

Safe Epidural Administration and Management in the Obstetric Population



ADVENTIST UNIVERSITY OF HEALTH SCIENCES

Florida Hospital's University

Megan Cooper BSN, SRNA, Anna Kadeg BSN, SRNA, | Adventist University of Health Sciences (ADU)
 Project Mentor: Morgan Vidal, BSN, CRNA
 Committee Chair: Manuel Tolosa, DNAP, CRNA

Background

“To Err is Human.”

-Alexander Pope

- ❑ The **problem** this Capstone project aims to address is that of human error in the administration and management of obstetric epidural anesthesia and analgesia
- ❑ One of the most specialized procedures performed by anesthesia practitioners
- ❑ The complexity of epidural placement lends to its propensity for inviting errors.

Project Description

Our four-fold approach consisted of:

- ❑ Performing a thorough review of literature aimed at:
 - defining the problem at hand
 - determining causative factors
 - addressing practical ways to improve practice
- ❑ Compiling this information into an effective and informative PowerPoint presentation
 - Included simulated videos of potential clinical scenarios
- ❑ Educating the ADU Junior Student Nurse Anesthesia class
- ❑ Evaluating the effectiveness of the presentation through statistical analysis of pre and post-test scores

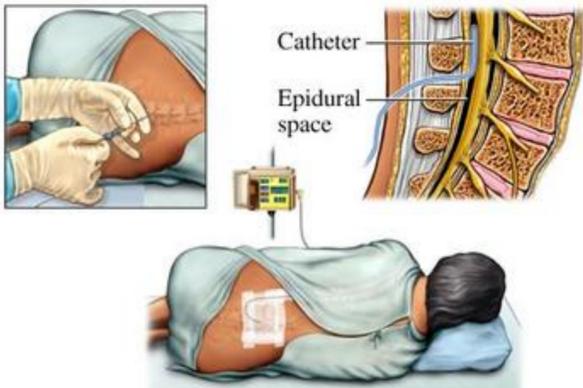


Review of Literature

A thorough **review of literature** included peer reviewed articles and studies within the last 10 years.

Medication and Epidural Error Statistics

- ❑ Premature deaths associated with preventable harm to patients at upwards of 400,000 per year (James, 2013).
- ❑ “1600 reports of epidural to central or peripheral intravenous misconnections since 1999” (Block, Horn, Schelsinger, 2012).
- ❑ A study identified epidural administration as the most difficult to learn of the manual anesthesiological skills (Konrad, Schupfer, Wietlisbach, & Gerber, 1998).



Qualitative and Anecdotal Evidence

- ❑ A plethora of tragic accounts support epidural anesthesia as a hotspot for potential errors
- ❑ St. Mary's Hospital in Wisconsin: nurse gave Bupivacaine, an epidural anesthetic, intravenously
 - Within minutes, patient suffered from seizure and expired (“Nurse charged with felony,” 2007).
- ❑ St George Hospital: practitioner mistook antiseptic solution for local anesthetic
 - Injected 8ml intrathecally
 - 32 year old new mother suffered severe neurological damage. (Robotham, 2011)

Findings & Recommendations

Many trends emerged in terms of causative factors in epidural related errors

Environmental Distractions

- Noise
- Lighting
- Staff/patient

Human Factors

- Fatigue
- Stress
- Multitasking
- Knowledge Deficit

Processes and Protocols

- Be knowledgeable of and adhere to both AANA and institution-specific standards
- Take special care in labeling substances, and strictly practice the “Five Rights of Medication Administration”



Results

Statistical analysis of pre and post-tests provided a quantitative measure of the effectiveness of the presentation provided to the first year SRNA class.

- ❑ The obtained t-value (-7.910) is associated with p of < .05, which indicates statistical significance.
- ❑ Mean test scores increased significantly from pre-test (2.4348) to post-test (6.0000).

Group Statistics					
	Group	N	Mean	Std. Deviation	Std. Error Mean
Scores	Pre-Test	23	2.4348	2.01869	.42093
	Post-Test	23	6.0000	.73855	.15400

Independent Samples Test										
		Levene's Test for Equality of Variances		t-Test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Scores	Equal variances assumed	32.097	.000	-7.954	44	.000	-3.56522	.44821	-4.46853	-2.66191
	Equal variances not assumed			-7.954	27.786	.000	-3.56522	.44821	-4.48366	-2.64678

References

References available upon request. Please contact:
 Anna Kadeg: Anna.Kadeg@my.adu.edu
 Megan Cooper: Megan.Cooper@my.adu.edu