



Facilitating Collaboration: Lessons from Research on Health Care Delivery

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Agenda

1. Collaboration and its forms in health care
2. Why interest in collaboration in health care
 - Trends
 - Problems
 - Consequences
3. Challenges to collaboration
4. Strategies for facilitating collaboration
5. Moving forward: Discussion

Collaboration in health care

- Collaboration: working together to achieve a shared goal via information-sharing, joint decision-making, and coordination of activities (Baggs et al. 1999; Jassawalla & Sashittal 1998)

➡ teamwork & teaming

Patient-provider interactions



Innovation implementation



Multidisciplinary care teams



Public health systems

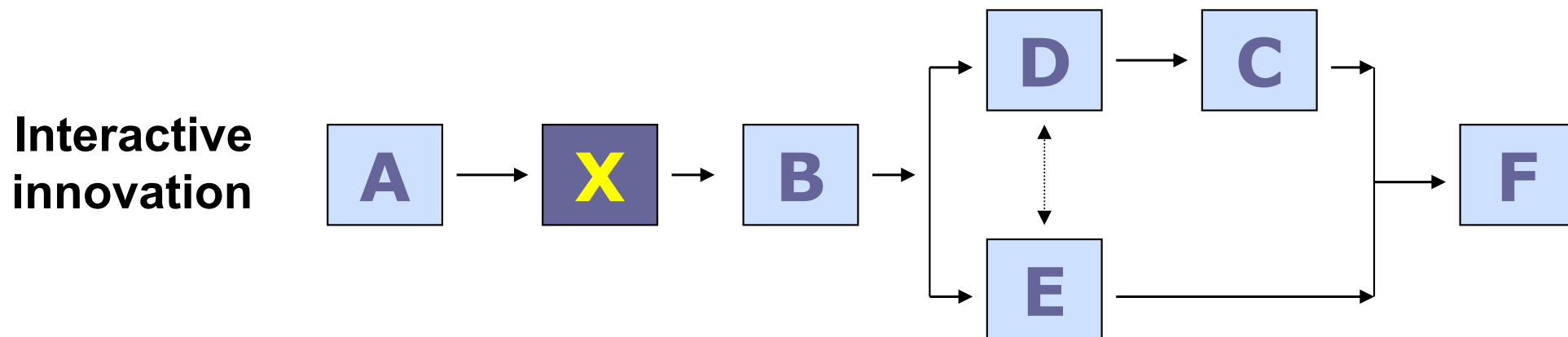
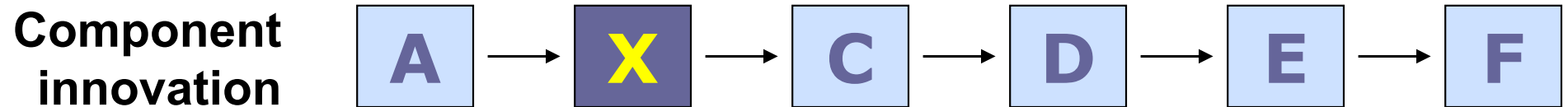
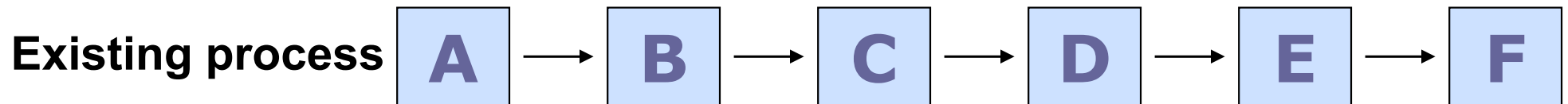


Why the interest in collaboration: trends

Trends necessitate greater collaboration:

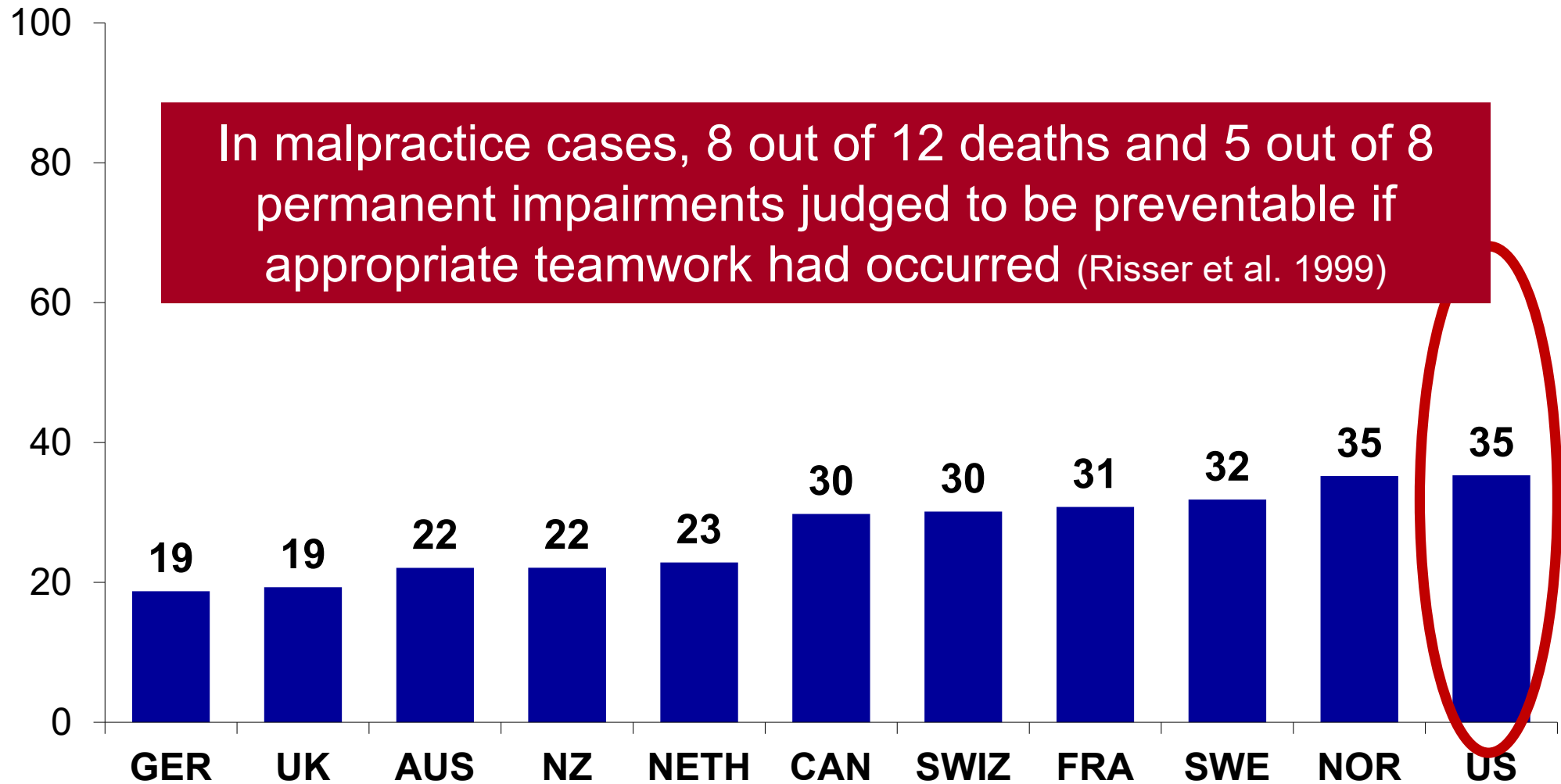
- ❑ Increasing rate of change in medical knowledge
 - New Medline references each year: more than 700,000
... organizations must incorporate an abundance of knowledge
- ❑ Increasing specialization
 - Number of boarded medical specialties: 2 in 1930 -> 128 in 2022
... a mix of professionals must quickly integrate their knowledge
- ❑ Increasing expectations of new organizational forms thanks to reform
 - Accountable care organizations, patient-centered medical homes
... integrated, collaborative care is now expected (and rewarded)
- ❑ Increasing number of reciprocal interactions
 - Many new technologies are not premised on sequential interactions (i.e., handoffs), instead they rely on ongoing information exchange
... delivery of quality care hinges on interdependency

More complex technologies



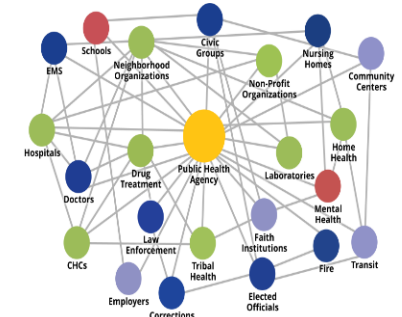
Why interest in collaboration in health care: problems

Percentage of patients who experienced a coordination gap in past 2 years



- > **poor quality**: medication errors, preventable hospital admissions, mortality, etc.
- > **high cost**: \$25-45 billion in wasteful spending due to failures (Burton 2012)

Why interest in collaboration in health care: serious consequences



Multidisciplinary, multi-organizational, multi-level collaboration

The Quadruple Aim



Quality

Enhance how care is provided to help patients to achieve better outcomes



Cost

Increase Operational Efficiencies



Patient-Centered

Improve patient experience by allowing caregivers to be Patient Centered



Worker Experience

Improve the caregiver experience by improving workflow and empowering care teams

The research and practical question

Why is it so difficult to collaborate in health care (and other industries)?

What strategies facilitate collaboration?

Challenges to collaboration

- Professional norms
 - Professional (status) hierarchies
 - Different mental models and systems
 - ... *it's difficult to collaborate when a history of division*
- Complex nature of work
 - Nature of knowledge: dynamic, tacit, context dependent
 - Changing and multiple collaborators
 - ... *it's often difficult to collaborate when factors keep changing*
- Organizational constraints
 - Work design and reward systems
 - Resource constraints (staff shortages, financial demands, etc.)
 - ... *it's difficult to dedicate one's self to collaboration when systems and circumstance place pressure to complete own tasks*
- Human resources
 - Personalities
 - Preference, for example, for known (independent) work routines
 - ... *little incentive to collaborate when not all parties are interested or skilled*



Overcoming the challenges: Strategies for facilitating collaboration



What research has found this far . . .

Strategies for Success

1. Frame as a learning challenge
2. Create deliberate learning opportunities
3. Make it psychologically safe
4. Retain leadership that facilitates
5. Attend to social networks
6. Measure and reward effort

Note: these are the same for successful implementation of innovation

1. The Frame for the situation

We employ performance frames by default and force of habit...

Dimension	Performance Frame
View of situation	Same as or not that different from existing situation
Tacit goal	Get the job done
View of individual's role	Knows what to do Self-sufficient
View of others' role	Co-actors or subordinates

- preserve current routines
- less experimentation
- disengage sooner
- *work around not* learn new practices

→ poor performance in new situations

1. The Frame...chose the learning frame

Dimension	Performance Frame	Learning Frame
View of situation	Same as or not that different from existing situation	Different situation: challenging, full of unknowns, opportunity to try new things
Tacit goal	Get the job done	Learn as much as possible so know what to do next time <i>e.g. Learn what not to do and what to do treat Covid-19 patients</i>
View of individual's role	Knows what to do Self-sufficient	Important, incomplete knowledge Interdependent
View of others' role	Co-actors or subordinates	Partners, valued resources
Professionals' behavioral response (outcomes)	<ul style="list-style-type: none"> ✓ more risk aversion ✓ less experimentation ✓ disengage sooner ✓ preserve current routines 	<ul style="list-style-type: none"> ✓ less risk aversion ✓ more experimentation ✓ persistence ✓ disrupt current routines



2. Create Deliberate Learning Opportunities

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Deliberate Learning to Improve Performance in Dynamic Service Settings: Evidence from Hospital Intensive Care Units

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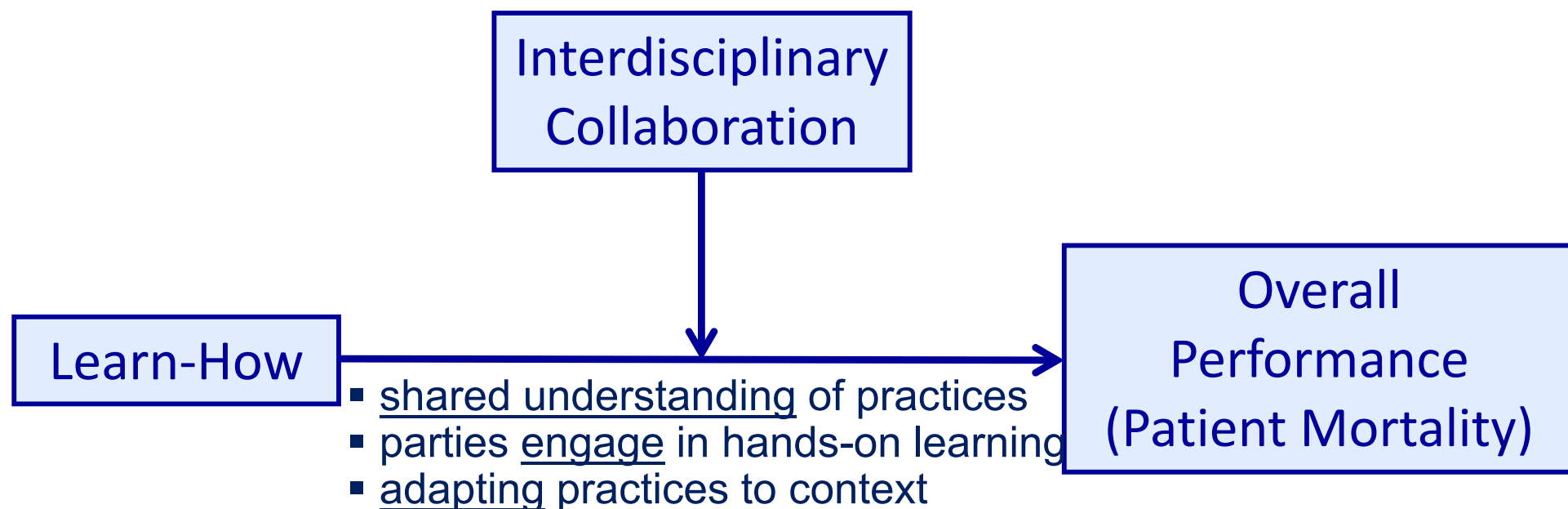
Dynamic service settings—characterized by workers who interact with customers to deliver services in a rapidly changing, uncertain, and complex environment (e.g., hospitals)—play an important role in the economy. Organizational learning studies in these settings have largely investigated autonomous learning via cumulative experience as a strategy for performance improvement. Whether induced learning through the use of deliberate learning activities provides additional performance benefits has been neglected. We argue that the use of deliberate learning activities offers performance benefits beyond those of cumulative experience because these activities counter the learning challenges presented by rapid knowledge growth, uncertainty, and complexity in dynamic settings. We test whether there are additional performance

Research question: Does the use of deliberate learning activities to implement new practices offer performance benefits beyond the benefits of cumulative experience?

- Solicitation of ideas from staff
- Dry-runs (offline practice)
- Limited-time pilot runs
- Problem-solving cycles (PDSA)
- Education sessions with staff
- Project team meetings
- Collect staff feedback before full implementation of new practice

“Learn-how” ($\alpha=.88$)

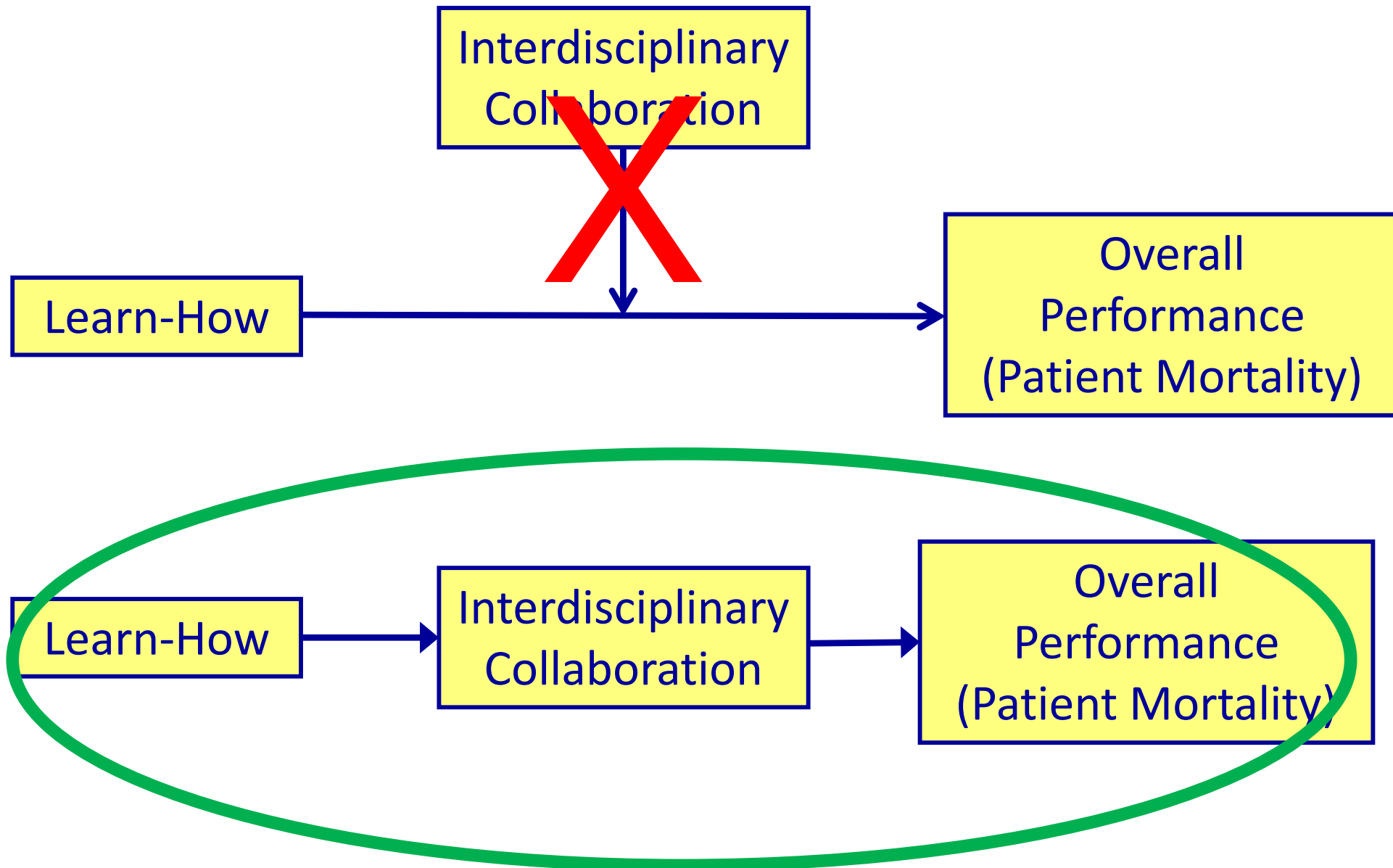
2. The original model: collaboration as moderator



Hypothesis: Learn-how is most effective in workgroups with strong interdisciplinary collaboration because:

- Better decision-making
- Better coordination
- Better error detection and recovery

2. An unexpected finding: learning activities as antecedent to collaboration



Why the mediating role of collaboration matters

Collaboration follows DLA:

“We had to change how we worked together as a team, too, because now we had to do things a little differently, so now you needed your buddy to do something a little differently, so you could do something a little differently.”

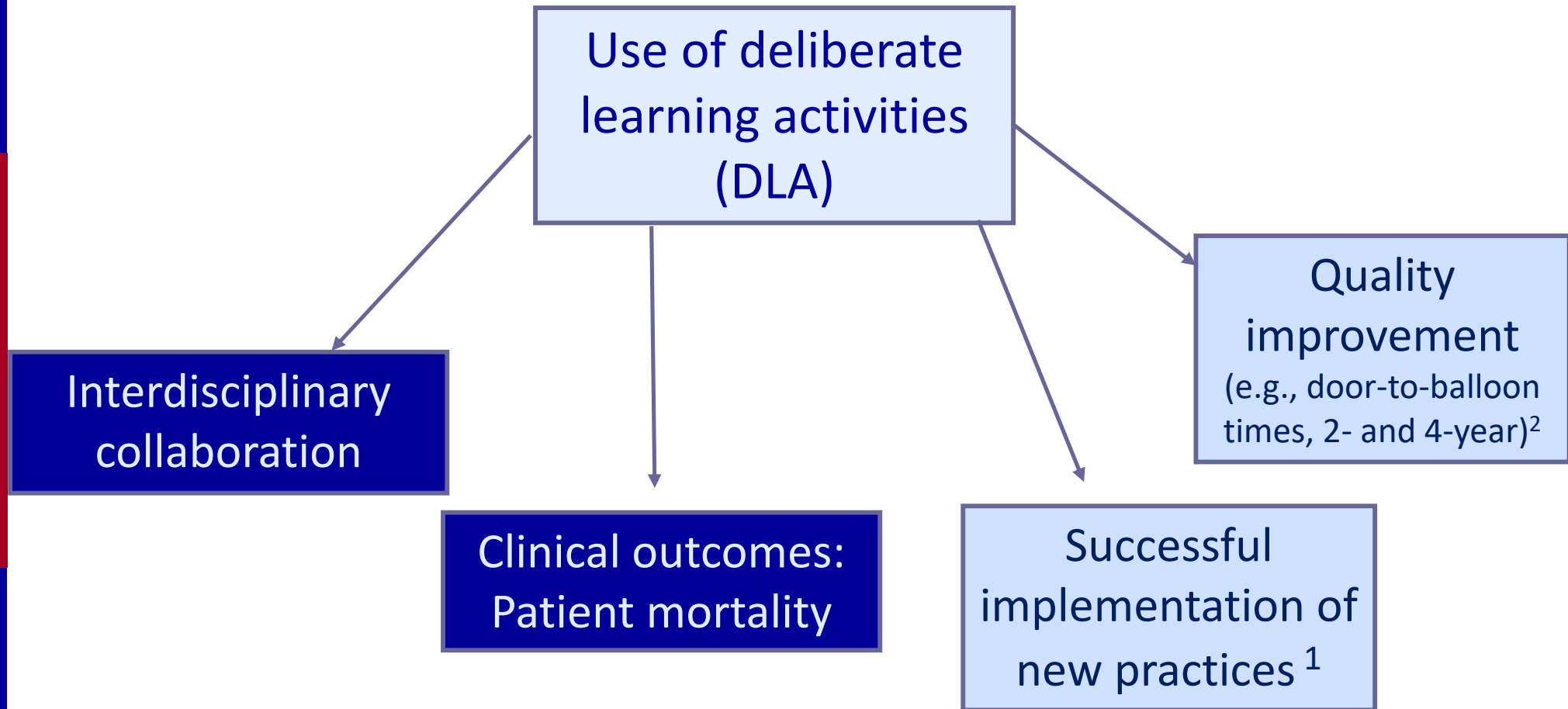
- NICU 3

Respiratory Therapist

Contribution of this finding:

- Evidence relevant to debate on whether collaboration must exist for learning efforts to be effective
 - Our results suggest “No.”
- Consistent with work showing an indirect effect of team learning behaviors on performance (Choo et al. 2007; Lapre & van Wassenhove 2001)
- The good news: Identification of a mechanism leaders can use to increase collaboration

Other benefits of DLA



¹Tucker AL, Nembhard IM, Edmondson AC. Implementing new practices: An empirical study of organizational learning in hospital intensive care units *Management Science*. 2007;53(6):894-907.

²Nembhard et al. Deliberate learning in health care: The effect of importing best practices and creative problem solving on hospital performance improvement. *Medical Care Research and Review*. 2014;71(5):450-471.

3. Make it psychologically safe



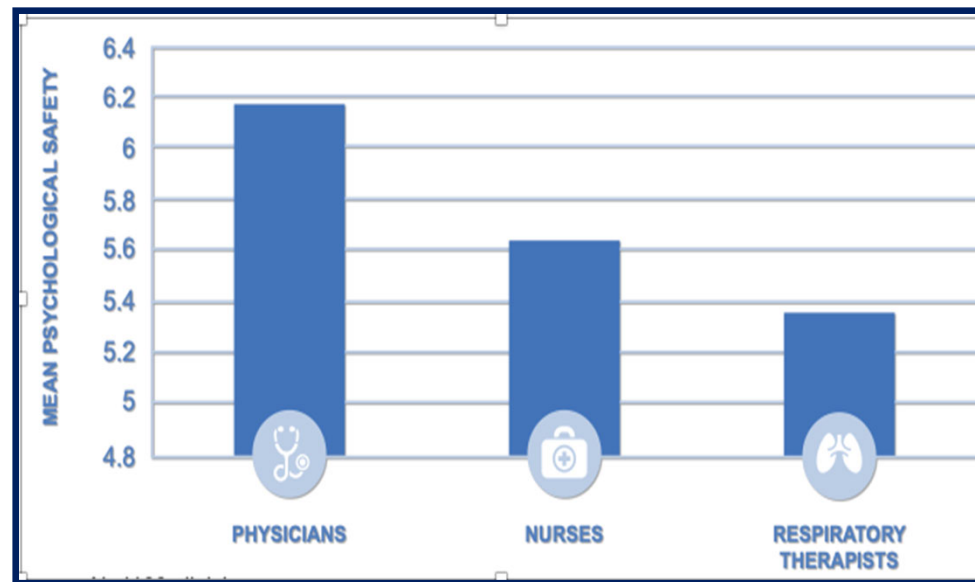
Psychological safety: the belief that the context is safe for interpersonal risk taking, that is, speaking up with your ideas, questions, concerns, mistakes or critiques will be welcomed and valued, not punished.



YOU CAN BE CANDID
= TRUE COLLABORATORS

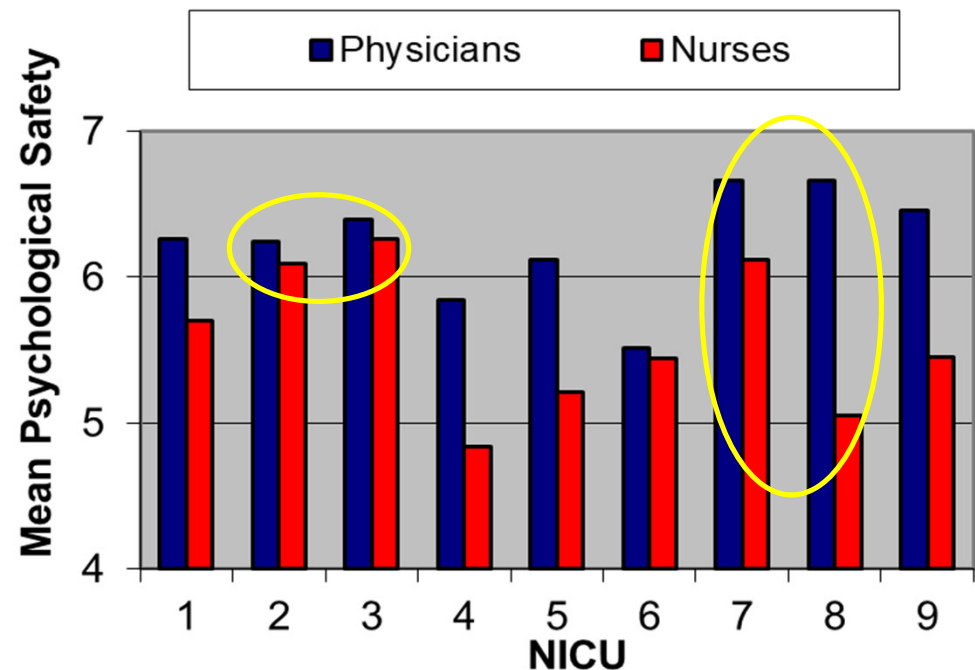
A few of the things known about psychological safety

- **Psychological safety predicts collaborative learning**
- **Psychological safety is missing for many at work**
 - 85% of managers and staff admit to being silent about a concern*
- **Psychological safety tends to mirror hierarchy**



A few of the things known about psychological safety

- Psychological safety predicts collaborative learning
- Psychological safety is missing for many at work
 - 85% of managers and staff admit to being silent about a concern*
- Psychological safety tends to mirror hierarchy
- Psychological safety differences do not have to exist



4. Retain leadership that facilitates

Leader behaviors that help

1. Attend to the team launch

- Frame the work accurately
- Express the need for the collective and collaboration

2. Be accessible

3. Acknowledge own limits

4. Invite, ask, listen, learn

5. Encourage dissent



ROUTINE, WELL-UNDERSTOOD



VARIABLE, UNCERTAIN, COMPLEX



INNOVATIVE, NOVEL, UNKNOWN

“Gentlemen, I take it we are all in complete agreement on the decision... Then I propose we postpone further discussion of this matter until our next meeting to give ourselves time to DEVELOP DISAGREEMENT AND PERHAPS GAIN SOME UNDERSTANDING of what the decision is all about.”

Alfred P. Sloan (1946). My Years with General Motors.

FAILURE PARTIES AT ELI LILLY

April 2004: Celebrating a chemotherapy drug that failed



FAILURE PARTIES AT ELI LILLY

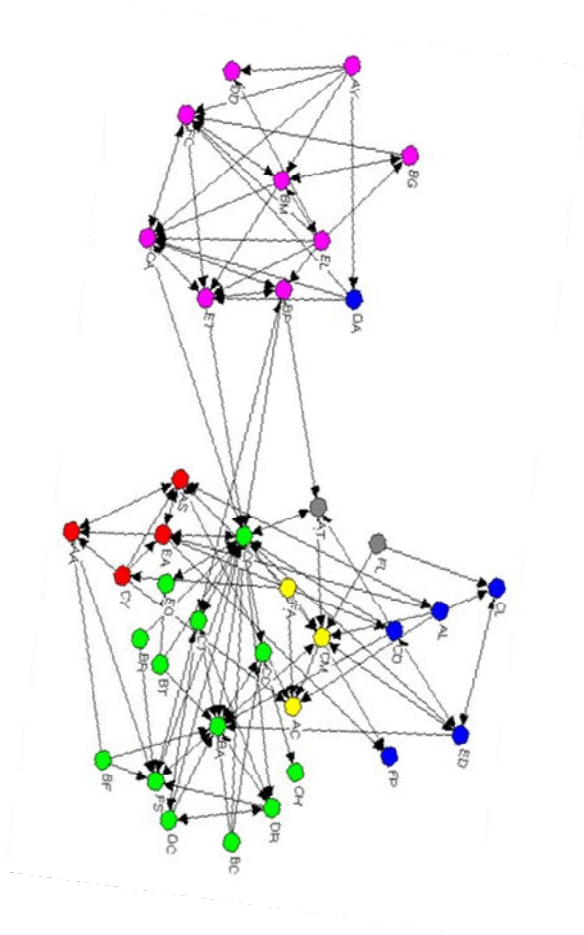
April 2004: Celebrating a chemotherapy drug that failed

5. Attend to social networks

Social network: A set of actors connected by a set of social ties

The utility of attending to networks:

- Reflects reality of collaboration as a social and relational process: via communication
- Captures structure and content
- Provides a map of all of the relevant stakeholders (collaborators)
- Provides actionable knowledge about design of interventions and uptake of innovations: where to intervene, how to leverage existing relationships/social influence, etc.



Using social networks

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The influence of peer beliefs on nurses' use of new health information technology: A social network analysis

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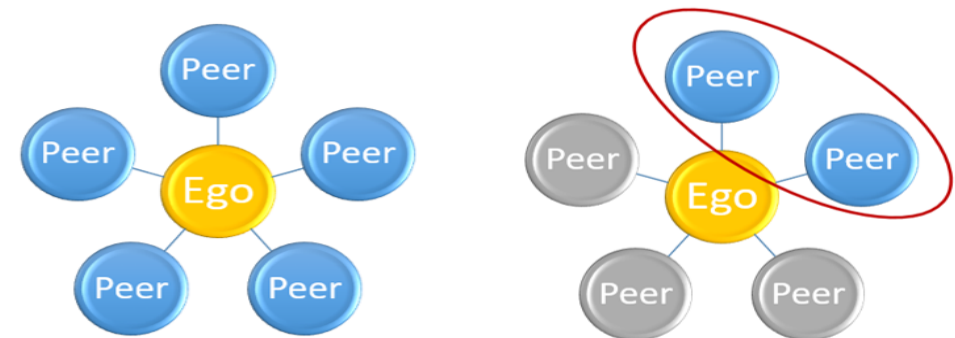
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System use

ABSTRACT

Implementation of health information technology fails at an alarming rate because intended users often choose not to use it. Implementation theory and frameworks suggest that social networks may influence individuals' use, but empirical study remains limited. Furthermore, neither theory nor research has identified *whose beliefs* within the network matter most for implementation. We examine the relationship between an individual's system use and the beliefs of his or her peers. We assess the relationship for two peer groups: the entire group of peers and the subset that shares the individual's beliefs about the system. We used data collected from an academic hospital in the United States that had recently implemented a bar code medication administration system, a technology meant to increase medication safety. We administered a survey to nurses (N = 207) in six clinical units approximately 3–5 months (April–June 2013) after the "go-live" of the system to identify peer groups and beliefs about system usefulness. We calculated mean peer belief for the entire peer group and sharedness of belief using a homophily measure. From the hospital's electronic health record system, we obtained nurses' system use during the 3-month data collection period. We used multivariable linear regression to examine relationships. We found no effect of mean peer beliefs on individual system use. However, sharedness of belief about usefulness was positively associated with individual system use. Individuals' own positive belief was only associated with greater system use when shared with peers. Our findings indicate a significant role of social networks in implementation, and specifically that shared beliefs between an individual and his or her peer network may be critical to implementation success, more so than the beliefs across the entire peer group. Reinforcement by the



Aggregate Beliefs

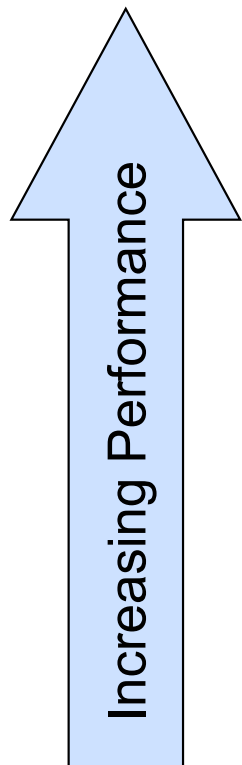
Shared Beliefs

- Question: How do peers influence use of new technology?
- Finding: Nurses' system use was significantly influenced by their peers' shared beliefs about usefulness but not by their peers' aggregate beliefs

6. Measure and Reward Effort

Two key principles:

- What gets measured, gets accomplished
- Rewards should reflect nature of the task, and task interdependence. For group work:



Group-level incentives

Individual level incentives
for independent components

Hybrid incentives

- group incentives for individual work
- individual incentives for group work

Techniques for studying teamwork

Method	Description	Data obtained
Surveys	Questionnaire administered to individuals	Respondent-reported behaviors and states
For a review: Valentine, M., Nembhard, I.M., and Edmondson, A.C. (2015). Measuring Teamwork in Health Care Settings: A Review of Survey Instruments. <i>Medical Care</i> , 53(4): e16-e30.		
Conversation <ul style="list-style-type: none"> - Interviews - Focus groups 	Discussion with participant(s), driven by participants	Respondent-reported behaviors and states Investigator-noted behaviors and states
Observation <ul style="list-style-type: none"> - often w/interviews 	Systematic, detailed watching of people or events in natural setting	Investigator-noted behaviors and states
Social sensors (badges)	Device that automatically records interactions	Technology-recorded behavior (interaction only)
Archival review <ul style="list-style-type: none"> - Including (really) 'big data' sources (e.g., EMR, email, etc.) 	Objective and systematic analysis of written communication to categorize and classify concepts	Technology (paper and electronic)-recorded behaviors, and possibly states

Using wearable sensors to assess teamwork



- In the highest performing teams,
- everyone gets a chance to talk, *uninterrupted*
 - members listen
 - members speak in roughly the same amount



If only one person or a small group speaks all the time, collective intelligence declines*

...and patients' disease management is lower

Conclusion:

Strategies for Successful Learning

1. Frame as a learning challenge
2. Create deliberate learning opportunities
3. Make it psychologically safe
4. Retain leadership that facilitates
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Conclusion:

The continuing need for research

- More medical and organizational innovations
- More shifts in the health care workforce
- New organizational forms and ways of working
- More constraints on health care financing/delivery



Individuals (clinicians, patients), teams, organizations will need to work together for years to come. . .



More research to be done on teamwork!

Thank you!