

EDCs in Medical Devices



Medical devices often contain toxic chemicals that can leach into the body of patients:

Phthalates & Bisphenol A (BPA)

These chemicals are known to be endocrine disrupting chemicals (EDCs)^{1,2}



Exposure to EDCs is hazardous to human health and the environment^{3,4,5,6}

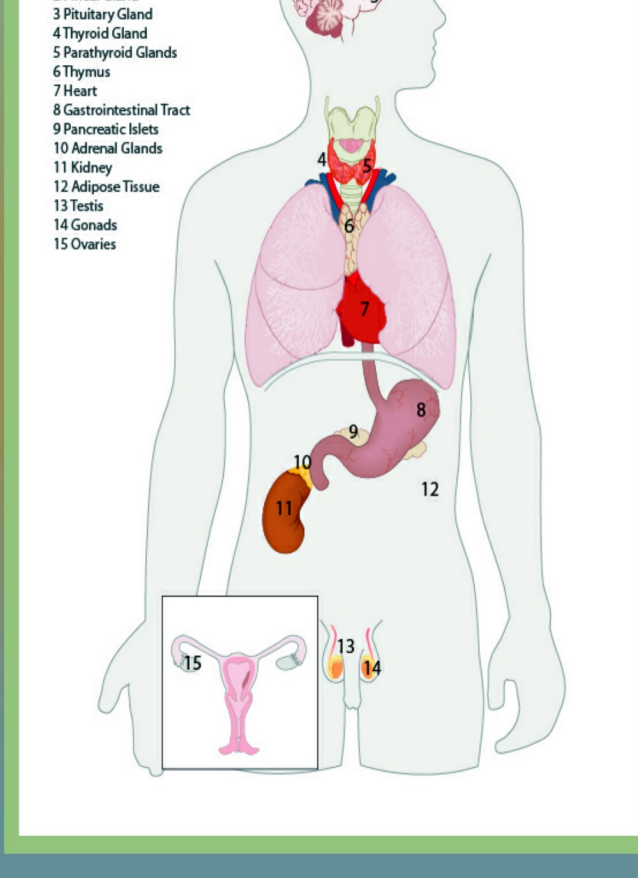
What are EDCs? And why are they Hazardous?

*"An endocrine disruptor is an exogenous substance or mixture of substances that can interfere with any aspect of hormone action"*⁷

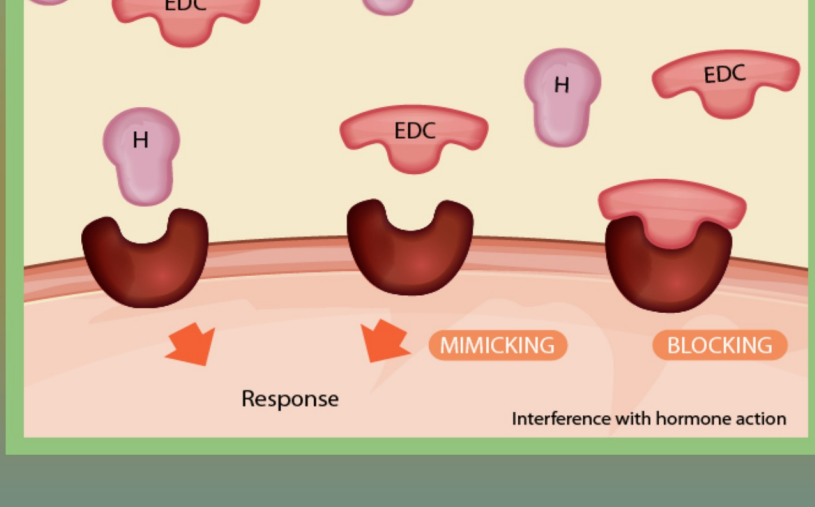
-The Endocrine Society

EDCs can interfere with the synthesis, secretion, transport, metabolism, binding action, or elimination of natural blood-borne hormones responsible for the normal functioning of the endocrine system⁸

THE ENDOCRINE SYSTEM



Binding Action Mechanism



Who is at Risk?

Vulnerable Groups:

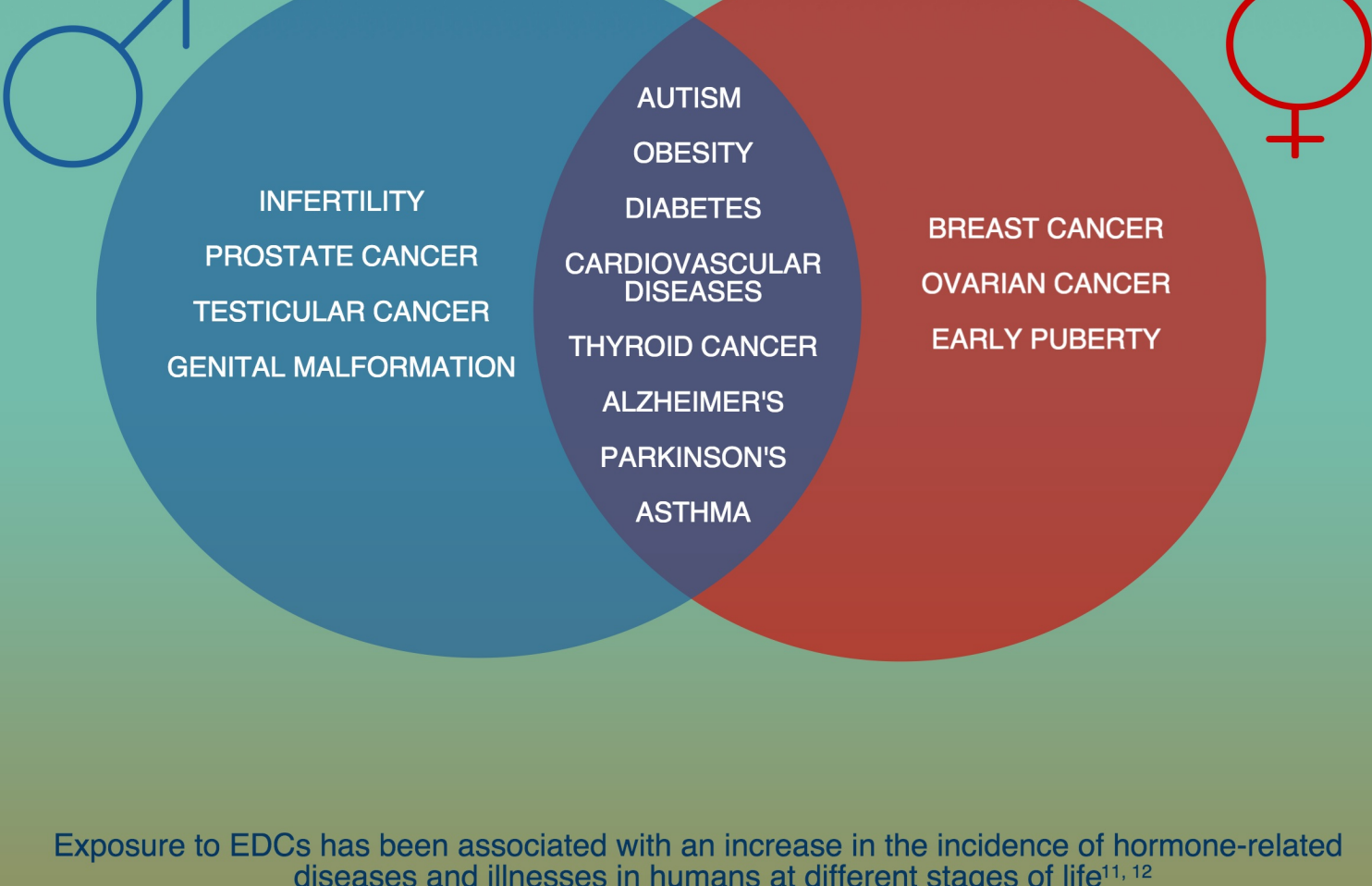
- Nursing & Pregnant Women
- Foetuses
- Neonates
- Children
- Chronic Patients

Exposure to EDCs in early life has been associated with diseases later in life⁹



Foetal and neonatal stages are the most sensitive windows of exposure to EDCs
Childhood and puberty stages are also of concern¹⁰

What are the Potential Health Problems Linked with Exposure to EDCs?



Exposure to EDCs has been associated with an increase in the incidence of hormone-related diseases and illnesses in humans at different stages of life^{11,12}

Where are EDCs found?

EDCs are everywhere, for example:

In Healthcare Facilities

MEDICAL GLOVES

Phthalates (plasticizers)

MEDICAL TEXTILES

Phthalates (plasticizers)

Polybrominated Biphenyl Ethers PCDBs (flame retardants)

FLOORING

PVC

CLEANING PRODUCTS

Glycol Ethers (surfactant)

Cyclosiloxanes (spreading agent)

Ethanolamines (emulsifier)

MEDICAL DEVICES

Phthalates BPA (plasticizers)

INTRAVENOUS TUBING & BAGS

Phthalates (plasticizers)

In the Home

AIR FRESHENERS

Phthalates (solvents)

WOOD TREATMENT PRODUCTS

Phthalates (solvents)

ELECTRICAL PRODUCTS

Polybrominated Diphenyl Ethers PCDBs (flame retardants)

FURNITURE

Polybrominated Diphenyl Ethers PCDBs (flame retardants)

CARPET

Polybrominated Diphenyl Ethers PCDBs (flame retardants)

KITCHEN APPLIANCES

Polybrominated Diphenyl Ethers PCDBs (flame retardants)

PLASTIC CONTAINERS

BPA (plasticizers)

COOKING UTENSILS

Perfluorinated Surfactants (oil and water repellent)

CANNED FOOD

Parabens (preservatives)

Towards EDC-Free Healthcare

Safer chemical alternatives to EDCs are available on the market¹³



Visit the HCWH Europe database on PVC-free and phthalates-free medical devices:

<http://safermedicaldevices.org>

Successful Case Studies

GLANZIN CHILDREN HOSPITAL NEONATAL INTENSIVE CARE UNIT VIENNA



2000 Started PVC phase-out

KAROLINSKA UNIVERSITY HOSPITAL, NEONATAL UNIT STOCKHOLM



2014 Completely phased out PVC

WESTFRIESGASTHUIS HOSPITAL PAEDIATRICS DEPARTMENT HOORN



Phased out PVC

HOSPITAL OF SOUTHERN JUTLAND PAEDIATRICS AND NEONATOLOGY DEPARTMENT



2005 Started PVC phase-out

The Way Forward

The EU must protect European citizens, especially vulnerable groups, from exposure to endocrine disrupting chemicals

Now is the opportunity to phase out EDCs in the healthcare sector by adopting strong EU Medical Device Regulation

A Selected List of the Scientific Literature:
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4. Braun et al, 2011, Pediatrics, 128(5):873-82.
5. Oehlmann et al, 2008, Environ Res 108(2):140-9
6. Flint et al, 2012, Environ Manage 104: 19-34
7. Zoeller et al, 2012, Endocrinology.
8. Diamanti-Kandarakis et al., 2009, Endocrine Society, 50 pp.
9. Bergman et al., 2013, UNEP/WHO, 2013, 260 pp.
10. Birnbaum, 2013, Trends Endocrinol Metab 24: 321-323
11. Fischer et al., 2013, J Paediatr Child Health 49: 413-419
12. Gore, A. G et al, 2015, Endocrine Reviews - <http://press.endocrine.org/doi/10.1210/er.2015-1010>
13. <https://noharm-europe.org/edcs-report>