

Healthcare Culture and the Challenge of Preventing Healthcare-Associated Infections

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Consider the following story: A patient in a teaching hospital is about to be examined by a resident physician. When asked by the patient to wash his hands, the resident refuses, saying he has done so recently. The staff physician then enters the room and the patient speaks of his disappointment regarding the actions of the resident. The staff physician is displeased and states that the patient should not be mistrusting his physicians. Later, when booking his follow-up appointment, the patient asks not to be seen by the resident. The staff physician overhears and, in front of other patients, angrily tells the patient not to return to his clinic because of his disruptive behaviour.

This story illustrates what we believe to be the fundamental challenge to decreasing healthcare-associated infections (HAIs). It is hard to imagine the lay public siding with the physician in this story; yet we fear that many healthcare workers would feel the patient was being unreasonable. Simple interventions such as hand hygiene, environmental cleaning and the appropriate use of barriers such as gowns and gloves have been shown to be quite effective in limiting the spread of bacteria and viruses in healthcare settings. Similarly, other uncomplicated interventions such as “practice bundles” have been shown to decrease infections resulting from mechanical ventilation, surgery and central intravenous catheters. Yet, getting healthcare workers to become interested and consistently comply with these interventions has been shown to be remarkably difficult. We

have previously written about some of the root causes for this discordance (Gardam et al. 2009), and all point to the same fact: our prevalent healthcare culture neither values these interventions nor acknowledges the connection between poor practice and poor patient outcomes, despite overwhelming evidence to the contrary, including plain common sense.

Traditional strategies for controlling these infections typically involve healthcare worker education around best practices, environmental cleaning, surveillance for colonized or infected patients and varying forms of isolation when certain infections are detected. While necessary, none of these strategies focus or likely impacts on healthcare culture. It is often said that “culture eats strategy for breakfast,” and we believe that our current state of affairs is a testament to the fact that in the absence of culture change, the enforcement of these measures only takes us so far.

Recognizing this, we have embarked upon an unconventional strategy that indirectly addresses and changes the prevalent culture. The strategy, called *positive deviance* (PD), is relatively new to healthcare but has been employed in international development work to address problems with deep cultural roots as diverse as child malnutrition, female genital cutting and smoking cessation among prisoners.

The term positive deviance comes from the observation that in every community there are certain individuals or groups whose uncommon behaviours and strategies enable them to find better solutions to problems than their peers, despite

having access to the same resources and facing similar or worse challenges (Positive Deviance Initiative 2010). In other words, these individuals deviate from the mean behaviour or functioning of the population.

What makes PD different from traditional change strategies is the focus placed on uncovering existing solutions that come from the people who are affected by, or contribute to, the problem. While individuals with solutions are invariably present in the population, their practices may not be recognized as solutions by others around them. When solutions are uncovered through a community-owned discovery process, the participants themselves determine the best way to create conditions for the spread of these behaviours. Unlike an approach of sharing and enforcing best practices, the PD approach recognizes the need to be extremely sensitive to initial conditions and local variability and incorporates those differences as a central part of any change effort.

PD is best learned by doing and is most effectively practised in settings where the problem is concrete and requires some degree of behavioural or social change to solve it. When the focus of the work is on shifting culture and emphasizing the importance of behaviours and interactions among people, a set of guiding principles or minimum specifications is a helpful way to minimize control and maximize creative adaptation and ownership (Zimmerman et al. 2001). These guiding principles include the following:

- Community ownership is needed of the entire process, including getting started, defining the problem, discovering uncommon practices and finding ways to spread these practices to others. This typically requires strong direction from front-line staff and support from leadership to remove barriers when needed.
- People get involved voluntarily, driven by their own interest and passion for solving a problem. A PD effort is not something that can be assigned to people – over time, they begin to follow.
- People need to own the decisions that impact them. The phrase “nothing about me without me” is often cited as way of reminding people that when they start to talk about the role(s) of others in a problem, they need to find ways to invite those “others” in.
- PD involves transferring behaviour instead of knowledge. PD starts with the notion that you can act your way into a new way of thinking. This contrasts education-focused strategies that assume that knowledge will change behaviour.
- Members of the community rely on the social proof that “someone just like me” can take action and get results. For PD facilitators, this means learning from the people closest to the problem.
- Participants create their own set of performance indicators and monitor their progress over time to determine

how they are doing. The PD process relies on data to track change, but those data must be meaningful to those receiving them (Positive Deviance Initiative 2009).

The application of these principles has led to the creation of a set of tools and approaches to engaging both the front-line staff and leadership in the healthcare setting. These tools include ways to get the process started, methods to discover PD behaviours and processes to include everyone in the tracking and dissemination of the work.

Getting Started

A PD approach to a problem such as HAIs typically begins with an initial launch. There is no correct way to introduce PD as it depends on the local culture. In some cases the launch is a hospital-wide event, while in others it can range from is a small series of information sessions for interested staff to simply getting started. In most cases, people create a way to meet and share their findings as the work gets under way. Several tools have been used in the healthcare setting, including discovery and action dialogues (DADs), improvisational acting (improv) and theory of inventive problem solving (TRIZ).

DADs are short 15- to 30-minute conversations that take place among a small group of diverse participants. They can be led by a wide variety of people, although typically the leader is from the front line. The leader takes the group through a list of questions (Table 1). The results are recorded and shared with the larger group. In many cases, ideas that emerge or barriers that exist can be addressed immediately. DADs are repeated at different times of the day or on different shifts to capture various perspectives. A fundamental aspect of the DAD process is that the front-line staff identify and act on their ideas, thus fostering ownership of both the problem and the solutions.

Improv is used to re-enact situations and behaviours among participants in ways that allow an audience to experience the situation and learn from it. The process works with real scenarios and recruits participants to act together. Afterwards, staff lead the discussion with audience members to talk about what they have witnessed.

Table 1. Leading questions for discovery and action dialogues

1. How do you know when someone has an infection (or some other problem)?
2. What do you do to protect yourself and others from this problem?
3. What keeps you from doing this every time?
4. Who do you know who seems to do a better job?
5. Does anyone have any ideas about what we should do next?
6. Are there any volunteers to work on these ideas?

Source: Adapted from the Billings Clinic.

TRIZ is a method of revealing creative and surprising solutions to barriers identified in the workplace (Terminko et al. 1998). In PD, this process has been used as a way for people to imagine through reverse engineering how they might achieve an outcome that is the *opposite* of the desired effect. For example, a group might be asked how to ensure that every patient will acquire an infection by designing a system to reliably deliver that outcome every time. When the adverse system is compared with the current one, the group typically realizes that their current system has inadvertently been designed to spread infection. This different perspective provides participants with new ways to think about what needs to change.

Focus groups and appreciative inquiry have been used to support the PD process in community settings, as well as tools such as a social network or community mapping to help build a fuller understanding of the context and resources the community has. There is no one tool to use in any specific situation. Rather, groups engaged in the PD process are meant to experiment with various tools to learn what works for them and in what circumstance. Should a team feel that they are not making progress, it may be time to try a different tool.

Does PD Work?

Most of the work with PD has been done outside of traditional healthcare settings. In Vietnam, a large randomized prospective PD study focusing on childhood nutrition was conducted in 12 communities in the northern part of the country. Monthly measures were taken on 240 malnourished children (120 children in communities undertaking the intervention and 120 children in non-intervention communities) over a six-month period, and then again at 12 months. The investigators found that the children from the intervention communities had better growth, ate and breastfed more frequently, ate larger portions of food, experienced fewer respiratory infections and had mothers who were more likely to share new information about child care and feeding with neighbours than did children in non-intervention communities (Marsh et al. 2004; Sternin et al. 1997, 1999).

A three- and four-year follow-up study assessed the sustainability of this project. Weight and nourishment measures of older and younger siblings in intervention communities were compared with those in non-intervention communities. Both older and younger siblings in intervention communities tended to be better nourished than their non-intervention comparators (Mackintosh et al. 2002). The authors concluded that growth-promoting behaviours that were identified, shared and practised through the PD intervention persisted years after the program had ended (Mackintosh et al. 2002).

In 2006, a smoking cessation program used PD to improve rates of cessation among prisoners in New South Wales. By highlighting positive deviant behaviours (i.e., non-smokers and quitters) and encouraging the adoption of these successful strate-

gies, smoking prevalence in the study population dropped by 20% over the 15-month study period (Awofeso et al. 2008). Further, the authors found that three months after the program started, 70% of quitters were still not smoking, compared with an average of 52% for comparable non-PD programs (Awofeso et al. 2008).

PD is new to the healthcare setting; hence, the data supporting its use for this purpose are currently limited, albeit growing. The American PD MRSA Prevention Partnership implemented PD in six acute care hospitals with the goal of reducing rates of healthcare-associated methicillin-resistant *Staphylococcus aureus* (MRSA). Hospitals of different sizes were included, as were both teaching and community hospitals. From 2006 to 2008, PD was used on at least one pilot unit per site to improve facility compliance with evidence-based infection control precautions such as active MRSA surveillance, hand hygiene, contact isolation precautions and environmental cleaning (Lindberg et al. 2008). All sites reduced their MRSA infection rates by a minimum of 33%, with one site in Billings, Montana, decreasing its rate by 89% (Lindberg et al. 2008).

It is important to note that none of the infection control interventions used in this study are new and all have been proven effective in the literature countless times. Rather, it is the important contribution of PD to improving these organizations' abilities to apply and sustain the application of these interventions that is significant.

Similarly, a Brazilian team used PD to bring about improvements in healthcare worker compliance specifically related to hand hygiene (Marra et al. 2010). The investigators collected baseline hand hygiene data on two nursing units, implemented PD on one unit and then implemented it on the second unit three months later. They showed a time-dependent statistically significant stepwise increase in hand hygiene compliance on the two units that was associated with statistically significant increases in the use of alcohol-based hand rubs and decreases in HAIs.

The initial significant success in the US pilot hospitals has prompted other American and, more recently, Canadian hospitals to implement PD to help reduce rates of HAIs. The PD process at University Health Network was started by front line staff in 2008 without a formal launch on two floors at the Toronto Western Hospital that have subsequently shown sustained reductions in HAIs (Figure 1). Subsequently, PD was formally launched at University Health Network in the spring of 2009, and several different programs have been actively using the aforementioned tools to engage interested front-line staff. For example, improv has proved popular to help tackle some thorny issues such as how to manage meal trays that have been in isolation rooms and how to address inappropriate physician behaviour. DADs have been used in all areas that have started PD, and we have found TRIZ to be an effective icebreaker to get participants to start thinking about the problem.

A new Canadian study, funded by several partners including

the Canadian Patient Safety Institute and Becton Dickinson, is examining the use of PD to decrease superbug infections in five hospitals (Canadian Positive Deviance Project 2010); however, given that it is at an early stage, data are not yet available.

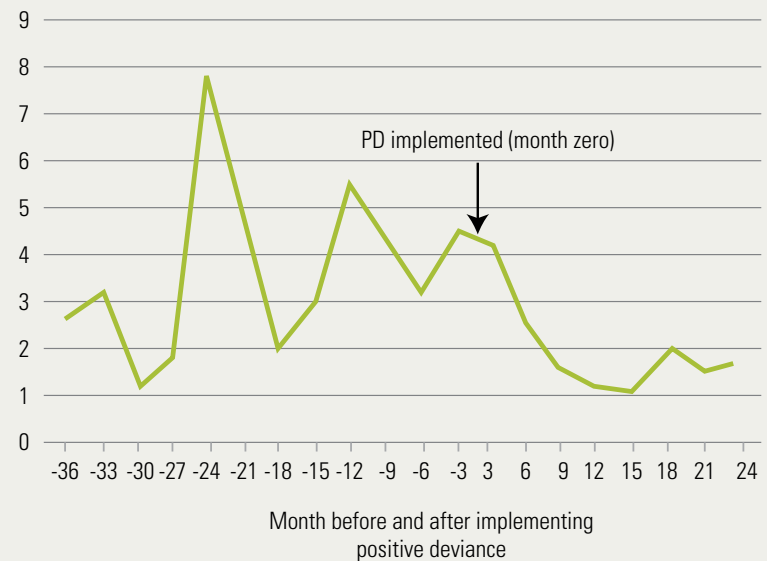
Like any quality improvement project, it is important to track appropriate indicators. The very nature of PD makes it impossible to identify which staff-led initiative or combinations of initiatives result in improvements as, typically, many are implemented. Measurement thus focuses on traditional infection control process and outcome measures such as gown and glove use, hand hygiene compliance and rates of various HAIs. Serial attitude and behavioural surveys as well as social network mapping have also been used to track culture change.

Conclusion

The circumstances that lead to the development of HAIs are complex. It is unusual to be able to determine one specific cause of a hospital's history of infections; rather, myriad potential causes can be identified and these causes are different in different situations and settings. Furthermore, some causes may go unrecognized. Because of this, one should not expect that a "best practice" approach that requires healthcare workers to act in a certain way will bring about the desired changes in most settings. Rather, a method that allows for local approaches and tools to improve practice will likely be more effective in bringing about change and sustaining it over time.

PD is best applied to complex problems that are deeply rooted in culture. The small but emerging PD literature suggests that it is a powerful technique that can help change healthcare worker actions and, later, the prevalent culture. Likely the key factor contributing to this success is that the ideas and actions that result from the PD process come from the people who are "touching the problem." Unlike brainstorming, where ideas that come from the front line are subsequently filtered, the PD process empowers the group to learn from the positive deviants from within the group and then act. This in turn leads to sustained behavioural change. As one would expect, rarely can one identify an exact action that has brought about a sustained change; rather, improvement is typically a result of multiple small actions that have interacted in unpredictable ways. This reality can be quite uncomfortable for practitioners who are used to the tenets of evidence-based medicine and who consider the

Figure 1. Combined rate of HA-MRSA, VRE and *Clostridium difficile* infections per 1,000 patient-days on two medicine floors before and after the implementation of positive deviance



HA = healthcare associated; MRSA = methicillin-resistant *Staphylococcus aureus*; PD = positive deviance; VRE = vancomycin-resistant enterococci.
Source: University Health Network (2010).

randomized controlled trial as the best evidence. PD is messy, relationship focused and, on the surface, appears uncontrolled; but this is what one would expect of an effective strategy for a complex problem (Zimmerman et al. 2001).

Although the Canadian PD study is in its infancy, we have learned a great deal from its implementation. This experience has led to a successful proposal to incorporate PD into a revamped Safer Healthcare Now! intervention – A New Approach to Controlling Superbugs was launched Canada-wide in May 2010. One of the key challenges facing this project is the simple, daunting fact of Canadian geography, making it unfeasible to have groups meet with each other and coaches on a regular basis. Rather, the coaching and support will be provided virtually through teleconferences, webinars, an online community of practice and social media. The rollout of this whole-scale approach to PD has just begun, and it is far too early to comment on its success. We believe, however, that this important, necessary and undoubtedly challenging step is necessary to bring a new approach to the problem. As we have discussed, decades of approaching infection control practice in more traditional ways involving education and audits have not taken us to where we need to be. Approaches such as PD that acknowledge the complexity of the challenge are needed if we hope to make healthcare a safer experience for our patients. **HQ**

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