

PRHI Executive Summary

January 2002

On Starting a Learning Line

This series of articles will describe what it's really like on a Learning Line. You will go inside area hospitals and watch as frontline workers begin making small changes to the way healthcare is delivered.

What, exactly, is a Learning Line? What does it take to get one started? And what does it take to sustain one?

Over the next few months we will follow people at two different hospitals, in two different healthcare systems, as they study and participate in a Learning Line, and then start one of their own.

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Aetna grant supports cardiac initiative

Aetna has awarded PRHI \$25,000 in support of its Cardiac Program for 2002. Together, the program's components build a shared cardiac learning and improvement network across the region. The program's components include:

- ◆ **The Cardiac Care Improvement Registry.** PRHI's Cardiac Working Group selected 93 data elements to track atrial fibrillation and mortality in patients undergoing coronary artery bypass graft (CABG) surgery. They share their findings in Cardiac Forums three times a year.
- ◆ **Cardiac Forums.** The first of these conferences was held in October, attended by area cardiac surgery teams and members of the Northern New England Cardiovascular Disease Study Group. Ideas generated during the Forum are already being implemented (see *Executive Summary*, November/December 2001). Aetna's funding supports the forums for 2002.

Our goal is to build support for these systems into the way we finance and manage health care. As a prominent local payer, Aetna has led the way with this gift. We'll be working to establish an equitable formula to sustain these tools and bring them to the community in the months ahead.

Perfecting Patient Care System

A patient is not a car, but . . .

The Toyota Production System (TPS) has been an integral part of PRHI since its inception. Learning Lines, hospital units organized around TPS principles of improvement, now exist in four hospitals in the region, with more scheduled. As TPS has been adapted from industry to health care, and its approach broadened, a name change was in order.

As of January 31, TPS as used in health care will be called Perfecting Patient Care, or PPC. We continue to be closely aligned with partners at Toyota, the Harvard Business School, and other proponents of the TPS system. The name change merely differentiates ours as a healthcare effort.

Visit our new website
www.prhi.org

National grantmakers visit PRHI

Grantmakers in Health (GIH), a group of foundations from around the country that fund healthcare initiatives, sponsored a site visit to PRHI partners on January 21. The visitors traveled from Washington, DC to see aspects of PRHI's patient safety



initiative first-hand. GIH is creating a national patient safety collaborative among grantmakers. They believe the PRHI model may have implications for health grantmakers in other communities.

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Perfecting Patient Care

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The mission of PRHI's Center for Shared Learning (CSL) is to support the testing and implementation of a system-based approach to healthcare management, drawn from the Toyota Production System (TPS) and Alcoa Business System.

On Starting a Learning Line

This month we check in on the new Learning Line in 4 West Main, a surgical unit at Shadyside Hospital.

Between them, RNs Judy Shovel and Sue Martin have over four decades of nursing education and management experience. Judy, who started as an ICU nurse, ended up in the education department developing process improvement models. Sue, a former nursing clinical director, is now in clinical design/improvement.

When Sue and Judy learned about the Toyota Production System model in use at other hospitals in the region, they became intrigued, due to their work in the past 4 years with UPMC Shadyside's Clinical Design Initiative.

"At first, I was like everyone else," says Judy, "wondering what cars have to do with patient care. But it wasn't long before we understood that the ideals behind TPS really do apply to health care."*

Perfect Patient Care Ideals

Certain ideals apply to the making of cars and the care of patients. Those ideals involve work (care) that is supplied:

- ◆ On demand.
- ◆ Immediately
- ◆ Defect free.
- ◆ One at a time.
- ◆ Waste and error free.
- ◆ In an environment that is physically, emotionally, and professionally safe.

Judy and Sue were hand-picked by Shadyside's Vice President of Patient Care Services, Tami Merryman, to become Lend Forwards—in essence, students at an existing Learning Line at South Side Hospital. From a management point of view, doing without two key employees for several weeks was a sacrifice—and an investment. But Shadyside's new Learning Line, Tami realized, would build naturally on the years of clinical design work begun at Shadyside. The Learning Line would have an enormous head start if these two top people received the training.

Sue and Judy shared an interest in improving patient care by improving the system of care delivery. They had long realized that convoluted systems prevent healthcare workers from doing the jobs they deeply care about. Problems in the system end up surfacing as: (a) errors, (b) waste, and finally (c) rework and frustration of the frontline staff.

Throughout the organization, hospital leadership including the CEO agreed to commit the time (up to 6 months) and resources (two top, full-time managers) to create a Learning Line that would succeed.

What did Judy and Sue learn as Lend Forwards on the South Side Learning Line? Under the guidance of Teacher/Trainer, Deb Thompson, they found “eyes to see.” They learned to watch one person work for one hour at a time, observing everything about how the work was done. Sound simple?

“We say that managers observe at 50,000 feet,” said Sue. “Instead, we learned to observe close-up, as the work was happening. It was exhausting. It was also a revelation. Finally we could see what the problem was in getting our patients what they needed.”

In one-hour sessions, Judy and Sue observed how many times the nurses were drawn off-task by late medications, lack of supplies, loss of keys—a hundred and one little problems. The nurses considered it part of their jobs to work around these problems, having little hope of solving the underlying causes.

“We call it ‘nursing the system’ instead of nursing the patient,” said Judy, “and we found they had to nurse the system about a dozen times each hour.”

While at the South Side Learning Line, Judy and Sue also learned to create A-3’s, problem diagrams that:

- ◆ Specify the problem
- ◆ Describe the current condition and the target condition.
- ◆ Describe the steps required to reach the target and solve the problem at its root cause.

After several months at South Side, Judy and Sue were ready to bring their learning over to Shadyside, and to begin the process of painstaking observation. Experimenting with ways to fix problems, they hoped, would begin to yield small, incremental improvements to the system—which could ultimately add up to some big improvements.

NEXT MONTH: Meet 4 West Unit Director, Tina Danzuso, the Team Leader on the Shadyside Learning Line. Discover how Judy and Sue, the Lend Forwards, begin the cycle of teaching and learning—and the unexpected results!

What is a Learning Line?

A Learning Line is a small hospital unit organized around the principles of TPS. At the point of patient care, the experts—the people doing the work—focus on the goal of meeting patient needs, one patient at a time. On the Learning Line, everyone in the care continuum works toward the ideal: *delivering patient care on demand, defect free, one-by-one, immediately, without waste or error, in an environment that is physically, emotionally, and professionally safe.*

When a problem hinders work, a full-time Team Leader takes the lead. Rather than interrupting those performing the work, the Team Leader immediately begins researching the problem by first determining what happened. Then to determine the root cause of the problem, the Team Leader asks, “Why,” five times. This disciplined approach to problem solving is based on the Toyota Production System (TPS), a model borrowed from industry.

As the problem’s origins become known, the workers closest to the problem design solutions immediately, testing them with scientific methods. This way, every worker becomes a scientist who knows how to contribute to the cycle of rapid, frequent, low-cost improvements. Learning Lines increase scientific knowledge of patient need and ways to meet it.

With a Learning Line, the hierarchical concept of the *Chain of Command* yields to the idea of the *Help Chain*, where managers and executives become partners in problem solving. The Help Chain answers the question,

“What if the workers on the Learning Line need more information or resources to get to the root of a problem and solve it?”

In this case, the Team Leader engaged in problem solving is free to pull assistance as needed to the point of patient care from the manager, the director, the CEO, even the trustees.

But how does this powerful problem solving knowledge spread from one tiny unit to a whole hospital—and eventually an entire health plan and an entire community? Learning Lines also serve as learning labs where others are taught—CEOs, managers, and Team Leaders in training from other units and other hospitals. (See *On Starting a Learning Line*, page 1.)

This model has beneficial “side effects.” It enables healthcare professionals to spend more time doing the front-line care giving to which they are dedicated. It also wrings inefficiency out of the system—estimated to consume from 33 to 50 cents of every

Clinical Initiatives

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PRHI's partnership among clinicians, businesses, hospitals and insurers aims to achieve perfect patient care in five pilot areas by constructing outcome data that caregivers trust; and supporting collaborative efforts to improve care based on those data.

Highlights from PRHI Diabetes Report

Diabetes Mellitus is a widespread, chronic disease caused by the inability of the body to produce or properly use insulin, a hormone needed to convert blood sugar into energy. Type I diabetes (juvenile onset) accounts for only 5-10% of cases. The rest are Type 2 (adult onset).

It is the shocking rise in hospitalizations for Type 2 diabetes—most of which are entirely preventable—documented in PRHI's *Diabetes Report*, released in November 2001. Diabetes places a large burden not only on Pennsylvanians, but on their families, employers, and others who pay for healthcare. Consider:

- ◆ Diabetes is the leading cause of new cases of blindness, end stage renal failure, amputation and neuropathy.
- ◆ People with diabetes are predisposed to heart disease, hypertension and stroke.
- ◆ Diabetes is the 7th leading cause of death in the US. Deaths from diabetes have risen by 58% since 1979.
- ◆ Diabetes has particular impact in SW Pennsylvania, with several counties reporting higher death rates than the state average of 24.6 deaths per 100,000. For example, the rate in Beaver County is 27.8; Butler, 26.0; Fayette, 33.9; Washington, 26.0; and

Westmoreland, 25.9.

Summary of Findings in Southwest Pennsylvania

Hospitalization for diabetes (Types 1 & 2)

- ◆ Year 2000 = 25,000 hospital days and over \$63 million in hospital charges.
- ◆ Past 5 years = 130,000 hospital days and \$1 billion in hospital charges.
- ◆ Increased among 30-39 year olds by 33.7%.
- ◆ Hospitalization where diabetes was secondary to another disease accounted for over 346,000 hospital days and over \$1 billion in charges.

Hospitalization for Type 2 diabetes:

- ◆ Increased by 75.4% since 1996.
- ◆ Was consistently higher than the statewide rate.
- ◆ Increased more than the statewide rate.

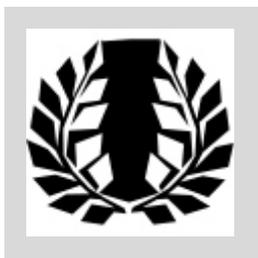
Hospitalization for long-term diabetic complications (1996-2000):

- ◆ Decreased for Type 1 diabetes by 29.6%.
- ◆ **Increased for Type 2 diabetes by 110.3%.**

Specifically, hospitalizations for lower extremity amputations (LEA) with a diagnosis of diabetes were higher than the statewide rate in all six counties of Southwestern PA.

- ◆ Fayette County, 75.4% above average

Based on data from two sources: the Pennsylvania Health Care Cost Containment Council (PHC4), and the Health Plan Employer Data and Information Set (HEDIS). HEDIS® is a set of standardized performance measures designed to ensure that purchasers and consumers have the information they need to reliably compare the performance of managed health care plans. The performance measures in HEDIS are related to many significant public health issues such as cancer, heart disease, smoking, asthma and diabetes. HEDIS also includes a standardized survey of consumers' experiences that evaluates plan performance in areas such as customer service, access to care and claims processing. HEDIS is sponsored, supported and maintained by the National Committee for Quality Assurance (NCQA).



- ◆ Westmoreland County, 36.5% above
- ◆ African Americans' LEA rates almost twice that for non-Hispanic Whites.

PA Hospitalization & HEDIS® Measures for Managed Care Plans, 1999:

- ◆ Hospitalization and readmission rates where diabetes was the principal diagnosis varied among HMOs.
- ◆ HMOs where members had poor hemoglobin A1c (HbA1c) control were more likely to have high rates of hospitalization and low rates of HbA1c testing.

- ◆ HMOs with high rates of routine cholesterol screening were more likely to have high rates of other important screenings (such as HbA1c testing and eye exams).

HEDIS® Diabetes Comprehensive Care Measures

Simple methods of testing and surveillance have been shown to reduce the devastating complications of diabetes--which include blindness, amputation of extremities, kidney failure and heart disease. Here are the tests, and how often they are administered to known diabetics in

Hemoglobin A1c (HbA1c)		Lipids (LDL-C)		Kidney disease monitored	Eye exam performed
<i>% tested</i>	<i>% poorly controlled</i>	<i>% screened</i>	<i>% controlled</i>	<i>% patients</i>	<i>% patients</i>
70.1 – 86.9	28.7 – 41.5	66.4 – 78.8	26.5 – 49.0	38.5 – 46.7	22.6 – 61.1

Next Steps for PRHI Diabetes Working Group

The Diabetes Working Group is developing an improvement model that includes:

- ◆ Improving connections between patients, employers, insurers, primary care physicians, specialists, and educators.
- ◆ Testing unique educational and reimbursement approaches.
- ◆ Creating point-of-care checklists, reminding physicians caring for known or suspected diabetic patients to perform an A1C test, foot and eye exams, and cholesterol and blood pressure checks.
- ◆ Encouraging employer-based information and referrals.
- ◆ Mapping patient outcomes and linking them to care processes.

This model is being constructed by the Working Group who will be seeking grant funding to test it, refine it, and make it sustainable.



PRHI Partner Spotlight

Clinical Advisory Committee — Cardiac Work Group

We are always updating our lists. If you note errors or omissions, please call Tony Kelly at 412-594-2567

Michael H. Culig, M.D. West Penn Hospital/ UPMC Shadyside	George J. MaGovern, Jr., M.D. Allegheny General Hospital	Gerry Ambrose West Penn Hospital	Colleen McRoberts Heritage Valley Health System
Ross F. DiMarco, Jr., M.D. Cardiovascular Thoracic Surgeon Three Rivers Cardiac	Chong S. Park, M.D. St. Francis Medical Center	Amy Barna UPMC Presbyterian	Joni Meiter Heritage Valley Health system
Marlene Garone, M.D. Vice President, Operations West Penn Hospital	Nalini G. Rao, M.D. Medical Director, Infection Control Monongahela Valley Hospital	Peggy Barnyk UPMC Shadyside Hospital	Sally Mikesic Mercy Hospital of Pittsburgh
Alan Gradman, M.D. West Penn Hospital	Richard P. Shannon, M.D. Professor and Chairman, Department of Medicine Allegheny General Hospital	Linda DuBois DuBois Regional Medical Center	Scott Miller Mercy Hospital of Pittsburgh
Norman A. Hetzler, M.D. Dubois Regional Medical Center	Carl Sirio, M.D. Associate Professor University of Pittsburgh School of Medicine	Kelly Finnerty Heritage Valley Health System	Janet Rice UPMC Shadyside
Jerome M. Itzkoff, M.D. Shadyside Medical Center	Thomas C. Smitherman, M.D. Prof. of Medicine, Med. Director, Cardiac Intensive Care UPMC	Marlon Johnson Mercy Hospital of Pittsburgh	Lois Schurig DuBois Regional Medical Center
David B. Lerberg, M.D. Pittsburgh Cardiothoracic Associates	Alexander G. Vasilakis, M.D. Cardiothoracic Surgical Associates	Robert Jones UPMC Presbyterian	Kathleen Simpson Allegheny General Hospital
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Thomas G. Lundquist, M.D. Allegheny General Hospital		Darlene Kelly UPMC Shadyside	Pamela Zajdel Allegheny General Hospital
		Ann Kolinen West Penn Hospital	
		Cindy Loughman St. Clair Hospital	

Calendar at a glance, February 2002*

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Feb 4	CoChairs Lunch	12—1:30 pm
Feb 5	Nosocomial Infections Work Group	8 am—noon
Feb 12	Adverse Drug Event Advisory Committee Perfecting Patient Care Info Session	3—4:30 pm 6—9 pm
Feb 13	Go-and-see (Gemba) session <i>Call Helen Adamasko at 412-594-2581</i>	8am-noon
Feb 21	Clinical Advisory Committee Location TBA	6—8 pm

*all meetings at JHF offices unless otherwise noted

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Patient Safety/Progress Report

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PRHI partners are working collaboratively to eliminate two major patient safety concerns: healthcare-acquired infections and medication errors.

PRHI's initial patient safety reports have been released. PRHI is the first region in the country where competing hospitals share sensitive hospital-acquired infection and medication error data openly for the purpose of learning.

Until now, such data have usually been used to benchmark one institution against another or have merely been collected and never used at all. PRHI partners are using their data not to benchmark, but to establish a starting point from which to launch their learning and measure their improvement.

The data, in conjunction with tools for linking these outcomes to processes of care, will over time provide the foundation for understanding the causes of central line associated bloodstream infections and medication errors in our region, honing our analytic skills, and developing and testing focused, systems-based solutions.

Hospital Acquired Infections

Highlights from PRHI Central Line Associated Bloodstream (CLAB) Infection quarterly report April–June 2001

PRHI's surveillance and data collection, April-June 2001, targets catheter associated bloodstream infections on intensive care units. This experience is facilitating efforts to expand our efforts to include antibiotic resistant organisms (Methicillin-Resistant *Staphylococcus aureus* or MRSA) of the bloodstream, and those associated with ventilators and surgical sites. The surgical site infection work complements PRHI's PRHI clinical programs in cardiac and orthopedic surgery. A PPC Learning Line at UPMC Presbyterian is addressing MRSA.

Type of Intensive Care Unit (ICU)	Number of units	Number of CLAB infections	Number of days central lines used	PRHI mean per 1000 central-line days	NNIS* mean per 1000 central-line days
Coronary care	9	7	2105	3.3	4.5
Cardio thoracic	6	8	4318	1.9	2.9
Medical/surgical	26	36	9734	3.7	5.3

The initial report incorporates data from 26 facilities reporting 118 central line associated bloodstream infections in 73 ICUs.

*National Nosocomial Infection Surveillance System—the Centers for Disease Control and Prevention provides a derivative of this system to every PRHI hospital. NNIS is used to gather common data throughout the six-county Pittsburgh region.

MEDICATION ERROR QUARTERLY REPORT JULY-SEPTEMBER 2001			
Category	Patient Outcome Severity Rating	PRHI Community	National MedMARx
C	Error occurred that reaches patient, did not cause harm	82.72%	82.29%
D	Error results in increased monitoring but no patient harm	11.22%	13.56%
E	Error results in need for treatment or intervention and causes temporary patient harm	3.40%	3.55%
F	Error results in initial or prolonged hospitalization and causes temporary patient harm	.76%	.53%
G	Error results in permanent patient harm	0.00%	0.00%
H	Error results in near-death event (e.g., anaphylaxis, cardiac arrest)	0.00%	0.00%
I	Error results in patient death	0.00%	0.00%

Medication ERRORS

This report incorporates data from 12 facilities that reported 793 medication errors. Most hospitals should be reflected in the data for the first quarter of 2002.

The errors are aggregated and presented based on the following: patient outcomes; where errors occur in the medication process; types of errors; causes of errors; generic drug name; and the therapeutic classification.

It is important to note that VOLUNTARY REPORTING of medication errors is a positive development.

MORE REPORTED ERRORS DO NOT MEAN THAT MORE ERRORS ARE OCCURRING.

A major, regionwide goal to encourage medication error reports is essential to ensure that our data remain useful for learning.

PRHI EXECUTIVE SUMMARY IS A MONTHLY BULLETIN HIGHLIGHTING THE INITIATIVE'S MOST RECENT ACTIVITIES.

PLEASE DIRECT INQUIRIES TO:

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The Pittsburgh Regional Healthcare Initiative is a collaborative effort of the institutions and individuals that provide, purchase, insure and support healthcare services in Southwestern Pennsylvania. We help our members work together to achieve the world's best patient outcomes . . . Through superior health system performance . . . By identifying and solving problems at the point of patient care. We believe the major challenges in health care—rising costs, frustration and shortages among clinicians and workers, financial distress, overcapacity, and lack of access to care—share the same cause, and will share the same solution.

PRHI Executive Summary



Enclosed is your

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