Medical Examiner training scenarios

Session 1: Possibly unnatural deaths

Scenario 1.1: Death relates to a recognised complication of justifiable treatment

A 60 year old man had severe cardiac failure secondary to ischaemic heart disease with an estimated life expectancy of six months. He had a heart transplant. He survived 10 years after cardiac transplantation, dying in cardiac failure secondary to 'chronic rejection' of the graft.

Supplementary questions

Would your response be modified (a) if the death was 1 year after engraftment? (b) if the death was 1 month after engraftment?

What if the patient died at 10 years, but the graft was a kidney, not a heart?

What if death was due to an opportunistic infection (i.e. in an immunosuppressed patient)?

Scenario 1.2: Death relates to a recognised complication of justifiable treatment

A 65 year old man dies after developing a severe fungal pneumonia. He had been diagnosed as suffering from acute myeloid leukaemia 10 months ago and had been treated with a course of chemotherapy.

Supplementary question

What if the clinical team proposed the cause of death as 1a fungal pneumonia due to 1b acute myeloid leukaemia, but your perusal of the notes demonstrated a course of chemotherapy, rapidly followed by severe neutropenia, rapidly followed by fungal infection and death?

Scenario 1.3: Infections that may not be due to natural causes

A 38 year old man dies from hepatitis B virus associated cirrhosis of the liver. He is known to have been an injecting drug user in the past and this is believed to be the source of the hepatitis B infection.

Supplementary question

If the source of infection was believed to have been the medical administration of a contaminated blood product, would your answer differ?

Scenario 1.4: Infections that may not be due to natural causes

A 72 year old woman dies after developing a severe gastroenteritis associated with *Escherichia coli* 0157 infection. Several other individuals in the vicinity had suffered a similar infection, though no others had died. The source of infection had been traced to cooked meat from her local butcher.

Supplementary question

Would your response be different if there was nothing to suggest that there were any other cases and the source of infection had not been identified?

Scenario 1.5: Are fractures always grounds for referral to the coroner?

A 75 year old man was admitted to hospital after falling at home. He was found to have a fractured tibia. X-rays on admission showed multiple deposits of tumour within the tibia, at the site of the fracture and in other bones. The tumour was found to be metastatic carcinoma of bronchus. Four days after admission he developed a swollen leg and was found to have bilateral deep vein thromboses. The next day, before anticoagulation was started, he suffered a cardiopulmonary arrest and died.

The clinical team suggested: 1a Deep vein thrombosis with pulmonary embolus 1b Disseminated bronchial carcinoma.

Supplementary question

What if the wife reports having heard an audible 'crack' from the broken leg just ***before*** he fell?

Scenario 1.6: Doubt about the cause of death

An 80 year old woman was known to have hypertension but she rarely attended the surgery. Then she presented with a two week history of nausea after eating and food 'sticking' in her throat. She also reported having lost two stones in weight over three months. The GP suspected a malignancy, probably in the oesophagus, and initiated an urgent referral for investigation.

The next day, before having any further investigation, she suffered a sudden collapse, observed by her husband. An ambulance was called. She had a cardiorespiratory arrest just after arrival at hospital and resuscitation in A&E was unsuccessful.

Scenario 1.7: Suspected inadequate care

A 70 year old demented man was admitted from a nursing home in an extremely emaciated state. His clothing was soaked in urine with faecal soiling. He had some purple bruising over both upper arms and a black eye. A deep pressure sore was noted by the nursing staff in the sacral region, but without associated cellulitis. He was quite uncooperative with the examination but his chest sounded bubbly. A poor chest x-ray (he wouldn't stay still) apparently showed some basal shadowing consistent with infection. The nurses contacted the nursing home and found out that he was "…a very awkward old man. Clumsy and kept falling over" with no kin. They attributed the

bruises to his falls, and pointed out that none of his falls had broken the skin. Despite therapy he died 4 days after admission.

Supplementary question

What if the man was aged 95 and also had terminal cancer?

Scenario 1.8: Possible industrial disease

A 72 year old man was short of breath, even at rest. He had recurrent chest infections.

He was overweight and had Type 2 diabetes which proved difficult to control. He also had chronic renal failure, creatinine typically 180. He was hypertensive. His past medical history included myocardial infarction and investigations had shown significant three vessel coronary artery atherosclerosis. He had episodes of left ventricular failure which were treated medically and he had echocardiogram features of left ventricular hypertrophy, a poorly functioning left ventricle and dilation of all of the cardiac chambers

His occupation is described in the casenotes as 'Retired', but you note that he had bilateral pleural plaques and pulmonary fibrosis, suspected to be due to pulmonary asbestosis. There was no tumour.

He was admitted to hospital with heart failure during the course of which he deteriorated and died.

When you question the certifying doctor, you are told that the clinical team had considered the possibility that the death might be related in part to asbestosis and associated lung damage, but they thought it more likely to be due to the heart failure and ischaemic heart disease exacerbated by the diabetes mellitus and the chronic renal disease/hypertension.

Scenario 1.9: Refusal of medical intervention / self neglect Possible industrial disease

The deceased is an 80 year old retired labourer. He had long standing chronic obstructive pulmonary disease and more recently ischaemic heart disease. He was a smoker.

On the 14th of May he had developed yet another chest infection. In addition to his inhaled medication he was prescribed erythromycin (penicillin allergy) and started on oral prednisolone. He was reluctant to have nebulised salbutamol because it made his angina worse. He continued on a long acting nitrate and calcium channel blocker.

He was seen at home on the 16th of May and was considerably worse. He declined hospital admission because "they won't let me smoke". The GP added in cefuroxime to his drug regimen.

On the morning of the 18th his wife phoned the surgery to say her husband died during the night. He had complained of chest pain and was very short of breath but wouldn't let his wife phone a doctor.

The GP proposes the cause of death as follows

1a Acute exacerbation of chronic obstructive pulmonary disease

2 Ischaemic heart disease

Supplementary questions

The wife is too distressed to speak with you but says her son will call later. Later that day the son calls and tells you his dad worked at a coal mine for 20 years.

Does this alter your actions and if so how?

Scenario 1.10: Healthcare – associated infection

A 72 year old woman dies with a diagnosis of disseminated ovarian cancer. She had been transferred back to the community hospital from the DGH on the 10th of July having been admitted the previous weekend by the out of hours doctor ('off her legs' with a urinary tract infection). She was on trimethoprim but on the day of her return the urine culture had been reported as "E. coli resistant to trimethoprim but sensitive to ciprofloxacin", so the antibiotic therapy was changed. Her main complaint was of severe back pain. X ray and blood tests were highly suggestive of further secondary spread. She had been seen by the outreach palliative care team but declined the offer of radiotherapy, saying "I just want to die".

On the 17th of July she developed severe diarrhoea. Stool culture was positive for *Clostridium difficile*. On the 20th of July it was decided to put up a syringe driver and start her on the end of life pathway. She died peacefully on the 27th.

The certifying doctor contacts you to ask for advice. His concern is that she had a hospital acquired infection.

Scenario 1.11: Refusal of medical intervention / self-neglect

The deceased is 73 years old. He had end stage cardiac failure due to valvular heart disease. He was a Jehovah's Witness and had declined surgery repeatedly as he could not accept the possibility of blood transfusion. An offer of referral to a unit specialising in 'transfusion-free' surgery had been declined.

He was seen at home with increasing shortness of breath. On examination the GP noted that he was clearly very ill with peripheral cyanosis, extreme dyspnoea and a weak thready pulse. He was barely conscious. His wife stated that during the night he had passed several black stools with some fresh blood. He was not on warfarin, aspirin or clopidogrel (these were all declined by the patient). The GP took the wife into another room to state his findings, his belief that her husband is dying and that nothing further could be done. She understood and agreed that she would look after her husband at home. As the doctor returned to the bedroom he stopped breathing.

You are phoned by the GP. He suspects that the cause of death may have been a gastrointestinal haemorrhage rather than the longstanding cardiac problems and asks if he should report the death to the coroner.

Supplementary question

What if the patient was not a Jehovah's Witness, but was a reclusive woman who lived with her elderly sister, who insisted that the deceased had rejected all her pleading to call a doctor until it was too late?

Scenario 1.12: Refusal of medical intervention / self-neglect

A 92 year old man was admitted in a generally debilitated state. He lived alone, his wife having died only 2 months previously. Up to that time he had been generally well, self-caring and *compos mentis*. However without his partner he had slipped into a decline despite full social service support and GP back-up. The GP wanted to get him into a residential home a few weeks ago but he refused and now he was losing weight and appeared dehydrated. No kin available.

On admission he had no specific complaints but just "…wanted to be left alone. I'm too old". He exhibited some signs of heart failure and investigations showed a high creatinine and urea and low protein but little else. A nurse found him dead in bed 2 days after admission.

Supplementary question

What if he was aged 72?

Scenario 1.13: Pressure sores

A 46 year old man had been paraplegic since birth as a result of spina bifida. He had recurrent problems with infected sacral sores. Septicaemia was confirmed from the results of blood culture, this was attributed to a large sacral pressure sore. He was treated with appropriate antibiotic regimens. He then developed a chest infection and his condition gradually deteriorated. He died 10 days later.

Supplementary question

What if the paraplegia had not been present since birth, but had been caused 15 years earlier by a fall on a building site where he was working as a steel erector?

Scenario 1.14: Suspected missed diagnosis of a treatable condition

A 28 year old fireman was brought in by his colleagues after complaining of chest pain at rest in the fire station. The chest pain appeared to be cardiac in description but the initial ECG was equivocal. He was admitted to CCU for monitoring where some ischaemic ECG changes were demonstrated and the first two cardiac enzymes were raised. After two days stable he suddenly arrested and despite vigorous resuscitation he died. The results of serum lipids performed in hospital were very high, at levels indicating an inherited abnormality of lipid metabolism.

Supplementary question

The relatives tell you that the deceased's father also died of myocardial infarction, at the age of 36; but the GP had explicitly said that there was no need to investigate the rest of the family. None of them has had their serum lipid levels measured.

Scenario 1.15: Suspected missed diagnosis of a treatable condition

A 62 year old woman was admitted for "general debility". She lived with her husband, previously fit and self-caring but over the last 3 months she had begun to lose weight and have a tendency for breathlessness. She had a "breast lump" removed 5 years ago and had been told that… "she would be alright now". She had assumed that this meant that it was not cancer but no formal report was available. Liver enzymes were mildly deranged. A liver ultrasound showed "*…echogenic areas suggestive of metastatic lesions. Recommend formal biopsy.*" She deteriorated rapidly and died five days after admission before the biopsy could be performed.

Session 2: Faith considerations, interactions with the bereaved

Scenario 2.1: Urgent demands for completion of documentation Conflict between the wishes of the family and the wishes of the deceased

A 20 year old Muslim male suffered a collapse at work on Thursday evening. His Glasgow Coma Score is 3 and a CT confirmed extensive subarachnoid haemorrhage. He was taken to intensive care where two successive sets of brainstem death tests showed he fulfilled the criteria for brainstem death by 1100 hours on Saturday. You are contacted by the intensive care consultant because the family wish to remove his body for burial that afternoon. He points out that the deceased had a signed organ donor card in his pocket, but the family are insistent on burial without donation.

Supplementary question

What actions are needed if the family propose to take the body out of the country?

Scenario 2.2: An allegation that is then withdrawn

An elderly Muslim woman with longstanding diabetes and renal impairment developed bronchopneumonia, was admitted to hospital and despite antibiotic treatment she died six days later. The clinical team proposes a death certificate with bronchopneumonia in part 1a and with diabetes mellitus in part 2. This seems reasonable to you on the basis of examining the case notes.

When you see the relatives, the son is very unhappy with the overall standard of care in hospital. Specifically, he claims that the day after admission she fell out of bed; he had not been present, but she subsequently complained of pain in her left hip but this was never investigated. He believes that she broke her hip. The case notes make no mention of this incident; the hip was not X-rayed.

You explain that this information means that you must refer the case to the coroner for further investigation.

The family members are horrified by this proposal, specifically because they anticipate that it will require a post-mortem examination and it will delay burial. The son then changes his story, denying that she ever fell out of bed and withdrawing all complaints about the standard of care. The family members support the son's amended account of events.

Scenario 2.3: Unexpected death of a child

An 8 year old child was admitted with 12 hours headache exacerbated by bright lights and neck movement. A CSF tap showed neutrophils and bacterial cocci. The child slipped into a coma despite prompt antibiotic treatment and was subsequently diagnosed brain stem dead. Microbiology confirmed meningococcus. The ventilator was turned off with the consent of the parents.

Supplementary question

What if an initial consultation with a GP had resulted in reassurance and a prescription of paracetamol?

Scenario 2.4: Unsubstantiated allegations from angry and distressed relatives

A 66 year old woman with a long history of COPD (chronic obstructive pulmonary disease) from a lifetime of cigarette smoking was admitted with severe shortness of breath. She also had chronic kidney disease, ischaemic heart disease and bilateral below-knee amputations due to peripheral vascular disease. This was the third admission in the last six weeks for an acute exacerbation despite having a home nebuliser, antibiotics and regular visits from her GP. Her blood gas saturations were very poor but ITU declined to admit her for ventilation. She died 36 hours after admission and the husband was very angry and upset, claiming that she hadn't received full treatment (i.e. not ventilated).

Supplementary question

What if the husband responds to your explanation with surprise and acceptance; he explains that he had not been given that explanation. He had merely been told brusquely by the consultant that his wife's lungs were "*shot to pieces from too much smoking*" and that "*she hadn't cared for her lungs so there's nothing more the NHS can do to care for her.*"

Scenario 2.5: Unsubstantiated allegations from angry and distressed relatives

An elderly man with known COPD developed an infective exacerbation, went downhill and died. The clinicians were entirely happy that there were no untoward circumstances and that the investigations and treatment were appropriate; they accordingly agreed a cause of death with the Medical Examiner as 1a bronchopneumonia, 1b Chronic obstructive pulmonary disease.

The death was duly registered by his elderly wife.

Two days later a son who lived away attended the hospital and berated the Trust bereavement officer because he believed that the illness had started with a 'flu immunisation, that the GP hadn't come to see the deceased and that he was admitted *in extremis* as a result, and that the hospital clinicians had failed to treat the condition properly, had just "left him to die". He declared: "There's more to this than meets the eye, there's a cover-up, I want to get to the bottom of this..." He claimed his mother had been bullied and demanded a post-mortem examination. The available documentation and your conversation with the wife provide nothing to support the son's concerns.

The hospital clinicians feel that there was nothing to be gained by a consent PM. The coroner refuses to be involved. The son becomes increasingly suspicious that this is a closing of ranks, and demands a 'private' PM.

Scenario 2.6: Relatives object to the stated cause of death

A 46 year old man dies with cryptococcal meningitis, found to be due to late presentation HIV infection. He was a respected local politician and his homosexuality was not public knowledge. Cause of death suggested by the doctor: 1a Cryptococcal meningitis 1b AIDS 1c HIV infection. Family members find his homosexuality extremely embarrassing and are adamant that the death certificate should not mention AIDS.

Supplementary question

Would your response be modified if a family member accused the boyfriend (who is alive and is known also to be HIV positive) of having had unprotected sex with the deceased without admitting that he knew he had HIV infection?

Session 3: Disputes with colleagues, late information

Scenario 3.1: a suspicion of care being withheld to improve the statistics

A 76 year old retired school teacher was admitted with collapse and hypotension. Her medical history included longstanding diabetes, chronic obstructive pulmonary disease, constipation and diverticular disease. On examination she was desperately ill, febrile, hypotensive with generalised guarding and abdominal tenderness especially in the left lower quadrant. An erect chest x-ray picture showed free gas under the diaphragm. A diagnosis of peritonitis secondary to probable perforated diverticular disease was made. Her condition did not improve sufficiently to enable surgical intervention and she died four hours after her admission.

Supplementary question

What if death was 2 days after admission; the SpR completing the death certificate hints that the decision that the patient was not fit for surgery had been debateable, and the decision had been influenced by the consultant surgeon's concerns that his risk-adjusted mortality rate was the highest in the unit? When told that he should report such a concern the SpR refuses, saying it would damage his career.

Scenario 3.2: Doubt about the cause of death
Conflict with professional colleagues
Suspected inadequate care

The deceased is a 78 year old woman with a long history of dementia. She lived in a nursing home for several years before her death. She was found dead in bed one morning, having been able to sit in a chair the previous day. You are called by the certifying doctor, who had seen her very briefly a week earlier and happened to be attending another patient at the home when the death was discovered. He asks if it is acceptable to put "dementia" as a cause of death. He vehemently does not want to refer the case to the coroner. He asks "What's the point?"

Supplementary questions

The coroner reacts by refusing to accept the case and instructing that a death certificate should be issued simply stating 1a; Dementia'. He refuses to consider your concerns that dementia simply does not cause death in this way.

You decide to exercise your right to examine the body. It is emaciated and there are grade 4 infected pressure sores on the buttocks and heels. You discuss the case with the family. They had been concerned about the 'attitude' of some of the nursing home staff but they do not want a post mortem.

Scenario 3.3: Disagreement with the certifying doctor

A 97 year old retired district nurse, who had been living in a residential home, died. She had a past history of mild/moderate dementia and osteoporosis. She needed help with most activities of daily living. Her only medication was alendronate, calcium with vitamin D3 and paracetamol as required.

On the 4th of April she had an unobserved minor fall, without obvious external injury but with subsequent difficulty moving her left leg. She was seen by her GP who admitted her to the local hospital with a suspected fractured neck of femur. The diagnosis was confirmed but a decision was made to treat her conservatively and transfer her back to the residential home with increased support. She returned on the 8th of April. Her condition was noted to be "frail" but there was no report of pressure sores or dehydration. She was immobile.

The GP discussed with the family and a DNAR order was written.

On the 10th of April she became "chesty" and was prescribed amoxicillin.

Over the next 48 hours her condition deteriorated. The family did not wish her to be moved and the GP agreed that it would be futile.

She died on the 11th of April.

The GP wrote the MCCD as: 1a old age

The family are adamant that they didn't want any fuss "she was an old lady who had had a good innings". Family and GP all object strongly to your suggestion that the coroner should be involved.

Scenario 3.4: Doctor suggesting a very inappropriate cause of death Apparent failure of quality of care

A 64 year old woman dies in a long-stay psychiatric ward after a long history of psychotic illness. Her detention in hospital was not compulsory. The psychiatry Specialist Registrar (SpR), who has relatively little experience of death certification, telephones for advice. He reports that the patient had no known medical problems other than the psychiatric illness, but in recent weeks had refused to eat, then refused to drink; she had also refused to allow medical examination. As a result she had, to quote the SpR, 'just sat in a corner of the ward and faded away'. The SpR anticipates that he should write a death certificate with the psychotic illness as the last item in Part 1, but is unsure what should go before it as Part 1a. He suggests starvation or dehydration?

Supplementary question

What if the outcome is that the coroner asks you to approve certification due to natural causes (1a bronchopneumonia, 1b schizophrenia)?

Scenario 3.5: Complications of a procedure occurring with excessive frequency

A 68 year old man died following possible anastomotic leak following potentially curative elective surgery for early bowel cancer. The medical examiner notes this is the third case that year involving the same surgeon. Case reported to the coroner by the surgical junior doctor but the coroner's officer subsequently informs the MEO the case is for a form 100A and 'I spoke to the family they

don't want a PM and are happy for the doctor to issue'. The cause of death is proposed as 1a pneumonia, 2 carcinoma of the colon.

(This scenario is somewhat surprising, because one would expect that death from a post-operative complication would be investigated by the coroner; but the scenario was supplied as an anonymised actual event).

Scenario 3.6: Late arrival of new information

A 87 year old female died at home after a gradual decline over several months with vascular dementia. Her principal carer was her son, who had no concerns when the circumstances and cause of death were discussed with him by the medical examiner's officer. Your colleague approved the MCCD after reviewing the relatively scanty GP records as 1a Vascular dementia, and the death has been successfully registered. A medical examiner note records 'no concerns' when the body is examined after death.

You are passed a message from the local authority social work department (Adult Safeguarding) two days later: the deceased's daughter has contacted social services because worried the son took away money intended for patient, inflicted physical abuse and GP didn't visit (allegedly).

Supplementary question

Would the actions differ if the message was received one month later, and the body had been cremated?

Scenario 3.7: Late arrival of new information

A 69 year old man dies of myocardial infarction due to coronary artery thrombosis and the death is certified as such. However, at a Morbidity and Mortality meeting two weeks later attention is drawn to the fact that even though the diagnosis was obvious from the presentation and the ECG, he had spent four hours in the emergency admissions unit and appropriate therapy was delayed until after he was admitted to the coronary care unit. This has been logged by the hospital as a Serious Untoward Incident and a root cause analysis has been initiated. You are consulted to discover whether the coroner should have been involved.

Scenario 3.8: Persistent delivery of a relatively minor complaint

You notice that a number of bereaved relatives have made spontaneous derogatory comments about the attitude of a doctor. Some relatives seemed to be mildly amused ('he's a bit of a lad, that one') but others have been upset. The comments indicate flippancy, insensitivity and a lack of concern about the fact that that death has occurred. None has indicated overtly racist, sexist or other discriminatory behaviour. You have seen several relatives who have clearly been upset, but none has indicated a wish to submit a complaint.

Appendix: Scenarios developed but regarded as less useful / duplicating areas already covered

Scenario: Infections that may not be due to natural causes

A 15 year old boy dies with Creutzfeldt-Jakob disease. He had received injections of human growth hormone in the past as treatment for short stature and this is the presumed source of infection.

Supplementary question

Would your response be different if there were no known risk factors other than the regular consumption of beefburgers over the previous 10 years?

Scenario: Are fractures always grounds for referral to the coroner?

A 25 year old man, known to suffer from severe epilepsy, died in respiratory failure in an intensive care unit. He had been admitted 10 days previously after suffering fractured ribs as a result of a fall. Witnesses at the time made it clear that the fall had resulted from a grand mal epileptic fit.

Supplementary question

What if the 'fractured ribs' were few in number, all on the same side, and regarded by the ICU physicians as a trivial injury had it not been for the epilepsy, which had been extremely hard to control?

Scenario: Death relates to a complication of justifiable treatment

A 68yrs old woman with severe rheumatoid arthritis is being treated with methotrexate. 10mg/wk. Routine blood tests one month earlier had shown no problem. She presents with sepsis, initially suspected to have arisen from localised cellulitis around a bunion on the left foot. FBC shows pancytopenia and blood cultures grow *E. coli*.

The clinical team suggest certifying death as: 1a. Neutropenic sepsis. 1b. Methotrexate medication. 1c. Rheumatoid arthritis

Supplementary question

What if the clinicians propose the cause of death as 1a. Neutropenic sepsis 1b Rheumatoid arthritis?

Scenario: Are fractures always grounds for referral to the coroner?

A 72 year old retired policeman with Parkinson's disease was admitted with a fractured right neck of femur after a fall at home. The fracture was fixed operatively and he made good progress postoperatively and was transferred to a rehabilitation unit for further convalescence. A week later he developed pleuritic chest pain in association with a swollen right calf. A CT pulmonary angiogram confirmed a small left sided pulmonary infarct and he was treated with anticoagulants. Two days later he suffered a sudden cardiopulmonary arrest and despite maximum resuscitative efforts he died.

Supplementary question

What if the time between the fall and the chest pain had been longer than a week? At what period of time would you decide the fall was irrelevant and issue a death certificate?

Scenario: Infections that may not be due to natural causes

A frail 79 year old woman was admitted after being debilitated by chronic diarrhoea. Microbiology confirmed a salmonella infection. Despite antibiotic therapy she died 3 days after admission.