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

Stewart Wright, MD MEd Alexander Trott, MD Christopher J Lindsell, PhD Carol Smith, RN

University of Cincinnati
Department of Emergency Medicine
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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

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 a rays sectured in Skin incision made Tract dilated Catheter inserted to appropriate lepth All ports flushed (if needed and may be price or after insertion) Catheter subjects of the procedure of the proce	Date:		
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CVC Clinical Competence Evaluation Tool

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)

CVC Clinical Competence Evaluation Tool

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:	









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 P Department of Emergeno OPPE FY2010	Physician: AZ									
	Board Certific	ation		A	BEM (2008)	Exp:	12/20	18	
Professionalism	CME Hours	duon				2000)			0/2011	
	Completion o	f Required	Testing							
	TB Testir		l .	Ex	p: 04/3	0/2010				
	Resident Fac		tion							
	Overall (max 5.00)			МЕ				ean	
Interpersonal &	D D	-	•							
Communication Skills	Patient Relati		Ganey	UH	JH	WCMC	UH	JH	WCM	
SKIIIS	FD Visit						_			
	ED VISIT	Overali								
					ME				ean	
	Clinical Thro			UH	JH	WCMC	UH	JH	WCM	
	Door to N									
	MD to Di									
	Length o	f Stay								
	Core Measur			1	Total C	ases	#	At St	andard	
	AMI-1	ASA in 24								
Patient Care:	AMI-7a		hrombolytic							
Knowledge, Judgment	AMI-8a	Door to P								
and	PN-1	O2 Asses								
Technical Skills	PN-3b	BCx prior	to Abx							
		Abx in 6h								
	Composi									
	Procedural C		ons		Total C	ases	# Complication:			
	Arterial L									
	Central L									
	Chest Tu									
	Lumbar Puncture									
	Procedural Sedation Guideline Compliance				Total Cases			# At Cton-II		
		mpiiance		Total Cases			# At Standard			
	Sepsis CHF						_			
	Asthma						-			
	Astillia									
Systems Based				UH	JH	WCMC	UH	JH	WCM	
Practice	Medical Reco		sions							
	Patient Safety	/ Events						ட		
	Morbidity & Mortality: July-Sept			MD			Total			
	0			0			0			
Peer Review	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

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