Cardiology 2018

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Update on Pediatric
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Cardiovascular Disease

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OUTCOMES

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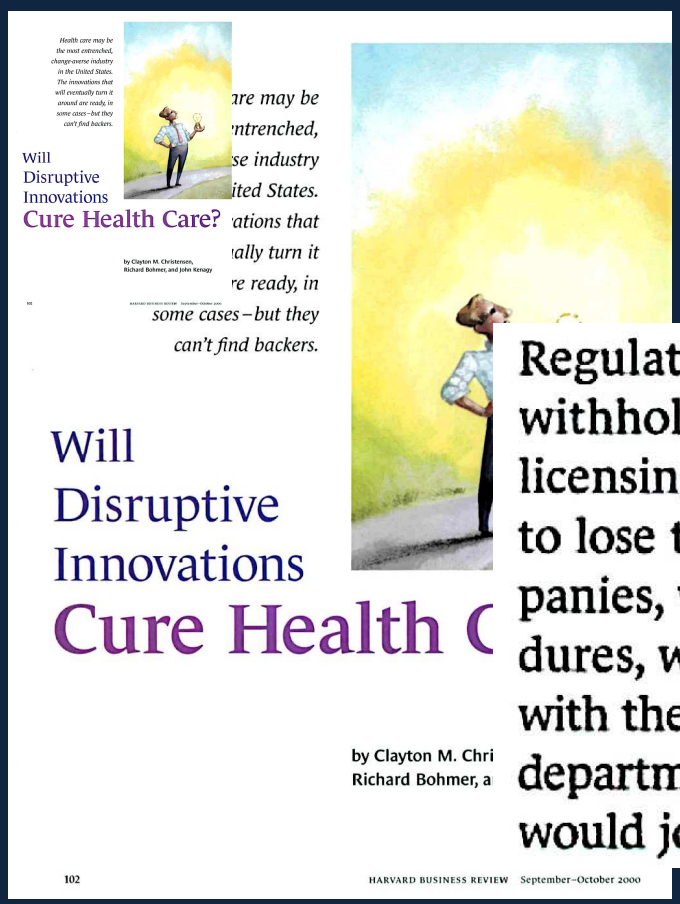
How Does One Innovate As A Team?

The tension between creative innovation and safety in healthcare.

Daniel J Penny,
Chief of Cardiology, Texas Children's Hospital,
Professor of Pediatrics, Baylor College of Medicine,
Houston, Texas.



Will
Disruptive
Innovations
Cure Health Care?

by Clayton M. Christensen,
Richard Bohmer, and John Kenagy

Health care may be the most entrenched, change-averse industry in the United States. The innovations that will eventually turn it around are ready, in some cases – but they can't find backers.

Will
Disruptive
Innovations
Cure Health C

by Clayton M. Chri
Richard Bohmer, a

102 HARVARD BUSINESS REVIEW September–October 2000

Health care may be the most entrenched, change-averse industry

Regulators, afraid of putting patients at risk, would withhold approvals. Radiologists, who establish the licensing standards that regulators enforce, don't want to lose their jobs, so they'd fight it, too. Insurance companies, which approve only established licensed procedures, would refuse to reimburse for it. And hospitals, with their large investments in radiology and emergency departments, want injuries to flow to them – so they, too, would join the forces holding back change.

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Innovation can be systematically managed
if one knows where and how to look.

The Discipline of Innovation

by Peter F. Drucker

Innovation is the specific function of entrepreneurship, whether in an existing business, a public service institution, or a new venture started by a lone individual in the family kitchen. It is the means by which the entrepreneur either creates new health-producing resources or endows existing resources with enhanced potential for creating health.

ers, to all new businesses. In practice, however, a

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Joseph Bower

Clay Christensen

On the other hand, *disruptive* technologies introduce a very different package of attributes from the one mainstream customers historically value, and they often perform far worse along one or two dimensions that are particularly important to those customers. As a rule, mainstream customers are unwilling to use a disruptive product in applications they know and understand. At first,

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Clay Christensen

They do. however, have two important characteristics:

First, they typically present a different package of performance attributes - ones that, at least at the outset, are not valued by existing customers. Second, the performance attributes that existing customers do value improve at such a rapid rate that the new technology can later invade those established markets. Only at this point will mainstr-

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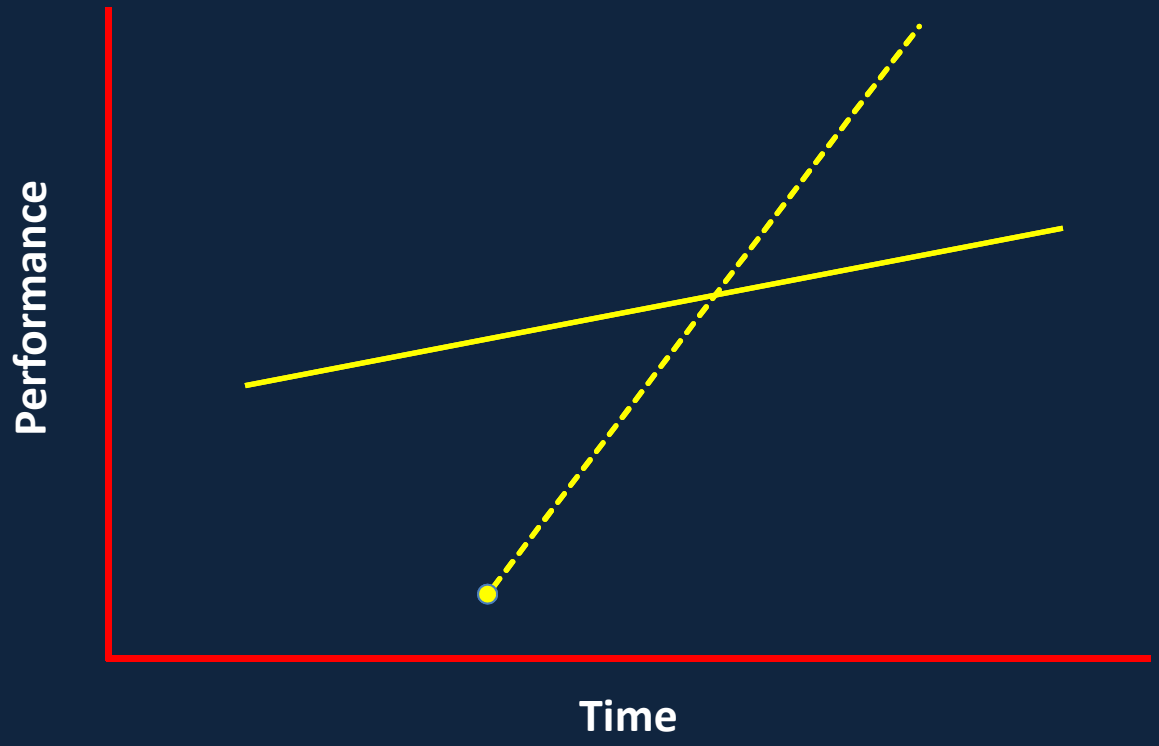
The Innovation Paradigm



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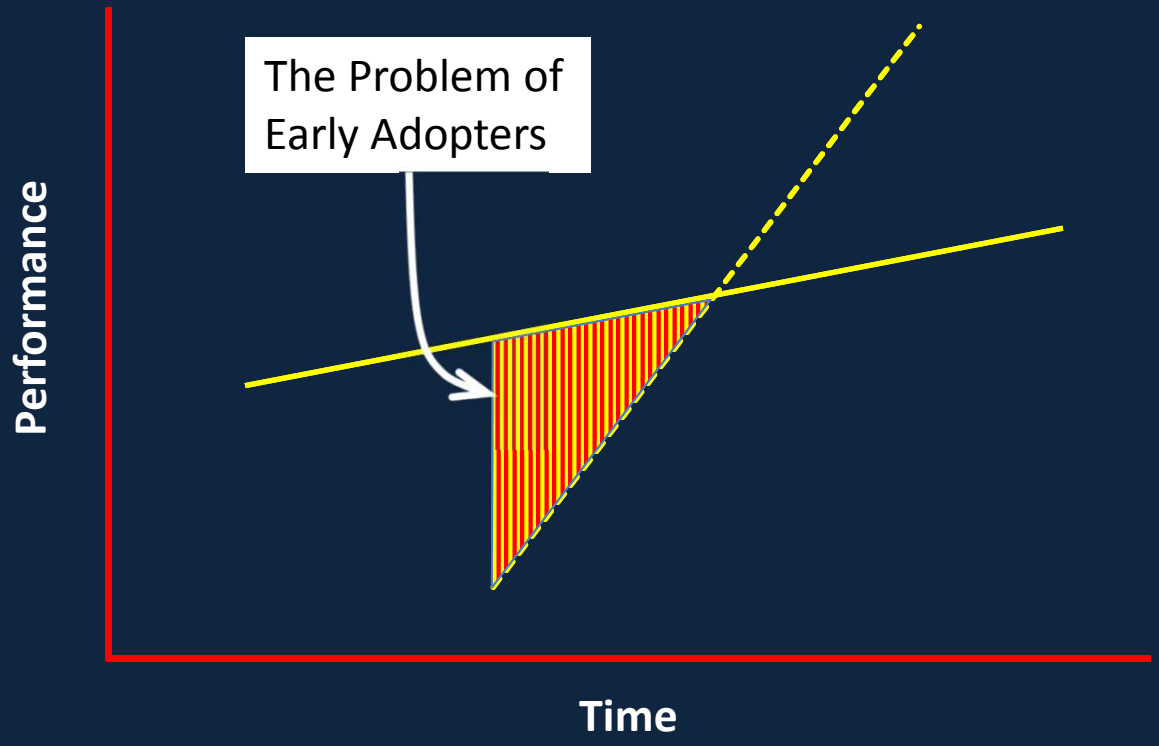
The Innovation Paradigm



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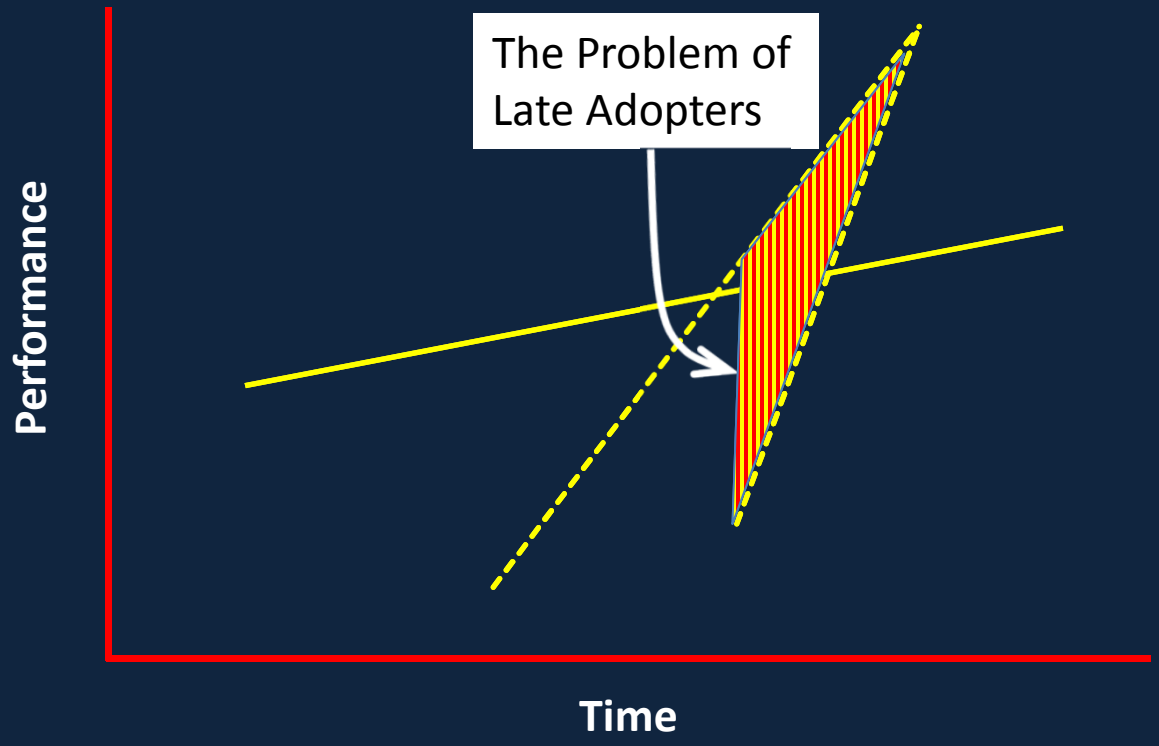
The Innovation Paradigm



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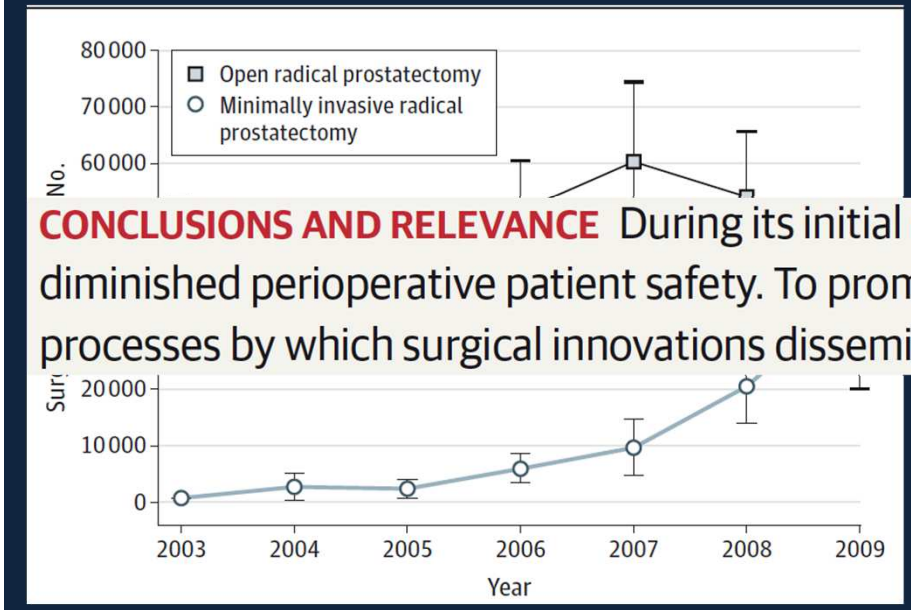
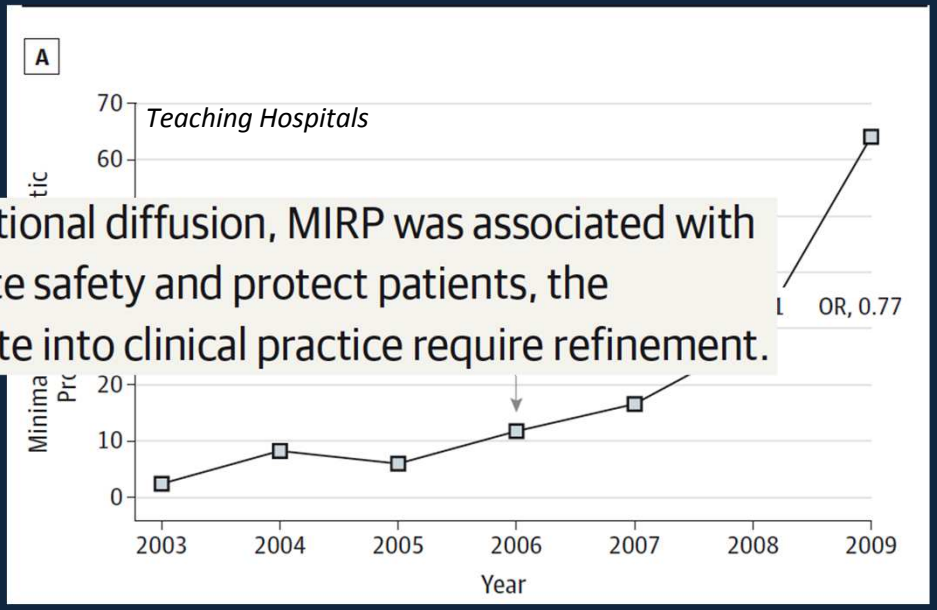
Original Investigation

Diffusion of Surgical Innovations, Patient Safety, and Minimally Invasive Radical Prostatectomy

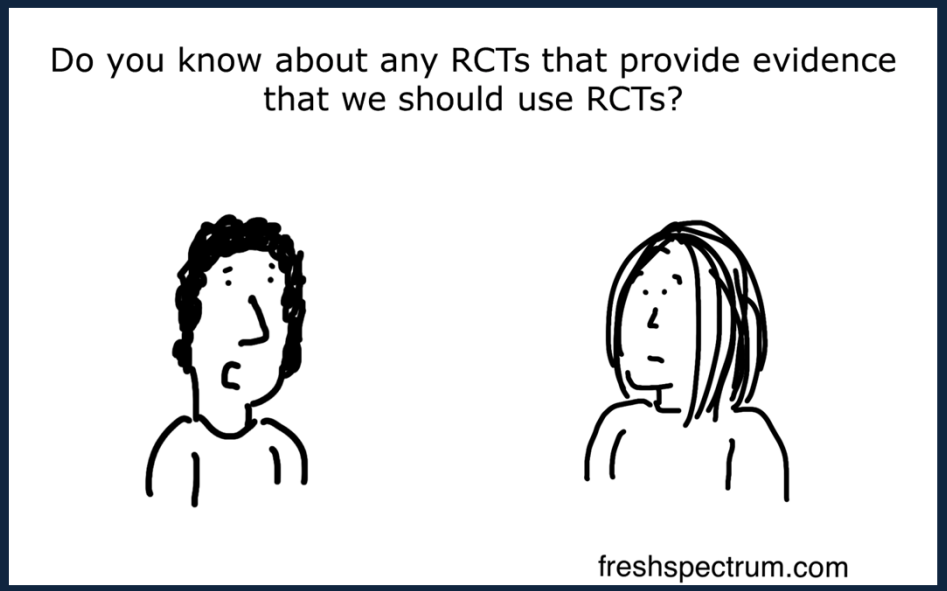
J. Kellogg Parsons, MD, MHS; Karen Messer, PhD; Kerrin Palazzi, MPH; Sean P. Stroup, MD; David Chang, PhD, MPH, MBA





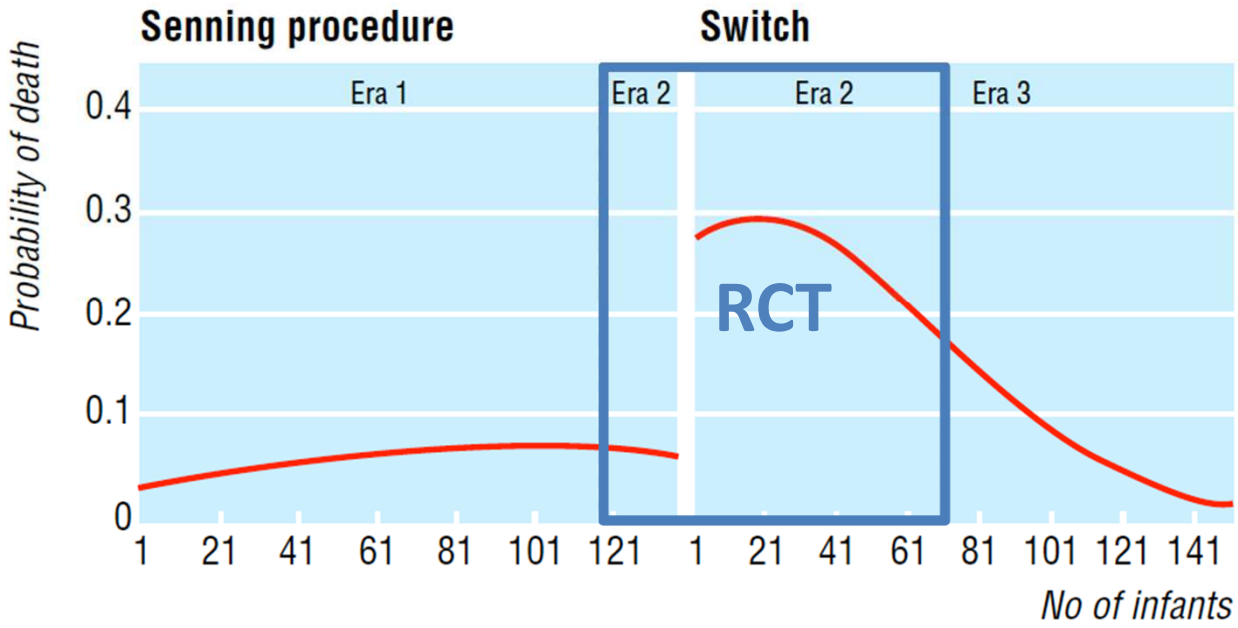
CONCLUSIONS AND RELEVANCE During its initial national diffusion, MIRP was associated with diminished perioperative patient safety. To promote safety and protect patients, the processes by which surgical innovations disseminate into clinical practice require refinement.

Let's Do A Randomized Trial!



Scientific, ethical, and logistical considerations in introducing a new operation: a retrospective cohort study from paediatric cardiac surgery

Catherine Bull, R Yates, D Sarkar, J Deanfield, M de Leval



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Innovation in Healthcare Delivery Systems: A Conceptual Framework

Vincent K. Omachonu and Norman G. Einspruch

The healthcare industry has experienced a proliferation of innovations aimed at enhancing life expectancy, quality of life, diagnostic and treatment options, as well as the efficiency and cost effectiveness of the healthcare system. Information technology has played a vital role in the innovation of healthcare systems. Despite the surge in innovation, theoretical research on the art and science of healthcare innovation has been limited. One of the driving forces in research is a conceptual framework that provides researchers with the foundation upon which their studies are built. This paper begins with a definition of healthcare innovation and an understanding of how innovation occurs in healthcare. A conceptual framework is then developed which articulates the intervening variables that drive innovation in healthcare. Based on the proposed definition of healthcare innovation, the dimensions of healthcare innovation, the process of healthcare innovation and the conceptual framework, this paper opens the door for researchers to address several questions regarding innovation in healthcare. If the concept of healthcare innovation can be clarified, then it may become easier for health policymakers and practitioners to evaluate, adopt and procure services in ways that realistically recognize, encourage and give priority to truly valuable healthcare innovations. Lastly, this paper presents 10 research questions that are pertinent to the field of healthcare innovation. It is believed that the answers to these and other such questions will hold the key to future advances in healthcare innovation research.

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The Innovation Journal: The Public Sector Innovation Journal, 2010

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SPECIAL COMMUNICATION

Disseminating Innovations in Health Care

Perceptions of the Innovation

Characteristics of The People

Contextual Factors

ealth care is rich in evidence-based innovations, yet even when such in-
ovations are implemented successfully in one location, they often dissemi-
te slowly—if at all. Diffusion of innovations is a major challenge in all
dustries including health care. This article examines the theory and re-
arch on the dissemination of innovations and suggests applications of that
eory to health care. It explores in detail 3 clusters of influence on the rate
diffusion of innovations within an organization: the perceptions of the
novation, the characteristics of the individuals who may adopt the change,
d contextual and managerial factors within the organization. This theory
akes plausible at least 7 recommendations for health care executives who
ant to accelerate the rate of diffusion of innovations within their organi-
tions: find sound innovations, find and support "innovators," invest in "early
lopters," make early adopter activity observable, trust and enable reinven-
n, create slack for change, and lead by example.

MA. 2003;289:1969-1975 www.jama.com

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Berwick D ***JAMA*** 2003; 289:1969-1975

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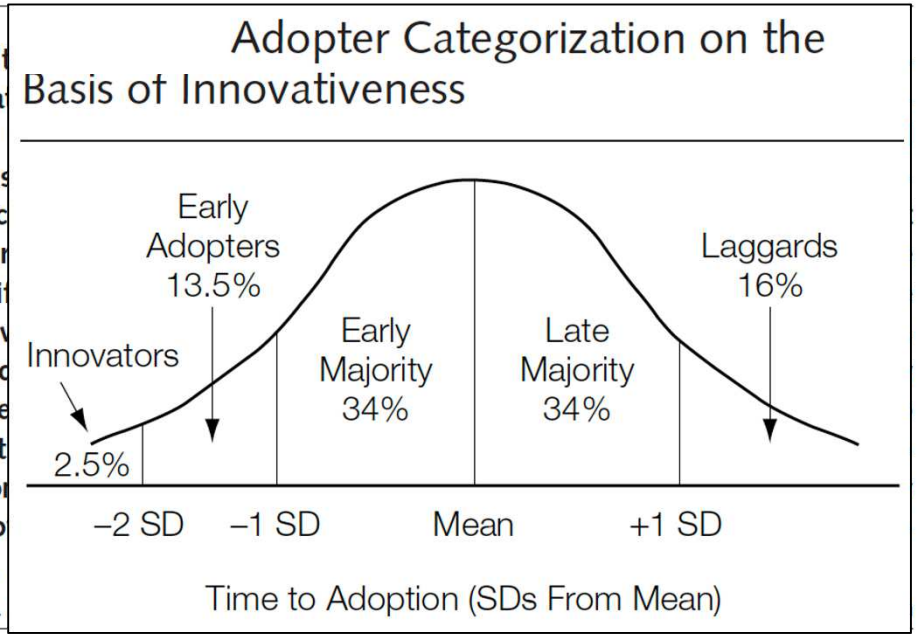

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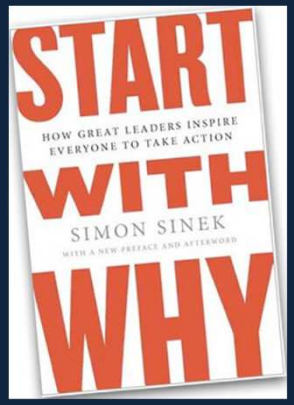
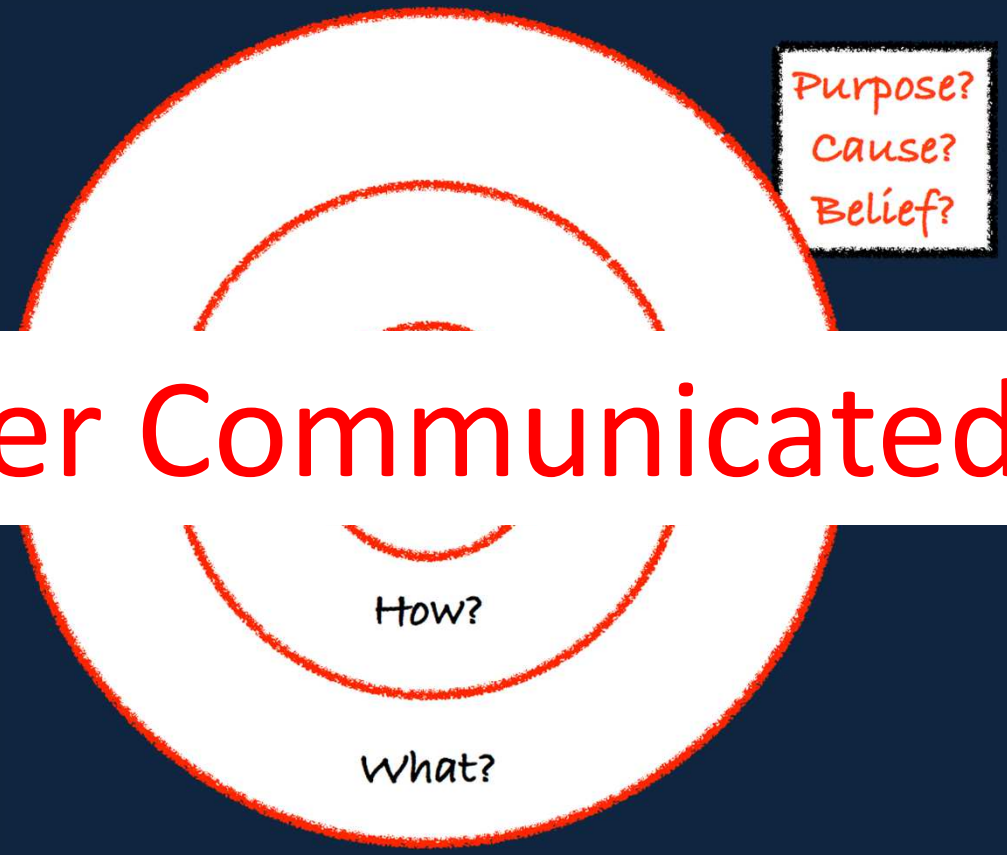


Over Communicated



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SPECIAL COMMUNICATION

Disseminating Innovations in Health Care

Perceptions of the Innovation Characteristics of The People **Contextual Factors**	**LEADERSHIP** Supportive of Innovators - praise, resources, security Discourage Innovation 'don't rock the boat' Innovation Decisions within The Team - optional - collective - authoritarian

Berwick D ***JAMA*** 2003; 289:1969-1975

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Organizational Differences in Rates of Learning: Evidence from the Adoption of Minimally Invasive Cardiac Surgery

Gary P. Pisano • Richard M.J. Bohmer • Amy C. Edmondson
Harvard Business School, Soldiers Field Road, Boston, Massachusetts 02163
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This paper examines learning curves in the health care setting to determine whether organizations achieve performance improvements from cumulative experience at different rates. Although extensive research has shown that cumulative experience leads to performance improvement across numerous contexts, the question of how much of this improvement is due to mere experience and how much is due to collective learning processes has received little attention. We argue that organizational learning processes may allow some organizations to benefit more than others from equivalent levels of experience. We thus propose that learning curves can vary across organizations engaged in the same "learning task," due to organizational learning effects. To investigate this proposition, we investigate cardiac surgery departments implementing a new technology for minimally invasive cardiac surgery. Data on operative procedure times from a sample of 660 patients who underwent the new operation at 16 different institutions are analyzed. The results confirm that cumulative experience is a significant predictor of learning, and further reveal that the slope of the learning curve varies significantly across organizations. Theoretical and practical implications of the work are discussed.
(*Organizational Learning; Learning Curves; Process Improvement*)

1. Introduction

The concept of organizational learning has long fascinated scholars from a range of management and social science fields. The learning curve in particular has been the subject of extensive study and discussion in the fields of operations management, economics, competitive strategy, and technology management. More recently, scholars and practitioners have shown renewed interest in learning because of its intimate link to emerging theories of core competencies, dynamic capabilities, and resource-based views of the firm.[1] Quite simply, without learning, organizations are not likely to cultivate the unique skills and capabilities that underlie competitive advantage. Understanding the processes by which organizations learn, and how these processes might be better managed, are issues of central importance of scholars and practitioners alike.

Learning is often equated with experience. Indeed, the terms "learning curve" and "experience curve" are frequently used interchangeably. An extensive number of empirical studies have documented the link between cumulative experience (e.g., cumulative production volume, cumulative production time) and some measure of operational performance improvement (e.g., cost reduction, yield improvement, productivity improvement).[2] The implications of the

[1] Teece et al. (1997), Edmondson and Moingeon (1996), Teece and Pisano (1995), Prahalad and Hamel (1990), and Wernerfelt (1984).

[2] Sinclair et al. (forthcoming), Hatch and Mowery (1998), Argote (1996), Argote et al. (1995), Gruber (1994), Jarmin (1994).

MANAGEMENT SCIENCE © 2001 INFORMS
Vol. 47, No. 6, June 2001 pp. 752–768

0025-1909/01/0047/0752$5.00
1526-5501 electronic ISSN

Learning Curve

Learning as a Specialty

Learning as an Organization

Learning as an Individual

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Organizational Differences in Rates of Learning: Evidence from the Adoption of Minimally Invasive Cardiac Surgery

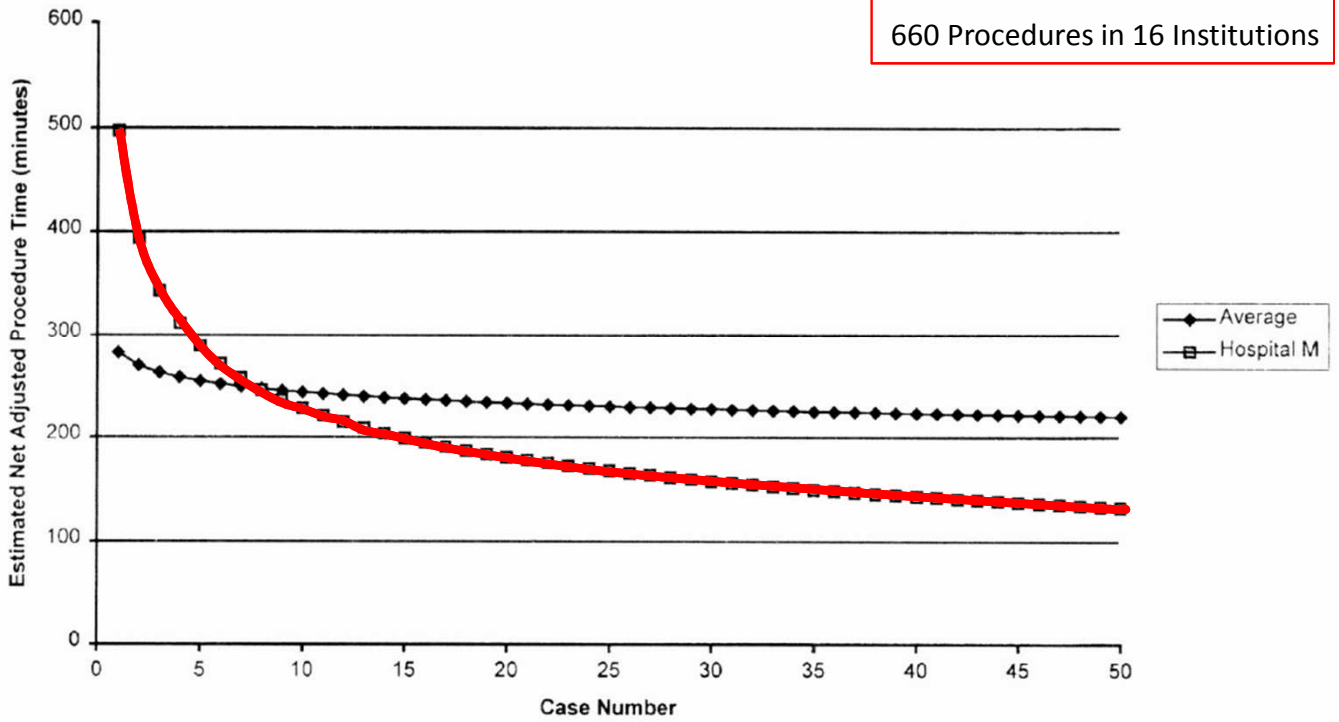
Gary P. Pisano • Richard M.J. Bohmer • Amy C. Edmondson

1. Introduction

Estimated Net Adjusted Procedure Times: Hospital *M* vs. Average

Time to Perform The Procedure

660 Procedures in 16 Institutions



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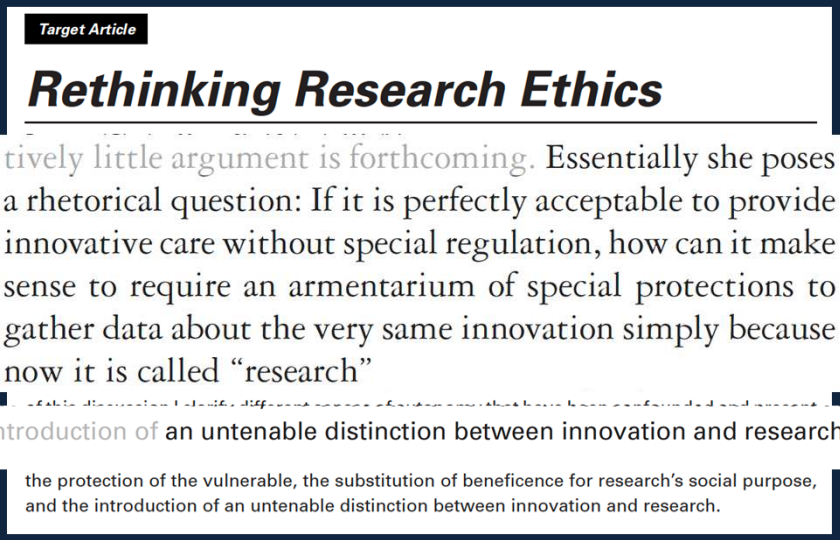
Research or Innovation?



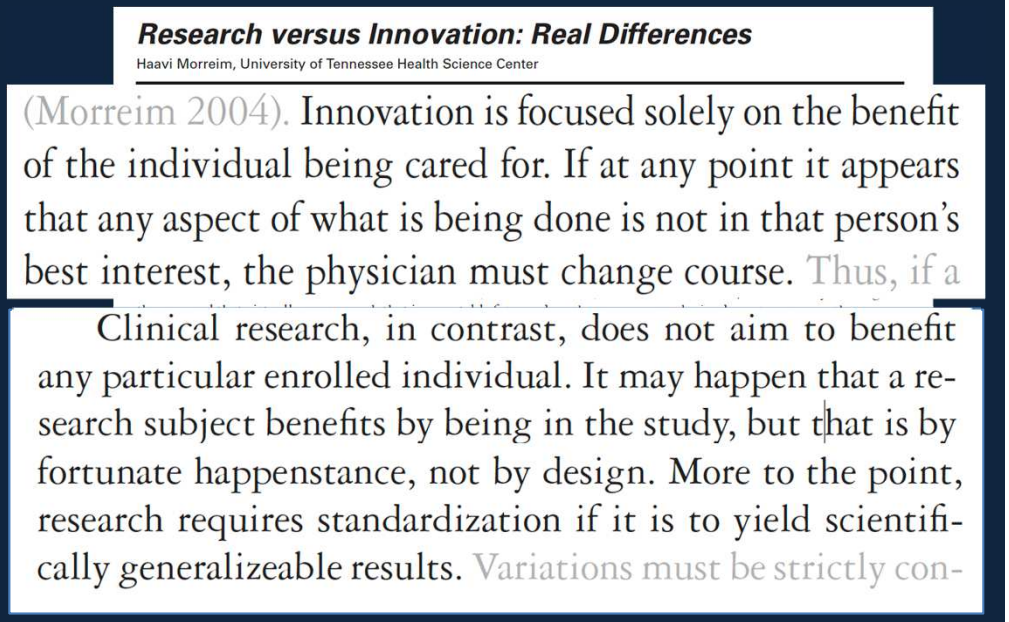
Target Article

Rethinking Research Ethics

tively little argument is forthcoming. Essentially she poses a rhetorical question: If it is perfectly acceptable to provide innovative care without special regulation, how can it make sense to require an armentarium of special protections to gather data about the very same innovation simply because now it is called "research"

introduction of an untenable distinction between innovation and research.

the protection of the vulnerable, the substitution of beneficence for research's social purpose, and the introduction of an untenable distinction between innovation and research.



Research versus Innovation: Real Differences

Haavi Morreim, University of Tennessee Health Science Center

(Morreim 2004). Innovation is focused solely on the benefit of the individual being cared for. If at any point it appears that any aspect of what is being done is not in that person's best interest, the physician must change course. Thus, if a

Clinical research, in contrast, does not aim to benefit any particular enrolled individual. It may happen that a research subject benefits by being in the study, but that is by fortunate happenstance, not by design. More to the point, research requires standardization if it is to yield scientifically generalizeable results. Variations must be strictly con-

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The American Journal of Bioethics, 5(1): 7–28, 2005

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Research or Innovation?

THE BELMONT REPORT

Office of the Secretary

When a clinician departs in a significant way from standard or accepted practice, the innovation does not, in and of itself, constitute research. The fact that a procedure is "experimental," in the sense of new, untested or different, does not automatically place it in the category of research. Radically new procedures of this description should, however, be made the object of formal research at an early stage in order to determine whether they are safe and effective. Thus, it is the responsibility of medical practice committees, for example, to insist that a major innovation be incorporated into a formal research project [3].

AGENCY: Department of Health, Education, and Welfare.

Research or Innovation?

45 CFR 46

Code of Federal Regulations

TITLE 45

(f) *Human subject* means a living individual about whom an investigator (whether professional or student) conducting research obtains

(1) Data through intervention or interaction with the individual, or

(2) Identifiable private information.

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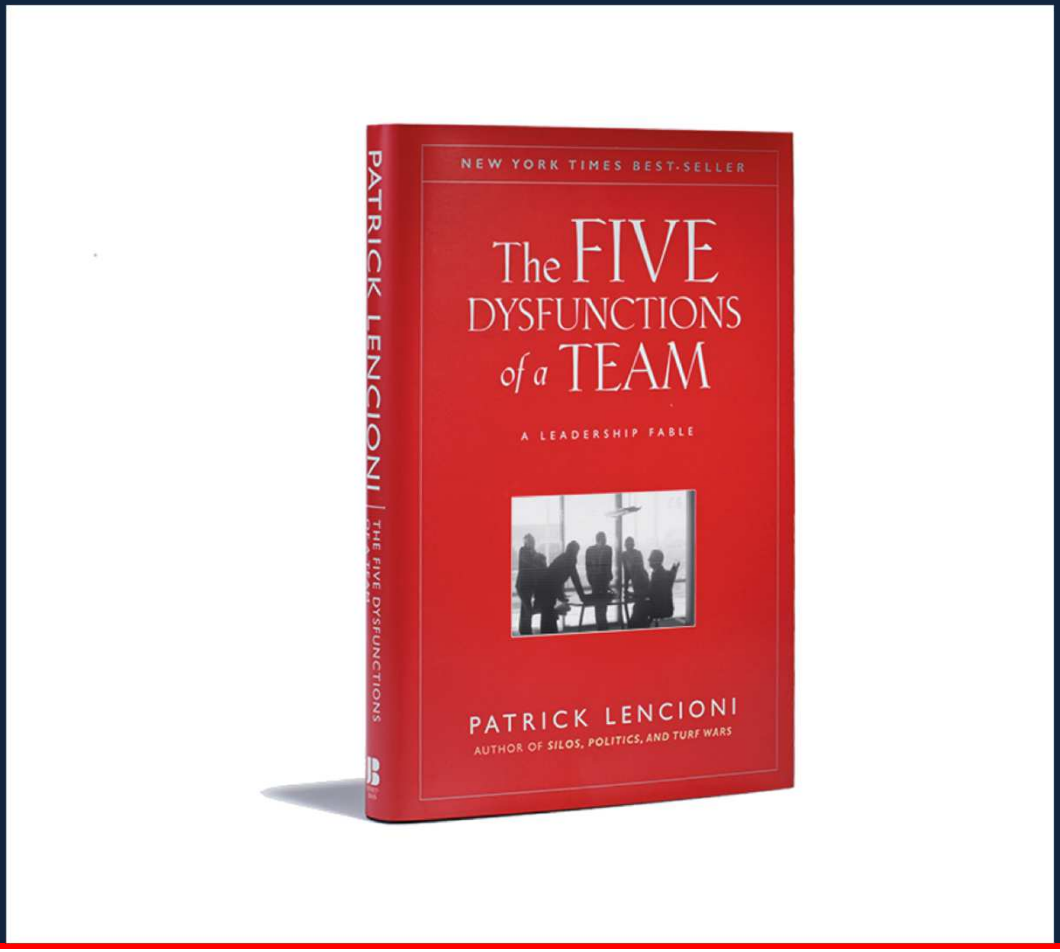

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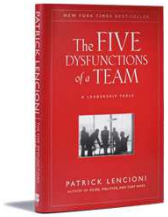

Lack of Commitment

Commitment Follows **Healthy Conflict**

Fear of Conflict

Healthy Conflict implies **Candid Debate**

Absence of Trust

Building Trust requires **Vulnerability**

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Journal of Applied Psychology
2016, Vol. 101, No. 5, 673–686

0021-9010/16/$12.00 http://dx.doi.org/10.1037/apl0000078

Leader Affective Presence and Innovation in Teams

Hector P. Madrid
Pontificia Universidad Católica de Chile

Peter Totterdell
University of Sheffield

Karen Niven
University of Manchester

Eduardo Barros
Universidad Adolfo Ibáñez

Affective presence is a novel personality construct that describes the tendency of individuals to make their interaction partners feel similarly positive or negative. We adopt this construct, together with the input–process–output model of teamwork, to understand how team leaders influence team interaction and innovation performance. In 2 multisource studies, based on 350 individuals working in 87 teams of 2 public organizations and 734 individuals working in 69 teams of a private organization, we tested and supported hypotheses that team leader positive affective presence was positively related to team information sharing, whereas team leader negative affective presence was negatively related to the same team process. In turn, team information sharing was positively related to team innovation, mediating the effects of leader affective presence on this team output. The results indicate the value of adopting an interpersonal individual differences approach to understanding how affect-related characteristics of leaders influence interaction processes and complex performance in teams.

Psychological Safety

Psychological safety is a belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns, or mistakes.

Amy Edmondson

frontiers in Psychology

ORIGINAL RESEARCH
published: 30 June 2017
doi: 10.3389/fpsyg.2017.01115

Leader Humility and Team Innovation: Investigating the Substituting Role of Task Interdependence and the Mediating Role of Team Voice Climate

Wenxing Liu[1], Jianghua Mao[1] and Xiao Chen[2]*

[1] School of Business Administration, Zhongnan University of Economics and Law, Wuhan, China, [2] School of Management, Huazhong University of Science and Technology, Wuhan, China

Leadership has been found to be linked with team innovation. Based on social information processing theory and substitutes for leadership theory, this paper examines the influence of leader humility on team innovation. Results from 90 teams showed that leader humility will enhance team innovation by fostering team voice climate. Further, task interdependence substitutes the effect of leader humility on team innovation through an indirect way via team voice climate. This study discussed the theoretical and practical implementations of these observations.

OPEN ACCESS

Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams

INGRID M. NEMBHARD[1]* AND AMY C. EDMONDSON[2]

[1]*Graduate School of Arts and Sciences, Graduate School of Business Administration, Harvard University, Boston, Massachusetts, U.S.A*
[2]*Graduate School of Business Administration, Harvard University, Boston, Massachusetts, U.S.A.*

This paper introduces the construct of *leader inclusiveness*—words and deeds exhibited by leaders that invite and appreciate others' contributions. We propose that leader inclusiveness

members to collaborate in process improvement. The existence of a professional hierarchy in medicine and the differential status accorded to those in different disciplines is well established in the health care literature, as is the need for quality improvement. We build on this foundation to suggest that profession-derived status is positively associated with psychological safety (H1)—a key antecedent of speaking up and learning behavior—in health care teams. We hypothesize that this effect varies across teams (H2), and furthermore, that leader inclusiveness predicts psychological safety (H3) and moderates the relationship between status and psychological safety (H4). Finally, we suggest psychological safety predicts *engagement in quality improvement work* (H5) and mediates the relationship between leader inclusiveness and engagement (H6). Survey data collected in 23 neonatal intensive care units involved in quality improvement projects support our hypotheses. These results provide insight into antecedents of and strategies for fostering improvement efforts in health care and other sectors in which cross-disciplinary teams engage in collaborative learning to improve products or services.

J. Organiz. Behav. **27**, 941–966 (2006)

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Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams

INGRID M. NEMBHARD[1]* AND AMY C. EDMONDSON[2]

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[2]*Graduate School of Business Administration, Harvard University, Boston, Massachusetts, U.S.A.*

In a Study of 23 Neonatal Intensive Care Units…

Increased levels of Leader Inclusiveness led to higher levels of psychological safety.

Higher levels of psychological safety led to greater engagement in collaborative learning projects to improve services.

leader inclusiveness predicts psychological safety (H3) and moderates the relationship between status and psychological safety (H4). Finally, we suggest psychological safety predicts *engagement in quality improvement work* (H5) and mediates the relationship between leader inclusiveness and engagement (H6). Survey data collected in 23 neonatal intensive care units involved in quality improvement projects support our hypotheses. These results provide insight into antecedents of and strategies for fostering improvement efforts in health care and other sectors in which cross-disciplinary teams engage in collaborative learning to improve products or services.

J. Organiz. Behav. **27**, 941–966 (2006)

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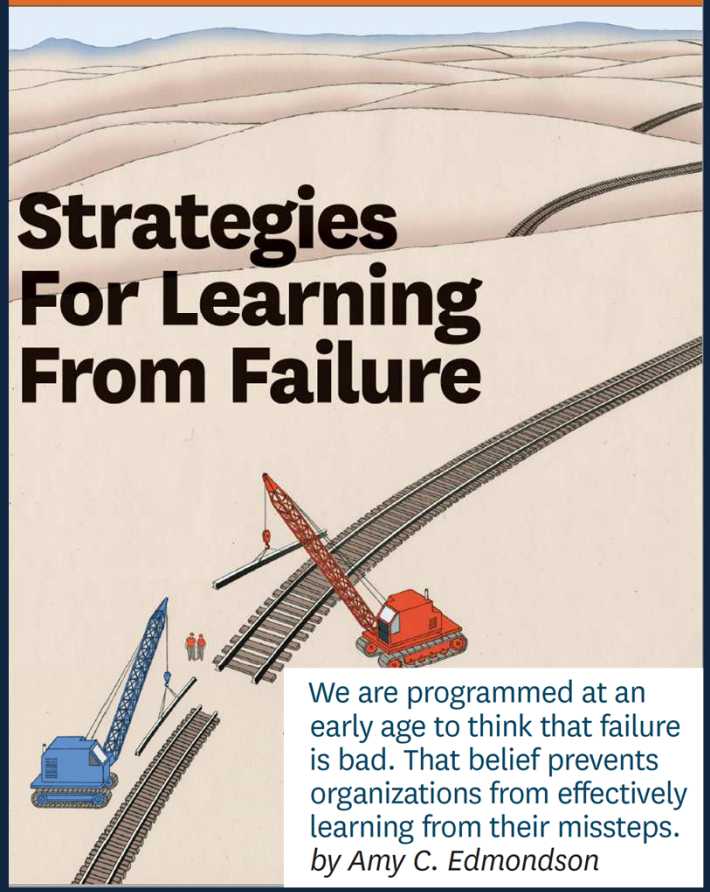
Failure **Understand It**



Strategies For Learning From Failure

We are programmed at an early age to think that failure is bad. That belief prevents organizations from effectively learning from their missteps.
by Amy C. Edmondson

BLAMEWORTHY

DEVIANCE
An individual chooses to violate a prescribed process or practice.

INATTENTION
An individual inadvertently deviates from specifications.

LACK OF ABILITY
An individual doesn't have the skills, conditions, or training to execute a job.

PROCESS INADEQUACY
A competent individual adheres to a prescribed but faulty or incomplete process.

TASK CHALLENGE
An individual faces a task too difficult to be executed reliably every time.

PROCESS COMPLEXITY
A process composed of many elements breaks down when it encounters novel interactions.

UNCERTAINTY
A lack of clarity about future events causes people to take seemingly reasonable actions that produce undesired results.

HYPOTHESIS TESTING
An experiment conducted to prove that an idea or a design will succeed fails.

EXPLORATORY TESTING
An experiment conducted to expand knowledge and investigate a possibility leads to an undesired result.

PRAISEWORTHY

How Leaders Can Build a Psychologically Safe Environment

FRAME THE WORK ACCURATELY

EMBRACE MESSENGERS

ACKNOWLEDGE LIMITS

INVITE PARTICIPATION

SET BOUNDARIES AND HOLD PEOPLE ACCOUNTABLE

Paradoxically, people feel psychologically safer when leaders are clear about what acts are blameworthy. And there must be consequences. But if someone is punished or fired, tell those directly and indirectly affected what happened and why it warranted blame.

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Harvard Business Review **April 2011**

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Psychological Safety & Accountability

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Team Members

Need to Feel As Responsible as the Leaders for The Future of The Team

Need to Develop Skills to Transfer Their Innovative Ideas to Team Members

Need to Learn To Support The Ideas of Others (our ‘why’)

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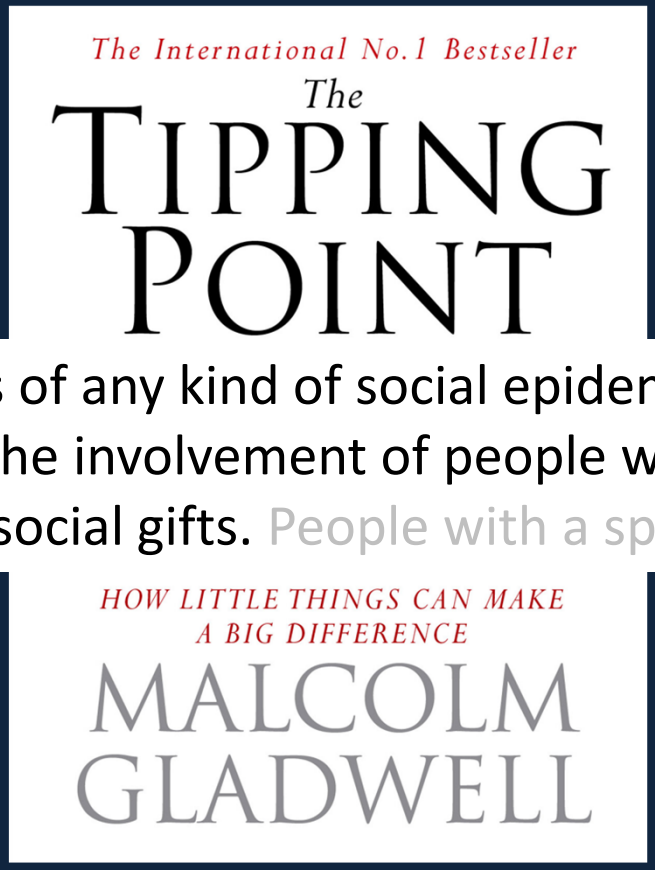

and the success of any kind of social epidemic is heavily dependent on the involvement of people with a particular and rare set of social gifts. People with a special gift for

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'ability to recognize social contexts and cues in conversations and business transactions'

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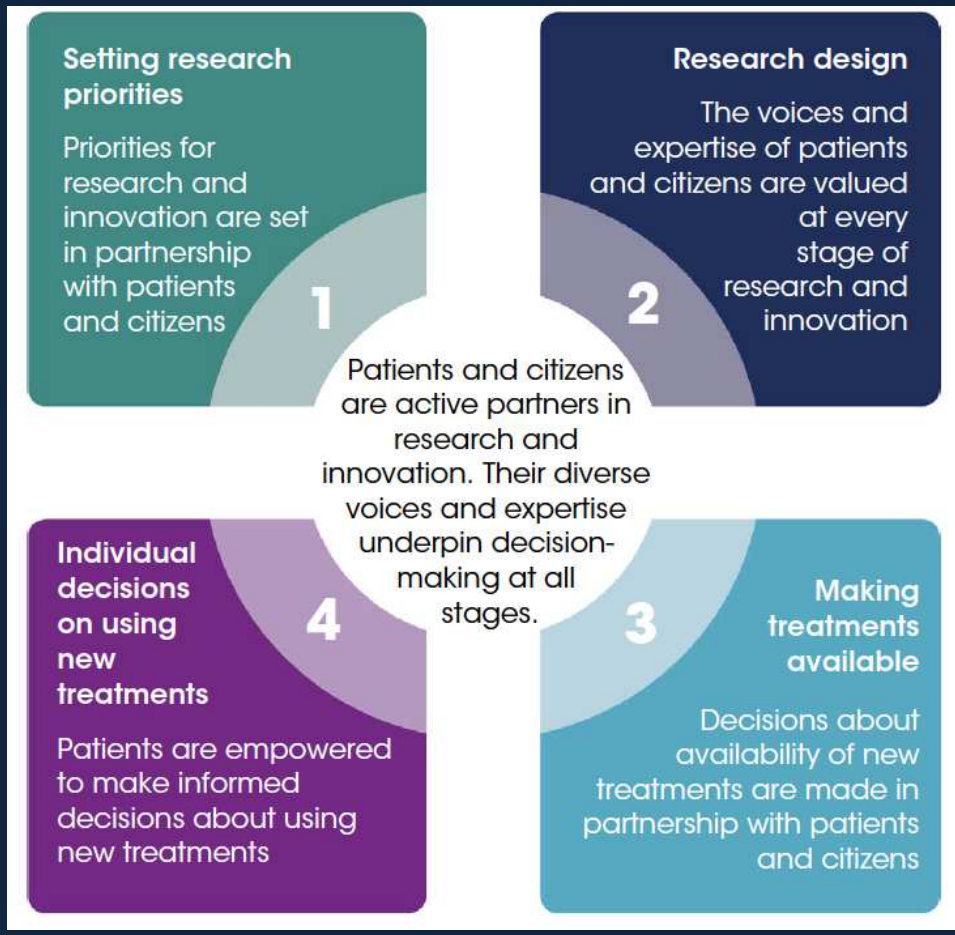
Accelerated Access Review

Involving patients and citizens:

I Statements for research and innovation

National Voices

Accelerated Access



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In Conclusion

How Does One Innovate As A Team?

There is a Conflict in That Disruptive Innovations often Initially Perform Worse

Randomized Controlled Trials are Not the Solution to This Conflict

The Dimensions of Health Care Innovation are Both Operational & Environmental

Begin with 'Why'

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In Conclusion

How Does One Innovate As A Team?

Team Buy-in requires Commitment, borne out of Above-board Conflict, based on Trust.

Team Members Should be As Responsible as The Leaders for Innovation

Need to Learn How to Transfer your Ideas to Others

Must Have a Psychologically-Safe (but accountable) culture

Leaders can Facilitate the Development of Psychological Safety

Team must be resilient and have mechanisms for dealing with failure

Involvement of Parents/patients is key.