Chemical Footprint of Products Commonly Used in Pediatrics Departments
Overview

- From chemical hazards to chemical footprints to Chemical Footprint Project Survey
- Report method & findings: *Chemical Footprint of Products Commonly Used in Pediatric Patient Rooms*
Chemicals of High Concern (CoHCs): CMRs, PBTs, endocrine disruptors, and equivalent compounds
Chemicals of High Concerns (CoHCs): count and/or mass
FIGURE ES-2  Estimated Chemical Footprint of IV Bags Made from PVC/DEHP and Polyolefins

PVC

3
31%

Polyolefins

0
0%

<table>
<thead>
<tr>
<th>Number of Chemicals of High Concern</th>
<th>Chemicals of High Concern by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVC = Polyvinyl chloride; DEHP = di(2-ethylhexyl) phthalate</td>
<td></td>
</tr>
</tbody>
</table>

Evaluating the Chemical Footprint of Plastics
Chemicals of High Concerns (CoHCs): count and/or mass
GOJO: How we pioneered our chemical footprint reduction target

Nicole Koharik
Thursday, November 17, 2016 - 12:24am
Walmart Aims To Cut 55 Million Pounds Of Chemicals From Store's Products

10/06/2017 - 9:55am  3 Comments  by Meagan Parrish
Chemical Footprint Project (CFP) Survey Score: Four Pillars
Responders to the CFP Survey

Companies Disclosing Their Participation in the 2016 CFP Survey

adidas AG
Alima Pure
Angelica Corporation
Beautycounter
Becton Dickinson and Co. (BD)
Case Medical, Inc.
Construction Specialties, Inc.
GOJO Industries, Inc.
Herman Miller, Inc.
HP Inc.
Inpro Corporation
Johnson & Johnson
Kimball Hospitality Inc.
Levi Strauss & Co.
nora systems, Inc.
Radio Flyer
Replenish
Seagate Technology PLC
Sealed Air Corporation
Seventh Generation
Wal-Mart Stores, Inc.
WaterWipes
• Demonstrate chemical footprinting in health care

• Engage three health care providers at different levels

• Inform purchasing decisions and supplier engagement
Chronic Disease Burden from Chemicals

- 5% of childhood cancer*

- 10% of children’s neurodevelopmental disorders* (e.g., ADHD, autism -- 1 in 6 children diagnosed with neurodevelopmental disorder)

- 30% of childhood asthma**

* Mt. Sinai School of Medicine Center for Children’s Health and the Environment
** European Commission
Pediatric Product Survey: Priority Products

Moderate to high potential for exposure:

- “In” patients: endotracheal tubes, nasogastric tubes, catheters, etc.
- “On” patients: personal care products (lotions, shampoos), beds, chairs, etc.
- “Around” patients: cleaning / disinfecting products
Products in Pediatric Patient Rooms: Suppliers Contacted & Replied

- Contacted
  - 62 suppliers
  - 358 products

- Replied
  - 50 suppliers
  - 253 products
    - Medical supplies (185)
    - Personal care products (50)
    - Furnishings (11)
    - Cleaning & disinfecting products (7)
Pediatrics Report: Chemicals of High Concern (CoHCs)

1. Antimicrobials and antibacterials
2. Bisphenol A (BPA)
3. Bromine- and chlorine-based compounds
4. EU RoHS
5. Latex
6. Metals: lead, cadmium, mercury, and organotin compounds
7. Non-halogenated flame retardants
8. Perfluorinated chemicals (PFCs)
9. Persistent, Bioaccumulative and Toxic substances (PBTs)
10. Polyvinyl chloride (PVC)
11. Phthalates
12. Proposition 65 chemicals
Executive Summary
Pediatrics Report: Products with no CoHCs

• Most needles & syringes (25 out of 28)
• Baby bottles & nipples (15 products)
• Exam gloves (6 products)
• Lotions, ointments, and lip balm (11 products)
• Most oral care products (6 out of 7)
• Diapers (5 products)
• Most skin wipes (4 out 5)
FIGURE ES-2. Number of Medical Supplies Commonly Used in Pediatric Patient Rooms that Contained and Did Not Contain Chemicals of High Concern (CoHCs)

<table>
<thead>
<tr>
<th>Product Type</th>
<th>No CoHCs</th>
<th>Yes CoHCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV Products</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>Enteral Products</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Respiratory Products</td>
<td>7</td>
<td>13</td>
</tr>
</tbody>
</table>

FIGURE ES-3. Chemicals of High Concern (CoHCs) in Medical Supplies Commonly Used in Pediatric Patient Rooms and the Number of Products that Contained Them

- Polyvinyl Chloride (PVC): 63
- Phthalates (DEHP, DIDP, DBP, and not specified): 44
- Other Prop 65 Monomers, Solvents, etc.: 24
- Bisphenol A (BPA): 8
- Latex–Natural Rubber: 7
- Antimicrobials/Antibacterials: 5
- Perfluorinated Chemicals (PFCs): 2
Pediatrics Report: CoHCs in Products

Table 12. Chemicals of High Concern (CoHCs) and the Number of Products in Pediatric Patient Rooms that Contained Them

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyvinyl Chloride (PVC)</td>
<td>70</td>
</tr>
<tr>
<td>Phthalates (DEHP, DIDP, DBP, and not specified)</td>
<td>55</td>
</tr>
<tr>
<td>Antibacterials / Antimicrobials</td>
<td>26</td>
</tr>
<tr>
<td>Prop 65 - Monomers &amp; Solvents</td>
<td>19</td>
</tr>
<tr>
<td>Latex - Natural Rubber</td>
<td>15</td>
</tr>
<tr>
<td>Bisphenol A (BPA)</td>
<td>11</td>
</tr>
<tr>
<td>Prop 65 - Unspecified or Not Listed Elsewhere</td>
<td>10</td>
</tr>
<tr>
<td>Heavy Metals (Cadmium, Lead, Mercury, or Organotin)</td>
<td>4</td>
</tr>
<tr>
<td>Bromine- / Chlorine-based Compounds</td>
<td>3</td>
</tr>
<tr>
<td>Perfluorinated Chemicals (PFCs)</td>
<td>3</td>
</tr>
<tr>
<td>Non-Halogenated Flame Retardants</td>
<td>2</td>
</tr>
<tr>
<td>EU Restriction of Hazardous Substances (RoHS)</td>
<td>1</td>
</tr>
<tr>
<td>Persistent, Bioaccumulative, &amp; Toxic (PBTs)</td>
<td>1</td>
</tr>
</tbody>
</table>
• By eliminating PVC and associated CoHCs in medical supplies, would reduce 75% of the CoHCs in medical supplies

• Products in contact with skin likely to contain antibacterials / antimicrobials (id bracelets, IV arm restraints, wash cloths, cribs)

• For every personal care product (soap, body wash, hand sanitizers, etc.) with a CoHC, there was an equivalent product with no CoHCs

• Other products with and without CoHCs: enteral feeding tubes, IV arm restraints, and IV catheters
Recommendations

- Measure chemical footprint
- Identify safer alternatives
- Reduce chemical footprint
- Systemic changes
  - Align to CoHCs
  - Use common reporting template (eg, HPD)
  - Certification
Thank You!

Questions?

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