with reduced ejection fraction who do not have contraindications.

    Ramipril and spironolactone are not contraindicated in CKD stage 3. An ACE inhibitor should be started first, at a low dose with close monitoring of U+Es. Spironolactone can be added in if still symptomatic with close potassium monitoring.

    Ivabradine is not indicated here as this lady is in atrial fibrillation. Ivabradine is indicated if New York Heart Association (NYHA) classification of II-IV, ejection fraction <35% AND in sinus rhythm with a rate of >75bpm on bisoprolol or where bisoprolol is contraindicated.

41. Answer: e) Insert a permanent pacemaker and continue galantamine at the current dose.

    All acetylcholinesterase inhibitors and memantine can cause bradycardia and complete heart block so switching the medication or altering the dose will not significantly alter the risk of further syncope. Option e) treats the underlying heart block whilst allowing this man to continue on a medication which he is currently stable on.

42. Answer: d) Microscopy, Culture and Sensitivity

    As this is her third possible urinary tract infection this year, other investigations such as examination for prolapse, bladder scan+/- renal ultrasound scan may be relevant, but the next investigation you should do is send an MSU. This helps confirm the diagnosis and guide antibiotic treatment.

    Empirical antibiotics are not recommended before sending an MSU unless the patient is unstable. Urine dips no longer have any role in diagnosis of UTI in the elderly.

    https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/755889/PHE_UTI_flowchart_-_over_65.pdf

43. Answer: d) Lumbar puncture.

    This history is consistent with Creutzfeldt-Jakob disease (CJD). Ninety percent of people with CJD with have 14-3-3 protein in the CSF compared to 10% with non-CJD dementia. EEG shows sharp wave complexes in 60% of people with CJD compared to 30% of people with Alzheimer's dementia.

    CT head will help identify small vessel disease and normal pressure hydrocephalus (although an LP will still be needed for NPH diagnosis). DaT scan can be helpful for identifying Parkinson's disease.

44. Answer: e) Toileting regime.

Bladder training will not be successful in this lady due to her underlying dementia. Solifenacin and oxybutynin have anticholinergic side effects, so whilst they are not absolutely contraindicated in dementia, they should be used with caution. Incontinence pads have risks of skin damage and do not treat the underlying problem. A bladder diary would be useful in this situation to advise how often this lady is passing urine and approximate volumes; however, the suggestion that this is occurring several times a day and in large volumes in a lady with dementia suggests that this may be related to her dementia and routine.

Alzheimer's UK suggests using behavioural methods such as prompting and toileting regimes to manage this form of incontinence in the first instance. It would also be important to ensure any underlying constipation or urinary tract infections are treated.

45. Answer: c) Vomiting once at home prior to arriving at hospital

    https://www.nice.org.uk/guidance/cg176/resources/imaging-algorithm-pdf-498950893

    Anticoagulation with no red flags is still an indication for a scan within 8 hours. As this gentleman presented at 22.30, this would mean he would need scanning overnight.

    Amnesia of the events in the context of a gentleman > 65 years old and a fall > 1 metre would both indicate a CT head overnight. Ongoing confusion (GCS < 15) 2 hours post injury and a witnessed seizure are both indications for an urgent CT head.

    Vomiting x1 is not an indication for a head scan, but two or more episodes of vomiting would require an urgent (< 1 hour) CT head.

46. Answer: a) Half the dose of risperidone and continue for a further 2 weeks then review.

    Seventy percent of patients with BPSD have no worsening of their symptoms when antipsychotics are discontinued. The aim should be to stop antipsychotics as soon as possible. In those on a low dose (500 micrograms risperidone or less), the medications can be stopped immediately. In those on higher doses, the dose can be halved for two weeks followed by a medical review. If stable at the medical review, then continue the reduced dose of risperidone for a further 2 weeks and then aim to stop (although those on very high doses of risperidone may need the dose halved again for a further 2 weeks and then stopped).

    Reference: Optimising treatment and care for behavioural and psychological symptoms of dementia: A best practice guide. Alzheimer's society

47. Answer: b) Age.

Increasing age is the most significant risk factor; your chance of developing Alzheimer's disease. Your risk of developing Alzheimer's doubles every 5 years after the age of 65.

- Those who inherit a single copy of ApoE4 are around twice as likely to develop Alzheimer's disease compared to the general population.
- Those who inherit two copies of ApoE4 are three to five times more likely to develop Alzheimer's disease than the general population.
- A family history of Alzheimer's disease in a first degree relative increases your risk by about 1.3 times than the aged matched general population.

- A recent study showed that professional footballers have around a 3.5 times increased risk of developing Alzheimer's than the general population, thought (although not proven) to be due to the recurrent impact from heading footballs.
- Those with type 2 diabetes have a two times increased risk of developing Alzheimer's disease.
- All sources (including NHS website, Alzheimers UK and AgeUK) agree that increasing age is the biggest risk factor for developing Alzheimer's disease

https://www.alzheimers.org.uk/about-dementia/dementia-risk-factors-and-prevention

48. Answer: c) External event recorder.

    This man has had episodes of total loss of consciousness, occurring every 1 to 2 weeks, so the next investigation should be an external loop recorder. Ambulatory ECG monitoring, although used more frequently, is only advised if these episodes are happening several times a week, and an implantable loop recorder is used if they are happening less than once every two weeks. Tilt table testing is not advised as a first line investigation if an underlying arrhythmia is suspected. He should also be advised not to drive

    https://www.nice.org.uk/guidance/cg109/chapter/1-Guidance#specialist-cardiovascular-assessment-and-diagnosis – NICE Total loss of Consciousness Guidelines in over 16s

49. Answer: a) If she is eligible the NHS would fund all, or a proportion of her social care

    Continuing healthcare policy and practice varies across England, Scotland and Wales, but the essence is that if someone is needed eligible for it then the NHS will fund a proportion of their social care, and this is not means tested. NHS continuing healthcare covers extra costs, such as help with washing or dressing, or paying for specialist therapy. It might also include accommodation if your care is provided in a care home, or support for carers if you're being looked after at home. If you don't qualify for NHS continuing care and you need care in a nursing home, you might get NHS-funded nursing care. This is a non means-tested contribution towards your nursing costs.

    Intermediate care is unlikely to be appropriate given her degree of dependency.

    A Fast-Track Pathway Tool should be used only when the individual has a rapidly deteriorating condition and may be entering a terminal phase.

50. Answer; b) Refer to the crisis response team for review with two hours.

    Crisis response is one of the four models of intermediate care, alongside bed-based intermediate care, home-based intermediate care and reablement. In this case the patient appears to have suffered only mild injury from the fall and there is no indication to present to ED given the clinical information. Given that she is not at her baseline mobility, but would be expected to return to this, intermediate care of some sort would be appropriate. Her inability to transfer without assistance means that home-based intermediate care is less suitable. The crisis response team would be able to assess the patient at home and arrange immediate admission to a bed-based intermediate care facility if needed. NICE recommends initial review by the Crisis Response team within two hours of referral. The patient is keen to avoid hospital (and in any case has no 'medical' need for admission). If she was however admitted and a referral for bed-based intermediate care was made from this setting, the transfer of care should take place within 48 hours. Although the patient may have family who are willing to support her at home, she would benefit from objective professional assessment in the first instance.