

# **Quality Improvement in Russian Health Care: New Tools for a New Task**

Stanley Tillinghast, M.D.  
Director of Quality Improvement,  
*ZdravReform* Program, Russia

## **INTRODUCTION**

The ZdravReform program underway in Russia and other countries of the former Soviet Union is designed to integrate health care financing and organizational reforms, medical information systems, and modern quality improvement methods. The overall goal of ZdravReform is to achieve the highest level of quality of medical care for the population served, within the severe financial constraints that are currently restricting funding for health care in these countries. In these difficult economic circumstances, it is especially critical that available resources be used wisely.

The particular strength of the ZdravReform project is its integration of the most important aspects of the health care system needed to bring about improvement in quality and cost-effectiveness of health care. Demonstration projects in finance reform are designed to provide incentives to hospitals, polyclinics, and physicians to make more efficient use of resources, through such means as capitation payment systems. Information systems are being implemented in participating polyclinics that will provide needed financial, clinical, and quality measurement data to promote higher quality and cost-effectiveness. And the latest quality improvement methods from experience in the U.S. are being introduced to help update clinical practice, and further assure that resources are utilized wisely. Without the first two components, quality improvement efforts alone would have much less chance of success. Our experience in the United States reinforces the synergy of multiple components to success in improving quality while controlling health care costs: a competitive environment that demands accountability for resources used; financial incentives designed to control costs; rapid and reliable information; critical analyses of scientific evidence on the benefits and costs of diagnostic and treatment interventions; and a strong commitment to continuing improvement in systems of care and their supporting organizational structures.

### **Major Problems in the Health Care System**

1. Distribution of physicians; excessive specialization

The number of physicians per population is about 1 to 215; this is about the same as the San Francisco metropolitan region area, an affluent area which is acknowledged to have far too many doctors. In contrast, managed care systems in the United States such as Kaiser Permanente have about 1 physician per 800 population.

In American managed care systems, about half the physicians are specialists; in contrast Russia has about 70% specialists in its physician pool. The Russian health care system is built around the specialists, in both polyclinics and hospitals. In pediatric polyclinics we have visited, there was no otoscope in the pediatrician's office; if a child complained of ear pain it was sent to the otorhinolaryngology clinic. This high degree of specialization is accompanied by atrophy of skills of primary care physicians, who have no financial incentives to treat

patients themselves, and strong disincentives to do so. Although the specialists are much better at treating the specific problems that fall in their area, management of the patient as a “whole person”, including education of the patient toward healthy behavior and attention to psychological needs is neglected. The most efficient care is provided by a practitioner who knows the individual patient well; so continuity of care by a primary physician further contributes to cost-effectiveness, as long as the quality of care is good. Achieving such quality, however, probably requires significant upgrading of skills of the primary care physicians.

## 2. Excessive hospitalization

It is generally recognized that, in comparison with the U.S. and western Europe, Russia’s health care system is characterized by much higher rates of both hospital admission and length of stay. Some of this is due to economic and social conditions: patients are admitted for treatment that is paid for in the hospital, and not covered by insurance as an outpatient; or patients are kept longer because the family situation is too troubled to assure adequate care at home. But much of it is due to built-in perverse incentives to both hospitals and polyclinics. Polyclinic doctors find it easier to refer patients to the hospital for admission, with no financial penalty for the polyclinic. Hospitals, unless paid on a finished-case or diagnosis-related group (DRG; also known as clinical-statistical group) basis, have no financial incentive to send patients home early.

## 3. Outmoded treatment styles

In our opinion, a large part of the reason for very long hospital stays is reliance on treatment methods that would be considered obsolete in the U.S. On the basis of clinical research results that demonstrate better health outcomes for patients who are mobilized and discharged earlier after surgery, myocardial infarction, or other conditions, and motivated by DRG payment mechanisms, American hospitals have drastically decreased lengths of stay, with no decline in health outcomes as long as quality assurance mechanisms are in place. Injectable antibiotics used where oral antibiotics would work as well; vitamin injections of doubtful value; and hyperbaric oxygen treatment for questionable indications are other examples of major differences between Russian and U.S. treatment styles.

## 4. Reliance on “expert authority” instead of scientific evidence

Part of the reason for the above may in turn lie on reliance on medical standards based on “expert authority” rather than critically analyzed scientific evidence. We will discuss below how the latter may be used to improve the quality and cost-effectiveness of care. Certainly there has been a long period of relative isolation from the development of new scientific knowledge in the western scientific community. Once due to political considerations, a great deal of isolation remains due to economic and language barriers. These barriers have impeded the flow not only of scientific research, but also of information about new methods of quality improvement.

## 5. The stick instead of the carrot: fear of punishment as “quality control”

In contrast to modern quality improvement methods that seek to openly identify and problems and solve them in a non-punitive fashion, “quality control” methods still rely on the concept of finding individuals who perform badly and punishing them. The key difference between these approaches will be discussed below.

## 6. Lack of attention to the patient as “customer”

In many areas, patients are still assigned to a polyclinic and physician based on where they live, with no real choice of provider. In the U.S. and western Europe, this would be perceived as a violation of patients' rights, if actually enforced. If only tacitly enforced, it is still a strong disincentive for polyclinics to improve their care. Even if the competition is another oblast- or city-run polyclinic, there must be freedom of choice for the patient if there is to be any incentive for providers to improve the quality of care and patient satisfaction.

Occasionally providers pay attention to the patient as a human being and as a customer even in the absence of competition; the difference in patient attitude in such facilities is striking: one sees smiling, happy patients, rather than the usual pervasive feeling of fear so notable in many facilities.

#### 7. Lack of patient education

Kaiser Permanente and similar organizations in the U.S. have been in the forefront of raising the level of patient education to a central aspect of care. For example, every Kaiser Permanente facility has a health education center where pamphlets, books and videotapes are available for loan to patients to explain their conditions and how to deal with them. Patients with chronic conditions such as asthma and diabetes do markedly better in controlling their disease and avoiding hospitalization when they have participated in patient education programs: they can learn to recognize symptoms early and adjust their own medications. For other patients, materials on when to seek medical care improve the level of decision-making about seeing a doctor. These concepts are still in their infancy in Russia and the former Soviet Union. On the contrary, frank discussion with a patient about a serious disease is often actively discouraged.

#### 8. Lack of consistent availability of medications

A frequently cited recurring problem is inconsistent availability of essential medications such as insulin and antibiotics. Hospitals often purchase medications in small supplies, relying on drug wholesalers who may be more interested in short-term profit than long-term success.

#### 9. Equipment deficits

Outdated and broken-down equipment is a manifestation partly of the lack of funds, but partly also perhaps from an attitude that improvement is hopeless. Lack of attention to public facilities is an old tradition (note Chekhov's "Ward No. 6"), encouraged by the lack of feeling of ownership: what belongs to everyone belongs to no one. In our opinion, run-down facilities have a strong negative attitude on the patients, which discourages them from seeking care and therefore leads to worse health outcomes. If that is correct, then this is not a trivial issue.

Expensive new western equipment is usually at the top of request lists for assistance; whether that is the best use of scarce resources, in terms of the effect on the health of the population, is questionable.

### **What Kind of Knowledge is Needed to Improve Medical Care?**

On the basis of our experience in Russia to date, there are multiple problems that need to be addressed by health care reform; many of the most serious are most related to financing issues, which are not our primary concern in this article. Other important problems can, in our opinion, be improved substantially by the application of new knowledge and new techniques that are not yet widely known within the former Soviet Union. These techniques include ways of increasing the cost-effectiveness as well as the quality of health care; increased cost-effectiveness in turn would permit better use of available resources. Thus the efforts known as

“quality improvement” may have at least as great a benefit in decreasing costs of care as in improving its quality--if done properly.

Batalden and Stolz, in their useful “A Framework for the Continual Improvement of Health Care”<sup>1</sup> classify the type of knowledge needed for improving health care into **professional knowledge** and **improvement knowledge**. Professional knowledge is what is acquired in professional school and clinical training; it includes both subject matter (microbiology, anatomy) and discipline (pediatrics, surgery). It also includes the values which, in the case of medicine, are the underlying moral values of caring for patients which are cherished by physicians and respected by patients and society, and which distinguish medicine as the noblest of professions. As Batalden and Stolz point out, most of the progress in medicine during this century has come through advances in professional knowledge, with better understanding of the mechanisms of disease, diagnostic tools, and therapy such as new pharmaceuticals.

What is new in health care in the United States just within the past decade is the appreciation for the importance of improvement knowledge. This type of knowledge has not been taught in medical school or clinical training; nor has it until recently even been applied to health care. Yet it is now seen as fundamentally important to health care; as quality improvement pioneer W. Edwards Deming described it, it is a “system for profound knowledge”. Batalden and Stolz classify improvement knowledge into four types:

1. Knowledge of a system

Essential to our understanding of health care is that the final product--the diagnosis and treatment by a practitioner--is the result of the complex interaction of many components: the educational system that trained the physician; the insurance and financing mechanisms that provide incentives to do or not do certain things; the laboratories that do diagnostic testing; the pharmaceutical companies that develop, test and produce medications, then sell it to the health care system. It is also the result of interactions within the polyclinic or hospital, among primary care physicians, specialists, nurses, administrators--even people who clean the floors. Understanding the complexity of organizational systems leads to the conclusion, demonstrated by quality improvement experience in industry, that most defects in quality occur not because of an individual being at fault, but because the system was not designed to prevent the failure. This recognition is key, because it underlies our understanding of the futility of trying to improve quality of care by identifying individual “bad apples” who have made mistakes.

One aspect of systems knowledge which is not obviously pertinent to health care is the need to be “customer-driven”. As a physician, I don’t like to think of having “customers” or “clients”. My usual reaction is: “Doctors have patients, lawyers have clients.” But the concept of customer can include the doctor as well: the physician is the customer of the laboratory and the radiology department, as the patient is the customer of the physician. This focus on “internal customers” can help improve the accountability of the laboratory and radiology department: they are there to produce accurate, timely diagnostic tests for their “customer”, the doctor. In business and industry, this is more than a theoretical concept: the customer can take his business elsewhere if there is a competitive market and the usual “supplier” does not satisfy the customer. Within a single organization such as a hospital, it is more difficult to motivate a support department such as radiology to increase its productivity without the discipline of competition. Nevertheless, it is an extremely useful way of emphasizing the reason for the department’s existence: in this case, to “sell” its products and services to the physicians who need them.

## 2. Knowledge of variation

It is surprising how much time physicians spend chasing down “abnormal” laboratory results that may not be abnormal at all, and perhaps should not have been ordered in the first place. I often use the example of a hypertensive patient whose doctor constantly adjusts his medication for what are thought to be significant changes in blood pressure, but are in fact only normal daily variations. There are countless examples in clinical medicine. Much of this is in fact a huge waste of time and effort, and could be avoided if the physician understood “statistical thinking”: laboratory tests such as blood sugar are usually designed to give a false positive result in 5% of tests. That is, 5% of healthy people will have an abnormal blood sugar level just by chance alone; there is too much overlap between healthy people and diabetics to make this test--or any test--totally accurate. But if a panel of 20 blood tests is done at once, there is a 50% chance that at least one of the tests will be abnormal. This will require further testing to prove that the patient is not sick. Careful analysis of this problem has demonstrated that laboratory tests should be ordered only when a specific disease is suspected; otherwise a great deal of money and time are spent chasing down “false positive” results in healthy people, making them anxious in the meantime.

I have heard a highly-placed Russian physician use a proverb: “A healthy patient is a poorly examined patient”. I hope he was joking; but I fear this is taken seriously, in that minor abnormalities and false-positive lab tests are used to convince healthy people they are sick--with disastrous consequences for the mental health of the population.

The goal of quality improvement has been defined as “the control of unintended variation”.<sup>2</sup> In any good clinical experiment, we understand that all external sources of possible error should be removed, so that we can focus on only the interaction that interests the experimenter. Similarly, when investigating possible improvements in medical practice, we must eliminate external sources of variation as much as possible, in order to see the effect of the new practice itself. If a new guideline for asthma treatment is being studied to see if it improves health outcomes, we don’t want half of the physicians in the experimental group using their own treatments instead of the guideline. How would we know what the results meant?

To practice continuous quality improvement in a clinical setting therefore means establishing first a well-defined practice, then testing it against current care. If the new practice gives better results, we should adopt it, then begin looking for ways to improve it. Of course, not every patient can be treated in the same way. But most of the variation in care can in many cases be attributed more to individual differences in physician practice style than to differences in patients.

Physicians may rebel at the thought of being asked to practice according to defined guidelines. In reality, they are now following guidelines, but probably ones they learned years ago, that have a much weaker basis in scientific fact than does a well-researched set of practice guidelines. As Berwick says:

variation is a thief. It robs from processes, products, and services the qualities that they are intended to have. Variation is in processes what heat is in mechanical systems: a waste of energy.<sup>2</sup>

## 3. Knowledge of Psychology

In his now-classic 1989 article, “Continuous Improvement as an Ideal in Health Care”, Donald Berwick described an analogy that is very pertinent to the post-Soviet health care system.<sup>3</sup> A

new manager appears on a factory floor. He announces that he is there to improve quality. He will do that by finding out who is shirking their job; who is not meeting the standards. And when he finds those people, he will punish them. In another factory, a new manager also appears before the workers on the shop floor. This manager says that he is there to improve quality. He believes that most workers try to do their job well, but are often prevented from doing so by rules and procedures of the system that don't make sense, but are "the way we do things here". The new manager has high standards: he wants to be sure things are done right the first time, because fixing things is expensive, and poor quality loses customers. But to achieve his goals, this manager offers to cooperate with the workers: each of them should be continually looking for ways to make their job more productive, less expensive, and higher quality. He promises that if the current production system is criticized, he will take the criticism seriously, but will never punish anyone for reporting problems. Rather than sweep problems under the rug, to make the reports look better, he wants to be sure they are brought up, investigated, and solved.

Now Berwick asks a simple question: where would you rather work? Our own response to this question reveals a great deal about human nature. If "workers"--be they factory workers, doctors or nurses--decide that the organization is going to punish them if things go wrong, they will be certain that nothing wrong is ever reported.

In our discussions of health care reform and improvement, we too often think of ourselves as architects, redesigning "the system" as if it were a building, then offering the completed design to the builders for construction. Modern quality improvement techniques, on the other hand, focus on the people who are each contributing to the operation of a complex system. They are the most precious resource of any organization. They represent years of training and experience, and they are more aware of all the ways in which things can go wrong--in which quality can be poor--than any high-level administrator could ever imagine.

A trait common to humans, and possessed in above-average amounts by physicians, is curiosity. Men and women delight in solving puzzles and solving problems. They want to learn new things, and they want to have the self-respect that comes from knowing they are doing their job in the best way they can. What if we gave each of those experienced workers the tools to solve the problems which plague their working day? If they truly felt this opportunity were open to them, they would almost certainly respond with enthusiastic participation. Unfortunately, most large organizations, both in the west and in the former Soviet Union, have acquired a well-earned reputation for entrenched bureaucracy, refractory to change that is perceived as threatening the comfortable *status quo*. Where CQI has failed, it is because it was felt to be another "gimmick". It is therefore even more important, where the past has been colored by mistrust, the present by chaos, and the future by dread, that highest priority be given to building trust between managers and workers at all levels. Professionals in particular, such as physicians, have an understandable need for autonomy in their work. Only when they feel they are participating in the process of change is it likely to succeed.

#### 4. Theory of Knowledge

The theory of knowledge, or epistemology, has to do with “how do we know what we know?” In its simplest terms, applying it to quality improvement is putting the scientific method into practice outside the laboratory. In a medical care setting, the term “clinical epidemiology” is an appropriate description for this application of science to practice. Although it *should* be taught in medical schools, it seldom is. Some years ago I helped teach such a course to medical students at the University of Minnesota. It was well-received, and I am convinced was more useful to students over the course of their careers than most of their regular courses, the content of which is by now obsolete. Clinical epidemiology teaches physicians how to interpret new data they encounter, whether a laboratory result on a patient or a new article in a medical journal. Based on my discussions with Russian colleagues who have knowledge of medical education, publications, and practice in both Russia and the U.S., it appears that an understanding of the fundamentals of clinical epidemiology would greatly improve the ability to analyze critically current practices in the former Soviet Union, as well as proposed new practices from the west.

As in many other areas of post-Soviet society, physicians still tend to rely excessively on “expert” authority, without critical evaluation of the scientific evidence behind that authority. Comparing, for example, clinical practice guidelines from the U.S. with Medical-Economic Standards developed in Russia shows a lack of literature references in the latter that make the reasoning behind the standards opaque--i.e., not visible to the reader. The promulgation of guidelines or standards in western medicine without references to the scientific evidence for their basis would be unthinkable.

The author has done a review of the U.S. National Library of Medicine Medline, a database listing thousands of journal articles from around the world, comparing articles on hyperbaric oxygen treatment (a therapy widely used in Russia, but used for only a small number of indications in the U.S.) dating back to 1966, from Russian and western journals. The majority of western articles were randomized clinical trials, with the study design clearly defined, and the statistical results available in the abstract. By contrast, only four of the Russian articles might have been randomized trials--it was not possible to tell from the abstract. In the remainder, the abstract at least left the purpose, design, and results of the study unclear, so the conclusions were not necessarily supported by the evidence. Any conclusions from this must be regarded as preliminary, but suggest that the rigor of peer review and editing of medical publications in the former Soviet Union has not caught up with the rapid evolution of standards of scientific evidence in the U.S. and western Europe.

In the past decade or even less, there has been a great deal of interest in this area of clinical epidemiology, or **evidence-based medical practice**. A methodology for reviewing research, grading studies by their design (e.g. results of randomized clinical trials being generally regarded as more accurate than case-control studies), and classifying the quality of scientific evidence has been developed and put into wide use.

For those interested, a book on this topic, *Clinical Epidemiology: The Essentials*, by Fletcher, Fletcher and Wagner, is being translated into Russian for publication in 1996.<sup>4</sup> It is highly recommended. Other sources on evidence-based practice include the Cochrane Collaboration, and the publications of the U.S. Agency for Health Care Policy Research.

ZdravReform's Central Asia office plans a seminar for 1996 in evidence-based medicine, to take place in Kazakhstan, with a possible second conference in Russia.

We will now look at some specific products and tools that have been developed out of this new understanding of quality improvement in medicine.

### **Practical Tools for Quality Improvement**

In the long run, continuous quality improvement offers a new culture that can transform an organization from one dominated by fear and failure into one suffused with energy and the infection of quality. But even optimists admit that it usually takes several years for such a new culture to replace the old. So, while offering CQI training and implementing demonstration projects, ZdravReform is also offering some much quicker ways of improving quality and cost-effectiveness.

#### 1. Evidence-based practice guidelines

One result of the growing use of clinical epidemiology in American medical practice has been the development of evidence-based practice guidelines. The methods of grading quality of evidence were developed for preventive medicine guidelines for Canada and the U.S. They have been further refined by the U.S. Agency for Health Care Policy Research, in its series of widely-accepted practice guidelines. In contrast to the Medical-Economic Standards which are in wide use in the former Soviet Union, the U.S. guidelines are “transparent”: i.e., the references to scientific evidence are clearly documented and explained. Sharing of such guidelines among U.S. providers usually reveals a strong core of consensus based on good scientific evidence, but differences in interpretation of evidence that lead to differences in specific guideline recommendations.

The implementation of such guidelines is not simply a matter of making them available: educational campaigns for both physicians and the public; monitoring of compliance; and periodic updating of the guidelines based on new evidence and results of previous implementation are part of the “Plan-Do-Check-Act” cycle of CQI.

A typical guideline includes a review of the pathophysiology of the condition; a discussion of major scientific evidence regarding diagnosis and treatment; and recommendations for diagnosis and treatment, based on an individual assessment of the patient. Rather than assuming just one correct way of treating and diagnosing a given condition (as implied by Medical-Economic Standards), a flowchart typically provides alternative recommendations, depending on the patient’s clinical status. If medication is recommended, the benefits and risks of different medication choices are shown, again providing options for individualizing treatment within the guidelines.

As noted above, a major benefit of guidelines is that they can reduce unintended variation, so that one knows just what care is being provided; one can then look at ways to improve from that level, and so on indefinitely. In the absence of some stabilization of practice, there is no real learning for the sake of improving care.

Guidelines are available for a number of conditions. Some of the major guidelines currently being translated into Russian and disseminated by ZdravReform include:

<u>Condition</u>	<u>Source</u>
Unstable angina pectoris	AHCPR
Congestive heart failure	AHCPR
Depression in primary care	AHCPR
Pediatric asthma	Kaiser Permanente
Hypertension	Kaiser Permanente

High cholesterol	Kaiser Permanente
Preventive medicine services	U.S. Preventive Services Task Force
Preventing nosocomial infection	Centers for Disease Control

Other guidelines will also be collected and translated over the next several months.

## 2. Critical Paths

One of the major reasons for excessive stays in hospitals in the former Soviet Union is lack of access to information about the enormous and successful efforts in the U.S. and elsewhere to decrease hospital stays. Under strong pressure from competitive forces, but also following evidence that earlier mobilization and discharge is actually beneficial to long-term health outcomes, American hospitals have developed “critical care paths” that define appropriate care for common conditions and procedures. While providing flexibility for the more difficult case, these care paths have been highly successful in reducing unwanted variation in care. They define very clearly what the scientific evidence and practice experience show is the optimal way of treating patients, and ensure active cooperation by doctors and nurses to do what is needed to get the patient well and home as quickly as possible.

The care path includes a day-by-day guide to what to do for the patient by each service involved in care: physicians, specialists, nurses, physical therapists, respiratory therapists, etc. In contrast to the guidelines, which emphasize more the scientific evidence, the critical paths are restricted to very practical recommendations.

As part of the ZdravReform program, the best U.S. care paths for most common conditions and hospital procedures, along with practice guidelines and educational materials on CQI techniques, will be translated into Russian and made available on a CD-ROM electronic library, as well as on the internet World-Wide Web.

ZdravReform is also encouraging physicians in the states of the former Soviet Union to plot current care paths in similar fashion, to make clear the differences between U.S. practices and theirs, for purposes of critical examination and development of local adaptations.

These are some of the critical care paths being translated for dissemination:

- Pneumonia
- Suspected tuberculosis
- Asthma
- Chronic bronchitis
- Respiratory failure
- Myocardial infarction
- Cardiac catheterization
- Coronary artery surgery
- Coronary angioplasty
- Congestive heart failure
- Hypertension
- Stroke
- Cardiac valve surgery
- Gastrointestinal hemorrhage

Colectomy  
Cholecystectomy  
Laparoscopic cholecystectomy  
Prostatectomy  
Nephrolithiasis  
Pyelonephritis  
Normal vaginal delivery  
Cesarean section  
Normal newborn  
Rule out sepsis in neonates

### 3. Quality Indicators for Outpatient and Hospital Care

In the U.S. twenty years ago, the prevalent assumption among decision-makers in health care was that physicians made reasonable decisions about health care services. For patients and employers who purchased health insurance, “quality” was a given: that is, a high level of quality was assumed to be present, and it was assumed that well-trained physicians would make similar decisions in similar cases. The only way of assessing quality was by asking patients about their satisfaction with a physician; and that depended almost entirely on “bedside manner”—the patient’s perception that the physician cared for the patient and was doing the best that could be done for that patient. There were incompetent physicians, of course; these were felt to be a small number of “bad apples” (from the expression “one bad apple spoils a whole barrel”). “Quality assurance” consisted of reviewing cases in which a bad result occurred, to see if it was due to negligence by such a “bad apple”.

Over the past five years, a movement has grown in American medicine to replace the old paradigm with a new one, based on the realization that what matters in any health care system is in the end its effect on the overall health of the entire population served. By definition, the “bad apples” paradigm can only identify a small number of physicians who fall outside the standards of usual practice. What if the standards themselves do not reflect optimal care? Even a small improvement in care by the 95% of “good” physicians would have a much greater impact on health than all the effort being expended to find and remove the “bad apples.” Furthermore, those 95% of physicians were in reality constantly covering up any real problems in the system of care, for fear that any bad results that occurred would be blamed on them. Yet another flaw in the old paradigm was the assumption that “good practice” could be defined with great accuracy, when it was usually based on expert authority rather than scientific evidence.

Out of this evolution in thinking came the **outcomes measurement** movement. Leaders in quality assurance became convinced that the way to assess quality was to measure actual health outcomes: death, disability, and functional status. While these are the end results that we wish to improve, however, in practice using final outcomes to measure quality means waiting years and observing many thousands of patients to see an impact. Moreover, differences in underlying status of the patients—age, sex, socioeconomic status, race, and other diseases—made it difficult to know what differences in health outcomes were due to health care, and what to the patient population.

The more practical measure for purposes of clinical quality improvement is the measurement of intermediate indicators of quality. Process indicators are measures of patient care activities: for example, the percent of diabetic patients who have had their blood sugar tested within the

past year. Outcome indicators are results of those activities: in this example, perhaps the percent change in average blood sugar level for diabetic patients tested. Intermediate outcome indicators must be strongly related through scientific evidence to the final outcomes, but measurable in a shorter period of time. They must also be directly related to patient care, so that they are less subject to misinterpretation by different patient populations. The two indicators noted above are rate indicators. Another type is a sentinel event indicator. This is a rare event, for which a single occurrence is unusual and should trigger investigation: an unexpected death in the hospital; an unusual case of nosocomial infection; a blood transfusion reaction.

Such indicators of care are becoming standardized across different providers and health care plans in the U.S., due to organizations such as the National Commission for Quality Assurance, whose HEDIS (Health Plan and Employer Data and Information Set) indicator set is becoming a standard method of measuring and demonstrating quality for managed care systems. Large employers have been a major driving force behind the development and implementation of quality indicators, as they try to decide how to achieve the highest quality of care at the lowest cost.

For hospital care, a set of quality indicators has been developed by the Maryland Hospital Association and is now in wide use in the U.S. ZdravReform is supporting a demonstration project to implement these indicators in a Russian hospital.

For ambulatory care, a set of indicators has been developed for participating ZdravReform polyclinics in Siberia that are implementing clinical information systems. This set of indicators focuses on the most common and the most serious outpatient conditions, particularly ones for which good care by the primary physician can avoid bad outcomes.

For chronic diseases such as ischemic heart disease, congestive heart failure, hypertension, asthma, chronic bronchitis, and diabetes, the indicator measured is the percent of patients with the condition who are hospitalized within a given period. The assumption is that improving outpatient care will decrease the need for hospitalization through better control of the condition.

For common forms of cancer for which early detection leads to better outcomes, indicators will be the percent of patients who have appropriate screening tests done (mammography, pap smear, sigmoidoscopy), and the percent of cancer cases detected at an early stage.

### **Tools for Continuous Quality Improvement (CQI)**

As noted above, successful implementation of CQI can be expected to take several years. Unfortunately we do not have the luxury of such time. Fortunately, Russians have been shown by our experience to be very rapid learners, who are eager to adopt a new way of thinking if it is demonstrated to be effective. Already, we have at least one oblast (Altai Krai) that is actively using CQI tools. They have adopted in their quality improvement work the motto “we do not look for someone to blame; we are looking to improve the system”. This simple motto captures the essence of CQI.

Continuous quality improvement has been described as “the democratization of science”, because it encourages all workers in a system to be as rigorous, as critical, as experimental in their jobs as are scientists in a research laboratory. When the CQI system works, it transforms an organization, whether factory or hospital, into a hotbed of innovation, greatly increasing the professional satisfaction of the workers. When it does not work, it is usually because it is seen as the latest in a series of reforms designed to squeeze more labor out of each worker, imposed from the top. Experience in industry and health care repeatedly shows that, while strong

commitment at the highest levels is essential, the system will not work without all levels becoming convinced it is in their interest to participate actively in quality improvement.

Some of the specific graphic tools used include:

- The “fishbone” or Ishikawa diagram: this is a chart that shows the relationship of multiple factors promoting or inhibiting a desired outcome of care
- The flowchart: derived from computer systems analysis, this is another way of graphically showing the interrelationships among different participants in care, as each logical step of a patient along a “path” of care is plotted, including the potential outcomes of different treatments and decisions
- The Pareto diagram: this histogram helps to identify the major causes for poor quality, to help focus efforts first on the main issues
- The “run chart”: this line chart shows change over time in a measurable index of quality; when the line is outside the statistically acceptable range, correction of the system is needed.

A complete description of CQI methods is outside the scope of this article. Interested readers are referred to *Clinical CQI: A Book of Readings*, published by the Joint Commission for Accreditation of Healthcare Organizations, 1995. This book is being translated for inclusion in the ZdravReform CD-ROM electronic library of quality improvement and health care reform materials.

We are already beginning to see the first fruits of the seeds planted by ZdravReform training programs in CQI. It can be seen in at least on hospital in the Altai Krai, where a new attitude has spread like an infection through a community hospital. In Novoaltaisk, a recent visit revealed a hospital where everyone from the Chief Doctor on down believes and practices that “the patient is always right”. With the same financial constraints faced by other Siberian hospitals, a system for incentive payments has been put into place, with dramatic results at least in anecdotal patient satisfaction. Further CQI work will address specific treatment areas such as pneumonia.

Success stories such as Novoaltaisk are the most concrete example that real positive change can happen in Russian hospitals, despite severe financial constraints common to all such hospitals. For now, we know that changes in attitude by hospital doctors and nurses can affect patient satisfaction, and can literally “drive out fear” that seems pervasive in not a few of the facilities we have visited. As quality indicators are put into place, we will also know how these hospitals compare in final outcomes and intermediate outcome indicators with American hospitals and other Russian hospitals. With such objective, verifiable measures we can then concentrate our efforts on departments or conditions that are clearly problem areas.

### **The Next Steps**

For the ZdravReform program, we expect the next several months to be active and fruitful ones for our collaboration with participating oblasts and their hospitals and polyclinics. By the time the project ends in September 1996, we expect to have demonstrated success, in our pilot sites, of some key components of quality improvement:

- Participating polyclinics will have information systems in place that provide basic clinical information to physicians, financial information to managers, and the data needed to assess quality of outpatient care by standardized indicators; the indicators can be used to identify problem areas needing improvement by CQI methods.

- Training programs will be established for upgrading the skills of primary care physicians and nurses, contributing to the improvement of outpatient care.
- Payment mechanisms that provide incentives for more cost-effective care will be demonstrated in a number of locations.
- Participating hospitals will have developed and implemented demonstration projects in continuous quality improvement in key areas of patient care and support; these will include reduction of nosocomial infections, maternity care, and treatment of some common conditions such as pneumonia.
- Participating hospitals will have access to the Maryland Hospital Association set of quality indicators, and will be using them to compare the quality of care in their hospitals with that of hospitals in the U.S.
- The latest U.S. clinical practice guidelines and critical paths will be available in Russian to participating facilities, and in active use by many of them; by the end of the project, the same materials will be available on CD-ROM and the Internet WorldWide Web to all interested medical care facilities in the former Soviet Union.
- With the cooperation of the Rational Pharmacy Management Program (another U.S.A.I.D.-funded project), participating oblasts will implement pharmacy formularies and competitive long-term purchasing agreements, decreasing the cost of pharmaceuticals and assuring a consistent long-term supply.
- Current medical care practices for common conditions in the former Soviet Union will be plotted by care path techniques, allowing direct comparison of U.S. and local treatment styles.
- Leaders in medicine in the former Soviet Union will have been trained in modern techniques of critical analysis of scientific literature (clinical epidemiology) to permit further development of guidelines based on solid scientific evidence, and tailored to local conditions.
- The key concepts of the patient as both a customer of and a partner in health care will be implemented in demonstration sites, leading to improved patient satisfaction, improved cooperation with health care providers, and eventually to higher quality care.

## **Conclusion**

If I had to summarize in a few words the new approach to medical care which the ZdravReform program is encouraging, it would be as follows: where there is good scientific evidence, medicine should be a science: decisions should be made and systems of care built on solid evidence; where such evidence is lacking or ambiguous, we need also to enhance the art of medicine, bringing our patients into being active partners in their care, in making difficult decisions in the absence of strong scientific evidence. We can then discard ineffective modes of treatment, and concentrate on doing what really works. While lack of funding is a critical problem for health care systems throughout the former Soviet Union, money alone is not the solution. It is always good practice to make the best use of the resources available; these proven methods are the best way known of achieving that goal. If that can be achieved in these difficult times, you will have earned the trust of patients, the public, and national decision-makers, and the respect and admiration of your colleagues around the world.

---

<sup>1</sup> Batalden PB, Stoltz PK. A framework for the continual improvement of health care: building and applying professional and improvement knowledge to test changes in daily work. *Jt Comm J Qual Improv* 19:424-452, 1993

<sup>2</sup> Berwick DM. Controlling variation in health care: a consultation from Walter Shewhart. *Med Care* 29:1212-1225, 1991

<sup>3</sup> Berwick, DM. Continuous improvement as an ideal in health care. *N Engl J Med* 320:53-56, 1989

<sup>4</sup> Fletcher RH, Fletcher SW, Wagner EH. *Clinical epidemiology: The essentials*. Third edition. Baltimore: Williams and Wilkins, 1995.