

PRHI Executive Summary

MRSA: a short history of a monster microbe

Got an infection? Take an antibiotic. The process is so common that it's easy to forget about the days when people lived in mortal fear of bacterial infections. There was no cure. The only defense was prevention, through scrupulous hygiene in home and hospital.

During the early part of the 20th century, fewer than 45% of people lived to the age of 65. Until the mid- 20th century, infectious diseases were the leading cause of death. Despite Alexander Fleming's serendipitous discovery in 1928 of the first bactericidal antibiotic, it was not until the early 1940s that penicillin was actually produced and used to treat infectious diseases—including infections caused by *Staphylococcus aureus*.

The cycle: mutation, response

Just a decade later, a resistant strain of *Staph aureus* emerged. It was resistant not only to penicillin, but the new antibiotic arsenal as well: erythromycin, streptomycin, and tetracycline. Clinicians were learning an ominous lesson: *Staph aureus* mutated. It was 1955, and “modern



medicine” was unable to effectively treat the new strain.

Faced with this challenge, scientists and health care professionals continued to work collaboratively to control the transmission of the resistant *Staph* strain and find a

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DECEMBER 2003

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Perfecting Patient Care System

PRHI increases learning opportunities

PPRHI makes courses available to the public, in an effort to share the knowledge we have gained about healthcare quality improvement. You are welcome to come and learn about

PRHI's approach to dramatically improving the system of health care delivery. We call this approach the Perfecting Patient Care (PPC) System.

The courses are designed to give you what you want, from a short overview to an in-depth university course. All of PRHI's courses are accredited for continuing education for medical professionals (see back panel for class schedule).

Past attendees have included not only physicians, administrators, nurses and other healthcare workers, but business leaders and educators as well. And although attendees have come from across the country, Southwestern Pennsylvanians are especially welcome.

PPC Information Session

Public information sessions are held one evening each month. The 3-hour sessions provide an in-depth study of the principles of the Toyota Production System as applied to health care. The program is an interactive case study, involving mandatory pre-reading.

Go and See Session

The morning following the Information Session, students may sign up to go and see the PPC system at work in a hospital. The 4-hour session is designed to hone your observation skills as you learn to apply the principles.

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Cleaner patient environment**Housekeeping key to improvements at St. Margaret**

Hospital leaders across the region occasionally invite PRHI staff to visit their hospitals and help them spot ways to accelerate improvements. When Dave Martin,

President and CEO of UPMC St. Margaret's near Aspinwall, made such a request, PRHI team leader Debra Thompson paid a visit. Thompson teaches the basics of PRHI's Perfecting Patient Care system to leaders expressing interest.

"Where to begin always seems to be a challenge. It can seem overwhelming. But we've found that everyone can agree on one thing: they want a clean hospital," said Thompson.

With that in mind, Thompson, Martin, Environmental Services Director John Merkt, and other hospital leaders set off to the floors, where the work is done, to begin detailed observations about hand

hygiene. Were soap and alcohol rub dispensers easily accessible? Were they always full? Were gloves always available, and did staff use them appropriately?

Into the patient's domain

These observations soon moved right into patient rooms, and the questions expanded. Housekeeping staff seemed frantically busy. Did the housekeepers have what they needed to do their best work?

Merkt decided to tackle these questions head-on. At first, he observed Lead Environmental Services

"It made me nervous at first," said Wolfe, "to have people watching me. Usually people come to watch you because you're doing something wrong. But I realized that they were there to find ways to help me, and they did help. So I let them watch now, no problem."

Heavy carts, heavy buckets

The housekeeping cart is laden with cleaning supplies and accompanied by a wheeled, stainless steel bucket filled with cleaning solution, and a dense mop-head. The bucket assembly and wet string-mop weigh over 40 pounds. Just getting to the room to clean it means that the housekeeper must push the heavy cart with one hand, and pull the heavy bucket assembly with the other. When the bucket water must be changed, at the completion of every third room, the aide must roll the bucket down the hall to the utility sink, lift it, pour it out, and refill it.

Watching the housekeeping routine for an hour made improvement potential clear.

"Denise has been a leader on our housekeeping staff for 30 years. You can't find people like her. We need to make her work easier," said Merkt. "I started looking for other cleaning options."

A better mop

Merkt found an industrial model (GPS™ 2000 system by Geerpres), similar to the Swiffer lightweight mops with microfiber mop heads so popular in households. The mop handle holds cleaning solution, dispensed by a trigger on the handle. Filled and ready for action, the mop weighs just over two pounds.

It took a little getting used to. At first, Wolfe was not enamored of the swiveling head. It seemed awkward. But within a few days, the benefits became more and more apparent. Ordinarily, the aide dry-mops the floor to remove debris, then wet-mops to disinfect. The new mop allows both operations to be done in one pass. The new, wider mop-head is more effective at removing dirt



Is it time to kick the bucket? No wonder the bucket assembly has proven physically burdensome for workers:

Filled bucket	27.5 lb
Wet mop	4.4
Wringer	9.1
Total weight	41 lb

Aide, Denise Wolfe, as she performed her morning duties. Within days, Merkt showed up in his scrubs to work side by side with Wolfe, to experience first-hand some of the difficulties.



Environmental Services Aide, Lisa Thomas, fills the mop handle with cleaning solution. Filled and ready to go, the mop weighs just

2.3 lb

Other advantages: solution is always clean; dry and wet mopping can be done in one operation.



Denise Wolfe and Lisa Thomas with new mop. Bonus: microfiber mop-heads are much less expensive to launder.

and debris. Because the mop-head can be changed frequently, and because the cleaning solution is always clean, the floors in patient rooms are cleaner. (An unexpected windfall: the microfiber mop heads are easier and far less expensive to launder.)

A little safer, a little cleaner

Observations of Wolfe revealed other opportunities to help. While she wiped the surfaces of the room according to a set guideline, she had to make numerous trips



Perfecting Patient

Care is about making work less hard. When the right thing becomes easy to do, everybody wins.

Debra Thompson, RN, MSN

PRHI Perfecting Patient
Care Team Leader

back out to the cleaning cart in the hallway to wring or change her cleaning cloth. To simplify the procedure, she prepared Ziploc bags with the necessary number of cleaning cloths for one room, pre-moistened with cleaning solution. When she enters a room, she brings a bag full of clean cloths, and an empty bag for the "dirties." After working out some initial bugs in the system, Wolfe now finds the cleaning routine shorter and more thorough, and the disruption to patients minimized.

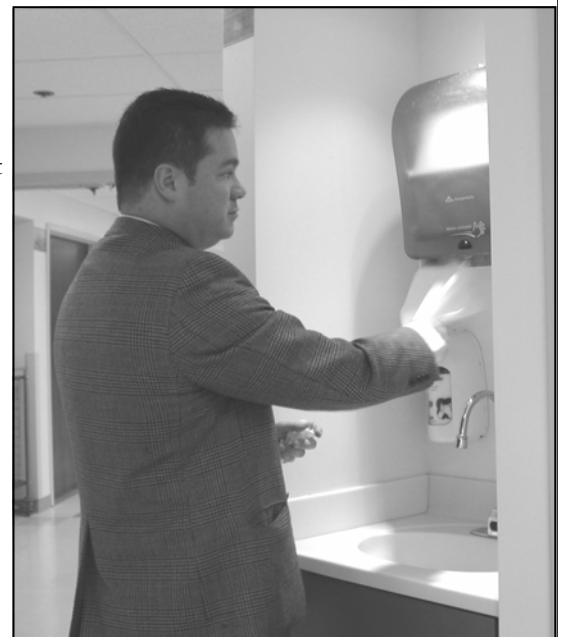


Pre-filling Ziploc bags with cleaning cloths and solution saves time, trips to the cart.

"The Perfecting Patient Care system is about making work less hard," says PRHI's Thompson. "When the right thing is easy to do, everybody wins."

The new mops and cleaning cloth procedures are catching on with the other housekeepers. Initial reluctance is being overcome as the convenience and time saving become apparent. As this article is being written, the staff at UPMC St. Margaret continue to experiment with refinements to their work.

"Our housekeeping staff is so professional," says Merkt, "that they welcome improvements. Not only are they safer from injury, but patients are safer every time we figure out how to make a room a little cleaner." ☞



With a wave of the hand, new proximity-sensing towel dispensers produce a clean paper towel after handwashing. "Every time you can eliminate the need for people to touch things, you reduce opportunities to transmit infection," says Environmental Services Director, John Merkt. Looking for more such opportunities, Merkt recently had sensor-activated lights installed in supply rooms.

Sort, Set in order, Shine, Standardize, Sustain

5-S catches on at the VA

Every business would like to improve productivity, reduce defects, meet deadlines, and provide everyone with a safer place to work. Yet in a complex hospital, making these kinds of major improvements might seem next to impossible. At the 4 West Learning Unit at the VA Pittsburgh Healthcare System, staff discovered a relatively

simple, rapid, low-cost, low-tech way of making these improvements. It's called 5-S.



- 1— Typical storage room in any American hospital
- 2— Crew at VAPHS amid 5-S process
- 3— Completed project. Wall posters visually delineate what goes where, how to clean and store.
- 4— Adequate electrical outlets mean equipment is always charged.

A little history

Before World War II, many American businesses had codified the idea that a clean workplace is a productive workplace. In America, by and large the idea remained in manuals, without being translated to the workplace. As Americans helped the Japanese reconstruct their industries after the war, they brought their ideas, and found the Japanese to be ready students. Before long, the Western idea of the orderly and productive workplace became tied to the Eastern idea of deep respect for the worker's wellbeing and morale. Out of this blend of philosophies came a technique for creating the orderly workplace, a technique directed not by a distant manager, but by the esteemed worker.

What are the five S's?

The name, "5-S," refers to a sequence of steps that translate approximately as follows:

- ✧ **Sort.** Remove all items from the workplace that are not needed for current operations. A crowded workplace is hard to work in and costly to maintain.
- ✧ **Set in order.** Arrange needed items so that they are easy to use. Label them so that they're easy to find, clean and put away. This degree of order improves communication and reduces the frustration of wasted time and motion.

✧ **Shine.** Clean the floors, walls, and equipment.

When things are kept in top condition, when someone needs to use something, it is always ready. In a hospital environment, cleanliness is extremely important to staff member and patient alike.

✧ **Standardize.** By integrating the first three steps into everyday work, “backsliding” is eliminated.

✧ **Sustain.** If the rewards for keeping order outweigh the rewards for going back to the old way of doing things, people will make orderliness a habit.

Practicing 5-S at the VA

About a year ago, the workers on 4 West, the inpatient surgical unit, took a long look at their Equipment Storage Room. It looked like a typical storage room in any American hospital—a mix of often- and seldom-used equipment, stored in no particular order. It took time to find equipment, and it was difficult to walk around in the room. Items relying on recharged batteries were not always plugged in. It wasn’t clear where or in what condition things were supposed to be stored.

Following a deliberate process over a few weeks, staff members on 4 West were able to reduce the inventory in the room, while still maintaining access to what they needed when they needed it. About

\$20,000-worth of seldom used equipment was freed up for use in other areas of the hospital.

Signs clearly denote where each piece of equipment is to be stored, how it is to be cleaned, whether it is



IV pumps always plugged in when stored

Results on 4 West*

- ✧ Approximately \$20,000 in equipment freed up.
- ✧ Reduced time to access, clean and store equipment.
- ✧ Equipment always clean and ready for use.
- ✧ Safer work environment

** similar improvements expected on floors 5 and 6*

to be plugged in, etc. The visual cues leave no doubt about the expectations.

Since the 5-S, the room and equipment have been maintained in sparkling clean condition with little problem. Since cleaning is built into the work itself, backsliding is minimal.

So well has the Equipment Storage Room worked that staffers on other units are now learning 5-S. In short order, units on the fifth and sixth floors are organizing their storage rooms according to the principles.

“It’s not just a matter of cleaning out your closet,” says Peter Perreiah, PRHI’s team leader at the VA. “It’s about honoring the worker with a clean, safe environment, and honoring patients with equipment that’s always clean and ready.”

5-S catches on

When she saw the Equipment Storage Room on 4West, Shedale Pinnix-Tindall, Nurse Manager on 6 West, thought it could work in her unit as well. Nobody asked her to do it. But she and Marianne Allen, 6 West Charge Nurse, asked for help and soon got started.

“Who could be against this? Having the storage areas orderly like this really saves time and frustration. It’s better for patients,” says Shedale, “and it’s not hard to keep it this way.”

Says Environmental Aide, John R. Finkley, “Since we did the 5-S on 4 West, we can get what we need easily and quickly for every patient. There’s no guessing. You just open the door and go right to the item. I find that I spend less time cleaning that room, so there’s more time to clean every piece of equipment thoroughly. It’s all part of the routine now.” ✂

From page one

PRHI increases learning opportunities



PPC 101

After completing the Information and Go and See Sessions, many people want a little more in-depth instruction, yet cannot make the five-day commitment to attend the PPC University. For these people, PRHI has developed this interim

class.

The day-long class introduces the principles and values of the PPC

system; *why* to change; and *what* we need to be able to change. It's a fast-paced, interactive day using videos, block-building exercises and lively discussion

of a case study to make the points. Again, there is some mandatory pre-reading.

Those who complete this session need to attend just four more days to complete the University.

Perfecting Patient Care University

This intensive, five-day program gives you a broad look at the principles underlying the Perfecting Patient Care System.

Lecture is a minor feature in this engaging and interactive program.

Those who come looking for a quick set of "tools" will be disappointed. Instead, the University



Participants work collaboratively in exercises designed to teach the principles of the Perfecting Patient Care System.

encourages a deeper understanding that leads to breakthrough thinking in problem-solving.



You will leave with a basic understanding of how the principles could be applied in your workplace. You will also be eligible, along with other University graduates, to participate in PRHI's online forum, the PPC Virtual Community.

Prerequisites: completion of PPC Information and Go and See sessions, and pre-reading.

Oh! No! Sessions



Things don't always go as planned. After completing the University, you may come upon a situation that makes you exclaim, "Oh! No!"

To work through specific problems, PRHI offers half-day Oh! No! Sessions. Not only will you work through problems with like-minded people, but the sessions will offer you a chance to reinforce your learning.

What is learned during these sessions will be shared with other University graduates as part of the PPC Virtual Community. ☞

MARK YOUR CALENDAR

Cardiac Forum 5

Highlighting the Efforts of Anesthesiology in CABG Surgery

Additional topics to be announced

Tuesday February 10, 2004

Registration: 5:30 PM, Forum: 6 – 8 PM
UPMC Shadyside West Wing Auditorium
5230 Centre Avenue
Pittsburgh, PA 15232

PURPOSE

The Cardiac Working Group exists to develop and exchange information concerning the evaluation and treatment of patients with heart disease in the six county area of Southwestern Pennsylvania. It is a voluntary, multi-disciplinary group of clinicians, data analysts, and health care research personnel who seek to constantly improve the quality, safety, and effectiveness, of cardiac care.

INFORMATION

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From page one**MRSA: a short history of a monster microbe**

cure. By 1960, methicillin was the newest, most effective weapon against *Staph aureus*.

In the late 1970s, hospitals in eastern Australia saw the first outbreaks of methicillin-resistant *Staphylococcus aureus* (MRSA). By the 1980s, MRSA had emerged in various places throughout the world.

Once unleashed, spread begins

While initial antibiotic resistance emerged as a mutation around antibiotics in specific patients, today MRSA is passed through contact transmission—most frequently in hospitals by healthcare workers. Moreover, even today, the primary transmission mechanism for MRSA is commonly not understood by doctors and other healthcare workers.

Reliance on new medical miracles, new antibiotics, seems to have overtaken the will of many in the healthcare professions to take MRSA transmission seriously. But today, only one proven antibiotic, vancomycin, remains to combat MRSA. Two cases of vancomycin-resistant *Staphylococcus aureus* have been reported in the U.S.—one of those in Pennsylvania.

Countries that have controlled it

Stark differences in healthcare practices have led to stark differences in MRSA rates. Other countries have stressed the importance of shutting down opportunities for transmission, and have not relied so heavily on aggressive antibiotics.

- ✧ In the Netherlands, Scandinavia and western Australia, MRSA is uncommon, with sporadic outbreaks quickly contained. While over 50% of *Staph aureus* infections in the US are methicillin-resistant, in the Netherlands, that figure is less than 1%.
- ✧ In Belgium and France, countries that once had a high prevalence, MRSA has been stabilized and confined.
- ✧ In Paris hospitals, prevalence went from 55% in 1993 to 25% in 2002.

These communities worked together on the problem, strictly adhering to well known hygiene and surveillance guidelines, with the intent of stopping transmission.

Control in the U.S.

One hopeful example of community response occurred during a vancomycin-resistant *enterococci* (VRE) outbreak between 1997-1999 in the common border area of Iowa, Nebraska and South Dakota known as the Siouxland. This outbreak was fatal to four children. Shocked healthcare workers mobilized, sought help from the CDC and contained it. A lasting legacy of the VRE task force has been that the entire Siouxland community maintains a long-term commitment to the regular practice of infection control.

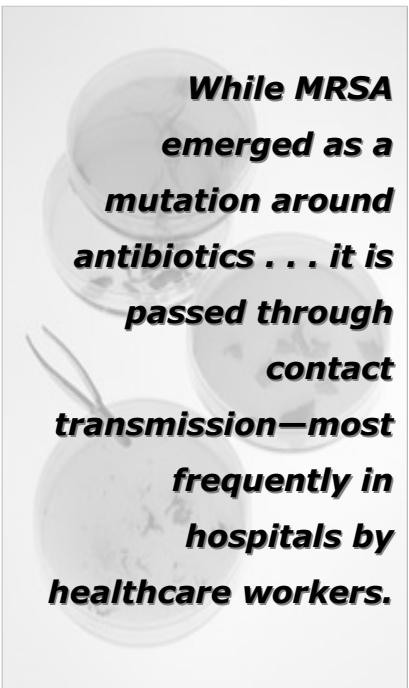
MRSA not confined to hospitals

Is MRSA beginning to jump the hospital walls? In 2003, more than 900 prisoners in the Los Angeles County jail came down with boils and rashes that resisted treatment with methicillin. A young athlete in Seattle died from a lesion. Smaller outbreaks have recently affected a Colorado fencing team, gay men in San Francisco, Texas school children, and several college football players in Pennsylvania.¹

Traced to their origins, the vectors for these infections are almost invariably the hands of healthcare workers. Halting the spread will require changes in attitudes as well as systems across an entire region.

Let's eradicate MRSA in Southwestern Pennsylvania

MRSA will prevail in our hospitals, ambulatory care facilities, and long term care facilities, as well as in our communities and homes, unless healthcare professionals across the entire community work together to eradicate it. The Pittsburgh Regional Healthcare Initiative aims to involve every healthcare professional in making Southwestern Pennsylvania a MRSA-free zone. ❧



While MRSA emerged as a mutation around antibiotics . . . it is passed through contact transmission—most frequently in hospitals by healthcare workers.

¹ Resistant staph, once confined to hospitals, now a threat to public, by Sandi Doughton, *Seattle Times*, September 21, 2003

Enroll now!



January 20-23, and 26, 2004
Perfecting Patient Care University* 7:30a-5

Tuesday, Jan. 13

Hospital "Go and See" visit*
 Allegheny General Hospital
 Medication Safety Advisory Committee
 PRHI offices
 OB Working Group
 PRHI offices, Centre City Tower, 2150

5:30-7:30p

Tues-Weds, Jan. 6-7

PRHI offices
 Perfecting Patient Care Information Session*
 Montour Room, 5th Floor, Centre City Tower

6-9p

Tuesday, Jan. 6

Diabetes and Depression Working Group
 Montour Room, 5th Floor, Centre City Tower
 Infection Control Advisory Committee
 Montour Room, 5th Floor, Centre City Tower

8-10 am

Monday, Jan. 5, 2004

5-7p

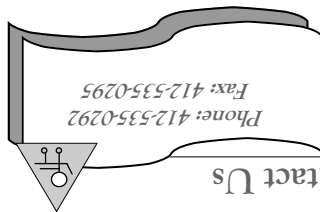
Calendar, January 2004

Pittsburgh Regional Healthcare Initiative

650 Smithfield Street, Suite 2150
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Enroll now!
PPC University
January 20-23, 26 2004

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