Research Findings Brief

No. PR2011-9 December 2011 www.unmc.edu/rural

Quality Improvement Activities and Strategies in Nebraska's Local Health Departments

Findings from a 2011 Local Health Department Quality Improvement Survey

Li-Wu Chen, PhD; Anh Nguyen, MSPH; Janelle Jacobson, MPH, CHES; Dave Palm, PhD

Research Highlights

- One-third (33.3%) of local health department (LHD) directors indicated that their LHD has a pervasive culture of continuous quality improvement (QI). More than one-fourth (26.3%) of LHDs have a designated QI officer; 21.1% have a QI council, committee, or team; and 15.8% have a QI plan.
- The majority (79.0%, n = 15) of LHDs have implemented a formal process to improve the performance of a specific service, program, process, or outcome.
- More than 60.0% of LHDs indicated that the following programs or administrative areas have been targeted for QI: financial systems, health promotion, and immunization. Less than 20.0% of LHDs indicated that the following programs or administrative areas have been targeted for QI: tuberculosis; sexually transmitted diseases; women, infants, and children; and family planning.
- Less than one-half (41.2%) of LHDs have used the Lean model for a QI program or intervention, 29.4% have used the Model for Improvement, 25.0% have used Baldrige, and 12.5% have used Six Sigma.
- Less than one-half (44.4%) of LHDs have incorporated QI measures or metrics for a QI program or intervention. More than half of directors felt that the adopted quality measures are appropriate for the QI program or intervention in their LHD (52.6%) and relevant in the practice setting (57.9%).
- Almost one-third (31.6%) of directors felt that the specific QI strategies (i.e., model, techniques, and tools) employed by their LHD are appropriate for the LHD's QI programs or interventions.
- Although only one-third of directors felt that QI activities are typically effective in their LHD, more than half (55.6%) indicated that their LHD has specific plans to expand QI efforts.
- More than half (55.6%) of directors indicated that there is not a high level of capacity to engage in QI efforts within their LHD, and almost one-third (27.8%) indicated that there are insufficient resources to sustain improvements when a QI effort succeeds.

Introduction

Although the implementation strategies and effectiveness of quality improvement (QI) activities have been examined extensively for many industries, including the health care sector, very few studies have focused on the public health context. Furthermore, in Nebraska, 17 of the 21 local health departments (LHDs) serve multiple counties, ranging from 2 to 10 counties. Although this regional approach has advantages, such as scale economies for public health programs and coordinated preparedness for public health emergencies, the lack of knowledge about effective QI strategies for regional public health systems has made it difficult for regional LHDs to capitalize on these advantages. In 2011, the Nebraska Center for Rural Health Research undertook a study that examined the current status in implementing public health QI initiatives as well as the effectiveness

Nebraska Center for Rural Health Research

Support for this project was provided by the Robert Wood Johnson Foundation through the National Coordinating Center for the Public Health PBRN program. For further information, contact Li-Wu Chen, PhD, liwuchen@unmc.edu, (402) 559-5260, Department of Health Services Research and Administration, College of Public Health, University of Nebraska Medical Center, 984350 Nebraska Medical Center, Omaha, NE 68198-4350.

and challenges of QI implementation in Nebraska's LHD practice settings. This brief summarizes the findings from the 2011 Local Health Department Quality Improvement Survey that was conducted as part of the study.

Methods

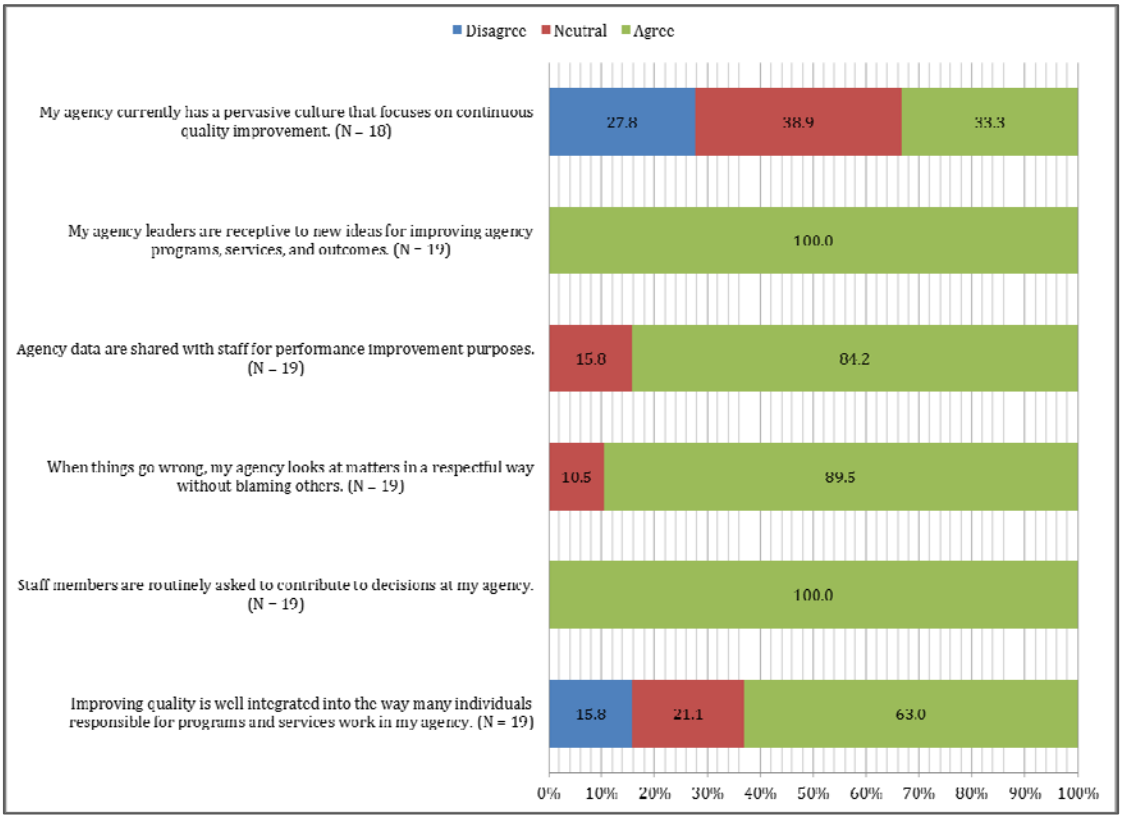
An online survey was conducted among LHD directors in Nebraska, from May 2011 to August 2011, by the research team at the Nebraska Center for Rural Health Research. The design of the survey instrument was guided by the QI taxonomy developed by the University of Minnesota as well as by continuous input from the Nebraska Public Health Practice-Based Research Network Steering Committee.[1] The survey also adapted questions from the Multi-State Learning Collaborative 2011 Annual Survey designed by the University of Southern Maine as well as from the National Association of County and City Health Officials' 2010 National Profile of LHDs Survey. The questionnaire covered the following domains: (1) Are any QI-related programs, initiatives, or activities currently implemented in the LHD? (2) If so, what specific QI tools and processes are used? (3) What quality measures (if any) are used, what data are collected for the measures, and how is data collected? (4) What is the perceived appropriateness of the adopted quality measures and how relevant are they to the practice setting? (5) What is the perceived effectiveness of the implemented QI activities? (6) What are the challenges of implementing the QI activities? Twenty-one LHDs (17 regional and 4 single-county) covering all 93 Nebraska counties were included in the survey. A total of 19 (90.5% of the sample) LHD directors responded to the survey.

Results

Quality Improvement and Agency Culture and Strategies

Figure 1 shows the degree to which directors agreed with statements regarding the accommodation of QI within the LHD's culture. One-third (33.3%) of directors indicated that their LHD has a pervasive culture of continuous QI. All (100.0%) of the directors indicated that leaders within their LHD are receptive to new ideas for improving programs, services, and outcomes. Almost two-thirds (63.0%) of directors indicated that quality improvement is well integrated into the way many individuals responsible for programs and services work in their LHD.

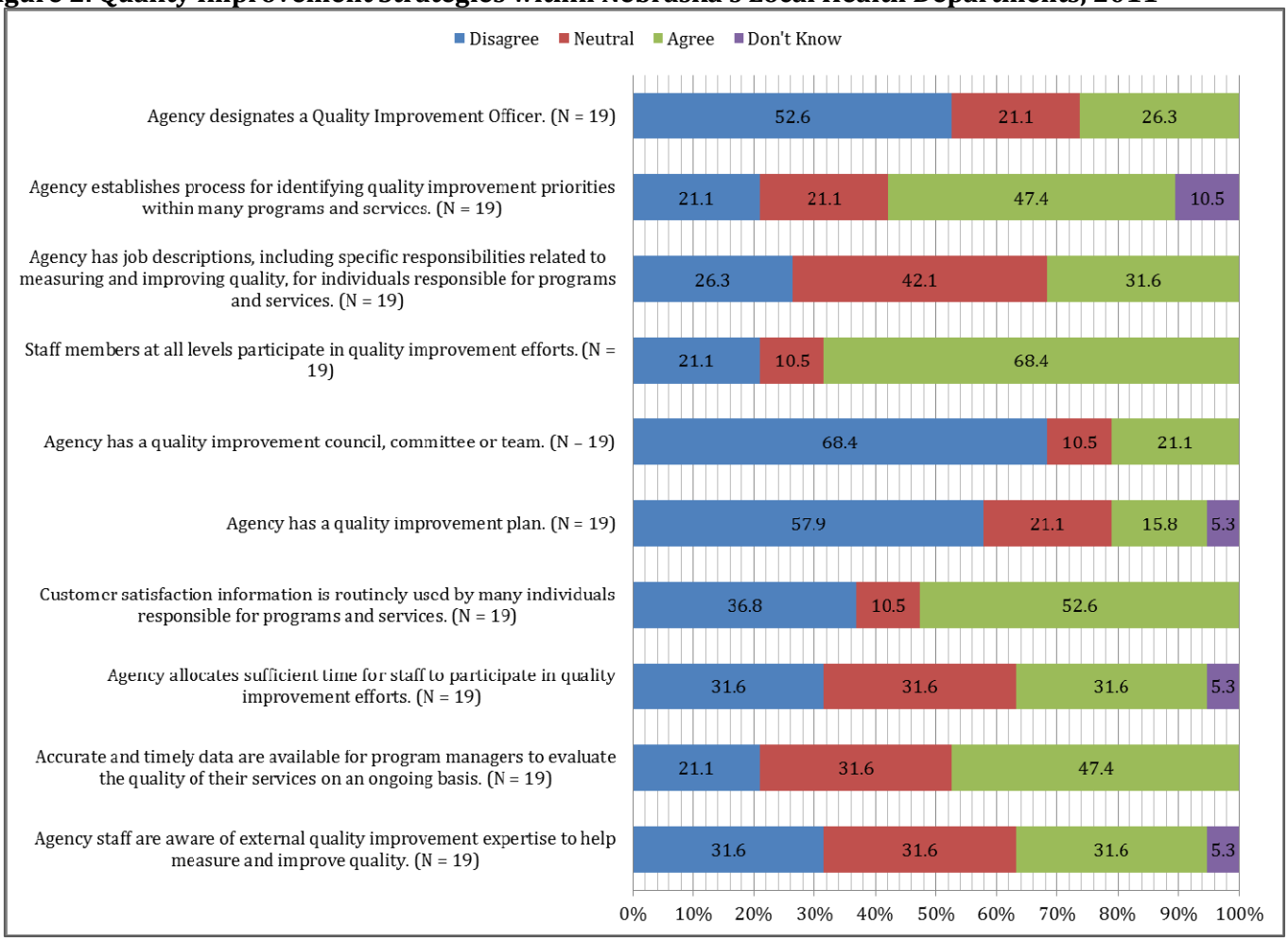
Figure 1. Accommodation of Quality Improvement within Nebraska's Local Health Departments' Culture, 2011



[1] Riley, W., Lownik, E. "Process Analysis in Local Health Departments: Using Quality Improvement Methods and Techniques to Identify Failure Modes." AcademyHealth Annual Research Meeting. Seattle, WA. June, 2011.

Figure 2 shows the degree to which directors agreed with statements regarding the adoption of QI strategies at the LHD level. Less than one-third (26.3%) of LHDs have a designated QI Officer, and 21.1% have a QI council, committee, or team. Furthermore, few (15.8%) LHDs have a QI plan. On the other hand, more than two-thirds (68.4%) of LHDs have staff members at all levels who participate in QI efforts.

Figure 2. Quality Improvement Strategies within Nebraska's Local Health Departments, 2011

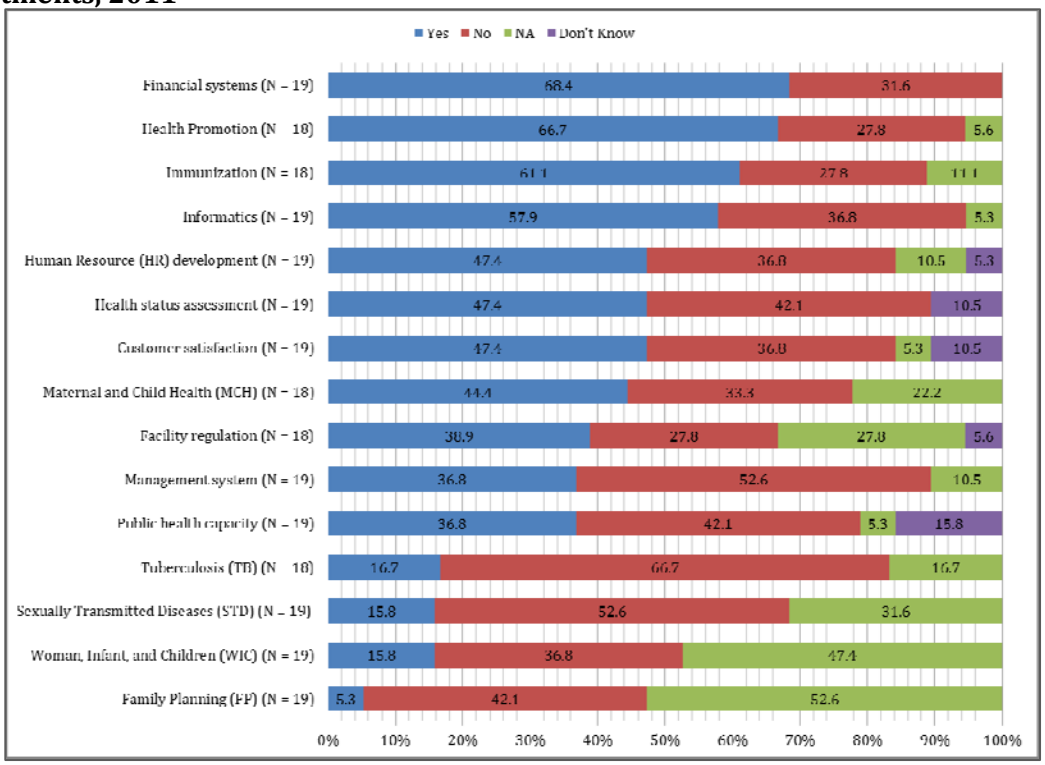


Quality Improvement Activities

The majority (79.0%) of respondents indicated that their LHD has implemented a formal process to improve the performance of a specific service, program, process, or outcome. More than one-half (56.3%) of those who indicated that their LHD has implemented a formal QI project also indicated that there have been consistent efforts for more than five years, whereas 6.3% indicated efforts have been consistent for less than one year. Furthermore, among the LHDs that have implemented a formal project within the last 12 months (N = 8), a median of 3.0 formal projects have been implemented.

Figure 3 shows the programs or administrative areas that have been targeted for QI within Nebraska's LHDs. More than 60.0% of LHD directors indicated that the following programs or administrative areas are targeted for QI: financial systems, health promotion, and immunization. However, less than 20.0% of LHDs indicated that the following programs or administrative areas have been targeted for QI: tuberculosis; sexually transmitted diseases; women, infants, and children; and family planning. Furthermore, 15.8% consider financial systems and public health capacity as the primary program or area targeted for QI in their LHD; 10.5% consider health promotion, immunization, management systems, and maternal and child health as the primary program or area targeted for QI; and 5.3% consider health status assessment and human resource development as the primary program or area targeted for QI (N = 19).

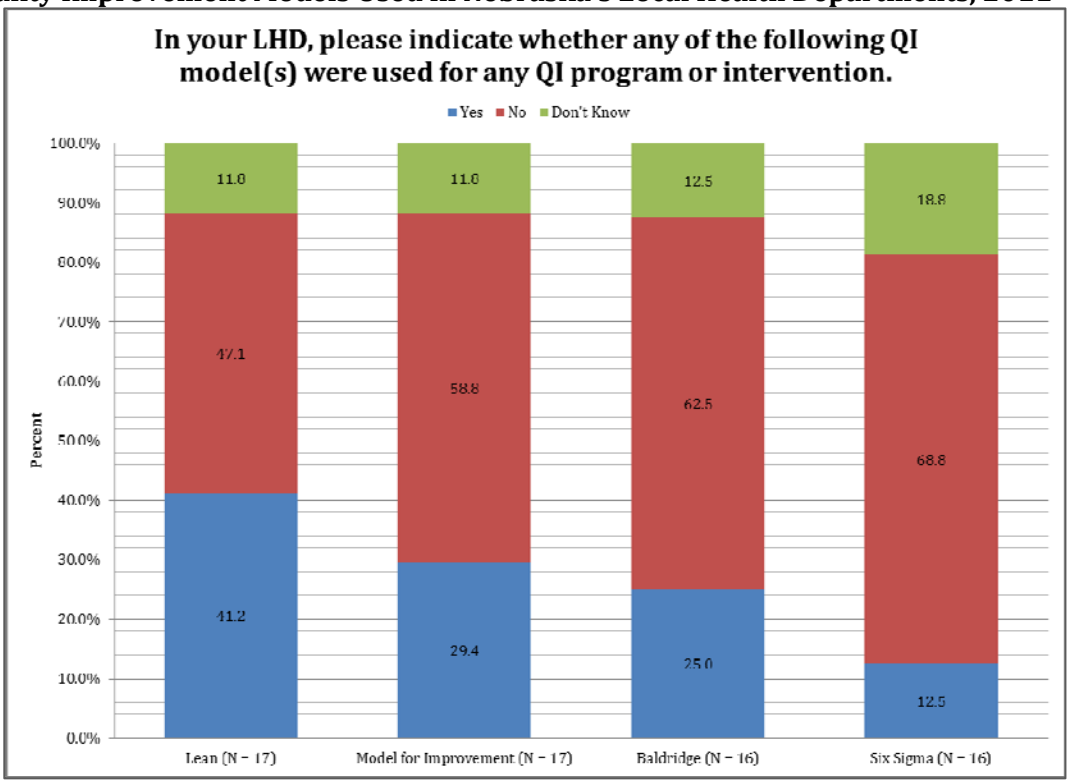
Figure 3. Programs or Administrative Areas Targeted for Quality Improvement within Nebraska's Local Health Departments, 2011



Specific Quality Improvement Strategies

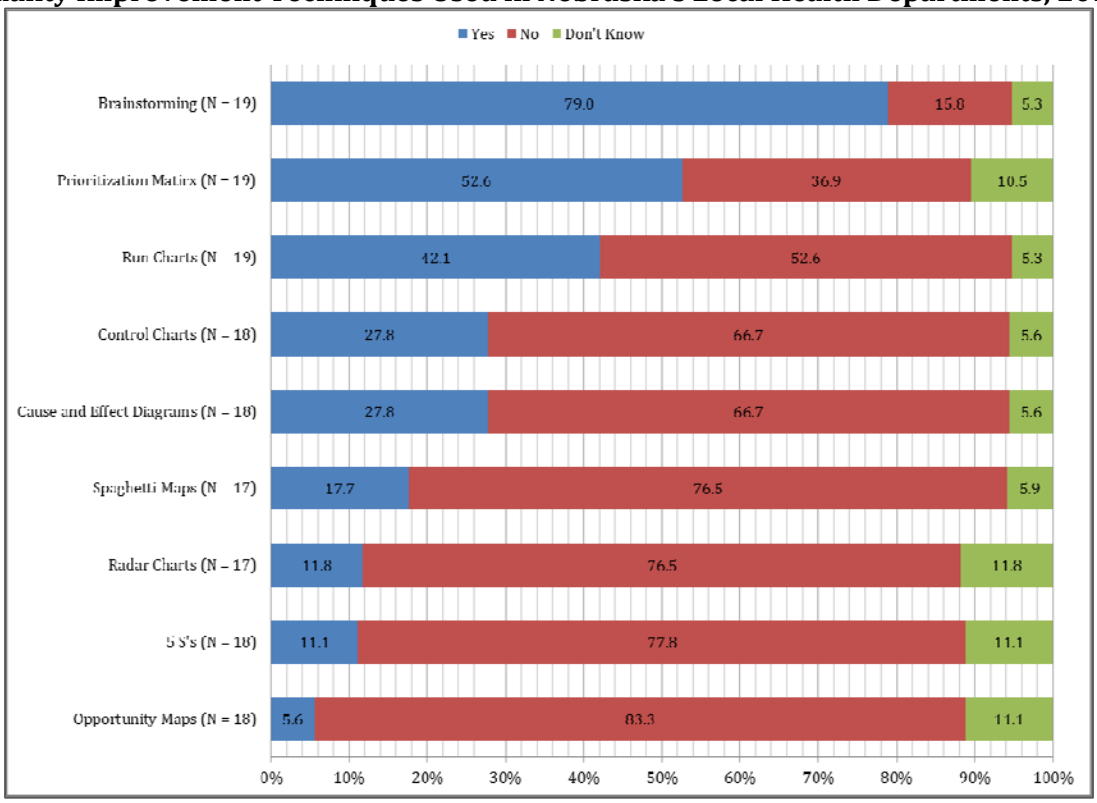
Slightly less than one-half (47.4%) of respondents indicated that their LHD has used a QI model for a QI program or intervention. Figure 4 shows the specific types of models used within Nebraska's LHDs. Less than one-half (41.2%) used Lean for a QI program or intervention, 29.4% used Model for Improvement, 25.0% used Baldrige, and 12.5% used Six Sigma. Additionally, 52.6% of directors indicated that an aim statement has been articulated for the QI program or intervention. About 47% of directors indicated that defined change concepts, specifically Plan-Do-Study-Act cycles, have been used for a QI program or intervention.

Figure 4. Quality Improvement Models Used in Nebraska's Local Health Departments, 2011



Furthermore, slightly less than one-half (47.1%) of directors indicated that QI techniques have been used for a QI program or intervention. Figure 5 shows the specific types of techniques that have been used within Nebraska's LHDs. The majority (79.0%) of LHDs have used brainstorming, 52.6% have used prioritization matrices, and 42.1% have used run charts. Few LHDs have used opportunity maps (5.6%), the 5 S's techniques (11.1%), and radar charts (11.8%).

Figure 5. Quality Improvement Techniques Used in Nebraska's Local Health Departments, 2011



Less than one-half (44.4%) of directors indicated that QI measures or metrics have been used for a QI program or intervention. About half (47.4%) indicated that "ongoing monitoring" has been used for a QI program or intervention, 36.8% used "process capability," and 5.3% used "process stability." Additionally, LHDs collected data through group meetings (47.4%), surveys or questionnaires (47.4%), focus groups (42.1%), personal interviews (42.1%), and existing databases (42.1%). Respondents also indicated that the following statistical methods or analyses have been used: time series analysis (31.6%), statistical process control (21.1%), and multifactorial analysis (16.7%). Overall, more than half (52.6%) of the respondents felt that the adopted quality measures are appropriate for the QI program or intervention in their LHD, whereas 10.5% did not feel that the measures are appropriate. Furthermore, 57.9% of the respondents felt that the measures are relevant in the practice setting, whereas 5.3% did not feel that the measures are relevant.

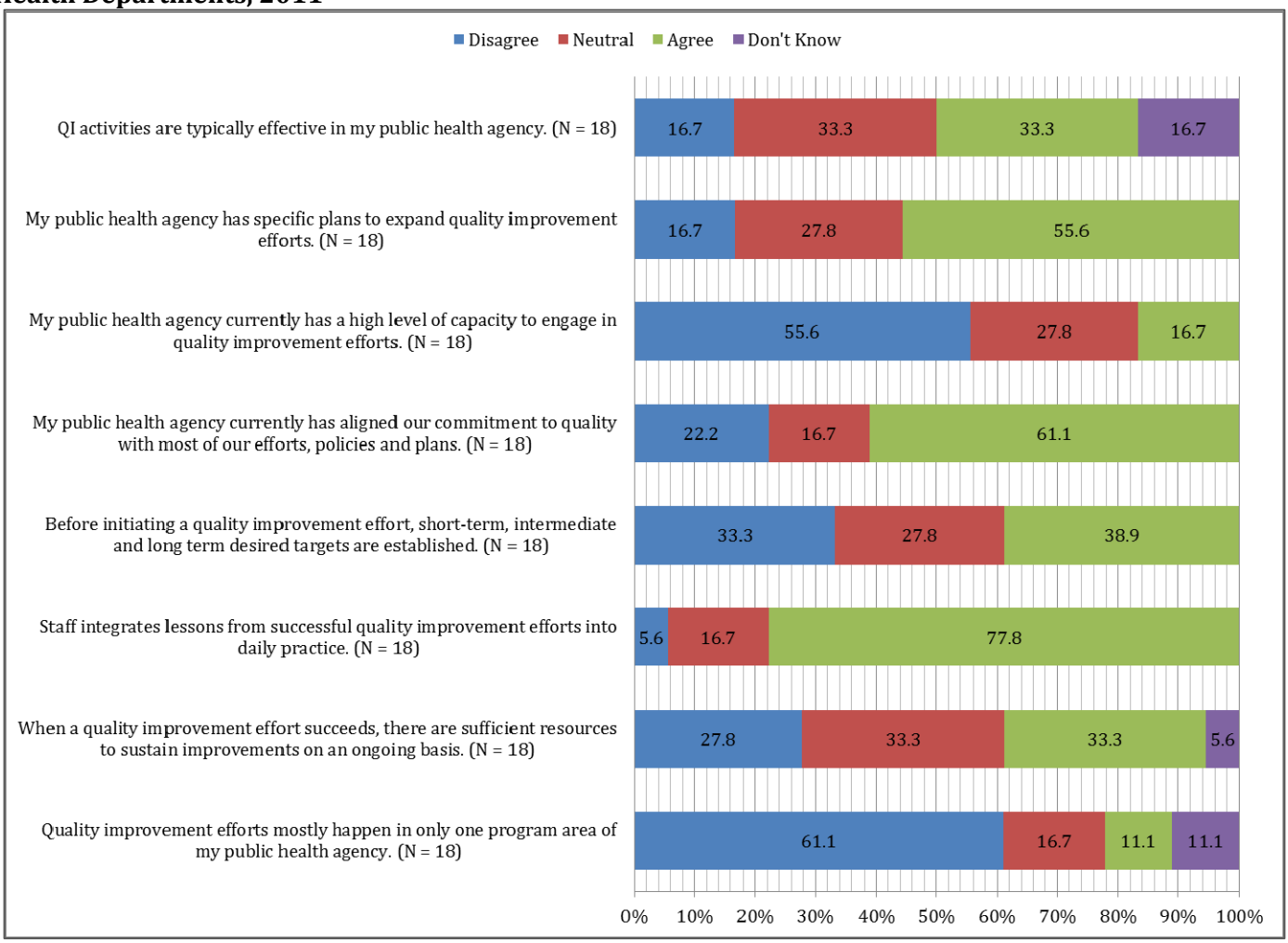
Overall, 31.6% of LHD directors felt that the QI strategies employed are appropriate for the QI programs or interventions in their LHD. On the other hand, 15.8% did not feel that the strategies are appropriate. More than one-third (38.9%) of LHD directors further described the outcome of the QI program or intervention in their LHD as an "incremental improvement," 11.1% as "no change," and 5.6% as a "breakthrough improvement."

Opportunities and Barriers

Figure 6 shows the degree to which respondents agreed with statements regarding the opportunities and barriers to QI implementation. Although only one-third of directors felt that QI activities are typically effective in their LHD, more than half (55.6%) indicated that their LHD has specific plans to expand QI efforts. Almost two-thirds (61.1%) of directors indicated that their LHD has aligned their commitment to QI with most of their efforts, policies, and plans. The majority (77.8%) of directors indicated that their staff integrates lessons from successful QI efforts into daily practice.

On the other hand, more than half (55.6%) of directors indicated that there is not a high level of capacity to engage in QI efforts within their LHD. In fact, one respondent noted a need for "an experienced, dedicated staff person to help with education and the process." Furthermore, almost one-third (27.8%) of directors indicated that there are insufficient resources to sustain improvements on an ongoing basis when a QI effort succeeds. Respondents indicated that there are insufficient resources, including time, money, and staff. Directors also noted that there are other challenges, including a need for appropriate "training in applicable QI measuring systems" and "techniques." Limitations to data collection and accessibility were also noted as a challenge to QI implementation.

Figure 6. Opportunities and Barriers to Quality Improvement Implementation in Nebraska's Local Health Departments, 2011



Acknowledgements

We thank the directors of Nebraska's local health departments for their participation in this study. We also thank the members of the Nebraska Public Health PBRN Steering Committee for their input and Sue Nardie for her help with editing this brief.