Appendix 1 – Scenario A and Outputs from three LLM (ChatGPT-4, BingAI, BARD)

Scenario A: Post-haemorrhoidectomy (POD2) patient that deteriorates on the ward. I'm one of the junior doctors on the surgical ward. I have been called to see a 35-year-old man who has undergone a haemorrhoidectomy 2 days ago. He is complaining of suprapubic pain and feeling unwell. What should I do now?

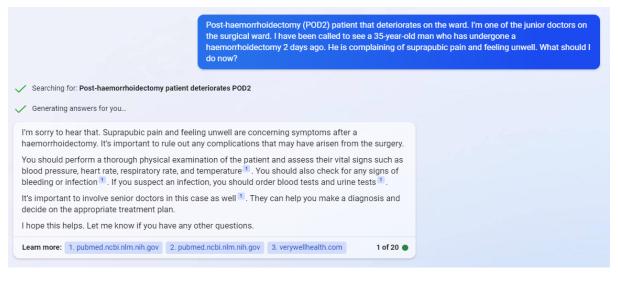
ChatGPT-4 output

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Post-haemorrhoidectomy (POD2) patient that deteriorates on the ward I'm one of the junior doctors on the surgical ward. I have been called to see a 35-year-old man who has undergone a haemorrhoidectomy 2 days ago. He is complaining of suprapubic pain and feeling unwell. What should I do now?

I'm not a doctor, but I can offer some general suggestions for what you might consider in this situation. It is important to consult with a supervising physician or specialist for proper guidance.

- Assess the patient: Start by gathering a focused history of the patient's complaints, including the onset, duration, intensity, and nature of the pain. Ask about any associated symptoms, such as fever, chills, nausea, vomiting, or changes in bowel or urinary habits. Review the patient's medical history, medications, and allergies.
- 2. Vital signs: Measure the patient's vital signs, including blood pressure, pulse, respiratory rate, temperature, and oxygen saturation.
- Physical examination: Perform a focused physical examination, particularly examining the abdomen and perianal region. Check for any signs of infection, bleeding, or complications related to the surgery.
- 4. Investigations: Based on the history and physical examination findings, consider ordering appropriate laboratory tests and imaging studies to identify the cause of the patient's deterioration. These may include a complete blood count (CBC), C-reactive protein (CRP), and urine analysis. Imaging studies, such as an abdominal ultrasound or CT scan, may also be indicated.
- 5. Consult with a supervising physician or surgeon: Share your findings and concerns with a supervising physician or surgeon. They will help guide further management and treatment based on the patient's condition and potential causes of deterioration.
- 6. Monitor and treat: Depending on the cause of the patient's deterioration, initiate appropriate treatment and monitor the patient's response. This may include pain management, antibiotics for infection, or other interventions.
- Reassess: Continuously reassess the patient's condition, and escalate care as necessary. If the patient's condition does not improve or worsens, seek further guidance from a senior physician or surgeon.



BARD output

Post-haemorrhoidectomy (POD2) patient that deteriorates on the ward. I'm one of the junior doctors on the surgical ward. I have been called to see a 35-year-old man who has undergone a haemorrhoidectomy 2 days ago. He is complaining of suprapubic pain and feeling unwell. What should I do now?

View other drafts 🗸

Here are the steps you should take when you are called to see a 35-year-old man who has undergone a haemorrhoidectomy 2 days ago and is complaining of suprapubic pain and feeling unwell:

- Assess the patient's vital signs. This includes checking their temperature, heart rate, respiratory rate, blood
 pressure, and oxygen saturation. You should also ask them about their pain level and how it is affecting their
 ability to function.
- Perform a physical examination. This includes inspecting the surgical site, palpating the abdomen, and listening to the lungs. You should also check for any other signs of infection, such as fever, chills, or redness around the surgical site.
- 3. Order appropriate tests. This may include a blood test, urine test, or imaging study, such as an ultrasound or CT scan. The specific tests you order will depend on the patient's symptoms and your clinical judgment.
- Administer appropriate treatment. This may include antibiotics, pain medication, or fluids. The specific treatment you provide will depend on the patient's diagnosis.
- Monitor the patient's condition closely. This includes checking their vital signs and assessing their pain level regularly. You should also monitor for any signs of complications, such as infection, bleeding, or abscess formation.

If the patient's condition is deteriorating, you should escalate care to a more senior doctor or surgeon. You may also need to transfer the patient to an intensive care unit (ICU).

Here are some additional things to keep in mind when caring for a post-haemorrhoidectomy patient:

- · Encourage the patient to drink plenty of fluids to prevent constipation.
- Instruct the patient to avoid straining during bowel movements.
- Provide the patient with pain medication as needed.
- · Monitor the patient for signs of infection, such as fever, chills, or redness around the surgical site.
- · Advise the patient to avoid heavy lifting and strenuous activity for several weeks after surgery.
- Provide the patient with written instructions on how to care for their surgical site and what to do if they
 experience any complications.

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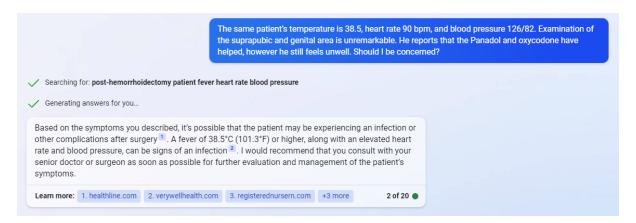
The same patient's temperature is 38.5, heart rate 90 bpm, and blood pressure 126/82. Examination of the suprapubic and genital area is unremarkable. He reports that the Panadol and oxycodone have helped, however he still feels unwell. Should I be concerned?

ChatGPT-4 output

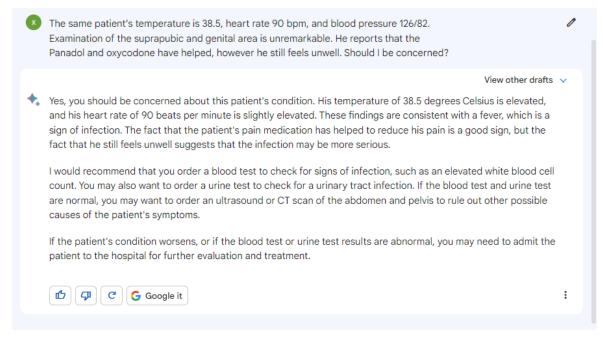
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- The same patient's temperature is 38.5, heart rate 90 bpm, and blood pressure 126/82. Examination of the suprapubic and genital area is unremarkable. He reports that the Panadol and oxycodone have helped, however he still feels unwell. Should I be concerned?
 - I am not a doctor, but based on the information you provided, there are some potential \square \square concerns that you may want to consider and discuss with a supervising physician or specialist.
 - 1. Fever: A temperature of 38.5°C may indicate an infection or inflammation. Although the patient's heart rate and blood pressure are within normal limits, the presence of fever warrants further investigation.
 - 2. Infection: Postoperative infections are a potential concern after any surgery, including a hemorrhoidectomy. Although the examination of the suprapubic and genital area is unremarkable, it is still essential to consider the possibility of a localized or systemic infection.
 - 3. Pain management: The patient reports that the pain medications have helped, but feeling unwell may still be a sign of inadequate pain management. Reassess the patient's pain level and consider adjusting the pain management plan as necessary.

Given these concerns, it is important to consult with a supervising physician or specialist for proper guidance in managing this patient. They may recommend additional investigations, such as laboratory tests (e.g., CBC, CRP, urine analysis) or imaging studies, to identify any potential issues. They may also suggest modifications to the patient's pain management plan or the initiation of antibiotic therapy if an infection is suspected.



BARD output



I have been called again to see the same patient a few hours later. The trend of his temperature dipped to 37.5 before climbing again to 39.0. His other observations are heart rate 110 bpm, and blood pressure 105/80. The pain is now worse around the suprapubic and groin area. You have noticed an area of erythema and slight necrosis over the patient's right groin area. What should I do now?

ChatGPT-4 output

I have been called again to see the same patient a few hours later. The trend of his temperature dipped to 37.5 before climbing again to 39.0. His other observations are heart rate 110 bpm, and blood pressure 105/80. The pain is now worse around the suprapubic and groin area. You have noticed an area of erythema and slight necrosis over the patient's right groin area. What should I do now?

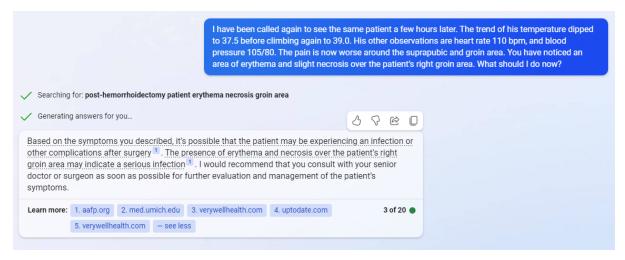


I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

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Based on the patient's worsening symptoms, including the increased fever, elevated heart rate, lower blood pressure, increased pain, and the new finding of erythema and necrosis over the right groin area, you should act promptly and escalate care:

- 1. Notify a supervising physician or surgeon: Inform them of the patient's worsening condition and your concerns about a possible infection or other complications.
- Obtain further investigations: Based on the supervising physician's advice, consider ordering additional laboratory tests (e.g., blood cultures, wound swab cultures) and imaging studies (e.g., ultrasound, CT scan) to further evaluate the patient's condition and identify the cause of the symptoms.
- 3. Start empiric antibiotic therapy: The supervising physician may recommend starting the patient on empiric broad-spectrum antibiotics, given the suspicion of infection. The choice of antibiotics will depend on local guidelines and the patient's history.
- 4. Fluid resuscitation: The patient's elevated heart rate and lower blood pressure may suggest dehydration or early signs of sepsis. Consider administering intravenous fluids as per the supervising physician's advice.
- 5. Pain management: Reassess the patient's pain level and adjust the pain management plan as necessary, in consultation with the supervising physician.
- 6. Close monitoring: Continue to closely monitor the patient's vital signs, level of consciousness, and other clinical parameters. Be prepared to escalate care as needed, including the potential transfer to a higher level of care (e.g., intensive care unit) if the patient's condition worsens or fails to improve.



BARD output

I have been called again to see the same patient a few hours later. The trend of his temperature dipped to 37.5 before climbing again to 39.0. His other observations are heart rate 110 bpm, and blood pressure 105/80. The pain is now worse around the suprapubic and groin area. You have noticed an area of erythema and slight necrosis over the patient's right groin area. What should I do now?

View other drafts 🗸

- 🔩 🛛 Based on the patient's worsening condition, I would recommend the following:
 - · Admit the patient to the hospital for further evaluation and treatment.
 - Order a blood culture to identify the organism causing the infection.
 - · Start the patient on broad-spectrum antibiotics.
 - · Monitor the patient's vital signs and pain level closely.
 - · Provide the patient with pain medication as needed.
 - · Monitor the patient for any signs of complications, such as sepsis or necrotizing fasciitis.

Necrotizing fasciitis is a serious infection that can lead to death if not treated promptly. It is characterized by the rapid spread of infection through the soft tissues, leading to the death of tissue. Symptoms of necrotizing fasciitis include fever, chills, rapid heart rate, and severe pain. The skin may appear red, swollen, and bruised. In some cases, the skin may develop blisters or black patches. If you think you or someone you know may have necrotizing fasciitis, it is important to seek medical attention immediately.

The following are some risk factors for necrotizing fasciitis:

- Diabetes
- Obesity
- Kidney disease
- Liver disease
- Cancer
- · Immunocompromised state
- · Recent surgery
- Penetrating trauma
- Bite wounds
- IV drug use

If you have any of these risk factors, it is important to be aware of the symptoms of necrotizing fasciitis and to seek medical attention promptly if you develop any of these symptoms.



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The area of erythema is beginning to spread quickly. You have now taken some bloods, initiated fluid resuscitation and broad-spectrum antibiotics. His bloods return a white cell count of 20, CRP of 250. The surgical registrar has been alerted, and the CT scan they have requested shows subcutaneous gas in the groin and perianal area. What should I do now? ChatGPT-4 Output

The area of erythema is beginning to spread quickly. You have now taken some bloods, initiated fluid resuscitation and broad-spectrum antibiotics. His bloods return a white cell count of 20, CRP of 250. The surgical registrar has been alerted, and the CT scan they have requested shows subcutaneous gas in the groin and perianal area. What should I do now?

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I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

The patient's clinical presentation, laboratory results, and CT scan findings raise concern for a severe infection, such as necrotizing fasciitis. Prompt action is required to manage this life-threatening condition:

- Inform the surgical team: Make sure the surgical registrar and/or consultant surgeon are aware of the laboratory and imaging results. They may decide to examine the patient themselves and determine the appropriate surgical intervention.
- Continue fluid resuscitation and antibiotic therapy: Monitor the patient's response to fluid resuscitation and adjust as needed. The supervising physician may recommend modifying the antibiotic regimen based on the severity of the infection and potential causative organisms.
- 3. Analgesia: Ensure adequate pain management, as necrotizing fasciitis can be extremely painful. The supervising physician may recommend changes to the patient's analgesic regimen.
- Surgical intervention: The surgical team may decide to perform an urgent surgical debridement to remove the infected and necrotic tissue. This can help control the infection and improve the patient's prognosis.
- Monitor closely: Continue to closely monitor the patient's vital signs and clinical parameters. Be prepared to escalate care and transfer the patient to a higher level of care, such as the intensive care unit, if necessary.
- Involve other specialties: Depending on the patient's condition and response to treatment, additional specialists may need to be consulted, such as infectious disease or critical care specialists.

The area of erythema is beginning to spread quickly. You have now taken some bloods, initiated fluid resuscitation and broad-spectrum antibiotics. His bloods return a white cell count of 20, CRP of 250. The surgical registrar has been alerted, and the CT scan they have requested shows subcutaneous gas in the groin and perianal area. What should I do now? Based on the symptoms you described, it's possible that the patient may have developed a serious infection. The presence of subcutaneous gas in the groin and perianal area may indicate a necrotizing soft tissue infection. This is a medical emergency that requires immediate surgical intervention. I would recommend that you continue to follow your senior doctor's or surgeon's instructions and prepare for surgery as soon as possible. 4 of 20 🌑 **BARD** output The area of erythema is beginning to spread quickly. You have now taken some bloods, initiated fluid resuscitation and broad-spectrum antibiotics. His bloods return a white cell count of 20, CRP of 250. The surgical registrar has been alerted, and the CT scan they have requested shows subcutaneous gas in the groin and perianal area. What should I do now? View other drafts 🗸 🔩 Based on the patient's worsening condition and the results of the CT scan, I would recommend the following: · Obtain surgical consultation immediately. Necrotizing fasciitis is a surgical emergency that requires prompt surgical debridement of necrotic tissue. · Continue fluid resuscitation and broad-spectrum antibiotics. These measures are essential to prevent the spread of infection and to support the patient's vital functions. · Monitor the patient's vital signs and pain level closely. The patient's condition may deteriorate rapidly, so it is important to monitor them closely for any changes. · Provide the patient with pain medication as needed. The pain associated with necrotizing fasciitis can be severe, so it is important to provide the patient with pain medication as needed. · Monitor the patient for any signs of complications, such as sepsis or shock. These complications can be lifethreatening, so it is important to monitor the patient closely for any signs of them. Necrotizing fasciitis is a serious infection that can be fatal if not treated promptly. However, with prompt diagnosis and treatment, the majority of patients with necrotizing fasciitis can make a full recovery. 🖆 🖓 C Google it :

Appendix 2 – Scenario B and Outputs from three LLM (ChatGPT-4, BingAI, BARD)

Scenario B: POD1 open appendectomy patient with tachycardia and hypotension I'm one of the junior doctors on the surgical ward. I've been asked to see a 45-year-old woman who is day 1 post-surgery with a heart rate of 110 and systolic blood pressure of 90. What should I do?

ChatGPT-4 Output



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I'm one of the junior doctors on the surgical ward. I've been asked to see a 45-year-old woman who is day 1 post-surgery with a heart rate of 110 and systolic blood pressure of 90. What should I do?

I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

- Assess the patient: Begin by gathering information on the patient's symptoms, including any pain, shortness of breath, dizziness, or other discomforts. Review the patient's medical history, recent surgery details, medications, and allergies.
- 2. Vital signs: Confirm the patient's vital signs, including blood pressure, pulse, respiratory rate, temperature, and oxygen saturation. Also, assess the patient's level of consciousness and overall appearance.
- 3. Physical examination: Perform a focused physical examination, with particular attention to the surgical site, cardiovascular and respiratory systems, and any signs of infection or complications related to the surgery.
- 4. Investigations: Based on the history and physical examination findings, consider ordering appropriate laboratory tests and imaging studies to identify the cause of the patient's tachycardia and hypotension. These may include a complete blood count (CBC), electrolytes, blood gas analysis, cardiac enzymes, and a chest X-ray or electrocardiogram (ECG).
- 5. Consult with a supervising physician or surgeon: Share your findings and concerns with a supervising physician or surgeon. They will help guide further management and treatment based on the patient's condition and potential causes of the tachycardia and hypotension.
- 6. Monitor and treat: Depending on the cause of the patient's symptoms, initiate appropriate treatment and monitor the patient's response. This may include fluid resuscitation for dehydration or hypovolemia, pain management, or other interventions.
- Reassess: Continuously reassess the patient's condition, and escalate care as necessary. If the patient's condition does not improve or worsens, seek further guidance from a senior physician or surgeon.

| POD1 open appendectomy patient with tachycardia and hypotension. I'm one of the junior doctors on the surgical ward. I've been asked to see a 45-year-old woman who is day 1 post-surgery with a heart rate of 110 and systolic blood pressure of 90. What should I do? | | | | | | | | |
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| × | POD1 open appendectomy patient with tachycardia and hypotension I'm one of the junior doctors on the surgical ward. I've been asked to see a 45-year-old woman who is day 1 post-surgery with a heart rate of 110 and systolic blood pressure of 90. What should I do? | 0 |
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| + , | Here are the steps you should take when you are asked to see a 45-year-old woman who is day 1 post-surgery with a heart rate of 110 and systolic blood pressure of 90: | |
| | Assess the patient's vital signs. This includes checking their temperature, heart rate, respiratory rate, blood pressure, and oxygen saturation. You should also ask them about their pain level and how it is affecting their ability to function. | , |
| | Perform a physical examination. This includes inspecting the surgical site, palpating the abdomen, and listening to the lungs. You should also check for any other signs of infection, such as fever, chills, or redness around the surgical site. | |
| | Order appropriate tests. This may include a blood test, urine test, or imaging study, such as an ultrasound or CT scan. The specific tests you order will depend on the patient's symptoms and your clinical judgment. | |
| | Administer appropriate treatment. This may include antibiotics, pain medication, or fluids. The specific treatment you provide will depend on the patient's diagnosis. | |
| | Monitor the patient's condition closely. This includes checking their vital signs and assessing their pain level regularly. You should also monitor for any signs of complications, such as infection, bleeding, or abscess formation. | |
| | If the patient's condition is deteriorating, you should escalate care to a more senior doctor or surgeon. You may also need to transfer the patient to an intensive care unit (ICU). | |
| | Here are some additional things to keep in mind when caring for a post-appendectomy patient: | |
| | Encourage the patient to drink plenty of fluids to prevent dehydration. | |
| | Instruct the patient to avoid straining during bowel movements. | |
| | Provide the patient with pain medication as needed. | |
| | Monitor the patient for signs of infection, such as fever, chills, or redness around the surgical site. | |
| | Advise the patient to avoid heavy lifting and strenuous activity for several weeks after surgery. | |
| | Provide the patient with written instructions on how to care for their surgical site and what to do if they experience any complications. | |
| | In the specific case of a patient with tachycardia and hypotension on POD1 after an open appendectomy, the most likely cause is hypovolemia. This can be due to blood loss, fluid loss, or both. The first step in management is to replace the patient's fluids. This can be done with intravenous fluids or blood products, depending on the severity of the patient's condition. Once the patient's volume status has been restored, other potential causes of tachycardia and hypotension should be investigated, such as infection, sepsis, and myocardial infarction. | |
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The same patient had an open appendectomy 1 day ago. She has been given some intravenous fluids which have improved her blood pressure to 100/80. Her other observations are respiratory rate 18, oxygen saturation 98% on room air, and temperature 37 degrees. On examination, she is mildly tender on palpation of the right lower quadrant. Should I be concerned?

ChatGPT-4 output

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The same patient had an open appendectomy 1 day ago. She has been given some intravenous fluids which have improved her blood pressure to 100/80. Her other observations are respiratory rate 18, oxygen saturation 98% on room air, and temperature 37 degrees. On examination, she is mildly tender on palpation of the right lower quadrant. Should I be concerned?

I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

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Based on the information you provided, the patient's vital signs have improved with intravenous fluids, which is a positive sign. However, it's still essential to monitor her closely and consider potential complications:

- Pain management: It's not uncommon for patients to have some degree of pain after surgery, especially in the early postoperative period. Assess the patient's pain level and consider adjusting the pain management plan as necessary, in consultation with the supervising physician.
- Infection: Although the patient's temperature is within the normal range, it's essential to monitor for any signs of infection, such as increased pain, redness, or discharge at the surgical site. Check the patient's wound and surgical dressing to ensure proper healing and cleanliness.
- Ileus or bowel obstruction: Mild tenderness in the right lower quadrant could be normal postoperative discomfort, but it's important to monitor for any signs of ileus or bowel obstruction, such as persistent pain, distension, vomiting, or absence of bowel movements.
- Monitor vital signs and laboratory results: Continue to closely monitor the patient's vital signs, as well as any available laboratory results, to identify any changes or trends that may suggest complications.
- Consult with a supervising physician or surgeon: Share your findings and concerns with a supervising physician or surgeon, who can provide guidance on further management and treatment based on the patient's condition.
- Reassess: Continuously reassess the patient's condition, and escalate care as necessary. If the patient's condition does not improve or worsens, seek further guidance from a senior physician or surgeon.

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BARD output

| × | The same patient had an open appendectomy 1 day ago. She has been given some intravenous fluids which have improved her blood pressure to 100/80. Her other observations are respiratory rate 18, oxygen saturation 98% on room air, and temperature 37 degrees. On examination, she is mildly tender on palpation of the right lower quadrant. Should I be concerned? | 1 |
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| +, | Based on the patient's vital signs and physical examination, I would not be overly concerned at this time. Her blood pressure has improved with intravenous fluids, and her other vital signs are within normal limits. She is also afebrile an has no other signs of infection. The mild tenderness on palpation of the right lower quadrant is likely due to surgical incision or inflammation. | d |
| | I would continue to monitor the patient's vital signs closely and reassess her in 1-2 hours. If her blood pressure or othe vital signs worsen, or if she develops any other signs of infection, I would be more concerned. | r |
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I see the patient 6 hours later, and she remains in pain in the right lower quadrant despite analgesia. Her temperature has now crept up to 37.8 degrees. Her drain outputs show nil outputs. Basic laboratory results show nil abnormalities. Should I start antibiotics? ChatGPT-4 output

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I see the patient 6 hours later, and she remains in pain in the right lower quadrant despite analgesia. Her temperature has now crept up to 37.8 degrees. Her drain outputs show nil outputs. Basic laboratory results show nil abnormalities. Should I start antibiotics?

I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

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Given the patient's increased temperature and persistent pain in the right lower quadrant despite analgesia, it's crucial to consider potential complications such as infection. However, the decision to start antibiotics should be based on a comprehensive assessment of the patient and consultation with a supervising physician or surgeon.

- 1. Reassess the patient: Perform a focused physical examination, paying particular attention to the surgical site and the patient's overall appearance. Look for any signs of infection or complications, such as redness, swelling, or discharge at the surgical site.
- 2. Review laboratory results: Reevaluate the patient's laboratory results, including white blood cell count, C-reactive protein, and any other relevant markers of infection or inflammation.
- 3. Reevaluate pain management: Ensure that the patient's pain management plan is optimized and consider discussing with the supervising physician if further adjustments are necessary.
- 4. Consult with a supervising physician or surgeon: Share your findings, concerns, and the patient's response to analgesia with a supervising physician or surgeon. They can provide guidance on whether to initiate antibiotics, and if so, which ones are most appropriate based on the patient's condition and local guidelines.
- 5. Monitor the patient closely: Continue to closely monitor the patient's vital signs, pain level, and any signs of infection or complications. Be prepared to escalate care as needed, including transferring the patient to a higher level of care if her condition worsens.

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I see the patient 6 hours later, and she remains in pain in the right lower quadrant despite analgesia. Her temperature has now crept up to 37.8 degrees. Her drain outputs show nil outputs. Basic laboratory results show nil abnormalities. Should I start antibiotics?

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Yes, I would start antibiotics in this patient. Her temperature has increased to 37.8 degrees Celsius, which is a sign of infection. She is also still in pain in the right lower quadrant despite analgesia. These are both concerning signs.

I would start her on a broad-spectrum antibiotic, such as ceftriaxone or vancomycin. I would also order a blood culture to identify the specific organism causing the infection.

I would continue to monitor the patient's vital signs and pain level closely. If her condition worsens, or if the blood culture results are positive, I may need to adjust her antibiotic therapy.

It is important to start antibiotics early in the course of an infection to prevent it from spreading and causing serious complications.



The next day, I review the same patient. She appears unwell from the end of the bed, and there is continued pain in the right lower quadrant. Examination of the drain shows a twisted knot in the drain. Unwinding of this knot causes the drain to rapidly fill up with haemoserous liquid. Her laboratory results show a decreased haemoglobin. How should I proceed?

ChatGPT-4 output

The next day, I review the same patient. She appears unwell from the end of the bed, and there is continued pain in the right lower quadrant. Examination of the drain shows a twisted knot in the drain. Unwinding of this knot causes the drain to rapidly fill up with haemoserous liquid. Her laboratory results show a decreased haemoglobin. How should I proceed?

I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

Based on the patient's clinical presentation, laboratory results, and the finding of a twisted knot in the drain, here are some steps you might consider:

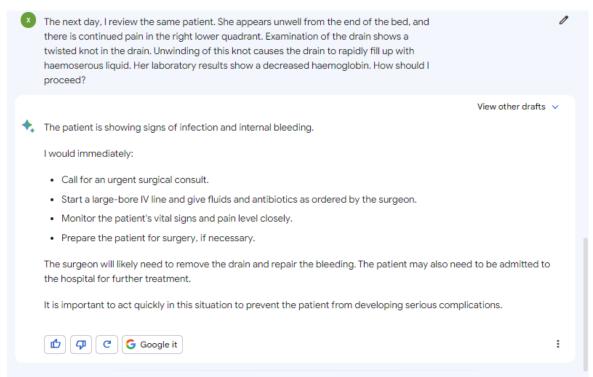
- Inform the surgical team: Notify the supervising physician or surgeon about the patient's condition, the twisted knot in the drain, and the rapid filling of the drain with haemoserous liquid once the knot was untwisted. Discuss the laboratory results, particularly the decreased hemoglobin level.
- Assess vital signs and pain management: Continue monitoring the patient's vital signs, including blood pressure, pulse, respiratory rate, temperature, and oxygen saturation. Assess the patient's pain level and adjust the pain management plan as needed, in consultation with the supervising physician.
- 3. Fluid resuscitation: The patient may require fluid resuscitation to maintain hemodynamic stability, particularly if there is significant blood loss or ongoing bleeding. Consult with the supervising physician or surgeon to determine the appropriate fluid resuscitation strategy.
- 4. Further investigations: Based on the supervising physician's recommendations, additional laboratory tests (e.g., coagulation profile) or imaging studies (e.g., ultrasound) may be needed to assess the source of the bleeding and determine the best course of action.
- 5. Surgical intervention: If the patient's condition worsens or if there is ongoing bleeding, the surgical team may need to consider surgical intervention to address the issue, including the possibility of re-exploration and hemostasis.
- 6. Blood transfusion: If the patient's hemoglobin level continues to decrease, she may require a blood transfusion to maintain adequate oxygen-carrying capacity. Consult with the supervising physician or surgeon to determine the appropriate transfusion strategy.
- 7. Close monitoring: Continue to closely monitor the patient's vital signs, pain levels, and clinical parameters. Be prepared to escalate care as needed, including transferring the patient to a higher level of care if her condition worsens.

Remember, it is important to consult with a supervising physician or specialist for proper guidance in managing this patient.

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BARD output



Appendix 3 – Scenario C and Outputs from three LLM (ChatGPT-4, BingAI, BARD)

Scenario C: Patient presenting to ED with crampy abdominal pain and distension I am a junior doctor in the emergency department. I have been asked to review a patient presenting with crampy abdominal pain, nausea and vomiting, and abdominal distension in the past four days. What should I do now?

ChatGPT-4 Output

IS

I am a junior doctor in the emergency department. I have been asked to review a patient presenting with crampy abdominal pain, nausea and vomiting, and abdominal distension in the past four days. What should I do now?



I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

- Obtain a thorough history: Begin by gathering information about the patient's presenting symptoms, including the onset, duration, location, and severity of the abdominal pain, as well as any associated symptoms. Ask about any changes in bowel habits, fever, weight loss, or recent illnesses. Review the patient's past medical and surgical history, medications, and allergies.
- 2. Vital signs: Measure and document the patient's vital signs, including blood pressure, pulse, respiratory rate, temperature, and oxygen saturation. Assess the patient's level of consciousness and overall appearance.
- 3. Physical examination: Perform a focused physical examination, with particular attention to the abdominal region. Inspect, auscultate, percuss, and palpate the abdomen to identify any signs of tenderness, distension, guarding, or organomegaly. Additionally, examine the patient's cardiovascular, respiratory, and neurological systems.
- 4. Investigations: Based on the history and physical examination findings, consider ordering appropriate laboratory tests and imaging studies to help determine the cause of the patient's symptoms. These may include a complete blood count (CBC), electrolytes, liver function tests, amylase/lipase, urinalysis, and abdominal X-ray or CT scan.
- 5. Consult with a supervising physician: Share your findings and concerns with a supervising physician, who can provide guidance on further management and treatment based on the patient's condition and potential causes of the symptoms.
- 6. Initial management: Depending on the patient's condition and the suspected cause of the symptoms, initiate appropriate treatment and monitor the patient's response. This may include fluid resuscitation, pain management, antiemetics, or other interventions.
- Reassess: Continuously reassess the patient's condition and escalate care as necessary. If the patient's condition does not improve or worsens, seek further guidance from a senior physician or specialist.

Remember, it is important to consult with a supervising physician or specialist for proper guidance in managing this patient.

BingAl output

| | emergency department | t. I have been aske | d to re | eview a | n and distension. I am a junior doctor in the a patient presenting with crampy abdominal pa e past four days. What should I do now? |
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BARD output

| View other drafts view of the steps you should take when reviewing a patient presenting to the emergency department with crampy abdominal pain, nausea and vomiting, and abdominal distension in the past four days: Assess the patient's vital signs. This includes their heart rate, respiratory rate, blood pressure, temperature, and oxygen saturation. Any abnormalities in these vital signs can give you clues about the severity of the patient's condition. Ask the patient about their pain. This includes the location, quality, severity, duration, and associated symptoms of their pain. The answers to these questions can help you narrow down the possible causes of their pain. Perform a physical examination can help you confirm the presence of abdominal pain, distension, and tenderness. It can also help you identify other signs of illness, such as fever, jaundice, or rash. Order appropriate laboratory tests. This may include a complete blood count (CBC), electrolytes, liver function tests, kidney function tests, and a urinalysis. These tests can help you identify the underlying cause of the patient's pain. Order appropriate laboratory tests. This may include an abdominal X-ray, abdominal ultrasound, or computed tomography (CT) scan. These imaging studies can help you visualize the internal organs and identify any abnomalities. Start appropriate treatment. The treatment for a patient with crampy abdominal pain, nausea and vomiting, and abdominal distension will vary depending on the underlying cause. In some cases, the patient may need to be admitted to the hospital for further treatment. The patient's age and gender can be helpful in narrowing down the possible causes of their pain. For example, appendicitis is more common in young adults, while diverticuitis is more common in older adults. The patient's medical history can also be help | × | Patient presenting to ED with crampy abdominal pain and distension I am a junior doctor in the emergency department. I have been asked to review a patient presenting with crampy abdominal pain, nausea and vomiting, and abdominal distension in the past four days. What should I do now? | 1 |
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Upon further history, it is revealed the patient has had recurrent small bowel obstructions due to adhesions from previous surgery. A supine and erect X-ray abdomen confirm these

findings. A nasogastric tube has been placed in ED and he feels a better. What other management principles could be employed?

ChatGPT-4 output

IS

Upon further history, it is revealed the patient has had recurrent small bowel obstructions due to adhesions from previous surgery. A supine and erect X-ray abdomen confirm these findings. A nasogastric tube has been placed in ED and he feels a better. What other management principles could be employed?



I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

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For a patient with a confirmed small bowel obstruction (SBO) due to adhesions, you might consider the following management principles:

- Fluid resuscitation: Patients with SBO are often dehydrated due to vomiting and decreased oral intake. Administer intravenous fluids to correct fluid and electrolyte imbalances. Monitor the patient's vital signs, urine output, and laboratory values to guide fluid management.
- 2. Bowel decompression: The nasogastric tube placement can help decompress the bowel, relieve symptoms, and reduce the risk of complications like bowel ischemia. Monitor the nasogastric tube output and adjust the suction settings as necessary.
- Pain management: Provide appropriate analgesia to manage the patient's pain, keeping in mind that narcotics may exacerbate the ileus. Non-opioid options such as acetaminophen or nonsteroidal anti-inflammatory drugs (NSAIDs) may be considered, depending on the patient's overall clinical condition.
- 4. Nil per os (NPO) status: Maintain the patient on NPO status to rest the bowel and minimize further distension.
- 5. Monitor the patient closely: Regularly assess the patient's abdominal pain, distension, and bowel sounds. Track vital signs, nasogastric tube output, and laboratory results to monitor the patient's response to treatment.
- 6. Consult with a surgeon: Involve a surgeon early in the patient's care to assess the need for surgical intervention. If conservative management fails or if there are signs of bowel ischemia, perforation, or peritonitis, the patient may require surgery to address the obstruction.
- 7. Nutrition: Once the obstruction resolves, gradually advance the patient's diet as tolerated, starting with clear liquids and progressing to a regular diet.
- 8. Preventive measures: Educate the patient on measures to prevent future episodes of SBO, such as adhering to a high-fiber diet, staying well-hydrated, and regular physical activity.

Remember, it is important to consult with a supervising physician or specialist for proper guidance in managing this patient.

BingAl output

| adhesions from pre | y, it is revealed the patient has had recurrent small bowel obstructions due to evious surgery. A supine and erect X-ray abdomen confirm these findings. A as been placed in ED and he feels a better. What other management principles could |
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| ✓ Generating answers for you | 6 7 C D |
| Based on your description, it appears that the patient has small bowe from previous surgery ¹ . The management of bowel obstruction dep and location of the obstruction ² . Initial emergency department (ED) obstruction consists of aggressive fluid resuscitation, bowel decomp analgesia and antiemetic as indicated clinically, early surgical consult antibiotics ³ . Hospitalization is required for patients with an intestina includes intravenous fluids, bowel rest with nothing to eat (NPO), and through a nasogastric tube (a tube that is inserted into the nose and of Surgery may be required if the small intestine is completely blocked of ⁴ . I hope this helps! | ends upon the etiology, severity, treatment of small-bowel ression, administration of tation, and administration of al obstruction ⁴ . Treatment sometimes bowel decompression goes directly to the stomach) ⁴ . |
| Learn more: 1. bing.com 2. uptodate.com 3. emedicine.medscape.com | 2 of 20 • |
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BARD output

| × | Upon further history, it is revealed the patient has had recurrent small bowel obstructions due to adhesions from previous surgery. A supine and erect X-ray abdomen confirm these findings. A nasogastric tube has been placed in ED and he feels a better. What other management principles could be employed? | , |
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| | View other drafts 🗸 | |
| +, | Here are some other management principles that could be employed in a patient with recurrent small bowel obstruction due to adhesions from previous surgery: | |
| | • Fluid resuscitation. This is important to maintain the patient's fluid volume and prevent dehydration. | |
| | • Electrolyte replacement. Electrolytes, such as potassium, sodium, and chloride, can be lost during an obstruction and need to be replaced. | |
| | • Nutritional support. The patient may need to be given IV fluids or enteral nutrition (feeding through a tube) if they are unable to eat or drink. | |
| | Pain management. The patient may need pain medication to relieve their discomfort. | |
| | Antibiotics. Antibiotics may be given if there is evidence of infection. | |
| | Surgery. If the obstruction does not resolve with conservative treatment, surgery may be necessary to lyse the adhesions. | |
| | The best approach to managing a patient with recurrent small bowel obstruction due to adhesions will vary depending on the individual patient's presentation and circumstances. It is important to work with a team of healthcare professionals, including a surgeon, to develop a treatment plan that is right for the patient. | |
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After being admitted to the surgical ward, he is feeling a lot better. Bloods have come back for this patient showing concern for potassium at 2.7 mM, chloride at 85 mM, and pH 7.60. What should I do now?

ChatGPT-4 output

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After being admitted to the surgical ward, he is feeling a lot better. Bloods have come back for this patient showing concern for potassium at 2.7 mM, chloride at 85 mM, and pH 7.60. What should I do now?

I'm not a doctor, but I can offer some general suggestions on what you might consider in this situation. It's important to consult with a supervising physician or specialist for proper guidance.

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The patient's laboratory results show hypokalemia (low potassium), hypochloremia (low chloride), and an elevated pH suggesting alkalosis. Here are some steps to consider:

- Assess the patient: Perform a focused physical examination to look for any signs of complications related to the electrolyte imbalances, such as muscle weakness, cramping, or cardiac arrhythmias.
- Review medications and medical history: Consider potential causes of these electrolyte imbalances, including medications, underlying medical conditions, or prolonged nasogastric suctioning.
- 3. Recheck laboratory results: To ensure accuracy, consider rechecking the patient's electrolyte levels and arterial blood gas (ABG) to confirm the findings.
- 4. Consult with a supervising physician: Discuss the patient's laboratory results and clinical condition with a supervising physician, who can provide guidance on appropriate management.
- 5. Electrolyte replacement: Under the guidance of a supervising physician, initiate appropriate electrolyte replacement therapy. In this case, potassium replacement should be done cautiously, as overcorrection can lead to complications. The choice of potassium salt, route, and rate of administration should be determined in consultation with the supervising physician.
- Address the underlying cause: Identify and treat the underlying cause of the electrolyte imbalances and alkalosis, which may include adjusting medications, optimizing fluid management, or treating an underlying medical condition.
- Monitor the patient closely: Regularly assess the patient's vital signs, clinical condition, and laboratory results to evaluate the response to treatment and identify any potential complications.

Remember, it is important to consult with a supervising physician or specialist for proper guidance in managing this patient.

BingAl output

| | After being admitted to the surgical ward, he is feeling a lot better. Bloods have come back for this patient showing concern for potassium at 2.7 mM, chloride at 85 mM, and pH 7.60. What should I do now? |
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| pH ¹ can can Treatr replace chlori | d on your description, it appears that the patient has low potassium and chloride levels and high . Low potassium levels can cause muscle weakness, cramping, and fatigue ² . Low chloride levels ause muscle weakness, twitching, or cramps ³ . High pH can be caused by metabolic alkalosis ⁴ . ment for low potassium levels may include oral potassium supplements or intravenous potassium cement ² . Treatment for low chloride levels may include oral chloride supplements or intravenous ide replacement ³ . Treatment for metabolic alkalosis depends on the underlying cause ⁴ . e this helps! |
| Learn | more: 1. medchunk.com 2. medchunk.com 3. my.clevelandclinic.org 3 of 20 • 4. bestpractice.bmj.com 5. healthline.com - see less |
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| × | After being admitted to the surgical ward, he is feeling a lot better. Bloods have come back for this patient showing concern for potassium at 2.7 mM, chloride at 85 mM, and pH 7.60. What should I do now? |
| | View other drafts $$ |
| +, | The patient's potassium level is low (hypokalemia), chloride level is high (hyperchloremia), and pH is high (alkalosis). These electrolyte abnormalities are likely due to the patient's small bowel obstruction, which can cause fluid and electrolyte losses. |
| | The following steps should be taken to manage the patient's electrolyte abnormalities: |
| | 1. Administer IV potassium chloride. The goal is to slowly raise the patient's potassium level to 3.5-5.0 mM. |
| | 2. Administer IV fluids. The goal is to replace the patient's fluid losses and correct their dehydration. |
| | Monitor the patient's electrolytes closely. The patient's electrolytes should be checked every 4-6 hours to ensure that they are not getting too high or too low. |
| | Treat any other underlying medical conditions. The patient may have other medical conditions that are contributing to their electrolyte abnormalities, such as diabetes or kidney disease. These conditions should be treated as well. |
| | It is important to monitor the patient closely for any signs of complications, such as heart arrhythmias, muscle weakness, or confusion. If the patient develops any of these complications, they should be treated immediately. |
| | With prompt and appropriate treatment, the patient's electrolyte abnormalities should resolve and they should make a full recovery. |

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A day has past, and he now feels significantly better. He still has not opened his bowels. Due to irritation for the nasogastric tube, he has pulled it out and refused to have it re-inserted.

He now also wants to eat. After trying to convince him that he should remain nil by mouth, he becomes aggressive and demands to leave the hospital. What should I do now? ChatGPT-4 output



A day has past, and he now feels significantly better. He still has not opened his bowels. Due to irritation for the nasogastric tube, he has pulled it out and refused to have it re-inserted. He now also wants to eat. After trying to convince him that he should remain nil by mouth, he becomes aggressive and demands to leave the hospital. What should I do now?



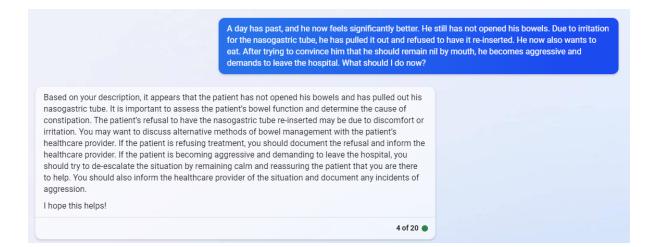
I'm not a doctor, but I can offer some general suggestions on what you might consider in \bigcirc \bigcirc this situation. It's important to consult with a supervising physician or specialist for proper guidance.

- Stay calm and empathetic: When a patient becomes aggressive or frustrated, it's essential to remain calm, professional, and empathetic. Acknowledge the patient's feelings and concerns and reassure them that their well-being is your top priority.
- Educate the patient: Clearly explain the reasons for the nil by mouth recommendation and the potential risks and complications associated with eating in his current condition. Help the patient understand that the measures in place are necessary for a successful recovery.
- 3. Involve the multidisciplinary team: Consult with your supervising physician, the nursing staff, and other members of the healthcare team to devise a plan to address the patient's concerns and ensure their safety. The team may suggest alternative approaches to manage the patient's condition, or they may involve a psychiatrist or social worker if there are underlying behavioral or mental health issues contributing to the patient's aggression.
- 4. Offer alternatives: If the patient is adamant about eating, discuss with your supervising physician whether there may be any alternatives, such as a clear liquid diet or a trial of oral intake under close monitoring. This approach should be guided by the patient's clinical condition and the supervising physician's recommendations.
- 5. Document the situation: Document the patient's refusal of the nasogastric tube and any other non-compliance with medical recommendations in the medical record. Include any steps taken to address the patient's concerns and the outcomes of those efforts.
- 6. Assess capacity: If the patient insists on leaving the hospital against medical advice (AMA), it's essential to assess their capacity to make that decision. If the patient is deemed to have the capacity to understand the risks and consequences of their decision, discuss the potential complications and have them sign an AMA form acknowledging their understanding.
- Develop a discharge plan: If the patient decides to leave AMA, work with the healthcare team to develop a discharge plan that ensures the patient has appropriate follow-up care and understands the warning signs that may warrant seeking immediate medical attention.

Remember, it is important to consult with a supervising physician or specialist for proper guidance in managing this patient.

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output



BARD output

A day has past, and he now feels significantly better. He still has not opened his bowels. Due to irritation for the nasogastric tube, he has pulled it out and refused to have it re-inserted. He now also wants to eat. After trying to convince him that he should remain nil by mouth, he becomes aggressive and demands to leave the hospital. What should I do now?

View other drafts

- Here are some things you can do:
 - Explain the risks of him leaving the hospital against medical advice. These risks may include:
 - His bowel obstruction could worsen.
 - · He could become dehydrated or malnourished.
 - · He could develop complications from his electrolyte abnormalities.
 - Reassure him that you are there to help him and that you want what is best for him.
 - · Encourage him to talk about his concerns and fears.
 - Work with him to develop a plan that he is comfortable with. This may include:
 - · Keeping him in the hospital for a few more days to monitor his condition.
 - Starting him on a clear liquid diet and gradually advancing his diet as tolerated.
 - · Administering pain medication to help him cope with his discomfort.
 - · Providing emotional support.

It is important to remember that the patient is an adult and has the right to make their own decisions about their care. However, it is also important to advocate for the patient's best interests. If the patient is determined to leave the hospital against medical advice, you should document the patient's wishes and the risks of leaving the hospital. You should also notify the patient's healthcare provider of the patient's decision.



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