

Taking Improvement Action Based on Performance Results: Washington State's Experience

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Washington state used the Multistate Learning Collaborative grants to address improvement opportunities identified through the results of the Standards Performance Review cycles and county-specific local public health indicators. State and local health departments initiated statewide collaboratives to address the high priorities for system and individual health department improvements. Two individual agency quality improvement efforts are highlighted, one in a large local health department and the other in the State Department of Health, with emphasis on the results in establishing an agency quality improvement infrastructure and Rapid Cycle Improvement teams.

KEY WORDS: multistate learning collaborative, PDSA, performance review, pierce county, public health, QI, quality improvement, rapid cycle improvement, RCI, Robert Wood Johnson, RWJ, standards, standards performance review, Tacoma, Washington State

Performance management is a relatively new concept for public health compared with other health-care systems and even other governmental sectors. While many local and state public health departments in the United States are becoming adept at implementing quality improvement projects to improve service delivery,¹⁻³ improve health outcomes,⁴ and monitor health indicators⁵ in specific programmatic areas, fewer public health agencies have been successful in implementing systemwide performance management approaches that have resulted in sustained improvements over time.⁶

For almost a decade Washington State has been measuring and improving state and local public health performance, using the Standards for Public Health in Washington. All local health departments (LHDs) and 20 to 25 Department of Health (DOH) state programs have participated in three cycles of perfor-

mance review starting with a baseline review in 2002. Washington is not unique in its use of public health standards. Several other states have implemented accreditation or standards review processes.^{7,8} What is unique is that all local and state health departments in Washington are reviewed within a 4-month timeframe every 3 years resulting in regular statewide reports of the public health system performance. Each individual LHD and DOH program receives a report that provides data and results for performance improvement for the specific LHD or DOH program. In addition, aggregate local- and state-level results are reported on performance across all LHDs and the selected state programs that identify progress and improvements for the entire state public health system. Public health leaders in Washington frequently use the Plan-Do-Study-Act (PDSA) cycle, also known as the Shewhart or Deming cycle, to describe the continuous cycles of measurement and improvement as shown in Figure 1.

This article describes the methods and results of using performance data for quality improvement at the statewide system level, the state health department level, and LHD level.

● Methods Used for Statewide System Improvements

The three statewide review cycles (2002, 2005, and 2008) provided performance data for comparison across

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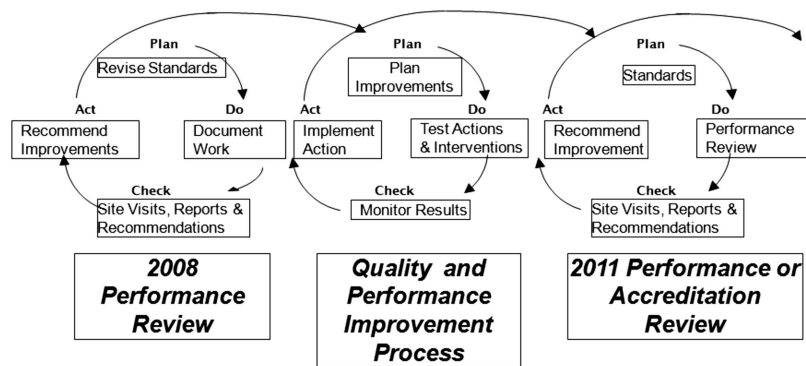
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FIGURE 1 ● Washington's Performance Management Plan-Do-Study-Act (PDSA) Cycles

measurement cycles and for evaluation of performance trends (both improvements and declines). The results of the 2005 and 2008 performance review cycles^{9,10} were used to identify the topics for improvement addressed as part of the Multistate Learning Collaboratives (MLC) sponsored by the Robert Wood Johnson Foundation and the National Network of Public Health Institutes.

For MLC-1 in 2006, the 2005 performance results were used to identify systemwide areas for improvement. This improvement initiative was led by the Secretary of Health and the state DOH and LHD leadership. The 2005 performance results indicated low performance at both state and local levels in the standard that requires the establishment of quantifiable program outcome measures. State and local leadership groups identified *the establishment and monitoring of program goals, objectives, and performance measures* as the top priority for improvement in 2006. Five quality improvement (QI) teams, four local and one state, participated in the Collaborative to address this issue, receiving training in QI principles, methods and tools, and in the development of logic models and quantifiable outcome measures.^{11,12}

As a joint effort with the MLC-1 and the State's Public Health Improvement Partnership, the first statewide set of Local Public Health Indicators (LPHI) was established in 2006 and the first county-specific LPHI report was released in the summer of 2007.¹³ Twenty-six indicators were reported for most counties, with comparison of the individual county results to the state average. For example, Figure 2 shows county results for the Chlamydia treatment rate indicator.

The 2007 MLC-2 Collaborative focused on two LHDs seeking to improve their Chlamydia treatment rates. Two LHD teams with partners from the State Sexually Transmitted Disease Program used Rapid Cycle Improvement (RCI)¹⁴ methods and tools to conduct the QI project. The RCI method requires an Aim statement for the project that focuses and directs the improvement effort and uses the PDSA cycle to identify and conduct

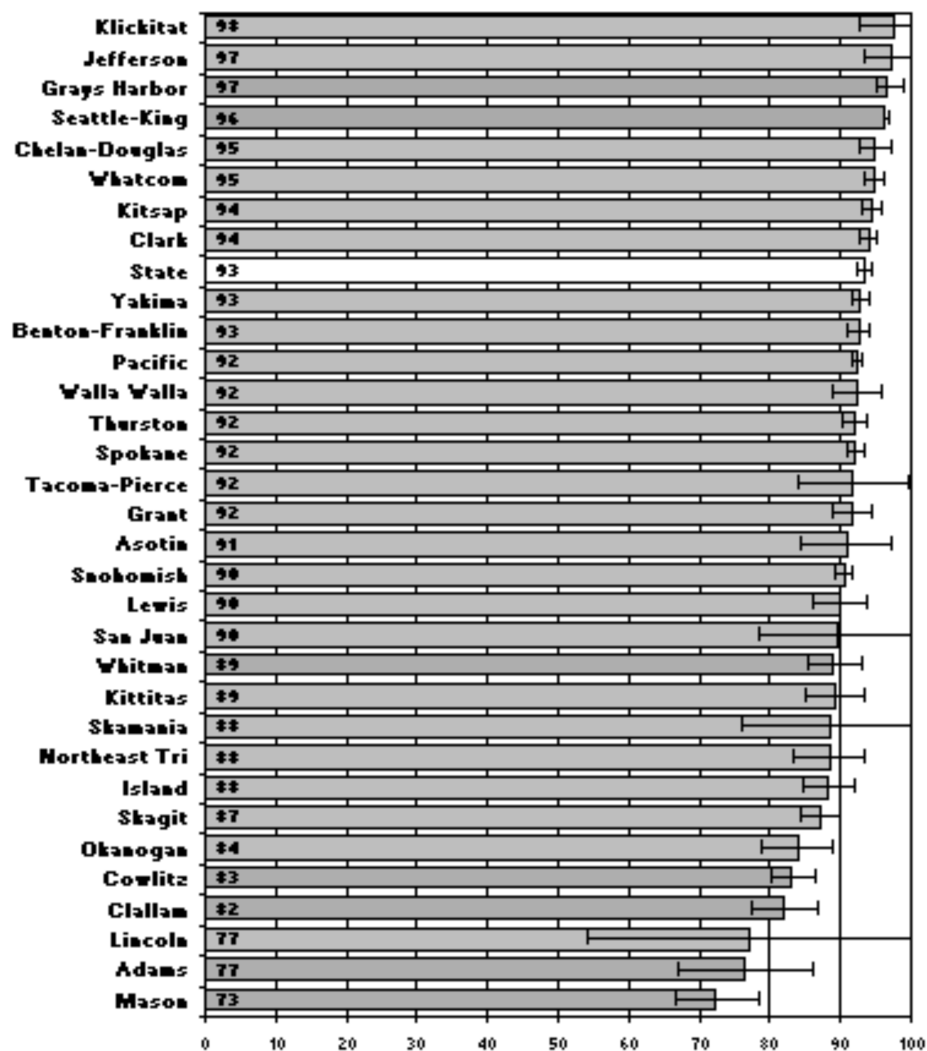
small, quick tests of improvement interventions. Using the RCI method the QI teams can show the extent of improvement created by the intervention and identify any unintended side effects.

In the Chlamydia Collaborative, the two QI teams hypothesized that the emergency departments had the highest rates of nontreatment for Chlamydia. The QI teams collected and analyzed data to identify the highest source of nontreated Chlamydia cases. In one county the analysis confirmed that the emergency department was the highest contributor, but in the second county the data identified a few individual providers as the biggest contributors and not the emergency departments (see Figure 3). This analysis changed the improvement interventions tested by the LHD QI team and shows the benefit of using data and data analysis tools to conduct improvement projects.

In addition to the systemwide Performance Measures and the Chlamydia Collaboratives, the MLC grants also supported individual local and state health departments to take improvement action on their individual site performance results. Two of these QI efforts, one implemented by the Tacoma-Pierce County Health Department and the other by the Washington Department of Health, are described below.

● Methods for Improvement: Tacoma-Pierce County Health Department

Tacoma-Pierce County Health Department (TPCHD) is a midsize health department serving the second most populous county in the state with 813 600 residents,¹⁵ an annual budget of about \$40 million and 290 full-time equivalent employees (FTEs).¹⁶ The results of TPCHD's 2005 Standards Review Report showed that the health department was lacking QI infrastructure and processes; TPCHD scored 0 of 4 total points for the two QI measures, among other opportunities for improvement.¹⁷ The health department decided to

FIGURE 2 ● 2007 Local Public Health Indicator Report^a*Washington State County Specific Data***Indicator: Treated Chlamydia infections****2004–2006**

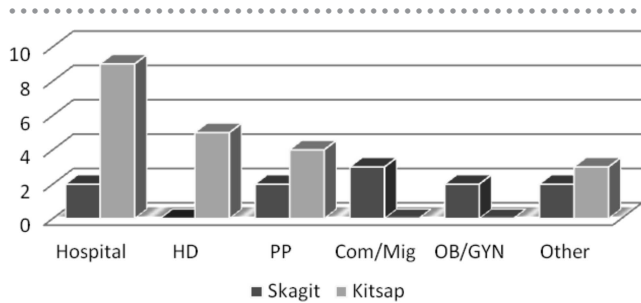
^aWhite bar is the statewide average, while the county bars are in various color in the online version to designate whether the county result is better than the average, the same as the average or worse than the average result.

focus most of its efforts on building the necessary infrastructure to implement a formal QI initiative, in addition to conducting its first RCI project, as a part of MLC-1. The first RCI project of improving healthcare providers' reporting of race and ethnicity in case reports for reportable sexually transmitted infections (STI) was selected because baseline data indicated that race data were missing from 27 percent and ethnicity from 44 percent of STI case reports for Pierce County. This level of performance was not acceptable because accurate and

complete county STI data are necessary to target limited resources to populations most affected by these diseases.

Team members utilized various QI tools: work flow analyses to identify problem areas in the process of completing STI case reports, fishbone diagrams to help identify root causes of the problem, and Pareto charts to understand the frequency of factors related to the problem. The QI team also followed methods consistent with the Method for Improvement¹⁸ and completed

FIGURE 3 • Number Untreated Chlamydia Cases by Provider Type July 2006–June 2007^a



^aCom/Mig indicates, community/migrant health clinic; HD, health department; OB/GYN, obstetric and gynecology provider; and PP, primary provider.

multiple PDSA cycles. Data were collected from eight pilot healthcare providers representing the four reporters with the most complete STI case reports and the four reporters with the least complete STI case reports to compare processes for collecting and reporting race and ethnicity on STI case report forms. Based on the data gathered during a 2-week period, the top barriers to reporting complete race and ethnicity data were identified. These included lack of understanding of definitions for race and ethnicity and perceived lack of value of reporting race and ethnicity information of STI cases. Nurses from the department's provider liaison program developed a mail-based education and brief, in-person education interventions addressing those two barriers and tested it with the pilot providers.

● **Methods to Establish Quality Improvement Programs: Tacoma-Pierce County Health Department**

In addition to conducting its first RCI project in 2006, TPCHD also established the initial infrastructure necessary for a comprehensive, agency-wide QI initiative, including starting a QI Council, developing an annual QI plan and calendar, and an annual QI evaluation. The QI Council, composed of TPCHD executive and senior management staff, is responsible for conducting and reviewing the department's QI efforts, which follow the scope, structure, and activities described in the annual QI plan and calendar. The overall QI plan structure was developed after research on published public health performance management frameworks⁶ and consultation with experts on emerging models. The mission of the QI Council is to improve the health of Pierce County by ensuring efficient and effective processes and programs through ongoing review of performance measures.¹⁹

In 2007, the TPCHD QI Council reviewed Pierce County results in two indicator datasets (including

the LPHI) and identified three indicators to focus on for improvement: low birth-weight, Chlamydia infections, and adult obesity. These priority indicators had both significantly worse outcomes for the county compared to the Washington state average and a worsening county trend. Work groups for each of these indicators convened, reviewed additional data, received training in QI methods and tools, established objectives and annual performance measures, and employed various QI tools and methods, including the PDSA model, for testing changes.

Staff from TPCHD's community assessment program developed the evaluation methods and annually conduct the analysis for the evaluation of the QI initiative, which is reviewed and approved by the QI Council. Following an evaluation of the QI initiative each calendar year, a new QI plan and calendar is written on the basis of recommendations for expanded activities that build upon previous efforts.

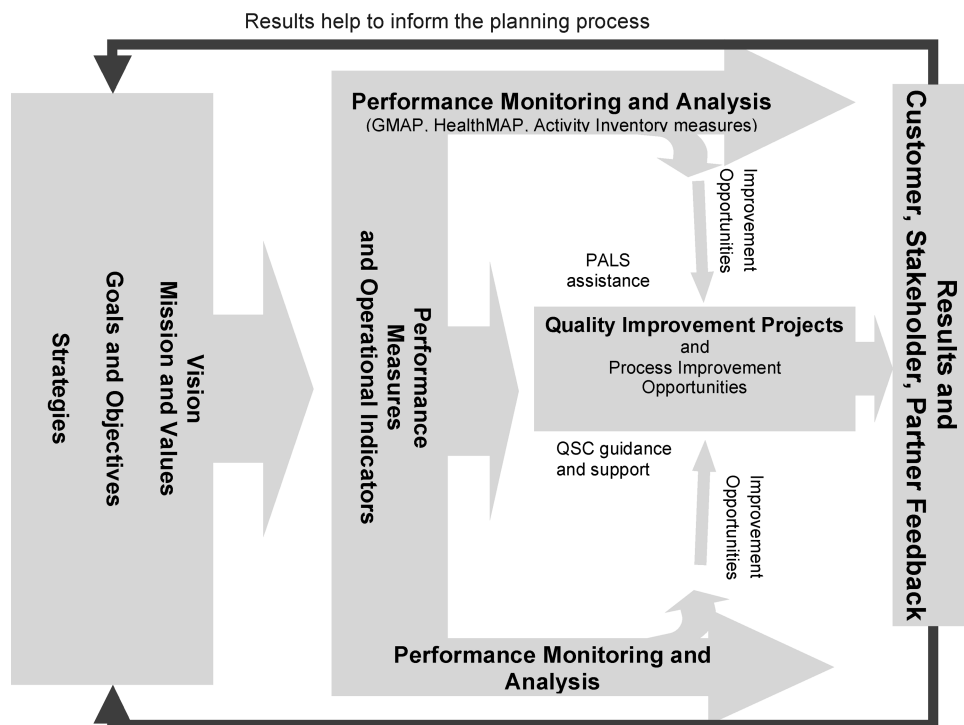
● **Methods for Improvement: The Department of Health Quality Improvement Program**

The Washington State DOH is committed to QI as a proven way to enhance the agency's performance and achieve desired results. As part of this commitment to QI and to governmental requirements to demonstrate accountability, the DOH has participated in the MLC activities since MLC-1 in 2006.

The 2005 Standards performance review results indicated that state programs scored low in two areas: the establishment, tracking, analysis, and use of performance measures; and in demonstrating an agency approach to QI. The DOH Senior Management Team identified both of these areas as high priorities for improvement in the MLC-1 Collaborative. DOH leaders and managers participated in QI training, including the development of logic models and outcome measures and a proposed structure for an agency-wide QI team. State-level program managers were directed to establish outcome measures for each of their programs and to begin monitoring their performance against the measures. Managers were also directed to identify staff and projects that would be appropriate for a QI approach.

● **Methods to Establish Quality Improvement Programs: The Department of Health Performance Management System**

The 2005 Standards results illustrated that the DOH needed to establish a more systematic and comprehensive process for performance management and improvement. The DOH QI program is a disciplined

FIGURE 4 ● Department of Health (DOH) Performance Management Diagram^a

^aGMAP indicates, government management accountability and performance; PALS, Performance and Accountability Liaisons; and QSC, Quality Steering Committee.

approach to performance management that includes organizational strategic planning, performance management and accountability, operational/business planning and performance, and focused QI efforts. This approach is consistent with the Baldrige National Quality Award and Washington State Quality Award frameworks for pursuing and achieving organizational excellence in seven criteria categories: leadership; strategic planning; customer and market focus; measurement, analysis, and knowledge; workforce focus; process management; and organizational results.²⁰ These various components of the agency's vision of always working for a safer and healthier Washington work together in a continuous cycle, moving the agency toward its goals, as illustrated in Figure 4.

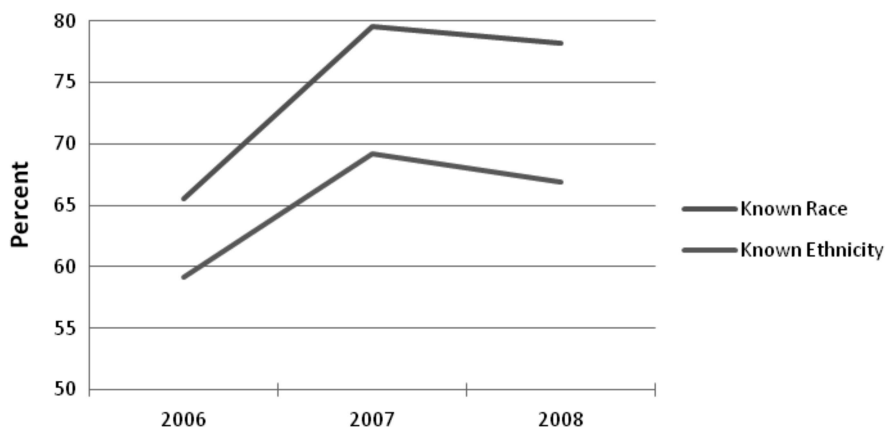
The QI activities are directed and conducted by two leadership groups with the support of the Office of Performance and Accountability. The Quality Steering Committee at the executive level provides agency oversight and guidance for performance management activities (QI projects, Public Health Standards assessment, etc) and QI in the DOH. Primary committee responsibilities include review and approval of the agency QI plan, encouraging and fostering a supportive QI environment; championing QI activities, tools, and techniques; and selecting and supporting agency

QI projects. The committee is chaired by the Deputy Secretary and guided by its charter. The Performance and Accountability Liaisons group at the operational level is composed of representatives from across the agency that provide input, advice, and assistance in those activities that strengthen QI and performance management in the agency. Performance and Accountability Liaisons is chaired by the Director of the Office of Performance and Accountability and guided by its charter.

● Results of Collaboratives, QI Projects, and Agency Programs

Washington statewide results

The Standards for Public Health in Washington were substantially revised in 2007, from a structure of six topic areas to 12 individual standards. Therefore, the 2005 standards requiring the establishment and tracking of program performance measures are not directly comparable to the single 2008 standard for this requirement. The standards did remain similar, however, and we can examine the results for these closely related standards. The aggregate percent of DOH programs able to demonstrate this standard in 2005 ranged from

FIGURE 5 ● Percentage of Known Race and Ethnicity on STI Case Reports, Pierce County, 2006–2008

^aSTI indicates sexually transmitted infections.

7 percent to 19 percent. In 2008, the performance review indicated that 84 percent of DOH programs demonstrated this standard, indicating a significant improvement in this requirement.

For the Chlamydia improvement effort, the 2007 LPHI report indicated that one of the counties in the MLC Collaborative had a Chlamydia treatment rate of 87.2 percent and the second county had 94.4 percent. In the 2009 LPHI report both counties reported Chlamydia treatment rates of 95.5 percent, which indicates statistically significant improvement for one of these counties.

Tacoma-Pierce County Health Department results

The TPCHD RCI project demonstrated short-term improvement in the reporting of race and ethnicity in STI case reports by Pierce County providers participating in the pilot program. The education interventions were then expanded to all healthcare providers that reported STIs in 2007. Long-term monitoring of STI case reports showed that the percent of case reports with complete race/ethnicity data increased from the 2006 baseline of approximately 60 percent to almost 80 percent in 2007 (see Figure 5). Because the percentage of complete race/ethnicity dipped slightly in 2008 compared to 2007, the nurse liaisons included reminder messages in their ongoing communication to provider offices. Data from 2009 will be reviewed to determine whether the reminder messages were successful in maintaining the improvement achieved by the QI team.

Since its inception in 2006, TPCHD's overall QI initiative has expanded to include several ongoing QI activities that build upon previous years' efforts. These activities include RCI projects, quarterly review of program and department-level performance measures, program

evaluations, health indicator results, and Washington State Public Health Standards recommendations and improvement (see Table 1).

In 2008, the TPCHD QI Council selected 14 performance measures to track and report each quarter to evaluate progress toward the department's goals and objectives. At the end of 2008, 79 percent of the department-level measures had achieved the selected target or benchmark. The QI Council and the department's Board of Health reviewed dashboards

TABLE 1 ● Sample of activities from the 2009 TPCHD QI Council Calendar

2009 Quality Improvement Council Calendar			
	QI Council review		Board of Health review
A. RCI Projects			
Purchasing requests QI Team	April 24 (interim report)		
	July 28 (final report)		
Solid waste complaints QI Team	September 22 (interim report)		
	December 22 (final report)		
B. TPCHD Performance Measures			
	May 26		March 3, 2010
	August 25		
	November 24		
	February 23, 2010		
C. Program Evaluation Reports			
Menu labeling	May 26		
MCH home visiting	October 27		
D. Review of Health Indicators			
	August 25		March 3, 2010
	November 24		
	February 23, 2010		

Abbreviation: MPH, maternal and child health.

displaying quarterly data for the 14 measures. The basic dashboards incorporated the “stop light” color concept to indicate whether targets had been reached following several models shown on the Institute for Healthcare Improvement²¹ and American Society for Quality²² Web sites. Each TPCHD business unit also tracked and reported performance measures to monitor progress toward program-level objectives. At the end of 2008, 87 percent of these program-level measures showed progress toward or had achieved identified benchmarks. As a result of the priority indicator work groups, in 2008 eight of 11 annual performance measures were met, although as expected, long-term outcomes have not yet been achieved.

TPCHD demonstrated improvement in developing and sustaining QI infrastructure and processes; the results of the 2008 Standards Review Report showed that the health department was in full compliance with the two QI measures and scored 4 out of 4 total points.²³ Given the many positive results in outcomes and support for QI, in 2009 TPCHD allocated 1.1 full-time equivalent employees to support its QI infrastructure.

Washington Department of Health results

As a result of the MLC-1 collaborative to improve the establishment, tracking and use of performance measures, more DOH programs have developed logic models with quantifiable outcome measures. Examples of quantifiable outcome measures for the state Chlamydia program are as follows:

- *Output:* Number of 15- to 24-year-old females screened through the Infertility Prevention Project;
- *Immediate outcome:* Percent of cases of Chlamydia among 15- to 24-year-old females that are appropriately treated;
- *Intermediate outcome:* Positivity of 15- to 24-year-old females screened through Infertility Prevention Project; and
- *Ultimate outcome:* Rate of reported Chlamydia infections among 15- to 24-year-old females.

By using meaningful measures and indicators to monitor both operational performance and progress on special initiatives such as strategic efforts or QI processes, the DOH can ensure that it is on track with the intended results and help identify additional operational and process improvement opportunities.

● The Lessons Learned in Washington State

By using performance results to target and conduct improvement activities, state and local public health staff in Washington have learned that high-performing,

quality organizations actively change the way business is done by

- focusing on the needs of the customer and engaging customers and stakeholders in the improvement process;
- using data to analyze problems, identify root causes, and develop improvement interventions;
- monitoring and evaluating performance; and
- continually making improvements over time.

Local and state agencies have also learned that QI training should be “just-in-time” training. QI teams, with already identified improvement projects, should attend training as a team and the QI project work should be started as part of the training session. Another lesson illustrated the importance of encouraging local and state health departments to share performance data with colleagues in other programs and agencies so that higher and lower performers can be identified. The high performers are then able to help the lower performers improve by adapting or adopting proven public health practices. Finally, leaders of QI efforts in Washington have learned to celebrate and share QI teams’ work on a regular basis and through multiple methods. These celebrations generate interest in QI by other staff, recognize QI team member accomplishments, and reinforce the importance of building QI principles, methods, and tools into daily work and into the culture of the health department. To maximize and extend its QI work, Washington has held a Learning Congress at the close of the MLC grant years, highlighting the successes and important learning from each improvement project.²⁴

Overall, most of the success in expanding performance measurement and improvement activities in Washington resulted from the dedication and passion of public health leaders and staff involved in these efforts, including the Robert Wood Johnson Foundation and National Network of Public Health Institutes sponsors. Washington State residents continue to realize improved public health performance from the important work of all of these committed individuals and organizations.

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