



Kathryn McDonald
Stanford University

Organizations

and Diagnostic Performance: How to End Up with
'Fewer Misses & More Hits' that Mean Something to
Patients and Their Families

What We Know: Key Shaping Factors for Cognitive Work



- Organizational context is powerful
 - Situation x person
 - Situation = processes, structures, culture, feedback loops, org boundaries (single vs multiple orgs, cross departmental)
- Time effects
 - Good Samaritan story (time pressure)
- People and their knowledge
 - Professionals
 - Patients/families (co-production)
- Information available
 - Many sources

What We Know: Changes Tried

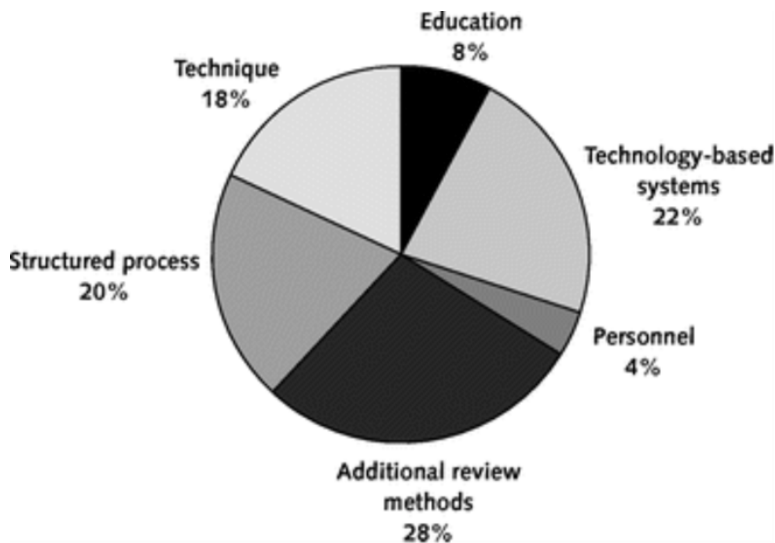


Table. Categories of Organizational Interventions to Decrease Diagnostic Errors

Category	Example
Technique	Changes in equipment, procedures, and clinical approaches that target diagnostic performance in clinical practice
Personnel changes	Introduction of additional health care members and replacing certain professionals with others
Educational interventions	Implementation of educational strategies, residency training curricula, and maintenance of certification changes
Structured process changes	Implementation of feedback loops or additional stages in the diagnostic pathway
Technology-based system interventions	Implementation at the system level of technology-based tools, such as computer assistive diagnostic aids, decision-support algorithms, text message alerting, and pager alerts
Additional review methods	Introduction of additional independent reviews of test results, from reporting through interpretation

Annals of Internal Medicine

Patient Safety Strategies Targeted at Diagnostic Errors

A Systematic Review

Kathryn M. McDonald, MM; Brian Matesic, BS; Despina G. Contopoulos-Ioannidis, MD; Julia Lonhart, BS, BA; Eric Schmidt, Noelle Pineda, BA; and John P.A. Ioannidis, MD, DSc

What We Don't Know: *Exact Targets for Action*



- What diagnostic performance areas have greatest chance of paying off for organizations? (and how can these areas be monitored?)
 - Organizational learning labs could partner to discover highest value targets
 - H1: High risk dx situations? (ASCENT/ Sarkar et al)
Missed opportunities (VA/Singh et al)
 - H2: Home-grown measures for real-time use
 - H3: National measures designed for improvement applications

High Risk Outpatient Monitoring in Safety Net Setting

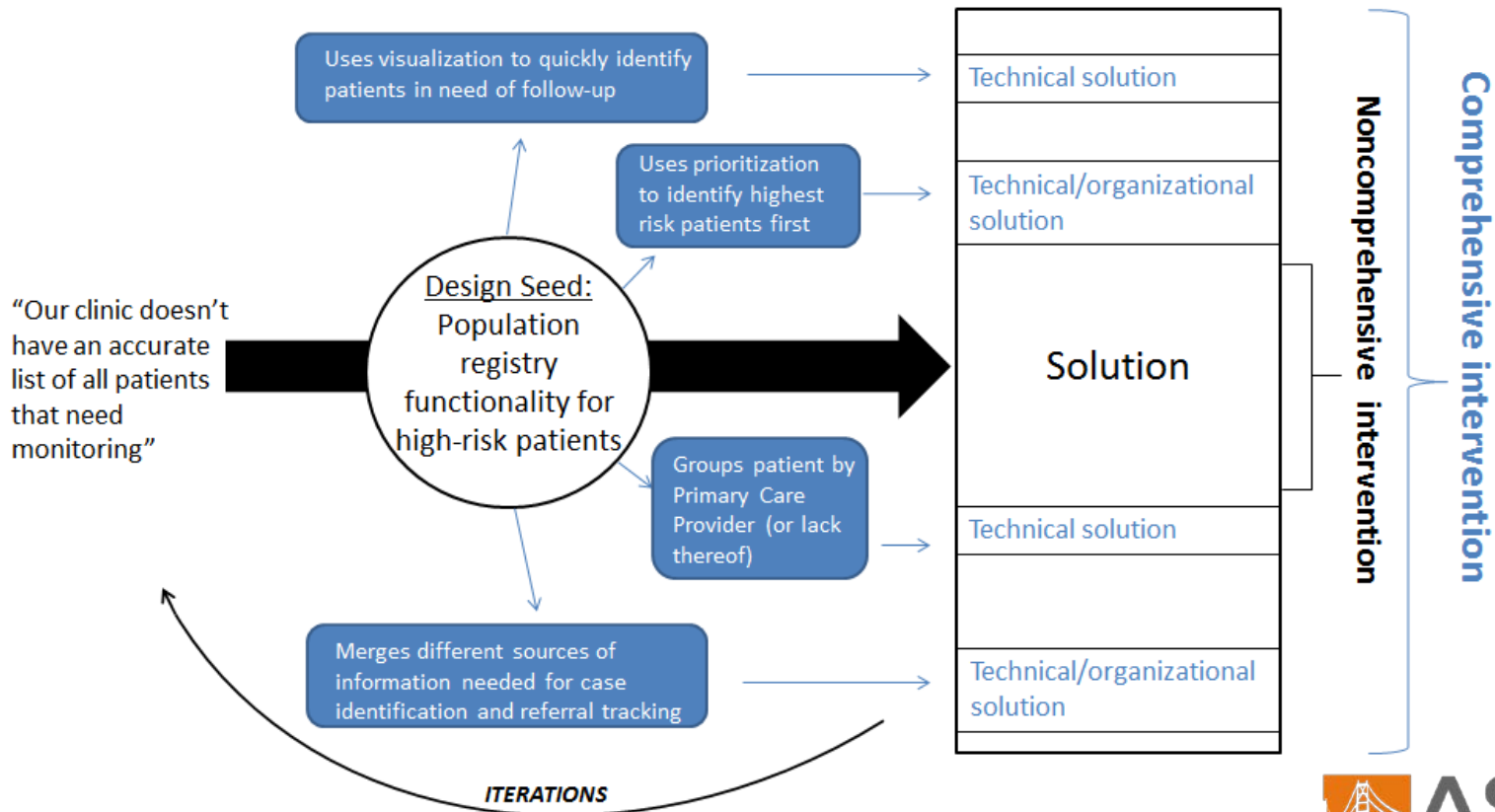
Design Seeds → Intervention



EXPERIENCED VULNERABILITY

VARIOUS INSTANTIATIONS

SOLUTION ATTRIBUTES



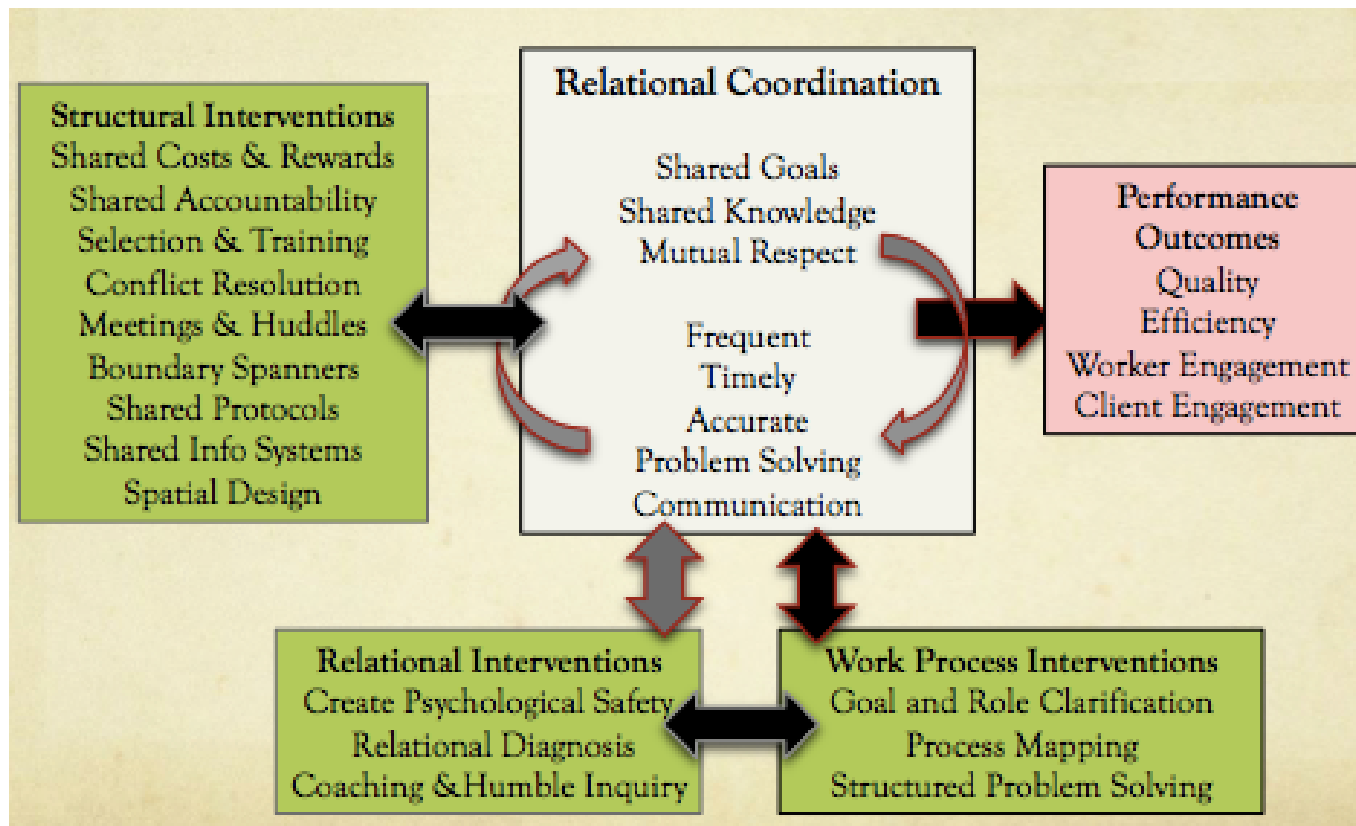
What We Don't Know

Worthwhile Types of Action



- What are the best practices for organizations to improve diagnostic performance?
 - H4: Teamwork? (examples in IOM report, relational coordination)
 - H5: Feedback mechanisms?
 - PSOs
 - Apology/Aftermath
 - H6: Co-production between professionals and patient?
 - SIDM Patient Toolkit
 - Shared Dx Decision Support

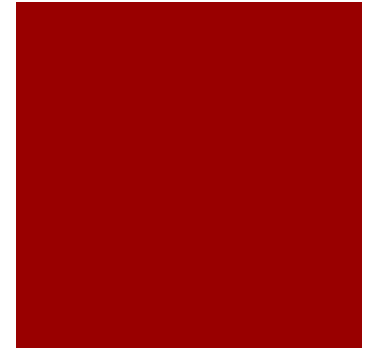
Relational Coordination for Interdependent Tasks – True for Diagnostic Teamwork?



Relational Model of Organizational Change: Gittell, Edmondson & Schein, 2011

What We Don't Know

Enabler and Show Stoppers



- What organizational contextual factors have the strongest effects on diagnostic performance?
 - H7: HIT capabilities and implementation?
 - H8: Diagnostic safety culture? On the radar at all levels of organization?
 - H9: Leadership and frontline engagement?
- Interaction effects...

HIT & Culture Effects on Dx-Sensitive Office Problems



Aim: Examine the relationship between medical office implementation levels for electronic reporting (ERR) of images and lab results and for EHRs with office problems that could lead to diagnostic error, and the effect that patient safety culture has on that relationship.

Methods: Survey data from the 2012 AHRQ Medical Office Survey on Patient Safety Culture database (N=924 offices). Multivariable regressions estimated the association between office-reported health IT implementation levels with perceived frequency of office problems, stratified by culture score

Results: Partial or full ERR was associated with significantly more frequent results not available and untimely follow-up of abnormal results. Lower culture scores enhanced the negative association between ERR and problems. Full implementation of EHRs was associated with less frequent office problems in comparison to no implementation.

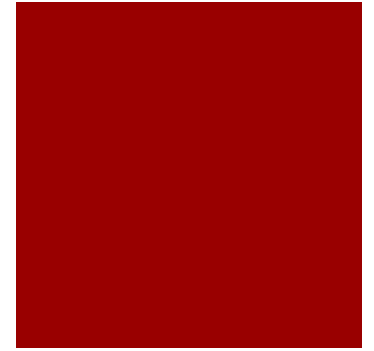
*AHRQ NPSD/ PSO Program
Research in progress*

By Campione, Mardon, & McDonald

What We Don't Know

Place and Timing

- Which organizations (or constellations of orgs) have most leverage on the challenge?
 - H10: Specific care settings vs transitions/handoffs?
 - H11: Training programs – medical school vs. residency, etc.
 - H12: Patient education and involvement: Patient & Family Advisory Committees, Other Patient Groups



Kathy's Top 3 – Basis: Socio-Logic Model



- #1: FOR BUY IN:
Formative Research on Feedback Systems (H5)
 - Frontline-friendly for patients and professionals
 - What feedback systems produce ideas for organizational change *that is possible?*

- #2: FOR KNOWLEDGE:
Developmental and Evaluative Research within Organizations (H4-6)
 - Articulate dx error target & develop a theory-based, literature-informed, ground-controlled action
 - Rapid prototyping/piloting to solve the “problem”

- #3: FOR SPREAD ACROSS PLACE, OVER TIME
Training Programs (H11)
 - Want research within this organizational target so that new cohorts of professionals better equipped to learn from each other, from patients, from burgeoning toolset
 - Theoretically critical for building in diagnostic safety culture

