

3. Parrish CR, Holmes EC, Morens DM, et al. Cross-species virus transmission and the emergence of new epidemic diseases. *Microbiol Mol Biol Rev* 2008;72:457-70.
4. Carlin EP, Machalaba C, Berthe FCJ, Long KC, Karesh WB. Building resilience to biothreats: an assessment of unmet core global health security needs. New York: Ecohealth Alliance, 2019.
5. Morens DM, Taubenberger JK. Influenza

cataclysm, 1918. *N Engl J Med* 2018;379:2285-7.

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Waste, Worry, and the Seven Sins of Medicine

Brendan M. Reilly, M.D.

It takes seconds to suspect the diagnosis — there's nothing else this could be. Annoying but benign, Greg's malady is common and typically resolves on its own. Reassuring him, however, isn't so simple, after other doctors have "scared the bejesus out of me." And Greg, who was on the 71st floor of the North Tower on 9/11, doesn't scare easily.

He called me after the cardiologist scheduled him for coronary angiography. *I couldn't walk fast enough on the treadmill — my sore hip, you know? — so they did the pharmacologic stress test, but that was inconclusive, too. So he says do the angiogram, better safe than sorry, right?*

Why are they doing these tests?

So I can get a note for the gym.

The gym?

Yeah. I had a spell in the gym. On the rowing machine.

A spell?

Yeah. First I had one when I was out jogging. My primary care sent me for an ultrasound of my neck.

Your neck . . . your carotid arteries?

Yeah. In case it was a stroke. Then they said I should see a cardiologist, but then I had the spell at the gym. The gym people got all nervous, said I need a doctor's note before I can come back. Then the next day I had another spell — in the bathroom, shaving — so I went to emergency. They put me in 23-hour observation, did an electrocardiogram and some blood tests and x-rays, then a CT of my head. That looked OK,

but then they needed one of my neck. Then they did an MRI of my brain, and after that a neurologist came and said my tests were fine, so maybe it's BPPV, but I better keep that appointment with the cardiologist in case something else is going on, too.

Something else?

Yeah, but I Googled BPPV, and it sounded right to me. One of the comments on the Web site said they should add a third "P," call it benign paroxysmal Purely positional vertigo because, like you said, it only happens when you change position. Nobody asked me about that, how I had turned my head each time it happened. Anyway, the cardiologist did a Holter monitor and an ultrasound and some other stuff, said everything looked good but we should do the angiogram, like why take chances, you know?

But . . .

I know. I mean, where's Occam's razor?

Greg holds a doctorate in advanced mathematics, so he knows about Occam's razor. I tell him about Hickham's dictum, the counterargument to Occam that says "the patient can have as many diseases as he damn well pleases." But Greg knows about Bayes' theorem, too — and prospect theory. So he asked the cardiologist to estimate his probability of coronary disease, given his lack of any risk factors except age. The guy looked at me like I was speaking a foreign language.

Pretest probability isn't the only

number on Greg's mind; he's begun receiving his medical bills. The charge for carotid ultrasound is \$3,339; his ED tests, \$26,432; the ones in the cardiologist's office, \$15,989. He hasn't seen the doctors' bills yet.

Greg was the chief information officer for two multinational drug firms, so outrageous pricing doesn't surprise him. Nor does irrational risk aversion. What shocks him is "the stupidity of the process, the mental laziness." *Where's the science?* he asks. *I've got this fleck of calcium tumbling around in my inner ear, and they tell me maybe it's a heart attack!* The final straw comes when Greg sees his niece, a young internist, at a family gathering. He begins telling her his story, but after about 30 seconds she says, "You got BPPV, huh? But it's getting better, right?" Greg can't believe it. *Here they are, doing MRIs of my brain and scaring the crap out of me, and this kid says "Oh yeah, millions of people get that, no big deal." Hello? People worry. These are not victimless crimes.*

Greg makes an ENT appointment to get an expert's reassurance. But the ENT's expertise doesn't extend to the inner ear. He looks at Greg's ear drum, does an audiogram, tells him he has some high-frequency hearing loss, but declines to opine about the vertigo. *For that,* he says, *you'll need to go to the Vestibular Center.*

There, in an office with a phys-

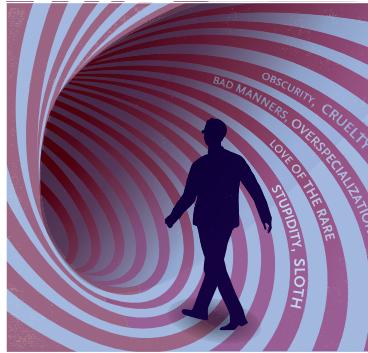
ical therapist, a podiatrist, and some Botox vendors, a woman tries some Epley maneuvers. Not much happens except for a brief eye flutter when Greg throws his head back. Greg feels encouraged, until the woman says, “I’m sorry, I can’t help you. You should see a neurologist, because I can’t rule out a problem with your central nervous system.”

Seriously? Greg says. No way I’m going to a neurologist. I’m done, I give up. You just get numb, you know?

Greg’s experience is neither aberrant nor new. “Stupidity” and “mental laziness” are two of the seven sins of medicine enumerated by Richard Asher decades ago.¹ Clinical stupidity, in Asher’s view, is “the opposite of common sense,” manifest most often as “therapeutic automatism.” Long before practice guidelines entered the zeitgeist, this treatment of patients “by rote and rule” was abetted by its companion sin, clinical indolence. “Especially in history-taking is sloth the great danger,” Asher wrote. “If the day is hot, the patient deaf, the doctor in a hurry, it requires enormous patience.” Worse, physicians’ “impatience in taking a history” isn’t just lazy, it’s also “bad manners,” another sin.

In Asher’s time, these and other transgressions — including “cruelty” (telling patients too much or too little, or forgetting them altogether) — were usually “due to thoughtlessness and not deliberate.” But today the distinction is less clear. Asher’s sin of “obscurity,” for example, was occasioned by physicians’ mindless use of medical jargon; today, our obscurantism is hard-wired into the electronic medical record, its copied-and-pasted nonsense an accepted cost of doing business. Similarly, Asher’s sin of “spano-

philia” (love of the rare), a subconscious bias that confounds clinical reasoning, has been superseded by doctors’ defensive (but deliberate) embrace of the “value-induced” bias that inflates the infinitesimal probability of medicolegally fraught “don’t miss” diagnoses.



But hesitant to add fuel to the fire, I don’t tell Greg that his experience is not only normal, it’s not even the new normal. He resents the waste and worry, but mainly he’s deeply disappointed, shaken by the sloppy indifference of professionals he needs to trust. *Look at us, Doc. We’re not getting any younger. Who’s gonna take care of us when we really need it?*

To many Americans, this question will seem silly, given medicine’s mind-boggling progress over recent decades. Today, if you need surgery on your wrist or retina or rectum, you can find a surgeon who does only that. Cancer? Plenty of oncologists treat only your kind. Of course, these super-subspecialists’ deep expertise is narrow. So Greg forgives his cardiologist for knowing nothing about vertigo — but wonders why he saw a cardiologist at all, why our system values specialists for their depth of knowledge but not generalists for their breadth. *The geometry is upside down*, he says, referring to the “inverted pyramid”

of U.S. health care. Top-heavy with specialty care teetering on an ever-shrinking base of primary care, *such a structure cannot hold*, Greg says. Ever logical, he asks *How did it go so wrong?*

For me, an old-fashioned internist, Greg’s question is painful. Not so long ago, U.S. primary care physicians actually took care of you; we didn’t just weigh you, tap on a keyboard, order a flu shot, refill your prescriptions, and refer you to a gynecologist for your Pap smear, an ENT for your earwax, an orthopedist for your sore knee, a dermatologist for your “annual skin check.” And if you wound up needing the hospital or a nursing home, we took care of you there, too. We needed help from specialists sometimes, but we knew when to ask, and why. Internists like me attended subspecialty conferences to update our skills, acquire some depth, facilitate more meaningful and efficient interactions with specialists. Not incidentally, we loved the learning and professional growth — a powerful (and largely forgotten) antidote to burnout. Pediatricians did the same, caring for sick kids in the office and hospital, not just filling out school forms for healthy ones. In fact, specialists did some primary care too, following patients whose principal problem necessitated ongoing specialty care but helping with their other problems too. Even the surgeons embraced this idea, needling “pill pushers” like me that “a good surgeon is an internist who also fixes things.” Asher, whose seventh sin was “overspecialization,” agreed: “A surgeon should be able to advise a patient with simple obesity about her diet and not refer her to an endocrine clinic.”

But the current “system” is all that most Americans know. So how can I answer Greg’s worries? I could romanticize the good old days but, in fact, the good old days weren’t that great. (Greg understands this better than most; his younger brother died of cystic fibrosis when we were in high school together.) No, if forced to choose between today’s spectacular saves and yesteryear’s holistic ways, I’d pick better outcomes over wiser process every time.

But can’t we have both? Greg asks. He knows that half the waste in U.S. health care — a trillion dollars a year — reflects profligate administrative complexity and pricing one can only call sinful.² But those sins can be undone only by our politicians, so good luck with that.³ What Greg wants to know is what the medical profession is doing about the other half of the waste — lack of access, overtreatment, fraud and abuse, discoordination of care.²

Why, he wonders, are we not talking about the opportunity costs of our “dumbing down” of primary care? So feckless is our 15-minute-visit, EMR-dictated, content-light practice model that primary care providers in many states need not attend medical school to practice medicine.⁴ This would seem absurd were it not a

result of medical educators’ denigration of primary care as a career choice and policy experts’ cluelessness about how smart primary care can “avert preventable downstream utilization.”⁵ In Greg’s case, such “high-value” primary care requires not only familiarity with the most common cause of vertigo but also some basic knowledge about vertebrobasilar ischemia, Meniere’s disease, acoustic neuroma, and posttraumatic labyrinthine fistula. Can nurse practitioners acquire such knowledge? Certainly. But can they know enough to address expertly the countless other undifferentiated clinical presentations prevalent in primary care? Certainly not. In fact, the larger question today — unanswered, in part, because it threatens powerful vested interests in business, medical subspecialties, and academe — is whether we can train, and retain, *physicians* who do smart primary care.

Greg thinks this “return to sanity” would prevent a lot of worry and waste. He’s added up the bills for his “trip down the rabbit hole”: they total \$74,542. Well insured, he’ll pay next to nothing out of pocket. *Even so*, he says, *it makes your head spin*.

A few months later, Greg sometimes still gets a little dizzy when he turns over in bed, but he’s

back in the gym, rowing hard. He’s planning a visit to Japan, where his daughter and her family live. They say the medical care in Sapporo is top-notch — and reasonably priced — so Greg figures it might be interesting to try it while he’s there. Shortly before he departs, his primary care physician calls. One of the CT scans Greg had for his vertigo showed a cyst in his liver.

They scanned my neck and saw my liver?

So it seems.

Well, I’ve known about that cyst for 20 years, so no big deal, right?

Mm, maybe. But it might be getting worse, you know? Why take chances?

Disclosure forms provided by the author are available at NEJM.org.

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1. Asher R. The seven sins of medicine. *Lancet* 1949;2:358-60.
2. Shrank WH, Rogstad TL, Parekh N. Waste in the U.S. health care system: estimated costs and potential for savings. *JAMA* 2019; 322:1501-9.
3. Berwick DM. Elusive waste: the fermi paradox in US health care. *JAMA* 2019 October 7 (Epub ahead of print).
4. Auerbach DI, Staiger DO, Buerhaus PI. Growing ranks of advanced practice clinicians — implications for the physician workforce. *N Engl J Med* 2018;378:2358-60.
5. Song Z, Gondi S. Will increasing primary care spending alone save money? *JAMA* 2019;322:1349-50.

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Interactive Perspective – Tuberculosis in 2020

The World Health Organization estimates that in 2018, 1.5 million people died from tuberculosis — higher mortality than that caused by any other single infectious agent. An interactive graphic now available at NEJM.org provides a guide to the history, epidemiology, and clinical characteristics of tuberculosis and highlights the obstacles to and strategies for containing infection.

