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Mind and Medicine: Amplified Healing Through Behavioral Science

By David Johnson, CEO

Market Corner Commentary for September 16, 2015



In announcing his [Precision Medicine Initiative](#), President Obama articulated a medical future where genetic discovery shapes tailored therapies that eradicate disease.

Listen to the President's language:

“Doctors have always recognized that every patient is unique...and tried to tailor their treatments...to individuals. You can match a blood transfusion to a blood type...What if matching a cancer cure to our genetic code was just as easy, just as standard? What if figuring out the right dose of medicine was as simple as taking our temperature?”^[1]

President Obama’s statement embodies bio-medical determinism. Its proponents adhere to a Newtonian view of the body as machine. With enough genetic knowledge, they believe physicians can manipulate individual genomes to engineer cures. In this worldview, unlocking complex cause-and-effect relationships solves medical mysteries.

Medical science will discover more breakthrough treatments employing proven research methodologies (e.g. randomized controlled trials). Traditional/Newtonian medicine, however, cannot explain spontaneous remissions, the mechanics of the “placebo effect” or correlations between loneliness and higher disease levels.

Emotions, relationships, mindsets, lifestyle and beliefs influence how well or poorly individuals heal. Factors influencing individual response to disease are inter-related and irreducibly complex. Observational studies are more effective at discovering what works.

Triune Brain: Three Brains in One^[2]



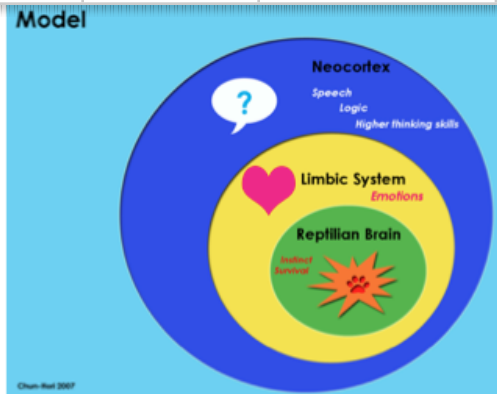
The human brain is large, takes years to develop and consumes twenty percent of body’s

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energy. It's that big and resource-intensive to manage human relationships, facilitate collaboration and understand others' perspectives.

Dr. Paul MacLean theorized that the human brain evolved in stages as three separate brains to "solve problems" in outdoor environments. He named this the "triune" brain, literally three brains in one.

The brain stem or "reptilian brain" controls vital functions, such as breathing. The Paleomammalian brain or limbic system creates emotions, fears and pleasures as it interprets sensory information. The neocortex or "human brain" controls speech, vision and memory as well as "uniquely human" cognitive functions, including problem-solving, emotional control and intellectual focus.

The brain's architecture has evolved over millennia and contains multiple shortcuts and inbred bias. These memory and bias "quirks" influence decision-making.

People believe they act rationally; however, the vast majority of human behavior is instinctive and habitual. Malcolm Gladwell equates the brain's rational and instinctive influences on behavior to a boy riding an elephant. The boy thinks he's in control, but it's the elephant determining where they're going.

Behavioral Science: Explaining the Irrational



Traditional economics assumes market participants have perfect information and act rationally. Prices alone determine purchasing behavior. Traditional economists ignore "externalities" when developing elegant models to explain market behavior.

In the real world, people are not rational. Emotions and circumstances influence financial decision-making. Overconfident and fearful investors hold on to losing stocks too long and exit markets at the wrong time.

Behavioral science attributes illogical behaviors to the brain's built-in biases. Nobel-

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laureate Daniel Kahneman termed these inbred biases “heuristics”. Let’s examine three:

- **Anchoring:** current circumstances should guide decision-making, yet people often “anchor” to past events in making current decisions. Individuals selling houses often “anchor” their expectations to their original purchase price independent of current market conditions.
- **Priming:** language and stories shape human behavior. After hearing descriptions of elderly people, individuals walk more slowly. The descriptions “prime” the brain to mimic “old” behaviors.
- **Framing:** establishing a “frame” for decision-making influences individual choice. On average, people expect others to pay them far more to take a risk than they are willing to pay to avoid the same risk. This “payment versus purchase” dynamic frame distorts value assessment and decision-making.

Behavioral Science and Medical Decision-Making: A Turbo-Charged Relationship

Behavioral science expands our understanding of how emotions, beliefs and bias influence decision-making. The “pictures in our heads”, the “stories” we tell ourselves and how we feel influence how we interact with one another and the world. The brain’s “infrastructure” influences all human decision-making, but it is particularly potent in medicine. Consider these two stories:

- When he was in his mid-sixties, Stamatis Maraitis discovered he had terminal lung cancer. This occurred in 1976. After several doctors confirmed that he had just months to live, Stamatis returned to his native home in Ikaria, Greece to save funeral expenses and be buried with his ancestors. Desperately sick when he arrived, Stamatis started to feel better and began enjoying Ikaria’s simple pleasures – a relaxed pace, fresh food, walking outdoors, being with friends, attending church. Ultimately, his terminal lung cancer “just went away.” He’s now over a hundred years old, remains active and happy. Stamatis’ body healed itself. [\[3\]](#)

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- Emanuel Muttukumar was the maternal grandfather of Iora Health founder and CEO Rushika Fernandopulle. Emanuel was a highly-educated professional from Sri Lanka. He became a senior leader in food and agriculture at the United Nations. Emanuel's father Wilfred died four days before his sixtieth birthday. Many years later, Emanuel's older brother Hugo died four days before his sixtieth birthday. Emanuel predicted this would be his fate. Two years later, he died four days before his sixtieth birthday. As biologist Bruce Lipton observes, "The brain perceives and the mind interprets." Emanuel died four days before his sixtieth birthday because his mind believed he would.

Stamatis' and Emanuel's stories illustrate that powerful mind-body forces influence disease and healing. What we believe and how we live affect our health in profound ways. Placebo and nocebo (negative belief) shape health outcomes.

Better Living Through Chemistry



The body's limbic system monitors sensory information and triggers chemical responses to external stimuli. When sensing stress, the limbic system triggers "fight or flight" mechanisms that prepare the body for immediate physical action. Blood flows from the brain to our muscles. Glands flood our system with stress hormones, most notably adrenaline and cortisol.

When relaxed, the limbic system floods our bodies with natural endorphins, serotonin and other chemicals that lower stress, reduce pain and promote healing. Restful sleep, meditation, deep breathing, a nurturing environment and exercise trigger release of healing hormones.

The limbic system's sensors are crude. They cannot distinguish between a sabre-tooth tiger attack, worry about getting fired or an obnoxious neighbor. Modern life creates prolonged stresses that flood the body with excessive stress hormones and damage immune systems. Prolonged stress also stifles release of relaxation hormones. Afraid, angry and depressed people get sick more often and die younger than the general population.

Outcome Variation

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All diseases have physiologies that exhibit expected outcome with positive and negative variation. Stress and relaxation influence individual responses to disease. They contribute to and detract from successful outcomes. As Stamatis and Emanuel's stories illustrate, mind-body connection can even trigger spontaneous remission and death.

Range of Disease Outcomes Mind-Body Influencers



Heuristics and Medical Conversations

Medical conversations can be scary and dispiriting. Without being Pollyannaish, medical conversations also can be nurturing and encouraging. Positive mind-body connectivity translates into less disease and better outcomes. Happy, optimistic, engaged patients with strong support networks and nurturing caregivers have more resources to fight illnesses than scared, lonely, pessimistic, disengaged patients with limited support and ambivalent caregivers.

Heuristics can improve healing through intelligent application. In their book [Nudge](#), Richard Thaler and Cass Sunstein termed this type of intermediation “libertarian paternalism.” Individuals retain decision-making power, but the decision-making process “nudges” them toward better choices. Irrespective of prognosis, medical conversations should nudge patients toward engagement and positive outlooks. When talking to patients, caregivers should strive to minimize stress, so the body can unleash its natural healing capabilities.

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Let's explore heuristics in this context:

- **Anchoring:** many patients have pre-determined ideas regarding their health “anchored” in family histories, personal experience and/or deeply-held beliefs. Biology is not destiny. Disease outcomes are not pre-ordained. Caregivers who identify and address “anchored” beliefs can change how individuals think about their health. Positive belief triggers natural bio-chemical responses that promote health. When people believe they can heal, they often do.
- **Priming:** caregivers should consider the environment, images and messaging leading into medical conversations. Collectively, these “atmospherics” should “prime” patients for receiving supportive, positive communications regarding diagnoses and treatment. Patients primed for healing will heal better. Children’s hospitals do this naturally.
- **Framing:** caregivers should avoid hard percentages. They reflect average, not individual, experience. Like children in Lake Woebegone, all patients want to be above average. Even with life-threatening diagnoses, caregivers should stress to patients that people do survive and prosper. They also should emphasize their personal support and “frame” treatment and recovery as joint challenges.

Unleashing the Doctor Within

“It’s supposed to be a professional secret, but I’ll tell you anyway. We doctors do nothing. We only help and encourage the doctor within.” Albert Schweitzer, M.D.

Medicine has always had great healers - doctors, nurses and other caregivers who nurture disproportionate numbers of sick people back to health. Natural healers connect with patients and unleash the body’s restorative capabilities. They augment modern medicine’s powerful technology with empathy, compassion and kindness.

Behavioral science gives medicine deep insight into brain function, mind-body connection and the benefits of optimism. It also provides proven strategies for enhancing medical communications. Medicine is much more than surgical and pharmacological intervention.

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Deep healing requires addressing the root causes of disease, particularly chronic disease. Holistic healthcare is the best healthcare.



American healthcare cannot advance without exploiting the incredible powers of self-healing and human connection. Dignity Health has it exactly right. Two years ago Dignity launched a national [Hello Humankindness](#) campaign to bring humanity back into healthcare. Where medicine's technological imperative ends, human kindness

continues and sustains.

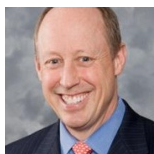
[\[1\]](#) President Obama, January 30, 2015, State-of-the-Union Address

[\[2\]](#) Source, [Brain Rules](#) by John Medina, particularly chapter two "Survival", 2008

[\[3\]](#) *New York Times*, "The Island Where People Forget to Die," by Dan Buettner, October 24, 2012

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David Johnson is the CEO of 4sight Health, a boutique healthcare advisory and investment firm. Dave is a frequent writer and speaker on market-driven healthcare reform. His expertise encompasses health policy, academic medicine, economics, statistics, behavioral finance, disruptive innovation, organizational change and complexity theory. Dave's forthcoming book, [Market vs.](#)

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Medicine: America's Epic Fight for Better, Affordable Healthcare, will publish this fall

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