



Sustainability at U Health and Miller School of Medicine (MSOM)

5 TO THRIVE IS BUILT ON FIVE “PILLARS” — PEOPLE, SERVICE, QUALITY, GROWTH AND OPERATIONS.
3 PILLARS OF SUSTAINABILITY — PEOPLE, PLANET, PROFIT



“Our Facilities Operations and Planning group is leading the effort to seek new and innovative ways for the University to meet its sustainability goals through conservation, reducing, reuse and recycling programs [...] and reducing their energy consumption”

University of Miami Strategic Plan. p 44

Since Former President Shalala signed the American College and University President’s Climate Commitment in 2007, the University has engaged in interdisciplinary efforts to plan, execute, monitor and report on its sustainability efforts across the Enterprise. The Office of Sustainability was created in 2008 with the intent of leading the effort, and working with stakeholders across the Enterprise to develop programs on improving the University’s mission of transforming lives in an environmentally sustainable approach. The University’s Office of Sustainability has worked with many collaborators at U Health and Miller MSOM, who are leading the charge with evolutionary initiatives in sustainability. The efforts to-date at U Health and MSOM have been focused on (1) Energy conservation, (2) Water conservation and (3) Waste diversion. Even with the efforts to date - several examples are summarized in the sections below - there remains opportunities for a more holistic approach to reducing our carbon footprint while providing world-class healthcare education and operations.

As the research of organizations like [Practice Green Health](#) (PGH) have shown, healthcare organizations that implement sustainability-focused efforts, see benefits in operational cost, patient satisfaction and engagement. As quoted by PGH in their [report](#) “Engaged Leadership and the Value of Sustainable Health Care” Feb. 2018:

“In 2017, 355 leading hospitals saved more than \$826 million by integrating a myriad of different sustainability initiatives that reduce environmental impact while protecting patient, staff, and community health. Like any important initiative, a sustainability program cannot run itself. The most successful hospital sustainability programs feature clear organization-wide goals, key performance indicators, and executive champions. So clear are the benefits of these programs that 57 percent of hospitals have built them into performance objectives for executive leadership. Nearly 70 percent of hospitals report the creation of a strategic sustainability plan to underpin larger organizational goals. [...]

The importance of tracking the ROI, payback, and impact of sustainability programs cannot be overstated. Ensuring that these results are put in front of hospital leadership is essential in creating deeper executive engagement.”

In addition, PGH has reported on several major initiatives, and the associated cost benefits, seem by healthcare organization in the pursuit of more environmentally-sustainable operations. The table below provides an overview of those initiatives, reported cost savings, and U Health/MSOM implementation status. These cost-savings opportunities are just a handful of the many innovations hospitals, nationwide, are identifying, that drive down costs while reducing environmental impacts, enhancing the health and safety of patients, staff and promoting wellbeing for our communities.

Table 1. PGH reported Sustainability Initiatives

Sustainability innovation	Median reported cost-savings (annual)	UHealth/MSOM Implementation Status - 2018
Solid waste recycling	\$2,575	Partial implementation
Reusable sharps containers	\$43,343	NOT currently implemented
Solvent reprocessing	\$9,599	NOT currently implemented
Meat reduction	\$50,000	Partial implementation
Fluid management systems	\$22,502	Partial implementation
Reformulating OR kits	\$23,234	NOT currently implemented
Medical device reprocessing	\$120,597	NOT currently implemented
Reusable sterilization containers	\$13,855	Partial implementation
Reusable medical products	\$19,482	Partial implementation
HVAC setback in the OR	\$45,398	NOT currently implemented*
LED surgical lighting	\$3,329	Partial implementation
Energy reduction	\$53,599	Partial implementation
Water reduction	\$5,508	Partial implementation
Total	\$413,021	

Cleveland Clinic

Cleveland, Ohio

In an effort to reduce the environmental impact of the operating room, Cleveland Clinic reported saving \$4.3 million in 2016 at its main campus alone. Innovative programs in the OR included a physician-led education and re-training program for red bag waste minimization, a reusable canister fluid management system, a setback program for both its HVAC and its waste anesthetic scavenging systems, and a strong medical device reprocessing initiative. At the health system level, Cleveland Clinic saved more than \$7.5 million in 2016 through its Greening the Operating Room.

*Modernization of current Air Handler controls at UHT

¹ This document offers a “generic” approach to leadership accountability in healthcare, tested by PGH in many hospitals across the country, but not yet fully implemented at U Health

² Practice Greenhealth. (2018). *Engaged Leadership and the Value of Sustainable Health Care*. Retrieved from:

https://greenu.miami.edu/assets/pdf/engaged_leadership_report2018pgh.pdf

Savings to Date: \$894,428 annually

Solid waste recycling

- Educational Red bag reduction program with Antos Environment: \$165,006 annually in savings

Reprocessing (without Buyback)

- In 2018, a program reprocessing single use devices generated \$2,532 annually in savings

HVAC retrofits

- Replacing air handlers at U Health Tower/Sylvester Comprehensive Cancer Center / Bascom Palmer Eye Institute from single motor to multiple Variable Frequency Drive motors: \$203,934 annually in savings for the 3 main hospitals on campus.
- The Chilled Water Connection from Central Energy Plant to U Health Tower main hospital lead to a 25Kw/ton reduction in power consumed, and generated \$356,250 annually in savings
- Air Handling Unit Fan Wall (Variable Fan) retrofits in main hospital generated \$39,420 annually in savings

Energy reduction

- LED lighting replacements result in high use areas generated savings, including the medical library retrofit (\$31,043 annually in savings) and the main office building single floor retrofit (\$5,343 annually in savings)
- Enverid Indoor Air Quality purifier and CO2 Scrubber implemented in Wellness Center saved 28% of the energy used from the previous year.

Water reduction

- Well and Water Treatment Systems: The treatment system, part of the original central energy plant build, utilizes pulsed electric fields for control of mineral scaling, microbial growth and corrosion in the cooling towers. Cooling tower blowdown is discharged to a filtration pond, instead of the sewer, part of an environmentally friendly process that essentially recycle aquifer water back to its source.
- Those major renovations generated water savings at the University of Miami Hospital & Clinics, and the Sylvester Cancer Comprehensive Center of CCC of \$90,900 annually.

CURRENT AND FUTURE INITIATIVES

In addition to the initiatives summarized previously, the list below provides several others across a broad range of areas, their scope and progress. This reflects the progress that U Health/MSOM has made to date, and what can be accomplished through a more holistic program with the enterprise capabilities that exists.

Leaner Energy and Water at U Health – [Green U Health](#)

1- LED

- University of Miami since 2007 adopted a Green Building mandate: All new construction need to reach a LEED Silver certification. Visit our [Design and Construction Green Buildings](#) page to have a complete list of our LEED construction projects.
- Since 2015, we've passed a LED lighting mandate to progressively phase out incandescent CFL bulbs.
- Our Hospitals on average rank above the national average Energy Use Intensity of 389.8 kBtu/Square foot (EPA [Energy Star Portfolio Manager](#))

2- HVAC retrofits

- Our state-of-the-art Central Energy Plant has helped us save energy. Learn [more](#).
- Change out of air handlers at UMH/Sylvester from single motor to multiple VFD motors. (\$203,934/yr for the 3 main hospitals on campus. The 2nd phase of this program should see the light in FY2019)
- The Future Chill Water Connection from CEP to UHT should lead to a .25Kw/ton reduction in power consumed, and generate \$356,250/yr

3- Well and Water Treatment Systems

- The treatment system, part of the original central energy plant build, utilizes pulsed electric fields for control of mineral scaling, microbial growth and corrosion in the cooling towers. Cooling tower blowdown is discharged to a filtration pond, instead of the sewer, part of an environmentally friendly process that essentially recycle aquifer water back to its source. Those major renovations generated water savings at UMHC-Sylvester CCC of \$90,900 in FY 2018 alone. Learn [more](#).

4- CO2 Scrubbers

- The Wellness Center occupies the top two stories of the Don Soffer Clinical Research Center and spans 60,000 ft². Using the HLR modules, the University of Miami's Wellness Center used about 75% less outside air and thereby saved 828 Ton-hrs per day of cooling – a 28% reduction in total HVAC energy consumption. As a result, the building is saving \$19,500 each year in energy consumption.

Less Waste and Smarter Purchasing at U Health

1- Paper reduction strategy

- The University has purchased Hyland's On Base products for use by all departments in order to progressively eliminate paper throughout the enterprise.

USAGE TOTAL DOCUMENT AND PAGE COUNTS: 11.19 MILES OF PAPER STORED UNTIL NOW!

System	Total Docs	Total Pages	Monthly Docs	Pages	Total Storage
UMIAMI	18,101,051	76,033,794	107,347	358,293	11.45
UHEALTH	57,871,455	101,247,705	306,983	650,329	49.66
TOTAL	75,972,506	177,281,499	414,330	1,008,622	61

- The University's First Impressions Program contribute to our waste diversion rate by adopting the use of mailboxes and enforcing Duplex printing, both of which help reduce the overall consumption of paper.

TOP 5 IN MEDICAL (FACULTY & STAFF) IN 2017

Department Name	Duplex Volume	Trees Saved	CO2 Kgs Saved
University of Miami Hospital (UMH)	709,871	43	17,036,904
University of Miami Hospital & Clinics (UMHC)	621,742	37	14,921,808
Pediatrics	605,159	36	14,523,816
Anne Bates Leach Eye Hospital (ABLEH)	504,669	30	12,112,056
Applied Marine Physics	417,466	25	10,019,184

Those cumulative efforts have generated savings for our hospitals of \$.....

2- PHI shredding and recycling

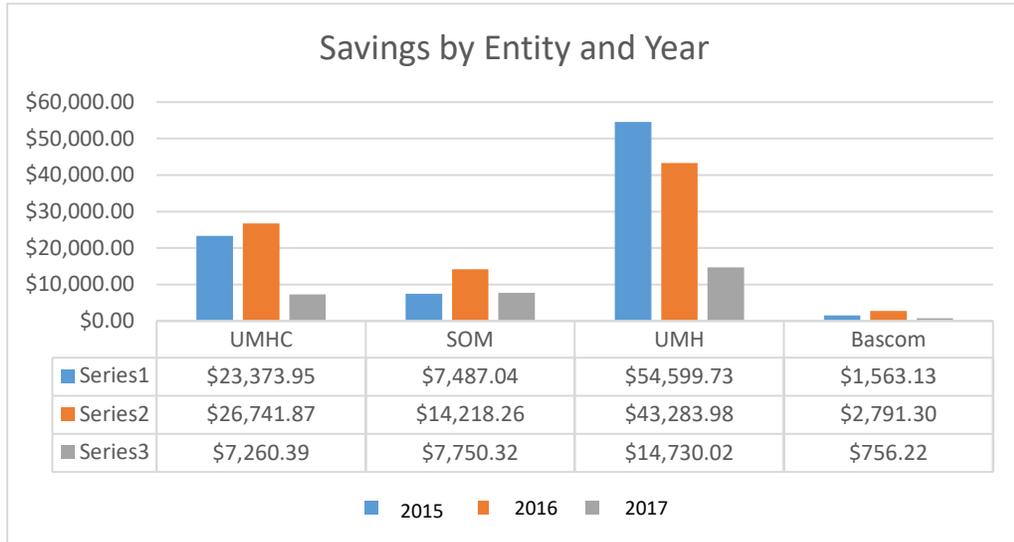
Our goal is to increase our rate of waste diversion from landfills: between our single stream recycling, shredded PHI paper and other recycling streams, we reached a 22% diversion rate in January 2018. Hospitals members of PGH have reached an annual diversion rate of 24% since 2010.

Total Trees	Total Weight (Pounds)	Total Weight (Tons)	Cubic Feet of Paper	Pounds of Carbon Dioxide Saved	Gallons of Water Saved
43.64	5105.88	2.6	354.3568	638	17864

01. 2018 - School of Medicine: 13932048 – 43.64 trees saved / 4800.40 - [Recycling Facts from SHREDIT](#)

3- Red bag waste minimization

Antos Environmental, Inc. was contracted in 2014 to reduce the overall biohazard waste generated in Healthcare facilities and on the Miller SOM campus through logistical recommendations, training and end user education. The cumulative savings from 2014 to 2017 has been \$495,020. The average reduction for all hospitals members of PGH is 7.7% less Regulated Medical Waste since 2010.



4- Reprocessing of SUD in the OR

- Since April 2015, in only a year, our Supply Chain Dept. along with teams of Healthcare practitioners at UMH and Sylvester Comprehensive Cancer Center have increased the reprocessing of single use devices in the OR: From 3565 devices reprocessed and 0 devices purchased back in 2015, to 5512 devices reprocessed and 277 devices purchased back in 2016. "Since 2012, 201 hospitals have adopted the [Greening the OR initiative](#)" PGH



Healthier Food and Wellbeing at U Health

1- Better meat, Less meat / More local and sustainable food

- Recently, U Health along with Jackson Memorial have decided to take the [HEALTHIER FOOD CHALLENGE](#) from the [Healthier Hospital Initiative](#)



2- Wellbeing and Community Engagement: Lennar MC, a case study

Lennar Health Center preventive, patient centered care approach can resolve many challenges in today's public health environment. The following analysis uses "senses" indicators commonly accepted to assess patients' physical and mental health for sustainable care performance: [Sustainability and Well-being in HEALTH CARE – LENNAR Medical Center](#). A key performance indicator for these initiatives is Patient Satisfaction, but the benefits extend to family members, staff, and the community at large.

"Eighty-five percent of hospitals indicated they utilized community benefit dollars to promote healthy food access or healthy food systems in their community. [...]"

Community events included prescription drug take-back days, a mobile food pantry for veterans in need, support for healthier transportation options during Bike-to-Work week, community electronics recycling and confidential paper shredding, and farmer's markets where participants could utilize SNAP dollars to access fresh produce in food deserts. " PGH

3- Sustainable Living with the Student Green Committee at Miller

- ReUse Store at the Farmers Market every month: used UM office supply and more.
- Patient, Staff and Student wellbeing: Butterfly Garden creation next to Sylvester and PAC

In the middle of our very urban medical campus, right in front of the Sylvester Comprehensive Cancer Center, Med students and staff have volunteered to plant a butterfly garden. Relaxation spaces are essential to staff moral and student's awareness. Patients and family members can reconnect with nature while they come for their treatment.



"SP2. Organizational Goal 5

Education Goal: Emphasize individual and population wellness. We will implement an educational philosophy that emphasizes individual and population wellness based on a holistic approach to personalized medical care and health promotion that complements training in the management of acute and chronic illness. This includes the introduction and integration of principles and practice of wellness, health promotion, disease prevention, nutrition and exercise to produce practitioners who focus on "total care" and are positive role models of health for the community. Initiatives include the integration of principles and practice of wellness, health promotion and disease prevention into the medical curriculum; introducing topics in nutrition and exercise into the curriculum; emphasizing a scholarly approach to wellness; and developing programs for students to evaluate their own habits and health status." <http://med.miami.edu/documents/UMMSM-UHealth-2014-Strategic-Plan.pdf>

OUR NEXT STEP

With all the progress to date, there is an opportunity to improve the program within a framework that provides a way to identify, fund, track and measure the right programs for U Health/MSOM. To that end, there are a series of recommendation to get a more comprehensive and efficient approach to greening our healthcare facilities. Our first recommendation would be to identify our current Green Champions from doctors, nurses, patient access, EVS or IT personnel. Under the guidance of our leadership, create a Sustainability Steering committee. The first mission of this committee will be to partner with Practice Green Health and identify among the [Healthier Hospital Initiative Challenges](#), our own priorities, key performance indicators, metrics in the areas chosen and achievable goals for the coming years. With that committee in place, U Health/MSOM should identify a potential funding vehicle or process for such initiatives, such as a Green Revolving Fund (see UM [Coral Gables UGRR program](#)).

Engaged Leadership: An Overview

The Healthier Hospitals' Engaged Leadership challenge provides a data-driven framework to support an organizational commitment to environmental stewardship.

Healthier Hospitals
A PRACTICE GREENHEALTH PROGRAM

Committing to Engaged Leadership is essential

Lasting health care sustainability programs need the commitment & support of senior medical, administrative & board leadership.

ENGAGED LEADERSHIP BUILDS THE FOUNDATION FOR A SUCCESSFUL SUSTAINABILITY PROGRAM.

Getting Started with Engaged Leadership

The foundation for a sustainability program has 3 main components:

1. Identify internal champions
2. Identify current stewardship successes
3. Develop a program proposal for leadership

Infrastructure for environmental stewardship

Top 5 ways to support sustainable & high performance healing environments:

- ✓ Appoint a sustainability executive owner
- ✓ Sign an executive commitment statement
- ✓ Create and approve an environmental commitment statement/charter
- ✓ Identify or create committee structure or team to hold the sustainability work
- ✓ Define measurable sustainability goals and objectives

Be a Model for sustainable health care

Sustainability Leadership:

offers many opportunities for hospitals to be role models in the industry, and to be recognized for their efforts.

Ready to join? Learn more at <http://healthierhospitals.org>