Pittsburgh Regional Healthcare Initiative

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Naida Grunden, editor

Second quarter data confirm

Central line infections continue to decline

"The Pittsburgh consortium has posted a 55% region-wide reduction in the number of central line-associated bloodstream infections, a very significant regional decline," said John Jernigan, MD, Medical Epidemiologist, Centers for Disease Control and Prevention. "These data challenge us to consider what may be possible in the area of infection control."

Beginning two years ago, infection control practitioners and others met with PRHI as the convener and began sharing information about how to reduce central line-associated bloodstream infections, or CLABs. The group established regional guidelines and recommended that hospitals invest in kits that contain exactly what a practitioner needs to insert a line. While the guidelines and the kits were tailored to each institution, the goal remained consistent: unit by unit, hospital by hospital, to achieve zero CLABs.

Recently a group of healthcare leaders, convening as part of PRHI's leadership obligation group, shared their individual stories about their notable reductions in CLABs. The very fact that leaders from competing healthcare organizations would share this information the purposes of regional learning and improvement, strikes practitioners in other regions of the country as remarkable. On the following pages are a few of their stories.

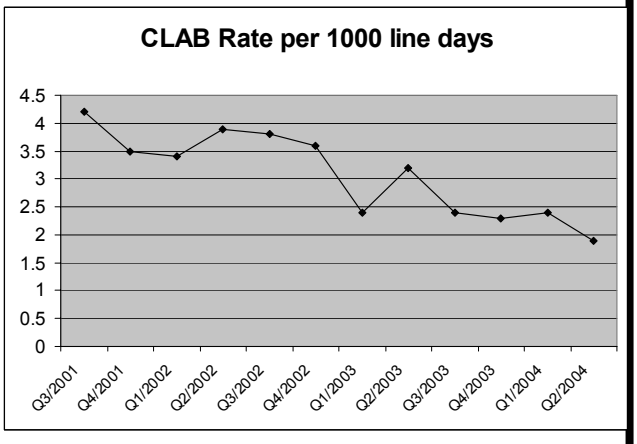
From LifeCare Hospitals of Pittsburgh, Clifton Orme, CEO; Sally Miller, RN, Nurse Manager (presenter)

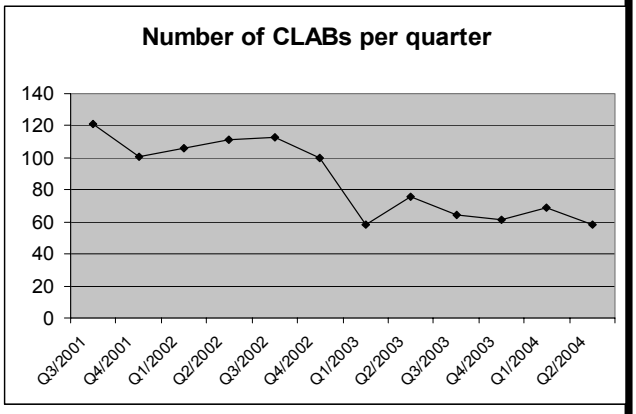
LifeCare is a 155-bed, long-term acute care facility that manages medically complex patients. Their length of stay averages 25 days. These factors combine to make LifeCare's patients more susceptible to infection. Discovered CLABs have 40% mortality, range in variable cost from $25-80K per case.

What they did:

- ✧ Created core group of RNs to oversee all aspects of IV lines. They went to Allegheny General Hospital to learn about percutaneously inserted central catheters (PICC lines), thought to be less prone to become infected. They avoid femoral lines.
- ✧ Consistent use of chlorhexidine as disinfectant and transparent dressings changed frequently.
- ✧ Handwashing lapses are called out, not tolerated.

Quarter/ Year	# CLABs	# of Hospitals Submitting	Rate per 1000 line days
Q3/2001	121	27	4.2
Q4/2001	101	28	3.5
Q1/2002	106	27	3.4
Q2/2002	111	27	3.9
Q3/2002	113	27	3.8
Q4/2002	100	25	3.6
Q1/2003	58	23	2.4
Q2/2003	76	24	3.2
Q3/2003	64	23	2.4
Q4/2003	61	26	2.3
Q1/2004	69	28	2.4
Q2/2004	58	29	1.9





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Central line infections continue to decline

- Continual evaluation of whether the current catheter is the right one for that patient, or whether it could be changed to a line with a lower risk for infection. (Midline appears to have lowest rates: trying to eliminate femoral lines.)
- Every day the team asks the physician, "Can we remove this line?"
- With each new admission, they ask specifically when this line was was inserted, what type it is, etc. If there are questions, they change the line.
- Every infection diagnosis every day goes directly to the CEO. Every CLAB is immediately investigated in real time.

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Results:

- In the past year, CLABs reduced 87% despite a 9.7% increase in the number of lines placed.
- Reduction gained momentum over time, going from 70 to 87% in the last 4 months.

Now working on:

- Studying better IV tubing.
- Observing and monitoring to ensure that current recommendations are understood and followed.
- They continue to look at the "little things," right size syringe, occluded or broken lines, etc. Little things represent big opportunities to stop a problem before it becomes a big problem.

From Monongahela Valley Hospital, Lou Panza, CEO; Kathy Liberatore, RN, Infection Control Practitioner (presenter)

The key to reducing infection lies in bringing in the nursing staff, because they have the day to day responsibility and get the job done. The importance of the nurses cannot be overstated. Monongahela Valley Hospital started out in 2002 with a rate less than NNIS, but thought they could do even better.

What they did:

- CLAB focus began in 1995. Infection control practitioners began observing each line placement. Full barriers and kits were required for practitioners. These practices are now well established in the hospital.
- The lab calls the moment a culture is positive; staff does immediate root cause analysis.
- They emphasize the consistent use of chlorhexidine, as well as impeccable catheter care. They avoid femoral lines.

Results:

- Since 2002, zero infections in MICU, one in CCU.
- Improved patient and employee safety, reduced cost

Now working on:

- Evaluating new coated catheters and new kits.

From UPMC Health System, Loren Roth, MD, Sr. VP of Quality Care, Chief Medical Officer (presenting); Helen Chang, Vice President, Quality Care

UPMC has mounted a system wide effort. Helen Chang, Fran Solano and the UPMC Institute for Quality Improvement are approaching CLABs reduction across the whole system. The results are presented regularly to the Patient Care Quality Committee (QPCC) of the system Board. One example within the system is in the MICU at UPMC PUH, where Dr. Mike Donahoe has been in charge of an aggressive campaign that has led to several months with Zero CLABs .

What they did:

- Recently adopted a "zero tolerance" posture on hand washing compliance. Staff are permitted to query and stop other persons who do not wash their hands.
- Use of 5 barrier kits.

- Process measures of compliance are at about 90% system wide for FY 04.
- Under Dr. Donahoe medical residents may place lines only under supervision of a physician who has been trained in line placement at the WISER simulation center. Plans are under way during FY 05 to similarly train all residents who put in lines across the health care system.
- Publicizing CLABS as a system priority; creating a culture of expectation system wide.

Results:

- CLAB rate down to 1.2 system wide (FY 04).

From Allegheny General Hospital, Connie Cibrone, CEO; Frank DeLisi, Chief Operating Officer; Richard Shannon, MD, Chief of Medicine (presenting)

AGH's experience reinforces the need for nursing staff involvement every step of the way. Dr. Shannon shared information on the business case for elimination of CLABs, indicating that a large city hospital could save $10 million per year by preventing them.

What they did:

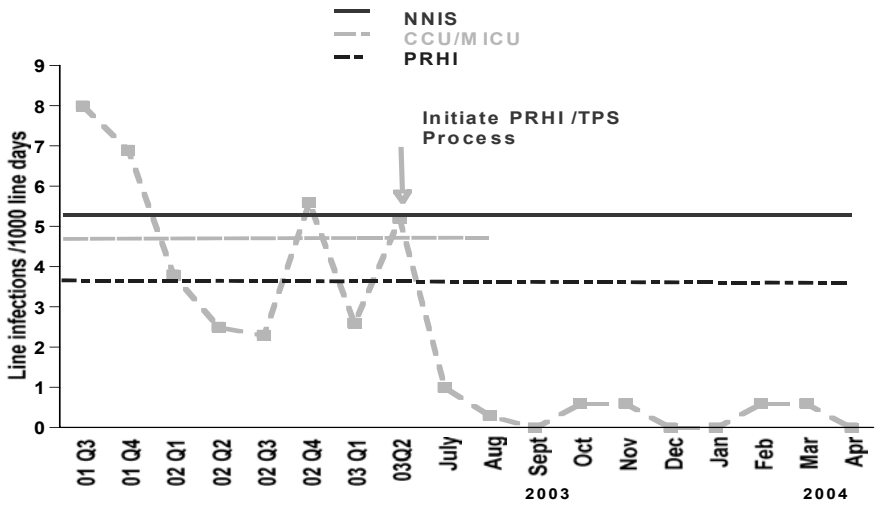
- Began in MICU and CCU last year (*chart below*).
- Implemented all guidelines from Infection Control Practitioners.
- Investigated each infection as soon as reported
- Implemented four specific measures:
  1. Preference for the subclavian site,
  2. Removal of all femoral lines within 24 hours,
  3. Prohibit rewiring of dysfunctional catheters,
  4. Remove all of catheters present on transfer from outlying facilities.
  5. (Being implemented.) Biopatch dressing for patients whose lines must be in for longer than 14 days.

Results:

- Zero CLABs within 90 days.
- Six CLABs reported within past year, a sustained 90% reduction with 95% reduction in mortality. Four of the CLABs were attributable to failure to follow a specific guideline.
- Past-year savings of $1.4 million just in direct costs.

Now working on:

- Business case for elimination of CLABs.



A hopeful example: Staff in two ICUs at Allegheny General watched as their efforts led them approach zero CLABs in 90 days. The near-zero rate has been sustained for a year. Midlines on the chart represent 'benchmarks' set by the CDC, the PRHI partnership, and the ICUs. Results like these and are challenging the region to reassess benchmarking and redefine 'what is possible.'

Continued

Central line infections continue to decline

From VA Pittsburgh Healthcare System, Michael Moreland, CEO (presenting), Robert Muder, MD, Epidemiologist

CDC recently called VA Pittsburgh the leading effort in eradicating MRSA* in the nation. It's a joint venture among VA, CDC, PRHI, beginning on one unit and focusing on all MRSA infections, not just those in central lines.

Before the effort began two years ago, the MRSA rates at the VA were at the community standard. Trying to go to zero infections seemed crazy at the time.

On the pilot unit we studied in detail, what happens? How? Very detailed observations helped us see patterns of things like hand hygiene compliance.

A region builds knowledge: LifeCare's CEO, Clifton Orme, with Infection Control Practitioner Lynette Smith hold up the poster-sized pledge card. LifeCare employees are encouraged to sign the commitment to follow all standard and isolation precautions to protect patients from infection—especially from MRSA. LifeCare is building on the knowledge gained at the VA Pittsburgh, and also on the knowledge they gained in reducing CLABs by 87% last year.

Will the eradication of MRSA be the region's next major target?

What they did:

- Aggressive education using visuals.
- Equipment cleaning and organizing.
- Supply system ensures that materials, such as gloves, are always accessible. (Paradoxically, making them more available actually lowered costs)
- Involved frontline staff and nurse managers

Results:

- Many months with zero MRSA infections on pilot unit.
- Positive staff outcomes, lower turnover, increased satisfaction.

Now working on:

- Moving out to several different units.

*methicillin resistant *Staphylococcus aureus*

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