

CREATIVE PROBLEM SOLVING AND QUALITY OF AMI CARE

Evidence Brief

CREATIVE PROBLEM SOLVING is central to hospital efforts to improve processes and outcomes of care for patients with AMI, including reduced door-to-balloon times¹⁻² and 30-day risk-standardized mortality rates (RSMRs).³⁻⁴ In hospitals with exceptional performance in RSMRs, adverse events are viewed as opportunities to analyze root causes and learn from experiences in order to improve care. Innovation is fostered by deep organizational commitment to trial and error and empowerment of front line staff to experiment.

LEARNING ORGANIZATIONS, where problem-focused experimentation and innovation is expected, are characterized by a supportive learning environment, concrete learning processes and practices, and leadership behaviors that reinforce learning.⁵⁻⁶ While learning can initially be facilitated by importing best practices, internal creative problem solving is a critical capacity for later phases of improvement in the organization.⁷ Team performance in creative problem solving can be supported through facilitation of the problem solving process,⁸⁻⁹ specific group exercises to spark creativity,¹⁰⁻¹⁷ and engagement of diverse individuals.¹⁸

Is your hospital a learning organization?⁶
Take the simple [online self-assessment tool](#).

What does creative problem solving look like?

"We took a couple of the cath lab nurses and techs and said we've got a problem here...So you look at where the root problem is and you look at the people who do that for a living, the techs and the nurses. We didn't tell them what to do. We said this is the problem, how can we do it better? And they figured out how to do it better."

- *Interventional cardiologist/
cath lab director*³

PSYCHOLOGICAL SAFETY, a central feature of learning organizations, can foster creative problem solving. Psychological safety is a characteristic of the working environment in which employees feel free to express new or different ideas without fear of negative consequences or being judged harshly.¹⁹⁻²⁰ Psychological safety is associated with staff engagement in quality improvement efforts in health care,²¹⁻²² and organizational performance in various industries.²³ Conditions of psychological safety include norms that reward risk taking; innovative thinking and experimentation; freedom to bring up tough issues and to ask for help; and valuing of unique skills and differences.^{20, 24} Psychologically safe environments engender mutual trust that allows for disagreements and input from front line staff, who are key to successful quality improvement teams in AMI care¹ and patient safety efforts.²⁵



References:

1. **Santana C, Nunez-Smith M, Ruppe E, Berg D, Curry L.** Quality improvement in community health centers: The role of microsystem characteristics in the implementation of a diabetes prevention initiative. *Quality and Safety in Health Care.* 2010; 19:290-4.
2. **Bradley EH, Curry LA, Webster TR, Mattera JA, Roumanis SA, Radford MJ, McNamara RL, Barton BA, Berg DN, Krumholz HM.** Achieving rapid door-to-balloon times: How top hospitals improve complex clinical systems. *Circulation.* 2006; 113:1079-1085.
3. **Curry LA, Spatz E, Cherlin E, Thompson J, Berg D, Ting H, Decker C, Krumholz HM, Bradley EH.** What distinguishes top performing hospitals in acute myocardial infarction rates? *Annals of Internal Medicine.* 2011; 154:384-390.
4. **Bradley EH, Curry LA, Spatz ES, Herrin J, Cherlin EJ, Curtis JP, Thompson JW, Ting HH, Wang Y, Krumholz HM.** Hospital strategies for reducing risk-standardized mortality rates in acute myocardial infarction. *Annals of Internal Medicine.* 2012; 156(9):618-26.
5. **Senge P.** The leader's new work: Building learning organizations. *Sloan Management Review.* 1990; 32:7-23.
6. **Garvin DA, Edmondson AC, Gino F.** Is yours a learning organization? *Harvard Business Review.* 2008; 109-116.
7. **Nembhard IM, Cherian P, Bradley EH.** 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; May 29.
8. **McFadzean E.** Developing and supporting creative problem solving teams: Part 1 – conceptual model management decision. *Management Decision.* 2002; 40(5):463-75.
9. **Mumford MD, Whetzel DL, Reiter-Palmon R.** Thinking creatively at work: Organization influences on creative problem solving. *Journal of Creative Behavior.* 1997; 31(1):7-17.
10. **DeHaan R.** Teaching creativity and inventive problem solving in science. *CBE—Life Sciences Education.* 2009; 8:172-81.
11. **McFadzean E.** Enhancing creative thinking in organizations. *Management Decision.* 1998; 36(5):309-15.
12. **Bottger PC, Yetton PW.** Improving group performance by training in individual problem solving. *Journal of Applied Psychology.* 1987; 72:651-7.
13. **Plsek P.** Innovative thinking for the improvement of medical systems. *Annals of Internal Medicine.* 1999; 131:438–444.
14. **Plsek P.** *Accelerating Health Care Transformation with Lean and Innovation: The Virginia Mason Experience.* London: UK. Productivity Press. 2013.
15. **Plsek P.** Tutorial: Directed creativity. *Quality Management in Health Care.* 1994; 2(3):62-76.

16. **Scott GM, Leritz LE, Mumford MD.** Types of creativity: Approaches and their effectiveness. *The Journal of Creative Behavior*. 2004; 38:149–179.
17. **Mumford MD, Gustafson SB.** Creativity syndrome: Integration, application, and innovation. *Psychological Bulletin*. 1988; 103:27–43.
18. **Terwiesch C, Xu Y.** Innovation contests, open innovation, and multiagent problem solving. *Management Science*. 2008; 54(9):1529-1543.
19. **Kahn WA.** Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*. 1990; 33(4): 692-724.
20. **Edmonson A.** Psychological safety and learning behavior in work teams. *Administrative Science Quarterly*. 1999; 44:350–383.
21. **Nembhard IM, Edmonson AC.** Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *Journal of Organizational Behavior*. 2006; 27:941–966.
22. **Tucker AL, Nembhar IM, Edmondson AC.** The effects of learn-what and learn-how on the implementation success of improvement projects. Harvard Business School. Working Paper. 2006; 06-049.
23. **Baer M, Frese M.** Innovation is not enough: climates for initiative and psychological safety, process innovations, and firm performance. *Journal of Organizational Behavior*. 2003; 24:45-68.
24. **Schein E.** How can organizations learn faster? The problem of entering the green room. Sloan School of Management. Working Paper. 1992; 3409.
25. **Singer S, Shoutzu L, Falwell A, Gaba D, Baker L.** Relationship of Safety Climate and Safety Performance in Hospitals. *Health Services Research*. 2009; 44(2)399-421.