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Standardizing Patient Care to Improve Outcomes in Cardiac Surgery

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Background

- Open Heart Surgeries: 700,000 annually in US
- > 67% are Coronary Artery Bypass Grafting
- Surgical Site Infection (SSI) occurs 2 – 5 % of surgical patients
- Mediastinitis - rare surgical site infection that occurs after cardiac surgery



Significance

- Increased mortality
- Increased length of stay
- Re-admission
- Re-operation
- Increased costs
- Preventable

Significance

- The Joint Commission - National Patient Safety Goals 2010
 - Goal # 7 – Reduce the risk of healthcare associated infections
- CMMS- “Never Event” – reduce reimbursement
- Cardiac surgery program
 - Society of Thoracic Surgeons database
 - Publicly reported data

Initial Approach

- Creation of Clinical Task Force
- Goal: To Reduce Infection Rate
- Focus on hospital processes
- Meeting Frequency: Every 2 weeks
- Physician operating practices outside scope

Initial Barriers

- Timeline waste
- Postponing decisions
- Delaying meetings
- Burning platform changes
- Unclear accountability
- Challenge of data rather than problem-solving

Subsequent Approach

- Identification of Need
 - Breakthrough Strategy
 - Better Leadership
 - More cohesive team
- Resources Applied
 - Process Excellence Department & Tools
 - Senior Leadership Commitment
 - Infection Control, Floor Staff, Clinical Offices etc

Breakthrough Strategy

- The Use of Kaizen Event conveyed:
 - Sense of urgency
 - Decision-making
 - Excuses unacceptable
 - Efficiency
 - RESULTS NOW!– Deliverables
 - Patient-centric

Kaizen Event Basics

- Team committed to work 3 full-time days
- Resources are dedicated just for the Kaizen event
- Project Charter/ Scope and Goal are defined prior to event
- Executive and Physician Project Champion well committed
- Basic prevalent data collected prior to event
- Evidence-based practices researched prior to event
- Commitment of support areas made available to team

Barriers to Kaizen Events

- Self-fulfilling prophecy: staff can't handle quick changes
- Doubt: Leadership and Commitment
- Fear: Mistakes, Blame
- **“That’s not how we’ve done it in the past!”**


Standard Kaizen Deliverables

- Current State Assessment
- Highlighted Opportunities for Improvement
- Highly Detailed Issue Tracking Log
(Follow-ups and accountabilities)
- Future State Developments
- Action Plans
- Implementation Date
- Key Leading Indicators and Performance Metrics
- Presentation to Hospital Senior Leadership

Project Charter

- Target infection rate = 0%
- Use of Evidence-based practices
- Standardization of hospital processes
- Prospective vs. retrospective approach
- Project Scope:
 decision from surgery- to- hospital discharge

Preparation for Kaizen Event

- Draft project charter
- Identify project champion, facilitator, process owner and team members
- Observe processes & departments – patient perspective
- Order training materials
- Schedule event
- Choose PI tool  **STANDARD WORK**
- Review of Kaizen guidelines

Why Standard Process?

- Improve efficiency
- Improve productivity
- Work smarter
- Reduce variation among individuals or groups
- Provide a basis for training new people
- Provide a trail for tracing problems
- Provide a means to capture and retain knowledge
- Give direction in case of unusual conditions

IMPROVE QUALITY!

Formation of PEx Mediastinitis Team

(determine kick-off members vs. as needed members)

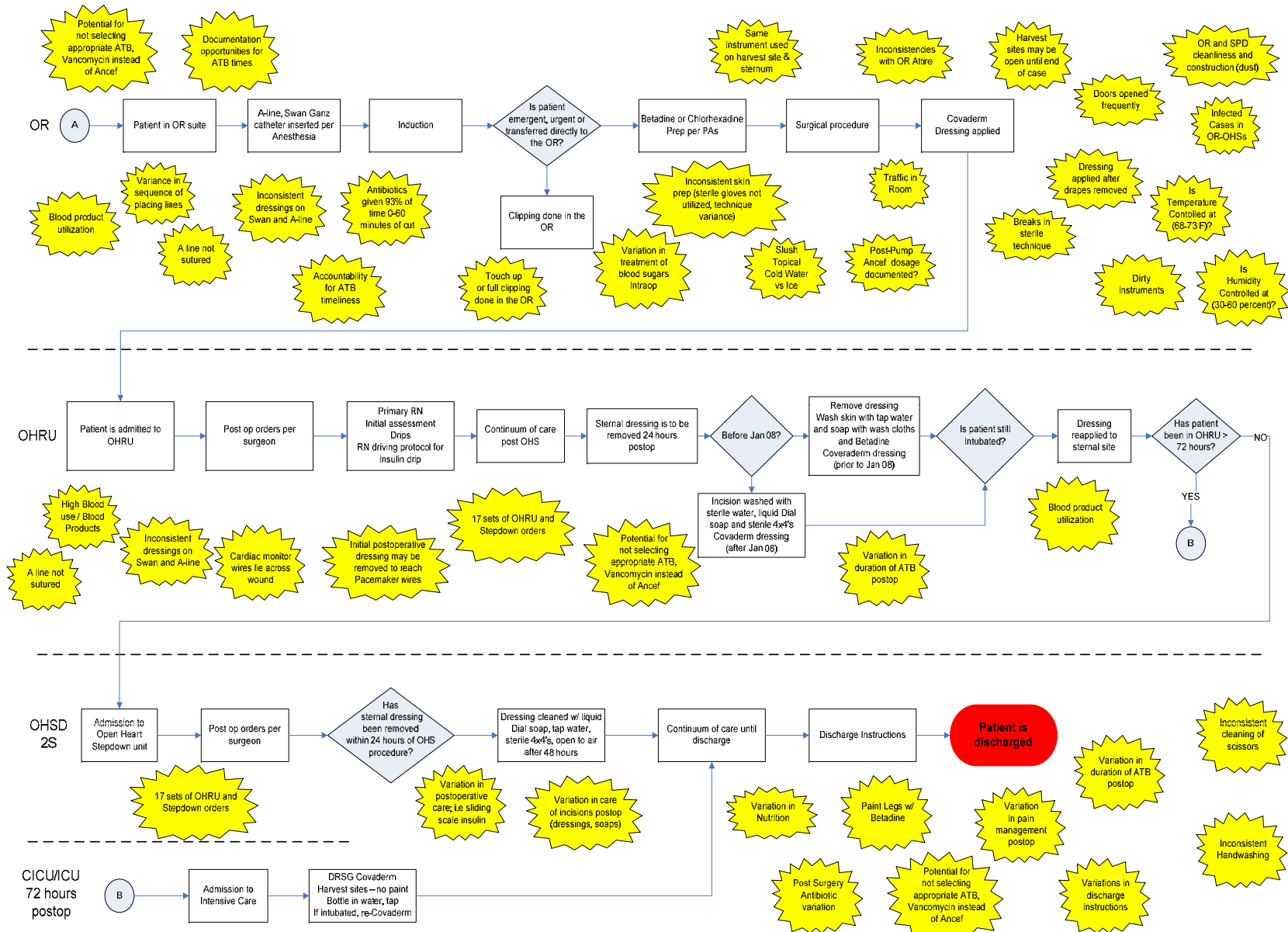
Process Improvement Specialist
Outcomes Manager
Infection Prevention Practitioner
Pharmacist
Rounding Nurses - surgeons' offices
Clinical Nurse Manager - PAT and Pre-Op
Clinical Nurse Manager - OR
Staff Nurse - OR
Nurse Manager - Recovery Unit
Nurse Manager - Stepdown Unit
Clinical Nurse Manger - Stepdown Unit
Vice President, Quality and Patient Safety

Cardiothoracic Surgeons
Anesthesiologists
Case Manager
Perfusion
Pre-Procedure Cath Lab
Nurse Manager - Inpatient Cardiac Unit
Staff Nurse - Inpatient Cardiac Unit
Nurse Manager - Critical Care
Clinical Nurse Manager - Critical Care
Staff Nurse Educator
Vice President, Heart Services
Vice President, Surgical Services

Kaizen Event

- 3-day meeting: Nov 18, 19, 20
- Current State Mapping
- “Starbursts” – Areas of Opportunities/ Improvement
- Future State Mapping
- Continuous PI tool – Development of Standard Work
- Multiple action plans and 17+ recommendations
- Development of Daily Dashboard and Metrics

OR – OHRU – OHSD - Discharge



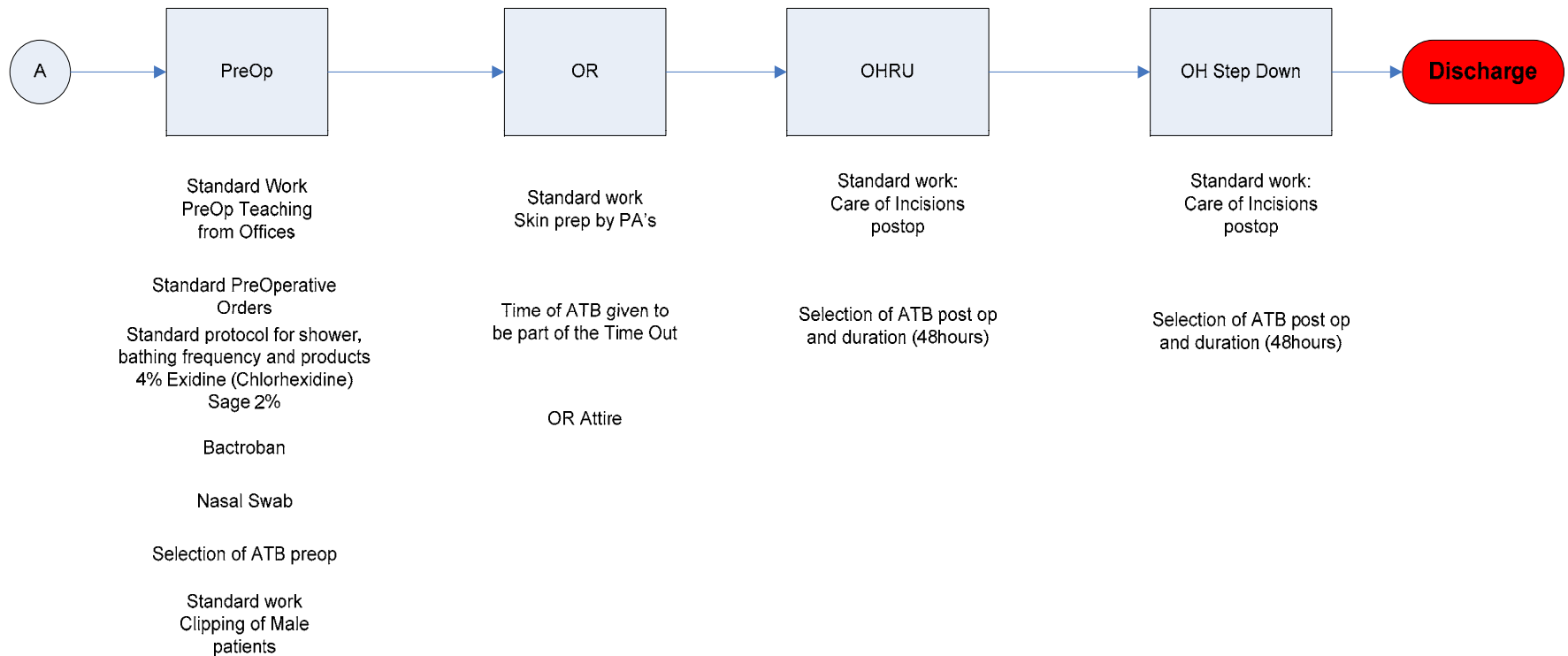
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Future State

Target for implementation – mid December 2009



PI Tools

- Pre-Printed Order Set (PPO)
- Standard Work
 - Hospital staff
 - Patient instructions for elective cases
- Process Maps
- Metrics

Standard Work

- Tool used to assure maximum performance with minimum waste through the best combination of associate and equipment
- Standard work is **not** the same as work standards
- Orientation towards improvement not rigid standards

Characteristics of Standard Work

- Sets a routine/habit/pattern for work performance
- Consistency - every patient, every time gets same care
- Makes managing resources and schedules easier
- Basis to make problems/solutions visual
- Prevents backsliding

PRE-OP

RECOMMENDATION	PI TOOL	SPECIFICS
Standard Pre-op Evaluation	Pre-printed Order Set (PPO)	<ul style="list-style-type: none"> • Inpatient and elective cases • Limited choices
MRSA rapid screening (nasal swab)	Standard Work	<ul style="list-style-type: none"> • Rapid test methodology • Results in 4 hours • Determines ATB choice
Nasal decolonization with Mupirocin	Standard Order	<ul style="list-style-type: none"> • 10 dose regimen • BID dosing for 5 days • Inpatients - start evening before surgery • Elective patients – start 3 days prior to surgery
Chlorhexidine bathing/showering for skin decolonization	Standard Work	<ul style="list-style-type: none"> • Bath night before OR • Bath morning before OR • Elective cases shower in Pre-op

PRE-OP

RECOMMENDATION	PI TOOL	SPECIFICS
Hair removal outside OR; no re-clipping in OR	Standard Work	<ul style="list-style-type: none"> • Clipper only
Chlorhexidine scrub to surgical site (Sage prep)	Standard Work	
Prophylactic ATB w/i 60/120 minutes	Standard Work Process Map	<ul style="list-style-type: none"> • Ancef - Anesthesiology • Vanco – joint effort Anesthesiology & Nursing Pre-op and Intra-op
Prophylactic ATB weight dosed	Standard Order	<ul style="list-style-type: none"> • Ancef and Vancomycin

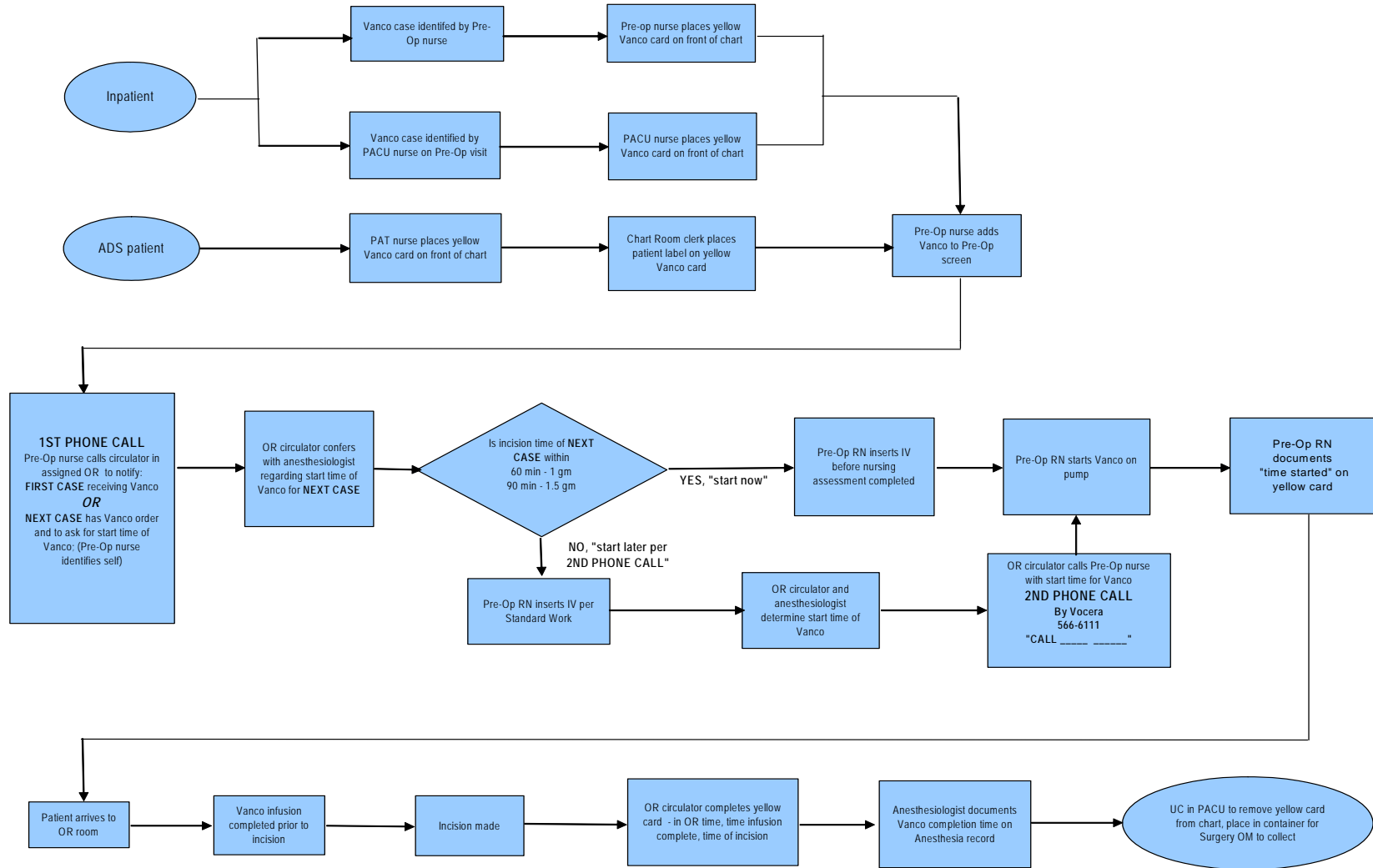
Standard Work Instructions

	Campus Riverside Methodist Hospital	Department/Area Surgery PreOp	Process Name Pre-Op SAGE (chlorhexadine) prep for OHS patients ADS - after clipping and showering IP - after clipping Feb 9, 2009	
Step No.	Work Elements - What to do	Key Points How to do it (Quality, Safety, Knack)	Time	Visuals (Highlight Key Points)
1	Obtain 3 packs of SAGE washcloths (for a total of 6 washcloths) from SAGE warmer.	If patient is scheduled for CABG with radial artery grafting, obtain 4 packs of SAGE washcloths (8 washcloths total).		
2	To open packages: Holding top of package in one hand, lift flap on backside of package with other hand. Grasp flap at top and pull down to tear flap away and expose foam OR using scissors, cut off end seal of package.			
3	Fold gown down to expose chest area and abdomen.			
4	Wash the sternal area with SAGE washcloth #1.	Avoid contact with eyes, ears and mouth. Use a scrubbing motion (up and down, back and forth). DO NOT RINSE.		
5	Wash chest area around sternal incision site with SAGE washcloth #2. Work outward from incision site to collar bone and to level of umbilicus.	Wash around the sternal incision area. DO NOT cross over the sternal incision area and wash side to side.		
6	Wash abdominal area below umbilicus and to the right of midline, including the right groin area, with SAGE washcloth #3.	Avoid contact with genital area. Use a scrubbing motion (up and down, back and forth). DO NOT RINSE.		
7	Wash abdominal area below umbilicus and to the left of midline, including the left groin area with SAGE washcloth #4.	If patient is scheduled for CABG with radial artery grafting, wash both arms from the hand to the shoulder (one washcloth per arm from additional 4th packet).		
8	Cover chest and abdomen with clean gown.			
9	Expose entire right leg (up to groin) and wash front and inside of leg down to the ankle with SAGE washcloth #5.	Use a scrubbing motion (up and down, back and forth). DO NOT RINSE.		
10	Expose entire left leg (up to groin) and wash front and inside of leg down to the ankle with SAGE washcloth #6.	Use a scrubbing motion (up and down, back and forth). DO NOT RINSE.		
11	Cover with additional blankets as needed.			
12	Ask if patient needs anything else before exiting.			

Standard Work Instructions

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Step No.	Work Elements - What to do	Key Points How to do it (Quality, Safety, Knack)	Time	Visuals (Highlight Key Points)
13	Report to Admission RN: condition of skin if warranted and that clipping (if done), shower, and chlorhexadine SAGE prep is complete.	Abnormalities include: moles, warts, rashes, lacerations, bruises or reddened areas.		
14	Document clipping, shower, and SAGE prep.			
Total Process CycleTime =		Min/Patient		Safety Quality

Process Map for Vancomycin Administration






INTRA-OP

RECOMMENDATION	PI TOOL	SPECIFICS
Surgical skin antisepsis with Chloraprep	Standard Work	<ul style="list-style-type: none">• PAs involved in creating Standard Work
Standardized dressing to sternal incision	Standard Work	<ul style="list-style-type: none">• Collaboration between OR and recovery unit nurses





Standard Work Instructions

Campus Riverside Methodist Hospital		Department/Area OHS/Surgery	Process Name Post-Op Dressing	
Step No.	Work Elements - What to do	Key Points How to do it (Quality, Safety, Knack)	Time	Visuals (Highlight Key Points)
	Obtain supplies for dressing: 1 Tegaderm 4"x10" #1627 1 Non adherent dressing #Na0304-1 4 All purpose sponges (4x4's) #8044 1 3" silk tape			
1	Attach chest tubes to chest drainage system			
2	Peel back drapes but DO NOT REMOVE			
3	Wash and dry incision, chest tube and pacing wire sights	Pacing wire ends should be exposed with a 6 inch tail for Post-Op use.		
4	Cut Telfa to length of incision Place on incision Cover with Tegaderm DO NOT INCORPORATE CHEST TUBE SITES OR PACING WIRES UNDER TEGADERM			
5	Place cut 4x4's around chest tube insertion sites			
6	Place 1 folded 4x4 over pacing wire sites			
7	Tape chest tube and pacing wire dressings with 3" silk tape Tape top of chest tube dressing Tape beneath chest tubes Place notched tape around each chest tube	Open area to visualize chest tube drainage.		
8	Ensure that chest tubes are secure to chest tube drainage system Tape chest tube connections with 3" silk tape (spanning entire connection)	Fold over the end of the tape on the chest tube to create a pull tab for easier removal in postop.		
9	Place coverlet over leg incision			
10	Remove drapes			
11	Write date and time on dressing and sign with initials			
Total Process CycleTime =		Min/Patient	 Safety	 Quality



POST-OP

RECOMMENDATION	PI TOOL	SPECIFICS
Standardized order set for recovery unit patients	Pre-printed Order Set	
Prophylactic post-op ATB weight dosed	Standard Order	
Post-op ATB – 5 doses and DC w/l 48 hours	Standard Order	
24 hour sterile dressing change	Standard Work Process Map	<ul style="list-style-type: none"> Based on Banner Good Samaritan Medical Center Phoenix, AZ
48 hour dressing removal and sterile cleansing	Standard Work	
POD 3 incision care	Standard Work	
POD 4 incision care	Standard Work	

Metrics

- Mediastinitis – by CDC definition
- All process metrics
 - Have to be documented to be considered done
 - Weekly dashboard that consists of key leading indicators

Kaizen Event to Implementation

- Developed Standard Work documents
- Trial/ Test of Standard Work
- Established process for each recommendation
- Used an Issues Tracking Log
- Developed resource/ reference book with all documents
- Educated staff ~10 days prior to implementation date
- **Gemba walks**

Gemba Walk

Gemba - “the real place”

- Who – leaders, managers and supervisors
- Where – “go to where the work is done”
- When – everyday
- What – gemba walk with a purpose
- Why – commitment, alignment, coordination & support

Implementation

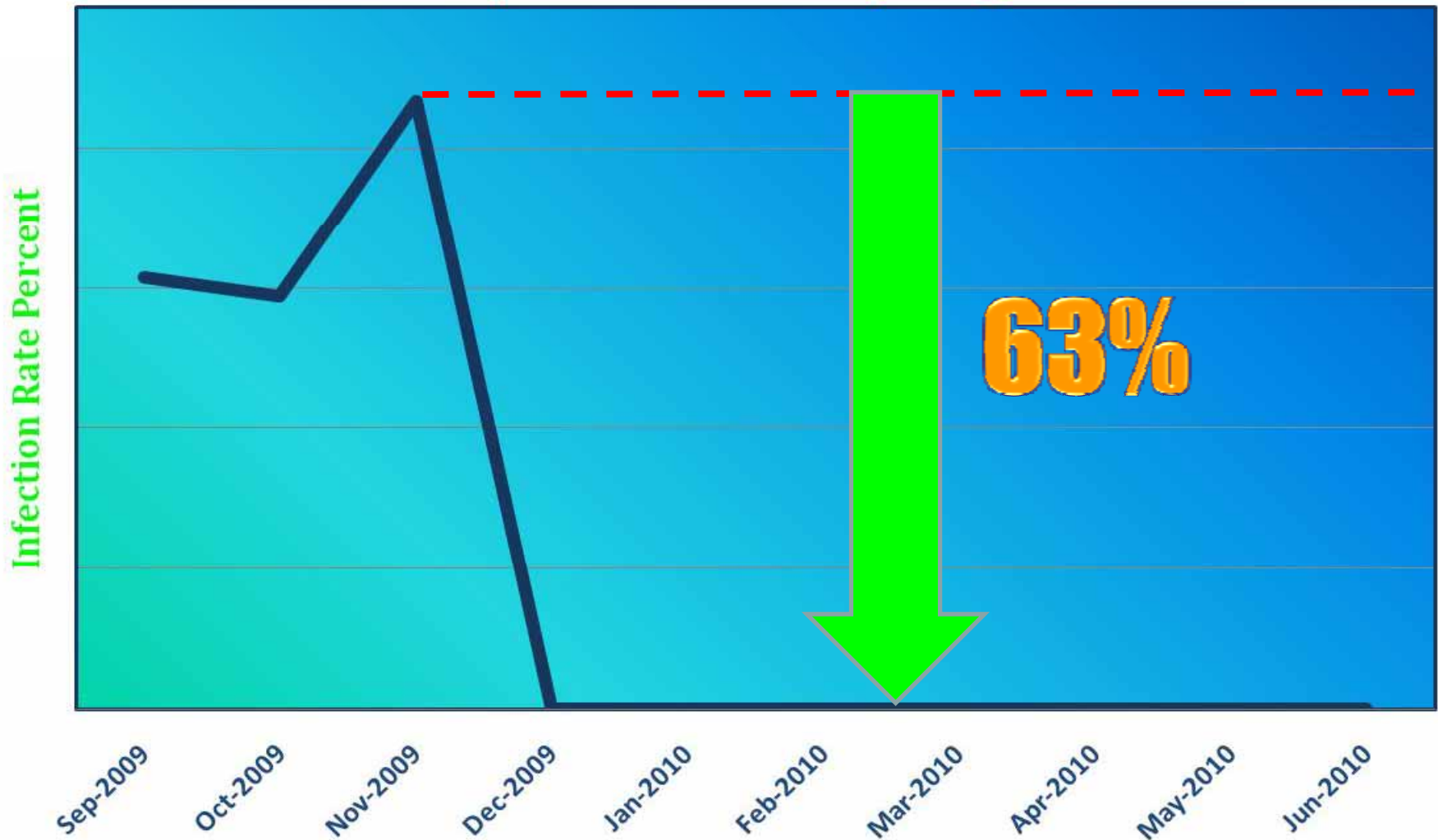
- Gemba walks executed by Outcomes Manager and PEx resource
 - Observed standard work
 - Provided feedback
 - Coached staff
 - Creation of a process indicators
- Resolved change management issues
- Followed-up on opportunities same day
- Used issue tracking log
- Defined accountability

Defined Accountability

- Engage all levels of associates – senior leadership, directors, managers, staff at bedside
- Daily discipline
- Metrics for mediastinitis and all recommendations
- Metrics reported at all levels
- Outcomes Manager follow-up: **CONSTANT COMMUNICATION**
 - Email
 - Email/phone call
 - Conversation in person
 - Team meeting

Results

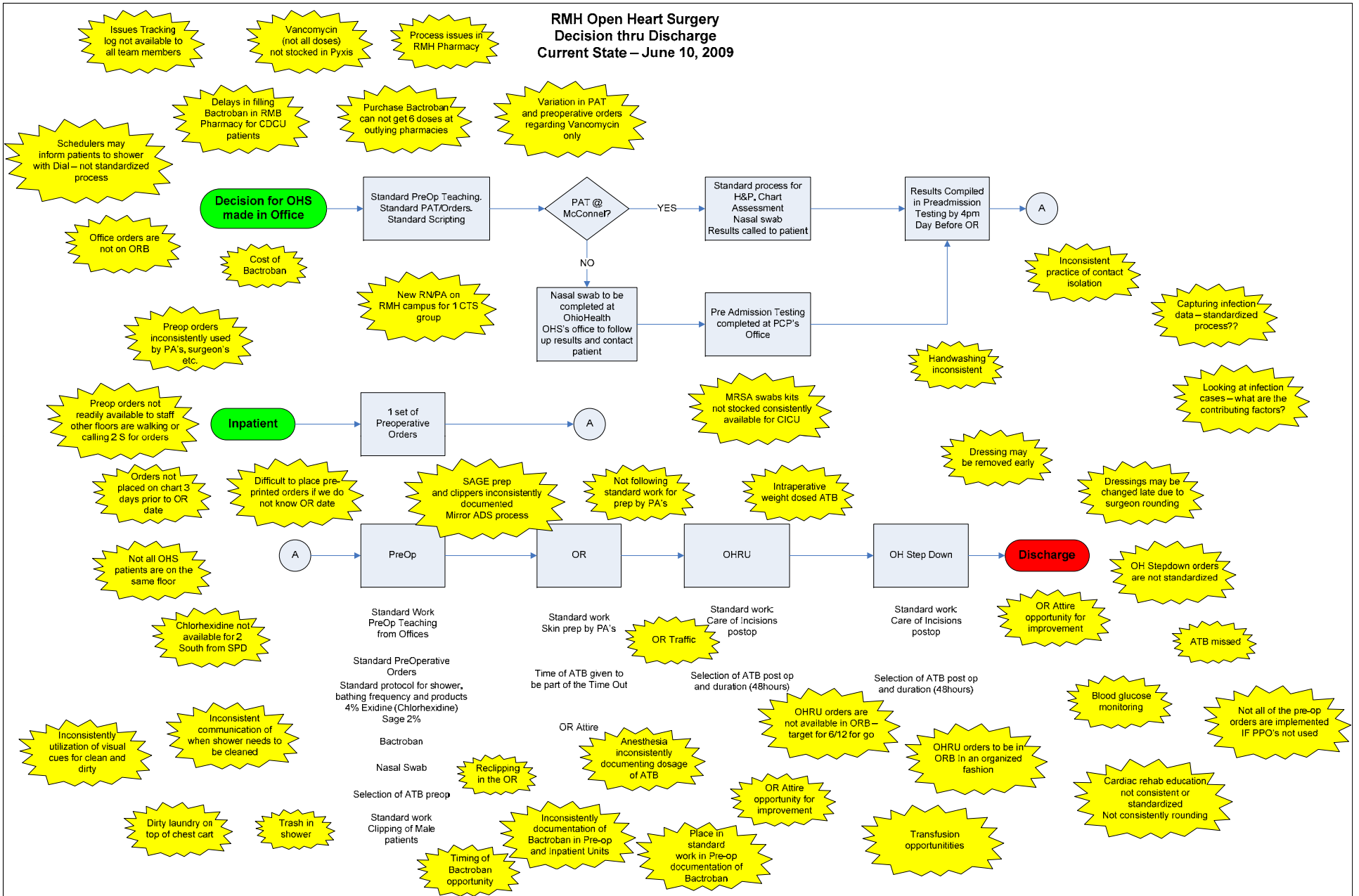
Coronary Artery Bypass Grafting (CABG)
Surgical Site Infection
Deep Infection - Chest (FY10)



Mediastinitis Occurrence

- Immediate review while patient is in hospital
 - Standardized method of review
 - All processes
 - Culture results
 - Risk factors
 - Blood utilization
 - Glycemic control
 - Discharge information
- What is current state – now?
- Continuous process improvement

**RMH Open Heart Surgery
Decision thru Discharge
Current State – June 10, 2009**



Sustaining Results

- **Every Patient, Every Time!**
- Daily discipline
- GEMBA WALKS
- Observation
- Regular team meetings
- Continuous process improvement

Lessons Learned

- Make changes that are best for patient rather than provider
- Change culture, one person at a time
- Communication and perception are everything – use visuals
- Build effective teams
- Commitment from Senior Leadership
- Empowerment of Process Owner
- Empowerment of Kaizen Team

QUESTIONS?

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