

Chapter Three. Using the Toolkit in the context of quality improvement

Overview

The evaluation approach outlined in this Toolkit is an example of the application of standard methods of quality improvement to public health practice. As the Institute of Medicine (IOM) has noted, there is a critical need to establish and validate metrics and criteria that will enable public health systems to achieve continuous improvement and demonstrate the value of society's investment. Yet, it has been difficult to objectively measure preparedness gaps and the progress that has been made thus far in emergency preparedness as well as systems improvement (IOM, 2008). Quality improvement requires more than goal-setting and measurement strategies. Although these concepts are important foundations, they do not necessarily lead to improvement on their own (IOM, 1997).

One of the concepts that would allow public health systems to achieve systems improvement is continuous improvement, rather than one-time initiatives. Ongoing improvements would allow organizations to continually change as their environments change. Furthermore, measures for improvement must be linked via evidence and desired outcomes since how well plans, policies, and procedures are executed are more useful than measures of structure. RAND researchers have noted that these processes can be measured during events that occur throughout the year such as annual flu clinics (Seid, 2007). Having a successful emergency preparedness plan requires more than

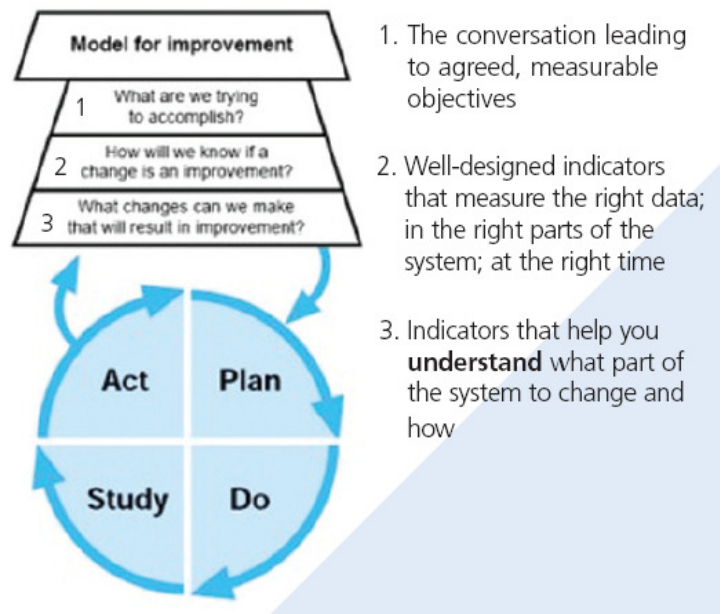
measurement, goal-setting and accountability. Key improvements rely on implementing quality initiative practices that close the gap between the actual and ideal performance. Through learning collaboratives and process-analysis techniques, such as process mapping and failure mode analysis, continuous improvement may be achieved (Lotstein, 2008).

Action planning

In order to test various changes, the Plan-Do-Study-Act (PDSA) cycle, which is a core systems improvement practice also known as the Deming cycle or the Shewhart cycle, can be used (Figure 1) (Institute for Healthcare Improvement [IHI], 2003). This cycle highlights the performance of various specific quality improvement practices and iterative

feedback or reporting and describes the steps a team should go through in order to develop and implement innovations. Teams “plan” by defining goals and measures and determining how they will test them. They then “do” by implementing the tests developed or observing the plan. They “study” by comparing past performance to current results, and finally “act” by revising past protocols with improvements. Some branded

Figure 1. PDSA Cycle



models and methods for measurement and systems improvement include Six Sigma and IHI's Method for Improvement (Seid, 2007; Shortell, 1995).

PDSA cycles work best when used in the *rapid cycle change methodology*, a concept developed by W. Edwards Deming, in which teams investigate quality problems, develop (plan) and implement small-scale changes (do), measure the effects (study), and make changes until satisfied with outcomes (act). It is important to note that each PDSA cycle takes place over a short period of time, several times a year, which emphasizes "rapid cycles of improvement" (IHI, 2003). The key is to practice on events that may occur repeatedly (e.g. annually at flu clinics) and incorporate changes gradually. The cycle has been used in reducing reporting times for sexually transmitted diseases in prisons and infectious diseases. Success in these areas can be applied to bioterrorism or emerging diseases. Although reports are generally made on future improvements, changes are rarely incorporated. Therefore, performance management is critical for systems improvement (Mays, 2006; Seid, 2007).

Application to MRC deployments in flu clinics

Figures 2, 3, and 4 illustrate the process of feeding information back to the individual MRC unit from a deployment. Figure 2 displays the average score for six aspects of the volunteer experience from Instrument One, all related to incident command, for "Location B" (diamond) and six other flu clinics (dots) that used the same survey instrument at their own flu clinics. There is an asterisk by the question if Location B's average is significantly different than the overall average. The average response across all sites is indicated with a dash. Figure 2 indicates that, for this site, the

respondents rated two of the six aspects of the volunteer experience higher than all of the other sites, and that the majority of the data is ranked higher than the average. These results suggest that Location B is doing a relatively good job of training MRC members on different aspects of ICS.

Figure 3, based on the barriers to volunteering section of Instrument Two, is more mixed. Compared to other sites, a significantly smaller percentage of Location B's volunteers who were not able to participate cited "job duties" as a barrier. Lack of child/elder care, on the other hand, was significantly more likely to be cited. This information can be useful in identifying barriers to volunteering that need to be addressed in future deployments.

Figure 4 displays data from Instruments One and Two to compare attitudes about volunteering between participants and non-participants in Location B as well as across all sites. The green symbols in Figure 4 represent volunteers who attended the flu clinic and the red symbols represent volunteers who could not attend the flu clinic. The average response across all sites, calculated separately for the participants and non-participants, is indicated with green and red dashes, respectively. With respect to the "good for professional development" question, for instance, participants and non-participants have a similar overall average, Location B participants and non-participants both score higher than the overall average, and in general Location B volunteers tended to score higher on most of the attitudinal questions. Questions about motivations for volunteering distinguish between participants (who tend to score higher) and non-participants. In Location B, both participants and non-participants score higher than average on these questions.

Figure 2 – Awareness of the Incident Command System (ICS)

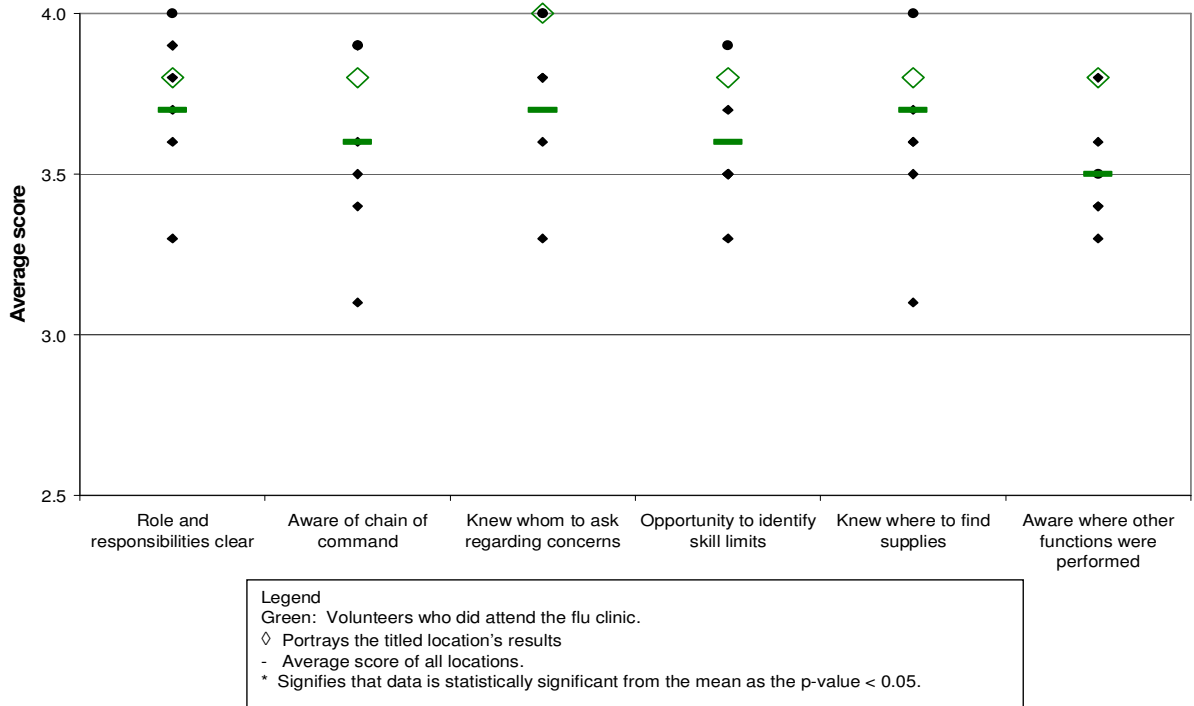


Figure 3 – Factors Preventing Volunteering

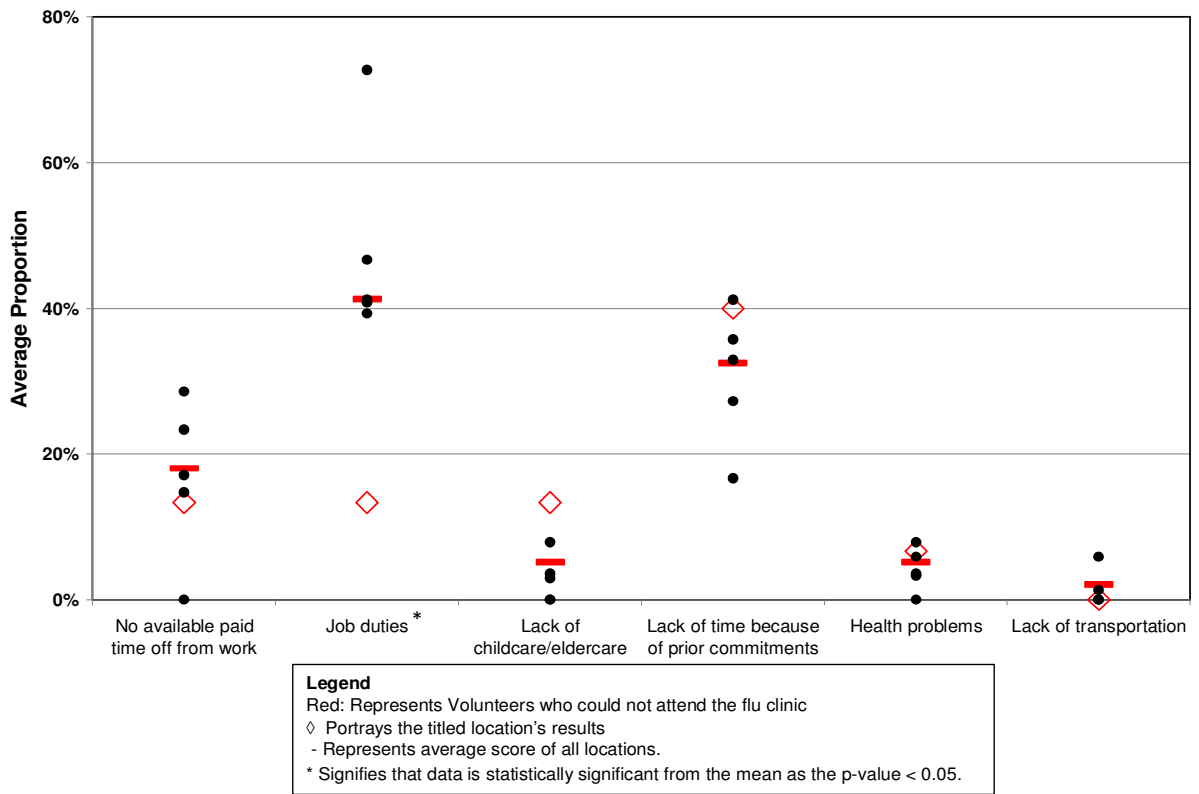
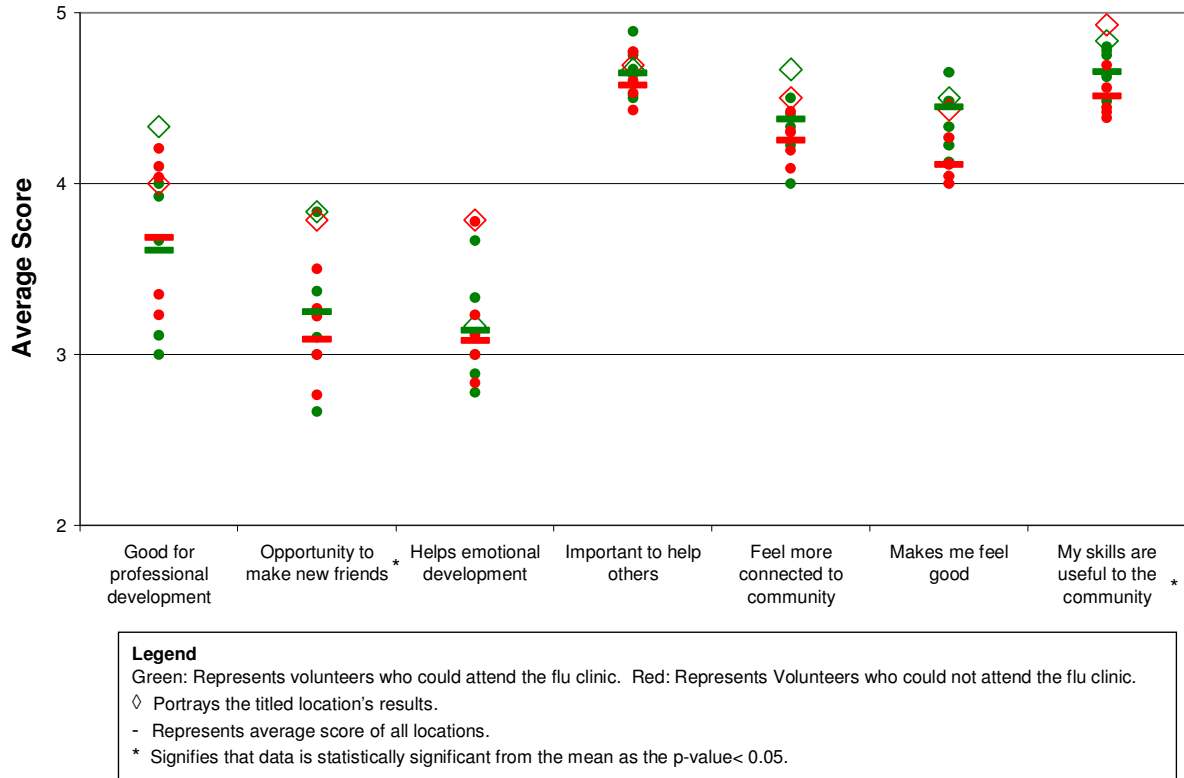


Figure 4 – Attitudes About Volunteering



Learning collaboratives

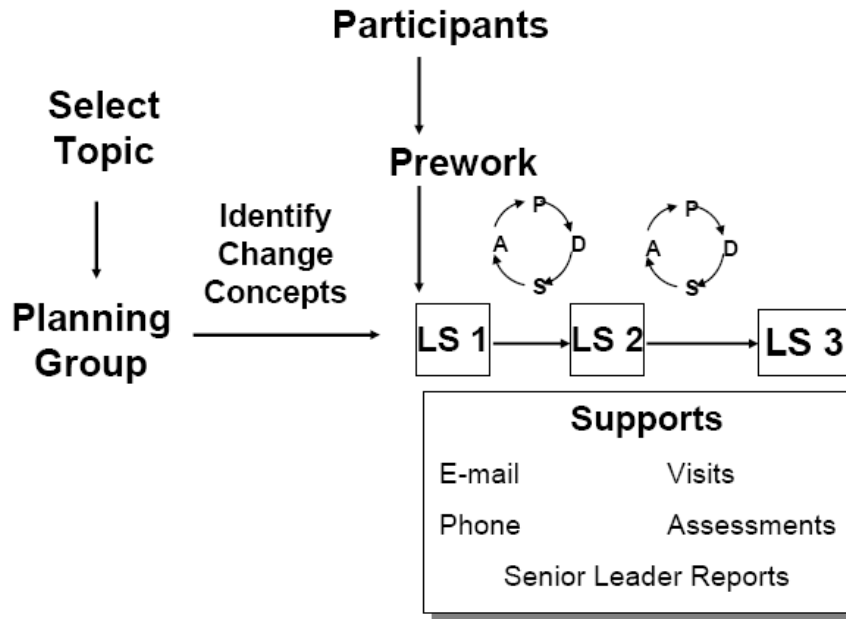
Learning collaboratives offer a structured way for organizations to improve one aspect of their service delivery system. The aim of these structured quality improvement collaboratives is to close the gap between potential and actual performance by testing and implementing changes quickly across many organizations (Øvretveit, 2002).

MRC units should use the results from the survey instruments to establish learning collaboratives with other MRC units in their federal region in order to identify the best practices for their weaknesses. Most commonly, learning collaboratives are modeled after the Breakthrough Series (BTS) model, developed by IHI (Nembhard,

2008; IHI, 2003). The Model for Improvement, which is identical to the quality improvement model used in the Breakthrough Series, is divided into four broad categories: (1) aims and goals, (2) performance measures, (3) strategies and ideas for changes, and (4) the use of plan-do-study-act (PDSA) cycles (Lotstein, 2008; IHI, 2003).

Key components of a learning collaborative using the IHI BTS method include the change package, learning sessions, PDSA cycles, collaborative extranet and monthly report exchanges (IHI, 2003; Nembhard, 2008). The change package is defined as a toolkit of evidence-based practices and implementation strategies that includes an explanation of the rationale for each recommended practice, appropriate progress measures, data collection techniques, tools (e.g., sample forms and policy statements) and reference materials (IHI, 2003). Learning sessions are comprised of formal and informal interactions with other teams during the multi-day, face-to-face meetings; formal interactions involve teams sharing their experiences in implementing new practices (IHI, 2003). Site visits, while somewhat self-explanatory, are defined by IHI as visits by teams to other organizations in the collaborative to observe and discuss practice implementation. The collaborative extranet, an important feature of an IHI BTS learning collaborative is a password-protected Internet site where teams can post their performance data and information (IHI, 2003). This data is only viewable by participants in the learning collaborative, so it is confidential and secure. Monthly report exchanges are progress reports written by teams in prescribed template that documents past month's activities and self assessment of progress (IHI, 2003). Below is an illustration of the BTS learning collaborative model.

Figure 5 – Learning Collaborative Flow Chart



As can be seen from Figure 5, in the IHI BTS learning collaborative, multidisciplinary teams from participating organizations (in this case the teams would be MRC coordinators and LHD volunteers) decide on a specified topic to improve over the course of six months to a year. Each team will have an improvement advisor and faculty, who will comprise the planning group and identify change concepts prior to the first learning session. There are three learning sessions (as demonstrated in the diagram above with the designation LS 1, LS 2, LS 3) where participants will learn improvement techniques from experts (the faculty and improvement advisors) and be given the opportunity to share their experiences in implementing new practices with one another.

Between learning sessions, teams implement changes in their own organizations using Plan-Do-Study-Act (PDSA) cycles in which they investigate quality problems, develop and implement small-scale changes, measure the effects, and make various changes for improvement (IHI, 2003). Teams learn from one another by participating in monthly conference calls, team-to-team telephone calls, listserv discussions, site visits to other organizations, monthly exchange of written reports detailing improvement activities, and monthly posting of performance data to the collaborative extranet in between meetings (Kilo, 1999). After the collaborative ends, teams summarize their results and lessons learned, and present them to nonparticipating organizations at conferences (Kilo 1998, 1999; IHI 2003).