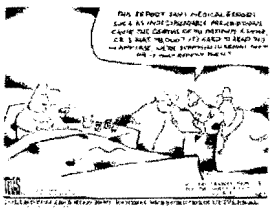
SPECTRUM HEALTH

ED CPOE Experience

Matthew Denenberg, MD



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Objectives

- Review how CPOE has impacted patient safety in the ED
- Review the basic safety benefits CPOE of CPOE
- Review the safety concerns associated with CPOE

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Why Do CPOE?

- More than one million serious medication errors occur every year in U.S. hospitals
- Medication errors alone contribute to 7,000 deaths annually
- Financial costs. One ADE adds more than $2,000 on average to the costs of hospitalization. This translates to over $7.5 billion per year nationwide in hospital costs alone.

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Why Do CPOE?

- Standardize process (check list of items to remember for each condition)
- Real time rules and alerts at ordering, signal drug interaction, allergy or dose errors
- Eliminate delays to downstream departments with real time order processing
- Enable bar code medication administration
- Dose calculators and other electronic tools to assist in accurate dosing
- Order sentences eliminate sound alike drug errors
- Clearer communication between physicians, nurses and pharmacists

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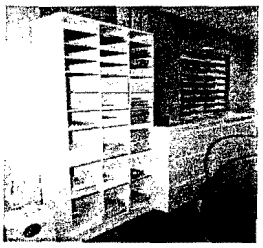
Before CPOE



Paper orders and order sets

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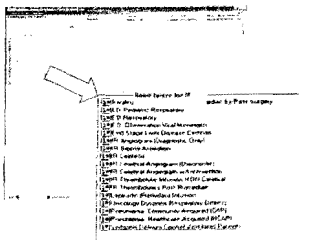
After CPOE



Home Folder with department specific order sets/Powerplans

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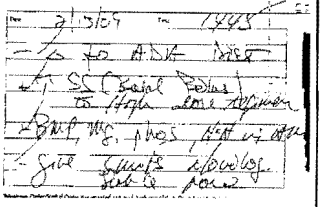
Before CPOE



Order hieroglyphics?

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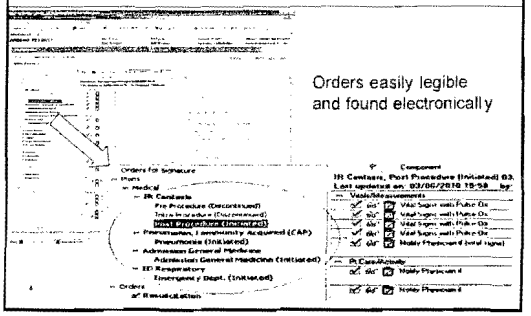
After CPOE



Orders easily legible and found electronically

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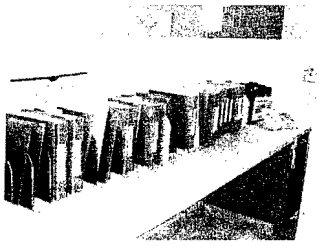
Before CPOE



Hand Written orders sit in paper chart to be transcribed into Cerner

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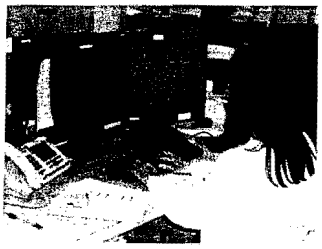
After CPOE

Physician can order electronically from anywhere they can access Cerner

SPECTRUM HEALTH

Before CPOE



Pharmacist Transcribing handwritten, often illegible, medication orders

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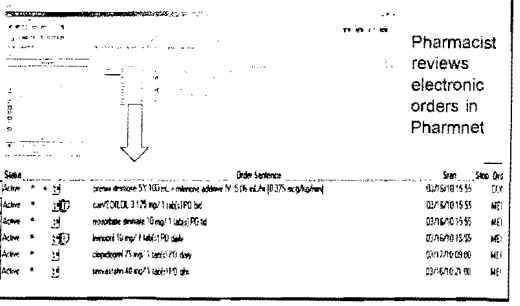
After CPOE



Pharmacist reviews electronic orders in Pharmnet

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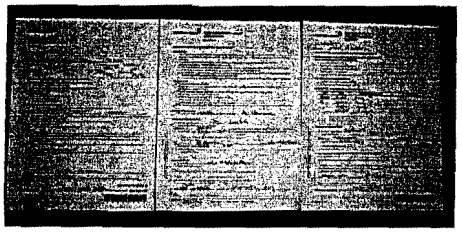
Before CPOE



Hand Written Discharge Instructions

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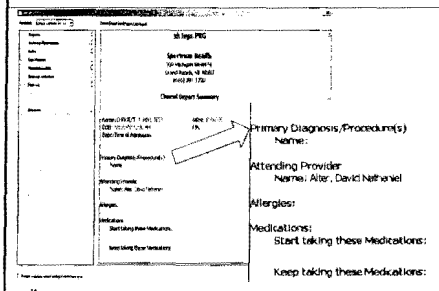
After CPOE



Printed Electronic Discharge Instructions

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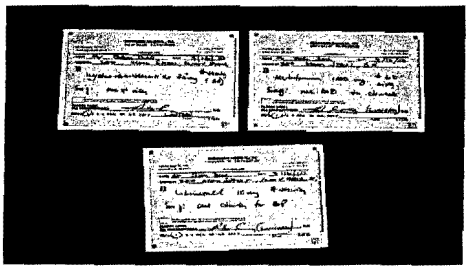
Before CPOE



Hand Written Prescriptions

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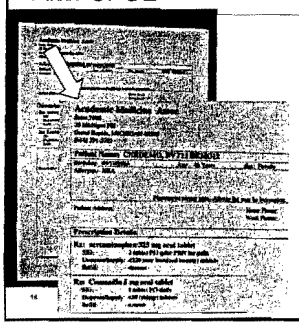
After CPOE



Printed (legible) prescription or prescription sent electronically to pharmacy (e-prescribe)

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Previous clinical references

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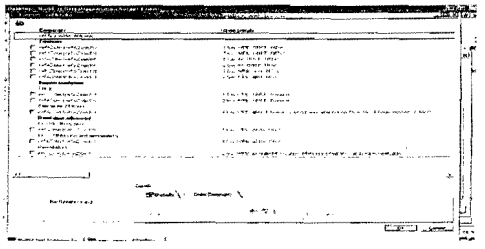
Cefazolin adults



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Difficulties experienced in ED

- Culture change by providers
- Decreased direct communication
- Software limitations
- Education, there is a steep learning curve
- Real time and order processing very quick
- Real-time evaluation with ability to update quickly
  - Clinical updates
  - Safety issues
  - Efficiency upgrades

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CPOE Safety Recommendations

- Robust education before, during and after "Go Live" events
- Extensive IT support staff with real time response
- Hardware and software able to support CPOE
- Monitor before and after "go live" to research effectiveness
- Continuous review and updating of system to accommodate provider concerns and new clinical evidence
- Most importantly, monitor and correct unanticipated safety errors

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Spectrum ED Experience

Over 200 physicians, extenders and nurses entering orders. Despite steep learning curve and frequent obstacles along the way, very few providers would elect to "go back".

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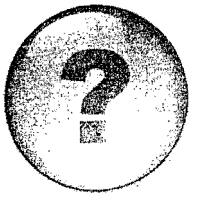
Spectrum ED Experience



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Communication and Safety: The Pediatric Intensivist's Perspective

Rick Hackbarth, MD
Pediatric Critical Care
Helen DeVos Children's Hospital

Disclaimers and Credentials

- Disclaimers
  - I have no formal training in safety
  - I have no formal training in psychology
  - I am not an expert in communication
  - I'm still going to talk about all of them
- Credentials
  - I'm old enough to have made lots of mistakes (experience)
  - Tend to be dissatisfied with the Status Quo and vocal about it
  - I'm a physician (least important, perhaps completely irrelevant)

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Safety Culture and Communication

- How safe are we?
  - Similar to a group of Children's Hospital PCCUs when compared by risk adjusted mortality and other measures.
- How safe could we be?
  - Unknown

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The ICU Environment

- Complex, high stakes, high risk
- Critically ill patients with rapidly evolving or changing pathophysiology
- Frequent use of high risk medications (15 of the top 20 error prone pediatric IV medications)
- Fast paced environment with multiple disciplines involved requiring frequent updates in communication that maintains fidelity across team members

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Group Pyschology

Group Perception = Reality ≠Truth

- Galileo's Solar System
- Stock Market Variability
- Real Estate Crash

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PICU Safety Attitudes Questionnaire Results for 2007 and 2008

- *Scores of 80 correlates with highly positive safety culture*
- *Scores <50 in Teamwork and Safety Climate indicate Danger Zone*
- *Strive to improve scores by 10 points with each cycle of survey, takes 3 years to change culture*

	3/07	4/08	8/09
Teamwork Climate (perceived quality of collaboration)	11	29	30
Safety Climate (perceived strong/proactive commitment to safety)	78	17	21
	Danger Zone	Danger Zone	Danger Zone
Stress Recognition (performance slips are timely acknowledged)	41	54	56
Job Satisfaction (positively about the work experience)	12	27	32
Working Conditions (perceived work area & logistical support)	0	8	9
Top Level Management (approval of mgmt at hospital level)	11	12	29

Safety Survey Results

- Does Safety Culture Matter?
- Does Communication Matter?

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Why Safety Culture and Communication Matter

Group Perception = Reality

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Survey Comments

- "Direct, open communicationabout concernsis rare because interpersonalrelationships are weak."
- "We don't work as a team and wehave severe trust issues with one another"
- "I feel that there are certain "cliques"that exist and I am not a part of those and therefore myinput is not considered worth listening to."
- "professionalismhas gone out the window, accountability has gone out the window and everyone has this "I really don't care attitude. I'm here to do my job and leave, don't care what othersare doing or acting like" for some reasonstaff is not willing to confront each other "it takes too much time and energyand nothing changes anyway" are common things I hear"

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Safety Survey Results

- Communication is a problem
- Poor safety culture
- Impaired Teamwork-
  - Attitude of: I want to be/I am safe, but I don't trust that my co-workers have that priority
- No sense of family

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Safety Culture and Communication

- Individual accountability and desire for safety
  - A good start but leading by example is not enough
- Group accountability and teamwork
  - Essential for safety to have each others back and to ask for help

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Safety Culture and Communication

- Just how important is a good team?

- Cinderella team? Maybe
- Few standouts
- Strong team culture
- Nearly won NCAA Championship against a more talented Duke Team

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Joint Commission- 2004 Perinatal Sentinel Events

Permanent injury or death root cause analysis of 47 cases

- Communication Issues (72%)
- Safety Culture (55%)
- Staff Competencies (47%)
- Orientation and Training Issues (40%)

http://www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_30.htm

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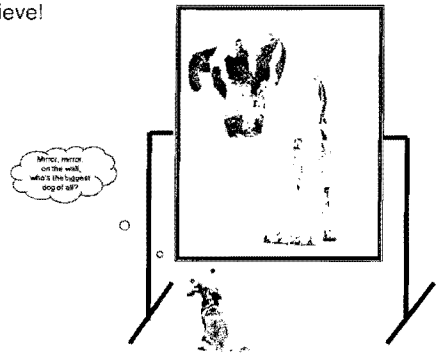
Effective Communication Across the "Authority Gradient"

You've Gotta Believe!



So what have we done about it?

- Focus on communication
  - In everyday practice
  - In mandatory PCCU staff safety updates across all disciplines
- Accentuate the positive
  - Quality improvement initiatives
  - Encourage staff involvement
- Great Expectations
  - Goals
  - Projects

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Has it worked?

- The change in attitude seems palpable
- Time will tell with more objective measures

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Communication Top 10

1. Communication is not just what you said, but what I heard- It's a 2-way street
2. Be direct. What do I need from you?
3. Feel free to speak out. If you are advocating for your patient no one can fault you for it
4. Respect each other- everyone has an important job to do and brings something to the table.
5. If you're frustrated or unclear, we're not done
6. Not everyone who is "mean" to you hates you
   - Not everyone who is "nice" to you is your friend
7. Invite people to communicate / accept the invitation.
   - Is there anything that you need from me to get your job done today? Is there anything we haven't covered?
8. Trust and Respect are the basis of any successful relationship
9. Relationships are worth building and worth saving
10. Communication is hard work.

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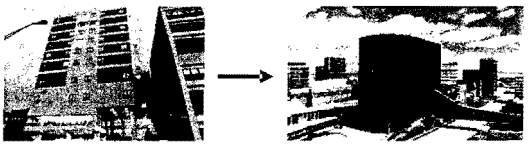
Acknowledgements



Thanks to Our Great Team at HDVCH

-The Future of Highest Quality and Safest Care in West Michigan

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Safety Culture From Another Perspective

Stephen Rechner, MD
Medical Director, Women's Health Services
May 26, 2010

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Disclosure

Regrettably, I have nothing to disclose...

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Objectives

To understand the importance of:

- Checklists in emergency situations
- Simulations and drills
- Team work in emergency situations

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The Crew

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The Use of Checklists

Checklists

- Walk Around with Crew Change
- Before Start Engine
- Start Engine
- Before Taxi
- Taxi
- Take Off
- Level Off

Emergency Procedures Checklist

Engine failure or fire during flight

1. THROTTLE – CUT OFF
2. FIRE SWITCH – PULL
3. REFER TO CHECKLIST

Emergency Procedure Checklists (OB)

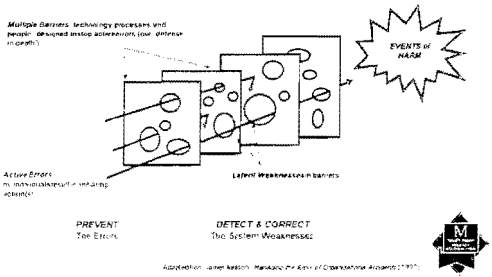
Shoulder Dystocia:

1. CALL FOR HELP
2. MCROBERT'S MANEUVER
3. REFER TO CHECKLIST

Simulation and Drills

Simulation and Drills (OB)

Swiss Cheese Model



ARCC

A responsibility to protect in a manner of mutual respect – an assertion and escalation technique

Use the lightest touch possible...

Ask a question

Make a **R**equest

Voice a **C**oncern

If no success ..

Use **C**hain of Command

A Spectrum Health Safety Phrase:
"I have a concern.."

99.9% is Not Always Good Enough

IRS would lose 2,000,000 documents every year

ATMs would make 37,000 errors every hour

Major plane crash every 3 days

12 babies given to the wrong parents every day

107 wrong medical procedures per day

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SPECTRUM HEALTH

SPECTRUM HEALTH

2010 The Year of Perioperative Safety
Safety is Everybody's Job in a High Reliability System

Carlos Rodriguez MD Associate Medical Director Perioperative Services

SPECTRUM HEALTH

2010 Periop Safety Goals

- To have no Serious Safety Events occur
- To have open and valued communication amongst the Perioperative **TEAM**
- At each point of patient handoff, pertinent and up to date information is reviewed amongst care givers
- Consistent use of Perioperative safety tools such as the safety checklist, policies, safety rounding and safety audits
- Distractions at all points of patient care are limited
- Attention and focus of our work is directed toward the patient
- All regulatory expectations are met consistently
- Leapfrog, SCIP and IHI expectations are met consistently
- Share safety incidents with Perioperative Services members to improve care, increase awareness and educate

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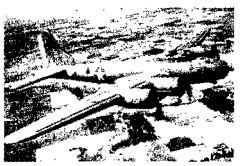
Preoperative Checklist



On October 30, 1935 at Wright Air Field in Dayton, Ohio the first test flight of Boeing's Model 399 resulted in a fiery crash...

The crash was blamed on the Army Air Corp's best test pilot Major Ployer P. Hill...

This plane was decidedly more ***complex*** than previous aircraft...

It was said that this plane was "too much airplane for one man to fly"

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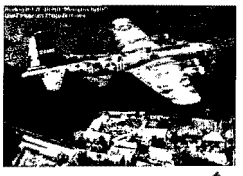
Preoperative Checklist

Insiders and other test pilots felt that the plane was flyable...

They came up with a clever and simple idea...

They created a pilot's checklist...

They felt that aeronautics had become so ***complex*** that they could no longer rely on just the ***memory*** and ***experience*** of the pilot...however much an expert.



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Preoperative Checklist

The rest as they say is history...U.S. history that is...

The checklist allowed for many successful and ***safe*** test flights...Model 399 became the B-17 "Flying Fortress"

Army purchased almost 13,000 B-17s...

The B-17 gave the Allies a decided advantage over the skies of Europe and its bombing campaign had devastating effects across Nazi Germany.

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Preoperative Checklist

Of course, checklists have been around for a long time...

Could this be a grocery list from ancient Egypt?

7

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Preoperative Checklist

Like in the B-17 example, medicine and nursing as a whole, particularly those involved in the field of surgery, have had to develop the ability to manage ***extreme complexity.***

Can this complexity be mastered? Yes.

Checklists are not the total answer to the question but they can certainly help with the execution and the process of ***SAFETY***.

We need to overcome faulty memories and distraction...

Checklists "instill a kind of discipline of higher performance" and "provide a kind of cognitive net" says Atul Gawande in his book "The Checklist Manifesto-How To Get Things Right"...2009

PREOPERATIVE CHECKLIST EQUALS PERIOPERATIVE SAFETY

8

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Preoperative Checklist

Our checklist was initially conceived because of our need to improve our SCIP numbers and to drive up perioperative safety...

It went along with our desire to "hardwire" some orders and to make sure they were carried out...

The work of the WHO and their landmark study in the NEJM also drove the issue...

The media and public opinion also played a role...

9

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Preoperative Checklist

We looked at and assessed the value of some existing published checklists from other institutions...

-The SCOAP list...The Foundation for Health Care Quality

-Regions Hospital

-United Health Services Hospital

-Children's Hospital of Boston

-Mayo Clinic

-Gunderson Lutheran

-World Health Organization

-We also reviewed multiple videos of checklists in action.

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Preoperative Checklist

We formed our checklist by taking the best components of:

WHO and Gunderson Lutheran

Please refer to your handout for the details of the current Spectrum Health Preoperative Checklist...

This list is being constantly evaluated and improvements are being made...

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Preoperative Checklist

The list consists of 3 Phases

Some refer to these as "Pause Points"

-At sign in...Before induction of anesthesia

-Time out...Before skin incision

-Sign out...Before patient leaves the OR

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Preoperative Checklist

Do-Confirm vs. Read-Do Checklists

We chose the Do-Confirm...

We expect those in the OR to perform their jobs from memory and experience, then as a team confirm that it has been done. ***We're striving for early and on-going communication...***

This has been found to be more professionally satisfying and does not lead to list "shortcutting"as eventually occurs with Read-Do Checklists.

Our Checklist is intended to ***increase and enhance communication among all OR team members...***

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Preoperative Checklist

We began with several checklist "pilot trials" performed by surgeons and anesthesiologists"...

This led to a refinement of our checklist...

More importantly it introduced the concept of the checklist to the OR staff and led to discussions amongst surgeons and anesthesiologists...

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Preoperative Checklist

The "***Surgical Safety Checklist"*** as it is now known went "Live" Dec. 1, 2009...

Prior of going "live" it first underwent 6 wks of trials and adjustments to both ***document and process*** using both nursing and medical staff feedback...

"Go Live" consisted of mandatory use of the checklist and optional return of the physical list that highlighted issues both positive and negative as well as suggestions for improvement.

Large laminated versions (11x22 in) are now posted in all SH ORs as a visual reminder and guide for its use...

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Preoperative Checklist

The checklists that are returned are collected and logged into a database...

Comments are categorized and monitored for systemic problems...

Daily rounding by nursing leadership is also underway...this provides us with a chance to observe the checklist process and provides teaching and guidance...

Feedback related to undesirable behavior or pushback about the checklist are referred to the appropriate leadership: Nursing, Surgery, or Anesthesia...Many one-on-one discussions have taken place...

All feedback and usage statistics are published twice/month to all Peri-op staff...

The Peri-op Staff is responding well to the published data as they see the results of their engagement in the process...

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Preoperative Checklist: Next Steps

Any process or checklist changes deemed necessary by the recent feedback will be implemented on 2-1-10...Another "Go Live" date.

Staff communication regarding changes in expectations will be done in advance...

With next "Go Live" we will have ***mandatory*** return of all checklists...each checklist will have a patient sticker or be pre-printed with patient name...Feedback is still optional, BUT...

We will begin to collect specific data regarding the level of ***team engagement in the process.***

Again we will continue to collect any feedback from staff and report back to them...

We are planning a 120 day review of the process...additional changes will be made as feedback and data warrants...

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Preoperative Checklist

Unintended consequence of Checklist?

Supply Chain recently raised a concern about the spike in volume of returned items from the OR starting in November and increasing in December...

This coincided with the implementation of Checklist trials...our feedback from staff included a disproportionate amount of comments about how to do the case in a more cost effective way...

We will monitor to see if this trend continues...

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Preoperative Checklist

Progress? Herding cats…

Good acceptance among periop nursing staff…

Slower going but gaining momentum among surgical and anesthesia staff…

It will take persistence, more education, and continual communication to get full cooperation…

Even a year into the program, we are still a work in progress….refinements continue…

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