

**An Organizational Performance Management System for Public Health
Based on the PDCA Approach
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Organizations have long struggled with developing a performance management (PM) system to help understand and guide operations on a timely basis. While many local governments now use some form of performance measurement, far fewer have successfully completed the transition to a performance management system — integrating performance measurement into the ongoing management of the organization. This transition is much more difficult than the initial development of performance measures.¹

One of the hallmarks of leading-edge organizations—be they public or private—has been the successful application of performance measurement to gain insight into, and make judgments about, the organization and the effectiveness and efficiency of its programs, processes, and people. However, leading organizations do not stop at the gathering and analysis of performance data; rather, these organizations use performance measurement to drive improvements and successfully translate strategy into action. In other words, they use performance measurement for managing their organizations.²

A good PM system is the central nervous system of the organization since it is providing operational intelligence on a real time basis, indicating performance relative to goals, effectiveness and efficiency of programs and services, performance of processes, and customer satisfaction levels. Ultimately, the PM system should provide the knowledge leadership requires to manage the overall enterprise, and to aide in prioritizing which areas need improvements.

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Choose or Adapt a PM System Model to Fit the Public Health Organization

A variety of performance management models have been used in the public and private sectors. The necessary characteristic that makes any PM model a PM “system” (sometimes called a “managing for results process”) is that it can be articulated as a *cycle* in which measured results are regularly fed back into decision making to continually improve future performance.³ For illustration, this paper focuses on three PM system models that have been used successfully in the public sector:

1. The “Plan-Do-Check-Act” (PDCA) model⁴ adapted from Quality Improvement by some entire local governments (e.g., City of Austin, TX; King County, WA)
2. The balanced scorecard strategic management approach⁵, which was adapted from the private sector for many public sector applications, including “Community Balanced Scorecards” used by health departments and community health partnerships
3. The “Stat” model⁶ of high frequency review of operating data to make rapid performance improvements

An additional feature of these three PM system models is that they are not mutually exclusive. For example, a Stat system of high-frequency operational improvement can be used on a PDCA basis, and included within a larger PDCA system with lower-frequency cycles (e.g., annual performance plans and budgets with quarterly performance reviews). Similarly, some or all of the measurement models within the larger PDCA cycle could be based on balanced scorecard strategies.

Whether a health department draws on any or all of the three system models used in this paper, or on other approaches to performance management⁷ will depend on the specific needs of the department. The design of a PM system should be reflective of the organization itself. Aspects for careful consideration include: an organization’s current and desired future culture, preferred leadership style, current capacities, work force capability, budget limitations, and other resource constraints. Every health department will emphasize different organizational variables in designing its optimal PM system. Although there are tried and proven models, one size does not fit all in designing a PM system. Nonetheless, each version shares the same common purpose of providing operational intelligence on a timely basis to help make informed decisions at all levels of the organization. Those informed decisions should facilitate efficient and effective delivery of the products and services public health customers seek and make the health department and its partners more effective in their efforts to improve population health.

The Turning Point Model⁸, shown in Figure 1, was originally developed specifically for public health and is a good conceptual model describing essential elements of a PM system.

PUBLIC HEALTH PERFORMANCE MANAGEMENT SYSTEM



Figure 1. Turning Point Model

However, the Turning Point Model offers limited guidance about what makes these elements a usable “system” or about “how” to develop an organization-wide PM system. Questions this model leaves unanswered include the following:

- How do operationalize standards? For example, the Public Health Accreditation Board (PHAB) provides standards and related measures, but many PHAB standards and measures require local targets to create useful “local standards” for managing the health department
- How do we measure against standards?
- How are targets established?
- How do we report data for the measures compared with targets?
- What process do we use to prioritize which areas need improvement?
- How do we make this a “system” to manage our organization effectively and not just give us more things to track?

This paper addresses these questions by showing how the PDCA model can be used to organize a PM system, and also incorporate other models in the system’s operation.

A PDCA-BASED PERFORMANCE MANAGEMENT SYSTEM

One model that has all the elements of Turning Point, but is displayed as a systemic cycle, is a PM system based on the Plan-Do-Check-Act (PDCA) cycle of Quality Improvement (QI) (or as it is sometimes called, a Plan-Do-Study-Act cycle) shown in Figure 2.

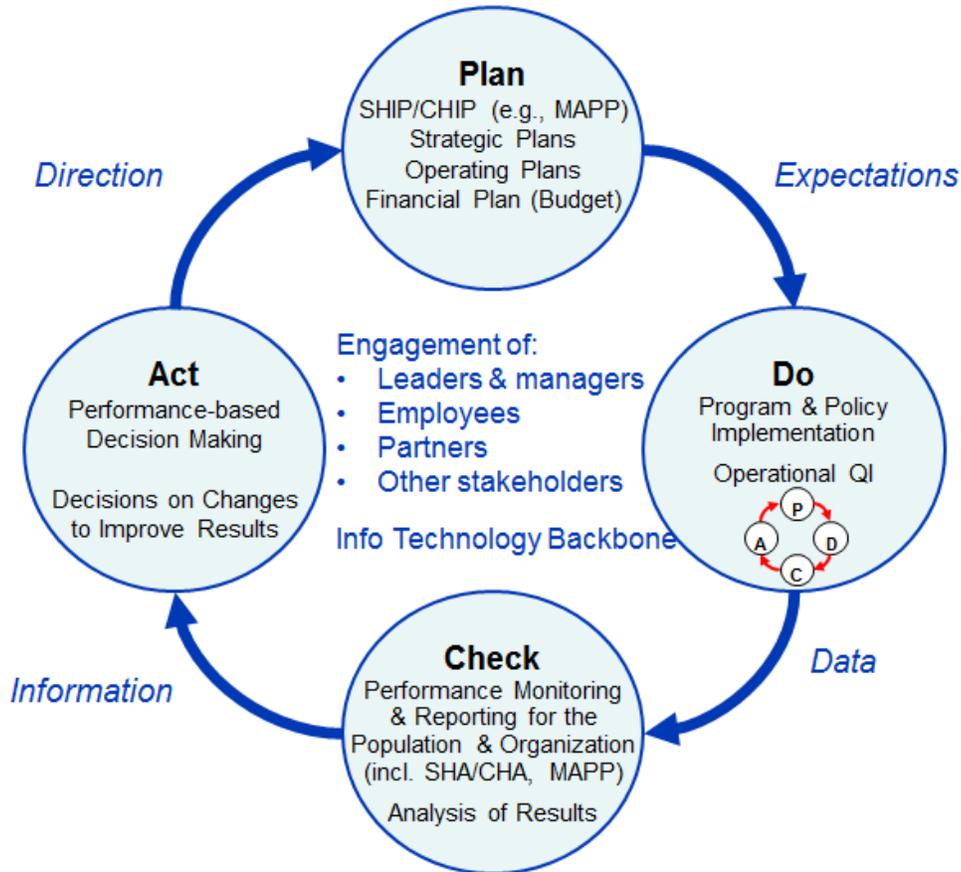


Figure 2. A PDCA-based Performance Management System

PLAN: Create Several Levels of Expectations

The Public Health Accreditation Board (PHAB) requires a public health agency that wants to be accredited to have a State or Community Health Improvement Plan (SHIP or CHIP) and a strategic plan, both of which usually look three to five years into the future. However, to translate the goals and objectives of those plans into a performance management system, the agency needs annual operating plans for all its programs, services, and projects. And those plans need to be realistic given the agency’s financial plan or budget. So a SHIP/CHIP, strategic plan, operating plans, and budget are all part of the “Plan” stage of the PM cycle.

Performance measures and performance standards including goals and targets (as in Turning Point) are reflected in both the multi-year and annual plans. To assure plans lead to real performance, and don’t just sit on the shelf, the goals, measures, and targets are transmitted to everyone in the organization as “Expectations” to be met in the “Do” stage, as in Figure 2.

DO: Implement Programs, Policies, and Operational QI

Expectations reflected in program performance measures and targets and new or revised policies (e.g., as may be driven by a SHIP or CHIP) determine what a health agency implements and tries to achieve at the program or project level during the course of each year. Many targets may be set for about the same level of performance as the previous year, or for incremental changes, up or down, depending upon budgeted resources available in the current year. Typically a few new programs may be started and old ones ended, based on plans and budgets. However, a few existing programs or services may be considered particularly important or “strategic” to improve because they are crucial to achieving departmental goals or the SHIP/CHIP. Sometimes additional funds may be budgeted or sought (e.g., through grant applications) to increase performance of the most strategic programs. Whether or not additional funds are available, those strategic programs or services can be considered likely candidates for focused quality improvement efforts. Thus, “Operational QI” is shown as part of the “Do” stage in Figure 2.

In addition, managers and staff of all programs can be challenged to apply QI techniques to their operations to improve measurable performance beyond the targets in their operating plan. So, conceivably, Operational QI can be applied to many programs at any given time, with a strategic few especially targeted for focused QI efforts.

As shown in Figure 2, “Operational QI” is literally a PDCA cycle within a PDCA cycle. The difference is that the outer QI cycle, representing the organization-wide QI system, works at frequencies of from one to five years, though there may be higher frequency monitoring (e.g., quarterly). But the Operational QI cycle, shown within the “Do” stage, can work at higher frequencies, depending on how frequently data can be captured, analyzed, and used for performance improvement. Some programs may generate enough data to use for improvement on a weekly or monthly basis, while other programs (e.g., a high-volume clinic) may provide sufficient data daily to make possible very frequent operational improvements. Both the “Operational QI” cycle in the “Do” stage, and the overall PDCA cycle of the entire PM system, represents the Turning Point’s “Quality Improvement” quadrant.

Implementation against performance targets and budgets and Operational QI both generate “Data” to be used in the “Check” stage, shown in Figure 2.

CHECK: Monitor Performance and Analyze Results, Including Health Assessments

Data generated and collected on program and policy implementation and Operational QI are monitored, reported, and analyzed in the “Check” stage of the PM system. This stage represents Turning Point’s “Reporting of Progress.” In addition to organizational data from operations, data on changes in the communities and population served are also monitored and analyzed. Every three to five years the population data can include a State or Community Health Assessment (SHA or CHA) and additional assessments (e.g., in communities using NACCHO’s MAPP program). But in most states and local regions, some population data (e.g., on health status and determinants of health) are gathered or become available more frequently (e.g., from annual or biennial BRFSS surveys). The population data (which may be disaggregated

geographically or demographically) can be viewed along with the operational data to determine if mid-course corrections are needed between major changes to a SHIP, CHIP, or strategic plan.

A State or Community Health Assessment (SHA or CHA) is shown in the “Check” stage in Figure 2 even though it is intended to inform health improvement planning. So the SHA or CHA is generally done *before* the SHIP or CHIP. However, Figure 2 shows a PM system as a continuous *cycle*; there is no definitive start or end point. So the SHA or CHA can be done in the “Check” stage which leads to decisions in the “Act” stage and then to creation or revision of a SHIP or CHIP as the cycle comes back around to the “Plan” stage.

Analyses of operational performance and population data generate “Information” to be used for decision making in the “Act” stage of the PM system, as shown in Figure 2.

ACT: Decide on Changes to Improve Results

Data collection and analysis do not improve performance on their own. People must act on the information—they must use it to make decisions that will lead to better performance. In the “Act” stage, program managers and policy makers need to consider a full range of data, such as on population outcomes, geographic conditions, and service performance to decide on changes in program operations, policies, plans, and budgets. For example, if population and geographic data show disappointing smoking cessation outcomes, before deciding to spend more money on such programs it is important to examine existing efforts aimed at cessation. Are they inefficient and need their internal processes improved so they can achieve more at the same cost? Are they ineffective and need to be replaced by different kinds of programs? Is there an evidence base to support them? Are they effective for a segment of the population that responds to them, but need to be augmented by other types of programs (e.g., which may use cultural or language differences) that other population groups will respond to? Are they effective in some geographic areas but need more or different forms of outreach in other parts of the community? Are they effective for the number of people they reach, but have too few resources to reach enough smokers in the community to make an impact? Answers to these kinds of questions for different types of outcomes and programs can be used to make a wide range of policy, resource allocation, programmatic, and operational decisions.

Decisions made in the “Act” stage then provide “Direction” for the “Plan” stage as the PM system cycles around again for a new round of planning and budgeting or for revisions to existing plans and budgets.

The Importance of Robust Engagement

As noted in the center of Figure 2, a PM system is not meant solely for planning and analytic staff, nor for decisions makers. For a PM system to be most effective in driving change to improve performance, everyone in the organization should be engaged. It should become an integral part of the way everyone does their jobs and not just another thing they have to do. To the extent possible, their engagement should be as *users* of the system, so it’s important that

everyone in the organization understands how they can use the information in the system to do their jobs better, improve program performance, and ultimately be more effective in improving population health. Because improving population health requires efforts by people and organizations besides the public health agency, it is also important to engage the agency's partners and other external stakeholders who may be providers or users of data to improve public health outcomes.

Inevitably, some people's role will be more as generators, collectors, or reporters of data, and less as decision makers. If they do not know the importance of the data they provide for improving program performance and population health, they may not take the care needed to provide reliable data. We have seen this phenomenon with some existing public health PM systems. So a strategy of engagement to make sure they know the purpose for the data is instrumental. Periodically ask for their interpretations of changes in the data, which may both provide useful insights to decision makers and help staff understand that their data collection efforts are valued. This is just as important for external data providers as it is for internal staff. Both sets of data providers are also PM system users, and their views are critical to success of the entire PM enterprise.

Technology Backbone

The middle of Figure 2 also refers to a "Technology Backbone," which acknowledges the need for an appropriate information technology (IT) system to keep the PM system running smoothly without inordinate staff effort. Some public health agencies may be part of a government that already has its own jurisdiction-wide performance management IT system, and can use that for its technology backbone. But sometimes a jurisdiction-wide system does not provide all the functionality the agency needs for its own performance management. For example, it may not be updated frequently enough for all the operational QI the agency intends to apply to its day-to-day program operations. In those cases the public health agency may need to augment the jurisdiction-wide system with some of its own internal IT support. Whether augmenting jurisdiction-wide systems or developing systems of their own, public health agencies do not have to start from scratch, but can procure and adapt existing systems, which now include low- and moderately-priced systems that range from simple spreadsheet templates designed for internal reporting to web-based performance management and strategy management systems.

The Importance of Alignment

It is necessary but insufficient for a public health agency to have a SHIP/CHIP, strategic plan, program operating plans, and financial plan (budget). For the PM system to work properly, all those plans must be aligned with each other and with the day-to-day operations of the agencies' programs, services, and projects—and often also with the programs and initiatives of agency partners. As shown in Figure 3, consistent and related performance measures across all these plans and operations provide a "line of sight" from the agency's vision and mission down to ground-level operational performance.

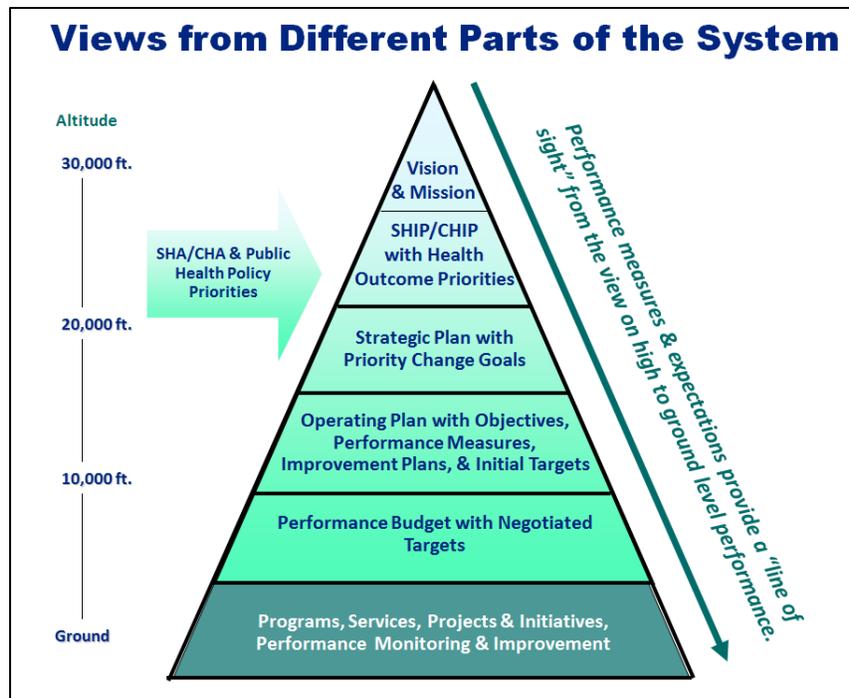


Figure 3. Alignment of Components of the PM System

Alignment of Leading and Lagging Measures from Policy to Operations to Outcomes

Consistent performance measures provide alignment across plans and operations. Related “leading” and “lagging” performance measures provide alignment from what a public health agency and its partners do with the bigger health improvement goals they want to accomplish. For example, to reduce obesity, a public health agency may determine that it needs to develop and advocate for policies that increase active living and healthy eating. The agency may be able to at least partly implement some of these policies on its own, such as by integrating exercise or nutrition improvement efforts into its maternal and child health programs. In other cases, the agency will need to advocate for others, such as a city planning commission, a parks and recreation department, a YMCA, schools, and private employers to adopt and implement these policies. Measures of policy development, outreach, and advocacy efforts⁹ are “leading indicators” of eventual adoption and implementation of these policies as part of organizations’ operational practices. Then, practice changes by partners and measures of health agency program operations are leading indicators of outcomes of increased active living and healthy eating and reduced obesity. Those outcomes are “lagging indicators” of policy and operational progress. An effective PM system will include alignment of these leading and lagging measures, and not have a disconnect between what agencies and their partners do and the outcomes they want to improve. Balanced scorecards, especially “Community Balanced Scorecard” tools being used in public health, described next, are particularly strong in this regard, helping users map out strategies for public health issues or programs, then aligning their measurement system with those strategies from “performance drivers” (leading indicators) of assets, policies, and operations to “outcomes” organizations and community partnerships want to accomplish.

Community Balanced Scorecards for Strategy and Measurement Alignment

To achieve alignment needed for effective performance management at all levels of an organization, performance measures should be aligned with the organization’s strategy. The “Balanced Scorecard” (BSC) started in the early 1990s as a corporate performance measurement framework and evolved in just a few years to a strategy management system in which an organization’s high-level strategy drives how performance is measured and managed, to achieve *strategic alignment* of what people do with how the organization is trying to achieve its goals.¹⁰ Balanced scorecard tools, such as strategy maps, are particularly well suited to graphically depict strategy in a way that facilitates developing strategy-aligned measures.¹¹

In public health, a population and community-focused endeavor rather than a profit and customer-focused endeavor, a “Community Balanced Scorecard” (CBSC) approach has been evolving to achieve strategic alignment of multiple organizations in the state or community public health system, rather than just alignment of a single organization, and using the ten essential services of public health as a guide to mapping and measuring strategy. Since the first publication of this approach for public health in 2009¹² CBSC tools have been used by community health partnerships from New Hampshire to Florida and from New Jersey to Illinois for priority health issues. The State of Delaware Division of Public Health has been using CBSC for its strategic planning and at least one county (St. Johns County, FL) has used it in its published CHIP.¹³ To help create alignment across all strategies, including strategies for specific programs and cross-cutting strategies involving multiple programs and organizations to address priority health issues (e.g., obesity reduction, access to care), a “top level strategy map” can be used based on the twelve domains of the Public Health Accreditation Board, shown in Figure 4.

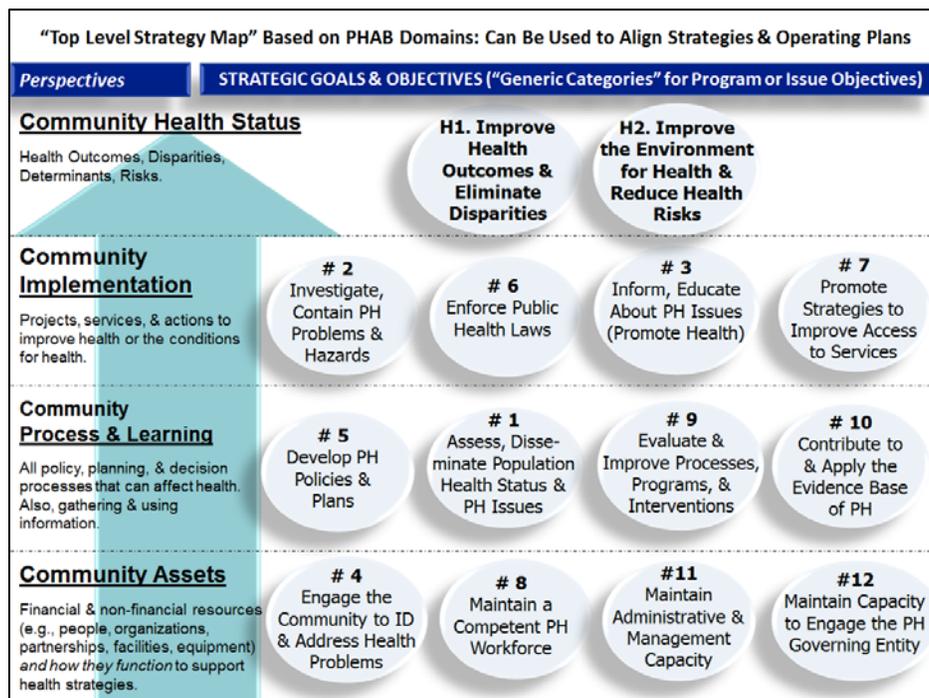


Figure 4. Top Level CBSC Strategy Map Based on the 12 PHAB Domains

Note in Figure 4 that the PHAB domains are not shown in numerical order, but are on the bottom three “perspectives” (rows in Figure 4) based on bottom-up performance driver relationships concerning how they relate to each other, and how, collectively, they drive performance of the top two strategic goals: “H1. Improve Health Outcomes & Eliminate Disparities” and “H2. Improve the Environment for Health & Reduce Health Risks.”

More specific strategy maps for public health programs relate back to the top level map, but the strategic goals and objectives (the bubbles) are worded to be specific to that program, and only the PHAB domains relevant to that program are included. For example, a strategy map for an Environmental Health Enforcement and Investigation Program might look like Figure 5, with arrows showing specific performance driver relationships between strategic objectives leading to the strategic outcome goals on top. The numbers in the bubbles relate back to the same numbered goals and objectives in the top level map. When strategy maps are developed for other programs and for cross-cutting strategies involving multiple programs or partners, their alignment with the top level map visually shows how all public health agency strategies are aligned.

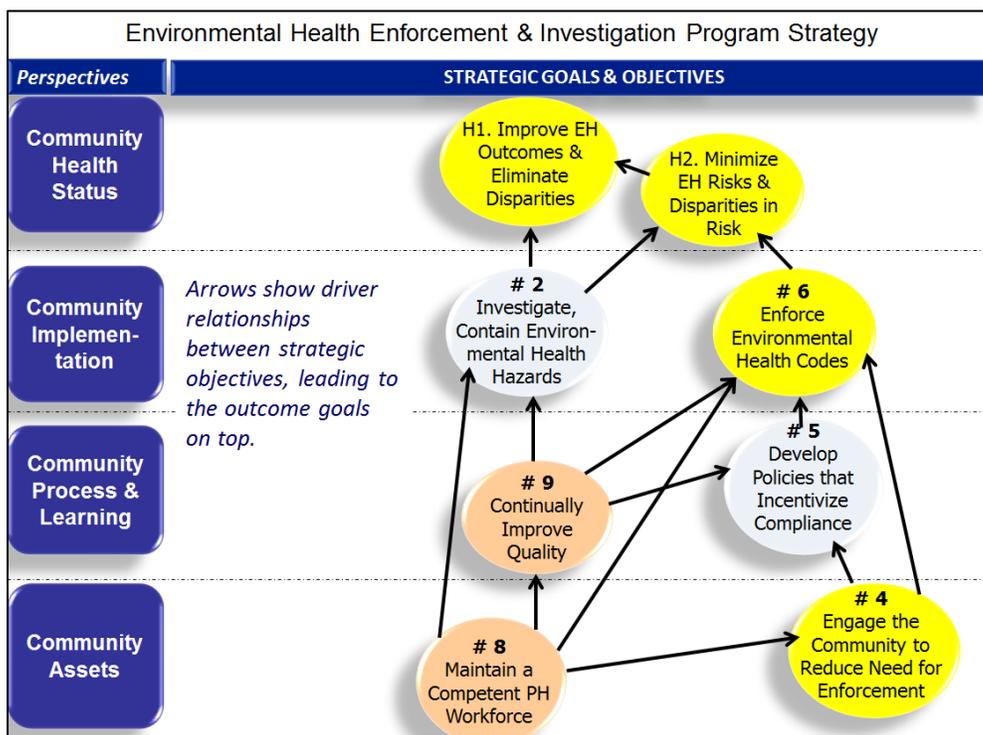


Figure 5. Possible Environmental Health Enforcement & Investigation Strategy Map

The strategic goals and objectives and their driver relationships help build an aligned system of performance measurement. For example, following the performance driver arrows, from bottom-to-top, for the objectives and goals highlighted in yellow (#4, #6, H2, and H1) might produce the following performance measures and driver relationships among them:

- *Measure for Objective 4: Number of businesses subject to inspection that participate in training and outreach activities:* Getting more businesses to participate is expected to help drive success on the following:
- *Measure for Objective 6: Percent of establishments inspected with no violations:* Raising this percentage (assuming a full schedule of inspections and re-inspections is maintained) is expected to help drive success on the following:
- *Measure for Goal H2: Total outstanding environmental health violations.* Reducing this number is expected to help drive success on the following:
- *Measure for Goal H1: Number of environmental health-related illnesses and injuries per 1,000 population* (which may be broken out into more specific measures, e.g., “number of food borne illnesses per 1,000 population”).

Note in Figure 5 that two of the strategic objectives (#9 on Quality Improvement and #8 on a Competent Workforce) are not specific to environmental health. They represent strategic objectives that a public health agency may mandate for all of its programs and services. Strategic Objective 9 in particular would represent the Environmental Health Program’s responsibility for “Operational QI” in the “Do” stage of the Public Health Agency’s overall PDCA performance management System, shown in Figure 2. As environmental health is usually addressed on a geographic basis, it may be a good candidate for using a “Stat System” for QI, described next.

The Potential for a “Stat System” as Part of Operational QI

As described above, the “Operational QI” cycle in the “Do” stage of a PDCA-based QI system represents high-frequency collection and analysis of data to improve performance. In that sense the “Stat” systems being used in Police Departments across the country (as started in New York City with “Compstat” in the 1990s¹⁴), and by some state and local governments for a wide range of services (as started in Baltimore with “CitiStat” in 2000¹⁵) are high-frequency operational QI systems. Stat systems not only use operational information, they use high-frequency geographic data on outcomes or conditions being addressed by programs, displayed on maps for review and action (e.g., maps of crimes, street defects, or environmental problems).¹⁶ As most health agencies are concerned with where outbreaks occur, where there are environmental health issues, where underserved populations live, and other place-based data, a Stat-like geo-based high-frequency system can be a valuable component of a public health agency’s performance management system. Figure 6 depicts a Stat-like high-frequency performance improvement cycle. Note in the “Do” Stage in Figure 6, where partners are needed to help address health issues, as is often the case, they can be included in the responses to mapped conditions.

Not all useful operational QI need be geo-based as in Stat systems. A public health agency can apply high-frequency operational QI to improve any process for which it obtains data on a more frequent basis than data reported for the overall PM system. For example, if the

agency runs a clinic with regularly repeated services, any repeated process within the clinic can be a potential subject of operational QI. Similarly, the agency can apply operational QI to its internal business processes, such as procurement or human resources. Improvements in internal processes, such as reducing the time to purchase goods and services or to hire new staff, can help make many agency programs more effective.

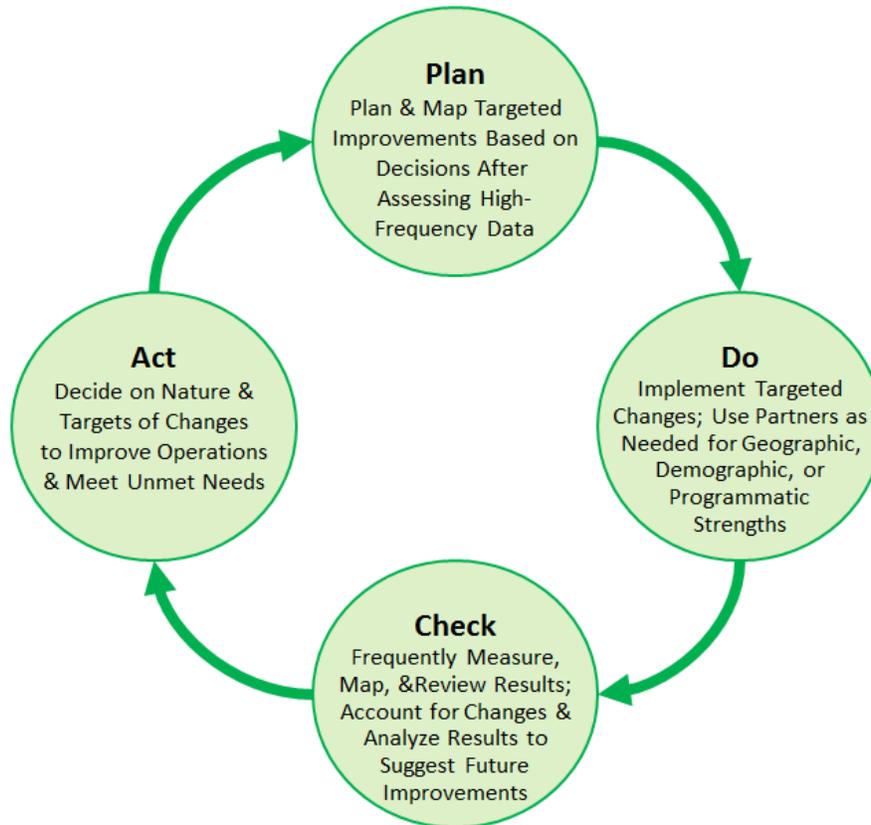


Figure 6. A “Stat” System as a High-frequency PDCA Cycle

Conclusion

An organizational Performance Management system needs to operate as a cycle—or several linked cycles—to enable continuous performance improvement throughout the organization. The PDCA approach for quality improvement is also a useful model for organizing a cyclical PM system and for operating several linked and aligned PM cycles at the same time.

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