

Bouncebacks

The Case of a 28-Year-Old Pregnant Female with Shortness of Breath

In *Bouncebacks*, which appears semimonthly in JUCM, we provide the documentation of an actual patient encounter, discuss patient safety and risk management principles, and then reveal the patient's "bounceback" diagnosis.

Cases are adapted from the book *Bouncebacks! Emergency Department Cases: ED Returns* (2006, Anadem Publishing, www.anadem.com; also available at www.amazon.com and www.acep.org), which includes 30 case presentations with risk management commentary by Gregory L. Henry, past president of The American College of Emergency Physicians, and discussions by other nationally recognized experts.

Michael B. Weinstock, MD and Jill C. Miller, MD

Approaching Differences in Risk Tolerance (Part 1 of 2)

What happens when the patient and physician disagree on approach to treatment, due to differences in risk tolerance? Physicians tend to be risk averse, due to the quantity of patients they see.

For example, a 2% risk of heart attack may be low enough for a patient to decide to forgo hospital admission, but be unacceptably high for an urgent care physician who sees 100 patients with chest pain per year. Patients may be more comfortable with small risk and ask their physician to tailor the diagnostic approach to their schedule and preference.

The physician, after all, is in essence a contracted consultant; an adult patient of sound mind and body is not required to accept his or her recommendations. Some-



times, we give advice but the "strength of our recommendation" is not strong; "This *could* be cellulitis and you should *probably* take an antibiotic."

A reasonable patient may choose to defer therapy and see if their symptoms improve, and we might choose to do the same if we were in their shoes as a physician-patient.

Other times, our recommendations are very strong but the patient still chooses to defer therapy despite potentially catastrophic consequences. The picture then becomes murkier.

The case presented here is an example of one of those situations. After the case presentation, we will

explore specific documentation issues and detail elements which need to be included on the chart when a patient leaves against medical advice (AMA).

Initial Visit

(Note: The following, as well as subsequent visit summaries, is the actual documentation of the providers, including punctuation and spelling errors.)

CHIEF COMPLAINT: Difficulty breathing

VITAL SIGNS

Time	Temp (F)	Rt.	Pulse	Resp
02:57	97.4	O	78	2
04:51			116	30

Syst	Diast	O2 Sat	O2%
64	96		Room air
64	100		4 liters nasal cannula

HISTORY OF PRESENT ILLNESS:

This is a 28-year-old pregnant female, G1P0, approximately 38 weeks pregnant, who presents with 2 weeks of shortness of breath and dyspnea with exertion, orthopnea, and leg swelling. Also diffuse chest pain worse with exertion. Was seen by the family doctor and told that there was “no problem” (per husband). She denies fever or chills, cough, or chest pain. She has no other complaints today. She is non-English speaking and history is all from her husband and from a Somalian interpreter at the bedside. No fever, vomiting, rhinorrhea, headache, rash, blurred vision.

PAST MEDICAL HISTORY/TRIAGE:

Allergies: Penicillin

Medications: Robitussin and Tylenol

No significant medical history. No significant surgical history.

PHYSICAL EXAM:

General: Well-appearing; she is tachypnea with a resting respiratory rate of 26 on my exam

Neck: No JVD or distended neck veins

Resp: Normal chest excursion; breath sounds clear and equal bilaterally; no wheezes, rhonchi, or rales

Card: Regular rhythm, without murmurs, rub or gallop

Abd: Gravid; non-tender, soft, without rigidity, rebound or guarding, no pulsatile mass

Chest: No pain with palpation

Skin: Normal for age and race; warm and dry without diaphoresis ; no apparent lesions

Extremities: Pulses are 2 plus and equal times 4 extremities, 2+ pitting edema of both LE

LAB RESULTS:

CBC, electrolytes, BUN/creat, LFT all nl. except Hb 11

RADIOLOGY:

CXR: Bilateral interstitial lung opacity, suspect represents interstitial edema

PROCEDURES:

FHT were 132 auscultated by doppler in the RUQ .

PROGRESS NOTES:

Physician at 05:32: This patient is hypoxic and needs to be evaluated to rule out blood clot. The patient wants to leave. I told her she does not have a choice as she’s putting the fetus at risk if she wishes to leave and I’m not allowing it. Security is at the bedside.

RN at 05:37: We got to the elevator for the CT scan and pt refused to get in. Pt informed of risks to herself and the fetus and states “if I go home and die in my bed so be it”. With much encouragement pt finally agreed to return to the ED. Pt refuses to wear oxygen or be on cardiac monitor. OB resident called. Somalian interpreter called.

Physician at 05:52: I called the hospital’s risk management team and informed of patient’s desire to leave—she is 38+ weeks pregnant and is hypoxic—my concern is that she is putting the unborn fetus at risk. She will call me back.

Social work consultation at 06:06: I paged the department manager who advised that the physician has a right to hold the pt against her will—she can be held long enough to pursue a probate court order to force treatment. The OB clinic social worker was also contacted.

Physician at 06:37: I had a long discussion with the patient and her husband regarding her critical illness. The Somalian interpreter was present. I told the patient that her oxygen level is too low to go home and she is at risk of dying. Her unborn baby is also at risk of dying. With the help of the interpreter, the patient repeated this back to me and states that she understands. Risk management concurs that she can leave AMA.

RN progress note at 06:57: The patient signed the AMA form in the presence of her husband and the interpreter. The husband was also asked to sign since he was

taking the patient home, but he refused to sign. The risks of refusing treatment (including the potential of death) were discussed and the patient stated understanding.

DIAGNOSIS:

1. Hypoxia
2. Dyspnea
3. Pregnant

DISPOSITION:

The patient and her husband left against medical advice. The next day, there was a message left through interpreter for patient return immediately to the ED for admission. Mother answered phone—states that patient doesn't live there and she will attempt to get in touch with her.

Discussion of Documentation and Risk Management Issues at Initial Visit

If the patient is an adult of sound mind and body, the physician is obliged to respect their wishes to forgo treatment, no matter how illogical their reasoning. These principles were laid out by Justice Benjamin Cardozo (1870-1938), appointed to the Supreme Court by President Herbert Hoover to succeed Justice Oliver Wendall Holmes; Cardozo was so widely respected that the *New York Times* noted, "Seldom, if ever, in the history of the Court has an appointment been so universally commended."

Justice Cardozo established principles of *informed consent* and *respondeat superior* (translated literally from Latin as "let the master answer") with the case of *Schloendorff v. Society of New York Hospital* in 1914.

The plaintiff in that case, Mary Schloendorff, was admitted to New York Hospital and consented to being examined under ether, but withheld consent to an operation. The physician disregarded Schloendorff's wishes and operated to remove a tumor.

Cardozo ruled that "Every human being of adult years and sound mind has a right to determine what shall be done with his own body; and a surgeon who performs an operation without his patient's consent commits an assault for which he is liable in damages. This is true except in cases of emergency where the patient is unconscious and where it is necessary to operate before consent can be obtained."

Justice Cardozo's opinion continues to resonate today.

In the urgent care setting, several principles need to be established before a patient is allowed to leave against medical advice. For example:

1. The patient is an adult or emancipated minor.
2. The patient is of sound mind; this should be specif-

▶ Urgent Care Owners:

Join forces with



**Profitability, Efficiency,
& Productivity
are the hallmarks of our NextCare
Partners urgent care program.**

**In addition to our proprietary urgent care
delivery model, we also offer support in:**

- ▶ Contracting and account management
- ▶ Market analysis and clinic development
- ▶ Proprietary Information Technology at competitive market pricing
- ▶ Centralized marketing and public relations
- ▶ Established protocols for staff hiring, training, procedures, and compliance
- ▶ Risk management and reduced malpractice costs
- ▶ Discounted purchasing benefits

Partnership Tools for Success!



**We have over
40 years of
combined M&A
experience!**

*For more information, please contact
Jim Weaver, Vice President, M&A*

**1-888-301-0192
www.nextcare.com/success**

ically documented (i.e. A&O X 3, not inebriated, no dementia, etc.).

3. The patient has been informed of potential consequences of non-treatment. Ensure the patient understands by having them repeat back what you explained.
4. Involve family, friends, or the patient's physician.
5. Have the patient, family member, physician, and nurse sign the AMA form.

The first three of these are the most important. Having a nurse sign the AMA form without documenting that the patient is able to make a medical decision and understands the consequences of non-treatment, for example, does little to protect the physician from medical liability.

The big question with our case is whether the patient was capable of making a medical decision. It could be argued that a tachycardic patient who requires 4 L of oxygen was *not* in a state to make a medical decision. But the physician documented that she understood and could repeat back the implications of leaving; in other words, the patient demonstrated that she was capable of making her own decision.

Involving risk management was a helpful step—not common, but very smart, as there was an additional non-vocal party: the unborn infant.

Evaluation of Shortness of Breath During Pregnancy

Up to 70% of healthy women complain of dyspnea or a “sense of breathlessness” during pregnancy; its evaluation is challenging.

More often than not, dyspnea during pregnancy may be attributed to a normal increase in minute ventilation or the restrictive process of a gravid uterus preventing full expansion of the lungs. However, several potentially life-threatening emergencies must be ruled out, including asthma, pneumonia, pulmonary embolism, or pulmonary edema due to preeclampsia or dilated cardiomyopathy of pregnancy.

Asthma

Asthma, the most common respiratory disorder complicating pregnancy, affects one in 100 pregnant women. Management of asthma during pregnancy is not much different than in non-pregnant patients and includes inhaled beta agonists (albuterol) and prednisone. Our patient did not have a history of asthma or wheezing on lung exam, making the diagnosis of asthma unlikely.

Pneumonia

Pneumonia is the most common non-obstetrical infectious cause of maternal death during pregnancy; the alteration in a pregnant woman's thorax makes clearing of respiratory secretions more difficult. The most common cause of bacterial pneumonia is *S pneumoniae*, as it is among non-pregnant patients. Quinolones are contraindicated during pregnancy, making macrolides such as azithromycin first-line therapy.

Without fever or atypical CXR appearance, however, bacterial pneumonia is unlikely in our patient.

Cardiomyopathy

The term *cardiomyopathy* refers to a broad spectrum of disorders, both acute and chronic, that affect the myocardium. Cardiomyopathies are divided into three categories: dilated, hypertrophic, and restrictive.

Cardiomyopathy of pregnancy is a dilated, high-output form of cardiac failure which is often transient. It can occur during the last month of pregnancy, but most cases are encountered in the first three months postpartum.

Risk factors for developing cardiomyopathy of pregnancy include advanced age, African-American multiparas, and preeclampsia. Complications include development of a mural thrombus and subsequent pulmonary embolism. The chest x-ray may show cardiomegaly, with signs of pulmonary edema such as Kerley B lines or interstitial infiltrates. The 2D echo will reveal dilated chambers and thin cardiac walls. Cardiomyopathy remains in the differential diagnosis.

Pulmonary embolism

Pulmonary embolism (PE) is a condition which scares all physicians; symptoms can be very innocuous, as seemingly insignificant as a feeling of fatigue, an elevated heart rate, or pain with a deep breath.

There are approximately 650,000 PEs per year in the United States, causing 200,000 deaths, making it one of the leading causes of death.

The concerns with misdiagnosis are twofold:

1. A small PE causing minimal symptoms which may not result in death but often heralds a larger, fatal PE
2. The disease can strike young, healthy-appearing people who are in the prime of their lives.

In fact, if the diagnosis is missed, the mortality can be as high as 30%. Pregnancy induces a hypercoagulable state, increasing the risk of pulmonary embolism. PE remains in our differential diagnosis.

Table 1. Estimated Radiation Dose to Fetus

Modality	Estimated exposure (mrad)
C-spine	<1
Chest x-ray	1-3
Kub	200-500
Pelvis x-ray	200-500
L-spine	600-1000
CT head/chest with abdominal shielding	<1000
CT abdomen	3000
CT pelvis	3000-9000
V/Q scan	<55
CT pulmonary angiogram	<50 via brachial with abdominal shielding

Source: Adapted from Harwood Nuss, et al. *The Clinical Practice of Emergency Medicine*; 2001(3rd ed): 621. Philadelphia: Lippincott Williams and Wilkins and Rosen et al. *Emergency Medicine Concepts and Clinical Practice*; 1998(4th ed): 2335. St Louis: Mosby-Year Book, Inc.

Diagnostic Imaging in Pregnancy

When considering radiological investigations in the pregnant patient, one must weigh the potential risks of radiation to the developing fetus against the risk to both the mother and the fetus of misdiagnosis.

The two main concerns are teratogenic and oncogenic.

Teratogenic risks include congenital malformations or embryonic death; this is of greatest concern during the first seven weeks, when organogenesis is occurring. In addition, several studies have shown a small but statistically significant increase in the relative risk of developing childhood cancer after the unborn fetus is exposed to radiation.

Significant risk is unlikely when the fetus is exposed to less than 10 rads (10,000 mrad) during the course of the pregnancy. With exposure to 15 rads or greater, there is a 6% chance of severe mental retardation and 15% chance of microsomia.

The fetus will be exposed to an average of 50 mrad to 100 mrad of naturally occurring radiation during nine months of pregnancy. **Table 1** lists estimated radiation dose to the fetus by imaging modality.

For example, between 3,000 and 10,000 chest x-rays can be safely done during pregnancy. It is always helpful to discuss this with the patient prior to ordering the

test so they don't have undue worry during their subsequent pregnancy.

Traditional teaching suggested that a nuclear ventilation-perfusion (V/Q) scan was the test of choice to rule out PE, providing a safe level of radiation exposure to the unborn fetus. More than 200 V/Q scans would result in total exposure of less than 10 rads.

However, a 2002 study showed that helical CT is better. This study compared fetal radiation dose between nuclear scan and CT and concluded that the average fetal radiation dose with CT was substantially less during all three trimesters.

Additionally, the CT may reveal another diagnosis such as pneumonia, cardiac effusion/tamponade, or aortic dissection. The authors stated "pregnancy should not preclude use of helical CT for the diagnosis of PE."

Patient Follow-Up: ED Return Two Days Later

- Heart rate 133, O2 sat 100%
- Physical exam: Tachypnic, marked 4+ peripheral edema pitting up to the knees
- Chest CT: Bilateral pleural effusions and increased heart size. No PE.
- Labs: WNL
- ED course: Lasix 40mg IVP
- ED diagnosis: Acute pulmonary edema associated with pregnancy
- Inpatient course: ECHO shows severe mitral valve regurg from rheumatic mitral valve. EF 55%
- Labor was induced to decrease fluid volume and workload on the heart. Pt. began to desat while in labor and was taken for emergent c-section. She was not able to be taken off the vent and became hypotensive. After 5 days she was discharged from the ICU and extubated and finally discharged from the hospital on cozaar, lasix, potassium and toprol.
- Diagnosis: Mitral valve regurgitation secondary to rheumatic valvular disease
- Returned to the hospital 2 weeks later in respiratory distress and admitted. Cardiothoracic surgeon agreed to perform valve surgery but patient wanted family to help make decision so she was discharged and subsequently lost to follow up

Heart Disease and Pregnancy

The normal physiologic changes in pregnancy can precipitate cardiac symptoms in previously stable women. What makes matters more difficult is that many of the normal symptoms of pregnancy can mimic cardiovascular disease.

However, while fatigue, decreased exercise tolerance, palpitations, lower extremity edema, and a soft-flow murmur are common in pregnancy, chest pain worse with exertion, any clinically significant dyspnea, a loud murmur greater than grade 3, or any diastolic murmur is not. A more careful exam, including an echocardiogram, is warranted.

Of note, B-type natriuretic peptide is slightly elevated normally in pregnancy. Cardiac enzymes are not, but both of these tests can and should be used for diagnostic purposes.

Predictors of high risk in women with heart disease include a previous or current history of heart failure with impaired functional status NYHA class >II, a significant cardiac arrhythmia, left-sided valve obstruction, i.e., significant aortic or mitral stenosis, pulmonary hypertension, Marfan's syndrome, and hypertrophic cardiomyopathy.

Medications safe to use in pregnancy include digoxin, beta-blockers, diuretics, hydralazine and unfractionated heparin. Medications contraindicated are warfarin, ACE inhibitors, ARBs, and amiodarone.

Summary

During our patient's initial presentation, she was hypoxic, with orthopnea and chest pain; she left AMA, possibly for cultural reasons. She returned with a BP of 158/70, pulmonary edema, and 4+ pitting edema of her extremities. She was ultimately found to have severe mitral regurgitation.

Always be aware of the potential red flags; the primary care physician who initially evaluated this patient felt that her symptoms were from normal physiologic changes of pregnancy (per husband's report), but when she presented to the emergency room she clearly had symptoms that should never be attributed to the pregnancy itself.

“One of the most difficult patients to take care of is the one who doesn't understand you (or one that you don't understand).”

One of the most difficult patients to take care of is the one who doesn't understand you (or one that you don't understand); this case illustrates that point beautifully. Though you don't have control over the patient's decision to leave, you do have control over how you document this high-risk encounter.

Put this chart aside to review at the end of the shift

and make sure that your documentation is complete. Be aware that the ability for the patient to sign out AMA is a direct function of that individual's state of mind. It must be clear that no physical or mental impairment is interfering with the decision making.

In our case, the patient is an adult of normal mental capacity who has been fully informed of the risk to herself and the unborn fetus and who has fully comprehended the risks being explained to her, and she is able to repeat that risk back to you in front of family members, an interpreter, and other medical personnel.

Furthermore, if there is any doubt about ethical questions, as in this case regarding the unborn fetus, obtaining a legal consultation is advisable.

Resources and Suggested Reading

- Elkayam U, Bitar F. Valvular heart disease and pregnancy. Part I: Native valves. *J Am Coll Cardiol.* 2005;46:223-230.
- Winer-Muram HT, Boone JM, Brown HOL, et al. Pulmonary embolism in pregnant patients: Fetal radiation dose with helical CT. *Radiology.* 2002;224:487-492.
- Alexander S, Dodds L, Armson BA. Perinatal outcomes in women with asthma during pregnancy. *Obstet Gynecol.* 1998;92:435-440.
- Juniper EF, Newhouse MT. Effect of pregnancy on asthma: A systematic review and meta-analysis. In: Schatz M, Zeiger RS, Claman HC, eds. *Asthma and immunological diseases in pregnancy and early infancy.* New York: Marcel Dekker; 1993:401-427.
- Reimold SC, Rutherford JD. Clinical practice. Valvular heart disease in pregnancy. *N Engl J Med.* 2003;349:52-59.
- Stout KK, Otto CM. Pregnancy in women with valvular heart disease. *Heart.* 2007;93:552-558 ■