Quality Improvement Strategies for Public Health Emergency Preparedness

RAND Webinar
November 19, 2008

Presenters:
Debra Lotstein, MD, MPH
Jeanne Ringel, PhD
April Swartout, MPA
Acknowledgements

• Project of the RAND Public Health Preparedness Program
  – Initiative of RAND Health, a division of the RAND Corporation

• Project Sponsors
  – Robert Wood Johnson Foundation
  – Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Services
Session Objectives

• Understand how quality improvement (QI) methods can be applied to public health emergency preparedness (PHEP)

• Learn about the experience of a pilot QI learning collaborative in PHEP

• Learn about using small scale drills for performance assessment and continuous improvement
Session Outline

1. The Need for QI in Public Health Emergency Preparedness
2. The PREPARE for Pandemic Influenza Approach to QI in PHEP
3. Experiences of a PREPARE team: Genesee County Health Department
4. Overview of the PREPARE for PI Quality Improvement Toolkit
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1. The Need for QI in Public Health Emergency Preparedness

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4. Overview of the PREPARE for PI Quality Improvement Toolkit
Substantial Effort to Improve PHEP, But Gaps Remain

- Over $6 billion invested since 2001

- Progress has been made, but improvement has been slow
  - Lack of clear goals and measures of preparedness have hampered improvement efforts

- Recent events have highlighted that there is still much work to be done
Accountability and Quality Improvement
Go Hand-in-Hand

• Increasing demands for performance accountability
  – PAHPA Legislation

• Measurement is a key element of accountability

• Quality Improvement methods offer a way to improve and measure performance
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Could QI Methods Help Close Quality Gaps in PHEP?

• What is Quality Improvement (QI)?
  – A systematic, data-driven, outcomes-based approach to improving performance

• Developed in manufacturing, recently applied to health care

• No widespread use of QI methods in public health agencies for preparedness
Adapting QI to PHEP:
The PREPARE for Pandemic Influenza Pilot Learning Collaborative

- Planning team:
  - RAND
  - Center for Healthcare Quality at the Cincinnati Children’s Hospital Medical Center

- Advisory expert panel

- Five partner public health agencies
Adapting QI to PHEP:
The PREPARE for Pandemic Influenza Pilot Learning Collaborative

Partner Public Health Agencies

- Baltimore City Health Department (MD)
- Genesee County Health Department (MI)
- Multnomah County Health Department (OR)
- Virginia Health Department
- Georgia Division of Public Health
Design of Pilot Learning Collaborative

• Worked together for 10 months
  – Three in-person meetings
  – Monthly progress reports
  – Individual and group calls between meetings

• Ongoing feedback and evaluation by participants
A Four-Part Approach for Implementing QI

1. Identify the aim
2. Map the process
3. Measure performance
4. Make changes for improvement
1. Identify the Aim:

Using the PREPARE Framework

Outcome
Minimized morbidity, mortality and social disruption
1. Identify the Aim:
Using the PREPARE Framework

TRIGGER
Threat of occurrence of health emergency
1. Identify the Aim:
Using the PREPARE Framework

Key PHEP Domains

- Surveillance
- Command & Control
- Case Reporting & Investigation
- Risk Communication
- Disease Control
- Disease Treatment

TRIGGER
Threat of occurrence of health emergency

OUTCOME
Minimized morbidity, mortality and social disruption
Identify the Aim:
Using the PREPARE Framework

Key PHEP Domains
- Surveillance
- Command & Control
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- Disease Control
- Disease Treatment

TRIGGER
Threat of occurrence of health emergency

Clear Decision Making & Coordination
Supportive Legal Climate
Community Engagement
Robust Supply Chain
Strong Leadership
Trained Staff & Volunteers

OUTCOME
Minimized morbidity, mortality and social disruption

Supporting Factors
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2. Mapping the Process to Accelerate Improvement

- Focuses improvement team’s efforts on discrete steps of the process
- Helps identify:
  - performance goals and measures
  - potential changes to test
- Helps identify smaller “chunks” for testing
- Leads to more effective and efficient improvement efforts
Process Mapping Helps to Focus Improvement Efforts

Example of Accurate and Effective Risk Communication

Identify goals

Event occurs

Population receives and understands message
Process Mapping Helps to Focus Improvement Efforts
Example of Accurate and Effective Risk Communication

Identify processes to reach goals

Event occurs

Decision made to release message to the public
Create message
Coordinate message with other agencies
Get approval to issue message
Issue message

Population receives and understands message

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Measure Performance

• Good QI measures tell you:
  – How well a process is working
  – If desired outcomes are being achieved

• Frequent, repeated measurement is important to track change over time

• The best measures are relatively easy to collect
  – Gathered from existing databases when possible
  – Clearly defined to assure accuracy of information over time and location
Process Mapping Helps to Identify Performance Measures
Example of Accurate and Effective Risk Communication

Develop measures of success

Event occurs

**Time to issue interim guidance to public**

1. Decision made to release message to the public
2. Create message
3. Coordinate message with other agencies
4. Get approval to issue message
5. Issue message

**Time to create message**

Population receives and understands message
Process Mapping Helps to Identify Performance Measures
Example of Accurate and Effective Risk Communication

Develop measures of success

Event occurs

Decision made to release message to the public

Create message

Coordinate message with other agencies

Get approval to issue message

Issue message

Time to issue interim guidance to public

• % population reached --including vulnerable groups
• % population who understands message

Population receives and understands message

Time for public to get message

Time to create message

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4. Making Changes for Improvement

• Adapt good ideas and best practices to your agency

• Use exercises or drills to test and develop improvements

• Identify day-to-day processes to use as “proxy” for rare emergency capabilities
  – Can help improve the day to day
  – Helps to prevent “preparedness burnout”

• Develop and implement changes using small scale, rapid cycle tests: PDSA cycles
Use Repeated, Small Test Cycles to Develop and Implement Ideas for Change

Plan-Do-Study-Act (PDSA) Cycle

Act | Plan
---|---
Study | Do
Use PDSA Cycles to Test and Implement Changes

Plan the details of the test and predict the outcome of the test
Use PDSA Cycles to Test and Implement Changes

- **Plan**: Plan the details of the test and predict the outcome of the test.
- **Do**: Conduct the test and collect data.
Use PDSA Cycles to Test and Implement Changes

- **Plan**: Plan the details of the test and predict the outcome of the test.
- **Do**: Conduct the test and collect data.
- **Study**: Compare predictions to the test results.
Use PDSA Cycles
to Test and Implement Changes

Act: Take action based on the new knowledge

Study: Compare predictions to the test results

Plan the details of the test and predict the outcome of the test

Do: Conduct the test and collect data
Using Repeated PDSA cycles over time leads to changes that result in improvement


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Genesee County Health Department

- **Location:** Genesee County, Michigan (with office/clinic locations in Flint and Burton)

- **Population of Genesee County:** 439,000*

- **Staff size:** 140

- **Government:** governed by a nine-member Board of Commissioners each of whom is elected from a unique district within the County. In addition, the Department reports to a five-member advisory Board of Health. The GCHD is governed by the State’s Public Health Code and other rules, regulations and procedures adopted locally.

*U.S. Census Bureau, 2004 American Community Survey*
Genesee County Health Department
PREPARE team members

• **Ward Lindsay**
  – Development, Planning & Grants Supervisor
  – GCHD PIO

• **April (Carpenter) Swartout**
  – Public Health Program Coordinator

• **Carrie Chanter**
  – Health Educator

• **Kathy DeSnyder**
  – Epidemiologist
  – Emergency Preparedness Coordinator
Our AIM for Improvement

We will minimize the health and social impact of pandemic influenza in this jurisdiction by improving the accuracy, effectiveness, and timeliness of its risk communication and command and control. By February, 2007 we will develop the tools and implement the technology to provide quick and clear communication to our staff and to the public.

We plan to do this by:

– Reducing by half the time it takes to prepare risk communication messages. (RC)
– Assuring that 100% of staff has access to and ability to use pre-prepared messages to communicate with the general public. (RC)
– Reaching all staff within 90 minutes of an identified event to relay information. (CC)
Changes Tested: Command and Control

Reaching all staff within 90 minutes of an identified event to relay information.

• How long does it take GCHD staff to confirm receipt of an emergency email?
  – Conducted repeated small drills of emergency email alerts
  – Tests to shorten the time and improve response rate:
    • Give instruction in email to alert colleagues
    • Have email sent from Health Officer

• How long does it take for GCHD incident command staff to confirm receipt of a MI-HAN alert?
  – Will frequent tests improve speed and response rate?
Data from PDSA Cycles

% Responding within 90 Minutes

- ICS Staff
- Goal
- All Staff

Trial

Percent

30 40 50 60 70 80 90 100

0 30 60 90
Lessons Learned Command and Control

- Not all staff know how to properly respond to test communications, expecting that someone else will “take care of it”
- If adequate instruction and rationale are given to staff, a better and timelier response can be expected
- If an email is sent out by the Health Officer, it will receive more attention and response
- While striving to improve response time and response percentages, we recognize that we will never have 100% of GCHD staff available to respond during an emergency and we must plan ahead for that
Changes Tested: Risk Communication

Reducing by half the time it takes to prepare risk communication messages (target: 3 hours); assure 100% of staff has access to and can use pre-written messages

• Would using a communications checklist reduce the amount of time needed to develop and release messages to the public?

• Can pre-written message maps on pandemic influenza be used by any GCHD staff to create an educational, health related column for the local newspaper more effectively than just writing the column from scratch?
Lessons Learned Risk Communication

- Having a communications checklist helps make response more comprehensive and reduces time needed to get message out

- Draft communications need to be stored in a common folder with a logical file structure, enabling all staff to access and use prepared messages

- Message maps were easy to use; staff able to adapt to create press releases, news articles.
After PREPARE: Using Non-Emergency Activities to Improve PHEP Functions

• For the last two years, GCHD has used ICS to plan our annual PH Week Conference
  – Increased familiarity with ICS in real time
  – Found areas needed to improve ICS within the agency and able to make changes

• Have used the emergency checklist for communication about conference

• Process has built staff comfort and familiarity with emergency procedures
Overcoming Barriers to Change and Spreading QI Throughout the Agency

• Requires buy-in from management team first before approaching front-line staff with change strategies

• Requires cross divisional communication and collaboration

• Requires knowledge of using data collection devices/reporting

• QI is a way of thinking, not something “extra”

• Project’s success has built confidence to take on new efforts
Most Helpful Aspects of the PREPARE Collaborative

• Learning QI methods while doing a high-priority project

• Enhanced knowledge of colleagues’ roles in their own agencies

• Learning from other teams and from experts

• Strengthened relationships with community partners (e.g. hospitals, schools, media)

• Moved from planning to implementation
Next Steps to Promote QI in Public Health

• Continued development of reliable, valid, feasible performance measures

• Create incentives for QI efforts
  – Federal guidance
  – States to local health departments
  – Build into accreditation efforts

• Develop skill and knowledge base in public health community
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Preface
Summary
Chapter 1: Introduction
Chapter 2: The PREPARE Approach for QI in PHEP
Chapter 3: Implementing the PREPARE Approach to QI in PHEP
  1. Part 1: Identify the Aim
  2. Part 2: Map the Process
  3. Part 3: Measure Performance
  4. Part 4: Make Changes for Improvement
Chapter 4: Strategies and Tools for Improvement
  1. Surveillance
  2. Case Reporting and Investigation
  3. Command and Control
  4. Risk Communication
  5. Disease Control
  6. Disease Treatment
Chapter 5: Support from Leadership for QI in PHEP
Appendices
References
Glossary
Resources
Acknowledgements
In this chapter, we provide strategies and tools that can be used by public health agencies to help implement the PREPARE approach to QI. These include sample aims, process maps, performance measures, and change ideas. We have organized these ideas around the six key domains of public health emergency preparedness: surveillance, case reporting and investigation, command and control, risk communication, disease control, and disease treatment.

The tools were adapted from both the PREPARE collaborative and the experience of other health departments addressing PHEP performance. Some of the change ideas and tools have not been used previously as part of a formal QI process. However, we felt that these ideas could be successfully incorporated into a QI program. The chapter also includes stories from the PREPARE collaborative about how the health departments successfully used QI strategies to implement changes.
In this chapter, we provide strategies and tools that can be used by public health agencies to help implement the PREPARE approach to QI. These include sample aims, process maps, performance measures, and change ideas. We have organized these ideas around the six key domains of public health emergency preparedness: surveillance, case reporting and investigation, command and control, risk communication, disease control, and disease treatment.

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Risk Communication

1. What aim does the agency want to achieve?
   The agency can effectively educate the community about emergency preparedness prior to an event. The agency is able to rapidly and effectively deliver critical health messages to, and respond to inquiries from, the public throughout the course of an emergency, and it can provide information that is medically and culturally appropriate for special populations.

2. Mapping the Process
   The high-level process map in Figure 4.4 shows the key activities involved in communicating with the public about risk. The process begins with the decision to release a message and then lays out the activities involved in developing and disseminating the message, such as deciding on the level of the response needed (e.g., need for a Joint Information Center or call center), creating and updating the message, approving the message, and coordinating with partners.

   A public health agency might carry out more detailed steps within each high-level activity. For example, one department might have a specific process in place for creating and updating a message. Similarly, there may be a series of steps involved in getting a message approved.
Figure 4.4
Process Map of Risk Communication

Event occurs
Communications office/PIO notified

Risk Communication

ISSUE message

Co-ordinate release with other agencies

Approve message

Create/update messages

Determine delivery modes (TV, radio, print, other)

Decide level of communication response (e.g. need for MS, call center?)

Decide to release message to Public

Population receives and understands message
Sample Measures:

1. Time to create message after decision is made that risk communication to public is needed.

2. Time to obtain final message approval, once message created.

3. Time to issue message to the public (once approved).

4. Overall time to issue critical health message to public after an event of urgent public health consequence.

5. Percentage of target population reporting knowledge of critical health message
Making Changes for Improvement
The following change ideas focus on decreasing the time needed to issue a high-quality critical health message by identifying activities that are taking the most time (e.g., creating a message, approving a message) and working to improve performance in those activities:

- Prepare and test a checklist of processes to issue an urgent public health message. During the PREPARE collaborative, the Genesee County, Michigan, Health Department streamlined its message-approval process and then standardized it by creating a checklist. See story below. (Measures 1, 2, 3, and 4)

- Prewrite messages about pandemic influenza (with messages appropriately targeted to vulnerable populations) before an emergency, anticipating common information needs for emergency communications. Having written messages in place before an emergency event occurs will help ensure that high-quality messages can be disseminated quickly, even if they have to be revised slightly for the specific event.
In quality improvement (QI) for public health emergency preparedness, a strategy that has the potential to improve a PHEP process, whether by altering an existing activity or implementing a new one.

The following change ideas focus on decreasing the time needed to issue a high-quality critical health message by identifying activities that are taking the most time (e.g., creating a message, approving a message) and working to improve performance in those activities:

- Prepare and test a checklist of processes to issue an urgent public health message. During the PREPARE collaborative, the Genesee County, Michigan, Health Department streamlined its message-approval process and then standardized it by creating a checklist. See story below. (Measures 1, 2, 3, and 4)

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Genesee County also standardized the internal message-approval process by creating a checklist that would be easily available to staff in the event of an emergency (following the principle of safety checklists that pilots might use prior to takeoff to prevent errors). Testing these new procedures in response to actual events that occurred during the PREPARE collaborative, they found that they were able to reduce the amount of time needed to prepare messages and disseminate messages from eight to two hours. A copy of their checklist can be found in Appendix D.

If an emergency occurred during which many of the usual communications staff might not be available, standardizing these processes and explicitly providing instructions for their use will enable all staff to follow these processes accurately and efficiently.
APPENDIX D

Genesee County Health Department Emergency Communications Checklist

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME STARTED</th>
<th>EVENT</th>
<th>p/a</th>
<th>Staff Assigned</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>p/a</td>
<td>Staff Assigned</td>
<td>Press release – develop and release to public/media</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p/a</td>
<td>Staff Assigned</td>
<td>Email GCHD staff – communication of event and considerations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p/a</td>
<td>Staff Assigned</td>
<td>Q &amp; A fact sheet – develop and distribute to GCHD staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p/a</td>
<td>Staff Assigned</td>
<td>Phone script – develop and distribute to clerical staff</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p/a</td>
<td>Staff Assigned</td>
<td>Hotline – develop script and record</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p/a</td>
<td>Staff Assigned</td>
<td>Web page – update with active web links and supporting documents</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>p/a</td>
<td>Staff Assigned</td>
<td>Flint Journal article – contact/write article</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Media Monitoring</th>
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<tbody>
<tr>
<td>Other</td>
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<td>Other</td>
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<td>Other</td>
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<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME STARTED</th>
<th>TEAM LEADER</th>
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Message maps are a collection of short, three-line answers to specific questions about a disease that help organize complex information and make it easier to express current knowledge. They are a resource that can be used to prewrite risk communication messages. Using message maps can help agencies to write effective risk-communication messages quickly. DHHS has developed message maps on a wide array of pandemic-related topics. During the PREPARE collaborative, [Click to go to Web site] series of PDSAs using message mapping. A brief summary of key message mapping principles and a description of the PREPARE exercise are available in Appendix C.

The Emergency Communications Toolkit is another useful resource for preparing materials for all-hazards emergency risk communication. It incorporates CDC's emergency risk communication materials and provides guidance for identifying audiences, developing key messages, and choosing a spokesperson. The kit also contains sample press releases, including one for pandemic influenza. The kit can be found on the Washington State Department of Health Web site. (Measures 1 and 4)
Pandemic Influenza Pre-Event Message Maps

The United States Department of Health & Human Services developed these avian influenza and pandemic influenza communication tools using the communication science-based message mapping development process.

“Message maps” are risk communication tools used to help organize complex information and make it easier to express current knowledge. The development process distills information into easily understood messages written at a 6th grade reading level. Messages are presented in 3 short sentences that convey 3 key messages in 27 words. The approach is based on surveys showing that lead or front-page media and broadcast stories usually convey only three key messages usually in less than 9 seconds for broadcast media or 27 words for print. Each primary message has three supporting messages that can be used when and where appropriate to provide context for the issue being mapped.

These pandemic influenza and avian influenza message maps are in the public domain. They may be used freely, including copying or redistributing on paper or electronically.
Pre-order your FREE copy of *PREPARE for Pandemic Influenza: A Quality Improvement Toolkit*

- Send your name, organization and address to preparedness@rand.org and enter “Requesting the PREPARE Toolkit” in the subject line

- The toolkit will be available for download from the RAND Center for Public Health Preparedness website by mid-December