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DREAM/QFD to Redesign New Physician Orientation at Rutland Regional Medical Center

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Abstract

As a rural community hospital in the northeast US State of Vermont, Rutland Regional Medical Center competes for physicians who must weigh the advantages of rural lifestyles with the different salary expectation such positions often provide. Once a physician chooses our rural community hospital, it is incumbent on us to reinforce that choice by optimizing the new physicians work experience. The orientation process is not seen as a one-time event; rather as an iterative process beginning with the physician accepting the offer and continuing over the first 90 days with an opportunity for feedback from the physicians along the way, ultimately benefiting physician retention. QFD was seen as a powerful way to understand what is most important to new physicians in how our hospital should focus our efforts to make this experience the best possible.

Key words

Quality Function Deployment (QFD), Analytic Hierarchy Process (AHP), physician orientation, healthcare, Voice of the Customer (VOC), Design/Redesign Effectiveness Assurance Method (DREAM)

The Quality Journey at Rutland Regional Medical Center

In the 2008–2009 Annual and Community Report, Domenic M. Serino, CFRE, Executive Director of the Rutland Health Foundation, writes:

> Rutland Regional Medical Center is more than just a building: it is a community of highly skilled caregivers who all play a vital role in ensuring the best possible care to the greater Rutland community.

Under the guidance of our president, Thomas W. Huebner, we have established a vision: *to be the Best Community Hospital and Health System in New England.* This core organizational direction requires that we recognize our key customers — healthcare providers and especially our patients — as the very reason for our service to the Rutland community for more than 100 years. In order to transform and move the organization toward this vision, we have been using the Malcolm Baldrige National Quality Program on our "Journey to Excellence." Rutland Regional Medical Center's culture is shaped by our organization direction, including our mission, vision, values, and goals. Our five strategic goals include quality, growth, information excellence, financial strength, and employee engagement. Within our organization direction, physicians are a key customer segment, and having available and competent physicians is one of our key business drivers. Because of these factors, an initiative to redesign the physician orientation process was started in the summer of 2009. Our redesign of this process is the topic of this paper.

To help with the transformation of the organization, Rutland Regional employed the services of Douglas A. Horne and the Institute for Quality Advancement located in Toronto, Ontario. Doug, with roots in AT&T Canada and research with Michael Brassard of GOAL/QPC (author of the Memory Jogger[1] series), worked with Rutland Regional's senior leaders and key staff members to develop a multi-year transformation plan. Integral to the transformation plan was to develop an approach for process improvement. A process improvement transformation team was formed to develop this approach. The first order of business was to endorse a consistent methodology and to apply this to a number of our key processes. Our process improvement team comprised of senior leaders, leaders, and staff led the way. Up through 2005, we had exposure to and use of a wide variety of improvement methodologies across the organization: PDCA, PDSA, FOCUS-PDCA, LEAN/Six Sigma, and Institute for Healthcare Improvement's (IHI) Model. Our process improvement team studied, learned, and evaluated these various improvement methodologies to determine the approach that would best meet organization's direction. The team recommended the development of MEDIC, a "home-grown" methodology that marries best practice tools and techniques from the disciplines of process improvement, project management, and change/transition management. MEDIC was aptly named for its purpose and our organization — Method for Effective Diagnosis & Improvement of Causes. With similar roots to six sigma's DMAIC, Toyota's A3 Storyboard, and other problem-solving algorithms, an experienced training organization was selected to develop the curriculum and deliver the education program and coaching to our initial MEDIC project teams.

Initially this methodology was highly successful in some situations, but not in others. In line with our overall PDCA philosophy, our process management and process improvement approach includes a step for improvement of the methodology itself through cycles of evaluation and refinement. The evaluation of our initial experiences with MEDIC revealed the need for some improvements to the methodology, project structure, and supporting education. Furthermore, this evaluation also made us realize that we needed another, quite different, methodology; one that would enable us to completely redesign, or design, key processes.

This realization triggered the establishment of another transformation effort; the creation of our DREAM approach. A transformation team was established to research and develop this. Similarly to our development of MEDIC, we found numerous approaches from which to learn about this topic. Recognizing the organizational benefit of maintaining consistency, where appropriate with MEDIC, as well as other established aspects of our management system, we determined that it was best to develop an additional "home-grown" methodology that combined best practices in design/redesign including the appropriate use of the 7MP tools (for planning and management), project management, and change/transition management. DREAM was likewise named for its purpose: Design/Redesign Effectiveness Assurance Method. With similar roots to design for six sigma (DFSS), Stage-Gate®, and QFD, we selected an organization to develop the curriculum and deliver the education program in conjunction with our education staff. This includes coaching to our DREAM teams.

Rutland Regional delineates these two approaches as follows:

Table 1. Institute for Quality Advancement — MEDIC vs. DREAM approaches

	MEDIC Process Improvement Model	DREAM Design/Redesign Model
Purpose	Continuous improvement	Innovation
Degree of change	Incremental, small steps	Radical, extreme
Starting point	Existing processes with data	Clean slate, starting from new
Frequency of change	Continuous (may be one-time)	One-time
Participation	Bottom up	Top down
Typical scope	Narrow, within functions	Broad, cross-functional

The DREAM methodology more closely aligns with QFD and will be used in this physician orientation project. As a quality management process, DREAM follows Walter Shewhart's PDCA[2] (Plan-Do-Check-Act) process with seven major process steps as follows:

Plan

    Step 1.   Define Requirements
    Step 2.   Feasibility Check
    Step 3.   Initial Design Proposal

Do

    Step 4.   Final Design
    Step 5.   Plan & Test the Design

Check

    Step 6.   Check the Results

Act

    Step 7.   Fully Deploy
                Plan for Continuous Improvement

Within the DREAM method, each step has identified tasks and deliverables. Tools for quality, change management, and project management have been identified to help teams accomplish the necessary work. Gate reviews are conducted at the conclusion of the team's work at each step along the way. It is a very rich and powerful method. The first DREAM training began in 2008 and revealed some concerns for how to obtain an accurate customer voice and from it more clearly define customer requirements. Rutland Regional recommended QFD be added to Step 1, and Glenn Mazur of Japan Business Consultants, Ltd. and the QFD Institute was asked to customize a QFD approach that would integrate with DREAM, with particular attention paid to Step 1 — Define Requirements.

Traditional QFD Approaches

Since its beginning in Japan in the 1960s, QFD applications have been customized to the needs of each organization and project.[3] In Dr. Yoji Akao's (co-founder of QFD) case study book,[4] several advanced deployments are introduced, including technology deployment, reliability deployment, and cost deployment. In the 1990s, QFD Institute directors began to address QFD efficiency concerns because modern lean organizations were finding the time these traditional deployments required exceeded the resources available. This was due to several factors such as "right-sizing" organizations in difficult economic times, global competition forcing faster time to market, and lean six sigma promotion to prioritize high-value projects. While most organizations agreed that listening to the voice of the customer was important, the effort to complete large, complex matrices such as the

House of Quality was significant enough that QFD risked abandonment in the middle of the project, or in some cases could not be completed until after the product had launched!

Concerned that QFD would fade from use and customer satisfaction would lose focus, Dr. Akao tasked Mazur and Richard Zultner (another QFD Institute director) to modernize QFD based on the methods fashioned by Zultner for software developers and Mazur for consumer products and services. The resulting Blitz QFD® provided a faster, more efficient approach than the methods most companies were using. In the U.S. and elsewhere, the most common approach was the 4-Phase Model that had been tailored for reliability improvement in the automotive components industry. Each phase called for a matrix to juxtapose and interrelate customer requirements to product quality characteristics, these to part characteristics, these to manufacturing steps, and these to process parameters. Customers of the tier one parts makers were the automotive engineers at the OEM car companies, and so the first matrix or House of Quality typically represented an engineer-to-engineer requirements documentation. It was assumed that the OEM automotive engineer understood their customer, the drivers and passengers, and so there was little additional effort for parts makers to do a detailed market analysis. This assumption proved fatal as the U.S. automakers steadily gave up market share in the 1980s and '90s.

Of course, Dr. Akao never intended QFD to be a one-size-fits-all approach. Virtually every Japanese case study that Mazur translated began by discussing the business issues facing the company and how QFD was tailored to address weaknesses in their product development process. Thus, one of the fundamentals of modernizing QFD became adapting the QFD process to the organization, rather than the other way around.

Customizing QFD to the Needs of Rutland Regional Medical Center

The QFD Institute has formalized the tailoring process to include a series of interviews with key product development managers, a report on findings (without attributing to any individual), an executive briefing on the benefits QFD can bring to their organization and what their roles and responsibilities are to obtain those, customizing a QFD flow and the tools to be used, and finally customized training materials to be used in subsequent QFD Green Belt® and QFD Black Belt® in-company courses.

Mazur conducted interviews in July 2009 with representatives from the following functional areas of Rutland Regional Medical Center: quality and supply chain management, planning and organizational excellence, corporate support services, patient relations, performance improvement specialists, human resources and education, clinical services, outpatient clinics, professional support services, cardiac services, accreditation and safety, diagnostic imaging, and senior leadership, as well as the external performance improvement consultant, Doug Horne. Key findings included:

- A need to be able to identify unspoken customer needs;

- Capturing the magnitude of the gap between current service performance and desired levels;

- How customers measure the quality of their care;

- Operationalizing the improvements;

- Appropriate use of tools.

From these opportunities, Mazur worked with Rutland Regional to extract a set of QFD tools and integrate them into the DREAM process, which is shown in **Figure 1**. The DREAM process is shown on top and the QFD tools are shown on the bottom, relative to the DREAM tasks that they support. Detailed excerpts will be shown throughout the paper. Training commenced in October 2009.
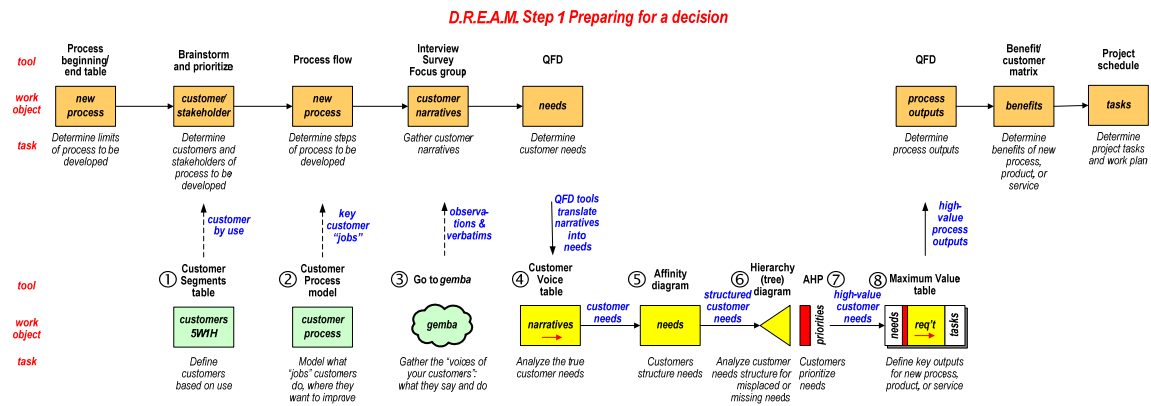
Figure 1. DREAM and QFD flow chart

Project Background and Purpose

Currently, Rutland Regional Medical Center has a physician orientation process for newly appointed Active Staff members coordinated through the Medical Staff Office. It involves scheduling interviews for newly appointed physicians with the Director of Medical Affairs, Medical Records, IS, Security, Pharmacy, Transcription, Risk Management, Registration /Admitting and Community & Provider Relations. Employed physicians also meet with Human Resources and Employee Health. The current process does not orient new Affiliate Staff, Consultative Staff, Courtesy, Contractual (includes Locum Tenens physicians) or Allied Health Professional Staff (physician assistants, nurse practitioners, CRNAs, dentists, or podiatrists). Employed Allied Health Professionals receive hospital general orientation. The current process is typically done all on the same day. Currently, there is no induction process.

Data from the Press-Ganey Physician Survey can be segmented by the number of years the respondent has been a member of the medical staff. There are some notable differences between the new physicians' and the older physicians' responses to survey questions, which we felt may help focus some of the orientation and induction process. The New Physician Orientation Process was a Fiscal Year 2009 Medical Staff Department Improvement Project, but it only focused on Active Staff physicians. The data gathered as part of that departmental project was the starting point for the larger Fiscal Year 2010 Improvement Project. Significant changes in the healthcare environment include loss of primary care physicians, an increase in the size of the Hospitalist Program, and increased requirements from regulatory and accreditation bodies. New physician orientation is even more important to promote understanding and communication in an increasingly fragmented healthcare system.

DREAM Step 1, Task 1: Determine Limits of Process to Be Developed

A common concern of all process, service, and product planners is scope drift and creep. Once a project has been chartered with a budget, resources, deliverables, and time schedule, any change in scope can be significant. Thus, it was important at the project start to clarify what part of the process is to be redesigned — where does the project start and where does it end. The DREAM process included a tool for defining these points, known as the Process Beginning/End Table (**Table 2**).

Initially the scope was set from the point that an employment offer was accepted by the physician to one year after arrival at Rutland Regional. It was also noted that it might be possible that later in the QFD analysis of the orientation from the customer's perspective, the process beginning and end points might need to be revised, should additional needs be exposed. This could, of course, require that the project scope be reviewed again by the leadership team.

Table 2. Process Beginning/End Table

Begin	Process	End	Customers & Stakeholders	Special Requirements
New position accepted; credentialing and licensing process begins	Transition into RRMC service area	One year after arrival	Organization, new providers, co-workers, families of providers	Stark Laws; Anti-kickback Laws

The team spent a significant amount of time reviewing the project charter and working through the Process Beginning/End Table, as illustrated above. We wanted to ensure there was a focus to this project that could be achieved for our customers and stakeholders. It was important to define the beginning and ending of this process; otherwise, it could continue on with no defined end point. At this point in the process the team felt like beginning with the physician accepting an offer and ending one year after their arrival to the organization seemed reasonable. This tool enabled us to have a conversation around the boundaries of this process and was an important starting point to help us stay on track.

DREAM Step 1, Task 2: Determine Key Customers and Stakeholders

A hospital is a complex organization with many constituents who may have different and sometimes conflicting needs. In order for the team to focus its work, it is useful to identify who are the key stakeholders and customers of the process to be developed. Criteria were developed to determine what would make a customer or stakeholder critical, such that satisfying their needs would lead to project success. The Customer Segments Table **(Table 2)** was then used to identify the customers and stakeholders. In this excerpt from the completed table, we see that the ability to function effectively individually was an important outcome for the project, and one segment that is critical for orientation would be new physicians working with in-house physicians such as Hospitalists, the Emergency Department, and the Laboratory. The new orientation process should improve their productivity to facilitate patient care, especially when making rounds on inpatient units. We also identified how we would capture the customer needs, such as using observation and interviews of these new doctors to assess what they know and what they need to learn.

Table 3. Customer Segments Table

#	Criteria	Customer Segment	Who	Cust/ Stake?	Key?	What	Where	When	Why	How
CS1	Ability to function effectivly individualy	new providers	new providers	Cust		improve productivity to facilitate patient care	inpatient units	during rounds	to see what they do	observation
CS2	Ability to function effectivly within the Rutland health care community	physician's family	in-house doctors	Stake		to improve communication	Emergency Dept.	timed interval check-ins	to see what they know	interviews
CS3	Need for awareness & knowledge	organization	in-house mid-levels	Stake		to assure competency	Lab	Section meetings	to identify what can be improved	focus group

Through the completion of the Customer Segments Table, we identified the importance of understanding what a new physician needed, and we also examined key stakeholder needs. We struggled with this tool as a team, at first, but with clarification we realized it was an important way for us to understand both the unique and the shared needs of each customer segment.

DREAM Step 1, Task 3: Determine Major Steps for Process (high-level flowchart)

Complex human processes involve many small steps. It is hard for any one team member to know them all, or even for the customer to articulate them all. In DREAM and QFD, it is helpful for the team to hypothesize the customer's process and then validate or revise it with the customer. By first creating a hypothesis, the team members can each contribute their knowledge of what might take place, thus improving team dynamics. Further, the effort demonstrates to the customer through this forethought that they are serious about satisfying the customer. The team began by individually brainstorming the tasks a newly hired physician might go through, and then used the Affinity diagram to aggregate them up to high-level process steps, as indicated in the Customer Process Model in **Figure 2.**
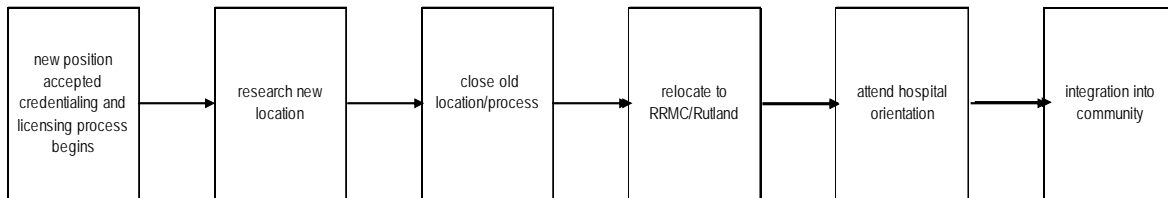
new position accepted credentialing and licensing process begins → research new location → close old location/process → relocate to RRMC/Rutland → attend hospital orientation → integration into community

Figure 2. Customer Process Model

Through the completion of the Customer Process Model, the team was able to use the framework from the Process Beginning/End Table and expand on the multiple steps in between that a physician would experience. It was important to have the right people on the team for this process because everyone contributed what they knew about this topic to develop a hypothesis.

DREAM Step 1, Task 4: Determine Needs and Requirements of Customers

DREAM employs several techniques for capturing the voice of the customer, such as interviews, questionnaires, and focus groups. Since these survey instruments are typically scripted by the team, they tend to focus on things we know and want to validate and things we know we don't know and want to find out. One of the unique QFD tools is called *gemba,* which is a Japanese term indicating the "crime scene" or the place where firsthand evidence is gathered. In the quality movement, this usually refers to the plant floor where a problem has occurred and needs to be investigated by the

experts. In new product, service, and process development, however, there is no plant floor or problem to investigate yet, so the *gemba* shifts to the customer's "plant" and his problems that need to be investigated. In the *gemba*, we can observe the customer *in situ* as they go about their life and work and we can identify issues through behavior and language that the customer themselves might not even be aware of or think to mention in an interview or focus group. Thus, *gemba* gives access to what we don't even know we don't know. By adding *gemba* to the DREAM VOC acquisition tool set, we now have multiple avenues to capture customer "narratives," surveys and questionnaires, interviews, focus groups, and *gemba* visits.

Our team collected Voice of the Customer data through individual, structured interviews with physicians and a focus group with Case Managers.

These narratives address many customer issues, including needs, requirements, improvement suggestions, complaints, etc. Because customers are always interested in helping providers help them, it is common to receive suggestions on how we could improve our offering. Depending on the business, customer suggestions can often get technical, typically referencing existing solutions but also pointing to new functions and features the customers believe would benefit them. QFD teams frequently report that when customers suggest adding features to a product, they are usually out-of-date, and in some cases misleading; and fulfilling the requirement can still lead to dissatisfaction. This suggests that customers can believe a feature will benefit them, even if it won't. One of the skills required to do QFD well is to translate the voice of the customer (narratives) into true customer needs, independent of the product features. Then, later in the realization and operationalization phases of QFD, we can better define and design those features based on emerging technology. In modern QFD, the Customer Voice Table is used to translate customer narratives into customer needs.

Table 4. Customer Voice Table

narrative or observation (from CRM, interviews, questionnaires, focus groups, gemba)		customer "job" or task	product/service/ process attributes	customer need
Elizabeth Foley: 1.Everything had a purpose. Was not a waste of time. Nothing that was bad. Head was spinning by time meet person #3. Need time to process. May not know what I need until start practice/working. 2. Pretty thorough. Don't remember thinking anytime during orientation that something was missing. 3.Timing could have been better.½ day orientation instead. Too soon. Can't remember my password for computer access. Some things could have waited until later.	INT	Participate in orientation (private practice)		Timeliness-relative to beginning of work Productive orientation--don't waste time Give valuable information during orientation Tips on how to access information; availability of resources & reminders Wait on some things e.g. techinical/computer tips Prioritize/customize orientation Mentoring for self (professional) Mentoring for family Coordination of transition (personal/professional)

Through the completion of the Customer Voice Table, the team realized we meant to collect data on the key "jobs" or "pain points" of the customer on each step in the Customer Process Model but that originally we focused only on the "attend hospital orientation" step. We then did more structured interviews around each Customer Process Model step, along with a focus group with Case Mangers. We also learned that is was important, and not always easy, to sift through the data and get down to the true needs of the customer by differentiating needs from solutions.

Once the customer needs are identified, the next step is to determine which need to be addressed first. It is not uncommon that the time, budget, or staff assigned to a project will change (usually reduced) during the course of a project. Thus, the most important customer needs should be addressed first. Prioritizing customer needs was not sufficiently defined in the DREAM process and so QFD was used to perform this. Prioritization in multicriteria decision making was advanced by the research of Dr. Thomas Saaty in the 1970s at the U.S. Department of Defense and later at the Wharton School of Business at the University of Pennsylvania. Saaty found that decision makers facing a multitude of

elements in a complex situation innately organized them into groups sharing common properties, and then organized those groups into higher level groups, and so on until a top element or goal was identified. This is called a hierarchy and when making informed judgments to estimate importance, preference, or likelihood, both tangible and intangible factors must be included and measured. Modern QFD, uses Saaty's Analytic Hierarchy Process (AHP)[5] technique to prioritize.

Correctly applied, AHP must be done by the data "owners," that is, those with the most knowledge. For customer needs, this would be the customer. Further, AHP is applied to a hierarchy of data, and the Affinity Diagram[6] has been found a useful way for customers to build the hierarchy. The Affinity Diagram is similar to the output of the KJ™ Method developed by Dr. Jiro Kawakita[7], a Japanese cultural anthropologist who developed several data grouping techniques for his research. An excerpt of this is shown in **Table 5**.

Table 5. Affinity Diagram Done by Physicians at Rutland Regional Medical Center

Mentoring	Layout	Professional Expectation	Professional Connections	Social/Family
I need mentoring for family.	I need to know where things are located.	I need to understand standards of care.	I need to socially connect with other providers (in/outside of hospital).	I need help finding housing (especially with pets)
I need personal and professional mentoring.	I need a personal tour.	I need to know about standing orders and standards of care.	I need a formal introduction to other providers/departments.	I need a resource to assist with obtaining information.
I need the option to have a mentor.	I need to know where key department/areas are located.	I need more practical information.	I need a proactive approach by hospital to initiate orientation to job/community.	I need coordination of transition, both personal and professional.

When we brought our physicians together to do the Affinity process they learned the technique very quickly. We were very impressed with how effectively they created the Affinity Diagram. It was interesting to observe the physicians doing the process and it pointed out how important it is to have the customer complete this process so their voice comes through. Our team observed that had we been doing the Affinity exercise we wouldn't have made the distinction between the "Professional Connections" and "Social/Family" like the physicians did but it was interesting to know that it was important to the customer.

The Hierarchy Diagram[8] is built from the Affinity Diagram in order to set up the AHP for prioritization. It serves as a quality assurance technique for AHP accuracy by correcting problems in the Affinity Diagram. One problem occurs when hierarchical levels are improper. For example, customers could easily express a preference for an apple or an orange but would find it difficult to choose between an apple or a fruit, since an apple is a kind of fruit. This violation of the hierarchical levels affects accuracy of the prioritization. The Hierarchy Diagram is also a good way to find missing, unspoken customer needs. For example, if we know that the category of fruit contains the elements of apple and orange, we can look to see if there are missing elements in the category such as pears, bananas, etc. **Figure 3** shows an excerpt from the study.
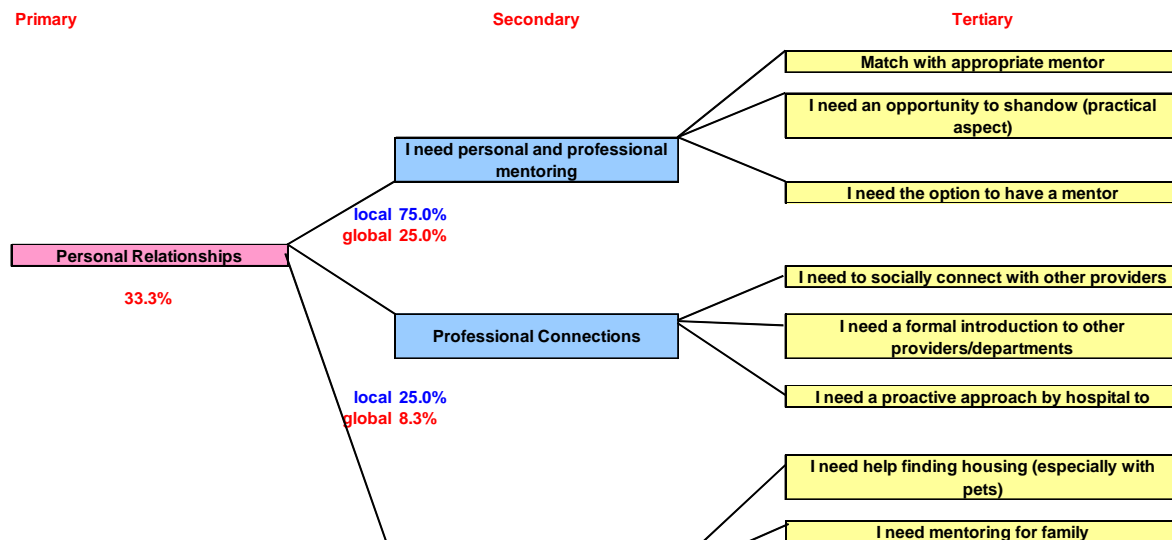
Figure 3. Hierarchy Diagram

It was a very helpful tool, as a visual aid, to see the Affinity Diagram divided into Primary, Secondary and Tertiary categories in the Hierarchy Diagram. No new needs were identified during this process which validated the earlier work done by the team with our customers.

Once the Hierarchy is in place, AHP provides an accurate and efficient methodology to find the relative importance of each of the needs in the Hierarchy. The word "relative" is the key point of distinction. The importance percentages delivered by the AHP methodology are mathematically sound. The percentages can be added, subtracted, multiplied, or divided with accuracy. If Need A is 20% of the goal, and Need B is 10% of the goal, we can say with great confidence that Need A is twice as important as Need B. This precision allows focus on the most important needs of the customer. The precision in the ratio scale that AHP delivers is preferred over ordinal scales produced by traditional QFD. Before AHP, QFD used ordinal rating methodologies that ask the user to rate needs on a scale of 1–5 or 1–10. This methodology is easy for the user to understand, but it does not require the user to make any tradeoffs. In other words, the user can rate all of the needs with the same level of importance. For example, each need can be rated a 4. The result is that the overall importance ratings for the needs end up with a few needs at the top, a few needs at the bottom, and most of the needs bunched in the middle. Traditional QFD then tried to average the needs yielding values like 4.2 or 4.3. These averages are not mathematically sound either because we cannot calculate an average or mean with ordinal scale numbers. So, while you can make some inferences about the top needs, we are unable to specify the amount of importance the customer places on the attribute or the amount of importance difference between the attributes.

Another reason that the ratings are bunched in the middle is because survey participants will suffer from survey fatigue from trying to accurately gauge the amount of importance for each need in a large list. AHP solves the survey fatigue problem by only asking participants to compare the importance of two needs at a time. These comparisons are called judgments. A judgment of only two items is much easier for participants to complete than comparing a list of 20 items. Pairwise comparisons generate more information and so improve judgment consistency when attributes may

be close in value[9], which is one reason optometrists use this approach when prescribing corrective lenses. Plus, when the items are arranged in a Hierarchy, we can start at the most general level and only pursue with the participants those branches that have high importance. An excerpt from the AHP is shown in **Table 6.**

Table 6. Customer Needs AHP

Tertiary CNs	I need to socially connect with other providers (in/outside of hospital)	I need a formal introduction to other providers/departments	I need a proactive approach by hospital to initiate orientation to job/community	I need help finding housing (especially with pets)	normalized columns				sum	row avg
I need to socially connect with other providers (in/outside of hospital)	1	2	3	4	0.480	0.522	0.462	0.400	1.863	**0.466**
I need a formal introduction to other providers/departments	1/2	1	2	3	0.240	0.261	0.308	0.300	1.109	**0.277**
I need a proactive approach by hospital to initiate orientation to job/community	1/3	1/2	1	2	0.160	0.130	0.154	0.200	0.644	**0.161**
I need help finding housing (especially with pets)	1/4	1/3	1/2	1	0.120	0.087	0.077	0.100	0.384	**0.096**
	2.083	3.833	6.500	10.000	1.000	1.000	1.000	1.000	4.000	1.000
								Inconsistency Ratio		0.01

We had several physicians complete the AHP and that process went well. We found that one key to success was having a member of the team in the back of the room inputting the customer's responses so we knew which branches to pursue. It was during this process that the focus of our project was narrowed to just the "attend hospital orientation" portion of the Customer Process Model. Our team's hypothesis going into this project that it was both the orientation and induction that was important to our customer. We learned that while the induction part, called "integration into community" in the Customer Process Model, was important our customer placed greater importance on the orientation process.

DREAM Step 1, Task 5: Determine Process Outputs (products, services)

The next step is to define what the new product or process should do, but not necessarily how it will do it (this comes in DREAM Steps 2 and 3). This aligns neatly with another modern QFD tool, the Maximum Value table (MVT). This tool helps define for the key customer needs only, what product or process attributes (characteristics, capabilities, key quality characteristics) a solution must address. The MVT diagrams the effect-to-cause relationships between the customer need and what the team must consider in order to realize a solution. **Table 7** shows what one of the key customer needs should address.

Table 7. Maximum Value Table

D.R.E.A.M Step 1									
customer				process/product/service outputs					
						Solution Specifications			KEY PROJECT TASKS
segment	"jobs" or tasks	narratives	needs	characteristics & capabilities	key quality characteristics	functions (product)	activity (service)	objects (software)	
new provider (Elizabeth Foley, MD)	attend hospital orientation	Timing could have been better. ½ day orientation instead Too soon.	the orientation meets my availability	duration, availibility, time flexibility, location flexibility, accessibility, valuable encounters,	start to end time, number of stages, accessibility (24/7), number of modes, JIT, redundancy	multiple formats	subject matter source	flexible content	inventory possible formats, inventory possible subject matter source

Through the MVT, we were able to view the customer's narratives, as well as the needs, from the Customer Voice Table and have it right there while we completed the rest of the table. This kept us focused on the customer while we identified potential solutions to meet their needs. We identified key project tasks out of the MVT to take into Step 2 of the DREAM method.

Next steps

Based on the work out of Step 1 of DREAM we presented our work at a Gate Review with our Steering Committee and received a "go" from them. Our team identified five key project tasks to take into Step 2 from the work in the Maximum Value Table.

We are now nearly through Step 4 of DREAM and are preparing for a test of our New Physician Orientation Process on a hospital employed Gastroenterologist who will be arriving later this summer.

Conclusion

Within the organization we have tried to use the MEDIC model on initiatives that were actually design/redesign projects so the addition of the DREAM methodology to our toolbox was much needed. The New Physician Orientation Process was a perfect candidate for the DREAM method because it was the design of a completely new system. The combining of DREAM's Step 1 with QFD to obtain an accurate customer voice and more clearly defined customer requirements was the key to getting this project started on a successful path. The QFD customer voice method was a powerful tool we used to find out what our customer, physicians, wanted. Our team felt that if we hadn't used this method of collecting information we wouldn't have ended up with the key project tasks that we did but instead would have tried the same old processes that we think meets the customer needs and they don't. Having QFD as a part of DREAM is a combination that we feel will enable our New Physician Orientation Process to be a success.

──────── **About the Authors** ────────

Jill Jesso-White is the Director of Community & Provider Relations at Rutland Regional Medical Center. She joined Rutland Regional in 1996. She holds a BA and an MSA both from St. Michael's College in Vermont. She is a member of the New England Society of Healthcare Communicators, currently serving on its Board of Directors, and the Society for Healthcare Strategy & Market Development of the American Hospital Association. She successfully completed the Introductory Workshop on QFD and attained her Green Belt in the fall of 2009. She used the QFD methodology for the first time on one of only two organization-wide design/redesign projects and is a true believer in this methodology for gathering the voice of the customer.

Glenn H. Mazur has been active in QFD since its inception in North America and has worked extensively with the founders of QFD on their teaching and consulting visits from Japan. He is a leader in the application of QFD to service industries and consumer products, conducts advanced QFD research, and is the Conference Chair for the annual North American Symposium on Quality Function Deployment. Glenn is the Executive Director of the QFD Institute and International Council for QFD, Adjunct Lecturer on TQM at the University of Michigan College of Engineering (ret.), President of Japan Business Consultants Ltd., and a senior member of the American Society

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Notes

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