Sustainability Blitz

Surgical Technology, Spring 2018
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What does sustainability mean to you?
Sustainability

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

(Bruntland Report for the World Commission of Environment and Development)
What is the goal?

- Redesign the one-way, industrial system into a **circular system** where all discards are designed to become resources for other use
- **Conserve & recover** all resources, not burn or bury
- **Eliminate** rather than manage **waste**, and all the harmful discharges to land, water & air that come with it
**RECYCLE**

- Recovering material from waste and turning it into new products

**COMPOST**

- Recycling organic material to use as soil fertilizer

**GARBAGE**

- Anything that isn’t recyclable or compostable
  - a.k.a. landfill

**UPCYCLING**

**DOWNCYCLING**
How does our waste impact the environment?

On the surface level...

Litter

Ocean pollution
How does our waste impact the environment?

Also keep in mind...

28x more effective at trapping heat in atmosphere than CO2
What should we do about it?
How much waste do you generate?

At Home? School? Work?
Total Municipal Solid Waste Generation by Material in 2013

- Paper: 27%
- Food: 14.6%
- Yard trimmings: 13.5%
- Wood: 6.2%
- Plastics: 12.8%
- Metals: 9.1%
- Glass: 4.5%
- Rubber, leather & textiles: 9%
- Other: 3.3%

254 Million Tons (before recycling)
Group Brainstorm

The types of waste generated in your workplace:

The Operating Room

(5 min)
How much waste is being produced?

U.S. Hospitals: 5.9M+ tons per year

Per staffed bed: 26 lbs in 1 day

The OR: 20-30% of hospital’s total waste

Waste is expensive! $10B annually in disposal costs across the industry

[1] Huffington Post  
[4] Sustainability Roadmap
Hospitals produce all industries’ types of waste:

- Food
- Facilities
- Lab
- Medical
- Office
- General Public
Medical Waste Treatment

- Autoclaving
- Incineration
- Microwaving
Environmental Impact of the Healthcare Industry
Climate Change & the Vulnerability of Public Health

**Exposure**
Exposure is contact between a person and one or more biological, psychosocial, chemical, or physical stressors, including stressors affected by climate change.

**Sensitivity**
Sensitivity is the degree to which people or communities are affected, either adversely or beneficially, by their exposure to climate variability or change.

**Ability to Adapt**
Adaptive capacity is the ability of communities, institutions, or people to adjust to potential hazards such as climate change, to take advantage of opportunities, or to respond to consequences.

**Vulnerability of Human Health to Climate Change**

**Health Outcomes**
Injury, acute and chronic illness (including mental health and stress-related illness), developmental issues, and death.
Examples of Climate Change Vulnerability

<table>
<thead>
<tr>
<th>EXPOSURE</th>
<th>SENSITIVITY</th>
<th>ABILITY TO ADAPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-income populations may be exposed to climate change threats because of socioeconomic factors. For example, people who cannot afford air conditioning are more likely to suffer from unsafe indoor air temperatures.</td>
<td>Pregnant women are sensitive to health risks from extreme weather such as hurricanes and floods. These events can affect their mental health and the health of their unborn babies by contributing to low birthweight or preterm birth.</td>
<td>Older adults may have limited ability to cope with extreme weather if, for example, they have difficulty accessing cooling centers or other support services during a heat wave. Heat-related deaths are most commonly reported among adults aged 65 and over.</td>
</tr>
<tr>
<td>Occupational groups such as first responders and construction workers face more frequent or longer exposure to climate change threats. For example, extreme heat and disease-carrying insects and ticks particularly affect outdoor workers.</td>
<td>People with pre-existing medical conditions, such as asthma, are particularly sensitive to climate change impacts on air quality. People who have diabetes or who take medications that make it difficult to regulate body temperature are sensitive to extreme heat.</td>
<td>People with disabilities face challenges preparing for and responding to extreme weather events. For example, emergency or evacuation instructions are often not accessible to people with learning, hearing, or visual disabilities.</td>
</tr>
<tr>
<td>People in certain locations may be exposed to climate change threats, such as droughts, floods, or severe storms, that are specific to where they live. For example, people living by the coast are at increased risk from hurricanes, sea level rise, and storm surge.</td>
<td>Children are more sensitive to respiratory hazards than adults because of their lower body weight, higher levels of physical activity, and still-developing lungs. Longer pollen seasons may lead to more asthma episodes.</td>
<td>Indigenous people who rely on subsistence food have limited options to adapt to climate change threats to traditional food sources. Rising temperatures and changes in the growing season affect the safety, availability, and nutritional value of some traditional foods and medicinal plants.</td>
</tr>
</tbody>
</table>
Hospital Waste

15% Regulated Medical Waste

85% Non-Hazardous Waste

Today’s focus

UCSF Sustainability
Reprocessing Single-Use Medical Devices

- Cleaned & sterilized w/o impairing function
- 3rd party processors
- Resold for ~50% of original price
- Requires FDA clearance before remarketing
- Reusing as an alternative to recycling or landfilling
<table>
<thead>
<tr>
<th>Company</th>
<th>11-12 lbs</th>
<th>12-13 lbs</th>
<th>13-14 lbs</th>
<th>14-15 lbs</th>
<th>11-12 $Saved</th>
<th>12-13 $Saved</th>
<th>13-14 $Saved</th>
<th>FY14-15 $Saved</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hygia</strong> (non-invasives) - SCDs, BP cuffs, infuser bags, somatic sensors, tourniquets</td>
<td>2462</td>
<td>3592</td>
<td>11,234</td>
<td>16,693</td>
<td>78,755</td>
<td>106,266</td>
<td>72,628</td>
<td>42,233</td>
</tr>
<tr>
<td><strong>Masimo</strong> (Non-invasives) – Adult and pediatric pulse oximeters</td>
<td>0</td>
<td>5552</td>
<td>11,163</td>
<td>Est 11,163</td>
<td>0</td>
<td>21,355</td>
<td>36,764</td>
<td>Est 36,764</td>
</tr>
<tr>
<td><strong>Stryker</strong> (invasives) - Harmonic scalpels, arthroscopic shavers, burrs, US and EP catheters, suture passers, pressure infusion bags</td>
<td>11,863</td>
<td>14,664</td>
<td>10,349</td>
<td>16,966</td>
<td>594,737</td>
<td>813,904</td>
<td>822,074</td>
<td>962,197</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>14,325</td>
<td>15,041</td>
<td>32,746</td>
<td>44,822</td>
<td>673,792</td>
<td>903,336</td>
<td>931,466</td>
<td>1,041,194</td>
</tr>
</tbody>
</table>

**FY 2016-17**

62K lbs diverted
$1.167M saved
San Francisco, CA

**Customized signage**

**OR Recycling**

- Replaced 40 packets x 40 pages per day
- Preference cards (4-8 pages x 50-70 surgeries)
- Accessible on all intranet computers & tablets

**FY17 Diversion Rate:** 49%

**Currently exploring:**
- Default double-sided printing
- Reusable isolation gowns

**Automated OR schedule display**

**Paper towel compost in bathrooms**
Roseville, CA and more!

- Recycled over 10 tons of blue wrap (averaging 2500 lbs/month)
- Electronic medical record system has helped save over 1k tons of paper waste and 200,000 lbs of x-ray film/yr
- Reprocessed, sold, and recycled their old medical equipment and devices
- In LA medical centers, saved over $8M by reducing spending on waste disposal and device purchasing
● Throwing away 45 lbs of plastic, blue wrap, and white cardboard every day.
● A nurse in the OR worked closely with the hospital’s sustainability coordinator to develop a system for recycling.
● Recycling bins were placed just outside of OR to reduce risk of contamination.
● Before the patient is brought into the OR, nursing staff separate the plastic and cardboard into the bins.
• Emory hospitals began assembling their own surgery kits, using trays that can be sterilized and reused, packed with only the instruments and supplies that will actually be used.
• In 2014, Emory diverted more than 12,000 pounds of these and other devices from the landfill.
• Emory has partnered with MedShare to donate these to needy medical facilities, where they can be used rather than discarded.
Reduced volume of Regulated Medical Waste (RMW) sent to incineration

- Reviewed facility definition of RMW
- Waste inspection
- Bins standardized across procedural rooms
  - Reduced RMW bin size
  - Added 30-gal trash & recycling bins
- Signage & education improved sorting
- RMW reduced by 30% from 2001-2012

Costs up to 10x more than regular solid waste disposal & 30x more than recycling
Some other ways to tackle the waste stream:

- Reusable sharps containers
- Form a green team
- Increase access to recycling/compost & clearly labeled bins
- Eliminate styrofoam foodware
- Donate surplus medical supplies
Benefits of Hospitals Reducing Waste

Decreases

- Cost
- Time
- Storage
- Environmental Impact

Increases

- Efficiency
- Employee engagement
- Satisfaction
- Retention rates
- Good public image
- Relationships with local partners
The Ripple Effect
And, as an individual...
here are some things you can do to reduce your own waste & environmental impact!

- Know your curbside program
- Second hand shopping
- Reusables!

500M straws used everyday in the U.S.
Extra Resources

Green Healthcare

➔ Practice Greenhealth http://practicegreenhealth.org/topics/less-waste
➔ UCSF Greening the Medical Center http://sustainability.ucsf.edu/greening_the_medical_center
➔ Sustainability Roadmap for Hospitals http://www.sustainabilityroadmap.org/
➔ Healthier Hospitals http://healthierhospitals.org/

Zero Waste Lifestyle

➔ Going Zero Waste https://www.goingzerowaste.com/
➔ Trash is for Tossers http://trashisfortossers.com/
➔ Zero Waste Home https://zerowastehome.com/
Thank you!

Post-Survey Time