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A Study in Continual  
Improvement, Parts 1 and 2

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# **THE DEMING LIBRARY**

## **A STUDY IN CONTINUAL IMPROVEMENT, PARTS 1 AND 2**

### **OVERVIEW**

Healthcare providers are facing evolutionary and revolutionary changes. How the leaders of healthcare respond to these changes will determine both the survival of their organizations and their ability to serve and retain customers.

Over the past two decades, much of American industry began facing competition from overseas which threatened its survival. Some leaders sought new ways of doing business that would improve their chances in the new global marketplace. They had to learn to produce better and better goods and services for less and less money.

The same philosophy which helped industry respond to the new global market will also help healthcare providers produce ever-improving services for less money. *A Study in Continual Improvement* presents this new philosophy and some of its applications in the healthcare field.

Political, social, and economic demands for changes in healthcare require more than marginal improvement in the management of service organizations. Under severe economic constraint, more service at lower cost without sacrifice in quality is expected for more people. The only way this can be achieved is by a new way of thinking that makes possible continual improvement of service, cost reduction, and more delighted customers.

High-order professional knowledge in healthcare must be supplemented in daily practice with Deming's "Profound Knowledge," or knowledge for improvement. Revolutionary rates of change and long-term, sustained improvement will require that physicians, nurses, technical specialists, managers, and support persons cooperate to learn the new way of thinking that coordinates professional knowledge and knowledge for improvement to benefit everyone in the system – those who provide and those who receive service.

These videotapes focus on the problems and accomplishments of one hospital to illustrate the principles of the Deming philosophy and the new way of thinking that it produces. The setting may look different from a manufacturing plant, a government agency, or a school, but the philosophy is the same. The order of actions taken in one hospital, school,

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agency, or business should, in fact, be different from those in any other, for the circumstances of each are unique. To copy the quality program of another organization for a quick solution is useless. Improvement, as the tapes will reveal, comes only from knowledge applied over a long time.

## **QUESTIONS TO CONSIDER BEFORE VIEWING THE TAPES**

In order to focus viewers' attention on the application of quality improvement to their own processes, it would be valuable to have them consider a few questions before viewing the videotapes. These questions could be reevaluated after viewing the tapes.

1. Why did you choose to work in healthcare? What motivates you in your work? In what ways is your motivation the same as – or different from – your coworkers (or managers, or employees)?
2. What goods or services do you produce? How? Who is involved with you in that process of production? On whom do you depend? On whom do you wish you could depend?
3. Who is your customer – that is, who receives the benefit of what you produce? Who else depends on you? What additional goods or services might you be able to provide which would give increased benefit to your customers? With whom could you cooperate to provide those goods and services?

## **THE 14 POINTS**

Following are Dr. Deming's 14 Points. Familiarity with them will help in your discussions.

1. Create Constancy of Purpose.
2. Adopt the New Philosophy.
3. Cease Dependence on Mass Inspection to Achieve Quality.
4. End the Practice of Awarding Business on Price Tag Alone. Instead, Minimize Total Cost, Which Is Often Accomplished by Working with a Single Supplier.
5. Improve Constantly the System of Production and Service.
6. Institute Training on the Job.

7. Institute Leadership.
8. Drive Out Fear.
9. Break Down Barriers Between Departments.
10. Eliminate Slogans, Exhortations, and Numerical Targets.
11. Eliminate Work Standards (Quotas) and Management by Objective.
12. Remove Barriers That Rob Workers, Engineers, and Managers of Their Right to Pride of Workmanship.
13. Institute a Vigorous Program of Education and Self-Improvement.
14. Put Everyone in the Company to Work to Accomplish the Transformation.

## **A STUDY IN CONTINUAL IMPROVEMENT PART 1**

### **INTRODUCTION**

In *A Study in Continual Improvement*, Dr. Deming learns from Dr. Paul Batalden, Chairman of the Institute for Healthcare Improvement and longtime Deming practitioner, about his experiences applying Deming's philosophy in the healthcare field. They discuss Dr. Deming's system of Profound Knowledge, which Dr. Batalden calls "improvement knowledge," beginning with a discussion of systems in Part I.

Health professionals have trouble seeing their work as a **system** partially because they are specialists and don't see that they are actually making or producing something with others. Once you understand what you produce and the process employed, you can identify your customers in the organization, in addition to the external customers, and see how your work fits into a larger system. But before a collection of activities can be called a system, it must have an aim. Dr. Batalden discusses the aim of healthcare with Dr. Deming, defining it in the larger context of society as "reducing the burden of illness."

Understanding systems, though, is just one part of the new knowledge needed for improvement. Profound Knowledge also includes an understanding of variation, some knowledge about the theory of knowledge, and an understanding of psychology in relation to interactions between individuals, between individuals and processes, and individuals and the system of management.

**Variation** is present in every process, every person, and everything else. It comes from two sources: common causes and special causes. Common causes are built into the system and occur randomly within it. Special causes come from outside the system and may occur infrequently. The key is knowing which is which through collection and analysis of data. Improvement results from elimination of special causes and reduction of variation in a process so that its results become more predictable.

**The theory of knowledge** tells us that without a theory we can neither learn nor predict. Management is prediction; better management comes from improved ability to predict results. Learning occurs with the study of data that either challenge or confirm an existing theory. Merely collecting information without theory does not lead to improved knowledge and better performance.

The Deming cycle (PDSA) democratizes the scientific method so that people at every level in the organization can contribute to improved performance. The four steps – Plan, Do, Study, Act – roughly parallel the steps in the scientific method of a recurring cycle of experiments that confirm or challenge theory as they are applied on a larger and larger scale. The Deming cycle can be easily taught to workers at any level to allow them to test their theories and make improvements in the processes in which they work. The cycle is also applied to the entire system by top management.

An understanding of **psychology** is important because there is variation among all people. We need to understand people's varying motivation and how individuals interact with one another. Managers frequently try to motivate people with extrinsic rewards, but intrinsic motivation usually plays a much stronger role in people's actions. Dr. Deming believes that most people come to the job motivated to do their best. He asserts that everyone has a right to joy in work. People resist participating in improvement efforts if they are likely to be blamed for what went wrong.

Specific examples of improvements in healthcare are provided by Reston Hospital Center in Reston, Virginia. The people at Reston went through training provided by Dr. Batalden. They began their own quality journey by articulating their own mission, vision, and guiding principles. The examples of improvements at Reston demonstrate an environment that fosters continual improvement and a management capable of adapting to demands for rapid change.

The traditional approach to quality in healthcare, Quality Assurance (QA), is similar to the old quality by mass inspection in manufacturing. Industry is learning that dependence on inspection costs more and fails to deliver improvement. Leading American firms now manage to improve processes as a better route to improvement in quality and productivity and lower cost. While Quality Assurance involves a few people measuring outcomes and comparing the performance of one individual or department with another, Quality Improvement (QI) involves everybody in improvement of the whole system to prevent

unacceptable outcomes before they occur. Since QI decisions are based on data and the scientific method, conflicts of opinion and bias are reduced and improvement of process replaces blaming of individuals.

## QUESTIONS

1. *A Study in Continual Improvement* begins with reporter/narrator Lloyd Dobyns recounting a history of western hospitals. He completes the history by saying, "As this century ends, hospitals are facing evolutionary and revolutionary changes. What is critical to their future is how hospital administrators manage those changes, what they do to stay in business."

What are the evolutionary and revolutionary changes hospitals are facing?

2. Lloyd Dobyns says, "Because Dr. Deming's method works so well in manufacturing, some people in healthcare are reluctant to believe that the same system works just as well in hospitals."

"The problem may be that most management systems are lists of things to do that apply specifically to manufacturing and not much else. The Deming system is not a list of things to do. It is a philosophy, a way to think about what you are doing and why you are doing it."

What differences are there between a philosophy and a list of things to do? Why would a philosophy be more universally applicable than a list of things to do?

3. Dr. Batalden says, "In a hospital we have the very best pharmacy sitting right next to the very best laboratory, sitting right next to the very best X-ray department, sitting right next to the very best nursing department, and the hospital doesn't work."

What reasons can you think of for the sum of the best departments not equaling the best hospital?

4. Dr. Deming says, "A system must be managed... Left to itself, the various components become selfish, independent profit centers."

What does he mean? Who is responsible for managing the system? Can you think of examples of components or departments that have become "selfish, independent profit centers" instead of working for the aim of the system as a whole? Can you think of some ways the aim of your system as a whole could be better served by one component subordinating its own interests?

5. Lloyd Dobyns says, "Medical people understand systems because they know that the human body is a system, but they haven't applied that understanding to a hospital."

What does he mean by "the human body is a system"?

6. Then he adds, in order to understand the hospital as a system, "you accept that all people and processes that are part of the hospital, including the suppliers and patients, are working together toward an agreed aim, and the agreed aim must answer the questions: 'What are we trying to do?' and 'Why?'"

Why does he include the patients and suppliers?

### **Internal and External Customers**

7. Dr. Batalden tells a story about heart surgeons who were trying to improve: "And the purchasing man, who was doing his best, had gotten a little better deal on the tip of the new catheter that was a little sharper."

Why does Dr. Batalden say that the purchasing man was doing his best? What was his job? What might have been a better way to define his job? Who should define "best" performance of a job?

8. Then Lloyd Dobyns adds, "He was doing his best, but he was not working as part of the system, not cooperating with the surgeons, and he lacked knowledge for improvement."

What does he mean, saying he wasn't working as part of the system? What is knowledge for improvement?

9. Dr. Batalden continues: "And the surgeons hadn't been aware of that, and they had inadvertently punctured the vessel in the back of the heart. Once they discovered that, they eliminated that problem." Next, the surgeons had to address some problems associated with "the bleeding and clotting studies right after surgery. And they went to the head of the laboratory, and the head of the laboratory said, 'Now wait a minute! You're surgeons. I run the laboratory. Don't tell me how to run my laboratory.' And they said, 'But you don't understand, we depend on you. We need to work together to change this.'"

Who was the customer of the laboratory? What should the lab have learned about the system from this encounter?

10. Eileen Street, Director of Quality Resources/Education, says, "I don't think the business of the hospital is well understood by most staff. I think there are very few people who see outside of their department."

What does she mean by "the business of the hospital"? Why don't most people see outside of their department? What is gained from seeing outside one's department? How does this relate to the aim of the organization as mentioned above?

11. Eileen Street says, "Systems thinking... forces you to look across the organization, and it has you looking from a very global perspective."

How does this help? What does she mean by "look across the organization"?

12. Tom Miller, President and CEO, says, "I do think hospitals have been run in the past for the convenience of the staff. You have organizations with seven and eight hundred people, and often it is easier to put in a process that makes their job easier."

What does he mean? What's wrong with running a hospital for the staff's convenience? What would be a better way?

13. Eileen Street says, "We begin to think about how what we do impacts the next person. We begin to think about the interdependence of how we act together."

Then she adds, "We think a lot more in terms of what benefits not only the customer, the patient, but all of our customers."

Who, besides the patients, might be their customers?

14. Tom Miller says, "At this hospital the key customers are our employees."

What does he mean?

### **Learning a New Way of Thinking**

15. Dr. Batalden tells Dr. Deming about his experience at a Deming Seminar: "You were talking about ball bearings, and I was sitting there, the only doctor in the room, wondering what in the world I was there for. And I didn't think it made a whit of sense to healthcare. And then gradually it made sense."

What does he mean? What do ball bearings have to do with healthcare?

16. Dr. Batalden says, "It's a long journey. And I fear that some are going to think of it as a program, or a project, or something like that, and nothing short of a transformation will do. This involves rethinking work, worker, workplace, and beneficiary of work."

What does this mean? In what ways does a transformation differ from a program or a project?

17. Lloyd Dobyns tells us that before 1780 surgery involved only three people, but now there can be 300 people involved, including technicians. Then he adds, "Even more complicated than that is the change in thinking that is now required. Medical people have to think of themselves somewhat differently."

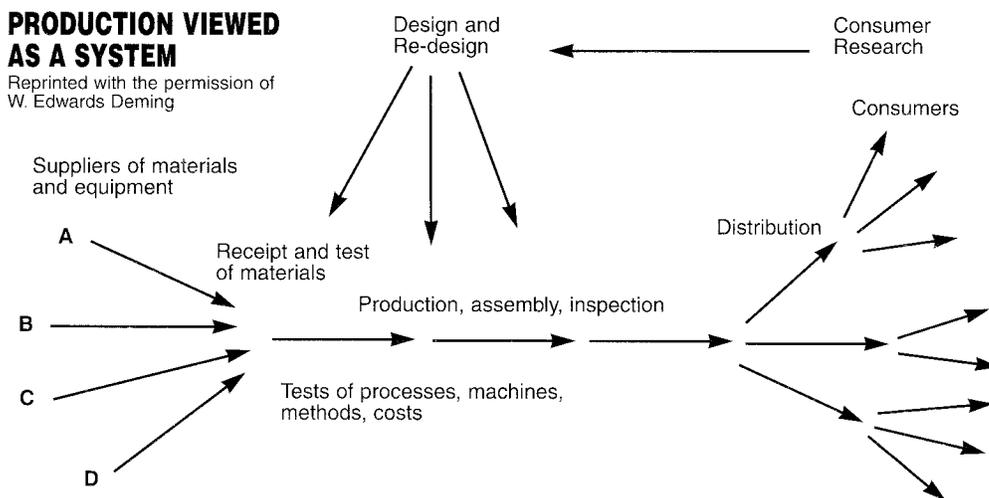
What does he mean?

18. Dr. Batalden explains, "When I start with a doctor or a nurse, I start with this very difficult question: 'What do you make?'... And after we begin to explore that a little bit, we begin to understand that doctors make services, and they make information. And once it becomes clearer to them that they really do make something, they can work on improving it."

Why does he start this way? Why is it important to know what you make?

### The System Diagram

19. Lloyd Dobyns says, "When Dr. Deming went to Japan in 1950, he drew a system diagram on the blackboard, and he used it in every seminar after that. With some modest changes in wording, it applies equally well in education and in medicine. It shows how everything flows through the system, one process at a time, then goes out to the customers, who, in turn, feed information on their needs and requirements back into the system so that continual improvement can better meet their needs."



Dr. Batalden says, "That system diagram forces people to think critically about what exactly the need is, and it helps them aim the system."

Dr. Deming responds, "Who's my customer? Who is my beneficiary? Whom am I serving?"

Dr. Batalden answers: "That's exactly right. And what do I know about them? And how can I make what I make such that they can achieve benefit from it?"

How does this relate to what Lloyd Dobyns said about doctors not understanding the organization as a system? How does it relate to the idea of internal customers? And to the relationship between the aim of the system and external customers?

20. Eileen Street says, "You really want to think of the whole... .If we improve what happens with the hospital, we ultimately improve what happens with the patient, and we help the physician in their care."

What are the connections between hospital operation, care of patients, and the physicians' effectiveness? Is there a preferred starting point in changing this system?

21. According to Dr. Batalden, "Some hospitals are closing – about a hundred a year in the United States. It's not true anymore that you can just stay in business without an aim, that you can stay in business without meeting a need in healthcare."

Why is an aim so important in medicine? What is the relationship between aim and the economics of healthcare?

22. Lloyd Dobyns tells us: "Richard Scott, Chief Executive of Columbia/HCA, estimates that perhaps half of the country's hospitals will close. There is a huge overcapacity, particularly since the emphasis now is on shorter stays. Hospital occupancy on average is about 66 percent, and David T. Vanderwater, the Chief Operating Officer at Columbia/HCA, says, 'You run at 40 percent of capacity or at 60 percent of capacity, you're not getting the maximum value of your assets. This industry is not any different from an airline industry or a ball bearing industry.'"

Do you agree?

23. Eileen Street compares the view of the hospital as a business with the traditional view of healthcare workers as altruistic healers who only want what is best for the patient. She points out, "Sometimes people see those in opposition. And yet what systems thinking does is bring those two pieces in alignment:"

How does systems thinking rectify those two views?

24. Lloyd Dobyns says, "Hospitals are a business, but a business like no other. For instance, doctors are responsible for a large amount of hospital costs, but they are not employees, which makes them all but impossible to control. Since the patient is rarely the

person who pays the total bill, there is no customer demand to control costs. Financial incentives are backward; doctors are paid to visit their patients *in* the hospital, they are not paid to get them *out* as quickly as possible.

"Consultant Tom Nolan says other business problems are that hospitals and insurance companies are often at cross-purposes: People who don't have a family doctor use the emergency room as a walk-in clinic; too many specialists have no long-term relationship with patients and have no feedback [from them]. Perhaps because of that, not only do some specialists not see the patient as a system, they don't understand the larger community system as a force affecting the hospital – and society is a powerful medical force."

Is this an accurate description of an important aspect of the healthcare problem in America?

25. Dr. Batalden tells of his experience visiting one of the World Health Organization's smallpox eradication units in Bangladesh. "During the Muslim Festival of Eid, people left their normal places of living and returned to their birth homes. The whole country became infected again with smallpox, and it wasn't because they [the healthcare workers involved] lacked knowledge of virology or knowledge of immunology. It was because they lacked the knowledge of a system. They lacked the knowledge of the system and the way that the virus and the people that the virus infects worked, and it set them back three years."

What might the healthcare workers involved have done differently if they had knowledge of the system? What lessons can be drawn from this story and applied to the healthcare system in this country?

26. Lloyd Dobyns says, "Part of understanding a system is understanding that it does not exist in isolation and will be pressured by larger, external systems."

What does he mean? What external systems affect healthcare institutions in this country? What external systems affect the healthcare system as a whole?

27. Dr. Batalden recalls watching a car being assembled – one process after another. "People had to work together, it was clear. But then I realized why it was clear. I was standing on a catwalk. We don't have catwalks in hospitals, and that's why I discovered, with your help, that flow diagrams and that a system diagram – looking at the means of production as a system – was so fundamental."

In what ways is automobile assembly like healthcare? Why are those similarities difficult to see? How could catwalks be used to better understand how work fits into the aim of the system? How could a system diagram do the same?

28. Lloyd Dobyns says, "Without the diagrams, seeing the process can be a problem. At Reston, they studied the process of giving tetanus shots in the emergency room and discovered that, on average, they'd give nine shots correctly, then not give one they should have. By charting the process, they learned that they had made it complicated. They simplified it, charted it again, simplified some more, and now they give 120 shots correctly – from nine to 120, good for the patients, good for the business."

### **Core Processes**

29. Lloyd Dobyns says, "Diagrams also help you see how you fit into the essential work of the hospital, which Reston calls 'core processes.'" The core processes are the central series of processes in any organization which are involved directly in providing goods and services to customers. Other processes (such as purchasing, laundry, the quality department, and administration) are known as supporting processes and are no less important. The point of this distinction is to help everyone see how their work fits into the system; that is, how it feeds the core processes. The core processes are the customers of the supporting processes. The nine core processes are...

1. Preparing for Service
2. Admitting Patient
3. Assessing Patient
4. Planning Care
5. Implementing Care
6. Evaluating Care
7. Discharging Patient
8. Billing/Collection
9. Follow-up

Eileen Street says, "Historically what we have done is we've looked at billing, we've looked at a maternity unit; we've looked at materials management, and they were all separate boxes."

What is the disadvantage of managing the separate departments as separate boxes? What are the advantages of agreeing on the core processes and focusing improvement efforts on them?

30. Tom Miller says, "The registration functions, the admitting functions, the nursing care, and the core process associated with our patient care, all are now interrelated, and we're not looking at individual departments."

What does he mean? What is the advantage of that interrelationship? What are the difficulties?

31. Lloyd Dobyns reminds us that Dr. Deming said, "The system must be managed; it will not manage itself." To which Dr. Batalden adds, "And until that understanding of the system that you work in is clear, it's very difficult to begin to improve it."

Why? What is needed to clarify the system?

32. Dr. Batalden says, "When people discover that they need to work together, all kinds of traditional barriers begin to fall away."

What traditional barriers is he talking about? Where did they come from?

33. Dr. Batalden says, "Sometimes people think they must work together because of rank, or because of some hierarchy. Not true. It's people who have knowledge, and who have a role to play in the production of that work as a system, and that's powerful information in our experience."

What does he mean? Who, then, should be involved in improving a process? Why? Whom should you work with to improve your processes?

34. Dr. Batalden says, "Sometimes when you start to probe this a little bit with doctors, and with others, you discover, and even they discover, that they depend on lots of people. And that interdependency is very enabling knowledge; it helps people a lot"

How does it help people? What are they enabled to do?

## **Doctors**

35. Judith Riggins, Director of Quality Resources/Clinical, says, "it was difficult to get the physicians interested: They, too, saw this as just another program or another way to weed out which of them were the bad apples."

What does she mean by that? What does it indicate about the point of view held by physicians? Have there been programs in other hospitals designed to simply weed out people who didn't produce certain numbers? Why would people not want to get involved in this sort of effort?

36. Tom Miller says, "When they [physicians] see that people working together can really affect the care of the patients, they're going to push quality improvement faster than many of our managers do."

When should physicians be introduced to quality principles?

37. Dr. Eric Silfen, Chairman of the Department of Emergency Medicine, Vice President of the Medical Staff, and Physician Liaison for Quality Improvement, says, "The

physicians have to be able to work very closely with the nursing staff, and they have to understand that the members of the nursing staff may know more about the patient, although the physician may know more about the medicine."

What implications does this have for the doctor/nurse relationship?

38. Then Dr. Silfen adds, "And if you don't work together, you're going to work at cross-purposes, and things are not going to get done. There is going to be friction between the care-givers which ultimately is going to affect the patient care."

What does he mean?

### **The Aim of the System**

39. Lloyd Dobyns says that "a hospital has always been something like a shopping mall – a bunch of independent stores or departments that located in one spot for convenience. That is no longer enough."

Why is that no longer enough? What new approach is needed? If that approach is good enough for a mall, why not for a hospital?

40. Lloyd Dobyns continues, "Now they must all agree on an aim. What are we trying to do and why?"

Dr. Deming says, "The system must be managed. People must understand the aim of the system and how their contribution affects, pushes the aim of the system."

What does he mean? Why is it important for everyone to understand the aim? What is the relationship between aim and effective management?

41. Dr. Batalden tells about the doctor who told him that his aim was to eliminate illness and death: "He said, 'I'm not doing too well: And I said, 'Well, it may well be that the task is to eliminate the burden of illness. 'Oh,' he said. 'Yes, I hadn't thought about that.'"

What does it mean to "eliminate the burden of illness"? How does that aim differ from "eliminate illness"? Can anything be eliminated?

42. Lloyd Dobyns says, "To eliminate the burden of illness in a modern hospital requires that senior management understand that the hospital is a system, that the system must have an aim, and that the aim must fit into the larger context of society, which is a larger system. Dr. Deming's belief was that the only way to improve an organization was to change the way the people in that organization thought about it."

Why must senior management understand the hospital as a system? Why must the aim fit into the larger context of society? Why does organizational change require a change in the way people think about the organization instead of merely adopting new management tools?

43. Lloyd Dobyns says, "What are we doing; why are we doing it? That is often called vision and mission, which sounds rather grand, but what it boils down to is this: If you don't know where you're going, you can't get there."

Then Lloyd Dobyns says, "Some people today rely on advanced technology, but that's only a tool, not an aim." And Dr. Batalden adds, "it isn't just whether we can get higher technology, but it's whether we can apply that technology to reduce the burden of illness for people. That's the unmet need that we get."

How is this different from the approach many hospitals are taking today? How does this relate to the importance of having a clear aim?

44. Lloyd Dobyns talks about the reduction of the burden of illness by reducing the hospital stay required for hip replacement surgery. It used to be nine or ten days. Now it's closer to three or four because "teams of surgeons and other personnel looked at the process, and increased it to include preadmission exercise by the patient and postsurgical pain management. It doesn't sound like much, but it cut the hospital stay by more than half." This change that "doesn't sound like much" required the health professionals involved to radically rethink the process of hip replacement. No longer could they think of their work as just the replacement of a hip, but they had to include the state of the patient both before and after the operation as part of the system. By understanding the scope of their work to include more than they had before, they were able to reduce the burden of illness on their hip replacement patients.

What might have been the burden of illness on these hip replacement patients? Are there places in your own work where the burden of illness on your customers might be reduced if you expand your concept of the system in which you work?

45. Dr. Batalden says, "What has to be attended to is how to help people live their lives, how to help people restore their ability to function in daily society. That's different than simply giving an answer and moving on to the next patient. It reconceptualizes medicine. That asks different things of doctors. It's broader than just stamping out disease or trying to put yourself in a one-man campaign against death."

This relates to the earlier discussion of including society in the system. How does this reconceptualize medicine?

46. Dr. Deming then asks, "Well, you believe in stamping out the disease if possible, don't you?" To which Dr. Batalden replies, "Oh, absolutely! But it's more than that, you

see. Because sometimes the disease leaves its residual. And you must pursue the residual."

What is the residual he talks about? How does this relate, again, to the importance of aim?

47. Lloyd Dobyns explains, "Only by understanding the aim of the system can hospital personnel focus on improvement – and remember, we're talking improvement in patient care and profit. A quality hospital that closes doesn't help anyone. Before personnel can improve a process, they have to agree on what the aim of the system is, and getting that agreement is senior management's job."

What is the relationship between improving patient care and profitability? How can higher quality patient care cost less?

## **Vision**

48. Tom Miller says, "In leadership the first and primary focus must be on a vision. And it's not one that I can set myself. It's one that, meeting with a large group of people, we can all buy in on. And communicate it widely, and continually reinforce it through any educational opportunities that exist."

Why is vision so important? Why cannot top management by itself set the vision for the organization? What might hinder an organization whose leadership imposed its own vision on the rest of the organization? What might happen if the vision is not well communicated throughout the organization?

49. Reston Hospital Center's Vision describes what we want to become: "Our vision for Reston Hospital Center is to provide healthcare services at 'best value' for our customers in an environment of continuous improvement."

What is "best value"? How is it determined?

50. Tom Miller says, "I've been amazed when I go and talk to patients that their impression of quality is not whether we get the right medicines, and it's not whether the doctor did the right surgery. It's whether the food is good, whether the room is clean. And more importantly, whether we have a caring environment."

Lloyd Dobyns adds, "That is not amazing to us. Most people know only a little about medicine or surgery, but they do know about food, cleanliness, and whether anyone seems to care. And people judge by what they understand. Whatever the criteria, the hospital wants to do better."

Does the patient know better than the hospital what is "best value" in care? How can understanding of "best value" be improved?

## **Profound Knowledge**

System

Variation

Theory of Knowledge

Psychology

51. Lloyd Dobyns says, "The way to improve every day is not only to improve professionally, but to understand what Dr. Deming called Profound Knowledge; that is, knowledge that everything is a system, that variation exists in everything including people, that human psychology is critical, that people learn in different ways and no way of learning is better than any other, and that you need a theory to learn and predict."

Dr. Batalden says, "It's a matter of linking Profound Knowledge with that professional knowledge in such a way that it builds new knowledge that permits new improvement." Then he adds, "Profound Knowledge complements professional knowledge."

What does he mean? Do you agree that there are necessary connections between medical knowledge and the elements of Profound Knowledge? What are they?

52. Tom Miller says, "The healthcare providers are very knowledgeable on the didactic part of healthcare. They certainly know nursing care. They know radiology. They know the technical side... We've tried through leadership, through education, to bring in a new knowledge base for our managers and for our teams in place, to realize that when they interact together, they can accomplish a whole lot more."

Dr. Batalden says, "I think there are some folks who are confused about that and say, 'We don't need your professional knowledge. All you need to do is to go join a team.' Nothing could be farther from the truth. Improvement doesn't come from teams that weren't in existence before. Improvement comes from knowledge you haven't had before."

What does he mean by that? Is it possible to improve without new knowledge? Is it possible to improve your work without your professional knowledge?

53. Lloyd Dobyns says, "Cooperative teams are a technique, and quite a good one, but improvement comes from understanding that you are in a system; the system must have the aim of serving the customer, and the way to improve the system is to improve your knowledge. Dr. Deming never had ten easy steps to success. His method is a philosophy based on continually improving knowledge."

Why cannot a philosophy be adopted in "ten easy steps"? What implications does this have in learning for improvement?

## A STUDY IN CONTINUAL IMPROVEMENT PART II

### INTRODUCTION

*A Study in Continual Improvement, Part II* completes the discussion of Profound Knowledge begun in Part I and contains examples of changes that take place in an organization managed for continual improvement. Remember that examples are not presented to be copied. What works in one setting may not work in another. The key is to understand Dr. Deming's philosophy to determine whether a change will turn out to be an improvement.

Change begins by developing a vision, a mission, and guiding principles with the help of people at all levels in the organization. Part II contains the fourteen guiding principles Reston Hospital Center developed based on Dr. Deming's 14 Points. Many of the improvement examples included also come from Reston Hospital Center.

We also learn what an organization looks like when it has successfully begun implementing quality principles. Personnel begin behaving differently. When they learn that their efforts will be supported and that they have the knowledge, the tools, and the freedom to begin initiating their own improvements, they are willing to take on the responsibility for improving their own processes. When everyone is able to think that way, continual improvement is possible.

### QUESTIONS

1. Part II opens with a story of doctors at one hospital who "wanted to know why when a woman had her first child by cesarean section, she would want a c-section for any future child, even if it weren't medically necessary. Under the old system, the doctors might have guessed at an answer. And they would have guessed wrong. Under a quality management system, they collected and studied data and found the answer."

Dr. Batalden explains, "The women said, 'I'm going to have my baby by repeat cesarean section because my mother said it was unsafe [to attempt a normal delivery].' Well, these doctors had created education programs, but they'd left out the critical information resource. Well, only by studying that and learning that did they then include grandma back into the information loop so that she was able to give more reliable information."

How would you describe the difference between the old way of decision making and the new?

2. Lloyd Dobyns says, "Any solution on its own doesn't sound like much. But as these little improvements are made, the culture of the hospital changes; people learn to cooperate; their attitudes change; and they become devoted to continual improvement. In that way, any hospital can learn to deal much more easily with the evolutionary and revolutionary changes in healthcare that are going on."

Why? What is the most important element of change? Can any element be negative?

### **Profound Knowledge: Understanding Systems**

3. Lloyd Dobyns continues, "The first step is to remember that the hospital is a system made up of multiple processes, as we discussed in Part I. If you forget that, we're in trouble:" We would be in trouble not only because that would mean you'd already forgotten an entire tape, but also because all the parts of Profound Knowledge work together. Therefore, if you don't understand systems – or any of the other parts of Profound Knowledge – you won't be able to improve continually.

Eileen Street says, "I think physicians historically think in terms of process, and that's the way they think from the time of medical school, because that's how you approach the patient. What is difficult, I think, is to think in terms of the system. "

What is the difference between process and system? What does she mean when she says that process is how doctors approach the patient? Why is it difficult to think in terms of the system?

4. Dr. Batalden says, "It's interesting to me that healthcare professionals understand systems. After all, they know that we're more than the liver, plus the kidneys, plus the lungs. They understand that the parts work together. And yet, they lack the understanding of the way their work functions as a system. That's why that flow diagram is such a wonderful help."

How could healthcare professionals be helped to understand the organization as a system?

### **Profound Knowledge: Understanding Variation**

5. Dr. Batalden says, "We know that every patient varies, every doctor varies, every nurse varies, every hospital varies, and every combination thereof varies."

What implications does this have for the management of a hospital or any healthcare institution?

6. Lloyd Dobyns says, "Variation is everywhere, but it can be statistically measured, and that statistical data can be used to reduce the variation. The less variation, the more predictable the result."

How is a more predictable result helpful?

7. Lloyd Dobyns adds, "The theory of variation says that whatever happens – good or bad – is either built into the system or is some kind of fluke. If it's built in, it will continue to happen; if it's a fluke, it may or may not, and the way to tell the difference is statistics."

Why is it important to be able to tell the difference? What effect would this have on your attempts to improve your own processes?

8. Lloyd Dobyns says, "Remember that variation deals as much with people as with processes, and you knew that without being told. There's not one of us who hasn't had better days and worse days, that we couldn't explain. You can now; you're a victim of variation."

What does variation tell you about the practice of measuring outcomes?

### **Profound Knowledge: Theory of Knowledge**

9. Lloyd Dobyns explains, "The theory of knowledge says that a theory is a belief about how and why things work, and without a theory, nothing can be predicted."

Dr. Deming says, "When I say I have a hunch or I plan or I believe so-and-so, I am predicting. Management is prediction."

What does he mean?

10. Lloyd Dobyns says, "The trick for management is to know what their theories are and be prepared to challenge those theories when circumstances change. By using and challenging your own theories, you build a base of knowledge for improvement."

What does he mean? Why is it necessary to have a base of knowledge for improvement?

11. Dr. Batalden says, "Doctors are used to building knowledge with a theory. They're not used to building organizational knowledge with a theory. But once you point that out to them, they understand."

Is it sufficient to improve medical knowledge without also improving organizational knowledge? Why is it important to build knowledge with a theory? What are the risks of not having a theory?

12. Dr. Deming says, "Without theory there are no questions, without questions no learning. Hence, without theory there's no learning."

Lloyd Dobyns says, "Dr. Batalden tells the story of a laundry worker in a hospital who had, entirely independently, drawn a flowchart of the job. That, by the way, is a good indication of success – when workers act independently to improve what they do. At that hospital, the administrator was in the laundry and asked the worker what the flowchart was."

Dr. Batalden explains: "He said, 'A flow diagram – it's a flow diagram of the way that I do the laundry.' And she said, 'Well, why did you do that?' And he said, 'Just curious. And I noticed that I could work on improving what I do this way. That doesn't matter.' And she said, 'Oh, yes it does. It's wonderful!'"

What does this story illustrate?

13. Dr. Batalden says, "With widely varying levels of formal education, many people can participate with a theory that is straight forward and simple in its conceptual approach and design. And so that has helped democratize the scientific method in a way."

What does it mean to "democratize the scientific method"? What is the benefit of that?

14. Lloyd Dobyns says, "All the tools in the world – teams, statistics, good examples – won't work unless you understand *why* they work."

Why must you understand why things work?

15. Dr. Batalden says, "Most significant knowledge, and the tension for change and building new insight into knowledge comes from outside, I think."

What does he mean? Why must knowledge come from the outside? Outside of what?

16. Lloyd Dobyns says, "You can use the Shewhart cycle – also called the Deming cycle – to achieve continual improvement. It has four steps – plan, do, study, act – but they are not equal. More time should be taken in step one, planning, than in any other. You plan a change, and you predict the outcome based on your own theory. You do the smallest test you can devise to limit damage in case your idea does not work. You study the results of that test and act on what you've learned, especially if your prediction is wrong, because maybe your theory is. Be careful: Variation can creep in here as well."

Why is more time spent in planning? How does this cycle relate to what Dr. Batalden said about democratizing the scientific method? Who should use the Deming cycle?

## **Profound Knowledge: Psychology**

17. Lloyd Dobyns says, "To get people to work together and take chances, you must understand human psychology. How do you get people to do what needs to be done?"

Dr. Deming says, "We need knowledge of psychology. Why? Because psychology helps us to understand people, interaction between people, interaction between people and circumstances, interaction between teacher and pupil, interaction between a leader and his people and any system of management."

Why is it important to understand the interactions between people? How does this relate to the discussion of systems?

18. Tom Miller says, "You've got to encourage risk taking. You're not going to be right all the time. The key part of a team is when you take a risk and other people are involved; how can they help you make sure the risk is a risk that makes some sense down the road?"

Why is it important to encourage risk taking? What does he mean when he says that it's important to make sure the risk makes some sense down the road? How does this relate to use of the Deming cycle?

19. Eileen Street says, "Because you really need to work on making the environment such that it's OK to try this. There's no penalty if I fail."

What are the benefits of that sort of environment? Are there any drawbacks or risks? If so, how can they be properly balanced using the Deming method?

20. Dr. Silfen says, "To get physicians to participate was usually difficult, mainly because the only issues that were ever discussed were issues of bad events, bad things that happened – physicians that made mistakes."

Why would that make it difficult for physicians to participate? What kinds of changes would make them more enthusiastic about participating?

21. Dr. Batalden says, "When something has gone wrong, it's been convenient to blame the doctor or blame this nurse. A recent study of those kinds of incidences confirms what you've been saying all along. It says that the blame belongs to the system – that's a big change for us. There is a whole legal system out there that thinks differently."

If the blame belongs to the system, what are the implications for management? How does the legal system think?

22. Judith Riggins says, "The biggest selling point is that we can stop looking at individuals and quit pointing fingers and saying, 'You're bad,' and start to look at the processes. "

Why is that such a big selling point? What happens when you look at the process instead of individuals?

23. Eileen Street asks, "If I try this and it doesn't work, what have we learned from this? What changes can we make the next time? What opportunities do we have? And really looking at it as an opportunity versus a failure."

How does this fit into the Deming cycle? How could something which could be seen as a failure actually be an opportunity? How will seeing it as an opportunity help the quality program? What will it do for morale?

24. Judith Riggins says, "It's much easier to improve a process than to improve a person."

What does she mean? Why is that true?

25. Dr. Silfen explains the attitude accompanying the quality improvement process: "We were doing the best we could, and now there is a way to do it better." He adds that "in a very positive attitude like that, you can get a lot of participation."

Why would that attitude be more likely to attract participation? If you find a better way to do something, does that mean you were doing it wrong before? Why?

26. Judith Riggins says, "Most people in healthcare choose healthcare because they want to help, they want to be of help to others."

What does this say about the things that motivate people in healthcare? What does this say about the value of a philosophy that will allow them to improve their work?

27. Dr. Deming says, "One is born with a natural inclination to learn and to be innovative. One inherits a right to enjoy his work. Psychology helps us to nurture and preserve these positive innate attributes of people."

How is this different from the way things have been done in the past? How will this affect quality?

### **Deming's 14 Points and Reston Hospital Center's 14 Guiding Principles**

Lloyd Dobyns says, "Along with Profound Knowledge, you need Dr. Deming's 14 Points to get a quality program started. They require that you have a mission and vision – what

are you trying to do and why? – and they require that you think about what you do. Reston Hospital Center now has its own 14 points."

**Point one. Learn the new philosophy of continuous improvement which optimizes our individual and collective roles in improving quality.**

28. Tom Miller says, "There has to be very specific guiding principles that are well communicated throughout the organization."

Why? Why do they need to be specific? What sorts of issues do these guiding principles need to address? What happens if they are not well communicated? Do these principles equal the aim of the system?

**Point two. Share our mission, guiding principles, and vision; lead by example; enable others to act; and promote teamwork.**

29. Tom Miller says, "It's my primary responsibility. It has to be the primary responsibility of the whole management team within the hospital."

Is this management's first responsibility? Why?

**Point three. Continuously improve every process.**

30. Judith Riggins says, "it has to happen where the process is. It has to be improved by the people who are closest to the process."

Why? What is the primary tool for making process improvement?

**Point four. Create an environment of trust and open communication.**

31. What are the benefits of trust and openness?

**Point five. Respect the talents people bring to their jobs and believe people want to do their best.**

32. What are the bases of this point?

33. Tom Miller says, "We have nurses that are master's degree trained and high levels of professionals. The satisfaction that they have within the organization is being involved in the decision-making process, and communication with them is vital for quality improvement."

What is likely to happen to highly trained people who aren't allowed to participate in decisions?

**Point six. Value the growth and development of people. We will invest in job training and encourage selfimprovement.**

34. Eileen Street says, "The way we went about it was... beginning by educating the senior leadership, because it needs to begin at that top level and filter through the organization. The senior management has to be able to support the middle managers, who have to then be able to support the staff in this effort."

Why must quality begin at the top level? What happens if it doesn't?

**Point seven. Support creative thinking in the improvement of systems and development of services. We will pay particular attention to the ideas of those closest to the work.**

35. In the middle of Reston's fourteen guiding principles, Lloyd Dobyns adds a caution: "Because there is an emphasis on letting the people closest to the work make a their own improvements, there is a terrible temptation to say that the people at the top just sign checks and lead cheers. They had better be hard at work on system-wide improvements that no one else can make, and they had better be planning for the future.

"The reason for letting lower-level people help make their own improvements is to free executives to do the work they ought to be doing, and one of those jobs is planning."

Why did he need to warn us about this? What happens if leaders only sign checks and lead cheers? Are there any other reasons for letting lower-level people make their own improvements?

36. Eileen Street tells of some of the questions they asked themselves before beginning the quality improvement process at Reston: "What environment is it we want to create in Reston? We looked at our hospital as a system. What is it that the hospital needs to be? What services do we provide? What is it that our community needs us to be? Who are our customers? What are our core processes in the hospital? What is it that's important?"

Why are these important things to know? What other questions could you ask yourself?

**Point eight. Focus on systems improvement, understanding that defects come from processes, not people.**

37. Eileen Street outlines the three major areas where the quality improvement process at Reston Hospital Center focuses. "What we've done is try to really focus on how we can better deal with our customers, our process, and think better in terms of data."

Why is each of these areas important?

**Point nine. Recognize our internal and external customers and seek to anticipate their needs. We will identify opportunities for improving by listening to our customers.**

38. Eileen Street explains some of their quality training and gives us the benefit of her hindsight: "We made the middle managers have some practice projects, so they really had to look at a process that they owned. And they had to begin to look at gaining knowledge about their process – who were the customers – and begin to look at an improvement effort. That's not something we did with the senior managers; and, in hindsight, we should have."

What are the advantages of having middle managers take on improvement projects? What about senior managers?

**Point ten. Acknowledge physicians as partners as well as customers. We will involve physicians in the continuous improvement of systems.**

39. Eileen Street adds, "I really do think that the more you apply it internally yourself, and you begin to look at how you improve your own process, the better able you are to facilitate or to help the person that you need to support in that effort."

Why?

**Point eleven. Believe the value of a product or service is measured by more than price alone. We will build mutually beneficial relationships with suppliers committed to quality improvement.**

40. Eileen Street asks, "Who are our suppliers? What inputs do they have? What is it that we actually need to improve?"

Who defines quality?

**Point twelve. Use statistical thinking to understand processes and reduce variation.**

41. Eileen Street says, "A lot of people in the hospitals are used to the program of the month, and they're used to a program focused on customers. And this really does focus more on a process. And we look at it as a quality improvement process."

What is the difference between a program and a process?

**Point thirteen. Understand purpose of inspection for improvement of processes and reduction of cost.**

42. What kinds of inspection do not improve processes or reduce costs?

**Point fourteen, recognize the efforts of teams and celebrate their successes.**

43. What does this mean for compensation and incentive systems?

44. Tom Miller says, "We've had to reshape our thinking, even though we might do something that's harder from a staff standpoint. If the end result is that the customer is processed – in working through our core processes better – that's what we're going to have to do."

Why is this harder than not changing?

45. Lloyd Dobyns tells about changes in Reston's admitting department: "Nothing particularly startling was done, but by setting up two teams of nurses, the process changed, and the patients say it's a lot easier and faster, and they can understand what's happening. Someone might have stumbled on that solution through good luck, but at Reston they use well-defined aims to achieve improvements in an atmosphere of continual improvement."

If improvements can be achieved through luck, why have a quality improvement process? What is the value of well-defined aims?

46. Lloyd Dobyns talks about the old quality assurance system: "People focused on results instead of processes. All sorts of measurements were kept, but there was no method of improvement built in, and only a few people were involved in collecting the data."

What are the advantages of focusing on processes instead of results? Why not have only a few people involved in collecting data? Who should be involved in collecting data? What are the assumptions behind comparing outcomes produced by individual physicians or hospitals? How does having an understanding of variation affect those assumptions?

47. Dr. Deming says, "That's quality by inspection. It's the worst way to go about it... I mean unreliable."

Why is quality by inspection such a bad way to achieve quality? What are the costs (financial and otherwise) associated with an inspection-based approach?

48. Judith Riggins says, "Quality improvement took us the next step in that we looked at the process of how things were done instead of who was doing them."

What's the advantage of that change?

49. Eileen Street explains how changes are made: "Now we look at that data over time. And then we say, 'Are there opportunities for improvement? Are there examples of some special cause that we need to investigate? Are there process improvement opportunities? Are there variables that we need to impact?'"

How does it help to look at data over time? What other questions need to be answered?

50. Judith Riggins says, "We knew how to collect data, and we knew how to analyze data, so that was the first... I think that was one of the big turning points when we started to merge those two [Quality Assurance and Quality Improvement]."

Dr. Silfen says, "We wanted to look at everyone who was actually getting good care and see if there was a way to make it better, and we feel that that's where the leverage is in doing this kind of thing."

What does he mean? Why is the leverage in improving what is already considered good? How does this relate to what he said earlier (in Part II, question 25) about doing the best they could?

51. Sue Anderson, Director of Same Day Surgery and the Post Anesthesia Care Unit, says, "Before, QA was just certain people doing it monthly, or a certain person doing it for the year. Now QI is everybody being involved; it's hitting the departments that actually interface with you."

What is gained from involving everybody?

52. Eileen Street says, "So we have much more of a process orientation as opposed to just looking purely at the numbers."

What's wrong with looking purely at the numbers? Are there improvements to be found by studying processes which would not be apparent through the numbers alone?

53. Lloyd Dobyns says, "Installing a quality management system is always demanding and always difficult, and there are always people who are less enthusiastic about it than others."

Why? Why would some people be unenthusiastic about quality management? How might their enthusiasm and participation be gained?

54. Judith Riggins says, "A lot of people thought, 'Oh well, this is just another program; it's not going to be any more beneficial than the others.'"

Why might people think that? Would that make them reluctant to participate? How is quality improvement different from those other programs?

55. Eileen Street defines one problem as "relying too much on the jargon, relying too much on the tools and not enough on what is the process, what are we trying to improve, on the questions that help you progress in terms of quality improvement."

What does she mean by "relying too much on the tools"? Why is it important to ask questions about the aim of the process? What are the risks involved in relying on the tools? What role do tools play in the improvement process? How can managers ensure that tools are not overemphasized?

56. Judith Riggins says, "I felt that the quality program probably was going to be our best hope for containing costs in healthcare."

How does quality reduce costs? Compare the costs associated with quality with those associated with inspection. Is there any danger in focusing on cost savings? Does cost saving improve quality?

57. Lloyd Dobyns and Dr. Batalden tell about one hospital which found cost savings in the prescription of antibiotics simply by listing the drugs by cost on the lab reports. As Lloyd Dobyns points out, "Doctors usually get free samples from the pharmaceutical companies, so only the pharmacist knows what new drugs add to the cost."

Are there any other examples of areas in the hospital where those who incur costs have no knowledge of the costs associated with their work? What about people who have knowledge but no control?

58. Lloyd Dobyns also tells about an improvement project at Reston Hospital Center, where they studied why the staff wouldn't wear safety goggles to protect themselves against HIV and hepatitis infection. Then Barb McDonnell, director of the operating room, explains that the glasses provided by the hospital "were cumbersome; they slid off their faces when they put their heads down; and they wouldn't wear them because they were inconvenient, and they distorted their vision. So we went on an investigation on what was available for protective eye wear, which is what we show right here. And what we found in our investigation with the staff was everyone loved these goggles. They are very lightweight, comfortable to wear, and now you'll see them all over the hospital." This is a case of management providing inappropriate equipment for the staff. They wouldn't use it even for their own safety.

We also hear about Kathy Provencher, clinical coordinator in the Critical Care Unit at Reston, who thought that there might be a difference in infection rates from different methods of intubation. She began to study the question on her own, using her tools as a nurse and using the process study and improvement tools learned through the quality improvement process. This story demonstrates an environment in which staff not only is able to make improvements, but they are empowered and actually do it.

What kind of support is necessary for staff to be able to make these sorts of independent contributions? What kind of support is necessary for staff to feel free or even encouraged to make these kinds of contributions?

59. Dr. Silfen says, "People are not just empowered to do what is specifically written down and what they specifically thought they were hired for."

Why? How does this help? What conditions are necessary for employees to be "empowered" in this way?

60. Eileen Street says, "The biggest plus we have is having people enjoy a lot more what they do here everyday."

Why is that the biggest plus? What effect will employee morale have on patient care? How about its effect on their participation in the quality improvement process?

61. Lloyd Dobyns says, "The quality department at Reston Hospital Center works with employees to help improve their processes and to teach them the critical questions that have to be asked if there is to be improvement."

Eileen Street explains how they begin making improvements: "Asking the questions – what's the aim of what you want to do? How does the process work right now? What variation is there in the current process? How do we think we can improve that process? And then beginning to study onto a PDSA cycle if you suspect that there is an improvement."

What do the answers to these questions tell you? What other questions could you ask yourself to help focus your improvement efforts?

62. Lloyd Dobyns says, "It is important to remember that what you are trying to do is not so much fix what is wrong – you would do that anyway – but you also want to improve what is right. That's what continual improvement means."

Why?

63. There are several milestones a healthcare organization will pass along the way:

- Managers, especially your most senior managers, are educated
- A statement of mission, vision, and guiding principles is written
- Staff is educated and trained
- Doctor participation is encouraged
- Quality Assurance and Quality Improvement are combined
- Improvements are suggested by staff members and senior managers

Lloyd Dobyns says, "While they are not indicators of ultimate success, it's nice to know you are making progress."

What is an indication of ultimate success? Is there such a thing?

64. Eileen Street says, "I would say the quality improvement process is not difficult to accept. I would say it's something very new. It's a new way of thinking."

What does she mean?

65. Dr. Batalden says, "The changes people notice are sometimes hard ones to measure because they're a change in insight; they're a change in understanding; and they aren't a quick project that will save hundreds of thousands of dollars."

What does he mean by "a change in insight," and "change in understanding"? How do you know if your changes are good if you can't measure them? Does that mean they're less valuable?

66. Dr. Silfen says, "if you can improve one little part of the patient care, and you take care of twenty-five of those types of patients per year, one physician can find that very valuable."

Eileen Street says, "Not every process that you've looked at leads to an improvement. But what happens in the interim is that every person who studies it gains more knowledge of that process, identifies who those customers of that process are, and has a much better idea of what that customer needs or expects from that process. And it's just something that they've not had before. So they've gained new knowledge."

Must a person have an immediate application for every bit of new knowledge gained?

67. Dr. Batalden says, "Those are changes that are hard to measure, that are hard to sort of write articles about, hard to explain to outside people, but they're very fundamental changes."

Dr. Batalden continues, "It's a journey that may take them five, 10, 15 years – it may take 20 years. I don't know how long it's going to take, but it's going to take a long time. But changes begin to happen soon even though the journey is long."

Why is the journey long?

68. Lloyd Dobyns wraps up the show by saying, "This is not, we know, a dramatic story. Quality improvement has not wiped out death and disease; people still get desperately ill, and some of them do not recover. We know hospitals that have made improvements, and they don't have quality improvement programs. But they are unable to make continual

improvements, to involve everyone in a continuing effort. As we said at the beginning, it isn't individual improvements that are critical, it's the change in culture, the change in attitude."

What does he mean by "change in culture, change in attitude"? Why is that more important than individual improvements?

69. Lloyd Dobyns continues, "That must start with top management. The staff did not cause the problems, and the staff cannot solve them. Problems were caused by the system, and the system belongs to management. Only if top management is active, involved will there be quality improvements. When everyone – from the top down – wants to make things better, and has a way to do that, even what is already good, gets better."

What does he mean when he says "the system belongs to management"? Why improve what is already good, rather than just solving problems?

## APPENDIX A

### QUALITY IMPROVEMNT POLICY: EXAMPLES FROM HCA RESTON HOSPITAL CENTER

**I. Mission** Identifies who and what we are today. HCA Reston Hospital Center is a regional healthcare provider, whose mission is to provide needed services to our customers in an environment of continuous improvement.

**II. Guiding Principles** Provide a leadership framework for our organization.

To reach our vision, we will:

1. Learn the new philosophy of continuous improvement which optimizes our individual and collective roles in improving quality.
2. Share our mission, guiding principles, and vision; lead by example; enable others to act; and promote teamwork.
3. Continuously improve every process.
4. Create an environment of trust and open communication.
5. Respect the talents people bring to their jobs and believe people want to do their best.
6. Value the growth and development of people. We will invest in job training and encourage self-improvement.
7. Support creative thinking in the improvement of systems and development of services. We will pay particular attention to the ideas of those closest to the work.

8. Focus on systems improvement, understanding that defects come from processes, not people.
9. Recognize our internal and external customers and seek to anticipate their needs. We will identify opportunities for improvement by listening to our customers.
10. Acknowledge physicians as partners as well as customers. We will involve physicians in the continuous improvement of systems.
11. Believe the value of a product or service is measured by more than price alone. We will build mutually beneficial relationships with suppliers committed to quality improvement.
12. Use statistical thinking to understand processes and reduce variation.
13. Understand purpose of inspection for improvement of processes and reduction of cost.
14. Recognize the efforts of teams and celebrate their successes.

**III. Vision** Describes what we want to become. Our vision for HCA Reston Hospital Center is to provide healthcare services at "best value" for our customers in an environment of continuous improvement.

## **APPENDIX B**

### **SOME NOTES ON MANAGEMENT IN A HOSPITAL**

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A hospital is an important component in a system of medical care. In a system that is operating efficiently, workers know how their work fits into the system. Everyone would feel important, and would work with people that likewise feel important.

Hard work and best efforts are not sufficient for optimization of a system. A system must be managed. The administrator of a hospital knows a lot about what happens in the hospital. So does a head nurse. A head nurse, for example, knows a lot that the administrator can not see. Likewise for any nurse that works there. The physicians that attend patients know a lot about the hospital that no one else knows. A patient in the hospital sees what no one else sees.

All these different observations, from different points of view, were they known, might be helpful to the management of a medical care system.

The notes attached were written by an observing, grateful patient. They show how best efforts of nurses, with their special skills and knowledge, are to a large extent

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squandered. The nurses must be discouraged, seeing a large portion of their efforts as fruitless. How can a nurse feel important under such conditions?

The author has hopes that publication of these notes written from a patient's point of view may make a contribution to improvement of the management of medical care.

### **A Hospital Patient's Notes**

Well, here I am – flat on my back, literally and in other ways, right ankle resting on three pillows. Elevation is vital to treatment.

My nurse of the moment (R.N.) came in at about one o'clock to wrap my leg from the knee down in a hot towel and insulator. As a first step, she turned on the hot water in the washbowl, as she needed hot water for the towel (some nurses use the microwave for this purpose). She then departed, saying, "I'll be right back." A social worker dropped in about a half-hour later. I asked her if she would mind turning off the hot water to avoid more waste of water and energy. She did. In another half-hour, the nurse came back to put on the hot towel, turned on the hot water, and completed the job.

Dr. Sch ordered from the drug store (in the hospital) a paste for the itch caused by the sore leg. The drug store was out of one of the ingredients; must order it from the wholesaler, and can not make up the paste till Monday. As this is Saturday, no delivery from the wholesaler till Monday. I need it tonight. On prodding from Dr. Sch, the drug store sent someone out to another drug store to fetch the missing ingredient. The paste came up that evening.

It may seem unbelievable, but the same scenario took place some days later. My nurse of the afternoon ordered from the drug store a refill for the paste. No problem, except that there would be a delay, as (again) the drug store would have to order from the wholesaler one of the ingredients. Tomorrow will be Saturday, next day Sunday, Monday a holiday. They would send up a substitute, which would be in the form of a lotion, not paste.

On another day, my nurse of the moment (R.N.) came in three times between 8:30 a.m. and 10 a.m. to say that she would be right back to make my bed. I offered to get out of it so that she could make it up straightaway, but she may not have heard me. Each time: "I'll be right back." Anyhow, near noon she came back and actually did the job. Of course, I'll live, bed made or no.

I wonder: Why is a registered nurse making beds? It seems to me that making beds is not good use of her time. Her education and skills could be put to better use, so it seems to me. Are there not helpers to do this kind of work? But maybe there are reasons that I don't understand.

All the while, nurses are on a dog-trot, panting for breath, working at top speed, losing time, not for start-up, but for no start. I know all about it; this is my way.

I was wondering about these heavy thermometers with a heavy electric cord attached. Speedy, yes, but impossible for a patient to hold correctly because of the heavy cord. The patient can only hold the thermometer against his cheek. The reading could be a whole degree low, I surmise. The aide that records temperature seemed to be totally indifferent. A reading, after all, is a reading.

The wash basin in my room has not enough space on it for a shaving mug, barely for a shaving brush. Bought at the lowest price tag, I surmise.

The man that designed the shower had obviously never used one. The shower head, when not held by hand, can only dangle and flood the floor. There is a tiny shelf in the shower big enough to hold only a wafer of soap. There is only one bar to hold on to. Use of this shower would be risky business without a friend close by for rescue. Somebody sold somebody a bill of goods.

Intravenous diffusion [sic] due at 6 a.m. The nurse came at 5:05 a.m. to insert the needle into the more or less permanent spigot, known as a Heparin Lock, in my left arm and departed. The infusion would run around 90 minutes. Meanwhile, some time after she left, in reaching for something on the shelf, I reached too far and pulled the needle out of the Heparin Lock. The nurse, when she came in around 6 a.m., saw what bad happened. She was startled, but said not a word. She merely carried everything away, liquid and tube. I supposed that she would return and start over. Time went on. No return.

At 8:30 a.m. I reported to Meg, head nurse in charge of the shift, that the intravenous effusion [sic] had not been given. It might be important to me, and important to Dr. D., else why bother with it? Meg's first impulse was to call (at home and maybe asleep) the nurse that left the job undone. It seemed to me, I told her, that it matters not what the nurse might say. I know what happened, and what did not. I called Dr. Sch. His secretary said that she would notify him at once and that he would call Dr. D.

The infusion came straightaway. The head nurse returned to say that the nurse that was to give the infusion had recorded the infusion as given. It is possible that she recorded it in advance, with the intention to give it, and did not correct the record. Is this the regular procedure, to record intentions? Who would know?

An unsuspecting physician, looking at the record of his patient, would assume that the infusion had been given, and could draw wrong inferences about how the patient had been doing on the drug. In my case, as it turned out, no harm. But how would he know? A nurse, or a physician, has a right to suppose that the medication was delivered as ordered and as recorded.

What is the purpose of the record? To inform the physician about intentions, or to tell him what happened?

Dr. Sch assured me that he is running this lapse down in every detail, and that nothing like it will ever happen again here – the usual supposition: working on only an actual defect, not its cause.

A little figuring told me that insertion of the needle at 5:05 a.m. for infusion to start at 6 a.m. (if she came back on time) would tie the patient in bed for over 2½ hours: the first hour tied in bed, then 1½ hours for the infusion, plus time added for the nurse to come to take the needle out of the Heparin Lock and take the whole thing away. This long time in bed, with ¾ cup of liquid infused, could create great discomfort for a patient.

She (R.N.) would "be back in 20 minutes," to take the wrapping off the hot towel and insulation that she had just wrapped my leg in, and would apply the cream prescribed. One hour and five minutes later, almost time for my I.V., I rang the bell to call her. She returned in 15 minutes, unwrapped my leg, and started the I.V. just about on time.

The food is superb. The lasagna yesterday noon was the best that I have had since the days of Iacominni's Restaurant in Akron. The baked chicken today was superb: wing attached, browned to perfection, and the sweet potato, all steaming hot. Excellent beef and barley broth.

Such food in a fine restaurant would cost \$20. If only the food came on dishes with a white or light colored moulded pattern, instead of on battered brown. These trays and dishes were purchased at lowest bid, I surmise, or maybe were donated by a soup kitchen on purchase of new ones.

The Fettuccini Alfredo for dinner Monday night was the best ever, with three packets of Parmesan cheese, as good as any Fettuccini Alfredo that I ever had this side of Rome. The broccoli soup was delicious. The beautiful looking apple dumpling was hot and tempting. I had already eaten enough food, but with one taste, just for trial, the dumpling was irresistible, so I finished it whether I needed it or not.

Fifteen hours elapse between dinner and breakfast. I was hungry in the middle of the night, first night. Fortunately had candy bars on hand.

I have learned how to acquire and store up food like a squirrel if I get hungry during the night. I order for dinner milk as well as coffee, set the milk aside for use during the night. On hand, from friends, I have wonderful Scottish short bread from Scotland, Waverly crackers, and candy bars. Also, I order a ripe banana for breakfast every day, and put it in storage. I now have two bananas on hand, the number that I started with, but not the same bananas. FIFO is my system, first in first out.

An aide comes along around 9 o'clock at night to hand out juice or (I surmise) soft drinks, or milk, but I now have my own food.

The chair in this room is huge, would seat two people, takes up an exorbitant amount of space, heavy to move. Somebody had good intentions. It can be adjusted to go back as a foot-board moves into place, but need it be so big and heavy? Why not a movable chair?

The coat hangers here are the maddening kind, found in most hotels. How I wish that I had known about them before I sent that check to this hospital a year ago: I should have designated \$10,000 of it to go for new racks and honest coat hangers in the rooms.

I had a new full-size bar of good soap on the washbowl. The girl that picks up trash must have thought that this kind of soap is not suited to my kind of skin. Anyway, the nurse of the moment brought to me for replacement a new bar of soap, tiny but appreciated.

My nurse of the moment put on a hot towel this afternoon. "I'll be back in 20 minutes, and if I don't come, please ring." Sixty-five minutes later I pressed the button. A helper came in and explained to me that this was not her kind of job, so she cancelled the light for the nurse and went off. Thirty minutes later I rang again for the nurse. The same helper came and observed again that the job was not in her line of duty, so again she cancelled the light and went off. The solution was simple, for me – merely discard the towel and insulation myself, with the rules or against the rules. The same event recurred another day.

This experience leads to questions and guidelines. Why should an aide, unable to perform the task, cancel the light? The nurse on duty for that light would not know that her patient needed a nurse. What if a nurse was suddenly vital to a patient? If he was in a single room, he would be left stranded. His nurse would not know that he had rung for her. In a room with two patients, the other patient might be able to fetch a nurse. Moral: If you are acutely ill, don't go into a private room unless you have your own private nurse on duty at all times.

Shirley, a registered nurse, came to see me as a friend. She made the remark that a Heparin Lock ought to be examined at the end of 48 hours and maybe changed. It has now been in eight days. Later, I asked one of the nurses how long it should stay in one place. A nurse came and changed it from left arm to right arm.

What is the moral of all this? What have we learned? One answer: the Superintendent of the hospital needs to learn something about supervision. Only he can make the changes in procedure and responsibility that are required.

Talks between physicians and nurses, even with the head nurse, accomplish nothing. The same problems that I have noted will continue. A physician can not change the system. A

head nurse can not change the system. Meanwhile, who would know? To work harder will not solve the problem. The nurses can't work any harder.

Ceil, my secretary, runs back and forth from here to my study, only a mile away, to try to keep work moving. I have accomplished work on manuscripts due soon, and have caught up with a number of letters that have been dangling, also with some reading and re-reading in *Harper's Magazine*, *The Atlantic Monthly*, and others. It is not easy to read and to write while in bed with leg up. I violate instruction now and then, in order to write or to sign a letter, sitting up on the side of the bed, leg dangling.

I estimated, on my prescribed four walks per day up and down the corridor, that from half to a third of the beds were unoccupied. Saturday and Sunday could have been even lower and with less bustle. Vacant beds raise the cost per patient.