

# the REPORTER

## CME: CASE CLOSED: MISSED DIAGNOSES

FAILURE TO RECOGNIZE AND DIAGNOSE  
COMPARTMENT SYNDROME

FAILURE TO MONITOR WARFARIN  
PRESCRIPTION



LONE STAR  
ALLIANCE  
A RISK RETENTION GROUP

Quarter 1, 2025



# CME: CASE CLOSED: MISSED DIAGNOSES

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*These closed claim studies are based on actual malpractice claims from Texas Medical Liability Trust. These cases illustrate how action or inaction on the part of the physicians led to allegations of professional liability, and how risk management techniques may have either prevented the outcome or increased the physician's defensibility. These studies have been modified to protect the privacy of the physicians and the patients.*

## OBJECTIVES

Upon completion of this educational activity, the learner should be able to:

1. describe the importance of communication between physicians, staff, and other members of the health care team to help avoid a missed diagnosis;
2. summarize protocols for following up with test results that may help patient outcomes;
3. discuss how thorough documentation can help to create safer patient outcomes; and
4. illustrate scenarios that can cause a missed diagnosis and how to avoid them.

## COURSE AUTHORS

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## DISCLOSURE

The authors of this activity have no relevant financial relationship(s) with ineligible companies to disclose. TMLT staff, planners, and reviewers have no relevant financial

relationship(s) with ineligible companies to disclose.

## TARGET AUDIENCE

This 1-hour activity is intended for physicians of all specialties who are interested in learning more about risk management techniques to help them increase patient safety protocols and avoid allegations of missed diagnoses.

## CME CREDIT STATEMENT

The Texas Medical Liability Trust is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The Texas Medical Liability Trust designates this enduring material for a maximum of 1 *AMA PRA Category 1 Credit(s)*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## ETHICS CREDIT STATEMENT

This course has been designated by TMLT for 1 credit in medical ethics and/or professional responsibility.

## TEST

To receive CME credit, physicians should complete the

test questions that follow the activity. A passing score of 70% or better earns the physician 1 CME credit.

## PRICING

The following fee will be charged when accessing this CME course online at <https://lonestara.inreachce.com>.

*Policyholders: \$10*

*Non-policyholders: \$75*

## INSTRUCTIONS

CME test and evaluation forms must be completed online. After reading the article, go to <http://lonestara.com>. Log in using your myPortal account information to take the course. Follow the online instructions to complete the forms and download your certificate. To create a myPortal account, go to [www.lonestara.com](http://www.lonestara.com), click the log in button, and follow the on-screen instructions.

## RELEASE/REVIEW DATE

This activity is released on March 17, 2025 and will expire on March 17, 2028.

Please note that this CME activity does not meet LSA's discount criteria. Physicians completing this CME activity will not receive a premium discount.

## INTRODUCTION

In providing quality health care, physicians bring a wealth of knowledge, training, expertise, and good will to every patient encounter. But circumstances can present undetected hurdles, such as insufficient patient history; patient noncompliance; poor documentation and communication between

caregivers; or system failures, such as scheduling delays or overcrowded facilities.

Of course, circumstances such as these may lead to symptoms or signs of disease or injury going unnoticed, undiagnosed, and untreated. According to a study of more than 350,000 paid medical

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liability claims included in the National Practitioner Data Bank, diagnostic errors generate more claim payments than any other medical error.<sup>1</sup>

This article focuses on strategies to specifically address missed diagnoses. A missed diagnosis can lead to an adverse ripple effect for a patient resulting in delayed or inappropriate treatment, worsening of the underlying condition, increased pain or suffering, psychological distress, life-threatening complications, reduced quality of life, or death.

Using closed claim studies based on actual malpractice claims from Texas Medical Liability Trust (TMLT), this article illustrates how actions or inactions on the part of physicians led to allegations of missed diagnoses and professional liability. Risk management techniques are offered after these studies that may help to prevent errors and increase a physician's defensibility in the event of a claim.

TMLT closed claim studies are written to protect the identities of patients and physicians. Names have been removed, dates have been changed, and other potentially identifiable elements have been altered.

Consultant opinions regarding the clinical care provided in these cases reflect recommendations at the time the incident occurred. In some cases, clinical guidelines may have changed, but the claim review presents a snapshot of what transpired during the course of treatment.

## **CASE STUDY 1: FAILURE TO DIAGNOSE THIAMINE DEFICIENCY**

### *Presentation and physician action*

On April 25, General Surgeon A performed a gastric band to gastric sleeve conversion on a 55-year-old man. The patient's medical history included chronic kidney disease (stage III or IV), diverticulitis, gout, hypothyroidism, and hypertension. The patient was 5'10" and weighed 430 pounds.

At the patient's first postoperative visit on May 18, he was doing well and reported he was consuming a liquid diet. He weighed 392 pounds. Labs drawn at the patient's next appointment on August 24 revealed that he had low magnesium, potassium, and thiamine (53 nmol/L; normal = 78 – 195 nmol/L). The

patient could not tolerate solid food and continued a liquid diet. He weighed 350 pounds.

On September 8, the dietician at General Surgeon A's practice reviewed the patient's lab results. In an email, he instructed the patient to take multivitamins and fish oil, and to see his primary care physician about his low iron values. The dietician included a sheet with the vitamin supplements he recommended that included B1 thiamine, but no specific dosage or frequency was indicated. General Surgeon A was not told about the patient's low thiamine level.

General Surgeon B performed a laparoscopic cholecystectomy on the patient on October 16. The patient weighed 267 pounds (total weight loss of 163 pounds) and reported consuming a full liquid diet since April.

The patient came to the ED of Hospital A on November 4 with generalized weakness and vomiting. The patient reported that he had been unable to eat solid food since April.

Here is a summary of the care the patient received at Hospital A.

**November 4** — Emergency Medicine Physician A documented vision unchanged, normal speech, and a normal neurological exam. Hospitalist A admitted the patient and planned to give IV fluids, electrolytes, and anti-nausea medication. The results of a brain CT revealed no hemorrhaging, mass effect, or acute infarctions.

**November 5** — The patient's potassium and magnesium returned to normal. His thiamine was not tested. The results of an abdominal CT were normal. The working diagnosis was pancreatitis.

**November 6-8** — Gastroenterologist A and Hospitalist B documented that the patient had normal speech and neurological status. The patient reported he was feeling better.

**November 9** — The patient had difficulty moving from the toilet to the bed. Lab results showed metabolic acidosis and respiratory alkalosis. The patient reported vision problems for the past two weeks, but indicated that a cornea transplant had been

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scheduled. Hospitalist A saw the patient and ordered a neurology consult for weakness and double vision.

**November 10** — Neurologist A examined the patient at 7 a.m. He ordered a brain MRI and a carotid artery ultrasound. Infectious Disease Physician A saw the patient and diagnosed sepsis and possible pancreatitis. He prescribed meropenem, which can cause dizziness and confusion.

**November 11** — Urologist A, Gastroenterologist A, and Infectious Disease Physician B saw the patient and noted he had weakness, slurred speech, and double vision. Citing mental status concerns, Infectious Disease Physician B changed the patient's antibiotic from meropenem to piperacillin and tazobactam.

The MRI — which had been ordered at 7 a.m. on November 10 — was done at 4:44 p.m. Radiologist A reported that the “medial thalami had increased signal intensity with mild restricted diffusion.” Her differential diagnoses included recent infarctions or a metabolic disorder like Wernicke's encephalopathy.

Neurologist B saw the patient at 5:40 p.m., and documented weakness, lethargy, subacute/chronic visual disturbances, and subacute bilateral medial thalamic strokes on MRI. He planned a brain MRA, an echocardiogram, and ICU admission. At 6:38 p.m. Hospitalist B ordered the patient transferred to another hospital.

**November 12** — At 7:30 a.m., Neurologist B noted the MRI differential of metabolic process, inflammation, infection, or malignancy with no significant intracranial atherosclerotic process on MRA. His chart review revealed no clear hypotension episodes or rapid sodium level shifts. Neurologist B documented that the family wanted the patient transferred.

While awaiting the patient's transfer, Hospitalist C was called at 11:30 p.m. The patient was more lethargic and less responsive with a sharp decrease in oxygen saturation. The patient was intubated at 11:55 p.m. Hospitalist C ordered a critical care consult.

**November 13** — A brain CT conducted at 12:32 a.m. showed no acute changes. Based on this result, Critical Care Physician A diagnosed Wernicke's encephalopathy at 1:45 a.m. She ordered STAT intravenous thiamine 500 mg.

The patient was transferred to Hospital B at 7:45 a.m., where he continued treatment with intravenous thiamine. After five days in Hospital B, he was discharged to a rehab facility with an inability to walk and cognitive deficits. Six weeks later, the patient was discharged home from inpatient rehab with a wheelchair, needing moderate assistance with activities of daily living. He continues to receive physical, occupational, and speech therapy.

### *Allegations*

A lawsuit was filed against General Surgeon A, Hospital A, Neurologists A and B, Hospitalists A and B, and Gastroenterologist A. The allegations were failure to recognize the signs of thiamine deficiency and failure to evaluate the patient's thiamine level and treat it with high-dose IV thiamine. This delay led to the development of Wernicke's encephalopathy and the patient's mental status confusion, dysarthria, and ataxia.

### *Legal implications*

This was a complicated case involving physicians from multiple specialties and early non-specific symptoms in a patient with significant comorbidities. Early in the case, the general surgeon's dietitian received and reviewed the lab results that indicated a low thiamine level, but these results were never communicated to the physician.

The physician consultants reviewing this case for the defense expressed mixed opinions about the actions of the defendants. Of significant debate was when the defendants should have suspected the patient had a thiamine deficiency.

One consultant expressed that the physicians should have suspected a thiamine deficiency; stopped the dextrose; and started thiamine on the afternoon of November 11, when the patient had developed slurred speech and a facial droop. The MRI results also came back reporting damage consistent with Wernicke's encephalopathy.

However, this same consultant observed that not every member of the care team may have been aware of all symptoms and conditions that could suggest a thiamine deficiency such as a history of bariatric surgery, chronic vomiting, and increasing neurological deterioration.

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Another consultant said it was unclear whether starting thiamine on November 10 or 11 would have changed the outcome. Noting that if the patient's thiamine deficiency began in September, starting thiamine on November 10, 11, or 12 would not have reversed the patient's neurological damage, weakness, and vision problems from the thiamine deficiency nor stop the disease progression.

The plaintiff's experts disagreed, stating, "Any patient presenting with a 200-pound weight loss in 6 months, nausea, vomiting, poor oral intake, and profound weakness must be considered at nutritional-deficit risk. A high suspicion index for thiamine deficiency is required, prompting a thiamine level check and empiric high dose thiamine administration followed by daily supplementation. This can prevent or reverse Wernicke's morbidity."

### ***Disposition***

This case was settled on behalf of Hospitalists A and B, Neurologist A, and the general surgery practice. Hospital A also contributed to the settlement.

## **CASE STUDY 2: FAILURE TO TIMELY DIAGNOSE AND TREAT DEEP VEIN THROMBOSIS**

### ***Presentation***

On April 7, a 63-year-old woman was admitted to Hospital A for a cardiac catheterization with angiography and coronary stent placement. This catheterization was due to chronic total occlusion of the right coronary artery. Three other stents had been placed in the patient's heart within the last two months.

The patient had a history of atherosclerotic cardiovascular disease, hypertension, heart failure with preserved ejection fraction, mitral insufficiency, COPD, migraine headaches, obesity, and smoking for 25 years. Her surgical history included a knee replacement and shoulder surgery within the last five years.

### ***Physician action***

That morning, Cardiologist A completed the catheterization through the patient's right groin area. During the procedure, a percutaneous stick was made into the patient's right femoral artery.

Post surgery, a CT of the abdomen and pelvis revealed extensive intraperitoneal fluid, compatible with blood, throughout the deep pelvic peritoneum along the right femoral/iliac artery. A soft tissue CT showed inflammation within the right groin and a small hematoma.

Cardiologist A transferred the patient to the ICU for hemoglobin and hematocrit (H&H) monitoring. Gradually, the patient's overall condition improved, and Cardiologist A discharged the patient on April 11, with instructions to follow up.

Five days later, the patient returned to Hospital A's emergency department (ED) with pelvic pain radiating to both legs, urinary incontinence, abdominal pain, and shortness of breath. A CT scan revealed an enlarged hematoma in the pelvis that was pressing on the bladder.

When contacted by the ED, Cardiologist A indicated he was aware of the pelvic hematoma and suggested the patient be sent to Hospital B for admission, telemetry, and a surgical consult.

Upon arrival at Hospital B early on April 17, Internal Medicine (IM) Physician A documented that the patient had undergone cardiac catheterization with stent placement 10 days before; developed a retroperitoneal needle bleed; and was given two units of blood. Upon examination, the patient's abdomen was soft and mildly distended with lower abdominal tenderness on palpation. IM Physician A's assessment included pelvic hematoma, hypertension, coronary artery disease, and anemia.

A D-dimer test was positive with a high level at 5,000. (Normal rate is between 0 – 999.) The patient's creatinine level was also elevated. A CT of the abdomen showed a large pelvic hematoma.

The patient was transferred to the ICU for medication management and H&H monitoring. Consults with cardiovascular surgery and cardiology were also ordered. IM Physician A opted to wait for the surgical consult before ordering additional treatment, including anti-platelet therapy.

Cardiologist A came to Hospital B and evaluated the patient in the ICU. The physician documented that the patient's postoperative recovery was complicated

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by bleeding into the peritoneum due to failure of the vascular closing device and a probable high stick in the setting of a very scarred groin.

On April 18, the patient's H&H stabilized, and no problems were noted overnight. Cardiologist A restarted the patient's anti-platelet therapy, with the patient given aspirin and clopidogrel 75 mg. A new CT revealed no active bleeding.

On April 19, a CT with contrast revealed a pseudoaneurysm associated with the right common femoral artery and a large pelvic hematoma without significant change. Cardiologist A requested a consult with vascular surgery. A possible down-grade in telemetry status was planned for the next day.

On April 20, a Doppler ultrasound of the patient's right leg revealed a right pseudoaneurysm that appeared to originate from the common femoral artery. Internal echoes were suspect for non-occluding thrombus.

That day, Cardiothoracic Surgeon A took the patient to surgery and performed a right common femoral artery exploration with arteriorrhaphy.

The operative report noted that after further dissection of the superficial femoral artery, a bifurcation was discovered. Dissection was taken up to and under the inguinal ligament. No significant hematoma was found below the inguinal ligament, but it appeared to track proximally along the vessels.

Post surgery, the patient was given nicardipine due to a slight drop in blood pressure and her H&H continued to be monitored.

On April 21, Cardiologist A noted the patient's groin was better and deferred management of the pelvic hematoma to Cardiothoracic Surgeon A. Anti-platelet therapy was on hold pending clearance by the surgical team. Later that day, Cardiothoracic Surgeon A felt the patient was improving and recommended ambulation; with discharge within the next 24 to 48 hours.

At approximately 9:20 p.m., the patient's heart rate became elevated. A nurse practitioner ordered metoprolol 5 mg IV and instructed that cardiology be notified if the heart rate remained elevated.

Cardiologist B was contacted on April 22 at 12:50 a.m.

At 2 a.m. on April 22, Cardiologist B arrived at the hospital and ordered a 500 ml bolus of 9 percent sodium chloride, stat CBC, continuous infusion of diltiazem IV, and a normal saline maintenance infusion for hypertension.

Later that morning, the patient's pulse was 110 and blood pressure was 120/90 mmHg. Hospitalist A felt the patient was at risk for possible deep vein thrombosis (DVT) secondary to pelvic hematoma and ordered sodium chloride and an ultrasound duplex of the lower leg bilateral vein. Radiologist A interpreted the ultrasound as normal.

That day, Cardiologist B saw the patient who said that she was feeling better and wanted to go home. Cardiologist B documented the patient's request along with the following progress notes:

- beta blocker therapy started with verapamil and metoprolol to treat tachycardia;
- IV fluids to be administered if blood pressure drops;
- resume dual anti-platelet therapy, with aspirin and clopidogrel; and
- continue H&H monitoring with possible discharge the next day.

On April 23, the patient was discharged by Hospitalist A. The discharge summary noted that her pulse had become more controlled; vital signs were more stable; and no swelling in the legs. The patient was instructed to monitor her heart and blood pressure at home.

That afternoon, the patient experienced shortness of breath and called 911. EMS arrived at her home at 4:10 p.m. to find the patient in cardiopulmonary arrest and unresponsive with no pulse. The patient died.

The cause of death was listed as pulmonary artery thromboembolism due to a blood clot in the right lung, with secondary contributing factors of atherosclerotic and hypertensive cardiovascular disease.

### *Allegations*

A lawsuit was filed against Cardiologists A and B, IM Physician A, Radiologist A, and Hospitalist A alleging failure to timely diagnose and treat DVT, leading to pulmonary embolism (PE), cardiopulmonary arrest, and death. Additional allegations included:

- failure to treat with thrombolytic agents;
- inappropriate use of medications to slow down heart rate;
- inappropriate use of antibiotics to treat radiographic infiltrate instead of recognizing a finding of PE; and
- inappropriate discharge of patient with undiagnosed and untreated DVT and PE.

### **Legal implications**

Expert consultants for the defense expressed mixed opinions. More than one consultant stated that due to the thrombus identified on the April 20 ultrasound, an inferior vena cava (IVC) filter should have been placed to prevent a potential PE. They were also critical of the limited documentation in the patient's chart about the thrombus found in the ultrasound and the absence of a plan to address it.

In the patient's records, there were conflicting notes about whether the patient wanted to be discharged. The hospitalist's April 22 note stated the patient wanted to go home, but developed tachycardia overnight. The note was then amended to state "the patient did not want to go home." Three days later, after the patient's death and autopsy, the hospitalist dictated an additional addendum stating that there were "technical difficulties" with the previous addendum, and that it was supposed to say the patient had been wanting to go for several days, but that the hospitalist managed to convince her to stay. Two days later, an additional addendum was made striking through the statement on April 22 that the patient did not want to go home.

A pathology expert agreed that the cause of death was pulmonary thromboembolism. However, this expert felt the thrombus formed between 6 and 24 hours before the patient's death. The thrombus was acute and would more likely have originated within deep veins or pelvic veins, not a superficial femoral vein.

Plaintiff's experts were most critical of IM Physician A. They felt the April 20 ultrasound results, along with the patient's shortness of breath, tachycardia, and pulmonary imaging findings were all consistent with DVT. They argued that IM Physician A failed to recognize these symptoms, diagnose a DVT, and treat the patient.

### **Disposition**

This case was settled on behalf of the physicians in this case.

## **CASE STUDY 3: FAILURE TO DIAGNOSE GASTROINTESTINAL BLEEDING**

### **Presentation**

On September 4, a 79-year-old man came to the emergency department (ED) with low blood pressure and reports of dizziness and shortness of breath for the past 48 hours. The patient had a history of hypertension, hyperlipidemia, asthma, gastroesophageal reflux disease, type 2 diabetes, benign prostatic hyperplasia, chronic kidney disease, gout, and prostate cancer.

### **Physician action**

Initially, the patient was given antibiotics for septic shock. However, the shock diagnosis was ruled out due to lack of evidence of infection and the treatment was discontinued. Due to the patient's persistent symptomatic hypotension and significant bradycardia, he was taken to the cath lab for placement of a temporary transvenous pacemaker. He was intubated due to acute respiratory failure, given heparin for anticoagulation, and moved to the ICU.

The next day, the ED physician had a conversation with the patient's family about the patient's current critical care status, multiple organ failure, possible septic shock, acute renal failure, and need for pacing and dialysis. After this discussion, the family decided to assign a "Do Not Resuscitate (DNR)" order for the patient.

A few days later, the patient's temperature rose to 101.1 degrees, and Nurse Practitioner A ordered acetaminophen as well as breathing treatments for wheezing.

At 8 p.m. on September 12, a hospitalist started a new septic work up due to the patient's hypotension, fever, and elevated white blood cell count. The orders included norepinephrine for low blood pressure, intravenous fluids, antibiotics, labs, and blood cultures.

At 10 p.m., Nurse Practitioner B told the hospitalist that the patient's bowel movement was loose, bloody, and black. The hospitalist ordered a fecal occult

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blood test (FOBT) and continuation of the current treatment.

Records show three notes between 2 and 4 a.m. from Nurse Practitioner B with results of the patient's FOBT being positive.

At 5 a.m., Nurse Practitioner B alerted the hospitalist that the patient had reached the maximum strength limit for levofloxacin; the physician gave oral orders to start vasopressin. The patient's condition worsened: fluctuations in pulse and respirations and falling blood pressure.

At 5:30 a.m., the lab called the hospitalist with reports of a critically low hemoglobin of 4.6. At that time, the hospitalist became aware of the patient's positive FOBT. She stopped the heparin treatment and ordered two units of packed red blood cells and a blood transfusion. Before the blood products could be given, the patient went into asystole and died. No resuscitative measures were initiated as the patient was under a DNR order.

### *Allegations*

The patient's family filed a lawsuit against the hospitalist alleging failure to order appropriate labs and failure to recognize a medical emergency with active gastrointestinal (GI) bleeding.

### *Legal implications*

During her deposition, the hospitalist stated that on the night of September 12, she expected to have been directly notified about the positive FOBT. Had she been called at 2:00 a.m. about it, she would have stopped the heparin drip and would have ordered the labs.

Experts for the defense were mostly supportive of the hospitalist's care. In their opinion, one occurrence of melena, without additional symptoms, does not definitively indicate an active GI bleed. Additionally, they would expect the nursing staff to notify the hospitalist of any urgent test results in a timely manner.

However, one consultant for the defense was more critical, stating that the possibility of a GI hemorrhage was not recognized and addressed promptly.

The plaintiff's expert said that the failure to order appropriate labs to evaluate the hemoglobin concentration delayed the appropriate management of hemorrhagic shock for as long as 6 to 8 hours. This consultant also stated that the patient was showing signs of shock before the melena occurrence and that hospitalist failed to recognize a medical emergency. The plaintiff's expert was also critical of the nursing staff for failing to communicate the patient's FOBT results.

### *Disposition*

This case was settled on behalf of the hospitalist.

## **CASE STUDY 4: FAILURE TO DIAGNOSE LIVER FAILURE**

### *Presentation*

On June 9, a 60-year-old woman came to her primary care physician's office with reports of abdominal pain and fullness, diarrhea, nausea, and vomiting for 10 days. She also reported watery and bloody stools.

The patient's medical history included coronary artery disease, dyslipidemia, hypertension, pre-diabetes, obstructive sleep apnea, attention deficit disorder, and postoperative right leg deep vein thrombosis. The patient's medications were atorvastatin, venlafaxine, losartan, mirtazapine, lisdexamfetamine, and aspirin.

### *Physician action*

A physician assistant (PA) saw the patient and documented that she had normal conjunctivae and white sclerae, a non-tender abdomen with normal tone and no masses present, no hepatomegaly, and a non-tender spleen or liver.

The patient's lab work showed abnormal liver test results: total bilirubin 12.9 (normal < 1.2); alkaline phosphatase 191 (normal 46 – 118); ALT 1779 (normal 5 – 50); and AST 1476 (normal 9 – 50). The patient's creatinine was normal at 0.98.

After discussing options, the primary care physician and PA decided to obtain a viral hepatitis panel and CT scan of the patient's abdomen without contrast. However, the CT scan was performed with contrast and revealed a "mildly distended gallbladder wall, no acute process, malignancy, obstruction noted." The hepatitis panel was negative for acute hepatitis A and

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B. The patient was diagnosed with gastroenteritis and prescribed ciprofloxacin for 10 days.

On June 16, the patient returned with worsening symptoms. She was seen again by the PA, who noted the patient said she felt like her body was “shutting down” and was in “obvious distress.” The patient’s conjunctivae were yellowish, her sclerae were white, and the PA noted jaundice and abdominal tenderness and protuberance. After noting elevated liver enzymes and biliary obstruction, the patient was referred to a local emergency department (ED) with a triage report to the on-call emergency medicine (EM) physician.

The EM physician examined the patient and noted icteric sclerae and right upper quadrant abdominal tenderness. Additional lab work showed worsening liver test results; the test showed 1.5 creatinine (normal 0.6 – 1.3) and hyponatremia with a serum sodium of 129 (normal 136 – 145).

An abdominal ultrasound showed heterogenous liver parenchyma and non-specific gallbladder wall thickening. The primary impression was acute new onset biliary obstruction. The EM physician requested a gastroenterology consult.

An intake hospitalist noted the possibility of non-viral hepatitis and ordered a workup for autoimmune hepatitis; acute hepatitis B and hepatitis C; and acetaminophen/alcohol levels, after consulting with a gastroenterologist. Once the reports were returned, the hospitalist documented the absence of acetaminophen use, and her recommendation that if the patient’s liver function worsened, a liver transplant center should be contacted.

On June 17, the patient had worsening coagulopathy, increased creatinine at 3.88, and encephalopathy. The gastroenterologist contacted a liver transplant center. While awaiting transfer, a workup was done including magnetic resonance cholangiopancreatography, hepatitis B and C PCR, and acetaminophen levels. Anti-nuclear and anti-mitochondrial antibodies returned negative.

On June 18 at 2:30 p.m., the patient was transferred to receive a liver transplant. The delay was due to bed availability issues. After she was admitted, the plan was to consult the liver transplant center and continue supportive care, but there was no

documentation that this consultation occurred.

On June 19, the patient died from cardiac arrest. According to the pathology report, the cause of death was sub-massive hepatic necrosis resulting in clinical hepatic failure.

### *Allegations*

A lawsuit was filed against the primary care physician and physician assistant. Allegations included failure to quickly respond to abnormal lab values and failure to refer the patient to a liver specialist.

### *Legal implications*

Consultants who reviewed this case stated that when the patient first came to the physician on June 9, the patient’s high bilirubin values would have caused her to look jaundiced. After the abnormal lab results came in, the patient should have immediately been referred to an acute care hospital. Instead, an evaluation was conducted with a viral serology and CT scan, and the patient was sent home.

However, these consultants believed that even if the patient had been admitted to an acute care hospital on June 9, there was no guarantee that a liver transplant could have occurred quickly enough to save the patient. The treating gastroenterologist at the transplant center said the patient was very ill when she arrived; there were 13,000 people on the transplant list; and there was no way to quickly determine when the patient could be prioritized for surgery.

The gastroenterologist thought the week the patient spent at home eliminated her chance of survival and agreed that the patient would have benefitted from being admitted on June 9 to an acute care hospital for specialized care.

Consultants for the plaintiff addressed the possibility of drug toxicity. One consultant believed that discontinuing the patient’s meds would have saved the patient, but another consultant stated the autopsy report did not provide the cause of liver failure, so drug toxicity could not be determined. This consultant believed a liver transplant was required due to the patient’s advanced liver failure.

A gastroenterologist reviewing the case for the plaintiff felt the primary care physician and the PA did not comprehend the serious nature of the

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patient's illness, and the lab results clearly indicated one of the following: autoimmune hepatitis, ischemic hepatitis, or acute or reactivation viral hepatitis.

### *Disposition*

The lawsuit was settled on behalf of the primary care physician and physician assistant.

## **RISK MANAGEMENT CONSIDERATIONS**

The cases in this article describe how comprehensive documentation, rigorous follow up, increased communication between providers, and improved communication with patients could have all led to better outcomes.

The following are some practical risk management considerations to help reduce the risk of a missed diagnosis.

### *Comprehensive documentation*

Medical documentation serves as both a clinical tool and a legal record. Accurate, complete, and contemporaneous documentation can be your best defense in the event of a claim. It also helps prevent errors by ensuring critical information is recorded in the patient record and accessible to all treating physicians, providers, and health care staff.

Document all relevant positive and negative findings from the patient history, physical exam, and tests — even those that may seem minor at the time. Include your reasoning, list of possible differential diagnoses, and why you ruled out certain conditions. Doing so creates a clear record of your thought process and helps you identify any gaps in your own reasoning that could lead to a missed diagnosis.

When documenting a treatment plan, specify what developing conditions or reactions may require a change in the plan. For example: "If headaches worsen or new symptoms develop, obtain neurology consult." This creates clear directions for you and for additional physicians and staff members.

Consider using templates in your electronic health record (EHR) system that prompt you to address key clinical considerations for concerning symptoms. However, take care to customize the templates for each case and avoid relying on auto-populated fields. Review and update all pre-populated template data

to ensure accuracy for the specific patient, procedure, or other case details.

Document all patient communications and instructions, including prescriptions, follow-up plans, and your patient's understanding of these instructions. Document what you told the patient about their condition, what symptoms to be concerned about, and when and how to seek immediate care. This helps ensure clear communication and creates a record of the information and guidance provided to the patient.

Consider documentation protocols an ongoing "work in progress." If applicable, collaborate with colleagues to continually review and develop safety protocols for specific conditions. This may include requiring certain documentation or mandatory follow-ups for certain high-risk symptoms, conditions, or test results.

### *Follow-up systems*

Establish robust systems to track test results and ensure appropriate follow up. Urge patients and staff members not to assume "no news is good news" when it comes to test results. In so doing, a missed diagnosis may result. Failure to track test results may also create an impression of the physician being complacent or indifferent to a patient's follow up, and may be difficult to defend in the event of a claim.<sup>2</sup>

Establish and closely follow a process for reviewing all test results and document your review. Your EHR likely includes features to help you "flag" results that require follow up or emergent action.

Include policies for following up on inconclusive results. Along with the test result data, document your interpretation of the results within the context of the patient's condition and history. Consider how these inconclusive results either correspond with or conflict with your working diagnosis.

Maintain a system to track patients who need consistent testing or who consult with a specialist. Assign staff members to closely monitor these patients and to contact those patients who miss appointments. Document all follow-up attempts with the patient. Consider adopting a more urgent system for contacting patients with serious conditions who miss follow-up appointments.

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For a potential high-risk diagnosis or concerning symptoms, schedule a follow-up visit before the patient leaves the office. Give written instructions about when to return and what changes in the patient's condition should prompt the patient to be seen sooner.

### ***Physician-physician communication***

Effective handoffs and transitions of care are critical for continuity of care and preventing diagnostic errors. When transferring care, provide updated information about a patient's history, diagnosis considerations, pending test results, medications, and lab work. Include any specific concerns that you may have that require follow up or attention.

Consider using checklists or work logs for the handoff process, to ensure critical information is provided to the physician taking over the patient's care. Review and update the handoff process, as needed, to help maintain its effectiveness and address any gaps or concerns.

When consulting a specialist, include your questions and concerns about the patient's condition. This will help the specialist identify any issues you want addressed and your reasoning for the consult.

Provide the most comprehensive patient history possible, along with exam findings and test results. Consider communicating directly (face-to-face, phone call, HIPAA-compliant text message) with specific concerns or more complicated cases.

Create clear protocols for communicating critical test results between providers, including method of communication, number of attempts before moving on to a back-up provider, and what to document. Establish a system or process that ensures all providers evaluating and treating a patient have access to key clinical information, the patient record, and any pending lab results or diagnostic tests.

### ***Physician-patient communication***

Engage patients as active partners in the care plan. Clearly and plainly explain what conditions you are considering and any plan to rule out the more dire possibilities first. Be transparent with the patient about a diagnosis, including uncertainty.

"The working diagnosis should be shared with the patient, including an explanation of the degree of

uncertainty associated with a working diagnosis. Each time there is a revision to the working diagnosis, this information should be communicated to the patient." Explain that diagnoses may evolve as more information becomes available.<sup>3</sup>

Listen carefully to patient questions and concerns about their symptoms and possible diagnoses. Document their concerns and your responses. Provide specific guidance about what symptoms or changes should prompt the patient to seek further care. Give your instructions both orally and in writing. Document that this information was provided to the patient.

An article in *Diagnosis* argues that physicians and other health care professionals may put too much emphasis on diagnostic testing to form a quick diagnosis. However, an accurate diagnosis still "remains fundamentally dependent on a personal interaction of a doctor with a patient, the sufficiency of communication, the accuracy of the patient's history and physical examination, and the cognitive energy necessary to synthesize a vast array of information."<sup>4</sup>

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# FAILURE TO RECOGNIZE AND DIAGNOSE COMPARTMENT SYNDROME

by Wayne Wenske, Senior Marketing Strategist

*This closed claim study is based on an actual malpractice claim from Texas Medical Liability Trust. This case illustrates how action or inaction on the part of the physicians led to allegations of professional liability, and how risk management techniques may have either prevented the outcome or increased the physician's defensibility. This study has been modified to protect the privacy of the physicians and the patient.*

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## PRESENTATION

On August 4, a 39-year-old woman came to Hospital A for induction of labor due to Rh isoimmunization and polyhydramnios. The patient was at 37 weeks' gestation and her expected due date was August 18. The patient had a history of hypertension and uterine fibroids, and she had a BMI of 44.5.

## PHYSICIAN ACTION

Upon admission, the patient became increasingly argumentative with her obstetrician-gynecologist (ob-gyn) regarding treatment recommendations and care. She refused blood work-up and medication to treat her hypertension, even though her blood pressure was 170/90 mmHg the previous day.

The patient's cervix was described as "unfavorable" at the time of induction. She was counseled on the need for a cesarean delivery if her cervix remained unchanged or if fetal indications required one. The patient refused the idea of a cesarean delivery unless there were fetal complications.

On August 5, the patient went into labor and became tachycardic, with a deceleration of the fetal heart rate to the 60s. The patient passed out and was taken to the OR for an emergency cesarean delivery.

While in the OR, the patient went into a ventricular tachycardia cardiac arrest. She was given epinephrine, calcium bicarbonate, and was intubated. An IV was found to be infiltrated and then restarted. A boy was delivered and taken to the neonatal intensive care unit (NICU).

While the ob-gyn was closing the patient's uterine incision, the patient was noted to be hemorrhaging vaginally and oozing from IV sites. A coagulation assessment showed signs of disseminated intravascular coagulation (DIC), secondary to a possible amniotic fluid embolism.

The patient was started on vasopressors and a massive blood transfusion protocol was ordered. As she was still hemorrhaging vaginally, an intrauterine balloon tamponade device was also placed and distended with 400 ccs of saline. She remained stable for several hours in the OR, and was transferred to the ICU.

The patient's blood pressure was 135/69 mmHg. Her lab studies revealed severe coagulopathy. The transfusion protocol was continued in the ICU, as the patient continued to bleed from the abdomen, vagina, and mouth. The patient also experienced acute respiratory failure and acute renal failure. The ob-gyn's documented care plan was to continue the vasopressors and full ventilator support and to repeat lab studies to manage her acute respiratory failure.

A critical care physician monitored the patient in the ICU and documented that she remained coagulopathic. No cyanosis or edema was observed in her arms and legs. The physician noted the patient was "very critically ill" and her prognosis was grave.

The patient's condition deteriorated and she was taken to the OR for an exploratory laparotomy to evacuate blood and to identify and address any sources of bleeding.

During the procedure, the ob-gyn found 850 ml of fresh blood and clots in the abdominal cavity, although no definite bleeding vessels were identified. The clots were evacuated, but the patient continued to bleed. She underwent an evacuation of the hemoperitoneum, supracervical hysterectomy, left salpingo-oophorectomy, and right salpingectomy. Post surgery, the patient's lower abdominal incision and vaginal cavity continued to ooze blood, and her left hand became swollen and taut.

For the next few days, the patient remained in the ICU on a ventilator. She was given additional blood transfusions, IV fluids, fentanyl for pain, and metoprolol. Eventually, her DIC, bleeding, and breathing improved, but her high blood pressure persisted. She remained intubated. The ob-gyn documented concern for a "left hand DVT with several bullous lesions." The left thumb and index fingertip were noted as looking "purplish" and swollen.

By August 10, the patient's bleeding had stopped and her DIC and renal failure had improved, though she remained intubated. She was treated for an open and oozing blister on her left hand. A physical exam that evening showed 1+ edema in her arms and legs, along with a deep vein thrombosis (DVT) and blisters on her left arm.

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Three days later, the patient was extubated. A chest x-ray revealed basilar atelectasis, with no evidence of acute pulmonary infiltration.

A wound care consultant examined the patient's left hand and noted that the infusion of vasopressors resulted in blister formation on her left hand.

On August 15, nursing staff documented that the patient's left hand was "black with blisters" and her IV site was leaking fluid. Left radial brachial pulses were palpable, and she denied having any pain. An ultrasound of her left arm showed flow to the wrist from both the radial and ulnar arteries.

A vascular surgeon evaluated the patient's arm and documented that the blistering began after the vasopressors were reduced. He noted swelling and that her left hand had blistering, no movement, limited gross sensation, and had contracted into a claw formation. The blistering extended to her wrist, and her distal forearm was swollen to the elbow.

The vascular surgeon documented that compartment syndrome had developed at least three to five days earlier. His plan was to perform a decompressive fasciotomy of the hand and forearm the next day. He further noted that the procedures were not required emergently as "whatever damage [as a result of compartment syndrome] is done and is irreversible."

This is the first note of compartment syndrome in the patient's record.

Early on August 16, the patient reported intense pain (9/10) in her left arm. The vascular surgeon performed a four-compartment fasciotomy on her left forearm, a fasciotomy of the five digits on her left hand, and a fasciotomy of the left hand. The surgeon planned to close the wounds in five to 10 days, after the swelling had gone down. Enoxaparin sodium was given to treat the DVT.

A week later (August 23), the vascular surgeon performed an exploration and debridement of the patient's left hand and arm. Significant ischemic change was seen in the hand and wrist, and he noted that the hand might require amputation. He completed a partial complex closure of the proximal left forearm wound.

A plastic surgeon was consulted for a second opinion and agreed that significant ischemic change was present and consistent with compartment syndrome. The plastic surgeon noted that the ischemic change was consistent with compartment syndrome/reperfusion injury and that the patient's left-hand digits, hand, and wrist were not salvageable.

On September 2, the plastic surgeon performed a left trans-radial amputation using a wound vacuum-assisted closure (VAC). The amputation was intended to prevent sepsis and osteomyelitis and to preserve the remainder of her left arm.

After surgery, the patient attended physical and occupational therapy. She was discharged on September 24 with an at-home wound VAC.

## **ALLEGATIONS**

The patient filed a lawsuit against the ob-gyn and critical care physician for failure to recognize the signs and symptoms of compartment syndrome and order a consultation with a vascular surgeon in a timely manner. It was alleged these failures led to the patient's left hand being amputated.

## **LEGAL IMPLICATIONS**

Overall, expert consultants for the defense were supportive of the care provided in this case. These consultants agreed that the diagnosis of acute compartment syndrome (ACS) is often difficult and was even more difficult in this case. To diagnose ACS, the providers must suspect ACS based on certain risk factors, including:

1. leaking of fluids through an IV on the affected side (left in this case);
2. pain;
3. a tense, firm compartment;
4. paresthesias and decreased sensation; and
5. weakness.

These risk factors were not known due to the patient's sedation, obesity, and use of propofol and fentanyl. In addition, when the patient arrived in the ICU, all fluids were being administered through a right-side internal jugular central venous catheter.

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There was concern that the vascular surgeon did not see the patient until 24 hours after the consult was ordered. An earlier consult may have led to a quicker diagnosis and prevented loss of the patient's hand. The patient record was unclear about when the consult was ordered and when symptoms of compartment syndrome first appeared.

A vascular surgeon who reviewed this case stated that it can be difficult to distinguish between the early symptoms of compartment syndrome and pressor-induced ischemia. However, this consultant said the care team should have been watching for development of compartment syndrome because of the patient's swollen, taut, and discolored hand.

The plaintiff's experts argued that the vascular surgery consult should have been ordered on August 10 instead of a wound consult. If the vascular surgery consult had occurred earlier, they believe the compartment syndrome could have been diagnosed and the hand amputation avoided.

## **DISPOSITION**

This case was settled on behalf of the ob-gyn and critical care physician.

## **RISK MANAGEMENT CONSIDERATIONS**

In this case, the defendant physicians argued that the failure to recognize the patient's compartment syndrome had more to do with placing priority on saving the patient's life over treating a complication, however serious. Yet, this case contained issues with incomplete documentation when it came to observing symptoms and delays in attaining specialist consultation.

By seeking consultations in a timely manner, a physician gains a specialist's expertise and focused perspective. In this case, had the ob-gyn sought a consult with the vascular surgeon shortly after the patient's August 5 hysterectomy, the patient's symptoms may have been treated and the compartment syndrome and eventual amputation avoided.

Clear, contemporaneous documentation helps to ensure that critical data is not lost between providers. Together, timely consults and comprehensive

medical records, that are accessible by the entire care team, can help catch potential diagnostic errors or oversights before they negatively affect patient outcomes.



CLOSED  
CLAIM  
STUDY

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# FAILURE TO MONITOR WARFARIN PRESCRIPTION

by Wayne Wenske, Senior Marketing Strategist

*This closed claim study is based on an actual malpractice claim from Texas Medical Liability Trust. This case illustrates how action or inaction on the part of the physicians led to allegations of professional liability, and how risk management techniques may have either prevented the outcome or increased the physician's defensibility. This study has been modified to protect the privacy of the physicians and the patient.*

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## PRESENTATION AND PHYSICIAN ACTION

On February 25, a 51-year-old woman came to see an internal medicine (IM) physician for a new patient visit and to refill her existing prescriptions. At this visit, the patient saw an advanced practice registered nurse (APRN).

The patient reported having mitral valve replacement surgery with a mechanical valve two years before and that she was taking warfarin daily. For nine months after surgery, the patient followed up with a cardiologist for prescription management and INR checks. At her last visit with the cardiologist, her INR was 2.1. She was taking warfarin 7.5 mg on weekend days and 5 mg on weekdays.

The patient's history included hypertension, prediabetes, hyperlipidemia, extreme obesity, and excessive smoking (approximately 2.5 packs of cigarettes daily). The patient also had a sedentary lifestyle and was inconsistent with having her INR levels checked.

The APRN refilled the patient's prescriptions of furosemide 40 mg (30 tablets); potassium chloride 20 mEq (90 tablets); sotalol 80 mg (30 tablets) and warfarin 5 mg (90 tablets). The patient's INR — which was tested in the office — was 1.0.

There was no record that the IM physician was notified of this test result and no adjustments were made to the patient's warfarin regimen.

On August 10, the patient returned to the IM physician for a physical exam required by her employer. On the employer's form — which was to be verified by the physician — the patient did not include the mitral valve replacement nor the warfarin prescription. The IM physician signed off on the form.

The patient returned to the IM physician's office twice between August 10 and April 28 of the following year. At each of these visits, her warfarin prescription was refilled with a note in the patient record: "Blood sent to lab." However, the specific labs, tests ordered, and test results were not documented. Documentation did not include formal visit summaries or plan of care.

On May 15, the patient experienced slurred speech and paralysis of the right arm and leg while at work

and was taken to a local emergency department (ED) where her INR was measured at 1.4.

She was diagnosed with a large left middle cerebral artery acute infarction. Her ejection fraction was 20 to 25 percent. The patient was discharged on June 5 with a wearable cardioverter defibrillator.

## ALLEGATIONS

The patient filed a lawsuit against the IM physician and the APRN for failure to monitor anticoagulation levels while prescribing warfarin, resulting in an acute ischemic cerebrovascular accident (CVA).

## LEGAL IMPLICATIONS

Expert consultants for the defense were not supportive of the defendants' actions. The concerning issue was that no one was monitoring the patient's INR — including the patient. They all believed that the patient's CVA may have been avoided had more attention been given to her history, physical condition, and noncompliance with regular INR checks.

At minimum, these consultants stated that the patient should have been closely monitored with monthly INR checks if levels are in range or every two weeks if levels are not in range, with adjusted dosing as needed.

More than one consultant pointed out that mechanical heart valves, such as the one the patient has, are prone to clots if blood is not properly anticoagulated.

These consultants also believed that the patient held some responsibility for the outcome. They stated that her lack of attention to modifying her behaviors (diet, smoking, physical activity, failure to obtain regular INR checks) put her at risk of either a thrombotic/embolic event, bleeding episode, or sudden cardiac death irrespective of her INR level at the time of the CVA.

The plaintiff's consultants stated that the defendants failed to monitor the patient's INR values and manage her warfarin medication respective to those levels. Specifically, failures occurred in not ordering and following up with routine lab work

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before authorizing refills. There were also failures in communication and documentation resulting in the IM physician not being aware of testing or results.

They also criticized the IM physician for not properly delegating medical acts performed by the APRN and for signing off on the patient's employer's physical exam paperwork without noting and addressing the patient's omission of mitral valve replacement or warfarin prescription.

## DISPOSITION

The case was settled on behalf of the IM physician and APRN.

## RISK MANAGEMENT CONSIDERATIONS

Effective warfarin monitoring is crucial for preventing both thrombotic events and bleeding complications. The narrow therapeutic window of warfarin means that careful monitoring of INR levels is essential for patient safety.

A patient's compliance with testing and returning for follow-up requires patients to be an active participant in their own care. However, the responsibility of safe anticoagulation therapy also lies with the prescribing physician.

Losing track of a patient who requires careful monitoring places the patient and the physician at risk. It is recommended to schedule regular INR testing and follow-up appointments with the patient upon prescribing the anticoagulant. If an appointment is not kept, contact the patient immediately and document this action in the medical record.

It is important to maintain written policies and procedures to track and follow up with lab work, testing, and referrals, with special consideration made to critical INR test results. These policies should include documenting a patient's baseline INR, current dosage, and the patient's INR tracked over time. Additional considerations include the following.

- Develop a tracking system for all labs, diagnostic studies, and referrals. This can be done via your EHR or in an electronic or paper log.

- Identify for each patient how often to monitor INR, including critical values (both high and low) for the specific patient.
- Identify those patients at risk for noncompliance, either due to language barrier, repeated no-shows, comprehension levels, etc.
- Instruct staff members or outside labs to orally notify you of a patient's critical INR test results.
- Initial and date or electronically sign all laboratory and diagnostic reports upon your review of the report. Develop protocols to ensure that documents are not filed before your review.
- Document follow-up actions for critical or abnormal test results.
- Identify someone in your office to be available to receive and act upon critical results after hours.

If a patient regularly fails to return for INR testing, contact the patient by phone, written letter, and HIPAA-compliant messaging. Retain copies of the communication and document when it was sent and by what means. Document each attempt to contact a patient regarding a missed appointment or critical test result.

While a physician who orders diagnostic testing or anticoagulation medication is ultimately responsible for obtaining and acting on test results, all providers caring for the patient can help to ensure results are reviewed and communicated in a timely manner. This includes timely review of critical lab results and planning appropriate follow up, such as any changes to anticoagulation dosages.<sup>1</sup>

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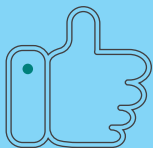
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