What does it cost and why does it matter?

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Disclosures
• none

Does Waste Matter?
• UWHC Environmental Services measures 356,940 lbs trash per month (= 178 tons)
The impact of waste

- United States hospitals produce more than 7000 tons of waste per day (~ 14 mil lbs)
- The cost of waste disposal accounts for approximately 20% of a hospital's environmental budget

Ways to reduce waste

Supplies
- Inhalational agents
- Pharmaceuticals

What do we spend?

Typical periOP expense budget:
- Supplies > 50%
- 35% = salaries & benefits non-physician staff
What we waste

May + June 2012:
$5585.98
(unused, discarded supplies)
Projected to be over
$30,000.00/year!

ET tube: $1.62 x 129 = $209
Bair: $6.10 x 16 = $98
SpO2: $8.58 x 17 = $146
Stylette: $2.26 x 73 = $165

Projected to be over $7,400/year!

Supply choice

Choosing classic vs. supreme LMA when appropriate
= projected $15,600 cost savings

5 (per day) x 5 (days/ wk) x 52 (wk/year) = 1300 LMA s x $ 12
= $15,600
Reusable vs. Disposable


$1.60/use cost difference
Reusable LMA has < 50% ecological impact

8320 annual cost difference:
20 (per day) x 5 (days/week) x 52 (weeks/year) = 20 (per day) x 5 (days/week) x 52 (weeks/year) = 5200 LMAs x 1.60 ea = $8320

How do you motivate?

Does it affect you personally?
### Waste reduction = more money to spend in other ways

<table>
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<th>Support money losing, but necessary areas of the hospital</th>
<th>New and modern equipment</th>
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### What could $13,200 buy?

- 1886 sandwiches = $13,200

[http://www.youtube.com/watch?v=13tnjh3dq4](http://www.youtube.com/watch?v=13tnjh3dq4)
Fabulous Prizes

One Bottle of Desflurane

Intubating Stylet
Double Lumen ET

ORGANIC CHEMISTRY
floromethyl hexafluorisopropyyl ether

Sevoflurane

DDT
2,4-D

Chlorinated hydrocarbons
Chlorofluorocarbons

Freon 113a
Anesthesia Gas

- Halogenated compounds
  - Comparative GWP* to CO₂ (by definition = 1)
    - 1230 (isoflurane)
    - 1980 (sevoflurane)
    - 3714 (desflurane)
- Nitrous oxide
  - 300 times the GWP of CO₂
  - Atmospheric life time of 114 years
- Environmental impact awareness
- Consider flow reduction, gas choice


Anesthesia Greenhouse Gasses

- Environmental impact awareness
- Consider flow reduction, gas choice


Multi-Disciplinary Initiative

- 12000 lbs waste diverted
- 75% ↓in red bag waste
- 500 lbs alkaline batteries
- 2.7 mil ltrs water saved
- CO₂ emissions ↓234.3 tons


Total annual savings: $158000
Where does the waste gas go?

No worker should be exposed to concentrations of WAGs > 2 parts per million (ppm) of any halogenated anesthetic agent, based on the weight of the agent collected for a 45-liter air sample by charcoal adsorption over a sampling period not to exceed one hour.

Gas Waste Reduction

Vaporizer Labels

QRC smart link: anesthesia.wisc.edu

CO₂ Emissions Reduction

What about Propofol?

Pros
• Less greenhouse gas emissions than inhalational anesthetics

Cons
• Required plastic tubing
• Potential water and land contamination

Assumes 33,000 cases per annum and no change in N₂O use (excludes new facility opened halfway through fiscal year)

Calculations courtesy of Jodi Sherman
Awareness and Education

- This savings effect does not persist beyond the study period


Continuing Education

Regular educational events and reminders
Continue to provide excellent patient care and education
Keep measuring and finding ways to reduce Voluntary / non-punative
Fun interventions, rewards for best practices
Save money, reduce waste, have fun, feel good, spend money on fun stuff….

Myth Busting

I really need to be ready for my case...
I’m an educator and shouldn’t be bound by cost...
I like to do it this way...
Why do we throw it away?
Can’t we just send it to Honduras?
I provide really excellent care….
How can we make a difference?

Start Something!

Resources

- anesthesia.wisc.edu: download vaporizer labels, recycling signs, literature links
- medicine.yale.edu/anesthesiology: Inhaled Anesthetic Climate Initiative
- www.asahq.org: ASA Task Force on Environmental Sustainability
- www.practicegreenhealth.org: Practice Greenhealth
- www.cleanmed.org: Practice Greenhealth conference
- www.healthierhospitals.org: Healthier Hospitals Initiative