

Utilizing the Advanced Tools of Quality Improvement to Understand the Challenges of Building Healthy Native Communities

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Introduction:

When public health professionals are confronted with complex community health or organizational issues or problems, they need to be able to analyze a lot of information quickly and efficiently to make the best possible decisions. The advanced tools of quality improvement (QI)^{2,3} help to synthesize a lot of information, identify the critical areas to focus on, and guide the decision making process.

As stated by H. L. Mencken, “For every complex question there is a simple answer and it is usually wrong.”⁴ The advanced tools of QI are designed to deal with complex issues by guiding those analyzing the issues to focus on hidden interrelationships that are not obvious without detailed analysis and away from simple answers and toward a process of continual refinement of the issue. The best possible decisions require analysis of information; the advanced tools of QI help synthesize and refine information to focus on the critical pieces before developing potential solutions.

The advanced tools of QI can be used to help sort through many interrelated strategic possibilities and help narrow them down into the vital few issues on which to focus scarce resources to make the biggest positive impact on the organization and the community. These vital few issues are usually hidden and not apparent when we first start to explore a strategic challenge. However, the advanced tools of QI help a team to focus on the few priorities that will move the organization to its desired future state as quickly as possible.

The advanced tools of QI take a systems approach of continuous refinement of the issue, progressing from one tool to the next in a defined application sequence. This is a process of constant refinement to help clarify the issue being investigated and its interrelated components. Figure 1 shows the general approach⁵ on how to use the advanced tools of QI in a problem solving sequence to resolve an important issue or problem. When used in sequence, the advanced tools of QI form a dynamic process that helps to continually

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² *Management For Quality Improvement: The New QC Tools*, S. Mizuno, editor, Productivity Press, ©1988

³ *The Public Health Quality Improvement Handbook*, R. Bialek, G. Duffy, and J. Moran, editors, ASQ Quality Press, ©2009, pp 189 – 213.

⁴ <http://www.brainyquote.com/quotes/quotes/h/hlmencke129796.html>, accessed April 30, 2014.

⁵ *The Public Health Quality Improvement Handbook*, R. Bialek, G. Duffy, and J. Moran, editors, ASQ Quality Press, ©2009, pp 190.

refine understanding of an issue or problem which narrows the scope and the approach to solve it.

General Approach on How to Use the Advanced Tools of Quality Improvement

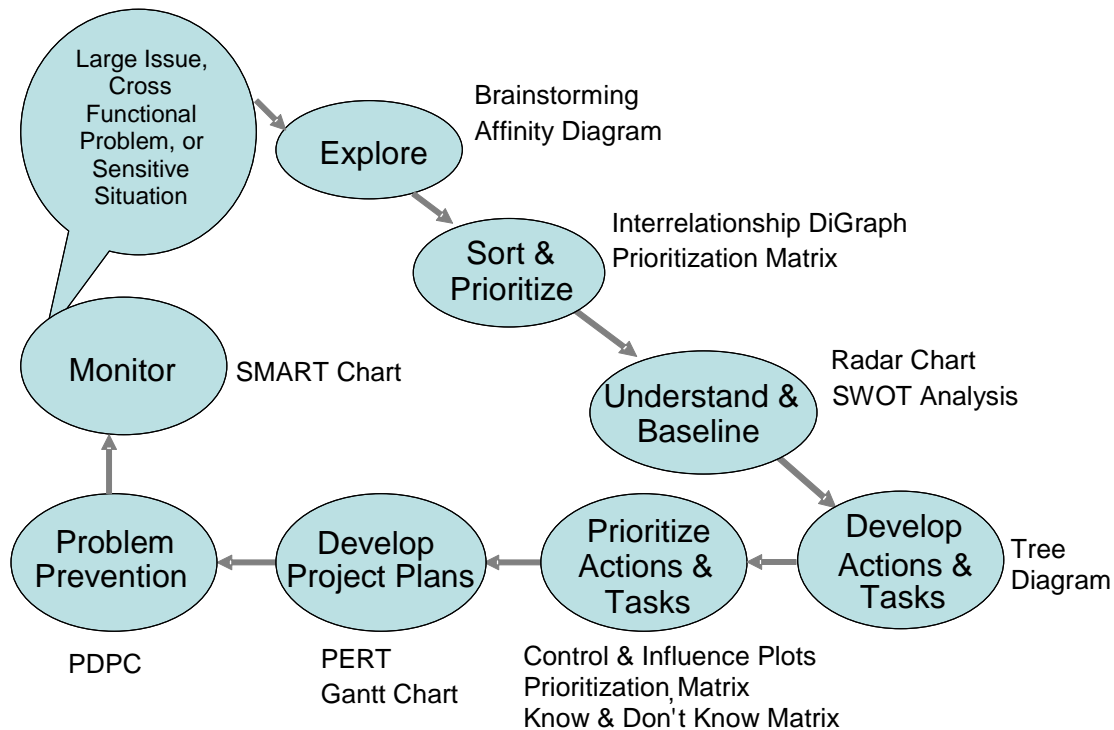


Figure 1⁶

This is a general flow and does not suit all situations that could arise. When using the advanced tools of QI, a team or individual should think through an approach and then adopt the best sequence of advanced tools of QI to fit the particular situation they are trying to solve.

Recent Application:

At the 2014 National Tribal Public Health Summit⁷, the authors conducted an interactive workshop to demonstrate how two advanced tools of QI can be used to help “Understand the Challenges of Building Healthy Native Communities.”

The two tools utilized during the workshop were the Affinity Diagram⁸ and the Interrelationship Digraph⁹. They were used to demonstrate how to surface issues around

⁶ Acronyms used in Figure 1: SMART is “Specific, Measureable, Achievable, Relevant, and Time-bound;” SWOT is “Strengths, Weaknesses, Opportunities, and Threats;” PDPIC is “Process Decision Program Chart;” and PERT is “Program Evaluation and Review Technique.”

⁷ Fifth Annual National Tribal Public Health Summit, March 31 – April 2, 2014, Billings, Montana.

⁸ *The Public Health Quality Improvement Handbook*, R. Bialek, G. Duffy, and J. Moran, editors, ASQ Quality Press, ©2009, pp 193 – 195.

the question “What are the Challenges of Building Healthy Native Communities?” and to understand how the various issues that surfaced are related.

An Affinity Diagram is a tool for gathering, grouping, organizing, and understanding large amounts of information and helps to identify and draw out common themes from the information which will surface hidden linkages. Affinity diagramming works well with brainstorming to organize a large number of ideas/issues.

The process to develop an affinity diagram used for this workshop was as follows:

1. A broad clear issue statement was developed and posted that focused the group at the macro level. The issue was “What are the Challenges of Building Healthy Native Communities?”
2. Workshop participants started with individual silent brainstorming and recorded each of their ideas on a Post-It® note making sure that each idea was a complete statement.
3. Then each participant read and randomly placed the ideas on flip chart paper that was posted on the wall. The participants were instructed not to place their ideas in any order since we do not want to suggest any patterns, categories, or headings in advance. They used the whole posting area to randomly post ideas. During this part of the process other participants asked for clarification when an idea was read, but there was no debate, just clarification.
4. Once all the ideas were posted, the participants engaged in a silent consensus process which included the following:
 - The entire team gathered around the posted notes
 - There was no talking during this step
 - Individuals looked for ideas that seemed to be related in some way
 - Post-It® notes that seemed to be related were moved around and placed side by side
 - These steps were repeated until all notes were grouped
 - Note: It was okay to have “loners” that did not seem to fit a group – these were outliers. It was alright to move a note someone else already moved. If a note seemed to belong in two groups, it was okay to make a duplicate note and post it in both groups.
5. After the ideas were grouped, participants discussed what the grouping patterns showed or uncovered and then developed a heading for each group of ideas. The heading that was placed at the top of a group of ideas had to clearly describe the group and was highlighted in a bright color to distinguish it from the ideas under it. When engaging in this exercise, it is important for headers to be clear and descriptive, and that accurately describe the grouping of ideas they represent. It also is important to take the time to do this step well since it is the foundation for the other tools in the process. An example of affinity diagramming is shown in Figure 2.

⁹ *The Public Health Quality Improvement Handbook*, R. Bialek, G. Duffy, and J. Moran, editors, ASQ Quality Press, ©2009, pp 199 – 201.

Issue Statement

What are the Challenges of Building Healthy Native Communities?

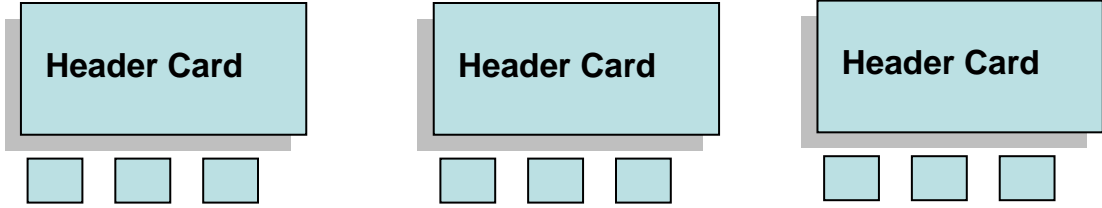


Figure 2

The output of the participants’ affinity process resulted in the seven header cards shown in Table 1.

Table 1

What are the Challenges of Building Healthy Native Communities?	
Header Card	Post-It[®] Notes In Each Grouping
1. Leadership Involvement	Perception of health not important
	No tribal support
	Lack of involvement and organized support
	Hypocrisy – lack of modeling
	Tribal legislature inconsistent with goals
2. Geography as a Barrier	Diverse communities across a large service area
	Lack of transportation
	Hard to get Tribal members together – live far apart
	Services located far from need
3. Need to Define and Prioritize Health Needs	Need to define what is “Native Healthy and Native Unhealthy”
	Define what is good community health
	No consensus on what issue is most important – no place to start
	Need to prioritize what needs to be improved and how
	There is a lack of data for AIANS
	Poor/Lack of data collection

(Table 1 continued)

<u>Header Card</u>	<u>Post-It® Notes In Each Grouping</u>
4. Risk Factors	Lack of healthy food
	High commercial tobacco smoking rates
	Poverty makes people think healthy communities are not attainable
	High poverty rates prevent AIANs from accessing other resources like healthcare, food, housing, etc.
5. Native Communities are resistant to change	Effects of generational historical trauma
	Trust issues
	Health not valued
6. Community Involvement/Partnership/Collaboration	No good coordination between tribal departments serving high need families
	Little knowledge of how to get community involvement
	Lack of communication
	Low community engagement and interest in prioritizing health
	Not getting the word out to other stakeholders
	Lack of education related to health
7. Limited Access to Health Resources	Lack of prevention activities
	Lack of training for patient care staff
	Lack of staff to lead healthy extra activities
	Lack of staff to carry out programming
	Limited access to providers especially dentists
	Lack of funding
	Funds/Resources used to “fix” not “prevent”
	Lack of infrastructure
	Shortage of qualified and educated staff
	Medical clinics and Tribal public health programs work in silos
	Level of capacity may not meet the needs gap
	No fluid system of care within the health department

Once workshop participants agreed on the affinity categories, an Interrelationship Digraph (ID Graph) was used to help visualize how the various group headings of the issue, “What are the Challenges of Building Healthy Native Communities?” were related and discover any hidden linkages. The process to develop an ID Graph is as follows:

1. Use the header cards from the affinity diagram and spread them out on a large work surface covered with flip chart paper.
2. Start with one header card and compare it to all the other header cards. Continue this process until all the header cards have been compared to all the others.

3. When comparing header cards use an "influence" arrow to connect related header cards.
4. The arrows should be drawn from the header card that influences to the one influenced. A question to ask when comparing header cards is:
 - Does this card cause any others to happen or is it a result from another card(s). If the answer is "yes" draw a line connecting them. If the answer is "no" do not draw a line connecting them and move on to the next paired comparison.
5. Then determine the strength of the relationship by assigning a "1" for a weak relationship, a "5" for a medium relationship, and a "10" for a strong relationship.
6. Use only one-way arrows. The arrow should point toward the effect and away from the cause.
 - Outgoing arrow = basic cause – if solved spillover reaction on a large number of other issues
 - Incoming arrow = secondary issue or bottleneck
7. Once all the comparisons are completed, count the number of In Arrows, Out Arrows, and the total strength assigned for each header card. An example of one set of comparisons developed by the workshop participants is shown in Figure 3.
8. The header card with the most outgoing arrows and highest strength will be a driver or root cause. The one with the most incoming arrows and highest strength will be a bottleneck, outcome, or result.
9. The tabular results of the arrows and strength can be captured on the ID Graph, but as the number of comparisons increase the graph will become messy and difficult to follow. To help with the analysis a matrix summary diagram is employed to show the relationships and strengths among all the header cards as shown in Figure 4. If there are blank sections in the matrix it indicates there was no relationship indicated.

One thing that is not captured in the ID process is the rich conversation that takes place during the development of an ID Graph which is very valuable since people are exposed to a wide variety of knowledge and experience of the other participants to help them in their decision making.

Analysis:

As shown in Figure 4, the main driver of the header cards was "Native Communities are Resistant to Change" which had the highest strength score and was a driver of all the other categories. There were two main bottlenecks noted: "Limited Access to Health Resources" and "Risk Factors" which had all In arrows. Therefore, as we make improvements to "Native Communities are Resistant to Change" it should drive changes in "Limited Access to Health Resources" and "Risk Factors."

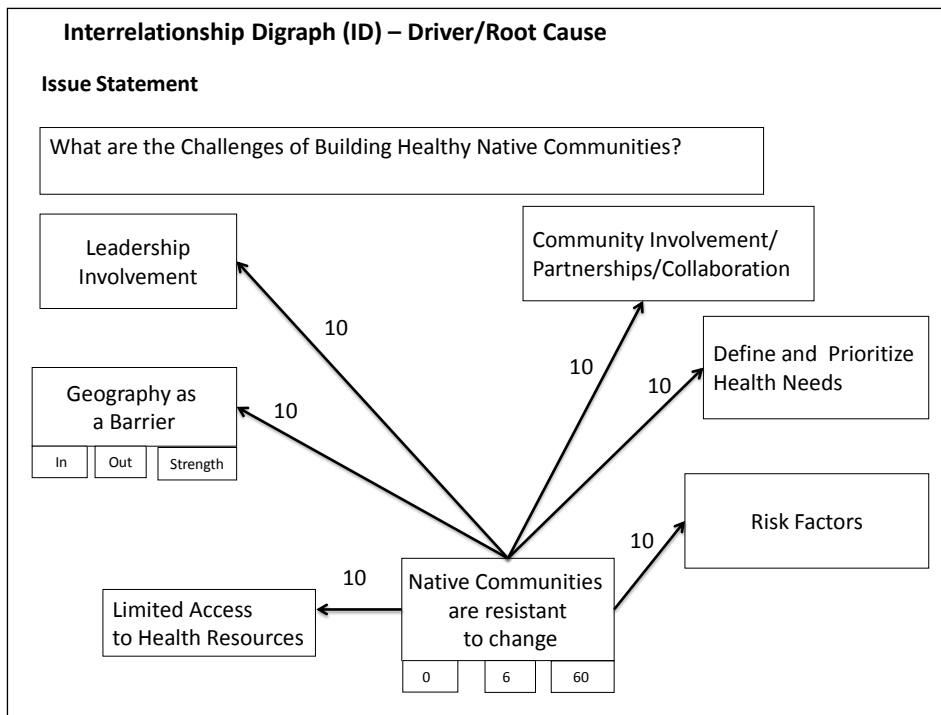


Figure 3

Interrelationship Digraph

What are the Challenges of Building Healthy Native Communities?

	1	2	3	4	5	6	7	# In	# Out	Strength
1. Leadership Involvement			↑ 10	↑ 10	← 10	↑ 5	↑ 10	1	4	45
2. Geography as a Barrier			↑ 10	↑ 5	← 10		↑ 5	1	3	30
3. Define and Prioritize Health Needs	← 10	← 10			← 10	← 5	↑ 5	4	1	40
4. Risk Factors	← 10	← 5			← 10	← 5		4	0	30
5. Native Communities are Resistant to Change	↑ 10	↑ 10	↑ 10	↑ 10		↑ 10	↑ 10	0	6	60
6. Community Involvement/Partnerships/Collaboration	← 5		↑ 5	↑ 5	← 10		↑ 5	2	3	30
7. Limited Access to Health Resources	← 10	← 5	← 5		← 10	← 5		5	0	35

Figure 4

The next step in the process, which was not covered in the workshop because of time constraints, is to take the top prioritized header cards and detail them into action steps using a Tree Diagram that provides potential solutions to the header cards. When the Tree Diagram is being constructed on a prioritized issue this is when the team can gather data and evidence to support the interrelationships that were defined to ensure they are valid. This step serves as a check on decisions made about where to focus before developing solutions to the original issue. It is always best to verify and validate with data and evidence whenever possible to ensure the team is making quality decisions.

Summary:

The output from this exercise was the synthesis of ideas from those who participated in this workshop from many different tribal health departments who brought different concerns, challenges, and perspectives. The participants were able to apply lessons from the presentation to a practical issue that is faced by the public health community. As the participants experimented with the Affinity Diagram, they were able to work with new colleagues in the session and organize their thoughts in logical groups in a manner that allowed the groups to reach consensus. The participants also practiced moving from the Affinity Diagram to the Interrelationship Digraph (ID Graph). In the ID Graph activity, participants were able to see the relationships between the issues identified in the Affinity Diagram on “What are the Challenges of Building Healthy Native Communities?”

The process of determining how the identified issues related to one another and the direction of the impact from one issue to the other was somewhat challenging to do in a short period of time. Reaching consensus required additional time. Also, participants struggled with identifying a one-way direction for the arrows from one issue to the next. The exercise was time bound by the workshop’s length; other categories could have emerged had there been more time for the process.

We encourage you to try this exercise and the tools with your staff to help your organization understand and develop approaches to the challenges it will face in building healthy Native communities.