# Case study 1

An 87 year old man is admitted with a diagnosis of acute coronary syndrome and is treated with anti-thrombotic treatment comprising clopidogrel, aspirin and warfarin. He has a history of COPD, chronic kidney disease, hypertension and atrial fibrillation (for which he was already warfarinised prior to admission). Just prior to presentation he developed a cough productive of brown phlegm and a mild fever. On day 2, his INR was found to be sub-therapeutic and enoxaparin was added until warfarin was therapeutic.

On day 4, he was found wandering the ward confused and disorientated. The JMO assessed him and found him to be clammy and diaphoretic but did not review the medical records as she was familiar with the patient. His vital signs showed he was hypotensive (BP 90/70) and mildly tachycardic (PR 110).

The JMO called the on-call medical registrar who was busy seeing patients in ED but had seen the patient earlier in the day. The medical registrar thought the patient was likely experiencing an acute delirium, secondary to sepsis from a lower respiratory tract infection (LRTI) in view of the productive cough. Sepsis management was initiated and the case was handed over to the night resident for follow-up.

During the night, the patient progressively deteriorated, becoming more hypotensive and tachycardic, and was found on CT imaging of the abdomen to have had a large retroperitoneal bleed. Emergency rescuscitation with blood transfusion and cessation of anti-thrombotic treatment was initiated; however he subsequently died from multi-organ failure a few days later.

What are the factors relating to the diagnostic process involving this patient that led to the delayed recognition of a complication of anticoagulation?

**Question 1**

*What are the factors relating to the diagnostic process involving this patient that led to the delayed recognition of a complication of anticoagulation? Explain.*

a) Poor communication between the JMO reviewing the patient and the medical registrar on call regarding the patient’s current clinical symptoms

b) The JMO failed to perform a thorough physical assessment of the patient

c) The patient was difficult to assess because of his disorientation and confusion and was unable to provide a clear history

d) Inadequate assessment and consideration of differential diagnoses by the medical registrar

e) All of the above

**Question 2**

*What was the main cognitive bias? What other biases You can recognize?*

*What predisposed the medical registrar to this bias?*

# Case study 2

Flynn is a 17 month old boy with a 2 day history of malaise, loss of appetite and runny nose. After developing a temperature and sore throat, he was seen by the GP who diagnosed a viral illness with possible tonsillitis, but no signs of pus requiring antibiotics. Over the next 2 days, he developed vomiting and an erythematous rash spreading from his groin, under arms and behind his knees. At this point, he was taken back to the GP.

Flynn was seen by a different GP who fitted him into his busy clinic who noted worsening tonsillitis and commenced antibiotics. Later that evening, Flynn became irritable and more unwell. His rash had spread and he was taken to the local ED.

There had been several paediatric presentations with viral illness to the ED over the previous few days. The ED doctor reviewed Flynn and noted that his symptoms were very similar to those of a number of other patients on that shift. The doctor determined that the rash was either a viral exanthem or a reaction to the antibiotics.

Flynn was prescribed antihistamine and was sent home despite his parents’ concerns regarding his condition. He remained unwell, lethargic and flat and was taken back to the GP the following day. He was seen again by the first GP who identified a significant deterioration and immediately sent Flynn to the tertiary referral paediatric facility.

Following admission, Flynn was diagnosed with streptococcal bacteraemia which was promptly treated and he recovered well with no long term sequelae.

**Question 1**

*Which of the following factors potentially contributed to the delay in Flynn’s diagnosis?*

a) The second GP missed the significance of new symptoms of vomiting and rash and did not take the opportunity to re-evaluate Flynn’s medical problem

b) The differential diagnosis of post viral rash or antibiotic reaction was based on the most prevalent conditions at the time and was insufficiently comprehensive

c) The ED doctor interpreted Flynn’s symptoms as being concordant with his impression of viral illness

d) The seriousness of Flynn’s condition during his 1st presentation to ED was not recognised which, if it had, would have justified monitoring his condition for a period of time

e) All of the above

f) None of the above - course of action was reasonable based on the difficulty, in many cases, in separating bacterial from viral illness in young children

**Question 2**

*What was the main cognitive bias? What other biases You can recognize?*

*What predisposed the medical registrar to this bias?*

# Case 3 - Overview

*Joan is a 74 year old lady with multiple co-morbidities, including a colostomy following resection of a rectal cancer, who is admitted for respite care and assessment for long term care placement. Two weeks into her stay, she developed epigastric pain in the late evening which Mylanta did not relieve.*

*The on-call doctor was contacted and a phone order for opioid analgesia was made (after which she was noted to be sleeping comfortably). The next morning, she developed a distended abdomen, felt nauseous and had no appetite. She then started vomiting black coloured liquid and the doctor was called to review her. Nurses reported concerns regarding her inactive colostomy and protruding stoma.*

*Joan was reviewed by the medical officer on call that afternoon who assessed her as having no abdominal tenderness on palpation, active bowel sounds, passed flatus and normal vital signs. She was diagnosed and treated for viral gastritis as her husband was also suffering symptoms of diarrhoea and vomiting. The black vomit was determined to be due to iron supplements.*

*Over the next 24 hours, Joan continued to vomit dark liquid intermittently. Her colostomy remained inactive and her vital signs became abnormal with BP lower than usual for her (but still within acceptable parameters) and moderate tachycardia with a PR 110 bpm. Viral gastritis complicated by upper GI mucosal bleeding was still thought to be most likely given the absence of abdominal pain and physical signs of peritonism, and the presence of bowel sounds. At mid-day the following day, she was found unresponsive and resuscitation attempts were unsuccessful. Post-mortem examination identified cause of death to be perforated bowel.*

**Question 1.**

*Which of the following decision making strategies may have assisted in avoiding diagnostic error at an earlier stage?*

*a) Considering and documenting the differential diagnoses*

*b) Identifying and ruling out the worst case scenario*

*c) Identifying signs that did not quite fit the working diagnosis*

*d) Considering if any red flag features were present that might indicate a serious clinical problem*

*e) All of the above*

*f) None of the above*

**Question 2**

*What was the main cognitive bias? What other biases You can recognize?*

*What predisposed the medical registrar to this bias?*