

BROMINATED FLAME RETARDANTS (BFRs) IN HUMAN BREAST MILK COLLECTED FROM FIRST TIME IRISH MOTHERS, 2016 – 2018 - ELEVATE

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ELEVATE



Internal
Exposure

External
Exposure

Pharmacokinetic
models

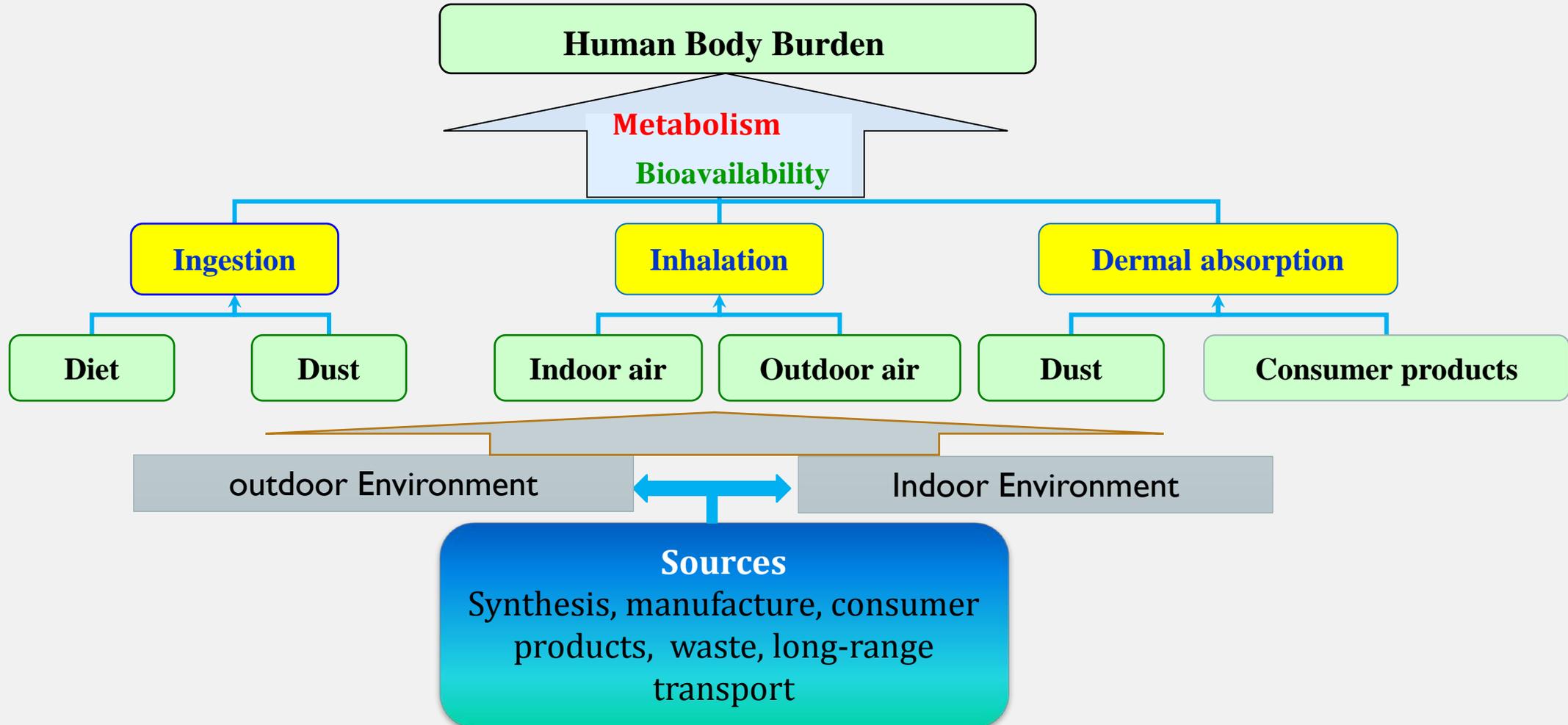
HUMAN BIOMONITORING

Objectives

- Recruit 110 primiparas from two Irish maternity hospitals
- Legacy and replacement BFRs, (Dioxins, PCBs, PFAS) in 10 pools
- Compare to previous Irish Studies (2013)* and global trends

Pratt et al., 2013;

HOW ARE WE EXPOSED TO BFRs?



BFRs- PERSISTENT ORGANIC POLLUTANTS

- UNEP - Stockholm Convention adopted in 2001
 - Eliminate
 - Restrict
 - Reduce

LEGACY BROMINATED FLAME RETARDANTS

Hexabromocyclododecane (HBCDD)

Stockholm Convention
2013
restricted use for insulation foams

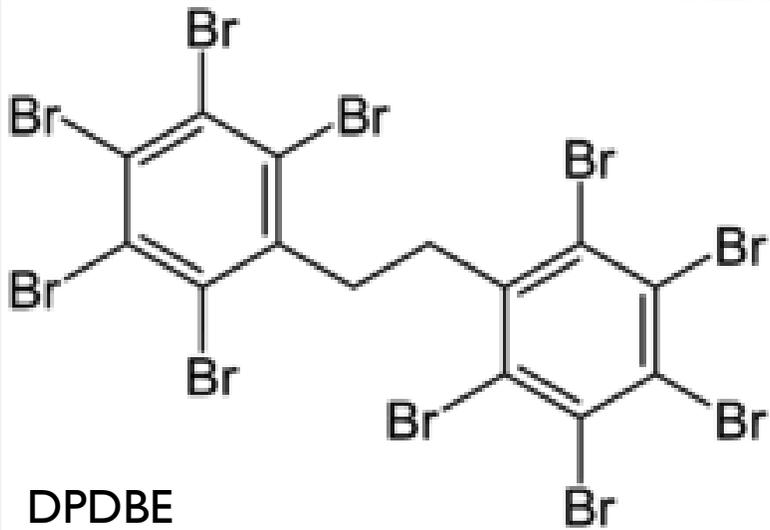


Polybrominated diphenyl ethers (PBDEs)

Stockholm Convention
2009-penta-BDE & Octa-BDE
2017- Deca-BDE



REPLACEMENT BFR- DECABROMODIPHENYL ETHANE (DBDPE)



Applications:



HUMAN BIOMONITORING 2016-18



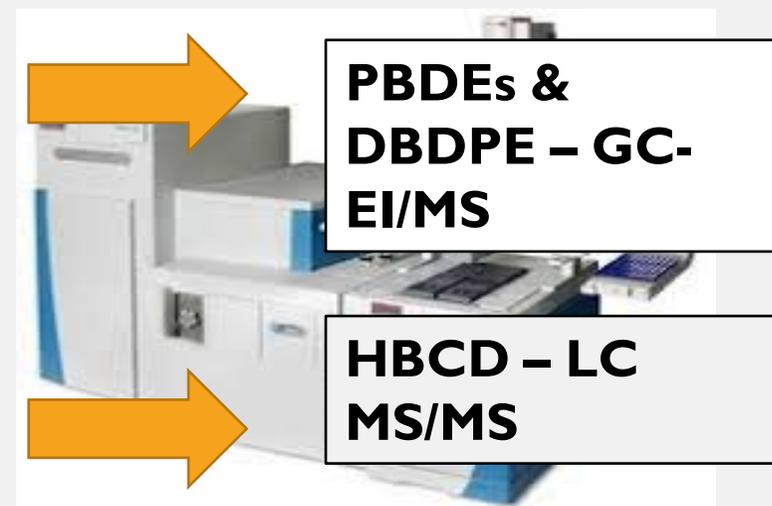
WHO Guidelines for developing a National BM programme

- ✓ First time mothers
- ✓ Exclusively feeding one child
- ✓ Residing in current geographical area for minimum of 5 years
- ✓ 40 years old
- ✓ Infant 3- 8 weeks

ANALYTICAL METHOD



1g freeze dried sample

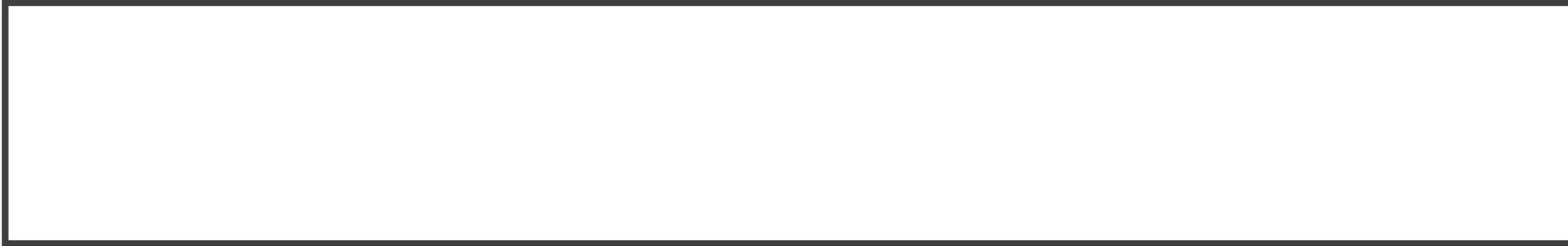


8 PBDE's (BDE # 28, 47, 100, 99, 154, 153, 183, 209; 3 HBCDDs (- γ , - α , - β), DBDPE

Tao et al., 2017; Abdallah and Harrad, 2014



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- We are in the preparing a scientific manuscript for submission to a scientific journal on the results from the HBM workpackage of ELEVATE.
- Please check our website for regular updates;
- www.nuigalway.ie/elevate

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