Successful Implementation of Quality Improvement Methods to Improve CLABSI in the Emergency Department: a five-year experience

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Disclosures

The presenter does not have any relevant commercial relationships or conflict of interests to disclose

UCHealth

- University Hospital
  - Cincinnati, Ohio (2.1 million)
  - 90,000 adults
  - Urban, Tertiary, Safety-Net
  - Academic Medical Center, Level 1 trauma, Transplant program, Burn Center, Stroke Center, etc.
  - University of Cincinnati Emergency Medicine Residency
  - PGY2 residents perform majority of procedures

Background

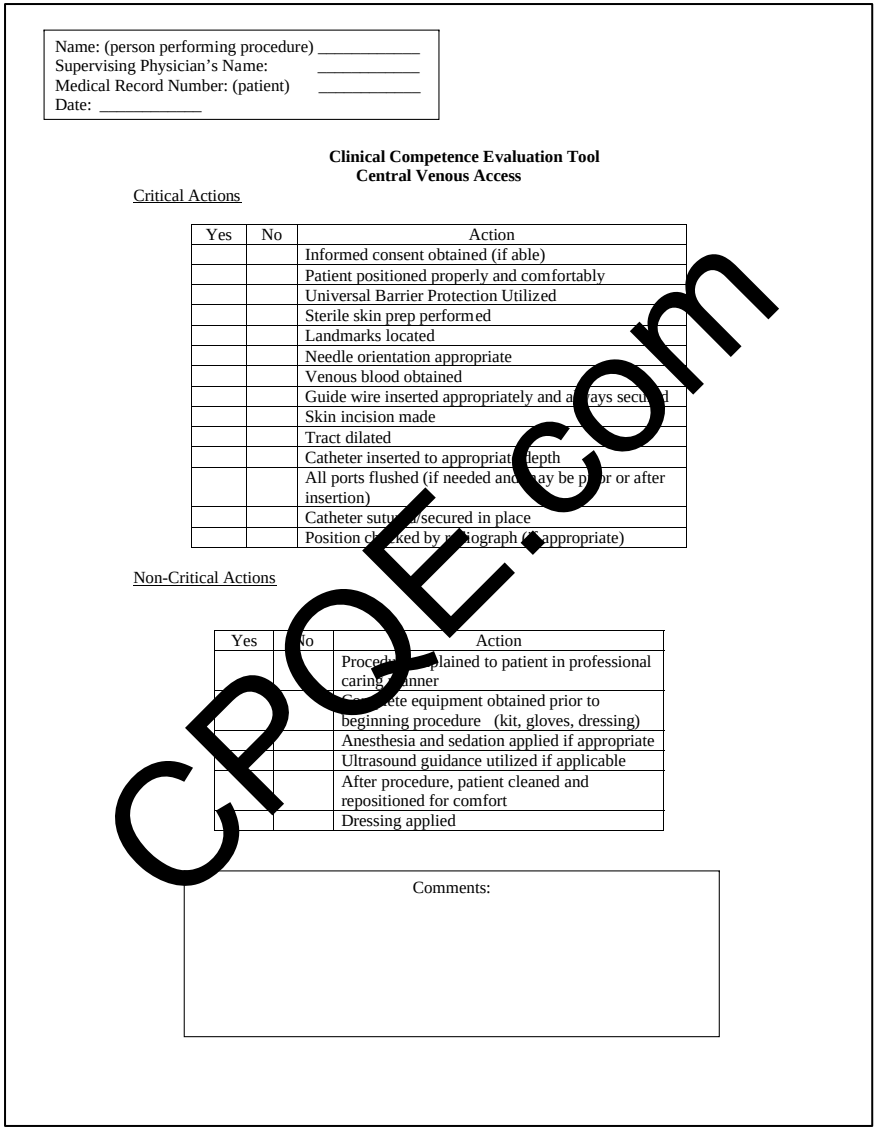
- Committee for Procedural Quality and Evidence Based Care (2005)
  - Procedural complications
  - Evidence based guidelines
- CLABSI
  - Andra Blomkalns, Greg Fermann, Kim Vance
  - Improve the quality of care for central line insertion

Intervention

- Interventions
  - Central line pack (2001)
  - Grand rounds and nursing training (2001)
  - Ultrasound training (2005)
  - Data collection & feedback (2007)
  - Competency checklist (2007)
  - Simulation training (2008)
- Changes
  - Location, site selection, equipment and method (ultrasound)

Changes

- Integration into the culture of success
- Nursing expectation of central line care



Name: (person performing procedure) _____
Supervising Physician's Name: _____
Medical Record Number: (patient) _____
Date: _____

Clinical Competence Evaluation Tool
Central Venous Access

Critical Actions

Yes	No	Action
		Informed consent obtained (if able)
		Patient positioned properly and comfortably
		Universal Barrier Protection Utilized
		Sterile skin prep performed
		Landmarks located
		Needle orientation appropriate
		Venous blood obtained
		Guide wire inserted appropriately and always secured
		Skin incision made
		Tract dilated
		Catheter inserted to appropriate depth
		All ports flushed (if needed and may be prior or after insertion)
		Catheter sutured/secured in place
		Position checked by radiograph (if appropriate)

Non-Critical Actions

Yes	No	Action
		Procedure explained to patient in professional caring manner
		Complete equipment obtained prior to beginning procedure (kit, gloves, dressing)
		Anesthesia and sedation applied if appropriate
		Ultrasound guidance utilized if applicable
		After procedure, patient cleaned and repositioned for comfort
		Dressing applied

Comments:

CVC Clinical Competence Evaluation Tool

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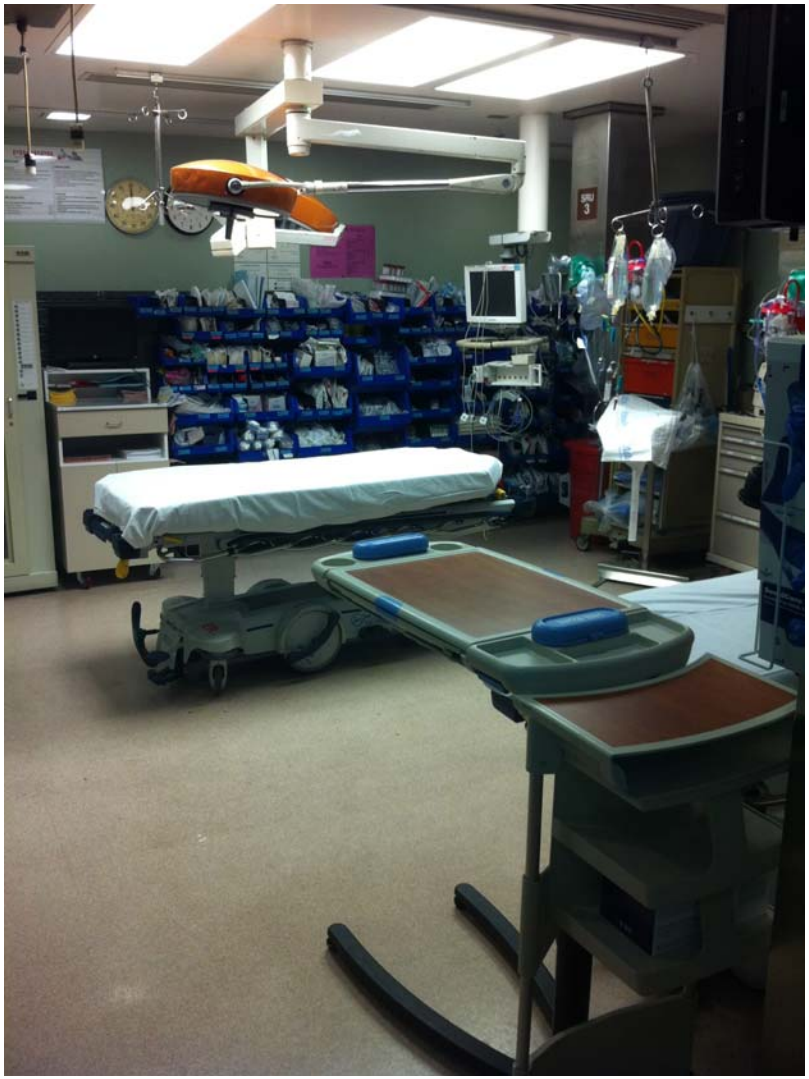



PAR


Proxima
REF: DYNJP2002
MEDLINE
AHRQ GRANT ACCESSORY CDS
CDS860045
REF: DYNJP3007
LEVEL 4 DRAPE

Results: Total Complications Central Line Insertion

	Total	Complications	CLABSI	Total Complication Rate
2007	363	23	1 (SC)	6.3%
2008	360	25	0	6.9%
2009	359	24	0	6.7%
2010	355	26	0	7.3%
2011	365	18	1 (F)	4.9%
2012 (June)	130	8	1 (SC)	6.1%
total	1932	124	3 (0.16%)	6.4%

CLABSI Cases

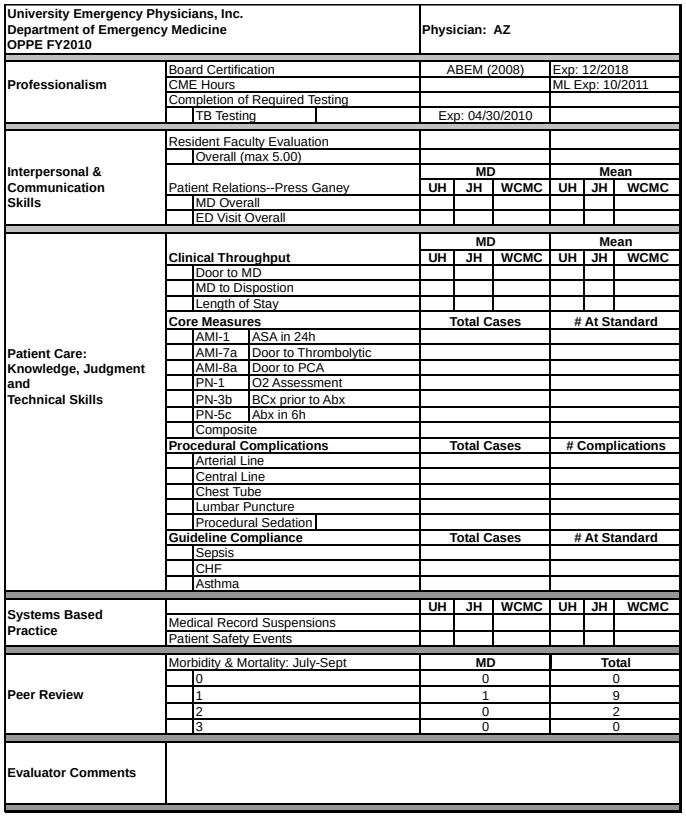
- 2007 – 54 y/o Obese, resp failure, HCAP, Rt Subclavian, grew MSSA from BAL and enterococcus from blood and line.

- 2011 – 83 y/o quadraplegic, severe sepsis, HCAP, UTI, Lt Femoral triple lumen, grew multiple strain staph from line

- 2012 – Unclear cause, left subclavian, ultrasound used. Second CL placed in ICU, CLABSI develops days later.

Sustainability

- Competency reports
- Quarterly Report cards
- Morbidity and Mortality conference
- Medical student training



University Emergency Physicians, Inc. Department of Emergency Medicine OPPE FY2010									Physician: AZ						
Professionalism	Board Certification								ABEM (2008)			Exp: 12/2018			
	CME Hours											ML Exp: 10/2011			
	Completion of Required Testing														
		TB Testing							Exp: 04/30/2010						
Interpersonal & Communication Skills	Resident Faculty Evaluation														
		Overall (max 5.00)													
									MD			**Mean**			
	Patient Relations--Press Ganey								**UH**	**JH**	**WCMC**	**UH**	**JH**	**WCMC**	
		MD Overall													
		ED Visit Overall													
Patient Care: Knowledge, Judgment and Technical Skills									**MD**			**Mean**			
	Clinical Throughput								**UH**	**JH**	**WCMC**	**UH**	**JH**	**WCMC**	
		Door to MD													
		MD to Dispostion													
		Length of Stay													
	Core Measures								**Total Cases**			**# At Standard**			
		AMI-1	ASA in 24h												
		AMI-7a	Door to Thrombolytic												
		AMI-8a	Door to PCA												
		PN-1	O2 Assessment												
		PN-3b	BCx prior to Abx												
		PN-5c	Abx in 6h												
		Composite													
	Procedural Complications								**Total Cases**			**# Complications**			
		Arterial Line													
		Central Line													
		Chest Tube													
		Lumbar Puncture													
		Procedural Sedation													
	Guideline Compliance								**Total Cases**			**# At Standard**			
		Sepsis													
		CHF													
		Asthma													
Systems Based Practice									**UH**	**JH**	**WCMC**	**UH**	**JH**	**WCMC**	
	Medical Record Suspensions														
	Patient Safety Events														
Peer Review	Morbidity & Mortality: July-Sept								**MD**			**Total**			
		0							0			0			
		1							1			9			
		2							0			2			
		3							0			0			
Evaluator Comments															

Barriers & Challenges

- Bureaucracy/inertia for change
- Work environment/space
- High acuity
- Cost
- Data collection and management
- “Data disbelief”

Successes

- <0.2% of ED placed lines had CLABSI
- Known complication rates for all procedures
- Buy-in to robust QI and KT systems by residents
- Institutional leader for QI and data collection and management

Lessons Learned

- Begin
- Recognize the effort never ends
- Build a system
- Use evidence
- Must have data

Acknowledgements

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