Driving Health through Environmentally Preferable Purchasing

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Office of Sustainability
“Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment.”

-Environmental Protection Agency
The Triple Bottom Line

People + Planet + Profit

Society + Ecology + Economy

In order for something to be truly sustainable, its economic, environmental and social impacts must be considered and reconciled.

**People**
- **Goal:** To provide a nurturing community that supports businesses & workers
- **Applies to:** Individuals, society & future generations
- **Includes:** Basic human rights, resource availability, fair wages, labor standards, social equality, fair trade

**Planet**
- **Goal:** To maintain a viable natural environment capable of sustaining human life
- **Applies to:** The natural environment
- **Includes:** Use of sustainable environmental practices, reduction of environmental impact, preservation of natural resources

**Profits**
- **Goal:** Provide sufficient income, develop a strong brand and build reliable relationships
- **Applies to:** Individuals, businesses & society
- **Includes:** Direct economic value created (profit/loss), and also any secondary economic benefits that support the community
The Quadruple Bottom Line

**People**

- Patient Experience:
  - Higher quality food
  - Air without irritating chemicals
  - Unobtrusive cleaning practices
  - Availability of waste containers and recycling
  - Knowledgeable staff
  - Ease of transportation to and from facility

**Planet**

- Patient Access:
  - No money, no mission: Every dollar saved is one invested back into patient care, & research
  - Financial savings from susty used to expand Inova’s care network
  - Costs significantly more to get one new dollar of income than to achieve one dollar in savings

**Profit**

- Patient Outcomes:
  - Optimal building design to impact healing time (single-patient rooms, views of nature, access to sunlight)
  - Chemical avoidance in medical products & building materials
  - Healthy, nutritious foods
  - Targeting antibiotic resistance

**PATIENTS**

Financial savings from susty used to expand Inova’s care network.

Costs significantly more to get one new dollar of income than to achieve one dollar in savings.

Targeting antibiotic resistance.
Connecting Environment and Health

Fundamental shift in thinking:
What are we doing to our environment?
↓ ↓ ↓ ↓
What is our environment doing to us?
“There are some 30,000 chemicals in common use today, any one of which may be released into the environment during processing or use. Fewer than 1% of these have been subject to a detailed assessment in terms of their toxicity and health risks.”

David Briggs, Environmental Pollution and the Global Burden of Disease

**Used in our:**
- Buildings
- Medical products
- Cleaning supplies
- Food production system
- Food packaging system
- Pharmaceuticals
- Personal care products
- Clothing/bedding/textiles
- Electronics
- Water supplies
Exposure Through Pollution

- Even relatively low concentrations of air pollutants have been related to a range of adverse health effects.
- The health effects of pollution impact more than 100 million people worldwide – more widespread than global pandemics such as AIDS.
- In some of the world’s worst polluted places, babies are born with birth defects, children have lost 30 to 40 IQ points, and life expectancy may be as low as 45 years because of cancers and other diseases.
- Forty percent of America’s rivers and 46% of America’s lakes are too polluted for fishing, swimming or aquatic life.
- Inhaling traffic-related air particles has been linked to increased risk of stroke within 12-14 hours of breathing them.
- Even low levels of ozone and particle pollutants increase the risk of hospital treatment for pneumonia and COPD.
- A growing body of evidence suggests breathing pollution from heavy traffic may cause new cases of asthma in children.
- Minorities and lower income groups are disproportionately affected by health issues related to air and traffic pollution.
Climate Risk #4: Air Quality

Warmer temperatures lead to more ground-level ozone & high-ozone days.

Ground-level ozone damages lung tissue, reduces lung function & inflames airways.

Warmer temperatures also lead to longer spring pollen season and more severe allergy symptoms.

In 2013, the DMV region was ranked as the 9th most polluted city in America in terms of ozone pollution.

<table>
<thead>
<tr>
<th>Air Quality Guide for Particle Pollution</th>
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<tbody>
<tr>
<td>Good</td>
</tr>
<tr>
<td>Moderate</td>
</tr>
<tr>
<td>Unhealthy for Sensitive Groups</td>
</tr>
<tr>
<td>Unhealthy</td>
</tr>
<tr>
<td>Very Unhealthy Alert</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>GROUPS AT RISK</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Total Population:</td>
<td>8,670,587</td>
</tr>
<tr>
<td>Pediatric Asthma:</td>
<td>191,397</td>
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<tr>
<td>Adult Asthma:</td>
<td>577,502</td>
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<tr>
<td>COPD:</td>
<td>285,948</td>
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<tr>
<td>Cardiovascular Disease:</td>
<td>2,191,845</td>
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<tr>
<td>Diabetes:</td>
<td>628,493</td>
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<tr>
<td>Children Under 16:</td>
<td>2,025,927</td>
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<tr>
<td>Adults 65 &amp; Over:</td>
<td>954,445</td>
</tr>
<tr>
<td>Poverty Estimate:</td>
<td>808,337</td>
</tr>
</tbody>
</table>

Learn More

- Risks to the population
- Risks to people with Asthma
- Risks to people with COPD
- Risks to people with Cardiovascular Disease
- Risks to people with Diabetes
- Risks to children and teens
- Risks to older adults
- Risks to people with low income
Medical products designed to heal contain harmful and sometimes toxic chemicals that patients, visitors & healthcare workers are then exposed to.

The Worst Offenders

**Mercury**
- A potent neurotoxin that can harm the brain, spinal cord, kidneys, and liver
- **Used In**
  - Thermometers
  - Sphygmomanometers
  - Dental Amalgam
  - Lab Chemicals
  - Preservatives
  - Fluorescent Lamps
  - Computer Equipment

**DEHP/ Phthalates**
- Can leach into patients, leading to adverse effects on the liver, reproductive tract, kidneys, lungs and heart
- **Used In**
  - Medical products made from soft PVC plastic, including:
    - IV Bags and Tubing
    - Catheter tubing
    - Feeding sets
    - Respiration Equipment

**Flame Retardants**
- Build up in the body over time, toxic to humans, linked to reproductive and developmental health impacts
- **Used In**
  - IV pumps
  - Televisions
  - Computers
  - Hospital Beds
  - Waiting Room Chairs
  - Hospital Privacy Curtains

**BPA**
- A hormone-disrupting chemical that can have health effects at extremely low exposure levels
- **Used In**
  - Hard plastics, including:
    - Food and Drink Packaging
    - Compact Discs
    - Infant Bottles
    - Impact-Resistant Safety Equipment
    - Medical Devices
Chemical Exposure: The Body

Umbilical cord blood analysis finds average of 200 chemicals in each newborn:
- 180 cause cancer in animals or humans
- 217 are toxic to the brain and/or nervous system
- 208 cause birth defects or abnormal development in animals

Recommended that pediatricians “familiarize themselves with the potential adverse health effects of chemicals in the environment.”

“The true burden of environmentally-induced cancer has been grossly underestimated.”

Hazardous Chemicals in Health Care
A Snapshot of Chemicals in Doctors and Nurses

- Doctors and nurses tested for 62 chemicals found in healthcare setting
- At least 24 found in each participant; connected to:
  - Miscarriage
  - Infertility
  - Cancer
  - Obesity
  - Heart Disease
  - Thyroid dysfunction
  - Diabetes
  - Learning, memory & behavior disorders
  - Hormone & immune disruption
The Product Life Cycle

1. Raw materials extraction
2. Materials processing
3. Manufacturing & assembly
4. Use
5. End of life disposal
6. Recycling
7. Landfilling
Three Verticals for the Office of Sustainability

- Operational Focus
- Strategic Planning
- Stakeholder Engagement
Environmental Impact

- Energy
- Water
- Waste
- Purchasing
- IT
- Food
- Buildings
- Transportation
Healthier Hospitals Initiative

- Established Brand
- Framework for Sustainability
- Data Driven Change
- Engaged Community

Modern Healthcare

- 900 Hospitals
- 20% Hospital Associations
- 500 Sponsoring Hospitals

- >50 million lbs of recycling
- $32 M in savings from reprocessing.
- ~$9 million spent on local sustainable food

All Major Stakeholders in Food Supply Chain

Tools and Resources

Engaged Leadership

How to Guide
Inova hospitals used 149,266,657 kilowatt hours of electricity and 72,053,300 therms of natural gas in 2013.

That’s enough to power 44,243 single-family homes for a year (or a city more than three times the size of Manassas).

It’s also the annual pollution equivalent to 102,087 vehicles.
The Issue: Waste

US hospitals generate **5.9 million tons** of waste annually.

Inova generates **15,840,000 lbs** of waste per year – that’s around **1,000 lbs of waste per employee**!

Americans make up only **5% of the world’s population**, but produce almost **25% of its trash**.

**Landfills.** Even the best-run landfills generate **harmful air emissions** that reduce air quality and lead to the formation of harmful smog. They also have the potential to **leach liquids and toxins** into the ground and water supplies.

**Incineration.** The burning of waste releases pollutants into the environment. Some of these are **highly toxic** and can cause health problems **including cancer, immune system damage, reproductive and developmental problems, and motor, sensory and cognitive function impairment**. Many incinerators use pollution control equipment to remove pollutants from the air, but this only moves these toxins from one medium to another.

**Environmental pollution.** Waste often enters the environment as litter. A disproportionate amount of this litter makes its way to the world’s poorest regions, who are least-equipped to manage it responsibly. As a result, the chemicals contained in waste **can contaminate the environment and the humans living in it**. Litter also harms the health of the delicate marine ecosystems that form the base of our food chain.

**Transport and treatment** of waste also have large environmental impacts because they rely on energy produced by fossil fuels. The **millions of miles logged** by waste transport trucks annually contribute to **air pollution** problems **across the country**.
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