

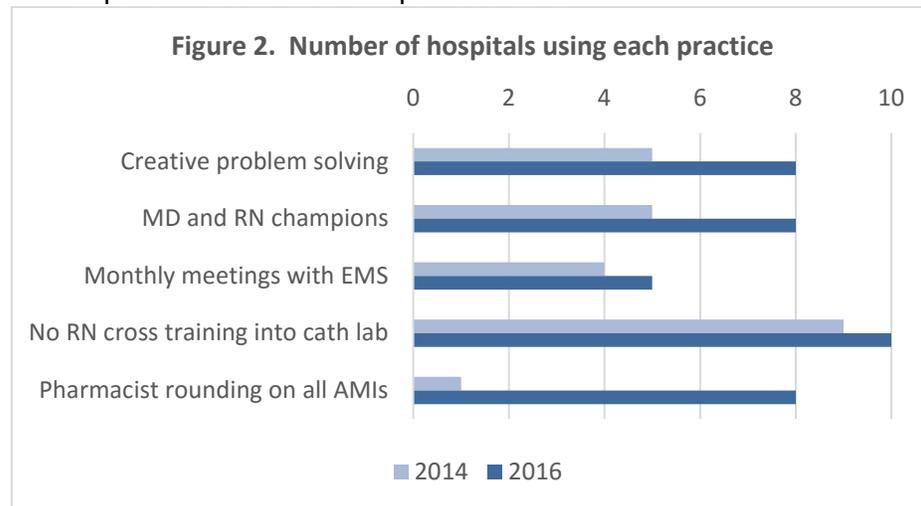
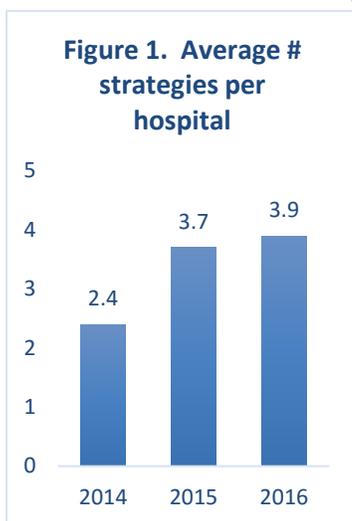
Leadership Saves Lives Evidence Brief: Summary of Results

The Problem: Hospital organizational culture is associated with patient outcomes, including mortality after acute myocardial infarction (AMI). Little is known, however, about whether and how culture can be positively influenced.

The Response: Leadership Saves Lives (LSL) was a 2-year, intervention in 10 U.S. hospitals to: (1) promote uptake of evidence-based strategies associated with better 30-day risk standardized mortality rates (RSMR) for patients with AMI, (2) drive improvements in 5 domains of organizational culture and (3) reduce RSMR. As part of the LSL program, each hospital was asked to appoint a guiding coalition of approximately 15 multidisciplinary staff involved in the care of patients with AMI. Guiding coalition members engaged in 3 annual forums, 4 on-site workshops, and a web-based platform for resource sharing. To assess impact, we analyzed data from a validated survey of hospital staff at baseline, 12 months, and 24 months (n=223; average response rate 88%), and used in-depth interviews to understand the process of change (n=393 interviews with 197 staff).

Outcome 1: Evidence-Based Practices Improved.

The use of the 5 evidence-based strategies associated with better RSMR increased significantly over the 2-year study period from a per hospital average of 2.4 strategies at baseline to 3.9 strategies at the 2-year mark ($p < 0.05$), with most changes occurring during the first year. The strategy that gained the most traction was having a pharmacist round on all patients with AMI. In addition to taking up and adapting these strategies, hospitals identified additional strategies to improve care in their unique contexts.



Outcome 2: Organizational Culture Improved. In the full sample of 10 hospitals, we found a statistically significant change ($p=0.05$) in overall organizational culture. A systematic analysis of merged qualitative and quantitative data revealed that 6 hospitals had demonstrated meaningful change in culture, and 4 had not. In the 6 hospitals which demonstrated positive culture change, changes were prominent in 3 domains of culture: learning environment, senior management support, and psychological safety.

- Overall Culture Score ✓
- Learning ✓
- Senior Management Support ✓
- Psychological Safety ✓
- Commitment to the Organization
- Time for Improvement



- **Changes in learning environment.** In the 6 hospitals that demonstrated positive shifts in culture, changes in the learning environment included: increased use of data to drive change; greater creativity; enhanced problem solving capacity; and more frequent review of progress. Coalition members became more reflective and eager to identify root causes, which helped them develop a shared understanding of problems. In contrast, participants in the 4 hospitals without measurable culture change described persistent undervaluing of quality data, limited capacity for problem solving, limited shared responsibility for solving problems, aversion to experimentation and deference to hierarchical relationships.
- **Changes in senior management support.** In the 6 hospitals that experienced a positive shift in culture, increases in senior management support manifested as: greater senior management engagement and visibility; increased responsiveness and support for improvement efforts; empowerment of middle managers and the front line; and increased accountability. In the 4 hospitals without measurable culture changes, senior management support was perceived as persistently low over the 2-year period. The sporadic presence of senior management at meetings dampened coalition members' commitment.
- **Changes in psychological safety.** Although not statistically significant in the quantitative data, qualitative changes in psychological safety in the 6 hospitals with positive shifts were apparent as staff described increased freedom to voice concerns, greater respect across disciplines and departments, and greater appreciation for diverse expertise that supported collaboration. Coalition members reported higher confidence to express divergent views, particularly those that challenged powerful roles in the hospital. In contrast, participants in the 4 hospitals without measurable culture change described how their improvement efforts stagnated despite participation in LSL. Participants reported difficulties in fostering trust in others. In these hospitals, staff remained focused on their own interests, rather than collaborating.

Outcome 3: RSMR Improved. Between the 2011-2014 and 2012-2015 CMS reporting periods, the 10 LSL hospitals had significantly greater decrease than the national average change from 2011-14 to 2012-15 ($p=.02$). Importantly, the 6 hospitals that demonstrated substantial shifts in culture showed a significantly greater decrease in RSMR than the 4 hospitals that did not experience such culture changes (RSMR reduced by 1.07 percentage points and 0.23 percentage points, respectively; $P=.027$). There was no difference in their rates of change in the periods prior to the LSL intervention.

Implications To our knowledge, this is the first longitudinal intervention aimed at changing hospital organizational culture pertinent to cardiovascular outcomes that has demonstrated impact. Our findings suggest that organizational culture can be modified through development a leadership group that engages physicians and non-physicians in a learning environment, establishes a shared goal with senior management, and uses data effectively to drive change.

1. Curry, et al. What distinguishes top-performing hospitals in acute myocardial infarction mortality rates? *Ann Intern Med.* 2011;154:384–30. DOI: 10.7326/0003-4819-154-6-201103150-00003.
2. Bradley, et al. Hospital strategies for reducing risk-standardized mortality rates in acute myocardial infarction. *Ann Intern Med.* 2012;156:618–221. DOI: 10.7326/0003-4819-156-9-201205010-00003.
3. Curry, et al. Organizational culture change in U.S. hospitals: A mixed methods longitudinal intervention study. *Implementation Science.* 2015; 10:29. DOI: 10.1186/s13012-015-0218-0.
4. Curry LA, Brault MA, Linnander EL, McNatt Z, Brewster AL, Cherlin E, Fleiger SP, Ting HH, Bradley EH. Influencing organizational culture to improve hospital performance care of patients with acute myocardial infarction: A mixed methods intervention study. *BMJ Quality and Safety* 2017. DOI: 10.1136/bmjqs-2017-006989.
5. Bradley EH, Brewster AL, McNatt Z, Linnander EL, Cherlin E, Fosburgh H, Ting HH, Curry LA. How guiding coalitions promote positive culture change in hospitals: A longitudinal mixed methods interventional study. *BMJ Quality and Safety* 2017. DOI: 10.1136/bmjqs-2017-006574.

