Building Capacity and Capability for Quality Improvement with the Dosing Approach

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Source: The material presented in this summary has been excerpted from Dr. Lloyd's book, *Quality Health Care: A Guide to Developing and Using Indicators*. 2nd Edition, Jones & Bartlett publishers, (forthcoming) 2017.

Background

When a medicine is prescribed a critical aspect of the effectiveness of the particular medication is the dose that is prescribed. The dose will differ, even for patients receiving the same medication, depending on the specific needs of the patient. This notion of dosing also applies to an organization's need to build capacity and capability for quality improvement. Not everyone within an organization need s to have the same "dose" of the science of improvement (SOI). Therefore, it is incumbent on the leaders of an organization to have a serious dialogue about the dose of the SOI that needs to occur at the macro, meso and micro levels of the organization. The dose, for example, that board members and senior leaders need will be different than that which middle managers and supervisors need. The dose of the SOI that those delivering care need to be effective in the QI efforts will be different from that which supervisors receive and both of these levels of knowledge will be different for those expected to coach and advise improvement teams.

The IHI has developed an approach to help organizations determine the proper dose of the SOI that is needed by different groups at different levels within an organization. Note that the dosing approach is not a statistical approach *per se* but rather an approach that is tailor-made to the organization interested in building capacity and capability for QI. The number of individuals at different levels of the organization are analyzed and estimates of the amount of SOI knowledge and skills are offered but these numbers will differ from organization to organization depending on:

- The number of employees in the organization
- The current status of the organization in its quality journey (i.e., just beginning, evolving or mature)
- The commitment of leadership to make quality a central component of their business strategy.

How do we build capacity and capability for QI?

Building capacity and capability (C&C) is not accomplished by sending staff to one-off "training" sessions. The C&C journey is not a singular event but rather an ongoing strategic and tactical commitment to prepare the organization for the future. Furthermore, the two concepts need to be clearly understood. They are not synonymous.

Organizations interested in building C&C need to start with an aim. For example, a straightforward aim for organization-wide improvement might be as follows: *To build a renewable infrastructure that produces highly reliable quality and safety by (fill in the date).* This journey follows a path that is laid out in Figure 1.

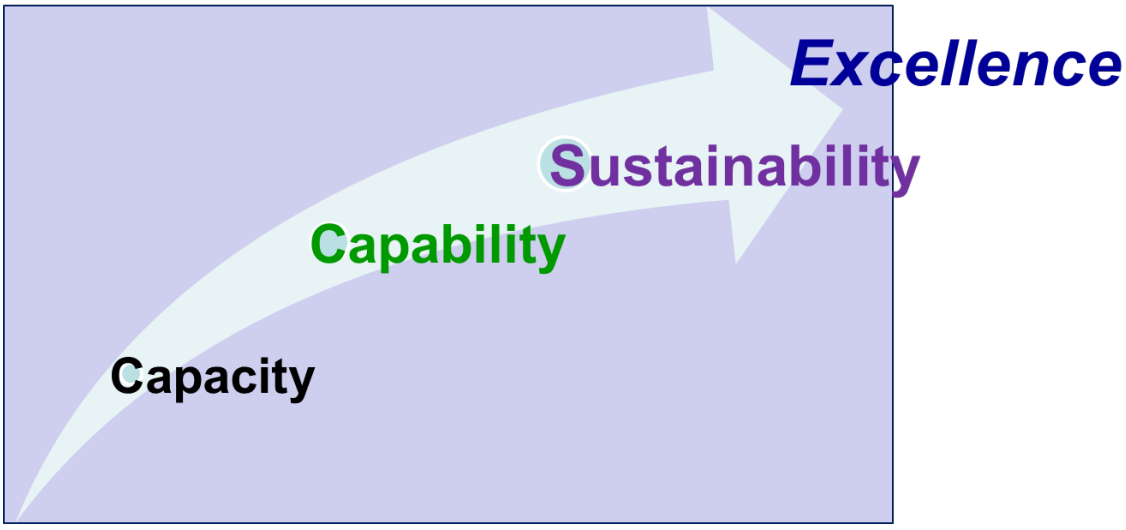

Figure 1. Milestones in the journey to build organizational excellence

Capacity refers to the following characteristics

- *The ability to receive, hold or absorb*
- *The maximum or optimum amount of production*
- *The ability to learn or retain information."*
- The power, ability, or possibility of doing something or performing
- A measure of volume; the maximum amount that can be held

Essentially building capacity refers to filling people with the knowledge, methods and skills of QI. It can be considered an initial step in creating the *potential* for an organization to improve but by itself building capacity provides no assurance that improvement thinking and applications will be part of the very fabric of daily life within the organization.

Capability refers to:

- The power or ability to generate an outcome
- The ability to execute a specified course of action
- The sum of expertise and capacity
- Knowledge, skill, ability, or characteristics associated with desirable performance on a job, such as problem solving, analytical thinking, or leadership
- Some definitions of capability also include motives, beliefs, and values.

If capacity is focused on filling people with the appropriate knowledge (i.e., giving them potential) then capability is releasing this potential energy and turning it into kinetic energy. That is, allowing people with knowledge and skills of QI to: (1) have protected time to apply the knowledge they have been given, (2) have access to structures and processes that support quality and safety initiatives, and (3) be part of a learning organization that values on-going learning and growth.

In a 2010 article, Beven highlighted the critical role of building capacity and capability: "*A focus on building capacity and capability for improvement is a key strategy. Global analysis of healthcare systems that deliver outstanding performance in cost and quality shows their most common characteristic is a systematic approach to capability building for improvement"*[1].

What types of skills are required for QI?

The skills required to make quality thinking and practice the guideposts for how an organization approaches work consist of:

- **QI philosophy and theory**
  - Understanding the differences between Quality Assurance, Quality Control and Quality Improvement
  - Having a firm grounding in the SOI theories articulated by Dr. Water Shewhart, Dr. W. Edwards Deming and Dr. Joseph Juran.

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1. Beven, H. "How can we build skills to transform the healthcare system?" Journal of Research in Nursing 15(2), 139-148, 2010.

- Selecting an approach to QI that can serve as a roadmap for the organization's quality journey. Note that more important than the decision as to which approach or model to QI is selected, is what Dr. Deming referred to as "constancy of purpose." Organizations that follow a "flavor of the month" approach to QI will not only lack direction and focus but will also send very mixed messages to the staff about where the organization is headed.

- **QI methods**
  - Applying systems thinking to all aspects of the organization
  - Viewing all work as an interconnected set of processes
  - Using analytic statistical thinking and methods to understand the variation that lives within the organization's data. This requires a fundamental shift away from the use of enumerative statistical methods (e.g., comparing averages or using red, amber and green rating and ranking schemas to make conclusions about performance).

- **QI tools**

  There are a variety of QI tools that need to be understood and used to help diagnose, analyze and drive improvement work. The various QI tools are critical to the success of improvement teams but they are not to be used in isolation of improvement strategies and action. All too often, individuals and teams become enamored with the use of tools such as flowcharting or cause & effect diagrams with little or no understanding of when the tools should be used and more importantly, how a particular tool fits into the QI journey.

  The basic tools of QI are shown in Table 1. Just like each surgical tool or instrument has a specific purpose so too do the QI tools. There are tools designed to assist in understanding the system that needs to be improved. A variety of tools are designed to assist with gathering and organizing information. Finally, there are tools to assist with understanding variation and exploring relationships.

  In addition to the tools summarized in Table 1, which are more quantitative in nature, there are also a variety of tools designed to help teams identify ideas for improving a process, tools to assist a team in deciding which improvement idea(s) they would like to pursue and how to set priorities. These tools are aimed at generating ideas (divergent thinking) and then helping

a team decide which improvement idea(s) they wish to pursue (convergent thinking). The tools related to divergent and convergent thinking are shown in Figure 2.

Connecting the dots!

Connecting the dots to make all of these components linked and highly functional is not as difficult as some would lead you to believe. It requires vision, a QI strategy and the commitment of leadership to provide the structures, processes and cultural context to make the vision a reality. The IHI has worked with a variety of organizations to demonstrate that quality can be the organization's business strategy. Figures 3 and 4 show how the East London Foundation Trust (ELFT) has initiated and continued its QI journey by applying the dosing approach to building its capacity and capability strategy. Figure 3 provides Version 1 of the ELFT dosing approach developed in 2014. It shows how at each level of the organization the "dose" of the SOI knowledge methods and tools has been customized to meet the role and function of each group. The various mechanisms for delivering the SOI knowledge are also identified as well as the number of individuals at each level that will receive the specific dose. Figure 4 provides the updated Version 2 of the ELFT dosing approach developed in 2017.

Building capacity and capability for improvement is not difficult. But, it does require the will to not accept the status quo as the organization's operating philosophy. It also requires the ability to generate new ideas for improvement and execution skills to be able to move the entire organization to the new level of desired performance. This journey begins, however, with figuring out the appropriate dose of the SOI that is required at different level of the organization.

Table 1. Methods and tools for improvement

Category	Method or Tool	Typical Use of Method or Tool
Viewing Systems and Processes	1. Flow Diagram	Develop a picture of a process. Communicate and standardize processes.
	2. Linkage of Processes (LOP) Map	Develop a picture of a system composed of processes linked together.
Gathering Information	3. Form for Collecting Data	Plan and organize a data collection effort.
	4. Surveys	Obtain information from people.
	5. Benchmarking	Obtain information on performance and approaches from other organizations.
	6. Creativity Methods	Develop new ideas and fresh thinking.
Organizing Information	7. Affinity Diagram	Organize and summarize qualitative information.
	8. Force Field Analysis	Summarize forces supporting and hindering change.
	9. Cause and Effect Diagram	Collect and organize current knowledge about potential causes of problems or variation.
	10. Matrix Diagram	Arrange information to understand relationships and make decisions.
	11. Tree Diagram	Visualize the structure of a problem, plan, or any other opportunity of interest.
	12. Quality Function Deployment (QFD)	Communicate customer needs and requirements through the design and production processes.
Understanding Variation	13. Run Chart	Study variation in data over time; understand the impact of changes on measures.
	14. Control Chart	Distinguish between special and common causes of variation.
	15. Pareto Chart	Focus on areas of improvement with greatest impact.
	16. Frequency Plot	Understand location, spread, shape, and patterns of data.
Understanding Relationships	17. Scatterplot	Analyze the associations or relationship between two variables; test for possible cause-and-effect.
	18. Two-Way Table	Understand cause-and-effect for qualitative variables.
	19. Planned Experimentation	Design studies to evaluate cause-and-effect relationships and test changes.

Figure 2. Divergent and convergent thinking tools

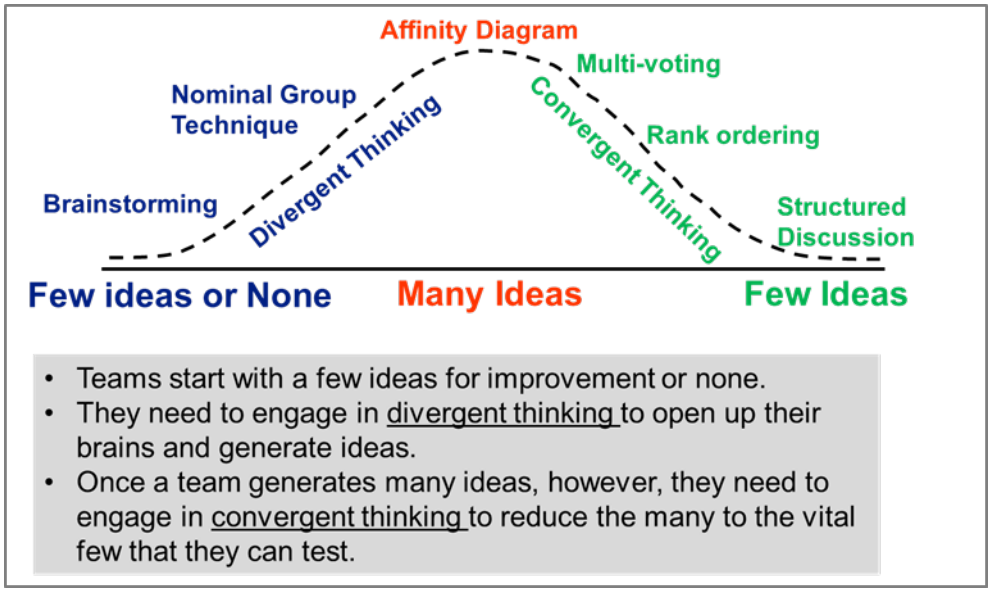

Figure 3. Applying the dosing approach at East London Foundation Trust (2016)

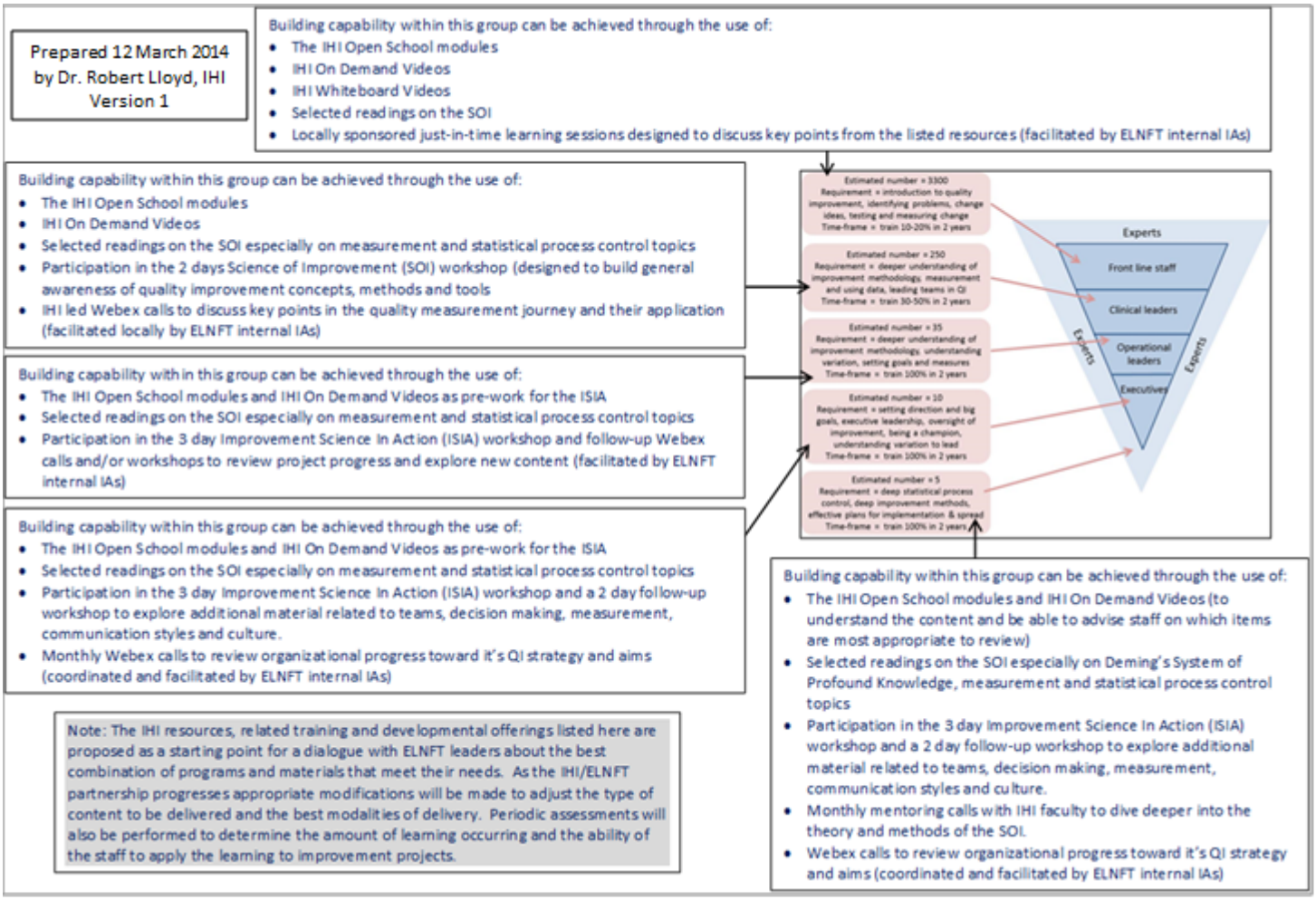

Figure 4.East London Foundation NHS Trust 2017 Dosing Approach (Version 2)