Going Smoke Free: Henry Ford Wyandotte Hospital reaches **93% compliance** in four months
Introduction

In 2018, Henry Ford Wyandotte Hospital (HFWH) was awarded the Association of periOperative Registered Nurses (AORN) Go Clear Award for surgical smoke evacuation. It was one of only 20 facilities in the United States to achieve the Gold Level award. The award was based on HFWH’s outstanding staff education, >90% surgical smoke evacuation compliance, and availability of smoke evacuation equipment in all its Operating Rooms (ORs). The process used to win the Go Clear Award at HFWH can be followed by other facilities.

Located near Detroit, Michigan, HFWH is a 401-bed acute care hospital with 13 ORs. It provides a wide range of surgical procedures including General, OB/GYN, Thoracic, Orthopedic, Spine and Neurosurgery. It is part of the Henry Ford Health System.

The HFWH smoke-free initiative was spearheaded by Tiffany Tscherne, Regional Director for Surgical Services and Trauma. Being new to surgery, Tiffany was surprised when she learned about surgical smoke:

“The first time it was brought up, it didn’t make sense that people would be exposed to smoke in our ORs. So I decided to look at the literature, the standards, and the regulations.”

Building the Case

Tiffany’s review uncovered several documents that helped build her case for smoke-free ORs.

- AORN Perioperative Standards and Recommended Practices [https://www.aorn.org/guidelines/clinical-resources/publications](https://www.aorn.org/guidelines/clinical-resources/publications)
  Recommends that surgical smoke be removed using smoke evacuators in both open and laparoscopic cases.

  Outlines potential hazards posed by smoke and recommends smoke evacuators as a solution.

- National Institute for Occupational Safety and Health (NIOSH) publication Control of Smoke From Laser/Electric Surgical Procedures [https://www.cdc.gov/niosh/docs/hazardcontrol/hc11.html](https://www.cdc.gov/niosh/docs/hazardcontrol/hc11.html)
  Reports that electrosurgical smoke can contain toxic gases, dead and live cellular material (including blood fragments), and viruses. Recommends the use of smoke evacuators since they are more effective than room suction systems for local ventilation.

  Recommends using engineering control measures such as local ventilation when air is contaminated with material such as smokes, sprays, or vapors.

Further, Tiffany found that several states were considering surgical smoke evacuation legislation. Rhode Island has passed a law requiring the use of smoke evacuation systems in ORs and ambulatory surgical centers. Tiffany became convinced that increased regulation of surgical smoke was coming. She wanted to get ahead of the curve.
Making the Commitment

Tiffany built a team of champions including leads from nursing, biomedical engineering, supply chain, and surgery. This team fully committed to making their ORs smoke-free.

Then she approached executive leaders with a plan and a formal Smoke Evacuator Usage Policy. This two-page document clearly defines HFWH’s expectations for procedure interventions, documentation, and staff education. Leadership, including the Chief Operating Officer (COO) and Chief Nursing Officer (CNO), voted unanimously for the policy.

Peter Karadjoff, COO, explained the rationale:

“The jury might be out on long term effects of smoke, but based on the evidence Tiffany found we think it may have a health impact. And we want to be prepared for new regulations as they come down. So we chose to make the investment.”

Cathy Osgood, CNO, agreed:

“The incremental cost really did not outweigh the kind of benefit that we saw. It’s the right thing to do.”

Selecting the Right Tools

HFWH chose Ethicon as their surgical smoke evacuation partner. Ethicon’s product training and clinical case support was an integral part of the action plan. The Ethicon representative attended in-services and morning huddles, training surgeons and staff on the devices before they were used in the OR.

Compatibility of Ethicon’s MEGADYNE™ brand of smoke evacuation pencils with the older smoke evacuators already in the ORs was also important. HFWH did not have capital budget immediately available to replace the smoke evacuator boxes. The Ethicon representative worked with the biomed and supply chain groups to ensure that proper adapters were available so the equipment would work together.

The variety of MEGADYNE™ smoke evacuation pencils was also helpful. Ethicon offers two pencils with fully integrated smoke evacuation tubing and a smoke evacuation shroud that clips on to a regular monopolar pencil. These options cover a range of ergonomic preferences. Tiffany observed “There was so much flexibility in the products. There’s something for every need, and that helped with adoption.”
Turning OR Staff into Advocates

To fully educate the OR staff, HFWH mandated that they go through AORN online training modules and score at least 80% on the concluding test. When the staff started reading the research and seeing the data on surgical smoke evacuation, their interest grew. As they received coaching and tips from leadership, they became advocates in the OR.

“When surgeons would ask for a different tool, the OR staff knew what smoke evacuation options were available,” Tiffany explained. “The staff learned the equipment and became the in-room experts. And if they didn't have the answer, they were able to quickly get support from Ethicon.”

As Tiffany described, “When a surgeon would resist smoke evacuation saying ‘This doesn’t work for me. I’m only here for one case, why do I have to use it?’ My staff would reply ‘Because I’m here for every case in this room.’ It’s about that relationship and that trust.”

Getting Surgeon Buy-In

Formal trial of smoke evacuation products is extremely important. HFWH conducted its trial with one service line at a time, waiting until each specialty was on-board before moving to the next.

To gain surgeon acceptance it was crucial to find products that addressed the clinical needs. In orthopedic procedures, such as hip replacements, the length of the monopolar pencil was important. HFWH offered surgeons the MEGADYNE™ ULTRA VAC™ Smoke Evacuation Pencil. The ULTRA VAC™ Smoke Evacuation Pencil allows surgeons to adjust the working length by 6 inches, removing the need for an extension tip.

A neurosurgeon objected to the width of the smoke evacuation pencil tip. A narrow, specialty tip was needed for neurosurgery cases. To meet this challenge, HFWH offered the MEGADYNE™ Attacha Vac Smoke Evacuation Shroud. This removable shroud attaches to the monopolar pencil, facilitating surgical smoke evacuation while providing the desired tip.

HFWH found that it typically took between three days and two weeks for a surgeon to become comfortable with the new devices. Dr. Fadi Baidoun, Chief of Surgery, was initially resistant to surgical smoke evacuation but came to embrace it. He emphasized the need for surgeons to commit to a trial period and the importance of having a team to support the trial.

“You have to have a team on the ground answering questions and taking the stress off the surgeon. Any new device feels different. You’re going to feel it’s cumbersome, it’s going to slow you down. Give it at least three days. After that, it will be just as comfortable as your old device.”
Removing Barriers to Compliance

The HFWH supply chain management team was critical to the success of the program. They closely monitored product usage, especially during the adoption period, ensuring that HFWH always had the right equipment in stock.

The supply chain team also adjusted the HFWH procedure packs to encourage the use of surgical smoke evacuation. Previously, a regular monopolar pencil had been included in every pack. Now a smoke evacuation pencil is included instead. This change significantly improved compliance.

Reinforcing the New Practice

Now that smoke-free ORs are the norm, HFWH staff can tell whether the smoke evacuation system is being used simply by smelling the air. Formal measures, such as regular in-room audits, reinforce that surgical smoke evacuation is the new standard of care. HFWH continues to keep its compliance rates highly visible. Surgical smoke evacuation rates are discussed in the same context as on-time starts, surgical site infections, and other critical measures.

Seeing the Benefits

Adopting smoke evacuation has been a significant selling point for HFWH, helping the facility retain OR staff and recruit new employees. The improvement in odor and surgical site visibility as well as the potential longterm health benefits are very appealing.

The impact on patients has been most obvious in the Labor & Delivery department where electrosurgery is used during Caesarean Sections.

“Patients don’t want the smell of smoke to be part of their birth story. The mother, the father, everyone in the OR is very much aware of the smoke,” said Mary DeSana, Clinical Nurse Manager.

Tiffany shared,

“I think the biggest benefit has been our team’s confidence that they’re practicing in the best environment possible. This confidence makes them comfortable to ask how they can continue to improve. They’re confident that leadership is listening to them. Even our surgeons feel confident knowing that they were part of a bigger picture.”
Conclusion

As of mid-2018, HFWH was using smoke evacuation in 93% of its surgical cases. Reaching this level of compliance involved education, selecting the right tools, and removing barriers. But the most important piece was recruiting champions to drive alignment at all level of the organization.

“It’s amazing how many opportunities to veto a great idea exist in a hospital,” observed COO Peter Karadjoff. “Having OR, physician, and administrative leaders is critical. They are educating everybody above them, educating everybody that works for them, and trying to move it along. You need champions to make it work.”

As Tiffany noted,

“If you take the collaborative approach, if you take the people focused approach, it all falls into place. This is the right thing to do for our patients, for our staff, and for our surgeons.”

7 Keys to a Smoke-Free OR

1. Cross-functional champions
2. Evidence-based action plan
3. Formal surgical smoke evacuation policy
4. OR staff training
5. Committed industry partner to support implementation
6. Procedure packs that include smoke evacuation tools
7. Frequent and visible reviews of compliance rates