



Medical Record Summary
B.T.
Sample Case

Cardiac arrest, fatal, following eye surgery without complication

Prepared for:
C.L. Esquire

Prepared by:
Richard Gaudet, MHA, BSN, RN, RRT
The Law Offices of Richard Alan Gaudet, LLC.
49 Blanchard Street, Ste. 102, Lawrence, Ma. 01843

Sample Attorney Work Product: Do Not Reproduce: CONFIDENTIAL

Plan:

B.T., a 55-year-old woman, experienced a fatal cardiac arrest within twelve hours of an uncomplicated eye surgery. The attorney requests the legal nurse consultant to review the medical records involving course of treatment, effectiveness of communication, and the healthcare team's compliance with hospital protocols.

Contents

Brief Summary of Events	3
Fact Chronology	3
Key Points	5
Discussion	7
Suggestions for further Discovery	11
Possible Witnesses	11
Glossary of Terms	12
Relevant Medications	13

Brief Summary of Events

B.T. was a 55-year-old female who suffered a fatal cardiac arrest in October of 2014 while in hospital following a routine, uncomplicated retinal detachment surgery.

Fact Chronology

10/1/14

Mrs. T. presented to Dr. A. her primary care physician two days prior to surgery for preoperative evaluation. Nurse Practitioner B.L. performed the evaluation. During the pre-operative evaluation, Mrs. T. revealed that she had been experiencing a productive cough and occasional shortness of breath for a period of four days. Nurse Practitioner B.L. reported EKG results as being normal, absent acute changes. Nurse Practitioner B.L. diagnosed Mrs. T. with acute bronchitis, prescribing a course of antibiotics and a bronchodilator for symptom management.

The findings of the preoperative evaluation were sent to Mrs. T.'s surgeon, Dr. M. Included in this report to Mrs. T.'s surgeon was a narrative describing Mrs. T.'s relevant medical history: acute bronchitis, sleep apnea, morbid obesity with use of CPAP during hours of sleep, and diabetes Type I. In her pre-operative notes, Nurse Practitioner B.L. noted that she did not order post-op CPAP since Mrs. T. was to receive day surgery and would resume her standing CPAP orders upon returning home the same day as her scheduled surgery.

10/3/14

100 PM: Mrs. T. presented to Sample Hospital for a pre-operative interview with Anesthesiologist C. who cleared Mrs. T. medically for surgery, making a notation of comorbidities, i.e., bronchitis, diabetes mellitus, and sleep apnea. Anesthesiologist C., however, did not document a respiratory assessment in his pre-operative interview. Further, Mrs. T.'s daughter, as noted in Nurse C.'s surgical day care nursing notes, requested Nurse C. communicate to Anesthesiologist C. the daughter's request that Mrs. T. remain overnight in the hospital due to "her mother's sleep apnea and the late hour of the surgery."

4:00 PM: Mrs. T. underwent surgery to repair a detached retina in her left eye and arrived in PACU following surgery. Anesthesiologist C.'s notes, written at 6:00 PM, indicate that Mrs. T. was alert and oriented, vital signs stable, and an order was written to transfer to the medical-surgical floor, Floor-B. PACU Nurse E's progress notes indicate that Mrs. T. was alert and oriented, vital signs stable, and that transfer report to the receiving nurse, Nurse S., on Floor-B was given at 6:15 PM.

6:15 PM: Nurse S. documented that that she received Mrs. T. at 6:30PM. Nurse S.'s notes did not mention Mrs. T.'s CPAP use, nor sleep apnea as part of the transfer report received by Nurse S. upon transfer from PACU.

7:00 PM: Change of Shift. Nurse L. receives report from Nurse S. Nurse L.'s nursing assessment in the EHR indicates that Mrs. T.'s vital signs are stable, that she is "alert, oriented, and without complaints." Nurse L. is responsible for five patients, including Mrs. T.

9:00 PM. Nurse L. dispenses Demerol according to the anesthesiologists post-operative orders [intramuscular, 75 mg every 3 to 4 hours as needed for pain] as prescribed for Mrs. T.'s complaints of eye pain, 5 out of 10.

9:25 PM: Nurse L. documents that Mrs. T. has vomited. She administers an antiemetic [ondansetron 5mg, orally, for nausea] based on standing orders from Anesthesiologist C. Nurse L. administers a second dose of Demerol [intramuscular, 75 mg every 3 to 4 hours as needed for pain] for Mrs. T.'s continuing complaints of eye pain. Standing orders from the Anesthesiologist allow for administration of an antiemetic without initiating physician contact, but require reporting of persistent eye pain to the attending hospitalist prior to the administration of PRN pain medication. Nurse L. does not document notifying the attending hospitalist of Mrs. T.'s persistent eye pain nor the second dose of Demerol that she administered.

10:00 PM: Mrs. T. complains of continuing increased eye pain, 8 out of 10. Nurse L. contacts Hospitalist D., who orders Demerol [75mg, oral, x 1] and an antiemetic [metoclopramide, 10 mg, oral, as needed for nausea]. Nurse L. administers these medications at 10:25 PM, and notes at 10:50 PM that Mrs. T., now "appears comfortable, and has fallen asleep...vital signs stable, no complaints of pain or nausea [prior to sleep]."

12:40 AM: Nurse L. documents in progress notes the following: "skin cool, moist...vital signs within normal limits...blood sugar via fingerstick 120 mg/dl...patient lethargic, but responsive to verbal stimuli, no complaints of pain."

1:20 AM: Nurse L. documents the following: "pt. lethargic, but responds to physical stimuli...no complaints of pain...vital signs within normal limits". Nurse L. requests charge nurse, Nurse. O., assess Mrs. T. No further notation in medical record by either charge nurse as to result of charge nurse assessment, however, incident report filed 10/04/14 at 8PM by charge nurse indicates "patient responsive, vital signs within normal limits."

2:00 AM: Nurse L. documents that she found patient at 2:00 AM not breathing and without a pulse, then called a code 99. Code cart documentation records attending Hospitalist declaring the patient's time of death as 2:15 AM after resuscitation efforts failed.

Key Points

Mrs. T. was a 55 year-old female, with multiple comorbidities, who suffered a fatal cardiac arrest during a postoperative hospital stay following surgery for a detached retina.

Diagnoses preceding the incident:

- Obstructive Sleep Apnea
- Morbid Obesity
- Diabetes Mellitus
- Acute Bronchitis

Mrs. T. was seen at her primary care physician's office on 10/1/14 by the nurse practitioner for a preoperative evaluation. The nurse practitioner effectively cleared Mrs. T. for her upcoming surgery, prescribing an antibiotic and bronchodilator to manage Mrs. T.'s acute bronchitis. The nurse practitioner indicated that CPAP was required immediately following surgery, since the plan was to discharge Mrs. T. to home immediately following surgery.

Two days later, on 10/03/14, the anesthesiologist at Sample Hospital conducted a preoperative assessment and concluded that Mrs. T. was a surgical candidate. Notably absent from the anesthesiologist's preoperative assessment was documentation related to Mrs. T.'s respiratory status.

Mrs. T. underwent successful retinal detachment surgery without complications that same day, then proceeded immediately to PACU for recovery. Mrs. T.'s daughter suggested that her mother stay overnight, and that her mother would require CPAP. These facts were relayed to the anesthesiologist and Mrs. T. was subsequently transferred to a medical surgical floor, but without orders for CPAP. There was no mention of Mrs. T.'s comorbidities by the transferring PACU nurse or the recipient medical-surgical nurse in the medical records.

Shift change occurred on the medical surgical floor at 7:00 PM, and Mrs. T.'s assigned nurse relieved the original receiving nurse at that time. The newly assigned nurse documented no pain or respiratory difficulties on her initial assessment, but later responded to Mrs. T.'s complaints of pain by administering Demerol as prescribed. Twenty-five minutes later, Mrs. T. vomited and was complaining of worsening eye pain. The nurse administered an antiemetic and an additional dose of Demerol via intramuscular route without contacting the surgeon, this, in direct contradiction of the anesthesiologist's orders which were to notify the physician if additional pain medication was required and to not exceed administration of pain medication beyond every 3 hours as needed. The nurse does not document notification of either the anesthesiologist, or the attending hospitalist at this time.

Forty-five minutes later, Mrs. T. complains of increased eye pain. The nurse contacts the hospitalist who orders an antiemetic and Demerol, which the nurse administers. After administering this third dose of Demerol, the nurse reassesses the medication's effect noting that the patient is comfortable and sleeping without complaints and stable vital signs.

Nearly two hours later the nurse documents that Mrs. T.'s is lethargic but responsive to verbal stimuli. Forty minutes later the nurse documents that Mrs. T. is lethargic and responding only to physical stimuli, but otherwise within normal limits. She contacts the charge nurse for his

assessment. No further documentation regarding these assessments occur until later in the incident report where the charge nurse notes that Mrs. T.'s vital signs and responsiveness are within normal limits.

Forty minutes later, the nurse documents that Mrs. T. is not breathing, without a pulse, and a code 99 is called. Time of death is 2:15 AM.

Discussion

Course of Treatment

Preoperative Evaluation by the Primary Care Physician's Agent

1. I would suggest a review with our medical expert as to the reasonableness of the nurse practitioner opting not to postpone surgery given the presentation of Mrs. T. on the day of her preoperative evaluation. It is not uncommon to postpone a non-urgent surgical procedure when the risks associated with surgery are compounded with the patient's comorbidities. Here, Mrs. T., is suffering from respiratory related symptoms, is morbidly obese and uses CPAP at home to manage these symptoms. Medical experts should be consulted to answer the following:

(a) would the signs and symptoms of acute bronchitis be sufficiently diminished after the course of antibiotics and bronchodilator therapy prescribed by the nurse practitioner to warrant clearing Mr. T. for surgery?

(b) if not, does scheduling the surgery rise to the level of a failure of the nurse practitioner to follow a reasonable standard of care?

(c) does sleep apnea become more severe with an overlying bronchitis, and if so, does not postponing the surgery rise to the level of a failure of the nurse practitioner to follow a reasonable standard of care?

2. It seems reasonable that the nurse practitioner would not order CPAP given her expectation that Mrs. T. would be sent home immediately following day surgery. However, since sleep apnea can cause elevated and irregular heart rates and very low oxygen saturations, which in combination may lead to fatal cardiac arrhythmias, the question for our expert medical team is whether a reasonable physician would have ordered CPAP in the event Mrs. T. required an unexpected overnight stay.

Preoperative Evaluation by the Anesthesiologist

1. There was no documented respiratory assessment by the anesthesiologist following the preoperative evaluation. This is highly unusual given the primary function of an anesthesiologist, i.e., to provide various types of sedation to allow for surgical intervention, while assessing the risks of sedation on the patient; one of those risks being the effect of sedation on the respiratory system. Given the risks associated with sedating any patient, particularly one who may have been experiencing some compromise in respiratory system function, the expert medical team should be consulted to explore the anesthesiologist's lack of critical documentation of Mrs. T.'s respiratory status pre-surgery. Further, the PACU nurse noted that she told the anesthesiologist of a concern brought to her attention by the

patient's daughter; that CPAP therapy would be needed overnight. Unfortunately, the anesthesiologist did not order CPAP for Mrs. T. in his postoperative orders.

Medication Administration by Overnight Nurse

1. Nurse L. documents that Mrs. T. vomited. Nurse L. then administers a second dose of Demerol along with an antiemetic at 9:25 PM, following the first dose administered at 9:00 PM. These actions suggest that this nurse may have believed Mrs. T. had vomited the contents of her stomach and, given Mrs. T.'s complaints of eye pain, had not received the benefit of the initial dose of Demerol. The nurse's rationale for this second dose requires further discovery for three reasons:

(a) since the standing order by the anesthesiologist was for Demerol to be given for persistent pain every three hours as needed, it would be risky to administer this potent pain medication so close in time to the initial dose without involving input from the prescribing or referring physician,

(b) the standing order indicated that the nurse was to contact the hospitalist where eye pain persisted prior to administration of a second dose of Demerol, which did not occur, and

(c) an expert pharmaceutical consultant should be involved to determine the onset of action of intramuscular (IM) administration Demerol to determine if this route of administration may have had a contributory effect to respiratory depression.

2. Prior to the nurse administering the third dose of Demerol, she contacts the hospitalist but does not document informing him of her administration of the two prior doses. If this communication did occur orally, the hospitalist was aware of the three consecutive doses of Demerol given in one hour and twenty-five minutes time span. Medical experts should be consulted to determine the additive effect of this dose of Demerol on depressing respiratory drive given Mrs. T.'s obstructive sleep apnea and morbid obesity. If, alternatively, the hospitalist was not informed by the nurse of the prior administration of Demerol, it would be informative to discover if the hospitalist inquired on his own as to what pain medication the patient had received preoperatively, intraoperatively, and postoperatively before ordered the third dose. Further, if the nurse failed to inform the Hospitalist of the fact that she'd administered two consecutive doses of Demerol, her actions may be negligent.

Assessment of Patient by Overnight and Charge Nurses

1. The overnight nurse notes a decrease in responsiveness, from lethargic responding to verbal stimuli, to lethargic responding to physical stimuli. While these descriptors do not fit into a standardized scale of measurement such as the Glasgow Coma or

Grady Coma Scale, they may offer some insight into Mrs. T.'s neurological status since lethargy is in the middle of the continuum of progression towards coma where the progression proceeds from a slight clouding of consciousness to coma itself¹. Further inquiry into why the overnight nurse perceived this progression and chose to contact the charge nurse in lieu of the attending physician, i.e., the hospitalist, would be helpful in determining whether she was acting simply to receive input to clarify a belief that Mrs. T. was essentially stable, or whether she might have been concerned about Mrs. T.'s condition worsening and attempting to shift her responsibility by involving a staff member in a superior position.

Overall Course of Treatment/Plan of Care

1. There was a general lack of coordination between the physician staff that demonstrated failure to consider potential risks and clinical requirements of a patient with both chronic and acute health problems. Provision for CPAP in the plan of care might have been instrumental in preventing cardiac arrest, since the purpose of CPAP in a morbidly obese patient with sleep apnea is to increase oxygenation and ventilation by relieving upper airway obstruction. Moreover, sleep apnea itself, can cause elevated heart rate and arrhythmias. Medical expert testimony will be required to substantiate these elements.

Effectiveness of Communication

PACU Nurse to Medical-Surgical Floor Receiving Nurse.

1. A transferring nurse is responsible for reporting assessment findings and general medical conditions to the transferee nurse. Here, there was no record in either the PACU nurse's nor transferee nurse's progress notes of Mrs. T.'s sleep apnea, use of CPAP, or acute bronchitis diagnosis. It is presumed that the PACU nurse had notice of Mrs. T.'s medical conditions since she would have seen, at a minimum, the anesthesiologist's pre-operative assessment that contained mention of these conditions and CPAP use. Barring the occurrence of an oral, undocumented statement regarding Mrs. T.'s medical conditions, there is no record that this information was communicated to the transferee nurse. This fact suggests both nurses' lack of awareness of the risks associated with Mrs. T.: particularly the risk of respiratory depression resulting from the combination of acute bronchitis, sleep apnea and lack of CPAP therapy. Here there is likely a breach of hospital documentation protocol or, a failure by the nurse to follow reasonable nursing standards of practice.

Initial Receiving Nurse on Medical-Surgical Floor to Overnight Nurse

1. No documentation from nurse to nurse indicating Mrs. T.'s condition or care plan exists. It is possible that there was an oral report; however, this needs further

¹ Walker, H. K., Dallas Hall, W., & Willis Hurst, J., (1990), The History, Physical, and Laboratory Examinations. *Clinical Methods*, 3rd edition.

discovery. There was likely a breach of hospital documentation protocol or at a minimum, a failure by the nurse to follow reasonable nursing standards of practice.

Overnight Nurse to Hospitalist

1. Unclear, since no documentation, as to the conversation between the overnight nurse and the hospitalist regarding the amount of Demerol already administered, and whether the hospitalist based his decision on ordering a third dose of Demerol on that knowledge. In either event, there is likely a breach of hospital documentation protocol or at a minimum, a failure by the nurse to follow reasonable nursing standards of practice.

Overnight Nurse and Charge Nurse

1. The lack of documentation regarding the interaction between the overnight and charge nurse who assessed Mrs. T.'s condition after the overnight nurse approached the charge nurse, apparently concerned about Mrs. T.'s level of consciousness is worth exploration. Moreover, the incident report, filed the evening after Mrs. T.'s death, completed by the charge nurse, noted vital signs and responsiveness within normal limits. This incident report completed by the charge nurse contradicts the assessment completed by the overnight nurse.

Overall Communication

1. From nursing staff to physicians, as demonstrated above, there appears to have been a general lack of communication and adequate compliance with hospital protocols practiced in this case.

Suggestions for further Discovery

1. A review of literature on the effects of CPAP, or failure to initiate CPAP therapy in morbidly obese patients with obstructive sleep apnea, and acute bronchitis, would be helpful to determine the impact of the lack of this therapy during Mrs. T.'s hospitalization.
2. A review of literature would be instrumental to assess the effect of various doses of Demerol over various time periods to determine the likelihood of this treatment modality causing respiratory depression or failure.
3. Further discovery of hospital protocol to determine whether nursing and physician staff followed protocol during transfer and shift reports would be helpful.
4. Further discovery of hospital protocol to determine whether this protocol was followed in developing and communicating a patient's plan of care as the patient moves within various hospital departments would be helpful.

Possible Witnesses

Dr. A. - primary care physician
Nurse practitioner B.L.
Anesthesiologist C.
Mrs. T.'s Daughter
Nurse E. - PACU nurse
Nurse S. - Admitting Nurse Floor-B
Nurse L. - Overnight Nurse Floor-B
Charge Nurse - Floor-B
Hospitalist

Glossary of Terms

NAME	DESCRIPTION
Type 2 Diabetes	<p>A condition characterized by high blood glucose levels caused by either a lack of insulin or the body's inability to use insulin efficiently. Type 2 diabetes develops most often in middle-aged and older adults but can appear in children, teens, and young people.</p> <p>Centers for Disease Control, www.cdc.gov/diabetes/library/glossary.html#d</p>
Acute Bronchitis	<p>Acute bronchitis is inflammation of the tracheobronchial tree, commonly following a URI, that occurs in patients without chronic lung disorders. The cause is almost always a viral infection. The pathogen is rarely identified. The most common symptom is cough, with or without fever, and possibly sputum production. Diagnosis is based on clinical findings. Treatment is supportive; antibiotics are usually unnecessary. Prognosis is excellent.</p> <p>Sethi MD, Merck Manual Professional Version, 2018 https://www.merckmanuals.com/professional/pulmonary-disorders/acute-bronchitis/acute-bronchitis#v916742</p>
Obstructive Sleep Apnea	<p>Obstructive sleep apnea (OSA) consists of episodes of partial or complete closure of the upper airway that occur during sleep and lead to breathing cessation (defined as a period of apnea or hypopnea > 10 sec). Symptoms include excessive daytime sleepiness, restlessness, snoring, recurrent awakening, and morning headache. Diagnosis is based on sleep history and polysomnography. Treatment is with nasal continuous positive airway pressure, oral appliances, and, in refractory cases, surgery. Prognosis is good with treatment. Most cases remain undiagnosed and untreated and are often associated with hypertension, atrial fibrillation and other arrhythmias, heart failure, and injury or death due to motor vehicle crashes and other accidents resulting from hypersomnolence.</p> <p>In at-risk patients, sleep destabilizes patency of the upper airway, leading to partial or complete obstruction of the nasopharynx, oropharynx, or both.</p> <p>Strohl, K. P. (2017). Merck Manual Professional Version. https://www.merckmanuals.com/professional/pulmonary-disorders/sleep-apnea/obstructive-sleep-apnea</p>
Morbid Obesity	<p>Obesity is excess body weight, defined as a body mass index (BMI) of ≥ 30 kg/m². Complications include cardiovascular disorders (particularly in people with excess abdominal fat), diabetes mellitus, certain cancers, cholelithiasis, fatty liver, cirrhosis, osteoarthritis, reproductive disorders in men and women, psychologic disorders, and, for people with BMI ≥ 35, premature death. Diagnosis is based on body mass index. Treatment includes lifestyle modification (e.g., in diet, physical activity, and behavior) and, for certain patients, drugs or bariatric (weight-loss) surgery.</p> <p>Youdim, A. (2018). Merck Manual Professional Version. https://www.merckmanuals.com/professional/nutritional-disorders/obesity-and-the-metabolic-syndrome/obesity</p>
CPAP	<p>Nasal continuous positive airway pressure (CPAP) is the treatment of choice for most patients with OSA and subjective daytime sleepiness; adherence is lower in patients who do not experience sleepiness. CPAP improves upper airway patency by applying positive pressure to the collapsible upper airway segment. Effective pressures typically range from 3 to 15 cm water. Disease severity does not correlate with pressure requirements. Many CPAP devices monitor CPAP efficacy and titrate pressures automatically, according to internal algorithms. If clinical improvement is not apparent, CPAP efficacy should be reviewed and patients should be reassessed for a second sleep disorder (eg, upper airway obstruction) or a comorbid disorder. If necessary, pressure can be titrated manually during monitoring with repeat polysomnography. Regardless of improvement in the AHI, CPAP will reduce cognitive impairment and improve quality of life, and it may reduce BP. If CPAP is withdrawn, symptoms recur over several days, though short interruptions of therapy for acute medical conditions are usually well tolerated. Duration of therapy is indefinite.</p> <p>Failures of nasal CPAP are common because of limited patient adherence. Adverse effects include dryness and nasal irritation, which can be alleviated in some cases with the use of warm humidified air, and discomfort resulting from a poorly fitting mask.</p> <p>CPAP can be augmented with inspiratory assistance (bilevel positive airway pressure) for patients with obesity-hypoventilation syndrome to increase their tidal volumes.</p> <p>Strohl MD, K.P. (2017) Merck Manual Professional Version. https://www.merckmanuals.com/professional/pulmonary-disorders/sleep-apnea/obstructive-sleep-apnea.</p>

Relevant Medications

GENERIC/ BRAND NAME	DOSAGE	USAGE	SPECIAL CONSIDERATIONS
Augmentin / Zithromax	250 mg once daily, oral	Antibiotic - routinely used in patients with symptomatic acute bronchitis.	N/A
Albuterol / ProAir HFA	Metered-dose inhaler (MDI) or dry powder inhaler (90 mcg/actuation): 2 inhalations every 4 to 6 hours as needed	Bronchodilator – frequently prescribed for its relaxing effects on smooth muscle tissue in the airways.	N/A
Meperidine / Demerol	Intramuscular injection; Subcutaneous: 50 to 150 mg every 3 to 4 hours as needed.	Opioid Analgesic - Pain management: Acute pain.	<p>High alert medication: The Institute for Safe Medication Practices (ISMP) includes this medication among its list of drug classes, which have a heightened risk of causing significant patient harm when used in error.</p> <p>Nursing Physical Assessment/Monitoring</p> <p>Monitor for effectiveness of pain relief. Monitor blood pressure, CNS and respiratory status, and degree of sedation at beginning of therapy and periodically thereafter. Assess patient's physical and/or psychological dependence. For inpatients, implement safety measures (e.g., side rails up, call light within reach, instructions to call for assistance). Discontinue slowly after prolonged use.</p>
Ondansetron / Zofran	5 to 10 mg 3 to 4 times/day; usual maximum: 40 mg/day; larger doses may rarely be required for resistant nausea/vomiting	Antiemetic – post-op management of nausea/vomiting	N/A
Metoclopramide / Reglan	Oral: Initial: 10 mg X 1	Antiemetic – post-op management of nausea/vomiting	N/A