

**Protecting children from established and uncertain
chemical threats: Tools and mechanisms for
information towards prevention**

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PHTHALATES

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Introduction

PAEs ARE A FAMILY OF INDUSTRIAL COMPOUNDS USED FOR A VARIETY OF PURPOSES, INCLUDING PERSONALCARE PRODUCTS (E.G., PERFUMES, LOTIONS, COSMETICS), PAINTS, INDUSTRIAL PLASTICS, MEDICAL DEVICES AND PHARMACEUTICALS SINCE ABOUT THE 1930s

Introduction

**PRIMARILY USED AS
PLASTICIZERS TO IMPART
FLEXIBILITY TO AN OTHERWISE
RIGID POLYVINYLCHLORIDE
(PVC)**

Types of PAEs

**DI-[2ETHYLHEXYL]-PHTHALATE
[DEHP] IS THE MOST COMMONLY
USED PLASTICIZER.**

Types of PAEs

OTHER IMPORTANT PAEs PRODUCTION- AND APPLICATION-WISE ARE:

- ✓ **DIETHYLPHTHALATE (DEP)**
- ✓ **DIBUTYL PHTHALATE (DBP)**
- ✓ **DI-ISO- AND DI-N-BUTYLPHTHALATE (DIBUP, DNBUP)**
- ✓ **BUTYL-BENZYLPHTHALATE (BBZP)**
- ✓ **DI-ISONONYLPHTHALATE (DINP)**
- ✓ **DI-N-OCTYLPHTHALATE (DNOP)**

Phthalate exposure

**AS THEY ARE NOT CHEMICALLY
BOUND TO THE POLYMER, LEACH
OUT TO THE ENVIRONMENT
THUS BECOMING UBIQUITOUS
ENVIRONMENTAL CONTAMINANTS
RESULTING IN LIFETIME AND
INTERUTERINE EXPOSURE**

Phthalate exposure

**PEOPLE CAN BE EXPOSED TO DEHP
AT MUCH HIGHER LEVELS
THAN PREVIOUSLY BELIEVED
AND THE EXPOSURE OF CHILDREN
IN TERMS OF BODY WEIGHT IS
TWICE AS HIGH AS THAT OF
ADULTS**

Koch HM, Drexler H, Angerer J. Internal exposure of nursery-school children and their parents and teachers to di(2-ethylhexyl)phthalate (DEHP). *Int J Hyg Environ Health*. 2004;207:15-22.

Childhood Exposures

Multiple Sources, including:

- **Breast Milk and Formula**
- **Household Products**
- **Cosmetic products**
- **Medical devices**
- **Dust**
- **Food...**

*Center for Devices and Radiological
Health U.S. FDA (September 2001)*

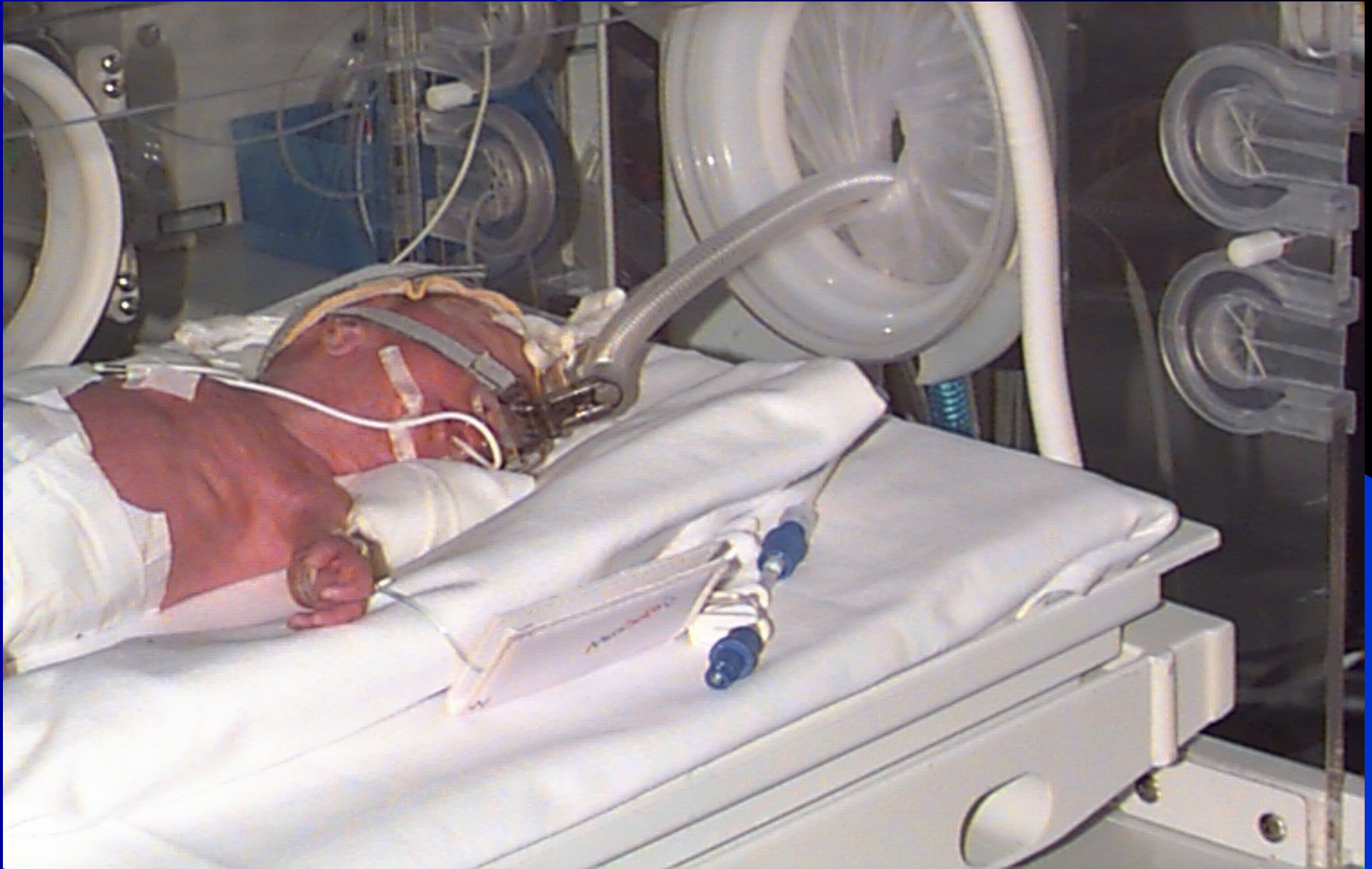
**SAFETY ASSESSMENT OF DEHP RELEASED
FROM PVC MEDICAL DEVICES**

*Center for Devices and Radiological
Health U.S. FDA*

**Neonates in the NICU
environment, due to their small
body size, their physical condition
and the multiple medical device -
related DEHP exposure ...**

*Center for Devices and Radiological
Health U.S. FDA*

**... combined with their
developmental vulnerability,
represent a population at
particularly increased risk.**



Phthalates toxicity

**PAEs CAN CAUSE
FETAL DEATH, MALFORMATIONS,
LIVER INJURY, TERATOGENICITY,
PEROXISOME PROLIFERATION
AND ESPECIALLY REPRODUCTIVE
TOXICITY IN LABORATORY
ANIMALS**

Phthalates toxicity

**MOREOVER DEHP IS SUSPECTED
TO BE AN ENDOCRINE
DISRUPTOR THROUGH
REDUCTION IN TESTOSTERONE
LEVELS AND THERE IS
CONTROVERSY AS TO WHETHER
IT IS A CARCINOGEN**

Phthalates toxicity

**THE APPLICABILITY OF THESE
TOXICITIES TO HUMANS
REMAINS INCOMPLETELY
CHARACTERIZED AND
CONTROVERSIAL**

Phthalates toxicity

A GREAT DEAL OF CONCERN HAS BEEN RAISED ABOUT THE DEVELOPMENTAL AND REPRODUCTIVE TOXICITY PARTICULARLY IN MALES.

Phthalates toxicity

**IMPAIRMENT OF FETAL
TESTICULAR TESTOSTERONE
PRODUCTION CAN LEAD TO
CRYPTORCHIDISM, HYPOSPADIAS,
AND REDUCED FERTILITY**

Phthalates toxicity

**HUMAN STUDIES ARE SCARCE,
BUT SUGGESTIVE, REPORTING IN
SOME CASES AN ASSOCIATION
BETWEEN PHTHALATE
EXPOSURE AND HEALTH RISKS,**

Phthalates toxicity

**DESPITE THE PRESENCE OF
PHTHALATE METABOLITES IN
HUMAN BODY FLUIDS DOES NOT
BY ITSELF MEAN THAT PAEs
CAUSE DISEASE.**

COMMUNICATING PREVENTION WITH RESPECT TO PAEs

Given the high risk population (children) and several important sources of phthalate exposure various efforts to communicate prevention are underway

PROVIDING INFORMATION TO PARENTS

Toys

Greenpeace and other organizations engaged in a large political and information campaign in the mid-1990s with focus on preventability of the risk

PROVIDING INFORMATION TO PARENTS

Cosmetics

Coalition for Safe Cosmetics has taken out numerous advertisements in major U.S. newspapers about the risks of PAEs to the fetus and children.

PROVIDING INFORMATION TO HEALTH PROFESSIONALS

- **Health Care Without Harm-
broad coalition working with
health care providers**
- **Its approach to “greening”
medical practice has proven
extremely successful as a
model for communicating
prevention.**

PROVIDING INFORMATION TO HEALTH PROFESSIONALS

- **Communication with nurses and doctors as well as health care provider Organizations, individual hospitals, Hospital groups, and health care purchasing organizations about PAE risks to newborns and alternatives**

PROVIDING INFORMATION TO HEALTH PROFESSIONALS

- **Commissioned scientific studies on phthalate risks and alternatives**
- **Worked within scientific societies and government agencies**

COMMUNICATING ALONG SUPPLY CHAINS

- **A key strategy that has made the PAEs' communication efforts unique is the engagement and communication with industry about the risks and alternatives.**

COMMUNICATING ALONG SUPPLY CHAINS

- Promotes prevention in face of uncertainty
 - Toys
 - Medical Devices (group purchasing organizations) and entire supply chain
 - Cosmetics
 - Building products (major manufacturers/retailers)

COMMUNICATING ALONG SUPPLY CHAINS

Toys

Greenpeace engaged the International and US Toys Manufacturers associations in discussions about phthalate risks and alternatives.

COMMUNICATING ALONG SUPPLY CHAINS

Those discussions provided information to toy manufacturers, but also raised the real potential for consumer pressure.

COMMUNICATING ALONG SUPPLY CHAINS

Many toy companies in Europe and the U.S. took the initiative to substitute PAEs in their products.

COMMUNICATING ALONG SUPPLY CHAINS

Medical devices

HCWH has been extremely successful in engaging medical device manufacturers through supply chain information dissemination and purchasing pressures.

COMMUNICATING ALONG SUPPLY CHAINS

Cosmetics

a coalition of breast cancer survivors and environmental groups engaged Cosmetics manufacturers in discussions on carcinogens and reproductive toxicants.

COMMUNICATING ALONG SUPPLY CHAINS

Building materials

a nascent coalition of architects, advocates, and public health professionals in the U.S. has begun to work on disseminating information on PAEs in construction materials

COMMUNICATING ALONG SUPPLY CHAINS

to inform on asthma and other health risks caused by building materials (the sector using more materials than any other industrial sector).

COMMUNICATING TO POLICYMAKERS

Health professionals have worked to modify US FDA and European medical device policy regarding PAEs.

THE UNIQUE VULNERABILITY OF THE FETUS AND CHILDREN TO PAEs

**Much effort was undertaken to
communicate the potential
vulnerability of neonates/children
(especially male children) to
phthalate exposure**

AGGREGATE EXPOSURE TO PAEs AS A RISK

A key information message has been the need to consider aggregate exposure to PAEs as a whole from multiple sources.

AGGREGATE EXPOSURE TO PAEs AS A RISK

This information – while not demonstrating risk – is enough to say that the possibility of harm to children exists and should be addressed.

THE EXISTENCE OF SAFER ALTERNATIVES

**The focus on safer alternatives
has been a centrepiece on the
PAEs information dissemination
message from the beginning.**

THE EXISTENCE OF SAFER ALTERNATIVES

Given the inevitability of exposure, the search for safer alternatives is fundamental to prevent exposure.

THE EXISTENCE OF SAFER ALTERNATIVES

HCWH established Clean Med conferences to allow manufacturers to highlight their alternative products as well as allow for discussions on the pros and cons of them.

THE EXISTENCE OF SAFER ALTERNATIVES

**The Lowell Center for Sustainable
Production established its
Sustainable Hospitals Clearinghouse
to provide information to hospitals,
health professionals, government
and purchasing agencies**

CONCERNS ABOUT THE PVC PLASTIC LIFECYCLE

**Concerns have been raised about
threats posed by other parts of the
PVC lifecycle**

CONCERNS ABOUT THE PVC PLASTIC LIFECYCLE

There is a need to move to more benign materials. It is a complex prevention message that has been important for discussing the PAEs.

BARRIERS AND OPPORTUNITIES

- **Multiple levels of communication about exposure, risks, and alternatives have proven successful**

BARRIERS AND OPPORTUNITIES

- **Uncertain science has been often used to justify inaction**

BARRIERS AND OPPORTUNITIES

- **Communication regarding uncertain risks should not create fear, but rather create understanding and motivate commonsense preventive activities**

*Thank you
for your attention*