Greening the Neonatal Intensive Care Unit (NICU):
Improving Environmental Health for Patients, Staff, and the Environment

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Reducing or eliminating environmental toxicants in the hospital environment can create healthier and safer environments for patients during a time when they are extremely vulnerable.

Who is Affected by Green Building Efforts?
Hospital Community (patients, staff, visitors)
Local Community
Global Community

What are Some of the Toxicants in our Health Care Environment?

• Polyvinyl Chloride (PVC) – wide and potent range of chemical emissions throughout its life cycle
  - Wall coverings
  - Upholstery and furniture
  - Privacy and cubicle
  • Volatile organic compounds (VOCs) – gases released by materials during use and disposal
    - Gases released by building materials, furniture, and wall coverings
    - Emit at high levels shortly after installation, taper off with time
    - Dry materials emit for longer time causing more long-term exposures
  • Halogenated Flame Retardants (HFRs) – released into the environment during use and disposal
    - Some resemble PCBs
    - Released into the environment during use and disposal

Why use materials and products in the NICU that expose patients to known toxicants?

Why not switch to safer alternatives?

Newborns: Vulnerable Population
Newborn infants are highly vulnerable.

Working in Hospitals: Dangerous to Your Health?

Volatile Organic Compounds (VOCs)

- Environmental impacts of VOCs
  • Gases released by building materials: formaldehyde, benzene, toluene, ethylbenzene, xylenes (SETEX)
  - Harmful to respiratory, reproductive, nervous systems
  • Emit at high level shortly after installation, taper off with time
  • Dry materials emit for longer time causing more long-term exposures
- Health impacts of VOCs
  • Acute effects – "Sick Building" Syndrome
    - Headache
    - Eye, nose, throat irritation
  • Chronic effects
    - Liver damage
    - Kidney damage
    - Brain/nerve system damage
    - Increased cancer risk

Halogenated Flame Retardants (HFRs)

- Environmental impacts of HFRs
  • Released into the environment during use and disposal
  • Tended and utilized heavily of brominated flame retardants (BFRs) for building and furniture
  • Released into the environment during use and disposal
- Health impacts of HFRs
  • No acute toxicity
  • Chronic toxicity
    - Neurodevelopment
    - Endocrine disruption
    - Reproductive system effects
    - Immune suppression
    - Carcinogenicity

Resources

www.noharm.org
www.healthybuilding.net

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