Complex Failure **April 28 , 2024**

Dear Residents,

Last Friday, just after the Foster Fellows presentation concluded, I snuck into Gooch Auditorium to listen to Amy Edmonson's lecture. You will recall that I have previously mentioned her work in psychological safety. She spoke about medical error and how we can mitigate medical error by creating a psychologically safe environment where one can speak up freely. She reminded us that we are stuck in the ABC model - NOT Airway-Breathing-Circulation, but rather, Accuse, Blame, Criticize. Most failures are complex failures, and often driven by a series of causes coming together in a perfect storm - the Swiss cheese model. One fails to learn from failure if one gravitates to the ABC (accuse, blame, criticize) model. When we do that failures go underground - the fear of being accused, blamed or criticized makes it unsafe to raise concerns or report errors.

Basic failures are common - forgetting to lock the door after leaving the home is an example. These are part of everyday life. Some are mundane and other than irritation, do not cause great harm (cereal in the fridge, milk in the pantry). But when systems are closely coupled, basic failures can propagate. A few weeks ago, I received an ABC complaint concerning you - apparently both the intern and the resident had placed a vancomycin consult to pharmacy. Both consults went through (to different pharmacists) and two doses were given instead of one. When I explored this further, I learned that while a duplicate medication order is flagged in Epic, a duplicate consult order is not. Thus, we had an error prone process rather than an ABC issue. Our EHR is constructed to avoid basic failures by a series of checks and balances, but when a consult is used to prescribe a medication, the process is potentially bypassed. I alerted the Epic team and I believe a fix is in the works.

Many of you know that I attended medical school in Karachi, which is a coastal city. I often escaped to Hawke's Bay Beach. One year a group of us spent New Year's Eve at Hawke's Bay Beach. The next morning everyone left but I decided to hang out for a while. The weather was warm (75), there was an offshore wind which made the sea look like a lake. Fully seduced, I went out on the windsurfer – it was a smooth ride; the flat sea and the offshore breeze had sent me out a few miles from the shore with ease. And then trouble hit. The wind picked up. I was attempting to tack back to shore but made no progress. The boom snapped. I had to roll up the sail and attempted to paddle back to shore. But the tide was going out and I was still making no progress. The only way to make any progress was to swim, while dragging the board behind me. I would have abandoned it – but it was my prized possession, and I knew that I could rest on it. It took me several hours to get back. The water was colder than the air (about 65). By the time I reached the shore, I was exhausted, cold, and dehydrated. And then the most serious complication revealed itself – my urine was dark brown. I guessed correctly – I had rhabdo. I presented myself to the hospital, My CK was over 30,000, my creatinine was around 4. Luckily, I recovered fully.

On my HiFly 500-CS windsurfer (1982)

I had made a series of basic errors that quickly cascaded. I went windsurfing after a night of revelry at the beach. I went alone. I discounted how cold the water was. I was seduced by an offshore wind and by the calm sea. I did not pay attention to the tide. I did not wear a life jacket. I had done this route so many times before that I was lulled into a false sense of security. I almost lost my life. There is a song about this. I think it is called "young, dumb and broke."

What we do in medicine every day is error prone. We design our systems to avoid basic error – checklists, warnings and alerts, order sets and redundancy in task execution. But errors will occur. Some will be inconsequential, while some will cascade and sneak their way through the usual checks and balances and result in death or injury. We can reduce the number of errors we make by focusing on three levels of awareness – self-awareness, situational awareness, and system awareness. Using checklists, reminders and with adherence to protocol, we can bolster self-awareness. In high risk/complex situations, we can heighten situational awareness by working as team, asking for help and by anticipating error (vigilance). Lastly, we all need to play our part in system awareness and report errors, speak about them, and work to change the system to make it less error prone. Many of you have found such system errors in order sets and have helped redesign them. One our patients at the VA received full dose methotrexate even though he had ESRD. He died from methotrexate toxicity. We completely redesigned the methotrexate order set to prevent this from happening again.

While I care deeply about making patient care safer, my main mission is to make medical education safer. I believe the cornerstone of this effort is to create a learning environment where it is safe to be curious, safe to speak up, safe to report problems and safe to dissent. It turns out that this directly promotes patient safety as well.

Revisiting the scene of the accident in 2019 – my family never got rid of the board.

Have fun, be safe.

Dino Kazi