

Tacoma-Pierce County Uses Quality Improvement Tools to Improve Their Drinking Water Program

Tacoma-Pierce County Health Department (TPCHD) oversees 1,400 small water systems (generally defined as water systems with 2-14 connections) with a staff of three. It is responsible for determining adequacy of water, as well as approving and assisting with ongoing monitoring and maintenance. With so many projects, approvals, and processes, it's crucial for TPCHD to be efficient and effective. With support from the Centers for Disease Control and Prevention (CDC) [Safe Water for Community Health](#) (Safe WATCH), TPCHD began evaluating their capacity in the [10 Essential Environmental Public Health Services](#) (EPPHS) using the [Environmental Public Health Performance Standards](#) (EnvPHPS) self-assessment and set goals to better educate water systems managers on testing procedures and water quality and bring more small water systems into compliance. CDC's support included customized on-site technical assistance and training from the Public Health Foundation (PHF) on the use of quality improvement (QI) tools and methods to improve TPCHD's drinking water program.



Assessing Customer Needs

In April 2016, Tacoma Pierce got started setting their objectives, targets, and goals by reviewing its strategic plan and creating a Gantt Chart as a guide. They used several of PHF's QI tools, including the [Bow Tie Diagram](#), as well as a Cause and Effect Diagram and the Kano Model (both available in the [Public Health Quality Improvement Encyclopedia](#)) to uncover and understand their customer's needs. Working with PHF experts, their team decided to focus on shortening and improving some of their drinking water program processes. Using a Plan-Do-Check-Act process to understand their current procedures and improve them. They decided to use flow charts to access their processes, and began by prioritizing which flow charts they wanted to look at first, which processes they did the most, and which they wanted to test or improve upon. As of September 2016, they had completely over 40 work flows. These flow charts allowed them to assess gaps, see what wasn't working well, request feedback, and establish ideal standard operating procedures.

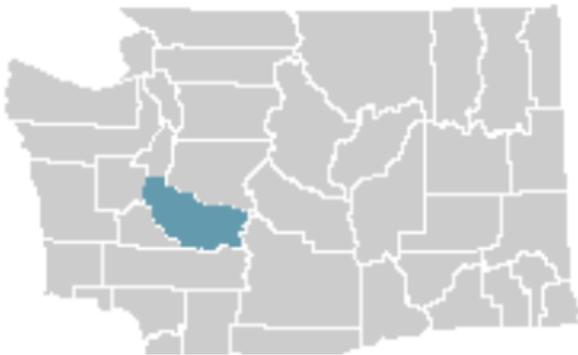


Figure 1 Map of Tacoma Pierce County, Washington

To gain additional feedback from their customer base, the drinking water team conducted phone interviews to identify barriers for water testing. In preparation, they collaborated with their quality improvement team to create a survey. With this current survey they have reached out to over 300 small water systems and completed over 60 phone interviews.

Assuring a Competent Workforce

TPCHP's self-assessment results also determined a need to focus on EEPHS 8 – Assuring a competent environmental public health workforce. They determined that a lack of staff consistency was a hurdle to improving their program, and further time needed to be invested in training and mentoring new staff. Prioritizing, creating, and testing work flows for 2016 and 2017 allowed TPCHP to address this identified gap and work toward building a better performance management system internally to better serve their customers externally. Improved training of staff and collaboration with other state and local drinking water programs will also further their drinking water program goals.



“Working with the CDC and PHF has been a valuable experience. They have provided us the support to increase our workforce competency, analyze our existing data, increase compliance and grow our education and outreach efforts. All of these improvements will help us meet our goal of ensuring that small water systems provide a safe and reliable source of drinking water.”

**Brad Harp, Water Resources Program Manager
Tacoma-Pierce County Health Department**

Looking Ahead: Improving the Customer Experience

Armed with feedback and data, TPCHP has mapped out a plan to make processes more efficient for their customers and end users. Instead of looking at one piece of the puzzle, they are assessing and analyzing the entire user experience and determining what partners may best reach their target audience (for example, real estate agents and lending organizations may be able to help educate potential homebuyers who are buying a property with a private water source).

For 2017 and 2018, they plan to address EEPHS 3 – Inform, educate, and empower. One new educational initiative targets the water system users instead of only the water system managers. TPCHP has begun to notify the homeowners of the water quality when a small water system is out of compliance, instead of only the water system manager. The hope is that this small change will provide incentives for water managers to keep their water systems in compliance and learn more about the technical assistance available to help them. They are also thinking out of the box to access and share data with staff in other departments and other agencies, including health equity, to better reach underserved communities.

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