



Greening the Operating Room (OR) Initiative Project Overview

The operating room (OR) is the epicenter of today's hospital with a recent study by the McKesson Group estimating that the OR generates 42% of the hospital's revenueⁱ. A primary source of hospital admissions, the OR also drives significant costs related to equipment, supplies and personnel—the OR is the leader in medical supply usage for the entire hospitalⁱⁱ. A recent study estimated supply costs at 56% of the total budget of the operating room—dwarfing salary costs at 35%ⁱⁱⁱ. The OR also generates huge volumes of waste. The OR produces between 20 to 30% of a hospital's total waste volume^{iv}, despite the OR's diminutive spatial footprint.

As the healthcare sector continues to explore the benefits of environmental sustainability in a healthcare environment, it makes sense to focus on those departments with the highest costs, greatest inefficiencies and/or largest volumes of waste. Thus the OR is a key target for greening efforts in many facilities. Practice Greenhealth has launched the **Greening the OR Initiative** in an effort to coalesce the body of knowledge around sustainable interventions in the OR, substantiate it with data and case studies, and develop best practices for implementation that can be shared across the sector. The potential financial benefits of these interventions are significant, with millions of dollars in potential savings for the sector should widespread adoption of these interventions occur. Sponsors of this initiative to date include the Hospital Corporation of America (HCA); Ascent Healthcare Solutions; SRI Surgical; Hospira; Cardinal Health; Medline; BD; HDR, Inc; and Mazzetti + Nash Lipsey Burch.

The **Greening the OR Initiative** is looking at interventions in the OR that reduce environmental impact, reduce cost, increase efficiency, and improve worker or patient safety—or some combination of these. There are a range of interventions that have been looked at by the Initiative, and participating hospitals will continue to define additional interventions as they are piloted and implemented at different institutions. Initial interventions looked at include:

- Regulated medical waste reduction and segregation
- Fluid management systems
- Single-use device reprocessing
- OR kit reformulation
- Reusable surgical gowns and basins
- LED lighting and power booms
- Displacement ventilation
- Waste anesthetic gas (WAG) capture and reclamation
- Medical plastics recycling
- Reusable hard cases for surgical instruments

While the **Greening the OR Initiative** has just begun, the project is a long-term collaboration. Several key pieces of work have already been developed, with more on the agenda. Below you will find a brief description of those pieces of work as well as ideas for how the project may grow and build on the initial work. Practice



Greenhealth hopes the **Greening the OR Initiative** will help define how healthcare can integrate sustainability in ways that benefit not only worker, patient and community health but also the bottom line.

Greening the OR Symposium & Pre-Conference Training

On April 27, 2010, Practice Greenhealth (PGH) convened the Greening the OR Symposium in Phoenix, AZ. The Symposium brought together thought leaders, clinicians, administrators and manufacturers to begin to sketch out which “green” operational interventions make the most sense in an OR setting. Presenters from different institutions demonstrated how they had implemented a variety of green interventions in an OR setting and a facilitated discussion encouraged a common understanding of the barriers to implementation of these interventions and mechanisms to overcome these barriers.

On May 11, 2010 PGH held a three-hour pre-conference training before the CleanMed conference in Baltimore, MD. More than 60 participants heard the perspectives of a surgeon and an ObGyn engaged in leading this work at their institutions and reviewed the interventions targeted by the Symposium. A lively discussion followed about how hospitals could play a role in shaping the fledgling initiative.

One year later in April 2011, Practice Greenhealth held the second Greening the OR Initiative pre-conference workshop. There, participants were able to learn about the experiences of hospitals and staff that had implemented sustainable operations within their facilities, how to effectively put those implementations in place, as well as the challenges and successes of such work. Business leaders also spoke of their efforts to collaborate and make sustainable, environmentally preferable options available to healthcare providers.

Endorsement and Participation by Key Hospitals in the Sector

PGH found that hospitals were eager to understand how they could continue to participate in the **Greening the OR Initiative**, with more than two-thirds of the participating hospitals at both the Symposium and Pre-Conference indicating they would like to be involved in these discussions in an ongoing way. A request was sent to all participating hospitals in early June 2010 asking whether their institutions could formally endorse and participate in the Initiative. A Commitment Form allowed hospitals to specify how they would like to participate. As of June 2011, 120 hospitals have signed on to participate in the **Greening the OR Initiative**, and that number continues to grow.

Greening the OR Webinar Series

The Symposium and training zeroed in on eight initial interventions (with LED lighting, power booms, displacement ventilation and WAG capture and reclamation being grouped together under energy efficiency & indoor air quality (IAQ)). There were several obvious interventions that were looked at additionally, including medical equipment and supply donation, and green cleaning and disinfection in the OR suite. PGH held a series of four 90-minute webinars for participating hospitals on these additional interventions, beginning in July 2010.

The webinar series continued into 2011, with ten 90-minute webinars on the identified interventions, explaining the research and support, as well as real case studies substantiating these interventions from participating hospitals. The Greening the OR Webinar Series will continue into



2012, exploring additional interventions and research, as well as providing a deeper look into the current work.

Outreach to Key Stakeholders in the OR Setting

The project is reaching out to engage key stakeholder groups relevant to the OR to ensure that as different interventions are being discussed, each is vetted through the appropriate channels and driven by all available data. Perioperative nurses, anesthesiologists, nurses anesthetists, surgeons and OR managers all play a critical role in determining product and process selection in an OR setting. Environmental Services and Infection Control and Prevention also have important roles to play. PGH is committed to bringing the right mix of voices to the table to ensure a comprehensive review of the different greening strategies and determine critical synergies with quality, safety and infection control and prevention (ICP) disciplines.

Council for Environmentally Responsible Surgeons (CERS)

Participants at both the Symposium and training expressed support for the creation of a physician advisory council that would help communicate the goals of the **Greening the OR Initiative** to the physician and surgeon communities while also bringing key insights and feedback to the project strategy. From taking a leadership role on greening in the OR to publishing the results of green interventions in peer-reviewed journals, presenting at medical conferences, participating in interviews with interested media, CERS members have an active role in these efforts and Practice Greenhealth works to enhance these opportunities and build upon them.

Case Studies and Pilot Projects

Hospitals across the country have been innovating individually on ways to green the OR setting. This project is an attempt to collect those success stories, review them with a critical eye toward how they mesh with quality, safety and ICP priorities, and make them available to the sector for widespread implementation. The first step in the process involved working with participating hospitals to gather those case studies and standardize the presentation of data. The first set of case studies were published in April of 2011, providing an in depth look at the experiences of participating hospitals as they implemented one of the eight identified interventions.

The **Greening the OR Initiative** is committed to making sure each and every intervention it tackles is thoroughly reviewed, and will share the case studies with the healthcare community.

Implementation Modules

One of the key deliverables for the **Greening the OR Initiative** is the development of a guidance document that will both frame the relevance and importance of greening the operating room while also laying out a data-driven strategy and roadmap for how to tackle this endeavor. The implementation modules describe the set of initial interventions that can provide the greatest benefit in reducing environmental impact while also driving cost-savings and increasing safety. These implementation modules also provide detailed instruction on how to implement these interventions at your institution and highlight relevant tools and resources from across the sector.

The initial eight implementation modules were published in April of 2011. As new research and studies identify additional implementations, we will continue to develop the implementation modules.



Virtual Tour

Practice Greenhealth, in collaboration with WorldViz and the Greening the OR sponsors, showcased the Virtual Tour at the CleanMed conference in 2011. The Virtual Tour allowed viewers to walk through an ideal, green OR – highlighting each sustainable implementation within the operating room suite. Practice Greenhealth is continuing to build on this experience by creating Virtual Tour video segments that can be used to enhance presentations, education and training on sustainable opportunities within the OR.

Greening the OR Website

PGH is committed to building this initiative in way that keeps participating hospitals informed and engaged. An important mechanism for meeting this obligation will be the Greening the OR website, available at www.greeningtheor.org. PGH staff will continue to populate this website with the tools, articles, presentations and descriptions of different pieces of the initiative, as it unfolds. Participating hospitals can check in frequently to learn about the newest developments of the project. PGH also welcomes suggestions from participating hospitals on how to strengthen this resource.

Partnering with Supply Chain

Practice Greenhealth is also working closely with the healthcare supply chain as key stakeholders in these discussions. PGH recognizes that these companies have a key role to play in developing sustainable product and service offerings. Additionally, these companies can help PGH zero in on important questions to ask about different interventions, can help frame the benefits of green products or services and can provide training to hospital participants around the piloting or implementation of certain interventions. Companies interested in participating in the initiative can contact Bob Jarboe, Executive Vice President of Business Development to learn more at bjarboe@practicegreenhealth.org or 888-688-3332.

Practice Greenhealth hopes the **Greening the OR Initiative** will continue to demonstrate the value of environmentally friendly interventions that are based on firm data, rigorous analysis and stakeholder consensus—and sees the operating room as the first of many hospital units that can benefit from a department-specific focus on environmental management. Hospitals or OR departments who are interested in participating can reach out to Practice Greenhealth to get involved and can learn more at www.greeningtheor.org. Practice Greenhealth has more than 1000 hospital members nationwide who are changing the way healthcare does business, and are demonstrating that a focus on environmental responsibility can increase patient, worker and community health and safety. Learn more at: www.practicegreenhealth.org.

REFERENCES

¹ McKesson Information Systems Inc. and the Healthcare Financial Management Association. *Achieving Operating Room Efficiency Through Process Integration*. Accessed on May 20, 2010 at: http://www.mckesson.com/static_files/McKesson.com/MPT/Documents/HFMAProcessIntegration.pdf

² Farmer, A. and Merbler, K. Cost Accounting in the Operating Room. TriNet Healthcare Consultants Inc. Accessed on April 15, 2010 at: <http://www.trinethealth.com/Articles/Cost%20Accounting%20in%20the%20Operating%20Room.pdf>

³ Park, K. and Dickerson, C. "Can efficient supply management in the operating room save millions?" *Current Opinion in Anaesthesiology*. Vol. 22. Issue 2. Pp 242-248. April 2009. Accessed on April 15, 2010 at: http://journals.lww.com/co-anesthesiology/Fulltext/2009/04000/Can_efficient_supply_management_in_the_operating.17.aspx

⁴ Roy K. Esaki, MD and Alex Macario, MD. "Wastage of Supplies and Drugs in the Operating Room." *Medscape Anesthesiology*. Accessed on April 20, 2010 at: <http://www.medscape.com/viewarticle/710513>