Health Care Without Harm

How to measure and reduce plastic in healthcare

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Speakers

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About HCWH Europe

We are a non-profit European network of hospitals, healthcare systems, healthcare professional bodies, local authorities, research/academic institutions, and environmental and health organisations.

Health Care Without Harm is a global movement:

- Three regional HCWH offices (Europe, USA, South East Asia) and virtual team in Latin America
- Partners around the world (Australia, China, India, South Africa)
First, do no harm

**Vision:** Healthcare mobilises its ethical, economic and political influence to create an ecologically sustainable, equitable and healthy world.

**Mission:** Transform healthcare so that it reduces its environmental footprint, becomes a community anchor for sustainability and a leader in the global movement for environmental health and justice.
Our members in Europe

92 members in 19 countries
Global Green and Healthy Hospitals

GGHH is an international network of:

• Hospitals
• Healthcare facilities
• Health systems
• Health organisations

This worldwide community comprises **1,450 members in 72 countries**, representing the interests of over **43,000 hospitals/health centres**.
HCWH Europe Programmes

- Climate-smart Healthcare
- Sustainable Food
- Safer Pharma
- Circular Healthcare
Pilot project: Towards plastic-free healthcare in Europe

https://noharm-europe.org/towards-plastic-free-healthcare
Project description

Long-term vision: **Transforming plastic use in healthcare**

Three pillars:

- **Research** – waste audits
- **Education** – awareness raising campaign
- **Innovation** – plan to reduce plastic waste

Towards plastic-free healthcare in Europe
Audit steps*

Before the audit:
• Decide on the scope and purpose of the audit
• Identify audit site and staff resources required
• Gather necessary equipment (PPE, waste handling, weighing scales, containers, etc.)
• Collect waste for auditing
• Prepare audit site
• Brief audit team

The audit (next slide)

After the audit:
• Clean up
• Complete gathered data

*The methodology builds on the exemplary work done by HCWH Asia
Audit steps

During the audit, for each waste bag:
• Record the ward and waste stream
• Record the weight of the unopened bag
• Open the bag and remove any non-plastic items
• Separate plastic items into categories
• Weigh each item and record individual items in the data form
  • Group identical items together when weighing and recording e.g. group several drink bottles.
  • Photograph unknown items, including any visible labels for future reference
• Dispose of both plastic and non-plastic items into correct waste stream bins. Reuse the original waste bags if possible

The main categories in the database are the following, each divided into subcategories:
• Unknown
• Drink bottles
• Foodware
• Medical items
• Packaging
• Toiletry
• Other
<table>
<thead>
<tr>
<th>Department Source</th>
<th>Waste Stream</th>
<th>Type of Product</th>
<th>Product</th>
<th>Plastic</th>
<th>No Items</th>
<th>Weight of all items (g)</th>
<th>Unit weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>SN Sanitary Item</td>
<td>SN2 other sanitary item</td>
<td>MX Mixed materials</td>
<td>48</td>
<td>1159,00</td>
<td>24</td>
</tr>
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<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD11 Surgical gown / apron</td>
<td>G5 PP</td>
<td>51</td>
<td>3670,00</td>
<td>72,5</td>
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<tr>
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<td>Sanitary (18 01 04)</td>
<td>SN Sanitary Item</td>
<td>SN1 diaper</td>
<td>MX Mixed materials</td>
<td>177</td>
<td>2938,00</td>
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<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD18 other</td>
<td>MX Mixed materials</td>
<td>97</td>
<td>890,00</td>
<td>9,2</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD5 medical bottles and access</td>
<td>LS PP</td>
<td>6</td>
<td>110,00</td>
<td>18,7</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD6 Saline bottle</td>
<td>L2 HDPE</td>
<td>283</td>
<td>705,00</td>
<td>2,49</td>
</tr>
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<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD14 Wipes</td>
<td>NK unknown</td>
<td>81</td>
<td>365,00</td>
<td>4,52</td>
</tr>
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<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD2 Surgical glove</td>
<td>G9 nitrile</td>
<td>69</td>
<td>2050,00</td>
<td>29,65</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD8 Syringe and accessories</td>
<td>NK unknown</td>
<td>127</td>
<td>115,00</td>
<td>0,9</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD18 other</td>
<td>NK unknown</td>
<td>6</td>
<td>585,00</td>
<td>99,4</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD9 Tubing and accessories</td>
<td>NK unknown</td>
<td>13</td>
<td>845,00</td>
<td>63</td>
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<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD16 Oxygen mask</td>
<td>NK unknown</td>
<td>9</td>
<td>234,00</td>
<td>24</td>
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<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD7 Other sterile liquid contain</td>
<td>NK unknown</td>
<td>4</td>
<td>47,00</td>
<td>12</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD6 Saline bottle</td>
<td>MX Mixed materials</td>
<td>19</td>
<td>174,00</td>
<td>9,25</td>
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<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD7 Other sterile liquid contain</td>
<td>NK unknown</td>
<td>1</td>
<td>75,00</td>
<td>75</td>
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<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>MD Medical Item</td>
<td>MD18 other</td>
<td>NK unknown</td>
<td>1</td>
<td>5,20</td>
<td>5,2</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>PK Packaging</td>
<td>PK1 Plastic bag (non-medical)</td>
<td>G4 LDPE</td>
<td>85</td>
<td>510,00</td>
<td>6</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>PK Packaging</td>
<td>PK12 plastic film (non bag SOFT)</td>
<td>NK unknown</td>
<td>555,00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>PK Packaging</td>
<td>PK13 medical packaging</td>
<td>MX Mixed materials</td>
<td>2</td>
<td>68,00</td>
<td>20</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>PK Packaging</td>
<td>PK13 medical packaging</td>
<td>L4 LDPE</td>
<td>5</td>
<td>60,00</td>
<td>12</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>PK Packaging</td>
<td>PK13 medical packaging</td>
<td>NK unknown</td>
<td>1</td>
<td>16,00</td>
<td>16</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>PK Packaging</td>
<td>PK8 food sachet</td>
<td>NK unknown</td>
<td>1</td>
<td>4,00</td>
<td>4</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>Sanitary (18 01 04)</td>
<td>DC Drinks bottles</td>
<td>DC1 Water bottle</td>
<td>L1 PET</td>
<td>1</td>
<td>44,00</td>
<td>44</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>General (20 01 04)</td>
<td>FD Foodware</td>
<td>FD3 Drinks cup</td>
<td>LS PP</td>
<td>51</td>
<td>125,00</td>
<td>2,432</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>General (20 01 04)</td>
<td>FD Foodware</td>
<td>FD2 knife fork spoon</td>
<td>LS PP</td>
<td>64</td>
<td>115,00</td>
<td>1,8</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>General (20 01 04)</td>
<td>FD Foodware</td>
<td>FD2 plate or bowl</td>
<td>LS PP</td>
<td>47</td>
<td>355,00</td>
<td>7,5</td>
</tr>
<tr>
<td>Neonatal ICU</td>
<td>General (20 01 04)</td>
<td>MD Medical Item</td>
<td>MD12 Surgical mask</td>
<td>NK unknown</td>
<td>2</td>
<td>6,70</td>
<td>3,33</td>
</tr>
</tbody>
</table>
Waste audits – preliminary results

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Audited wards</th>
<th>Waste stream</th>
<th>Kg of waste</th>
<th>Plastic waste %</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Orthopaedic; Neurosurgery, neurology, spine and video telemetry</td>
<td>General waste</td>
<td>148.4</td>
<td>34.3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sanitary/offensive waste</td>
<td>96.9</td>
<td>68.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recycling waste</td>
<td>21.8</td>
<td>47.0%</td>
</tr>
<tr>
<td>H2</td>
<td>Adult hospitalisation (general and maternity); Neonatal; Neonatal ICU</td>
<td>General waste</td>
<td>66.3</td>
<td>9.8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sanitary/offensive waste</td>
<td>341.2</td>
<td>49.4%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recycling waste</td>
<td>10</td>
<td>65.6%</td>
</tr>
<tr>
<td>H3</td>
<td>Neonatal; Gastroenterology</td>
<td>General waste</td>
<td>68.9</td>
<td>60%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recycling waste</td>
<td>7.4</td>
<td>83%</td>
</tr>
<tr>
<td>H4</td>
<td>Intermediate care wards</td>
<td>General waste</td>
<td>155.6</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sanitary/offensive waste</td>
<td>237</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recycling waste</td>
<td>14.6</td>
<td>19%</td>
</tr>
</tbody>
</table>

Of 1168kg of waste audited, 577.24kg, or 49.42%, was plastic*. 37% of all the plastic items analysed were mixed materials, mostly unknown or unlabelled. 18.27% were non-mixed materials of unknown plastic types.
Audit results – items found
## Audit results – items found
(percentage of total plastic waste audited*)

<table>
<thead>
<tr>
<th></th>
<th>Wipes</th>
<th>Gloves</th>
<th>Nappies</th>
<th>Gowns/aprons</th>
<th>Medical packaging</th>
<th>Syringes &amp; accessories</th>
<th>Plastic bags (non-medical)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1 (Orthopaedic, Neurosurgery, neurology, spine &amp; video telemetry)</strong></td>
<td>13.64%</td>
<td>11.7%</td>
<td>3%</td>
<td>8.91%</td>
<td>4.23%</td>
<td>2.84%</td>
<td>-</td>
</tr>
<tr>
<td><strong>H2 (General, maternity, Neonatal, Neonatal ICU)</strong></td>
<td>3.28%</td>
<td>10.24%</td>
<td>11.36%</td>
<td>4.65%</td>
<td>3.3%</td>
<td>5.02%</td>
<td>-</td>
</tr>
<tr>
<td><strong>H3 (Neonatal, Gastroenterology)</strong></td>
<td>3.41%</td>
<td>12.91%</td>
<td>13.42%</td>
<td>1.27%</td>
<td>5.01%</td>
<td>9.2%</td>
<td>7.07%</td>
</tr>
<tr>
<td><strong>H4 (Intermediate care wards)</strong></td>
<td>16.21%</td>
<td>11.53%</td>
<td>17.33%</td>
<td>7.16%</td>
<td>-</td>
<td>-</td>
<td>1.9%</td>
</tr>
<tr>
<td><strong>H5 (Neonatal ICU, Ophthalmology theatres)</strong></td>
<td>9.76%</td>
<td>13.26%</td>
<td>10.74%</td>
<td>10.11%</td>
<td>12.81%</td>
<td>5.33%</td>
<td>2.73%</td>
</tr>
</tbody>
</table>

*More detailed findings on next slide*
Audit results – items found

**Hospital 1 (Orthopaedic, Neurosurgery, neurology, spine and video telemetry)**
- Wipes: 13.64%
- Gloves: 11.7%
- Gowns/aprons: 8.91%
- Medical packaging: 4.23%
- Black trays: 4.03%
- Nappies: 3%
- Syringes and accessories: 2.84%

**Hospital 2 (General, maternity, Neonatal, Neonatal ICU)**
- Sanitary items (mainly bed pads and sponges): 12.18%
- Nappies: 11.36%
- Gloves: 10.24%
- Tubing and accessories: 7.58%
- Syringes and accessories: 5.02%
- Gowns/aprons: 4.65%
- Water bottles: 3.72%
- Medical packaging: 3.3%
- Wipes: 3.28%

**Hospital 3 (Neonatal, Gastroenterology)**
- Nappies: 13.42%
- Gloves: 12.91%
- Syringes and accessories: 9.2%
- Medical bottles and accessories: 8.71%
- Plastic bags (non-medical): 7.07%
- Medical packaging: 5.01%
- Tubing and accessories: 4.59%
- Wipes: 3.41%
- Gowns/aprons: 1.27%

**Hospital 4 (Intermediate care wards)**
- Nappies: 17.33%
- Wipes: 16.21%
- Gloves: 11.53%
- Gowns/aprons: 7.16%
- Sanitary items (mainly bed pads and sanitary pads): 4.69%
- Tubs (packaging): 3%
- Plastic film: 2.84%
- Drink cups: 2.64%
- Plastic bags (non-medical): 1.9%

**Hospital 5 (Neonatal ICU, Ophthalmology theatres)**
- Gloves: 13.26%
- Medical packaging: 12.81%
- Nappies: 10.74%
- Gowns/aprons: 10.11%
- Wipes: 9.76%
- Syringes and accessories: 5.33%
- Sterile liquid containers (others): 4.59%
- Plastic bags (non-medical): 2.73%
- Soft drink bottles: 2.48%
HCWH Europe gratefully acknowledges the financial support of the European Commission (EC)’s LIFE programme and the Flotilla Foundation. HCWH Europe is solely responsible for the content of this project and related materials. The views expressed do not reflect the official views of the EC or the Flotilla Foundation.

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