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Saving Lives with teamwork: What does it take?

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This Morning...

- Why you should **care** about teamwork...
- What **team science** tells us about teamwork...
- What **effective** teams **do, feel & think**...
- Give you some **advice**...
- Share the **conditions** that lead to **success**...



RICE Take Away Messages...

- There is a **science** of team performance, teamwork & team training...**LEARN ABOUT IT!**
- There are a set of **tools, guidelines, and principles** for enhancing teamwork in healthcare...**USE & APPLY THEM!**
- We know that teamwork promotes safety, excellence, and high performance...**WHEN MANAGED APPROPRIATELY!**
- **TEAMWORK WORKS! SAVE LIVES! BETTER QUALITY OF CARE!**



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To Think About...

- “The solutions to patient safety are not in medicine... but in psychology.”



- Physician, 2004

- “...medicine is a team sport, with two exceptions: people’s lives depend on it and there are no coaches.”

-Atul Gawande, MD



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Who Cares About Teamwork?



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I. What is the State of the Science? What Matters in Teams?



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What is the State of the Science?

How Do We Turn a Team of Experts into an Expert Team?



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The Science...

- It's a multi-disciplinary field
- Explosion of empirical work!
- Studying real teams; performing real tasks
 - "Teams in the Wild"
 - Simulations
- Experts as participants
- Hundreds of teams!
 - Aviation, Healthcare, Military, Corporate world



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The Science...

- Teams defined:
 - Task interdependency
 - Distributed expertise
 - Hierarchical organized
 - Member Fluidity
- Team Context:
 - Uneven workload
 - Ambiguous situations
 - Time pressure
 - Multiple tasks



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What is Teamwork?

- It is the **actions, events** and **behaviors, cognition, feelings** taken to accomplish a team goal.
- It is about...
 - ...**taskwork** skills (i.e., own task).
 - ...**teamwork** skills (i.e., how to work together).
 - ...**building** and **maintaining** both.



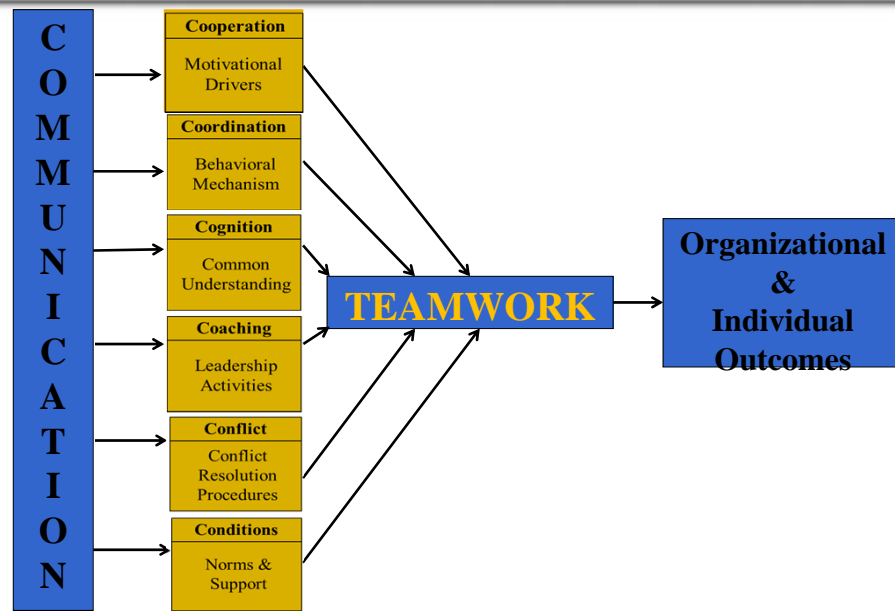
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What Matters...

The 7 C's of Teamwork...



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Cooperation...

- Attitudes & Beliefs:
 - Team Orientation
 - Collective Efficacy
 - Mutual Trust
 - Openness to Experience
- Good Teams...
 - Develop collective efficacy
 - Have strong team orientation



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Coordination...

- Behavioral Mechanisms:
 - Mutual Performance Monitoring
 - Back-up Behavior/Supportive
 - Adaptability/ Flexibility
- Good Teams...
 - Self-correct
 - Employ huddle, debriefs





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Cognition...

- Shared understanding:
 - Roles & Responsibilities
 - Knowledge of team mission; Objectives, Norms, & Resources
 - Familiarity with Teammates
- Good Teams...
 - Have clear roles
 - Team norms are clear



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Coaching...

- Leadership:
 - Team Leadership
 - Promotes teamwork
 - Cares about team members
 - Sets ground rules
- Good Teams...
 - Have coaches
 - Set expectations
 - Clarify roles





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Conflict...

- Conflict resolution strategies:

- Interpersonal skills
- Psychological safety

- Good Teams...

- Deal with conflict, confront it
- Coaches create psychological safety



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Conditions...

- Supportive context
 - Good performance recognized & reinforced
 - Access to resources
 - Information needed available
- Policies, procedures & incentives aligns
- Leadership sends “signals” that teamwork matters



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II. Ten Characteristics of Effective Teams...



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Effective teams...

1. Clear **roles & responsibilities**

- ...have members who understand each others' roles and how they fit together.

2. Compelling **purpose** – goal, vision

- ...have a clear common purpose.
- ...energized by their shared mission.
- ...can evaluate current status in terms of a destination.



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Effective teams...

3. Team **coach** (leader) – promotes, develops, reinforces

- ...leaders that directly intervene to enact teamwork processes.
- ...have team members who believe the leaders care about them.
- ...provide situation updates.
- ...set expectations.
- ...self-correct first.
- ...clarify roles.
- ...solicit ideas and observations from team members.
- ...seek out opportunities to reinforce effective teamwork.



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Effective teams...

4. Mutual **trust** – familiarity

- ...manage conflict well—team members confront each other effectively.
- ...have a strong sense of team orientation.
- ...trust other team members' "intentions".
- ...strongly believe in the team's collective capability to succeed.
- ...develop collective efficacy.



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Effective teams...

5. Team **norms** – clear, known & appropriate
 - ...what is acceptable “around here”.
6. **Shared understanding** of task, mission & goals – hold shared mental model
 - ...have members who anticipate each other.
 - ...can coordinate without overt communication.



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Effective teams...

7. **Self-correct** – huddles, debriefs
 - ...regularly provide feedback to each other, both individually and as a team (“de-brief”).
 - ...establish and revise team goals and plans.
 - ...differentiate between higher and lower priorities.
 - ...have mechanisms for anticipating and reviewing issues/problems of members.
 - ...periodically diagnose team “effectiveness”, including its results, its processes, and its vitality (morale, retention, energy).



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Effective teams...

8. Set **expectations** (and are **managed**)
clear, understood
9. Shared **unique** information – efficient
information protocols
 - ...huddles, debriefs can help.
10. Surrounded by optimal organizational
conditions



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III. Seven Pieces of Advice...



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Some Advice...

1. Ensure all team members are **trained** on **team-based KSA's**...around six of the C's...
 - Team training \neq Team building
 - Information, demonstration, practice & feedback, key elements
 - Scenario carefully crafted
 - Event-based approach
 - TeamSTEPPS, an option



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Does Team Training Work?



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YES!!!



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Team Training Works!

- **Compared with current training, enhanced training resulted in** (see Cannon-Bowers & Salas, 1998¹):
 - 45% improvement in Mission Performance.
 - 33% improvement in Tactical Decision Making Performance.
 - 25% improvement in Communication Efficiency.
 - 10-34% improvement in Team Coordination.
- **In the aviation environment** (Salas et al., 1999²):
 - 6-20% improvement in Teamwork Behaviors.

¹Cannon-Bowers, J. A., & Salas, E. 1998

² Salas, E. et al 1999



RICE Does Team Training Work?

- **Team training significantly improves team³:**
 - **Cognition** ($\rho = .42$)
 - Shared mental models
 - **Behavioral process** ($\rho = .44$)
 - Communication, coordination, collaboration
 - **Affect** ($\rho = .35$)
 - Mutual trust, collective efficacy
 - **Performance outcomes** ($\rho = .37$)
 - Task outcomes, satisfaction, viability

³Salas et al., 2008



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Does **TeamSTEPPS** work?



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TeamSTEPPS

- **Learner reactions are positive** ^{4,5}
 - Utility judgments: will this help you do your job?
 - Intent to transfer: will you use what you learned?
 - Affective reactions: are you confident in your ability to perform?
- **Learning occurs** ^{4,5}
 - Acquisition: do people learn the targeted competencies?
 - Retention: is that learning stable over time?

⁴Rabøl et al., 2010
⁵Weaver et al., 2010



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TeamSTEPPS

- **Behavior change in transfer environment occurs.** ^{4,5}
 - Frequency and quality of teamwork behaviors in clinical practice improves.

⁴Rabøl et al., 2010
⁵Weaver et al., 2010



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Does Medical Team Training Impact Clinical Outcomes?



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What Did We Find?

Outcome	K^1	N^2	Corrected d_{RM}^3	% Variance accounted for (R^2)	Confidence Interval
Overall	145	23,825	0.62	8.76%	0.49-0.76
Reactions	5	161	0.53*	6.55%	0.33-.73
Learning	79	6,346	0.89*	16.56%	0.66-1.11
Behaviors	63	9,442	0.67*	10.11%	0.52-0.82
Organizational Outcomes	31	5,822	0.34*	2.82%	0.19-0.49
Patient Outcomes	20	47,465	0.38*	3.50%	0.10-0.66

1. K is the number of effect studies analyzed for this outcome

2. N is the number of individuals evaluated in this outcome

3. Corrected d_{RM} is the corrected effect size estimate

*Statistically significant; confidence interval excludes zero



RICE What Do the Data Mean?

- Team training **accounts for 8.8%** of the variance in **overall outcomes**
- Team training is well-liked and perceived as useful.
- Team training **accounts for 16.6%** of **learning**
- Team training **accounts for 10.1%** of **on-the-job performance**
 - This includes both **task** and **team** performance
- Team training **explains 2.8%** of the variance in **organizational outcomes** (e.g., satisfaction, turnover, financial)
- Team training explains **3.5%** of the variance in **patient outcomes** (e.g., infection, mortality)



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Results...

Improved clinical outcomes

- **Labor & Delivery**
 - **47% decrease in Adverse Outcomes Index (AOI)** for gestations under 37 weeks (16% decrease population wide)¹⁰
- **Surgery**
 - **18% reduction in annual mortality rates** in trained sites (7% reduction in untrained) — **50% reduction in risk**, with a **dose-response relationship of a .5 deaths per 1000 procedures per quarter**¹¹

¹⁰Mann et al., 2006
¹¹Neily et al., 2010



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Some Advice...

2. Teach how to **Debrief** and **Huddle!**- Simple, Powerful, & Underutilized
 - What worked?
 - What can be improved?
 - Focus on as many C's as possible.
 - Debriefing works! (Tannenbaum & Cerasoli, 2012)
 - 25% Performance improvement



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Some Advice...

3. Use **Simulation!**
 - Games, role plays
 - Accelerates expertise
 - Embedded instructional features
 - Paper-and-Pencil scenarios, an option
 - Scenario-based learning
4. Develop team **coaches, mentors,** leaders...
 - "A walking 800 number"





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Some Advice...

5. **Measure & Reinforce** teamwork!

- Surveys; take pulse

6. For sustainability...**create conditions** needed...

- ...mandate, resources, plan
- ...seek **supervisory support**
- ...learning events
- ...**physicians** must **engage**
- ...CFO/CEO/CMO must see value, business case



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Some Advice...

7. See if you can use this:

- “Am Dr. ____, I am a primary care physician but I am vulnerable to error so you are here to help me take care of this patient– we are a team.”





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IV. What Does it Take?



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What does it take?

1. A **commitment**...
 - A motive to practice differently
 - Long-term change effort
2. A **plan**...
 - Develop plan
 - Communicated, understood, and valued
3. An understanding of **coordination demands** in your practice...



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What does it take?

4. A **cadre** of new or improved **organizational practices**...

- Measure and reinforce teamwork
- Send signals that teamwork matters
- Align policies and procedures
- Patient as team member
- Team coaches
- Tools
- Debrief, huddle



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What does it take?

5. A **learning system** to ensure right team-based competencies are in place...

- Leverage existing MTT programs (e.g., teamSTEPPS)
- Supervisory support
- Refresh
- Create a learning culture



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V. Final Thoughts...



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Final Thoughts...

- Effective **teamwork** is the foundation for **effective primary patient care**.
- Teams **can** learn to be more effective and **save lives and delivery quality care**.
 - The science of teamwork
- Remember the **7 C's** of teamwork and the patterns of effective teams.



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How Can I Help?