



Matthew Thompson, RN
Phelps Memorial Hospital

OVERVIEW

- 1) *Top 3 Posters/Research*
- 2) *Top lecture*
- 3) *Top Innovative Equipment*
- 4) *Recap*
- 5) *Questions*



Poster #2

Surgical Smoke Evacuation: a Survey of OR Nursing Staff

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Introduction

Electrosurgery devices, laser ablation and ultrasonic scalpels are widely recognized as major advances in surgical technology. Electrosurgery is used in more than 85% of the 24 million surgeries performed annually in the US.¹

More than 150 different chemical constituents have been identified in surgical smoke, some with the capacity for causing human cell damage, cancer and infectious disease.²

Smoke evacuation devices are effective for limiting exposure. However, despite AORN recommendations, smoke evacuation devices have not been implemented into routine use in most operating rooms.

The purpose of our survey was to identify the level of OR nursing knowledge regarding the risks of surgical smoke exposure, and nursing perceptions on the barriers to routine smoke evacuation system use.

Methodology

A convenience sample of OR nurses was obtained from attendees at the 2017 AORN Global Conference & Expo in Boston, MA. IRB review determined the research as exempt and OR nurse participation was anonymous and voluntary.

Survey data was collected using Turning Technologies (Youngstown, OH) polling and response program. The Roy Adaptation Model provided the theoretical framework for this study.

Each survey consisted of five questions (Table 1). Each question focused on demographics or surgical smoke perception.

Question	Type
What is your role at your hospital or medical facility?	Demographic
In what type of facility do you work?	Demographic
Indicate the types of procedures where you would normally use some type of smoke evacuation equipment.	Multiple Choice
Select how strong you agree or disagree with the following statement, "I understand the dangers associated with surgical smoke."	Multiple Choice
What do you think is the biggest barrier to using smoke evacuation equipment in your facility?	Multiple Choice

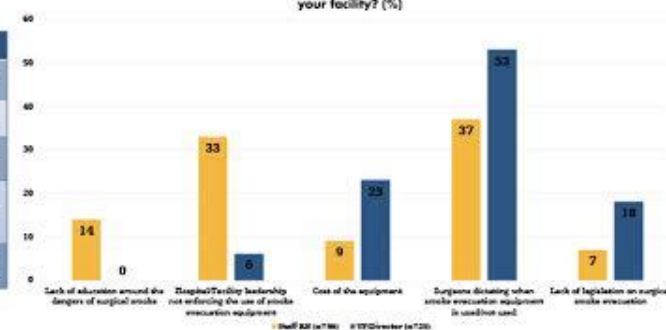
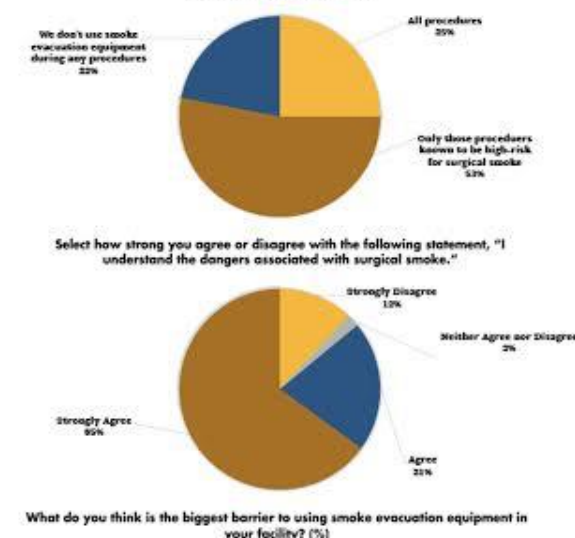
Table 1. Survey Questions

9100-005-152 Rev. None

Results

Of the 212 active participants, 198 responses were received per question, for a participation rate of 93%. Nearly half, 47% of respondents worked for a community hospital ($n=93$), and 26% worked for a university medical center ($n=51$). RNs, or RN first assistants comprised 57% of the respondents ($n=110$), and 22% were clinical managers or senior nurse executives ($n=42$).

Indicate the types of procedures where you would normally use some type of smoke evacuation equipment.



Discussion

There is a common belief that inhaling smoke poses the greatest risk to scrubbed members of the surgical team. While surgeons working 20-40 cm from the point of smoke generation are exposed to the highest concentrations of surgical smoke³, nurses and other OR personnel, including anesthesia providers, are constantly exposed to the hazards of surgical smoke. Surgeons typically operate only a few times per week⁴, while nurses care for patients in the OR most days per week, heightening their exposure.

Particle size generated varies and is dependent on the device used; electrocautery creates the smallest particles ($0.07\mu\text{m}$)⁵, larger particles are created by laser ablation ($0.31\mu\text{m}$)⁶, and the largest particles are those generated by ultrasonic scalpels ($0.35\text{--}6.5\mu\text{m}$)⁷. Particles that are $5\mu\text{m}$ or larger are deposited in the oropharyngeal walls, aerosols between 2 and $5\mu\text{m}$ are delivered to the airways and aerosols between 0.8 and $3.0\mu\text{m}$ reach the pulmonary parenchyma.⁸

Surgical masks are commonly used in the OR to provide a barrier to splashes and droplets impacting the wearer's nose, mouth and respiratory tract. However, they do not provide protection against airborne particles⁹ since most surgical masks are designed to filter particles $>5\mu\text{m}$.⁴

Most, 86% of nurses in this study agreed or strongly agreed that they understand the dangers associated with surgical smoke, yet only 25% use smoke evacuation in all procedures.

The results of this study provide a reference to nurse perception on surgical smoke evacuation and may help facilitate a discussion to support hospital goals and introduce smoke evacuation to all surgical procedures in alignment with AORN recommendations.

References

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Poster #3



Orientation is Over: Now What?

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Clinical Issue

A knowledge deficit around OR practices was identified in new RN caregivers. The project team explored opportunities to make new staff RNs feel more comfortable and competent in the perioperative environment. The team partnered with perioperative education to develop communication and education practices to support RNs during their first year post orientation. The team introduced supportive interventions to the new RN staff members to help them better understand and acclimate to their role.

Description of Team

A multidisciplinary project team was created and included nursing, physicians, perioperative education, sterile processing and administration.

Preparation and Planning

A task force was mobilized to observe and map current workflow processes and identify opportunities to increase RN knowledge and understanding. Nurses were surveyed to identify gaps in the post orientation process.

Assessment

The team assessed a need for additional education and supportive practices for RNs who completed their orientation but were not fully comfortable in their new environment.

Implementation

The team introduced post-orientation practices to the new surgical RNs and then subsequently to the surgical technologists and ancillary staff.

- An assessment of new staff comfort level in the perioperative environment was conducted
- An interdisciplinary committee was created to facilitate the post orientation process
- A staff in-service was conducted and designed to engage employees in the process
- Education and reference materials were provided to staff, posted in each OR and other strategic areas throughout the surgery center
- Next day case look up and review
- New nurses were offered more time to double scrub with experienced RNs and surgical technologists
- New nurses were given the opportunity to take buddy call with a more seasoned RN
- A overview describing case specific information was created and provided to all new RNs
- Each new staff member was paired with a senior nurse of their choice to assist them as they transitioned to staff nurse
- 1:1 mentoring of staff occurred to improve staff understanding of perioperative processes
- Weekly meetings were held with all new staff members to give support, answer questions and reflect on their weekly progress
- Nurse driven orientation guidelines created by unit based council
- Staff assumed "ownership" of their practice and became more proficient in tasks specific to their service

Outcome

A change in post orientation practices resulted in an optimized workflow, an increase in nursing satisfaction, and a better understanding of the perioperative environment. Orientees were surveyed and reported increased satisfaction and comfort in the work environment. The change helped foster a sense of ownership in the orientation process.



Implications for Perioperative Nursing

- Perioperative nursing involvement in the post orientation process is essential to RN growth, development, comfort level, and job satisfaction. Nursing knowledge and support of perioperative practices in the new hire period will contribute to a safer and more comfortable environment for everyone. Nurses who are well trained and supported are more likely to be happy in their position which leads to sustainment.
- "Mentorship is a strategy that can be used to successfully socialize nurses to practice; prepare them for the professional expectations of the discipline; boost confidence; and provide for personal, professional, and intellectual growth and development" (AORN Position Statement on Responsibility for Mentoring, 2017).

Lecture#1

Patient Positioning

- The primary reason for positioning
 - Factor to consider
 - 3 Types of Positions
 - Proper patient handling

Innovative Equipment #1

Aquilex fluid management system

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- Maintain maximum control
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 - Easy to use
- Achieving and maintaining distention and visualization.



Innovative Equipment #1

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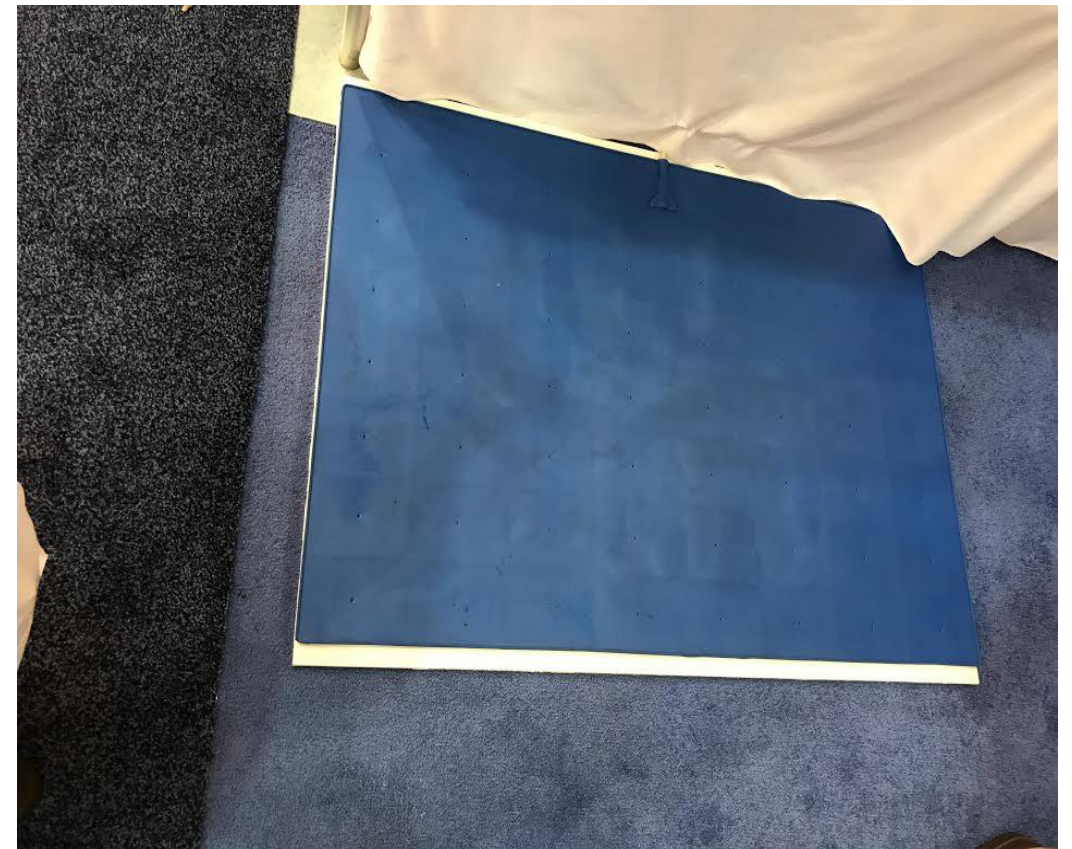
Aquilex fluid management system



Innovative Equipment #2

Arthroplastics - Aquavac

- Suction Mat
- Water control
- Standard Suction
- Enhanced surgeon comfort
- Reduced OR turnover time



Innovative Equipment #2

Arthroplastics - Aquavac LGS

<https://youtu.be/EmIDMfEX3bE>

Innovative Equipment #3

- Most common RSI are sponges
- Accurately and reliably detects tagged sponges.
- Transmit non-ionizing, low frequency radiowaves.
 - Ensures surgical items counts are correct

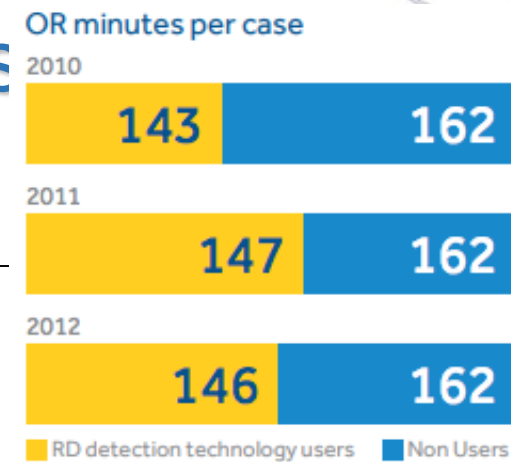
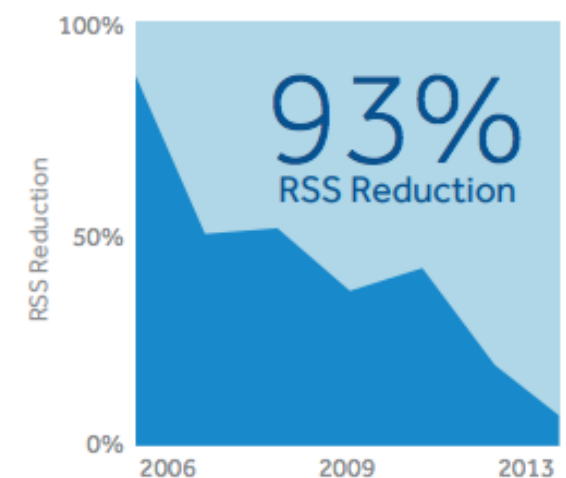


Chart interpreted from study data³









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Any questions?

THANKS FOR LISTEN =)

**Special Thank you to
Kathleen, Lorrie,
Mary McDermott
all the other OR administrators
and all the operating room staff**

