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Case 3

Healthier Babies in Twin Falls, Idaho

Dorothy Shaffer

Emily Blackwell is spending a summer in Twin Falls, Idaho learning about continuous quality improvement. She has been providing staff support for Paul Miles, MD, who chairs the hospital's project to make the area the healthiest place in America to have a baby.

Idaho, the seventh most sparsely populated state, has the lowest physician-to-population ratio in the nation (114 physicians per 100,000 people, national average 184 per 100,000).¹ There are 1,000,000 people living in the state, with 145,000 people living in Magic Valley, an agricultural-based community in south central Idaho (11,000 square miles). The Valley, composed of eight counties, has a population density of 12.2 persons per square mile (ppsm) compared to the national average of 69.4 ppsm, and two of the counties are classified as "frontier."¹ This area of Idaho is unique with its low population, lack of public transportation, and the worst low-birthweight and perinatal mortality rates in the state. In 1988, Magic Valley's low-birthweight rate was 6.6 percent with a state average of 5.1 percent. Concurrently, the perinatal mortality rate was 10.7 per 1,000 for Magic Valley and 9.2 per 1,000 for the state.¹

Twin Falls, population 29,000, is the largest town in this eight-county region, and the city is home to the two largest hospitals in Magic Valley. The Southcentral Public Health Department is also located here. There is no managed care in the area or in the state. One of the hospitals, The Twin

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Falls Clinic, with a 44-bed capacity, is under private ownership and the only hospital in Idaho that is not a member of the Idaho Hospital Association. The facility provides limited services with no general pediatrics or ob-gyn, but it does have some subspecialties unique to the area, including plastic surgery, rheumatology, and endocrinology.² The other hospital in Twin Falls is Magic Valley Regional Medical Center (MVRMC), a not-for-profit, county-owned hospital that serves as a secondary care institution for the eight-county region and is designated as the Medicare regional referral center. The hospital is managed by Quorum Health Resources, has a \$55 million revenue, and a 165-bed capacity. There are 123 physicians with privileges at MVRMC, 80 of whom are very active. Their patient population is made up of 50 percent Medicare and 14 percent Medicaid patients.³ Four smaller, rural hospitals are also located within this region; they are staffed by family practitioners and all are under different ownership and funding. The Department of Public Health is run by the district and serves this same eight-county region. The department has a number of outlying facilities and multiple specialty and preventive health clinics within its Twin Falls office. All of the hospitals and health services have separate visions, separate patient registrations, and separate databases. Communication between these facilities is poor, and care is often duplicated.

Within this environment, healthcare resources are scarce, difficult to gain access to, and disjointed. This is a condition not uncommon to much of America, but because Idaho has an inadequate supply of physicians and resources, the status of healthcare cannot continue to be ignored. In 1987, the hospital board at MVRMC revised their vision statement to read, "MVRMC will be a standard of excellence and cooperation in making Magic Valley the healthiest place in America." With this change, John Bingham, the hospital administrator, introduced a new way to approach healthcare in order to achieve this vision. His interests were based on the Deming Management Method,⁴ but he was also influenced by both Bronowski⁵ and Senge.⁶ The process, labeled continuous quality improvement (CQI), emphasizes cooperation, systems thinking, and an understanding of statistical variation and human interactions within a given system. This model involves a strict reliance on data collection and analysis, while using the scientific method to institute change and improvement. Deming, an American statistician whose work was closely linked to Japan's postwar economic growth, used the above ideas to transform business management and production.⁴ Bingham wanted to attempt the same transformation in healthcare.

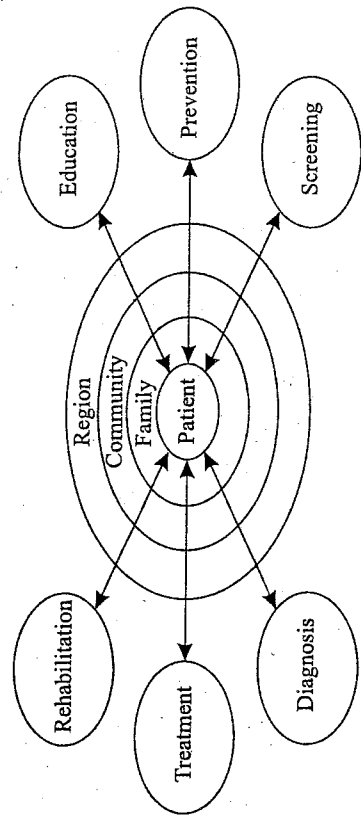
Bingham was aware that many of these ideas were broad and difficult to initiate. Nevertheless, he was driven by two fundamental questions: "Why do we do what we do? And how do we know that what we do works?" which took him to a third question: "How can we make what we do better?" His shift to quality improvement and a systems view of healthcare (Illustration 3.1)

was supported by the Hospital Corporation of America (HCA), the hospital's former management group before Quorum. Magic Valley Regional Medical Center became a pilot hospital of HCA for implementing quality improvement. However, even with this support, Bingham had reservations about the change in thinking because the new approach could be perceived as another fad in healthcare reform and there was still a question whether Deming's theories could be effective or not in the healthcare industry. Regardless, he started at the top, with the hospital board, as a way to anchor these ideas first and then incorporate them into the daily functioning of the hospitals and the surrounding community.⁷ He and the hospital began accomplishing this vision by addressing parts of the system, with the continual focus on restoring and improving the community's health.

During the time of this transition, the state was involved in the Idaho Perinatal Project and had been working for eight years to address the issues of perinatal morbidity and mortality. In an effort to decrease this problem, the project's goal was to standardize the equipment and training for neonatal resuscitation across the state. They successfully improved the facilities and staff training without improving the process, and the mortality rates did not improve. As mentioned, by 1988, the state's perinatal mortality rate was 9.2 per 1,000 and the low-birthweight percentage, an indicator of neonatal morbidity, was 5.1 percent which still left Idaho with the same problem it had attempted to fix.¹

Dr. Paul Miles, a pediatrician in Twin Falls and member of the hospital board at MVRMC, was working with the Idaho Perinatal Project. Because of his close connection to Mr. Bingham and the MVRMC, he decided to apply the quality improvement theories to the ongoing perinatal project. There are

Illustration 3.1 Systems View of Healthcare



33 physicians in Magic Valley providing obstetrics care, and 20 percent of the MVRMC admissions are pregnancy related. Approximately 50 percent of the total deliveries in the area are performed at MVRMC, with the majority of high-risk newborns treated in their neonatal intensive care unit (NICU).⁸

The very high risk newborns are transferred to tertiary care centers in Boise, Idaho (130 miles west) or Salt Lake City, Utah (200 miles southeast). This eight-county district, although fully up to date with its equipment still had some of the worst outcome data, mentioned earlier, in one of the worst states. Within this region and using quality improvement guidelines, Miles realized the great opportunity that existed to better the health of pregnant women, newborns, and the community as a whole.

In Miles' thinking, the next step to take in solving the problem of perinatal morbidity and mortality in Idaho centered on the vision of making Magic Valley the healthiest place in America to have a baby and to cooperate with all of the care providers in the area. To achieve this goal, a systems approach was adopted, keeping in mind the strengths and weaknesses of the community while always keeping the patient at the focal point of care. Magic Valley Regional Medical Center, along with the Public Health Department and a few physicians, began looking at prevention and improvement along with treatment. They wanted to become proactive in their problem solving with an emphasis on continual learning and improving upon the existing model.

Formally, the continuous quality improvement (CQI) plan contains a step-by-step approach in applying the scientific method to problem solving. Initially, a problem is identified and a plan for improvement is made (the hypothesis). Then, the plan is executed (testing the hypothesis). Next, the results are checked (data analysis). Finally, the results are acted upon (rethinking the hypothesis).⁹ And so, once the change has been made, its effectiveness is documented, with the aim to decrease variation within the entire system, thus making the community a healthier place in which to live. While this formal approach to problem solving provides an excellent structure to create positive changes and growth, the initial attempts at applying CQI to the perinatal project were much less formalized. Instead, a few individuals concentrated on the philosophy behind the new approach and used those theories as a guide with the hope that this type of problem solving could help the status of healthcare.

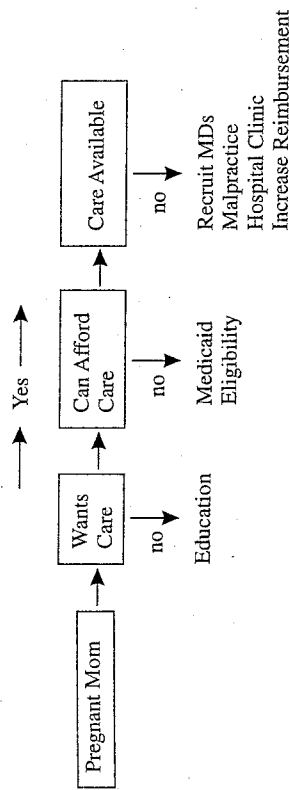
Within this structure, Miles felt that an initial step to improve perinatal morbidity and mortality was to look upstream and concentrate on prenatal care itself, and so his hypothesis—that women who do not receive prenatal care are more likely to have high-risk infants—was tested. This statement is based on the fact that prenatal care is associated with improved perinatal morbidity, but it is unclear what aspects of prenatal care account for this association.¹⁰ By focusing on the area of prenatal care, those involved in the project hoped to

see a decrease in neonatal intensive care admissions, a decrease in long-term morbidity of children, and an increase in the overall health of the community. The team that was organized to approach this problem was not an official quality improvement team of the hospital, and its members changed as new areas were addressed. Miles initiated and led many of the efforts of the group and was aided by Bingham of MVRMC, Cheryl Juntensen, director of Public Health District V, Maggi Machala, pregnancy program coordinator for Public Health District V, and the ob-gyn physicians in Twin Falls. The group was organized to meet as a whole in making major decisions, but otherwise individuals would carry out their own projects.

In an attempt to clarify the process of prenatal care current at the time, the group tried to use the perspective of the consumer—the patient—to see how the process worked from that viewpoint. Flowcharts were used in attempting to identify obstacles to care. An informal analysis of access to prenatal care was performed by Machala, and a questionnaire was given to mothers who had delivered at MVRMC in an attempt to identify any complaints and concerns they had about their care. Once all of this information was gathered, the group was able to name some areas for improvement. These areas included educating the patient about the hospital before she arrived in labor, improving time delays once in the hospital, and ensuring prenatal care to avoid drop-in deliveries. Within the community, improvement areas focused on access, efficiency, and affordability of care. It was clear to Miles that any efforts at improving the current process could greatly benefit the patient population, but the process of this improvement could be time-consuming and difficult.

As a means of reducing the variation of care within the system, the group tried to identify the main problem areas (Illustration 3.2). With respect to access to prenatal care, multiple factors from financial to psychosocial were impeding the process. In 1988, Medicaid eligibility was set at 43 percent of the federal poverty level, which gave insurance to a small number of people in need. However, even for those who were fortunate enough to receive Medicaid, the reimbursement for prenatal care and delivery was only \$400, an amount that did not cover the physician's overhead. Also, from the delivering physician's point of view, many of these patients who could not afford their care were also high-liability concerns with multiple, time-consuming psychosocial issues. The availability of physicians was also a problem. In the area were five obstetricians, located in Twin Falls, with all other deliveries performed by family practitioners. However, if a family practitioner performed more than 40 deliveries per year, then his or her malpractice insurance greatly increased.¹¹ And so, in an area lacking adequate numbers of physicians, not all patients could receive care, and those cut out of the system were the ones who could not pay or were difficult to manage.

Illustration 3.2 Obstacles to Prenatal Care



With respect to the efficiency of the system, the obstacles to improvement were identified by Machala.¹¹ She revealed the difficulty that patients were experiencing because of having to make multiple visits to multiple care sites with numerous delays. A patient making different visits to different sites, for pregnancy testing as well as for Women, Infants, and Children (WIC) and Medicaid reimbursement, would increase the physician-to-patient ratio. Also, the group saw the need to improve the efficiency of clinic visits for the public health patient population. And last, they saw patient education as a necessary component of improving the patient's and community's health while preventing future problems.

Instituting these improvement goals was a long process, and at times different members of the group led the effort. In an attempt to increase the affordability of care by increasing Medicaid eligibility, a group effort was made at the state level to lobby for change. In January 1989, the Medicaid eligibility increased from 43 percent to 67 percent of federal poverty level. Then, in August 1989,¹¹ the federal Office of Budget Reconciliation Act increased eligibility to 75 percent, and later, in April 1990, the level increased to 133 percent of poverty level. These efforts allowed for many more patients to have insurance and seek care.

However, this increase in Medicaid eligibility did not affect physician reimbursement or physicians' desire to take on new patients. So an eight-member committee, supported by the Idaho Medical Association and the Maternal and Child Health Committee, consisting of obstetricians, family practitioners, and pediatricians, lobbied for a change in the reimbursement policy. By 1990, a change was made that decreased pediatric hospital reimbursement to allow for an increase in obstetrical reimbursement. This effort resulted in an increase of prenatal care and delivery reimbursement from \$400 to \$1,200.¹²

In the area of improving access to care, MVRMC, the Public Health Department, Family Health Services (a community health clinic), and the obstetricians worked together to ensure availability and efficiency of services. At first, the health department created four decentralized area sites and incorporated "one-stop shopping" at each of these sites.¹¹ The health department also received a federal Maternal and Child Health grant for all women with income below the 185 percent of poverty level. This block grant ensured comprehensive and efficient prenatal care, including one-stop shopping for pregnancy testing and education, smoking cessation, applying for WIC, Medicaid screening and receipt of a temporary card, nutrition counseling, and social work intervention. This program expanded services to many women previously uninsured, and enabled the patient to be seen promptly by her physician. Timely obstetrical care could now be provided without the physician being concerned with payment or multiple psychosocial issues. Magic Valley Regional Medical Center also established an obstetrical clinic, staffed by the obstetricians in the community, to ensure that any woman wanting care could receive it if she was not able to be seen at a private office.

Another factor of access to care, the low physician-to-patient ratio, has been a problem well known to the people of Idaho, and any previous effort to improve this condition was encouraged again. However, the group was not successful with recruiting efforts, and some of the obstetricians were not willing to make recruitment a priority, concentrating instead on the other improvement areas. However, the family practitioners, who were limited because of malpractice quotas, were soon able to see more patients because the additional malpractice insurance was being paid for by the county hospitals.¹¹

In an attempt to improve the patients' education and perceived need for prenatal care, the Public Health Department, through the block grant, began classes, "Baby Your Baby," to educate future mothers about pregnancy, birthing, child rearing, and contraception. The department identified the women who were smoking and tagged their charts so that all healthcare workers could encourage the patients to stop smoking. These women were also enrolled in smoking cessation classes. The health department worked to ensure that all of their patients were thus educated and informed about their healthcare.

From 1988 to 1991 all of these changes were being instituted in an attempt to test the program's hypothesis, and by the end of 1991 the group was ready to begin data analysis and to see if the expected outcome was accurate. The results would help them answer the questions: "How do we know that pregnant women are getting the best prenatal care that they can, and how do we know that the care we give works?"

With respect to affordability, the number of Medicaid deliveries increased dramatically from 123 in 1988 to 231 in 1990, the year reimbursement fees

increased to \$1,200 and Medicaid eligibility increased to 133 percent of the poverty level. At the same time, the number of drop-in deliveries, those women receiving no prenatal care, declined (Illustration 3.3).

The group also looked at NICU admissions as another indicator of perinatal morbidity, and again they saw a dramatic decline from 184 admissions in 1988 to 137 admissions in 1991. During this decrease in admissions the total number of deliveries at the hospital had increased. The number of NICU patient days, which gives a better indication of how sick the admissions are, showed a steady decline from 1,726 days in 1988 to 974 days in 1990. However, in 1991, the figure increased to 1,162 days. Along with this indicator, low-birthweight figures were analyzed. As hoped for, the incidence of low birth weight decreased along with the increase in prenatal care, but then increased in 1991 (Illustration 3.4).

With respect to patient education, results were not available for review. The Baby Your Baby classes were well attended, but it was difficult to assess the direct effectiveness of these sessions. Similarly, the results of the smoking cessation program are still being studied and follow-up data are being accumulated.

Financially, both increases and decreases occurred in healthcare costs. Because of the expanded eligibility rules, the number of women receiving Medicaid increased. Approximately 200 more women were enrolled, each costing an average of \$2,000 per pregnancy. This increase created an additional cost of \$400,000. However, along with this increased expenditure for prenatal

Illustration 3.3 Number of Drop-In Deliveries

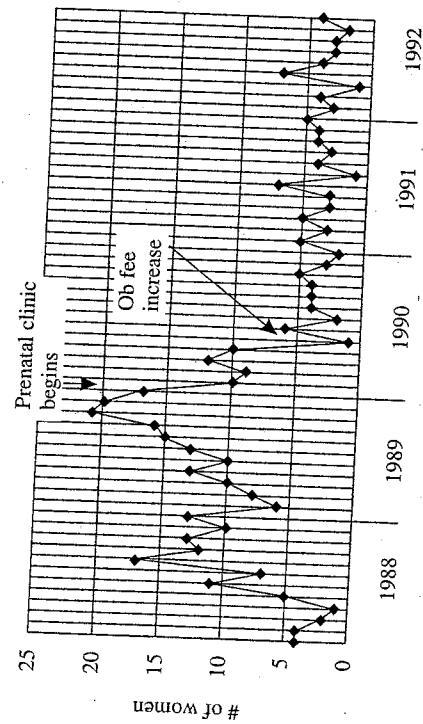
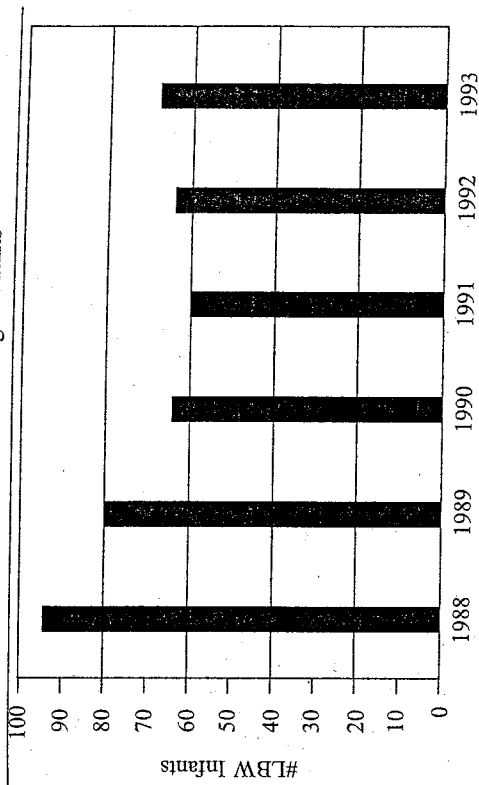


Illustration 3.4 Number of Low-Birthweight Infants



care came a decrease in NICU patient days. One day in the NICU costs an average of \$1,000. In 1988, the total was 1,726 patient days, while in 1990, it decreased to 974 patient days. This change created a savings of \$750,000. During 1991, when the total number of days increased to 1,162 days, the savings as compared to 1988 was still \$564,000.¹²

Having found these results, the group concluded that their efforts not only had increased the number of pregnant women receiving care but also had improved the health status of their babies, directly contributing to the overall health of the community. The general agreement was to continue the current care they developed, but from their data they were able to identify some problem areas that still needed improvement. One of these areas was the increase in NICU patient days for 1991. Miles was uncertain whether this figure was part of normal variation or something that could be improved. In attempting to explain the NICU data, he discovered that the twinning rate in Twin Falls for that year had increased compared to past years. Twins are at a 50 percent higher risk for low birth weight and at a five times higher risk for mortality than are single births.¹⁰ Miles discovered that in 1991 the twinning rate in the area was double the national average.⁸ This increase was most likely the major cause for the increase in NICU patient days.

However, that odd variation of the twinning rate did not satisfy the group. Some members looked at the issue of prenatal care—its definition and implementation. Different aspects of care vary from physician to physician and, interestingly, since 1988 the rate of women beginning prenatal care within

the first trimester has been steady at 60-63 percent.¹ The significance of this finding is unclear, but the group is curious to see if increasing that percentage could influence perinatal morbidity and mortality.

These areas, along with programs to improve data collection and to make better use of statistics, are some of the projects that are being considered for the group's next improvement undertaking. However, members are also aware of some inevitable roadblocks. One of the other community obstetricians has increased his prenatal care fees to \$2,000, which is above the current Medicaid reimbursement amount of \$1,200. It is feared that others might follow his move, possibly leading to a significant decrease in affordability and access to care. Also, five family practitioners in Twin Falls are going to stop their obstetrics service. And the hospital clinic closed with the verbal agreement that the obstetricians in town would care for anyone who needed prenatal care—but that outcome has been difficult to track. The Maternal and Child Health Block grant was discontinued in January 1992, leaving many women without access to comprehensive care, and there still remains for all patients a one-month waiting period for the first obstetrical visit. Further, the Hispanic population in the area is growing, but there are no translation services available within the healthcare system. Finally, Medicaid has stated that it will stop all payment from April 1993 to the beginning of its next fiscal year, July 1, 1993. The obstetricians and family practitioners are unsure if they will take on new patients who will be delivering and not paying for their care during the months from April to July 1993.

Miles is concerned about the course that prenatal care could take, and would like to readdress the issues of providers, access, and payment as soon as possible. He would also like to have a better understanding of what specific factors in prenatal care truly affect outcome. He has applied for a grant to develop an interactive video to educate future mothers and to develop a systems approach to prenatal care by creating a uniform database and vision within the entire region.¹² However, the views of the group are varied. Juntensen and Machala, in agreement but aware of their decreased funding, continue to follow the health department's pregnancy program annual plan that highlights the community need for prenatal care as well as the strategies to follow in continuing to improve early access and comprehensive care.¹³ But because of the anticipated problems for the future of prenatal care, Machala has distributed a pregnancy program progress report (1989-1991) that emphasizes the need to increase the number of women receiving care in the first trimester. There is also concern about the appropriateness of the current content and amount of patient education and whether or not a need exists for specific education before women actually become pregnant. Mr. Bingham continues to support the efforts of the group and the mission of the hospital, but he has become

aware that with this initial improvement in the health of the community, the NICU appears to be becoming underused, overstaffed, and less profitable.⁷ This financial reality, while not changing Bingham's vision to improve the health of the community, is a factor that is requiring some of his attention. The obstetricians are not interested in recruiting more physicians; they want to see if there is a problem first before making any further efforts to improve prenatal care. The group plans to meet next month to decide what to do next.

Miles has asked Blackwell to plan the agenda for the next meeting and to give him her priority list for the next steps to take. Blackwell knows that Miles expects three questions to be answered: Why do we do what we do, how do we know what we do works, and how can we make what we do better?

Notes

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