

Minimizing Adverse Respiratory Events in PACU

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Problem

- Debilitating or deadly adverse respiratory events in PACU affect 14% of the surgical population and can result in a 30% cost increase.
- This scholarly project aimed to discover the most common causes of these events and whether the use of capnography in PACU could improve outcomes.
- The second part of this project aimed to determine if an educational presentation to SRNAs would increase their knowledge-base regarding adverse respiratory events in PACU.

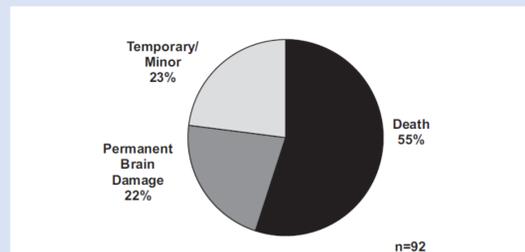
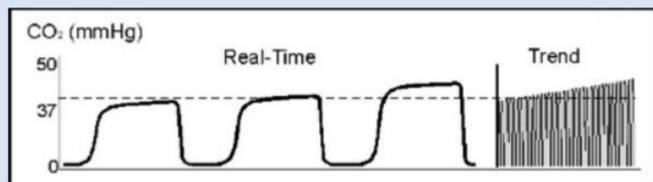


Fig. 2. Severity of injury in opioid-induced respiratory depression (RD) claims. More than half (55%) of the RD claims were associated with death, and approximately one quarter (22%) were associated with severe brain damage.



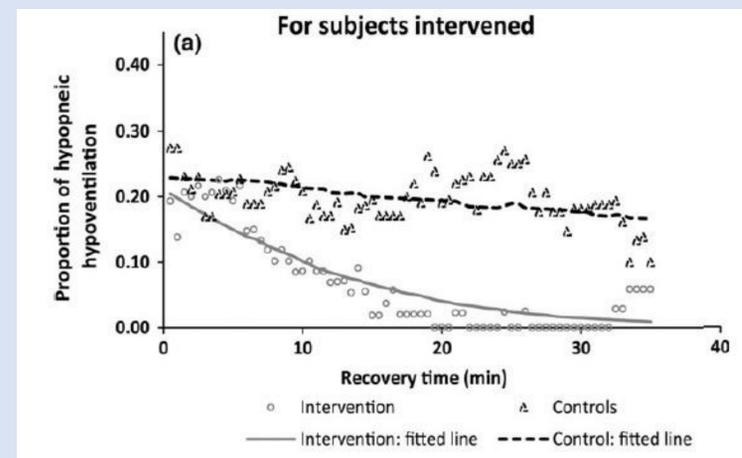
Methods

- A literature review examined the problem, determined causative factors, and discovered mitigating factors or interventions.
- An educational presentation was developed to educate AdventHealth University SRNAs.
- Assessment of the presentation was performed using pre- and post-tests.



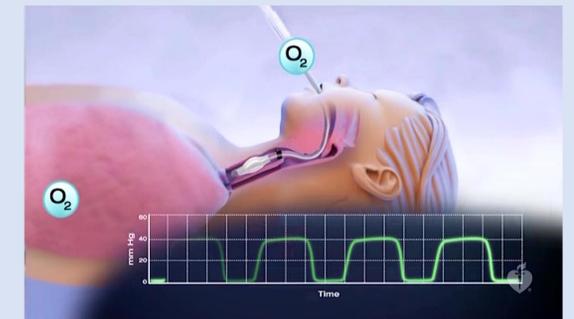
Literature Review

- Risk factors of adverse respiratory events were discovered as:
 - Age > 60 years old
 - Children < 3 years old
 - Low functional status
 - COPD
 - ASA > 2
 - High risk procedures
 - Use of NMB
 - Use of opioids
 - OSA, or screened positive for OSA
- Consequences of respiratory events in PACU consisted of:
 - Hypopnea
 - Hypercapnia
 - Aspiration
 - Apnea
 - Hypoxia
 - Airway Obstruction
 - Death
 - Increased costs
 - Increased length of stay
- Interventions to improve respiratory outcomes in PACU:
 - Judicious narcotic administration
 - Careful monitoring of OSA patients
 - Capnography monitoring in PACU
 - Adequate NMB reversal



Findings

- Capnography monitoring in PACU improved outcomes:
 - Detected respiratory depression 3 minutes earlier than pulse oximetry
 - Respiratory depression and apnea were prevented
 - Detected apnea in 29% of post-surgical patients
 - Detected hypopnea and bradypnea in children



Analysis & Conclusions

- Statistically significant t -value of -12.151 and p value of < 0.001
- Significant increase in mean test scores from 3.9/10 to 8/10

Paired Samples Test									
		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
		Lower	Upper						
Pair 1	PreTest - PostTest	-.39091	.15090	.03217	-.45781	-.32400	-12.151	21	.000

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreTest	4.182	.22	.17081
	PostTest	8.091	.22	.13420

Acknowledgements

Project Chair: Sarah Snell, CRNA, DNP, AHU
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 References available on request