HEALING ARTS

Materia Medica

Codes and Pheos

Steven Lin, MD

Stanford Family Medicine, Division of General Medical Disciplines, Department of Medicine, Stanford University School of Medicine, Palo Alto, CA, USA.

“Is... is there a doctor on board?”

I was on a late night flight from Los Angeles to Kansas City, when the overhead call pulled me back from a dream. *Sigh*. Probably just someone with an anxiety attack, I thought. I stood groggily and turned towards the dimly lit aisle.

Then all the cabin lights went on. *That’s weird*. My eyes focused. I saw the flight attendant’s face, her panic barely contained. She was holding the hand of an elderly woman who looked to be in her 70s, slumped lifelessly in her seat, eyes rolled back. Her family was gathered around, crying out in desperate whispers, shaking her motionless body. *Okay, this is serious*.

I introduced myself and started to examine the woman. Her breaths were alarmingly shallow. There was a hint of a carotid pulse. I asked the flight attendant to get the oxygen, AED, and emergency medical supplies. I turned softly to the woman’s family and asked about her medical history. Holding back tears, her daughter told me she was on dialysis. Her last dialysis session was yesterday. They were on their way to visit relatives in Kansas City. She was doing fine just a moment ago. Her name was Lupe.

“I’m going to do everything I can,” I promised. I looked around and instructed one of the hovering passengers, a paramedic in training, to help me carry her to the back of the plane. We laid her flat and gave her oxygen. Two other passengers, both nurses, joined us with the AED. I plugged in the leads and slapped the pads on her chest. Nothing. No sounds, no blinking lights. I shook the machine and tried again. Still nothing. I could feel my pulse pounding as I struggled to keep calm. “What do we have in the emergency kit?” I asked. A few aspirins, nitroglycerin, and an EpiPen. There were needles but no IV. A few vials of epinephrine and atropine. I felt sick to my stomach. It was clear where this was going. I spoke with the captain over the intercom. The patient would lose her pulse soon and we would have to start CPR. “Good luck, doctor,” said the captain. We were more than half an hour from landing, and at least an hour to the nearest hospital. *Please don’t do this, Lupe*.

She lost her pulse before we began our descent. I started chest compressions, my heart breaking as I felt her ribs snap

under my palms. I scrambled to recall the ACLS algorithm. *Two minutes, check for pulse, give drug... two minutes, check for pulse, give drug*. I gave orders to my makeshift code team to give epinephrine, intramuscularly because we had no other choice. When all the epinephrine ran out, we gave the atropine. When that ran out too, we kicked the bag away and kept doing CPR. For thirty minutes, we coded her in a space barely large enough to fit two people. We were thrown around during the turbulent descent. Nobody was about to stop.

When the plane finally landed and the engines shut off, an eerie silence took over. We waited forever for the paramedics to come on board. The only sounds were of chest compressions and the muted sobbing of Lupe’s family. Finally, two paramedics arrived with a gurney and took Lupe away. I followed them down the aisle, exhausted, my clothes drenched in sweat. I felt the eyes of a hundred passengers on me. Me, the failure. When I got to Lupe’s empty seat, I avoided her daughter’s eyes. Her family members were first to be let off the plane. Her daughter gave me a hug, said nothing, and ran after her mother. Lupe’s sister grabbed me and said, “Thank God for you, doctor. Is she going to be okay?” I didn’t have the courage to tell her. I just shook my head, “I’m so sorry.”

On the jet bridge, I signed out to half a dozen paramedics who whisked Lupe away. Then it was over. Nobody asked questions. Nobody asked for documentation. I wrote my name and information on a cocktail napkin and gave it to the captain. Then, disoriented, I made my way through the airport, my head spinning. I managed to get outside and hail a cab. “Where to?” asked the cabbie.

“Hyatt, please.”

“How was your flight?”

“Oh... it was fine, thanks.” I heard myself answer robotically.

It was past midnight when I arrived at the hotel. I showered and climbed into bed, but sleep was impossible. I stared at the

ceiling and replayed the code, over and over, in my mind. What if the AED had worked like it was supposed to? She was a dialysis patient with poor veins. What if I had tried injecting epinephrine directly into her arteriovenous fistula? *Come on, stop it.* It had been years since I coded anyone. Did she die because I was out of practice? Maybe. As an outpatient primary care physician, I was not required to maintain my ACLS certification. Why is that? What if someone codes in my clinic? What if someone else codes again on my flight home tomorrow? Could Lupe have lived if she was in better hands?

Enough. I took several deep breaths. I sat up, turned on the reading light, and grabbed my phone from the nightstand. Just how common are in-flight emergencies anyways? According to studies, serious medical emergencies occur in about one of every 604 flights.¹ An estimated 44,000 emergencies occur worldwide on commercial airline flights each year.² This is rare when considered on a per-passenger basis, but not so rare when you realize it happens every day. Full cardiac arrests account for only 0.3 % of emergencies but are responsible for 86 % of events resulting in death.^{1,2} Physicians who travel, regardless of their specialty, are often the ones called on to render care during in-flight medical emergencies.

I paused for a minute to absorb the numbers dancing around in my head. These numbers didn't seem that low to me, especially when I thought about the infinitesimally rare and obscure diseases my students and I discuss. Immediately, my mind turned to pheochromocytomas. Those little buggers in the adrenal glands are so rare that most physicians never see a case in their lifetimes. Yet, "pheos" are notorious for being on every resident's differential diagnosis for hypertension, are featured prominently in every undergraduate medical curriculum, and appear—without fail—on every board exam in medical school and beyond. Even today, years out of medical school, I could recite the classic triad of pheos: headache, sweating, palpitations.

The incidence of pheos is 2 to 8 per million persons per year.³ The incidence of in-flight medical emergencies? Twenty to 90 per million persons per year.⁴ An average physician is approximately 10 times as likely to encounter an in-flight medical emergency as a pheo. Yet, in my 7 years of medical training, I had never received a single lecture on how to manage an in-flight emergency, or any out-of-hospital emergency for

that matter. *Not one.* I'm sure I'm not alone. To expect anyone, even a physician, to run a code on an airplane—without the proper equipment, without formal training—is madness.

Buzz. The low-battery alarm on the phone snapped me out of my spell. It was now the dead of night. I turned off the reading light and crawled under the blankets. As an educator, I'm under no illusion that what we teach our students and residents is what they will actually see in real life. I and others have long argued that medical education is too antiquated; too focused on academic and mysterious diseases rather than on the common everyday conditions that actually harm and kill people. If every doctor needs to know how to detect a pheo, shouldn't every doctor also get at least some training in out-of-hospital medical emergencies? After all, we are doctors wherever we go. The public expects us to save lives: in the hospital, at the grocery store, at the mall, in the theater, on a bus, on a train, and even at 39,000 ft. We expect this of ourselves too. After all, we have to live with ourselves when we don't or can't save a life.

Seriously, it's time to sleep. I have another flight tomorrow, and who knows what's going to happen. I said a final prayer for Lupe, and closed my eyes.

Compliance with ethical standards:

Conflict of Interest: The author declares that he does not have a conflict of interest.

Corresponding Author: Steven Lin, MD; Stanford Family Medicine, Division of General Medical Disciplines, Department of Medicine Stanford University School of Medicine, 211 Quarry Road, Suite 405, MC 5985, Palo Alto, CA 94304, USA (e-mail: stevenlin@stanford.edu).

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