# Saving lives by changing relationships: Positive deviance for MRSA control and prevention in a US hospital

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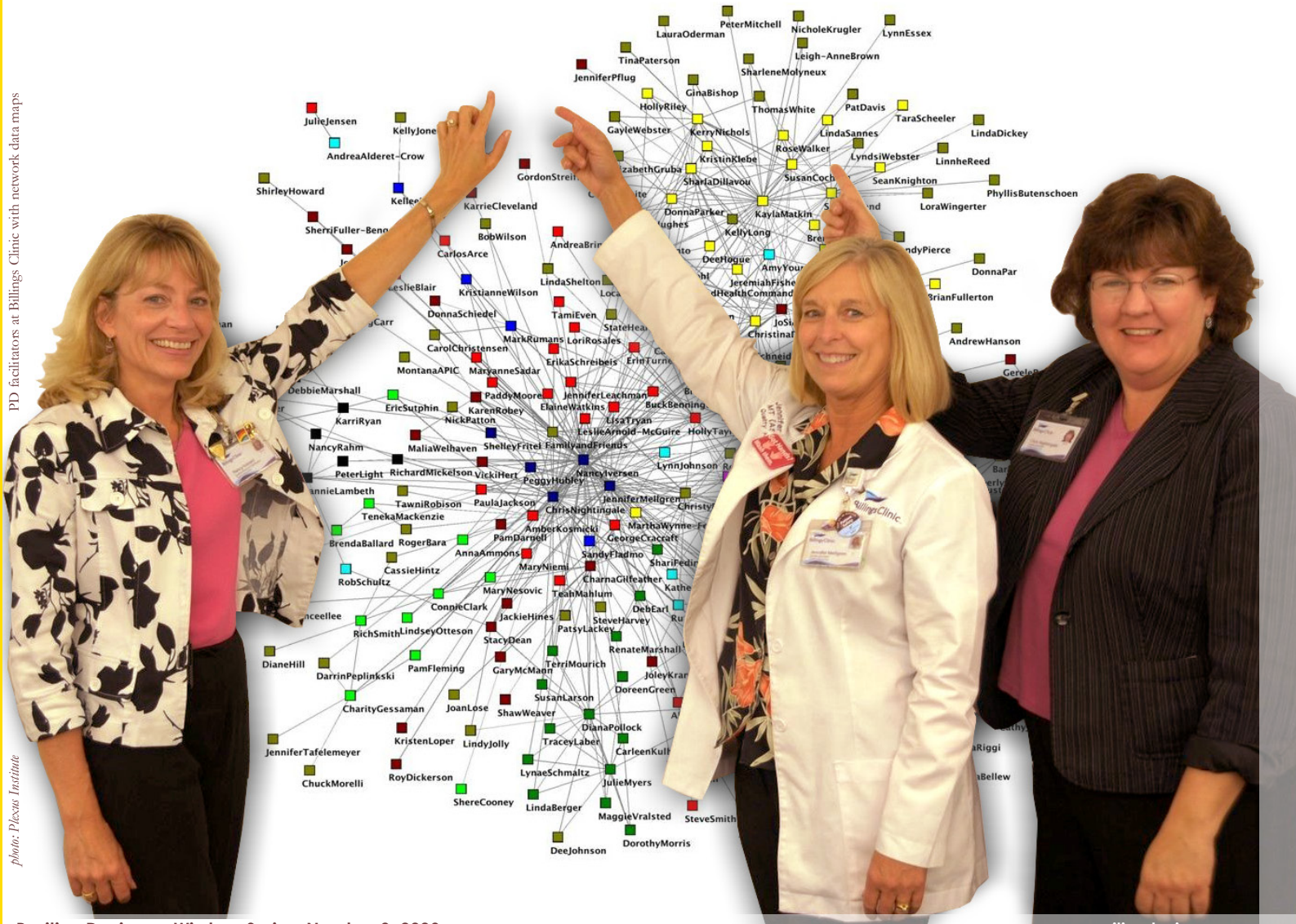
POSITIVE DEVIANCE INITIATIVE

# Saving Lives by Changing Relationships

## Positive Deviance for MRSA Control and Prevention in a U.S. Hospital[1]

by Arvind Singhal, Prucia Buscell, & Keith McCandless




PD facilitators at Billings Clinic with network data maps

*photo: Plexus Institute*

What if a jumbo-jet crashed and killed 275 people each day because the pilots were too busy to complete all pre-flight checks and, four times out of ten, in a hurry to take-off?

A tragedy of such appalling magnitude unfolds itself daily in U.S. hospitals. On average, hospital acquired infections (HAIs) kill about 275 patients in U.S. hospitals a day. This is largely because their doctors, nurses, therapists, ambulance drivers, and other health care workers did not follow hand hygiene protocols, were too busy to properly gown and glove, or were, simply, in a hurry.

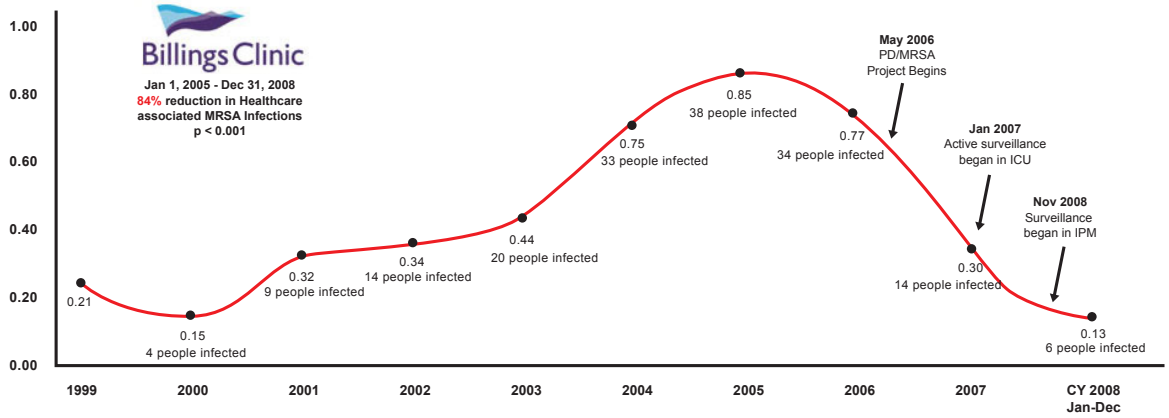
A leading bacterial source of HAIs is Methicillin Resistant *Staphylococcus Aureus* (MRSA), a deadly pathogen resistant to most commonly-used antibiotics, that can live up to six weeks on environmental surfaces and transmits easily through contact. MRSA infections have increased 32-fold in the U.S. in the past three decades.

Amidst this alarming reality, a handful of U.S. hospitals have shown sharp declines in MRSA infections. At Billings Clinic, a multi-specialty physician practice in Billings, Montana, healthcare-associated MRSA infections have dropped by a whopping 84% in the past 2.5 half years.

What is Billings Clinic doing differently?

As opposed to the traditional approach of focusing on what does not work, and rewarding or punishing employees to practice safety, Billings Clinic's approach to MRSA prevention focuses on what works, believing that among its vast pool of employees, doctors, nursing staff, housekeepers, therapists, technicians, pastors, and social workers, there are individuals who practice certain simple yet uncommon behaviors that prevent MRSA transmission. For instance:

- A physician purposely sees his MRSA patients last during rounds, a simple practice that greatly reduces the risk of transmitting MRSA.
- An ICU nurse disinfects a patient's side rails several times during her shift to keep MRSA from being picked up and spread.
- A nurse places a clean sheet between herself and a MRSA patient to avoid direct microbial transfer.




Declining MRSA infections at Billings Clinic

On average, hospital acquired infections (HAIs) kill about 275 patients in U.S. hospitals a day, largely because hand hygiene, gowning, and gloving protocols are not stringently followed. HAIs are 100% preventable.

Billings Clinic's approach to MRSA prevention focuses on identifying what already works, and then on finding a way to amplify that practice.

- A physician stops wearing his tie, his white coat, and long sleeves, all vectors for the spread of MRSA infections. Many others adopt his practice.

These individuals, and dozens of others like them, at Billings Clinic are Positive Deviants. They are "Deviants" because their behaviors are not the norm and "Positive" as they model the desirable MRSA-prevention behaviors. As more people discover how to practice safety, the norm across the institution begins to shift.

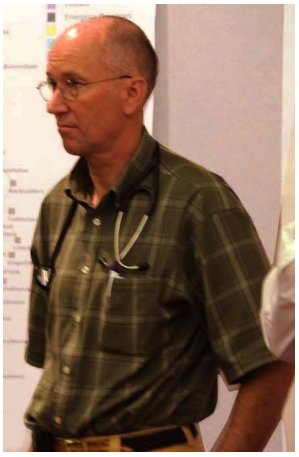


photo: Plexus Institute

Doctor Fairfax in short sleeves

## TRACKING INTRACTABLE BEHAVIORAL PROBLEMS

In the summer of 2004, Billings Clinic CEO Nick Wolter, MD attended a workshop in Durham, NH, where Jerry Sternin, co-founder of the Positive Deviance Initiative at Tufts University, made an impromptu 15 minute presentation on the topic. Sternin emphasized that the Positive Deviance (PD) approach was especially suited to address intractable social and behavioral problems.

Following basic hand hygiene protocols, Wolter knew, was an intractable behavioral problem in U.S. hospitals, including his own. Adherence to hand hygiene protocols for every patient encounter in U.S. hospitals ranged from 29 to 48 percent. This meant that, more than likely, the interaction between a health care worker and a patient carried the risk of infection transfer. This figure was highly problematic as patients expect hospitals to be safe environments, not transmission vectors of deadly pathogens.

As a physician, Wolter knew that if he washed his hands before examining a patient, it would be cumbersome to wash them again just because he answered his pager during the process. When one's hands feel clean, the behavioral tendency is to resume interrupted work, not fully grasping the implications for infection transfer.

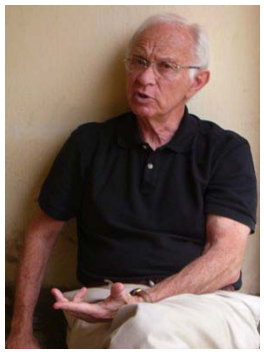


photo: PDI

Jerry Sternin

MRSA is a 100 percent preventable infection. If hand hygiene, gloving, and gowning protocols were meticulously followed by all, the rates of MRSA transmission would drop. However, rates were rising in spite of widely-held knowledge, positive attitudes, and behavioral intention to follow the correct infection control procedures. Surprisingly, MDs, especially surgeons, were the worst offenders. Non-adherence to hand hygiene and gowning and gloving procedures was more a behavioral problem, and less a technical one.

Intrigued by the PD approach's potential to combat a behavioral problem, and the belief that small changes can make a big difference in line with complexity science principles, Wolter and Nancy Iversen, Billings' Director of Patient Safety and Infection Control, championed the Clinic's participation as one of the six beta site

THE POSITIVE DEVIANCE approach values the wisdom of "unusual suspects," or those who may otherwise be overlooked.

Non-adherence to hand hygiene and gowning and gloving procedures was a behavioral problem, but it was treated as a technical one.

hospitals for a MRSA Prevention Partnership, led by Plexus Institute. Plexus Institute is a small nonprofit that fosters the health of individuals, organizations, and communities by helping people use the principles of complexity science. In 2006, these beta sites agreed to tackle MRSA as a behavioral and social problem using PD, an approach compatible with complexity science concepts. Monique Sternin, co-founder of the Positive Deviance Initiative, and Keith McCandless were assigned by Plexus Institute to serve as Billings' PD coaches. Joelle Everett joined the coaching team some months later.

photo: Plexus Institute

New routine: scrubbing equipment

Two and a half years later, MRSA infections, house-wide, dropped steeply, by 84% as did infections from other antibiotic resistant bacteria.

## ACTING ONE'S WAY

Billings' MRSA prevention activities got off to a slow and turbulent start. There were moments of skepticism, anxiety, and uncertainty, laced with negotiations, debates, and many conversations. False starts and doubts held hands with small triumphs and joys. Early changes were subtle yet powerful.

Iversen and her team championed the PD efforts at Billings, knowing Wolter was supportive. She recalled their biggest challenge: "How to create experiences where our people could learn for themselves, discover solutions, and have a safe place to practice."

PD coach McCandless suggested "Guerilla Theater" or Improvisational Theater (commonly referred to as "improv").

"Theater in a hospital?" skeptics scoffed at the idea.

Iversen and her team persisted. Casting calls were made, actors recruited, and some 50 improv sessions were conducted in 2007, involving over 500 Billings Clinic frontline staff in the battle against MRSA. Another improvfest happened in 2008, building on the success of the first one. Improv scenarios explored practical matters such as how to transport an infected patient within the hospital, how to deal with rehab patients who are not exclusively room-bound, how to speak truth to those in powerful positions, and how to wear and dispose protective gear safely.

In one session, several nurses and others talked about their solutions for taking food trays out of rooms for MRSA patients in isolation. Some suggested the use of disposable food trays. One employee retorted: "If you want patients to feel unwanted, like pariahs, give them a cardboard tray with cold food." Other ideas were brainstormed until a simple solution emerged. The nurse wipes the bottom and edges of the tray with an anti-bacterial wipe and hands it to someone outside the room. In another improv session, a physician, while examining a patient's leg wound that was oozing brown goo, paused to shake hands with the patient's family,

## POSITIVE DEVIANCE

and improvs go hand-in-glove. Both are about "acting one's way into a new way of thinking."

Network mapping at Billings Clinic helped identify "unusual suspects," whose influence could then be tapped.

back-patted a nurse, touched some objects, and resumed the examination. Within seconds, the patient's body, the bedding, the hands and clothes of the doctor, the nurse, and the patient's family showed brown stains. The brown goo, chocolate pudding, substituted for MRSA, making visible how the invisible, bacteria spreads.

Improv participants, front-line workers from multiple units, emphasized that the improvs were a fun and refreshing way of learning. It was not another lecture, or a briefing. The scenes provided continuous "aha" moments.

photo: Plexus Institute

Chocolate pudding: Making MRSA visible

Carlos Arce, Director of Organizational and Leadership Development at Billings Clinic reflected on the improvs: "Improvs and Positive Deviance go hand-in-glove, improvs are about 'acting one's way into a new way of thinking.' Improvs provide a safe space where the unspoken could be spoken, where the un-shown could be shown. The stage is a space of experimentation, with no sharp edges."

## PREVENTING INFECTIONS BY CHANGING RELATIONSHIPS

"What explains the recent drops in MRSA infections at Billings?" we ask Wolter. His response, "Infections are being prevented at Billings Clinic by changing relationships." What? Lives are being saved in a hospital by changing relationships? Giant posters visually displayed the changing nature of relationships among the 300 Billings employee survey participants. A baseline plot of interactional relationships in 2006 was placed alongside one from 2008 (see page 5).

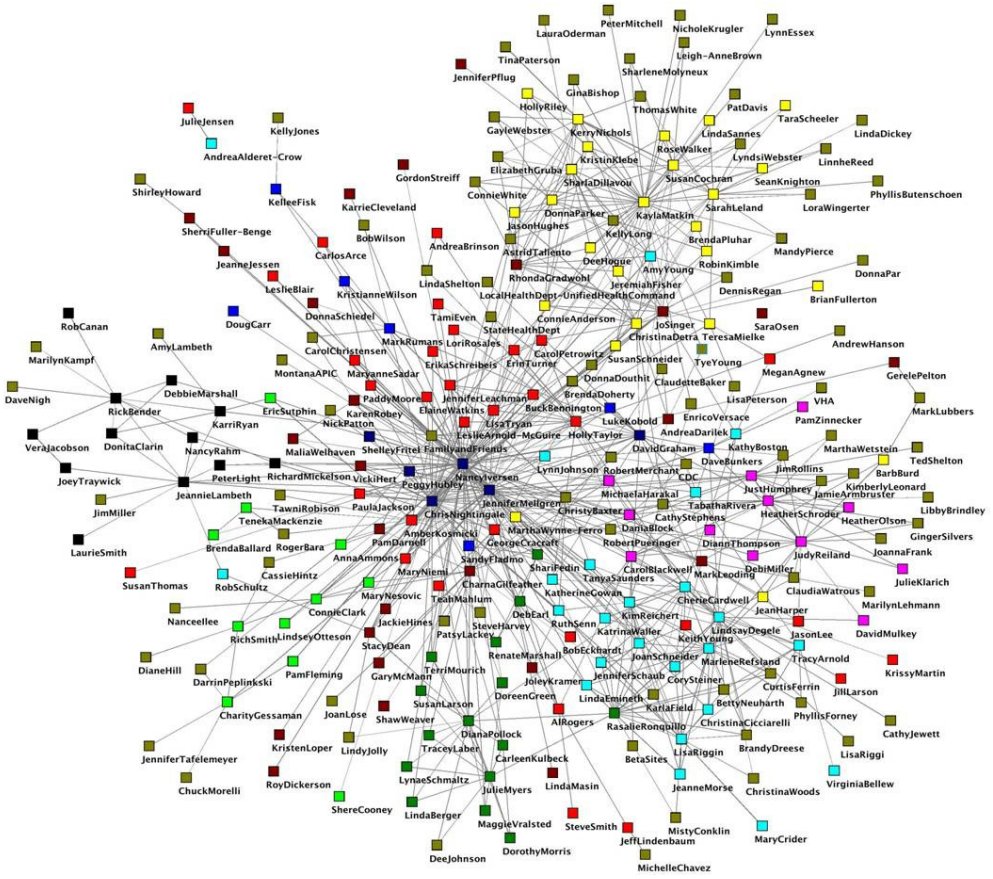
Even to an untrained eye it was apparent that more people were having more conversations about MRSA prevention and control within units, and more cross-unit collaborations were occurring to fight MRSA. Indeed, lives were being saved at Billings Clinic by changing the nature of relationships.

In studying the maps with her team, Iversen found several "unlikely suspects," people who were highly connected with others and served as a resource, but who were not previously recognized as leaders.

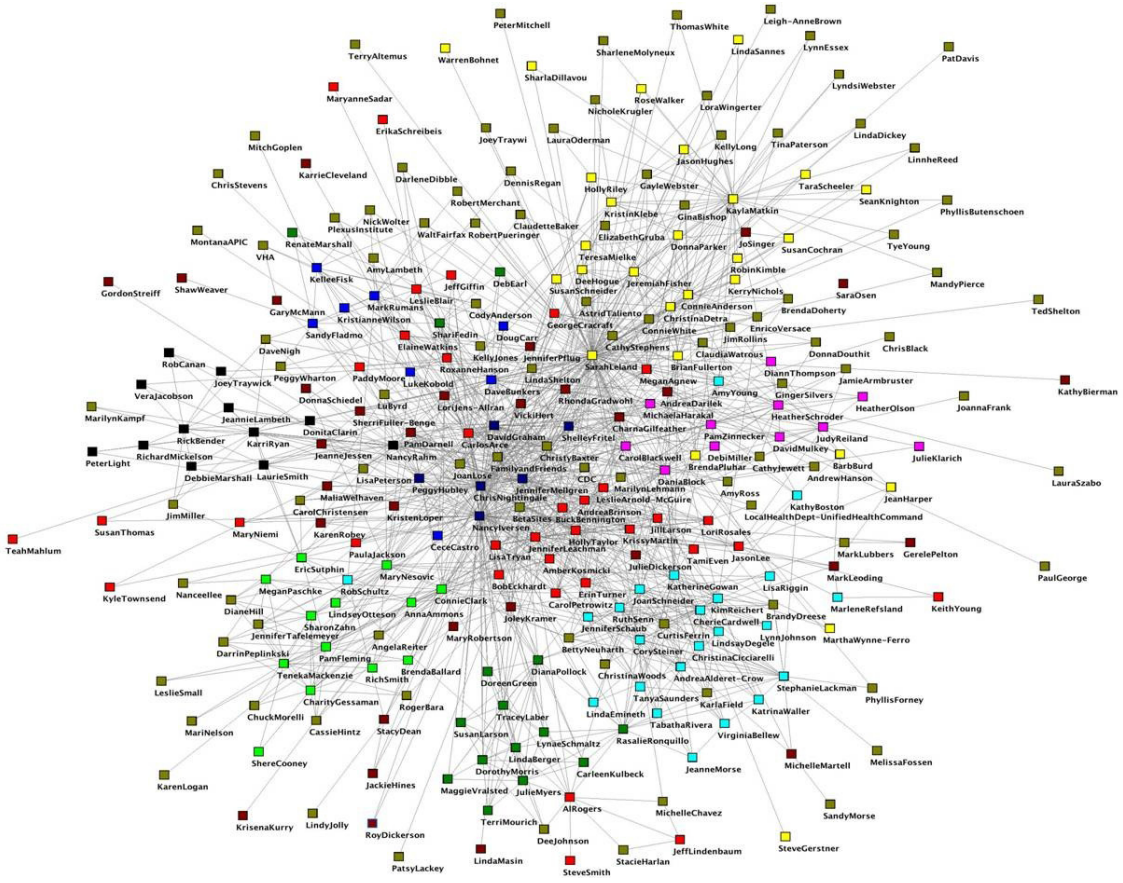
One, for instance, was Sarah Leland, a young oncology nurse who emerged as a "go to person." This knowledge allowed Clinic staff to identify people they should "especially support, draw more into the MRSA prevention initiative, and tap for influence."

## PD IS BATHED IN DATA

PD processes at Billings Clinic were bathed in, and guided by, a constant stream of data gathering, analysis, and action. In Fall 2006, when the MRSA prevention initiative was launched, a baseline on MRSA prevalence was carried out. Piloting units made a commitment to




Baseline social network map before PD was implemented




Collaboration social network map 18 months after PD was implemented

When data allows people to see the difference their actions are making, it acts as a self and collective motivator.

active surveillance which meant that every patient was screened with a nasal swab on admission, transfer, and discharge. Hand hygiene and adherence to other infection control protocols were tracked and recorded, and supplies, purchases and usage documented.

The data were available for all to see, and participating units displayed infection rates in colorful graphs, a scorecard of their progress. The hand hygiene data were collected through anonymous observation, and then the staff in each unit received a graph documenting their observed performance. In essence, self and peer-regulation of hand hygiene procedures, substantiated with feedback data, was encouraged.

The feed forward and feedback loops associated with the regularly collected MRSA data have increased staff involvement, noted Iversen: "When they see the data they see the difference their actions make."

## CULTURAL CHANGE

Many at Billings Clinic believe that the introduction of the PD approach has engendered a slow but palpable cultural transformation within the organization.

Mark Rumans, a senior medical doctor, narrated an experience: "A few months ago, I went into a MRSA room, not having seen the isolation sign. I had not gowned and gloved. After coming out of the room, I realized my mistake. I apologized to the nurse, telling her how I missed the isolation sign."

Added Iversen: "The conversation between Dr. Rumans and the nurse led to the re-design of the isolation sign. It was now placed where it could not be missed."

A year or two ago, a senior doctor would have been highly unlikely to so readily apologize to a nurse, and not enough goodwill would have been present for an ensuing conversation that would help fix the problem.

If this isn't a cultural transformation, then what is?

The ways in which a PD intervention changes the nature of discussions is remarkable. Of all PD changes that might happen, discussions are the most difficult to document because they incorporate themselves almost invisibly to the fabric of a community. Change can be so subtle that it is only over time, that people become mindful of and attentive to shifting norms.

Billings Clinic in Montana shows us how patients' lives can be saved by sharing, and acting on, the inherent wisdom that already exists with its frontline staff.

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[1]For more please see (1) Arvind Singhal and Prucia Buscell (2009). From Invisible to Visible: Learning to See and Stop MRSA at Billings Clinic, Billings, Montana. Plexus Institute.

Design Team: Arvind Singhal, Lucía Durá, Robert Gutierrez, and Sarah Ontiveros
Department of Communication
The University of Texas at El Paso
Email: asinghal@utep.edu

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The Positive Deviance Initiative
Tufts University
150 Harrison Avenue, Room 135
Boston, MA 02111
tel (617) 636-2195
fax (617) 636-3781
www.positivedeviance.org