
HEALTH SYSTEMS THINKING

A PRIMER

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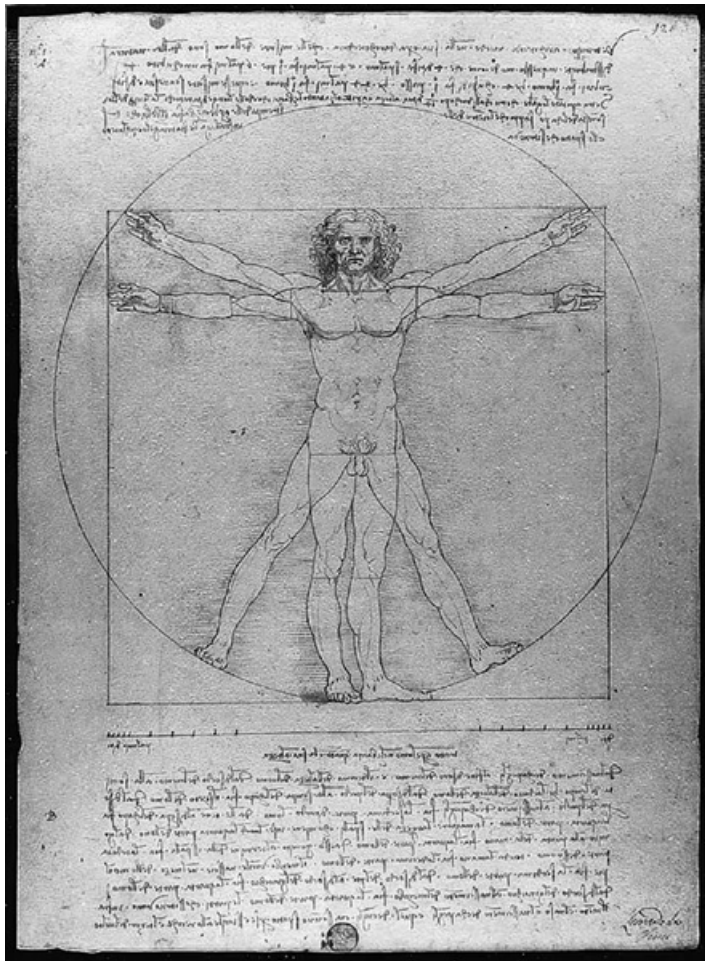
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Courtesy of Leonardo Da Vinci

"I think with all my senses. When I have a vision of something, I can see it, I can touch it, I can taste it, I can smell it. I look for the hidden meaning behind everything, because I know that everything is connected with everything else."

Leonardo da Vinci (1452–1519), artist, inventor, scientist, systems thinker

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Preface

In an era of a dynamic, uncertain, complex, and ambiguous health challenges at all levels and in every setting, this *Primer* on systems thinking, as it pertains to health, is urgently needed. Popularized 20 years ago, systems thinking principles and theories have waxed and waned in management and medical sciences, while retaining saliency in the physical, biological, and social sciences. Now, systems thinking has gained wide acceptance and applicability, especially in public health settings. It has been advocated by the World Health Organization, implemented at the Centers for Disease Control and Prevention, promoted by the American Medical Association, and utilized widely at the National Institutes of Health. Systems thinking challenges health leaders and clinicians to assess the interactions and interdependencies among elements in a system and seeks out opportunities to generate sustainable solutions. Furthermore, systems thinking focuses on nonlinear assumptions about human behavior and feedback loops to determine a system's behavior over time, thus finding leverage points to create more reliable and innovative health systems with a goal of better health for all. The theories, concepts, and methods presented in this text are suited to different health settings and professions. Furthermore, the *Primer* describes the foundations of systems thinking, while presenting tools, applications, and cases to enhance the readers' understanding and value of such an approach.

The *Primer* provides a foundations chapter to introduce the reader to systems theory, systems science, and systems thinking. This is followed by a chapter focused on systems thinking for health administration, a chapter on systems thinking for clinicians, and a subsequent chapter on systems thinking for public and global health. Each of these chapters includes essential concepts along with interviews of systems thinkers and illustrations of various systems thinking tools and processes. Finally, there is a fifth chapter that is comprised of systems thinking cases selected to profile a sample of systems thinking applications in a variety of settings addressing diverse challenges and problems.

Currently, the accrediting commissions within public health, health administration, and nursing are including systems thinking as part of the core competencies in their respective fields. Likewise, in medicine, we are seeing health systems science being added to the medical curricula. Meanwhile, academic programs do not have sufficient learning materials on this topic to give students the requisite knowledge expected of the next generation of health professionals. This *Primer* addresses the void by empowering its readers with greater understanding of this important and timely topic, while increasing appreciation for the tremendous potential and urgent necessity of systems thinking.

In an April 16, 2018 *Time Magazine* interview with Bill Gates, founder of Microsoft and Co-President of the Bill and Melinda Gates Foundation, Mr. Gates made the following statement about systems, "Modernity is a miracle of systems. Jonas

Salk was an amazing scientist, but he isn't the only reason we're on the doorstep of eradicating polio—it's also thanks to the coordinated vaccination effort of health workers, NGOs, and governments. We miss the progress that's happening right in front of us when we look for heroes instead of systems. If you want to improve something, look for ways to build better systems." With the publication of this health systems thinking primer, we hope to inspire and empower you to do just that in your organization, profession, and the world.

James A. Johnson, PhD, MPA, MSc

About the Authors

Dr. James A. Johnson is a medical social scientist and health policy analyst who specializes in organizational and systems development. He is a Full Professor in the School of Health Sciences at Central Michigan University where he teaches comparative health systems and health systems thinking. Dr. Johnson is also a Visiting Professor at St. George's University in Grenada, West Indies and the former Chairman of the Department of Health Administration and Policy at the Medical University of South Carolina where he was also an Associate Professor of Family Medicine. He has been an active researcher and health science writer with 18 books and over 100 journal articles published. Fifteen of his books are in the National Library of Medicine. One recent book, which is read worldwide, is titled *Comparative Health Systems: Global Perspectives* where he and co-researchers analyzed the health systems of 20 different countries. Dr. Johnson is the past-editor of the American College of Healthcare Executives (ACHE) *Journal of Healthcare Management*; founding editor of the *Carolina Health Services Review*; currently a Contributing Editor for the *Journal of Health and Human Services Administration*, and global health editor for the *Journal of Human Security and Resilience*. He works closely with the World Health Organization (WHO) in Geneva, Switzerland and the Heart to Heart NGO in Belize, on projects, often involving students. He is a regular voting delegate to the World Health Congress. His work and travels have taken him to 40 countries so far. Dr. Johnson has been an invited lecturer at Oxford University (England); Beijing University (China); University of Dublin (Ireland); University of Colima (Mexico); St. George's University (Grenada) and University of Pretoria (South Africa), as well as, universities, associations, and health organizations within the United States, including visiting or adjunct professorships at University of Michigan and Auburn University. Additionally, he serves on the Governing Council of the American Public Health Association (APHA) and has served on many boards including the Scientific Advisory Board of the National Diabetes Trust Foundation; Board of the Association of University Programs in Health Administration (AUPHA); Advisory Board of the Alliance for the Blind and Visually Impaired; Board President of Charleston Lowcountry AIDS Services; Advisory Board of the Joint Africa Working Group; Board of Directors of the Africa Research and Development Center; Advisory Board of the Center for Collaborative Health Leadership; and Board of Advisors for Health Systems of America. He is assisting the Kenya Relief NGO with the formation of an international advisory board. Dr. Johnson completed his Ph.D. at Florida State University where he specialized in health policy and organization development. He also has an MPA in healthcare administration and policy from Auburn University.

Dr. Caren C. Rossow is an Assistant Professor of healthcare administration at the Vera Z. Dwyer College of Health Sciences, Judd Leighton School of Business, and the College of Liberal Arts and Sciences at Indiana University of South Bend. Currently,

Dr. Rossow teaches graduate and undergraduate courses in healthcare management, health policy and advocacy, ethics, and healthcare human resource management. Prior to her academic appointment, she worked over 30 years in a number of divisions and director and management positions in community hospitals and regional healthcare systems. She has a comprehensive background in various healthcare service lines and is experienced in planning, operations, logistics, finance, and human resource management. After completing her doctorate, she has presented internationally and authored peer-reviewed articles and book chapters. She is co-author with James Johnson on the recently published second edition of *Health Organization: Theory Behavior, and Development*. Her research interests include international health, pandemics, health systems in crisis, and organizational and biomedical ethics. Dr. Rossow has participated in 12 study abroad and service learning trips to five countries, most recently co-leading trips to both Sweden and Belize. Dr. Rossow completed an MSA at the College of Business, University of Notre Dame, and a CIH (Certificate in International Health) and DHA at the Dow College of Health Professions, Central Michigan University. Dr. Rossow is also a registered nurse (RN) and a Fellow in the American College of Healthcare Executives (FACHE).

Douglas E. Anderson, DHA, MBA, FACHE is a retired Air Force Medical Service Corps officer and currently serves as consultant and adjunct professor. He coaches senior health executives on strategic leadership and provides customized leader development programs. He has experience as a CEO, COO, and Corp. Staff officer and worked many large-scale transformational initiatives throughout his career. Prior to retirement, he served as the Director of Strategic Communication for the AF Surgeon General and spent 1-year helping the Afghanistan National Police build their health system. He is co-author of *Systems Thinking for Health Organizations, Leadership, and Policy*.