RESPONDING TO THE GRAND CHALLENGES IN HEALTH CARE VIA ORGANIZATIONAL INNOVATION

Needed Advances in Management Research

Edited by Stephen M. Shortell,
Lawton Robert Burns and Jennifer L. Hefner

ADVANCES IN HEALTH CARE MANAGEMENT

VOLUME 21

RESPONDING TO THE GRAND CHALLENGES IN HEALTH CARE VIA ORGANIZATIONAL INNOVATION

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RESPONDING TO THE GRAND CHALLENGES IN HEALTH CARE VIA ORGANIZATIONAL INNOVATION: NEEDED ADVANCES IN MANAGEMENT RESEARCH

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Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2023

Editorial matter and selection © 2023 Stephen M Shortell, Lawton Robert Burns and Jennifer L. Hefner.
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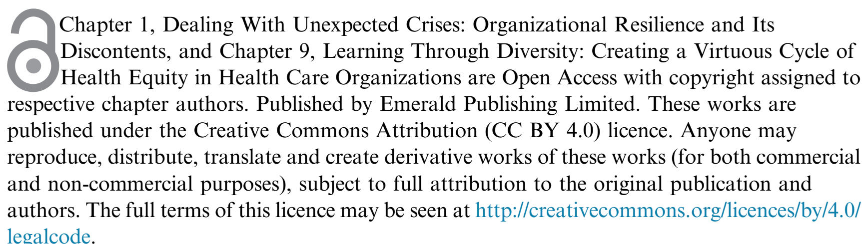

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British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-80382-320-1 (Print)
ISBN: 978-1-80382-319-5 (Online)
ISBN: 978-1-80382-321-8 (Epub)

ISSN: 1474-8231 (Series)

ISOQAR certified Management System, awarded to Emerald for adherence to Environmental standard ISO 14001:2004.

Certificate Number 1985
ISO 14001

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PREFACE

ADDRESSING CHALLENGES – MOVING KNOWLEDGE TO ACTION

Good morning, America! Welcome to the world of climate-induced fires and floods, ongoing pandemics, persistent gun violence, and global conflict. Lacking the political will and national capabilities for prevention and safeguarding the public's health, the health care ecosystem becomes the default option and "first responder" to these and related challenges. Further, hospitals and physician organizations are often disproportionately blamed for poor population health outcomes that are more influenced by organizations and sectors involved with the underlying social determinants of health. The first victim of such events is a person's health and, collectively, the health of the population. The COVID-19 pandemic alone has reduced life expectancy in the United States from 79 to 77 years (Woolf, Masters, & Aron, 2021), with still-to-be-determined effects on people's health over their life course.

We live in a world of wicked problems where in many cases we do not even know what it is that we do not know. We are now two-years post-COVID and we have not identified the right national approach taken by the United States or any other country, or whether any of the steps taken a century ago to deal with the 1918 influenza pandemic should have been adopted or would have worked better. This does not sound like a "learning" system.

The goal of research is to reduce such uncertainty and produce some understanding about what to do. But "what to do" is often context dependent, subject to the need for customization across multiple settings and circumstances. One-size solutions "do not fit all." Health care leaders and managers from both the policy and practice worlds are crying out: "Help us solve these wicked problems! We need systems that are responsive! Help us find solutions that get us out of this mess that we are in! We want to create a safer, healthier future" (Janoff, 2021).

At the 2020 Organization Theory in Health care Conference (OTHC) about 50 scholars came together to reflect on the field to date and discuss future needs (Nembhard et al., 2020). Among the areas identified for needed research were cross-sector partnerships targeting the social determinants of health; the role of networks within and across health care organizations; applications of artificial intelligence (AI) and machine learning (ML) in health care provision and population health management; health care organization governance and

accountability; and the need for more research that addresses the multiple levels of health care organizations.

The recent 20th volume of *Advances in Health Care Management* (Hefner & Nembhard, 2021) began to address some of the topics highlighted at OTHC within the framework of grand challenges. The current 21st volume builds on and extends those insights and recommendations by systematically identifying areas where actionable knowledge is needed across a variety of issues. These include responding to unexpected events, accelerating innovations to improve performance, building effective strategic alliances with other sectors that "produce" health, and exploring the challenges of AI and the digital world, among others. Volume 20 summarized much of the existing and emerging knowledge on some of these topics. The current volume identifies the remaining gaps in knowledge; presents research agendas for filling those gaps; and thereby, potentially reduces some of the uncertainty inherent in living in a world of wicked problems.

OVERVIEW OF THE PAPERS IN THIS VOLUME

Table 1 provides a quick overview of each chapter. Chapter 1, "Responses to Unexpected Events," by Bradley and Alamo-Pastrana builds on the Volume 20 chapters on the impact of COVID-19 through the lens of building organizational resilience. The authors use the experience of addressing COVID-19 at Vassar College to highlight the behaviors needed to motivate and sustain resistance to such events. The importance of wide-spread environmental scanning, transparent communication, continuous learning, and accepting failures as opportunities for improvement are identified. Chapter 1 calls for research that assesses the impact of short-term versus long-term crises; external versus internal shocks; and the impact of crises on the pace of innovation and change. The authors underscore the need for longitudinal research using natural experiments to "illuminate the full cycle of crises across organizations from anticipation to response, to longer term adaptation to the 'new normal.'"

In Chapter 2, Hung, Lee, and Rundall address the question of why enterprise-wide transformational improvement has been so slow to be adopted and implemented in US health care organizations. Given the pervasive change that such an approach entails, organizations are understandably reluctant to make them in the absence of evidence that such changes will result in improved performance and that such improvement will be rewarded. In reviewing the existing literature, the authors note that the evidence for the effectiveness of such organization-wide approaches is just beginning to emerge. The authors suggest a number of research designs with the potential to generate greater knowledge including interrupted time series, multiple baseline designs, and stepped wedge designs. They suggest the use of the Consolidated Framework for Implementation Research for Process Redesign (CFIR-PR) to help guide future research. They draw on the whole system transformation experience of the Veterans Administration Health System to identify salient barriers and facilitators to transformational performance improvement implementation.

Table 1. An Overview of Each Chapter's Problem, Gaps in the Literature, and Actions to Address.

The Authors and Their Chapters	Problem/Opportunity	Gaps in the Literature	Actions to Address
Chapter 1: Elizabeth H. Bradley, Carlos Arlamo-Pastrana Dealing With Unexpected Crises and Its Discontents	How organizations and their leaders can better address unexpected crises, such as COVID-19	Short-term versus long-term Impact on the rate of innovation and change Role of diversity and emotional ambivalence	Leverage natural experiments Simulations Longitudinal research Life Cycle Approaches
Chapter 2: Dorothy Y. Hung, Justin Lee, Thomas G. Rundall Translational Performance Improvement: Why Is Progress So Slow?	There is high variance in the performance of health care organizations; the challenge of spreading continuous improvement throughout the country	Little research on whole system change Lack of spread Lack of long-term relevant data More knowledge needed about implementation	Need for broad conceptual frameworks Study designs in real-world practice settings Expanding facilitators and mitigating barriers
Chapter 3: John Ovreveit Improve-mentation for Faster Testing and Uptake of Health System Delivery Innovations	How to systematically accelerate improve performance and scientific knowledge	Lack of research competencies and capacities Lack of data assessment standards and criteria Improving attribution and generalization	Build in improvement Capacity Increase use of logic models Test with different users Identify the critical factors
Chapter 4: Dori Cross, Julia Adler-Milstein, A. Jay Himgren Electronic Health Record, Artificial Intelligence, and Digital Applications in Health Care Delivery	How can the advances in digital health be best captured by health care leaders and frontline staff to improve health care delivery and patient outcomes	Little is known about how best to manage the tension between standardization and customization of digital health compromising the realizations of desired outcomes	Research is needed on alignment with broader value-based health care transformations and on the benefits, risks, and challenges of AI applications on the role that leaders can play on the impact of psychological safety and employee morale

Table 1. *(Continued)*

The Authors and Their Chapters	Problem/Opportunity	Gaps in the Literature	Actions to Address
Chapter 5: Genevra F. Murray, Valerie A. Lewis Cross-Sector Strategic Alliances Between Health Care Organizations and Community-Based Organizations: Marrying Theory and Practice	There is need for actionable knowledge on how to better integrate community-based social services sector organizations with health care delivery organizations as they impact people's health	The broad-based strategic alliance literature is underutilized in examining health care alliances Gaps in knowledge about multipayer alliances	Develop better theories and frameworks of cross-sector alliances Explore the policy implications
Chapter 6: Larry R. Hearld, Daan Westra Charting a Course: A Research Agenda for Studying the Governance of Health Care Networks	There has been significant growth in the number and types of networked health care organizations, but little is known about how they are governed and managed	Lack of basic knowledge The role played by single organizations in managing networks Work needed on the life cycle of networks Understanding governance across multiple network levels	Interdisciplinary research instead of disciplinary silos Standardize terms and definitions across studies
Chapter 7: Bruce E. Landon Alternative Payments and Physician Organizations	Why have alternatives to FFS payment arrangements been slow to grow?	More research is needed on how care is organized and delivered in response to new payment models	Focus on the organization of physician practice The design and implementation of payment programs and alignment and coordination across different parts and sectors More focus needed on the role of information systems, care management design, and organization culture

Chapter 8: Cynthia J. Sieck, Shannon E. Nicks, Jessica Salem, Tess DeVos, Emily Thatcher, Jennifer L. Hefner Addressing Equity and Social Needs: The New Frontier of Patient Engagement Research	Taken individually, increasing PE, addressing SDOH, and developing more equitable systems of care each represents a grand challenge faced by our health care organizations today. Social needs screening in clinical care can be used to address all three.	Siloed focus within health care organizations with the Patient Experience department responsible for PE, Population/Community Health focused on addressing SDOH, and the Diversity, Equity, and Inclusion office addressing equity	Break down silos and view efforts to address these challenges as interrelated and the responsibility of entire health care organizations and systems in partnership with the patients they serve.
Chapter 9: Jessica H. Williams, Geoffrey A. Silvera, Christy Harris Lemak Learning Through Diversity: Creating a Virtuous Cycle of Health Equity in Health Care Organizations	How can health care organizations advance DEI initiatives in the pursuit of reducing or eliminating health inequities?	Health services and health care management researchers have shown an uneven commitment to health equity in current scholarship. Disciplinary and other silos may be the biggest barrier to knowledge creation and knowledge transfer	Utilize the four-part model proposed in this chapter to map health care organizations' DEI activities with the goal of knowledge generation and transfer. Break down knowledge transfer silos by creating formalized initiatives with linkages between practice and research communities.

Note: PE = patient engagement; SDOH = social determinants of health; DEI = Diversity Equity and Inclusion

Chapter 3 by Øvretveit presents an innovative approach for combining quality improvement science and implementation science to accelerate the testing and spread of health care delivery innovations. Called "Improve-mentation," the author illustrates its use in evaluating an emergency response system to address the COVID-19 pandemic, offering additional lessons to those discussed in Chapter 2. Four Improve-mentation frameworks are suggested with knowledge gaps and research strategies for addressing those gaps identified for each framework. Øvretveit emphasizes the importance of developing the competencies and capacities to conduct such evaluations and what can be done to spread innovations and their implementation. Given the growing rapidity of external shocks facing health care organizations, there is great need for such rapid impact research.

The ability to address crises and improve performance is heavily influenced by the availability and analysis of data. In Chapter 4 Cross, Adler-Milstein, and Holmgren take on the challenges presented by the new digital technologies involved in health care delivery. Drawing on the lessons learned from the adoption and implementation of enterprise-wide electronic health records (EHRs), the authors highlight the challenge of addressing the inherent tension between standardization and flexibility/customization. They discuss the need to address this tension within the context of emerging artificial intelligence (AI) and machine learning (ML) applications. The need for research on algorithmic bias, shifting data sets, and ongoing evaluation of AI applications are discussed. The role played by governance structures, organizational leadership, and change management in addressing implementation barriers are called out as they are influenced by payment and regulatory forces.

Given the growing emphasis on the social determinants of health associated with overall population health, health care policymakers and practice leaders are giving increased attention to building partnerships between their organization and community-based social service organizations. Chapter 5 by Murray and Lewis addresses the increased importance of generating knowledge about developing effective strategic alliances between health care organizations and those operating in the social services sector – education, food, housing, and related. The authors underscore the disconnect between the broad literature on strategic alliances and that specific to the health care sector. Organizing the chapter around the life cycle framework to studying alliances, they call out the need for better theorizing including the development of typologies and examining the impact of public policies on alliance formation and performance. In particular, they highlight the need for research on multi-stakeholder alliances in which participants may have little prior experience in working together and with diverse funding sources to achieve goals.

Wicked problems may need to be addressed by organizations whose forms are themselves "seemingly wicked" due to their pluralistic and networked structure. As discussed in Chapter 6 by Hearld and Westra, networks attempt to address these challenges via emergent, bottom-up approaches whereby diverse stakeholders work collaboratively to define the problem(s) and implement solutions. That is, wicked problems that resist easy solutions (e.g., the triple

aim, simultaneously achieving higher quality lower cost, and better patient experience) may require organizations with structures that resist clear differentiation, rules, and patterns of activity. Networks fit this description, since they rest on "relational ties", interactions, and collaboration among many diverse parties – who are not used to working together or in such relationships. Researchers themselves are not used to studying many of the complex organizational forms such as accountable care organizations (ACOs) or integrated delivery networks (IDNs) for what they really are: "networked" organizations. Hearld and Westra push this field of inquiry forward by identifying a key ingredient that has been "missing in action" in the study of such networks: governance. Governance is such a key issue because ACOs and IDNs pull together parties who have heretofore operated as silos. Their chapter supplies much-needed clarity on what needs to be studied within these complex structures housing multiple firms and professions. They identify four main gaps in current research understanding of networks and their governance, and then analyze the challenge of studying them over time and across levels of analysis.

Chapter 7 by Landon continues this theme by examining how such networked organizations motivate and incentivize the key professional actors within them: the physicians. The chapter clearly establishes that economics-based approaches that rely on financial incentives – popularly known today as alternative payment models (APMs) – are insufficient. More is needed; and, in a networked organization, it will not come top-down from the C-Suite. The problems are multifactorial and emanate both from without and from within health care organizations. They might be quickly summarized as the presence of multiple conflicts: conflicts among payers in their reimbursement methods, conflicts in the incentives between payers and providers, and conflicts between professionals and the bureaucracies they work in. Hospital organizations have responded using a set of common strategies, such as hospital systems, vertical integration, and just plain getting bigger. These have generally not produced higher quality or lower cost of care. The solution may instead lie in how to organize the professional practice of medicine inside the institution. The required approach will be more horizontal than vertical, more distributed rather than uniform, and more noneconomic than economic. According to the chapter, the solution will need to be tailored to specific specialties, to incorporate nonfinancial incentives, and to mesh with the professional culture of medical groups. Such factors (and others) require study to determine the conditions under which APMs and other well-worn efforts (e.g., EMRs, care management) will work.

Chapter 8, by Sieck and colleagues, presents the movement toward patient engagement in health care. They first review the status of the field of patient engagement, including the high hopes for it to improve quality, reduce cost, promote patient satisfaction, and reduce inequities in care. One way to reach the goal of highly engaged patients is for health care systems to engage in interventions to boost and facilitate patient engagement. The success of these interventions is dependent on defining and measuring patient engagement, and also in understanding the lives of and barriers facing each patient. Social needs

screening is an important element of patient engagement work. Thus, section 2 of this chapter presents a detailed case study of the incorporation of social needs screening into the digital infrastructure of a group of primary care practices in the Midwest. Facilitators and barriers to successful implementation are discussed and areas for future research are highlighted.

In Chapter 9, Williams, Silvera, and Lemak tackle perhaps THE issue of the day: diversity, equity, and inclusion (DEI). The central question is what organizations can do on the inside to address disparities in health and outcomes experienced by disadvantaged groups on the outside. This calls for a completely new mental model on the part of health care organizations and professions – one that is patient- and community-centric rather than being provider-centric. Given our collective ignorance about this enormously important topic, the authors define what the key terms in DEI are, how health care organizations negatively impact them, and what collaborative efforts are required to address these problems. The authors' emphasis, and key takeaway, centers on "learning" about the sources, nature, and solutions to the problem.

CONCLUDING THOUGHTS

Implicit in the thinking and recommendations of this volume is the recognition of three pervasive underlying problems with the United States health care system. In brief, it is unnecessarily complex, overly fragmented, and plagued by misaligned incentives. If it is the case that every system is perfectly designed for what it is intended to do, then the US health care system is perfectly designed to produce high cost, uncoordinated, and highly varying quality of care that leaves patients and providers alike exhausted. As evidenced by the chapters that follow, this hinders responsiveness to unexpected events, the ability to improve performance, to engage patients and reduce inequities in care, to form effective partnerships with other sectors, and to take advantage of new digital technologies and payment models.

The chapters in this Volume, of course, are not all the areas in need of managerial/organizational research. Among the topics not considered are new developments in leadership research, advances in research on health care teams, professional and staff burnout, supply chain management, and research on new care delivery models such as "Hospital at Home."

Specific topics aside, we want to call out the need for more research that addresses the multiple levels of organizations (micro, meso, and macro); the relational processes and structures associated with social networks involved in delivering care; that take advantage of emerging new data sets becoming available in many states with All Payer Claims Data Bases (APCDs) and the Agency Health care Research and Quality's (AHRQ) Compendium of Health care Systems; and the need for greater coproduction of knowledge through engaging with delivery organizations, community groups, and leaders who are the ultimate users of our research. We believe that giving greater attention to these issues will accelerate the knowledge base that can be used to improve the performance of

organizations operating in the health care sector and, in particular, eliminate inequities in care.

Stephen M. Shortell
Robert L Burns
Editors

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DEALING WITH UNEXPECTED CRISES: ORGANIZATIONAL RESILIENCE AND ITS DISCONTENTS

Elizabeth H. Bradley and Carlos Alamo-Pastrana

ABSTRACT

The chapter summarizes key literature, including emerging ideas, that is pertinent to the question of how organizations and their leadership deal with and are resilient through crises – highlighting what works in surviving unexpected crises. The chapter presents an illustration of organizational response; it concludes with an analysis of what is missing from the literature and recommends a path forward to expanding actionable knowledge in this area. Multiple, interdependent factors that foster resilience are identified including (1) being sensitive to possible threats – even seemingly small failures, (2) not relying on simple interpretations of events but rather seeking diversity to create a complete view of the environment, (3) leadership that embraces communication, transparency, and continuous learning, (4) valuing expertise and allowing expert staff to make decisions during a crisis, and (5) a cultural commitment to a resiliency mindset that accepts failures as opportunities to learn and improve. Emerging concepts that may foster resilience but require more research include managing paradox, emotional ambivalence and diversity. Additional areas for fruitful research include: the impact of short-term versus long-term, or successive, crises; external versus internal shocks and the framing of the source of shocks; how crisis affect the pace of innovation and change; the role of diversity in organizational responses to crises; and a set of methodological opportunities to leverage natural experiments or simulations in ways that allow for longitudinal data illuminating the full cycle of crises across

Responding to The Grand Challenges In Health Care Via Organizational Innovation
Advances in Health Care Management, Volume 21, 1–21

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ISSN: 1474-8231/doi:10.1108/S1474-823120220000021001

organizations from anticipation, to response, to longer-term adaptation to the new normal.

Keywords: Organizational resilience; health care innovation; higher education; organizational change; paradox; diversity

INTRODUCTION

Nearly 50 years ago, at the American Academy for the Advancement of Science (AAAS), Massachusetts Institute of Technology professor of meteorology Edward Lorenz asked his audience, "Does the flap of a butterfly's wings in Brazil set off a tornado in Texas?" (Vernon, 2017). His line of inquiry suggested that complex, dynamic systems are sensitive to small perturbations, which can have profound and unexpected effects on the system's outcomes. This research countered traditional theories that date back to Sir Isaac Newton. No longer conceptualizing nature as a probabilistic system in which the outcomes could be predicted, Lorenz's work gave rise to a branch of mathematics known as chaos theory – now widely used to assist in weather forecasting, robotics, medicine, economic analyses, and other applications.

Whether a system's outcome is unpredictable because of limited measurements needed for accurate prediction, or because the system's outcome is inherently unpredictable, unexpected events that create crises are intrinsic to organizational life. For health services researchers and policymakers, the challenge is not how to avoid unexpected crises but rather how to deal with them. The questions are: What do we know in terms of organizational functioning during and after unexpected crises? Where are the gaps in our knowledge about dealing with unexpected crises? How might we bridge those gaps?

We borrow from Stuart Hall and Bill Schwarz (1988) to frame the meaning of crisis, a term commonly used but rarely defined. According to Hall and Schwarz (1988), "crises occur when the social formation can no longer be reproduced on the basis of the pre-existing system of social relations." Hall and Schwarz's definition considers how crises cut across the broader society and ultimately threaten the dominant order's ability to reproduce itself. This comprehensive understanding entails the political, economic, and cultural capacity of a society to generate meaningful relationships, bonds, and order across space and time (Gilmore, 2007).

The experience of COVID-19 helps us to better understand the ways in which multiple crises can interact to create larger challenges for a society to regenerate itself as previously conceived. In this case, global movements such as those against racial injustice like the Black Lives Matter movement, and others around the climate emergency, have converged with the COVID-19 pandemic in a syndemic – adverse interactions between diseases and social conditions (Singer, 2009) with more substantial implications for existing social norms and systems.

While much of this chapter focuses on unexpected crises, we also recognize that many crises are not, in fact, unpredictable. Rather their unexpectedness results from systematic filtering of historical facts and realities to underplay potential upheaval to existing orders. While few expected the COVID-19

pandemic, public health officials have long predicted the possibility of a catastrophic pandemic caused by any number of infectious airborne pathogens. For decades, ongoing advocacy has called for a more robust global health governance structure and public health resources to better and more expeditiously respond to pandemic conditions, but this advocacy has met with little success.

This chapter summarizes key literature, including emerging ideas, that is pertinent to the question of how organizations and their leadership deal with and are resilient through crises – highlighting what works in surviving unexpected crises. The chapter presents an illustration of organizational response and adaptation to the COVID-19 crisis. The chapter concludes with an analysis of what is missing from the literature and recommends a path forward to expanding actionable knowledge in this area.

THEORETICAL LITERATURE ON ORGANIZATIONAL RESILIENCE

Organizational resilience, that is, the capacity for organizations to withstand unexpected crises, has been a topic of inquiry for decades in the fields of health services research and health care management. The early writings on "open systems theory" (Ashmos & Huber, 1987; Katz & Kahn, 1966; Scott, 1961) defined organizations in relation to their external environments and explain organizational behavior based on efforts to manage that environment (Katz & Kahn, 1966; Lawrence & Lorsch, 1967; Pfeffer & Salancik, 1978). To the degree that external environments generate unexpected crises (e.g., pandemic, supply chain disruption, technological change), these early theorists anticipated the centrality of resilience to organizational life. Resilience in the face of crises due to internal stresses and unexpected events (e.g., loss of key staff or key clients, disruption in organizational culture, poor financial performance) has also been the subject of inquiry.

Management theory regarding unexpected crises advanced substantially with the analysis of nuclear plant disasters in the 1970s and 1980s, particularly with the seminal work of Professor Charles B. Perrow. His book, *Normal Accidents*, has a title that signals the complex, even paradoxical, nature of organizational life – full of many moving parts that ultimately make "accidents" out to be "normal." It suggests that initiating events can be quite trivial, part of a normal day of work; however, to use Perrow's words, "because of the system's complexity and tight coupling, events cascade out of control to create a catastrophic outcome" (Perrow, 1984). Perrow's work inspired a generation of researchers who focused on the organizational systems that can confer or compromise resiliency. By systems, this literature means management and power structures, job designs, protocols or standard operating procedures, and norms of work life. This body of research removes the focus from individuals, and places it squarely on the larger systems and structures that govern interactions within the organization as well as between the organization and the larger environment in which it operates.

These systems theories were complemented by Karl Weick's provocative analysis of the Mann Gulch fire disaster (Weick, 1993), which identified the primacy of "sensemaking" – the ongoing process of creating order and making

retrospective sense of what has happened. Sensemaking calls for interpreting (through noticing, bracketing, and labeling) what has happened and has an important role in developing shared understanding – often influenced by power dynamics and emotion – of what is happening both inside and outside the organization (Wieck, Sufcliffe, & Obstfeld, 2005). In fact, sensemaking has been understood (Weick, 1993) as important to organizational survival as it shapes how people in teams understand their environment, assess risks and opportunities, and subsequently determine action in response to emerging information in both internal and external environments.

In the aftermath of multiple waves of COVID-19, several climate disasters, and successive explosive instances of racial injustice, the need to understand and promote organizational resiliency has a renewed sense of urgency. Organizational resilience generally refers to an organization's ability to adapt to internal and external disturbances while maintaining its integrity as an organization – perhaps re-shaped or evolved to better fit the environment (Witmer & Mellinger, 2016; Weick & Sutcliffe, 2007).

Resilience has been described as involving three abilities (Duckek, 2020; Weick & Sutcliffe, 2007). The first involves the organization's ability to *bounce back from crises* by returning to a normal state (Home & Orr, 2011) through strategic defense. The second involves the ability *to advance after the crisis* (Lengnick & Beck, 2005; Lengnick, Beck, & Lendnick-Hall, 2011). This approach suggests ways to not only survive but also thrive after a crisis – an approach that endorses strategic offense. This is consistent with the definition of organizational resilience put forth by Vogus and Sutcliffe in 2007 suggesting organizational resilience is the "maintenance of positive adjustment under challenging conditions such that the organization emerges from those conditions strengthened and more resourceful" (Vogus & Sutcliffe, 2007). The third is the ability *to anticipate and learn* from threats (Wildavsky, 1991; Weick & Sutcliffe, 2007). This view suggests that agile preparation and adaptive building capacities are integral to organizational resiliency in the face of shocks.

Across these perspectives, the literature on organizational resilience identifies multiple, interdependent factors that foster resilience. Some of these include (Weick & Sutcliffe, 2007): (1) being sensitive to possible threats – even seemingly small failures, (2) not relying on simple interpretations of events but rather seeking diversity to create a complete view of the environment, (3) leadership that embraces communication, transparency, and continuous learning, (4) valuing expertise and allowing expert staff to make decisions during a crisis, and (5) a cultural commitment to a resiliency mindset that accepts failures as opportunities to learn and improve. Additionally, scholars have hypothesized a set of organizational capabilities that confer resilience. These include the ability and resources to anticipate crises, coping capabilities, and adaptation capabilities such as organizational reflection and learning (Duckek, 2020). Such capabilities are believed to result from adequate knowledge bases, operational and social resources, and power distributed based on expertise and shared responsibilities (Duckek, 2020).

A relational lens has also been applied to organizational resilience (Kahn, Barton, & Fellows, 2013). In this approach, organizations are viewed as a set of relationships among people who coordinate activities to accomplish the goals and missions of the organization (Gittell, Seidner, & Wimbush, 2010). Unexpected events – particularly crises – disrupt, disturb, and can substantially damage these relationships. At the same time, researchers have identified that with adequate communication and re-shaping of boundaries among roles, crises can lead to growth and development in organizational relationships – balancing teams' cohesiveness and individuals' flexibility (Kahn et al., 2013). Depending their collective agreements on their purpose and shared values, such posttraumatic growth can be central to organizational transformation, ultimately causing individuals to become more attached to each other and the work.

An important insight from the relational approach to resilience is the primacy of postcrisis work. Key to postcrisis work is processing the emotions experienced during the crisis: encouraging storytelling and creating "holding environments" in which staff seek and receive support and compassion (Kahn, 2005). Without such spaces, the emotional sequelae from crises remain located within individuals, which can impede the pace of organizational recovery (Kahn, 2005). A second postcrisis process involves the construction of meaning (Kahn et al., 2013). As crises can disrupt world views, reconstructive narratives that create an adapted identity for the organization, i.e., who "we" are after the crisis, can advance collective recovery. A third process is envisioning and creating desirable futures (Kahn et al., 2013). That is, articulating hope, allowing groups to work on moving from a place of "stuckness" (Smith & Berg, 1987) to a more optimistic future. In all these processes, the actions of people in leadership roles are critical. Organizational leadership promotes recovery by convening groups to share stories and emotions (Kahn, 2011), by framing the crisis and what it means for the organization (Seeger, Ulmer, Novak, & Sellnow, 2005), for authorizing working groups to envision the future (Miller, 1993), and for imparting discourse of renewal and hope (Seeger & Ulmer, 2002). This lens is consistent with recent work arguing that psychological safety is a critical asset in organizational resilience (Rangachari & Woods, 2020). Trust and psychological safety may encourage sharing of frontline information with managers, may empower workers to try new approaches to solving problems, and may protect staff from paralyzing emotional distress, isolation, and burnout.

EMPIRICAL LITERATURE ON ORGANIZATIONAL RESILIENCE: WHAT WORKS?

The empirical literature concerning organizational resilience includes case studies as well as longitudinal studies with pre- and postquantitative measures of performance and factors that contribute to performance. Two literature reviews have also been published (Barasa, Mbau, & Gilson, 2018; Ifaifel, Lim, & Crowley, 2020), each summarizing more than 35 studies many of which have used qualitative or mixed methods.

Perhaps one of the most highly publicized case studies of resilience occurred at the Dana Farber Cancer Institute (DFCI) in the aftermath of a lethal error in 1994, which led to an overdose that resulted in the premature death of Betsy Lehman, a Boston Globe reporter of 39 years old (Conway & Weingart, 2005). After investigations by the Massachusetts Department of Public Health, the Boards of Registration for physician licensure, and the Joint Commission on Accreditation of Healthcare Organizations – DFCI underwent an in-depth organizational examination, overhaul, and renewal. Today, it remains one of the top cancer hospitals in the country with high levels of staff and patient satisfaction, and has led the path in terms of innovations in patient safety in the decades that succeeded the tragedy.

Several features emerged from the case study that has led to DFCI ongoing stability and resilience. Senior-level physicians and administrative roles as well as a Trustee-level committee were established to focus on quality and patient safety. The institution, once described as having a "cowboy" culture (Bohmer & Winslow, 1999) in which individual risk-taking was prioritized over collective safety, has since implemented practices of relentless vigilance in estimating and mitigating risk of related harm. Additionally, the hospital has redesigned systems to prevent error and invested extensively in information technology to standardize and routinize key patient safety data and worked with other institutions and coalitions to share best practice for the prevention of medical errors. The leadership of DFCI has endorsed transparency and accessibility; patients and family representatives have become part of major decision-making bodies throughout the institution. Last, the organization recognizes that creating safe patient care is not a "project" but rather a way of working and it is never done. In this case, the unexpected crisis led to improvements and growth due to the actions taken in the aftermath of the calamity.

In another qualitative examination, researchers (Witmer & Mellinger, 2016) applied Yin's method of case study (Yin, 2014) to two behavioral health organizations facing existential financial challenges. In-depth interview and focus groups were analyzed with open and axial coding from which six themes emerged. The themes included commitment to mission, improvization, community reciprocity and trust, transformational leadership, fiscal transparency, and hope and optimism. The authors noted that these characteristics were present together in both organizations, which were resilient through turbulent times, and thus no single indicator or set of indicators were detected as more important than others. Rather, the researchers concluded that these factors functioned together in strengthening the resiliency of the institutions.

The most robust synthesis of empirical literature regarding factors associated with organizational resilience is the literature review completed by Barasa et al. (2018), which synthesized findings from 34 high-quality papers with empirical evidence about organizational attributes associated with continued performance through unexpected crises (e.g., civil war, extreme staff shortages, economic downturns, disease outbreak). The associated factors included: material resources (financial and technical) and human capital (enough and adequately skilled and motivated employees), information management (the availability of timely,

accurate information about the environment to assist in sensemaking and to prompt wise decision-making), preparedness and planning (having standard operating procedures for crises, having conducted drills), collateral pathways and redundancy (having multiple, alternative courses of action in case one course becomes unusable), social networks (the ability to leverage networks and alliances of like organizations to share information, political voice, and best practices), governance processes (decentralized yet coordinated planning and decision-making), leadership practices (inclusive decision-making, promoting shared vision), and organizational culture (challenges are viewed as learning opportunities, creative problem-solving is rewarded).

Factors that emerged from the literature review by Ifaifel and colleagues (2020) in many ways echoed those found in the review by Barasa et al. (2018); in addition, Ifaifel identified concrete practices including effective and frequent team meetings, communication that built trust, heavy involvement of clinicians in crisis response, use of protocols and checklists, and endorsement of flexible workarounds to manage through crises.

EMERGING IDEAS IN THE LITERATURE

Along with the well-documented factors, a thin but nascent literature has pointed to several features of organizational life that warrant further exploration and future research. These have included engaging paradox (Carmine, Andriopoulos, & Gotso, 2021; Johnson, 1992; Smith & Lewis, 2011; Smith & Tracey, 2016), emotional ambiguity in conferring resilience (Choflet, Packrd, & Stashower, 2021; Vogus, Rothman, Sutcliffe, & Weick, 2014), and last, the role of diversity in organizational resilience (Kruk, Myers, Varpilah, & Dahn, 2015; Norris, Stevens, Pfefferbaum, Wuche, & Pfefferbaum, 2008).

Managing Paradox

Paradox, the simultaneous existence of apparent contradictory ideas, has been recognized in organizational life for some time, perhaps made most practical by Johnson's work on polarity management (Johnson, 1992). In this work, Johnson identified that much of organizational life is not about solving a problem but rather managing a polarity, or paradox. This approach requires recognizing and engaging apparent opposites (competition and collaboration) in a both/and rather than an either/or paradigm. The organization is thus conceived of as in constant motion, as it navigates moving toward one pole, experiencing the negative results of that pole (e.g., competition) and responding by moving back toward the other pole (e.g., collaboration). The healthiest organizations are never rigid or set in one place but in a constant, gentle back and forth between the poles – enhancing adaptability as crisis situations change. Such motion is abetted by transparent dialogue between people who represent apparently opposing views, sensitivity to when the organizational practices have swung too far in one direction, and adequate containment capabilities and structures for the inevitable

emotions that emerge when strongly felt views collide. Others, too, have identified paradox as central to managing organizational change (Bradley et al., 2006; Carmine et al., 2021; Jay, 2012; Lawrence & Lorsch, 1967; Smith & Lewis, 2011; Smith & Tracey, 2016), even calling for organizational "ambidexterity" (O'Reilly & Tushman, 2004; Smith, Lewis, & Tushman, 2012) to be able to adequately lead through changing times.

Emotional Ambivalence

Although the literature is sparse on this topic, emotional ambivalence (Vogus et al., 2014) has been linked specifically with high reliability and thus likely more resilient organizations. Emotional ambivalence is the simultaneous experience of positive and negative emotions such as hope and doubt (Vogus et al., 2014). Such a stance opens others to alternative perspectives, to anticipate failures or crises, and to have the breadth or emotional response to be effective. Although Vogus et al. (2014) focus on hope and doubt as the two opposing emotions that are often present in crisis response, other dyadic emotions may also emerge: excitement and terror, joy and sadness, relief and anxiety. Nonetheless, as Vogus et al. (2014) have argued, such emotional flexibility allows for mindful organizing and not only fosters greater receptivity to others' experience but also enables greater organizational resilience in complex environments.

Diversity

Diversity, broadly defined, has been hypothesized to bring stability when organizations, communities, and health systems are buffeted by external shocks (Kruk et al., 2015; Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008). Kruk et al. (2015) have argued that diversity allows for deeper and broader interactions around health systems, thus building trust in the community with the health system and potentially providing critical information that can allow for better responses, particularly when situations are changing quickly. Norris et al. (2008) assert that increased diversity of people and resources allows systems to benefit from their inherent interdependence, and the degree to which this matters among the top management team and the workforce remains widely debated (Gomez & Bernet, 2019; Pomonareva, Uman, Bodalica, & Wennberg, 2022). If relationships are strong between diverse components of the system, together they can weather shocks to part of the system by spreading risk and sharing shifting resources and information to better adapt as a system. These understandings of diversity recall the work of Scott Page (2008, 2017), which explored the benefits of diversity, defined broadly, and argued that a team of individuals with diverse knowledge and experience is generally more effective at complex problem-solving than a more homogeneous team.