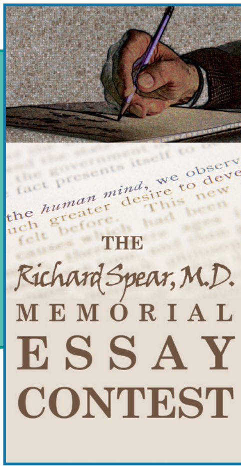

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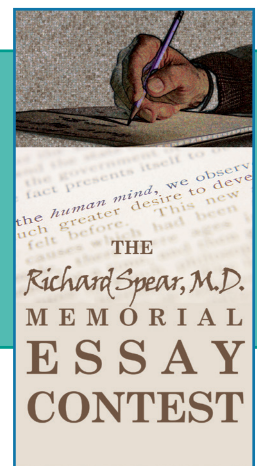

THE MACHINE IN ALL OF US

Joseph Bales, MD

I love having technology at my fingertips. From my very first shift in the ER I quickly realized my computer and smart phone had replaced my textbooks from medical school and were much easier to lug around. I could now look up the medication, dosage, interaction, and side effects of any treatment, all while maintaining eye contact with my patients.

The upsides to using technology are many. Using the latest app or medical website has decreased errors, improved patient safety and kept myself and countless other doctors up to date with the current guidelines. My attendings encourage their use, knowing that taking the extra time to look something up means we are learning more and guessing less. Even in the midst of a code I have seen doctors whip out their ACLS smart phone app... Two minutes CPR, Epi 1mg, pulse check, V-fib, shock, two minutes CPR, give Amio 300mg, pulse check... lather, rinse, repeat. Especially during those first few codes - a scary situation with someone's life in your hands - there is now a step-by-step guide available at our fingertips.

In medical school I studied the stages of grief and read chapters in a book about how to tell someone their loved one had died. I recently referenced this chapter online just minutes before having to tell a family about the fate of their murdered son. It read... be forward, be direct, be confident, be humble, and expect all sorts of reactions. So when that father threw his chair through the ceiling when I told him about his son, I was surprised but half expected such a response. With the help of the latest tech I could handle life threatening situations and grief reactions, without even breaking a sweat. This is when I recognized I was at risk of becoming a robot.

But as my years of residency have passed, I have realized that despite my reliance on technology, a machine could never perform my job. I still use my computer or smart phone on a daily basis, but the practice of medicine is so much more than an app. Patients are people and people (and their situations) are unique in every way we can imagine.

Last week I saw over 150 patients. Every diagnosis was determined by a series of questions, vital signs, history taking, physical findings, specific lab testing and imaging until it all added up to a diagnosis that I could treat and disposition appropriately. I'm sure I could insert all this data into one of my apps and it could handle each situation, but sometimes it's just not so simple...

Case #1: 6-year-old male comes in for fever, sore throat, vomiting for the past three days. 'Burns like fire' to swallow. Mild headache, and maybe some abdominal pain per dad. Fever 103°F, looked terrible on exam, but I've seen this a thousand times, strep positive, gave him some ibuprofen and a day off school, amoxicillin as long as he's not allergic and he'll be fine. Until I pushed on his abdomen and he flinched just a bit more than I'd expect. I decide to give the ibuprofen some time to work and came back and reassessed. Thirty minutes passed and fevers gone and patient said he's feeling better, but still just seemed a bit too tender right around his belly button. 'Shoot,' I think, 'this disposition is already thirty minutes longer than it should have been.' I trudged back to my attending feeling like a failure to get an 'easy dispo' home. The computer would have had him home long ago. I'm glad I strayed from the algorithm - formal ultrasound confirmed the ruptured appendix.

Case #2: 58-year-old gentleman history of high blood pressure and cholesterol (noncompliant), comes in with chest pain, crush-

ing, radiating to both arms and made him sweat, brought on by an emotional event and now gone. His ex-wife drove him to the hospital against his wishes because he 'almost passed out.' EKG was non-specific. His troponin came back moderately elevated and I called the cardiology team about the patient and ordered heparin. Easy NSTEMI dispo, this guy will need an urgent cardiac cath. When I returned to the room to discuss his plan of care, he had another episode of crushing chest pain, so he 'snuck out for a cig to calm the nerves.' After explaining that he had a heart attack and the need for acute intervention, he says 'sorry Doc, my son's funeral is today and I can't stay in the hospital.' Where's the app for this one?!

Case #3: Late 40s male well-known to our Emergency Department, comes in occasionally from EMS usually after drinking too much and being found on the side of the road. He is a smoker, drinker, has a part time job, no PCP, and sometimes stays with his aunt. Today is no different, he is passed out in a chair in the back, vomitus around mouth. He is arousable but we avoid this because he gets agitated. I order a chest x-ray to rule out aspiration. He admits to drinking and has no complaints, so I don't order labs. An hour passes and a call from radiology. "Have you seen this guy's x-ray?"' I admit, "Nope, haven't even looked at it yet." He's got a suspicious large nodule in left upper lobe, not good, especially in a long time smoker, he'll need some close follow-up. I've dealt with this before, in fact, guys like this with a lung nodule don't get admitted, but there is a specific clinic devoted to following up on these abnormal x-rays. But I know this guy, he hasn't been to a clinic since he was a kid. So while still too intoxicated to stand, he gets labs, a CT scan, IV fluids, and a diagnosis of 'likely primary lung cancer with multiple suspicious nodules.' By the end of the night, he was sober and somber, and thankful for a little extra care. His aunt picked him up that night and brought him to the clinic a week later.

Case #4: 21yo pregnant female G3P1AB1 at unknown gestational age. She had a positive pregnancy test at home about five to six weeks ago, with last normal menstrual period of 'I have no idea.' At two o'clock in the morning, her husband and 5-year-old son have accompanied her to the ER. She is having painless vaginal bleeding since the afternoon before. Labs show a positive HCG. Pelvic exam confirms minimal bleeding from the cervical os, but the os is closed. I perform the transvaginal ultrasound: 'Perfect, here is the baby as soon as I'm in. Looks maybe more like nine to 10 weeks based on what I can see. Arms, legs, head, it's all there. But wait... no heart beat.' I check and check and check some more, but nothing. The patient and her family are waiting for some reassurance that 'everything is ok.' If only I could oblige. If only I could remove the ultrasound probe and step out for a minute to collect myself before I had to say anything at all.

The practice of medicine is often mistaken as solely the pursuit of the diagnosis so that a patient can get treated with the appropriate medicines. But the truth is that this is just the beginning; often the more powerful medicine becomes the words that are spoken, and the extra care that is given, to treat every patient as a fellow human being. I love technology; I am very thankful for the medical site, the algorithm and mobile app that help me provide the best patient care possible, just so long as I don't forget that I'm still caring for your son, or dad, or brother, or wife.

Note: Joseph Bales, MD, is a graduating Emergency Medicine resident who will practice in Texas this fall.