Public Health Practice Stories from the Field

Preventing *C. difficile* in Massachusetts Hospitals with a Mixed-Methods Learning Collaborative

40% increase

in the number of discharges from Massachusetts hospitals with a *C. difficile* infection diagnosis between 2003 and 2009

27 hospitals

participated in a statewide collaborative to prevent this potentially life-threatening infection

25% decrease

overall in hospital-acquired *C. difficile* infection was found in participating hospitals

Engaging frontline staff

and sharing data were the most frequent change strategies used, in conjunction with education

Clostridium difficile (C. difficile) is a potentially life-threatening bacteria and the most commonly recognized cause of infectious diarrhea in hospitalized patients. In the past decade, the epidemiology of *C. difficile* infection (CDI) has shifted with evidence of increased incidence and severity. Between 2003 and 2009, the number of discharges from Massachusetts hospitals with a discharge diagnosis of CDI increased more than 40%, as did the rate per 1,000 discharges.

Guidelines exist for the prevention of CDI in healthcare settings, but they are not universally followed. There is a demonstrated need to identify successful approaches to implementing infection prevention practices in healthcare settings. Through American Recovery and Reinvestment Act funding, the Massachusetts Department of Public Health and the Massachusetts Coalition for the Prevention of Medical Errors launched a statewide CDI prevention learning collaborative in May 2010. All interested facilities, independent of previous infection rates or activities, were invited to join. Twenty-seven acute and post-acute care hospitals participated in the 20-month collaborative.

Participating hospitals formed multidisciplinary teams, including representatives from infection prevention, nursing, quality improvement, clinical leadership, microbiology, pharmacy and environmental services, and others. The collaborative supported a common set of practice recommendations in the areas of surveillance, testing, isolation policies, hand hygiene, contact precautions, and environmental cleaning and disinfection, with additional support for antibiotic stewardship. Training was offered in traditional quality improvement approaches, as well as implementation approaches, with a strong emphasis on engaging frontline staff in identifying barriers and tested solutions.

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What We Did

The Massachusetts CDI Prevention Collaborative focused on the following activities:

- Emphasized engaging frontline staff in identification of barriers and solutions
- Used improvement frameworks (e.g., Model for Improvement) and culture change strategies (e.g., Positive Deviance)
- Organized three statewide, full-day learning and sharing workshops, as well as regional workshops featuring expert presentations and highlighting accomplishments of collaborative participants
- Established a listserv, with regular communication with team leaders and coaching as needed
- Used uniform measurement and reporting tools

What We Accomplished

Program impact was assessed by examining rates of hospital-acquired CDI over time. Comparing four baseline months (Jan–April 2010) and the most recent four months (Sept–Dec 2011), the collaborative achieved an overall 25% decrease in hospital-acquired CDI (8.88 to 6.70 per 10,000 patient days).

Changes in cleaning and disinfection (71%), lab test ordering (71%), and contact precautions (57%) were reported most frequently by the 17 hospital infection prevention specialists who completed a post-program survey (68% response rate). Education was the most frequently used approach for practice improvement (81%), followed by engaging frontline staff in conversations about infection prevention (75%), and sharing data (69%). Additionally, more than half of respondents reported improving communication, engaging leadership, empowering frontline staff, using small tests of change, and developing new policies.

What We Learned

Lessons learned from the collaborative include the following:

- Engaging multidisciplinary teams that represent all levels of staff is needed to drive improvement.
- Using improvement and engagement frameworks, which support adapting changes to local needs, helps promote improvements and culture shifts; education alone does not work.
- Balancing delivery of expert content with valuable lessons that participants share (all teach, all learn) is vital.
- Having a clear aim and using shared data to track changes and motivate improvement is powerful.
- Obtaining leadership support is essential, and includes actively engaging with the team, promoting a culture that allows innovation and failure as part of ongoing improvement work, and allocating resources to implement documented improvements when needed.
- Building on previous initiatives and statewide collaborations is important.
- Planning for a two-year program is valuable, since change takes time and participants come at various stages of readiness.

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