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Emerging Trends White Paper

INSPIRING HEALTHCARE PROFESSIONALS TO ACTION

CHANGING BEHAVIORS THROUGH MEDICAL STORYTELLING



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As humans and technology have evolved through the ages, one thing has remained consistent: knowledge is best transferred using stories. Human beings have communicated knowledge through stories for tens of thousands of years, as evidenced in everything from prehistoric drawings on cave walls, to the Bible, to new scientific documentaries. Many of the important learning moments we experience throughout life—especially those that challenge how we think and behave—are delivered via compelling stories.

So, if storytelling is so basic and essential, why do we continue to sentence our audiences to “death by PowerPoint” when we share new information in medical education? Every day, commercial and medical teams attempt to shine a light on novel scientific discoveries or new trial data, but awareness alone rarely prompts action. Only by understanding which beliefs and behaviors to concentrate on can you craft a compelling narrative to change those beliefs and behaviors. For example, common behaviors in clinical care focus on healthcare professionals (HCPs) screening patients for potential medical conditions, adding new products to their treatment armamentarium, or providing instructions on maintaining patients on therapy. Changing, creating, or reinforcing such behaviors, as many of us know, often represent a daunting challenge.

BEHAVIORAL ECONOMICS PRINCIPLES

In 2017, the Nobel Prize in Economics went to Richard Thaler for demonstrating that our traditional model of human decision-making is inadequate for explaining reality. Thaler’s work posits that people are predictably irrational—consistently behaving in ways that defy economic theory. He is a pioneer in a field of study we call “behavioral economics,” which is a method of economic analysis that applies psychological insights into human behavior to explain economic decision-making.

Research has shown how expectations, emotions, social norms, and other invisible, seemingly illogical forces skew people’s reasoning abilities. Not only do we make astonishingly simple mistakes every day, but we make the same types of mistakes. We consistently overpay, underestimate, and procrastinate. We fail to understand the profound effects our emotions have on why we want what we want and how we go about getting it. Yet these misguided behaviors are neither random nor senseless. They are systematic and predictable, and therefore, we can study them and apply what we learn.

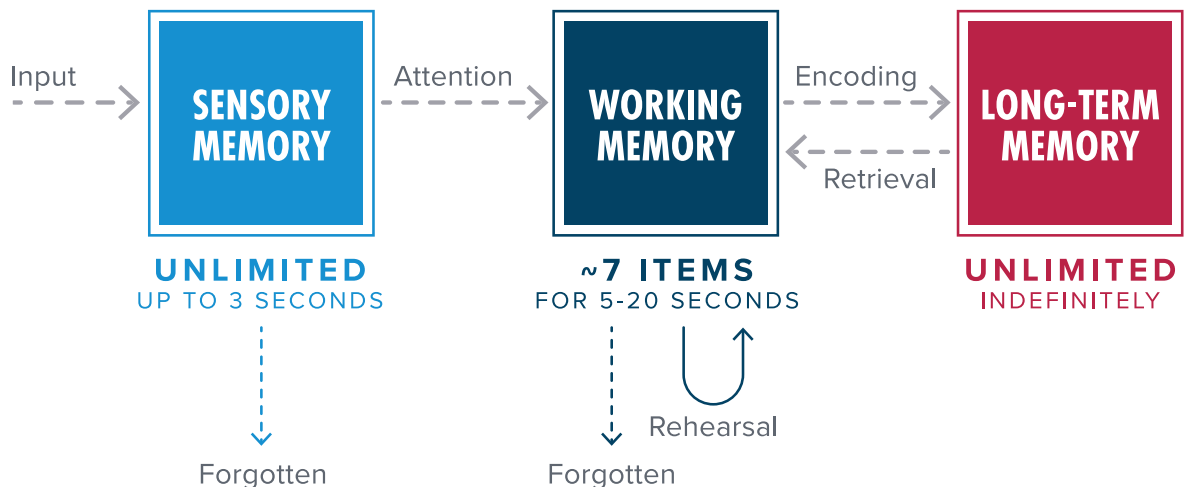
Thaler’s findings have deep implications for the practice of medicine. Pharmaceutical marketers often assume HCPs can readily assimilate a wealth of information about the clinical and economic value of alternative drug choices for a given medical condition, evaluate all the findings, and synthesize them to make the most appropriate treatment choices for their patients. However, actual drug-utilization data reveal that real-world prescribing decisions are in fact based on various “irrational biases,” many of which behavioral economists and other decision theorists have described.

THE PSYCHOLOGY OF CLINICAL DECISION MAKING

The healthcare industry is increasingly complex due to advances in clinical research, new technologies, increasing intricacies in interdisciplinary care delivery, and evolving regulatory and payment structures. HCPs' ability to process massive amounts of information, however, has remained constant. They hunt and gather new

information through reading, listening to, or imitating others. Formal education comprises this type of data acquisition. We store existing knowledge in long-term memory (Figure 1). When information is needed to make clinical decisions, HCPs retrieve it in long-term memory, process it through working memory, and bring it to the forefront of awareness for clinical care. Simultaneously, data from the environment are processed through working memory as well.

Figure 1. Information Processing Model



Adapted from Atkinson RC, Shiffrin RM. Human memory: a proposed system and its control processes. In Spence KW, Spence JT, eds. *The Psychology of Learning and Motivation*. Vol 2. New York, NY: Academic Press; 1968:89-195.

The most important aspect of “cognitive load theory” is that retrieval of both new information and existing knowledge must both pass through working memory. Working memory is a limited resource when dealing with novel information, but unlimited when dealing with familiar knowledge. As a consequence, when HCPs are overloaded with details or distracted by unnecessary information, the ability to integrate new, important information or alter stored information becomes limited, with direct implications for their ability to learn and practice medicine. In situations of high cognitive load (eg, clinical care settings), HCPs tend to fall back on mental shortcuts like cognitive biases (eg, bandwagon effect, framing effect, confirmation bias) and judgement heuristics (eg, availability, representativeness, anchoring and adjustment).

Therefore, HCPs are more influenced by salient information presented concisely than by an exhaustive presentation of all available data. This helps explain the power of streamlined promotional materials, such as interactive sales aids. HCPs are also moved more by the prospect of harms or losses than by identically sized benefits or gains. For instance, the low probability of causing an intracerebral hemorrhage by prescribing an anticoagulant to a patient with atrial fibrillation is more likely to influence clinical practice than the opportunity to prevent significantly more ischemic strokes with such a medication. In addition, recent experiences shape HCPs' beliefs far more than remote events, a phenomenon called “last-case bias.” HCPs also often overestimate small probabilities, such as uncommon drug risks, as compared to large ones, such as proven drug benefits, for the same reason many people fear dying in a plane crash more than in a car accident, though the latter's probability is significantly more likely on a per-mile basis.

SHAPING BEHAVIOR CHANGE INTERVENTIONS: RELEVANCE OF THE COM-B SYSTEM

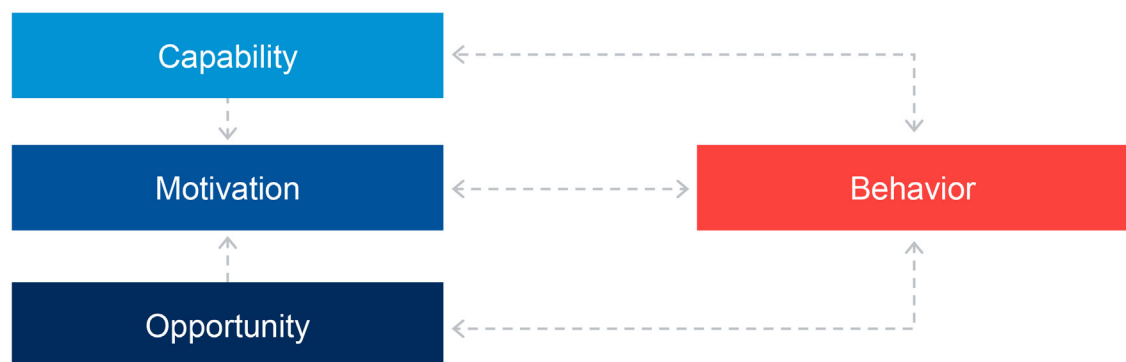
Improving the implementation of evidence-based clinical practice depends on behavior change; thus, behavior change interventions are critical to the effective practice of clinical medicine. We can define these interventions as coordinated sets of activities designed to change specific behavior patterns. Interventions are used to promote uptake and optimal use of effective clinical services and to encourage healthy lifestyles. Evidence of intervention effectiveness serves to guide HCPs to implement what is considered best clinical practice (eg, Cochrane reviews, medical societies' guidelines). While many examples of successful interventions exist, so too do countless examples of ones that have failed to change behaviors.

The process of designing behavior change interventions first consists in determining which broad approach to adopt and then working on the specifics around designing the intervention. For instance, when attempting to reduce excessive antibiotic prescribing, we may decide an educational intervention is the appropriate approach. Alternatively, we may seek to incentivize appropriate prescribing or in some way penalize inappropriate prescribing. Once we have made a determination on the best course, we can decide on the specific intervention components.

To identify the intervention types with the highest likelihood of success, it is important to evaluate the full range of options available and to employ a rational system for selecting among them. This requires using a system for characterizing interventions that covers all possible intervention types together with a system for matching these features to the behavioral target, the target audience, and the context in which the intervention will be delivered. At the center of a proposed framework of behavior change is a behavior system involving three key conditions: capability, opportunity, and motivation, something Susan Michie and colleagues call the COM-B System.

In the COM-B System, capability, opportunity, and motivation interact to generate behavior that, in turn, influences these components, as shown in Figure 2. Capability is defined as the individual's psychological and physical capacity to engage in the activity in question. It includes having the necessary knowledge and skills. Motivation is defined as the brain processes that energize and direct behavior, not just goals and conscious decision-making. It includes habitual processes, emotional response, and analytical decision-making. Opportunity is defined as the environmental factors that lie outside the individual and either make the behavior possible or prompt it. The single-headed and double-headed arrows in Figure 2 represent potential influence among components in the system.

Figure 2. The COM-B System, a Framework to Understand Behaviors

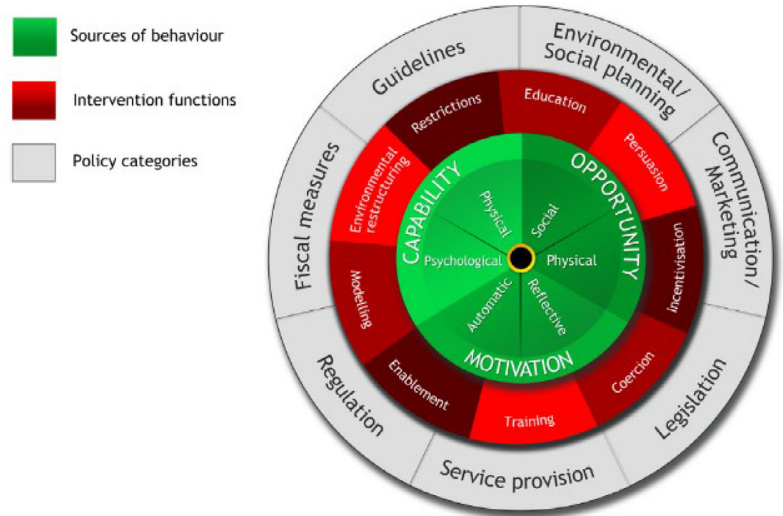


Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change. *Implement Sci.* 2011;6:42.

This forms the hub of a behavior change wheel around which are positioned the nine intervention functions aimed at addressing deficits in one or more of the three conditions of the COM-B System. Around this are seven policy categories that can enable those interventions to occur. Given that policies can only influence behaviors through the interventions that they enable or support, it justifies why interventions are placed between policies and behaviors.

The most appropriate way of depicting this is to represent the whole classification system as a behavior change wheel with three layers, as shown in Figure 3. This is not a linear model in that components within the behavior system interact with each other as do the functions within the intervention layer and the categories within the policy layer.

Figure 3. The Behavior Change Wheel




Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change. *Implement Sci.* 2011;6:42.

WHY OUR BRAINS LOVE STORYTELLING

Evidence shows that storytelling evokes a strong neurological response. Paul Zak, a renowned economist and psychologist at Claremont Graduate University, has demonstrated that our brains produce the stress hormone cortisol during tense moments in a story, which allows us to focus, while happy moments stimulate the release of oxytocin, the “feel-good” chemical that promotes connection and empathy. Other neurological research indicates that a happy ending to a story triggers the limbic system, our brain’s reward center, to release dopamine that makes us feel more hopeful and optimistic.

Specifically, oxytocin is produced when we are trusted or shown kindness, and it motivates cooperation with others. It achieves this cooperation by enhancing the sense of empathy—our ability to experience others’ emotions. Empathy is important because it allows us to understand how others are likely to react to a particular situation. Zak has postulated that the oxytocin system can be channeled to motivate people to engage in cooperative behaviors. Therefore, he evaluated whether narratives shot on video, rather than face-to-face interactions, would cause the brain to produce oxytocin. By analyzing blood samples drawn before and after exposure to the narrative, he found that character-driven stories consistently promote oxytocin synthesis. Furthermore, the amount of oxytocin the brain released predicted to what degree people were willing to help others—for instance, donating money to a charity associated with a narrative.



In subsequent studies, Zak was able to deepen our understanding of why stories motivate behaviors of voluntary cooperation. He discovered that in order to motivate a desire to help others, a story must first sustain attention—a scarce resource in the brain—by developing tension during the narrative. If the story is able to create that tension, then it is likely that attentive viewers or listeners will come to share the emotions of the characters in it, and, after it ends, will likely continue mimicking the feelings and behaviors of those characters.

These findings on the neurobiology of storytelling hold relevance for the healthcare industry. For instance, Zak’s research shows that character-driven stories with emotional content result in a better understanding of the key points a speaker wishes to make and enable better recall of these points later. In terms of impact, this approach blows the standard PowerPoint presentation to pieces. Zak advises marketers to begin every presentation with a compelling, human-scale story. Why should HCPs care about the new product you are launching? How does it improve their patients’ lives? These are key factors that make new information persuasive and memorable.

Often when we describe new concepts or launch new products in the pharmaceutical industry, we have a tendency to overexplain—sometimes out of an overabundance of caution, to be sure—but usually because we lack focused messaging. This translates into a data dump of prescribing information and trial results, which is, of course, important and necessary information, but when it dominates the product narrative and its intrinsic value proposition, such information becomes overwhelming and practically impossible to recall after being presented.

What if we were to focus instead on the key behaviors and associated beliefs we are trying to change using a framework like the COM-B System? Then take some creative lessons from the film industry to design the most concise, compelling story to change those beliefs and behaviors. We can still incorporate key trial data and prescribing information as the main and supporting evidence, but the key focus will be on your brand or medical story—a narrative HCPs will remember and, therefore, more likely behave differently as a result of being exposed to it.

WINNING HEARTS AND MINDS: THE POWER OF MEDICAL STORYTELLING

Storytelling may seem like an old-fashioned tool today—and rightfully so: to a certain extent, it is. That is exactly what makes it so powerful. Life unfolds in the narratives we share with one another. A story can go where quantitative analysis often cannot: to the heart. Clinical trial data can instill confidence and persuade HCPs, but they do not compel them to change behaviors nor do they inspire them to act. To inspire behavior change, you need to wrap your brand strategy in a medical story that wins hearts and minds.

So, as you prepare your next presentation, candidly consider whether it is truly a “killer presentation” or just another “death by PowerPoint.” What are the key beliefs and behaviors you want to change? Identifying what you are truly trying to achieve can help you craft a compelling, compliant, and balanced medical story that appeals to your audience, sticks in their memory, and inspires them to think and ultimately act differently.



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