

Communication breakdown or clashing models?

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Cite as: Leveridge M. Communication breakdown or clashing models? *Can Urol Assoc J* 2024;18(12):367-8. <http://dx.doi.org/10.5489/cuaj.9061>

In October we met Carl, who spent half a day and precious dollars to see you about an old ultrasound.¹ Carl's cousin, whose name is also Carl, has grade group 3 prostate cancer, and you are meeting to talk about prostatectomy. You have a polished, data-driven spiel about the indications, performance, and outcomes of surgery, hewn from years of experience. This is a great option for Carl. You get along well with him and have left no stone unturned in your discussion, including your sense of Carl's "git'r'dun" ethos that makes the definitive nature of surgery appealing. In your mind, you're already celebrating his undetectable PSA with him in a few months.

Uncle Dale (last month's Carl's dad) also had prostate cancer. He had surgery 20 years ago and wears a diaper. He talks about it a lot, and now Carl is talking about it a lot. Your empathetic, comprehensive narrative matters for naught. You know current Carl is not going to be having surgery.

Is Carl misinformed? Is Carl plain wrong? Is Carl unsophisticated? I confess to these thoughts over the years — and will know this special exasperation many times hence — but of course, it's not that simple. Carl is not so much using Uncle Dale as evidence of *how things go* in the probabilistic way you and I weigh evidence, but of *how things might go*, with an understanding that removes the adverse effect from the abstract. He doesn't have to imagine leaking the way most do when weighing treatment decisions. Rather than a blank slate upon which you articulate your "prostate cancer and its management" model, Carl already has a model onboard that your description will encounter. The salience of Uncle Dale's lot means Carl is *anchored* to his surgery = incontinence model, and your counsel must account for this if he is to give a good therapy its due consideration.

We form and use mental models constantly; there's simply too much information to process in every decision. At the most basic level is the filter of *attention*. We focus on music, screens, or conversation partners, yet sensory data still floods

in. A crash, flash, or notification shifts our focus, so we know some RAM is attending to the environment. Through learning, we develop *heuristics*, allowing automatic response with little thought — sudden braking for a pedestrian, recognizing a face, or applying pressure to unexpected bleeding in the OR. Our more advanced *schemata* aggregate learning into complex representations foundational to the Medical Expert role. A medical student's understanding of "nocturia" is crude, while a functional urologist's is vastly more sophisticated. Add layers of understanding, emotion, and bias, and we reach our *mental models*, the frameworks for prediction and decision-making.

You are loaded with schemata and models already. Your commute to work takes almost no thinking. You have an idea what Antarctica or the moon or shimmying through a cave [ed: 🤪] is like, though you probably haven't been there. You have an opinion on taxes, homelessness, and "the economy." The word "cancer" does not just evoke your workday life. As study cohorts *represent* the population, so do our models represent reality.

Models are at play in our practices too, of course. We have what seem to be reflexes in the OR but are products of training and experience. More abstractly, team members in the OR share models of team roles and interactions, and tasks and routines of successful surgery.² Broadly, surgeons have a "fix it" model that underpins our confidence and helps us explain our recommendations in familiar terms like *blocked*, *leaky*, *damaged*, that we *repair*, *unblock*, and *rebuild*.³ This model risks lowering our threshold for futile surgery if we're not careful to couple it with deliberation. Our models' detachment from some objective standard is clear when we think of prostate cancer. You will be shocked to know that given intermediate-risk scenarios, radiation oncologists suggested radiation as superior vs. prostatectomy 51% to 12%, while urologists thought surgery superior to rads 59% to 1%.⁴

Patients will have less developed models of urologic disorders than us, but they are still present as thumbs on the scale of any decision-making under our counsel. Less informed by data or accumulated experience, they are rarely neutral and may be quite tenacious. The fact that we have colloquialisms like “The Big C,” “under the knife,” and “lost their battle” reveals the valence of the default model of cancer. You have probably heard worry that “letting the air at” cancer will hasten its spread. Indeed, 41% of respondents to an American College of Surgeons survey believed surgery spreads cancer.⁵ These patients decline surgery often on these grounds alone.

Many patients' experiences load them with models, both deferential and oppositional, around broad concepts like the healthcare system, “doctors,” or prescription medications. An overly rosy model can be great for compliance, but dusty for shared decision-making and at risk of overestimating both the need for specific care and its chances of success. A pessimistic or cynical model sees the clinic as a revenue machine devoid of empathy, and risks deepening antipathy when expectations are not met. Even the model of the self as a sick person can be particularly sticky; improved objective outcomes that require an identity shift are a special challenge.

These sound uncharitable to patients — and I think on the balance, patients are more likely to have maladaptive or fallacious models when they interact with their health and the healthcare system — but they are just the natural way of model construction in a lower information environment. You are this person too, much of the time. My models of how my car works, how my computer works, or how “the economy” works are low-fidelity, but the space has to be filled, so simplistic or even incorrect models appear. When our models are based on skewed samples, they are at risk of cognitive bias. We saw this at play with Carl's anchoring bias due to his powerful image of Uncle Dale. Urologists may similarly fall to anchoring. Seeing a study with an *n* of 30 and a *p*-value of 0.07 may mean we never think of the failed treatment again. A 64-year-old woman with frequency and urgency has OAB in my clinic. Down the hall in the gynecology office, she has GSM. Anchoring hematuria to a concomitant positive culture can be catastrophic if we ignore the cystoscopy.

At work, experience in training and practice iterates upon and deepens our models of urologic disease and care. This accumulation of skill and wisdom is accompanied by an accumulation of outlier events, whose vividness injects itself spuriously into our models and decision-making, particularly if such events (I'm talking

complications here) are recent. The *availability heuristic* (or recency bias) over-represents the complication or rare diagnosis and colors our decision-making. Suddenly there are zebras everywhere. Recent complications will color my behavior next time.

If we shift our view of failed agreement in the clinic from an idea of an unreceptive host to an underdeveloped model, we can perhaps see an avenue to improvement (#CanMEDSCommunicator). Reflecting live on where the patient's expressed model aligns and departs with yours, while acknowledging the high affect associated with their initial position, may help. In the critically ill, where heroic surgery may be futile or carry exceptional risk, authors found a *reframing* of the options (surgery vs. best supportive care) in terms of best-case, worst-case, and most-likely-case increased deliberation among surgeons while objectively increasing shared decision-making.⁶ Similarly, reframing mortality risk (e.g., 70% chance of dying in five years) as survival opportunity (e.g., 30% chance of living five years) increased patient acceptance of surgery.⁷ Using analogy (think sliders vs. light switches for therapeutic response, silos for risk stratification, red flags, a symphony for the complexity of sexual function, phantom limb pain, balance beams for fragile states...the list is as long as the imagination) is a method of constructing a new shared model in many circumstances.

In the end, I think there's an opportunity here. Understanding the existence, power, and constraints of models — patients' and our own — is a novel leap toward the sharing of decisions that we espouse but may struggle to practice. Give it a thought in clinic this week.

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