

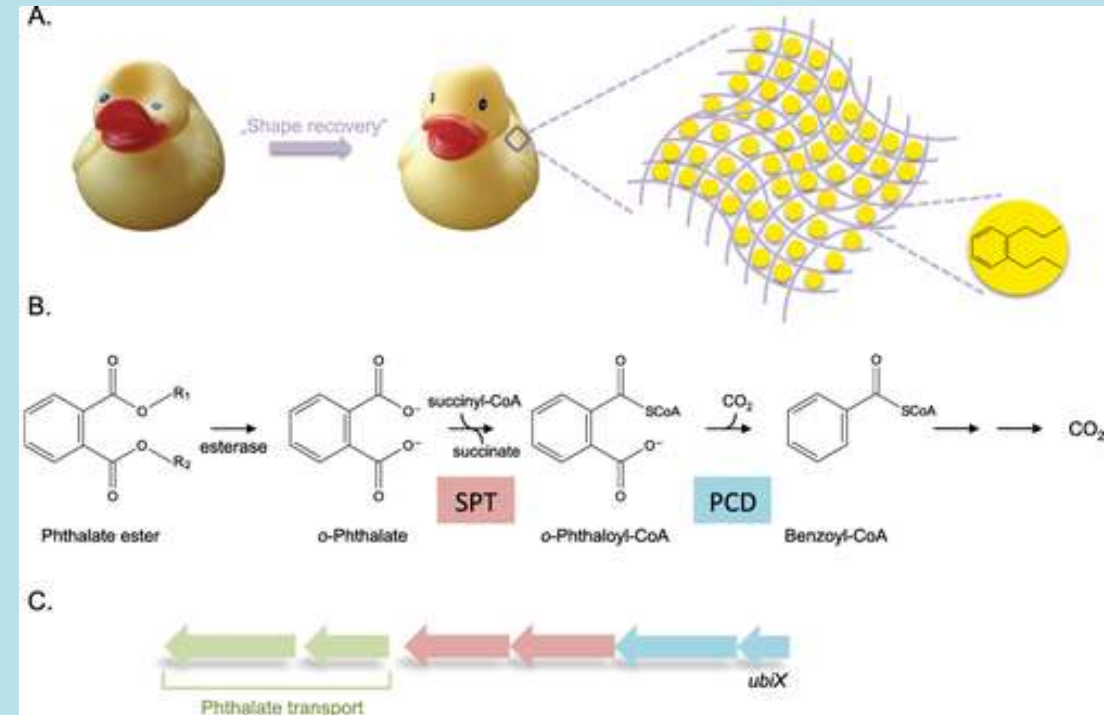
Human health impacts of phthalates uncovered by a 'review of reviews'



Dr Jacquelyn Eales

FPF webinar: Phthalates New Science

19th November 2021

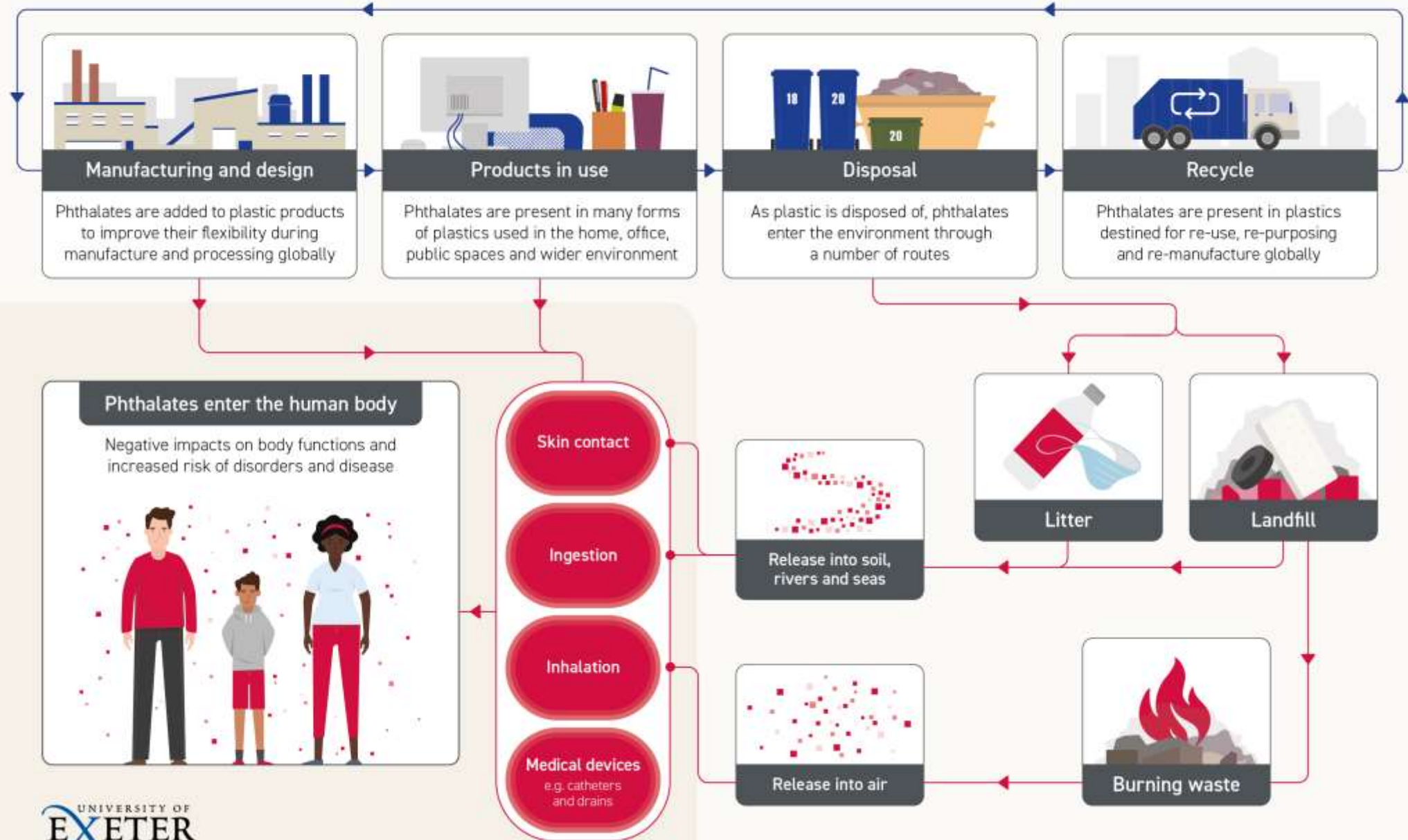


Plastics and health concerns go back decades



Phthalates are almost ubiquitous in the home and indoor environments

Phthalates in the environment reach humans via many pathways





Regulatory bodies restrict the use of known harmful additives

Keeping up with manufacturers' substitutions...



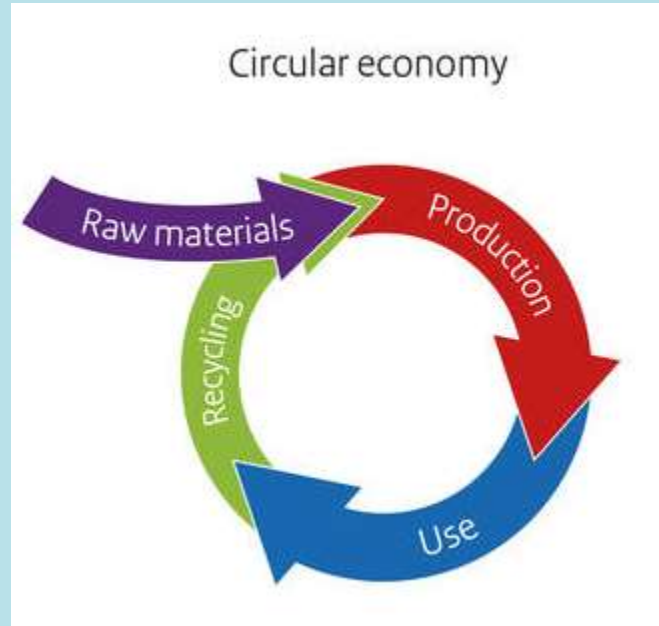
If they are regulated, why are they a potential risk?



Unregulated products



Unknown levels in recycled plastics via the circular economy....



If they are regulated, why are they a potential risk?



Increase in research and reviews- but still conflicting evidence and questions...

<https://www.sciencemag.org/news/2020/05/scientists-are-drowning-covid-19-papers-can-new-tools-keep-them-afloat>

Prof Ruth Garside



Dr Rebecca Short



Prof Peter Hopkinson



Alison Bethel



Prof Tamara Galloway



Dr Jacquelyn Eales



Prof Karyn Morrissey

Overview of reviews using
systematic methods

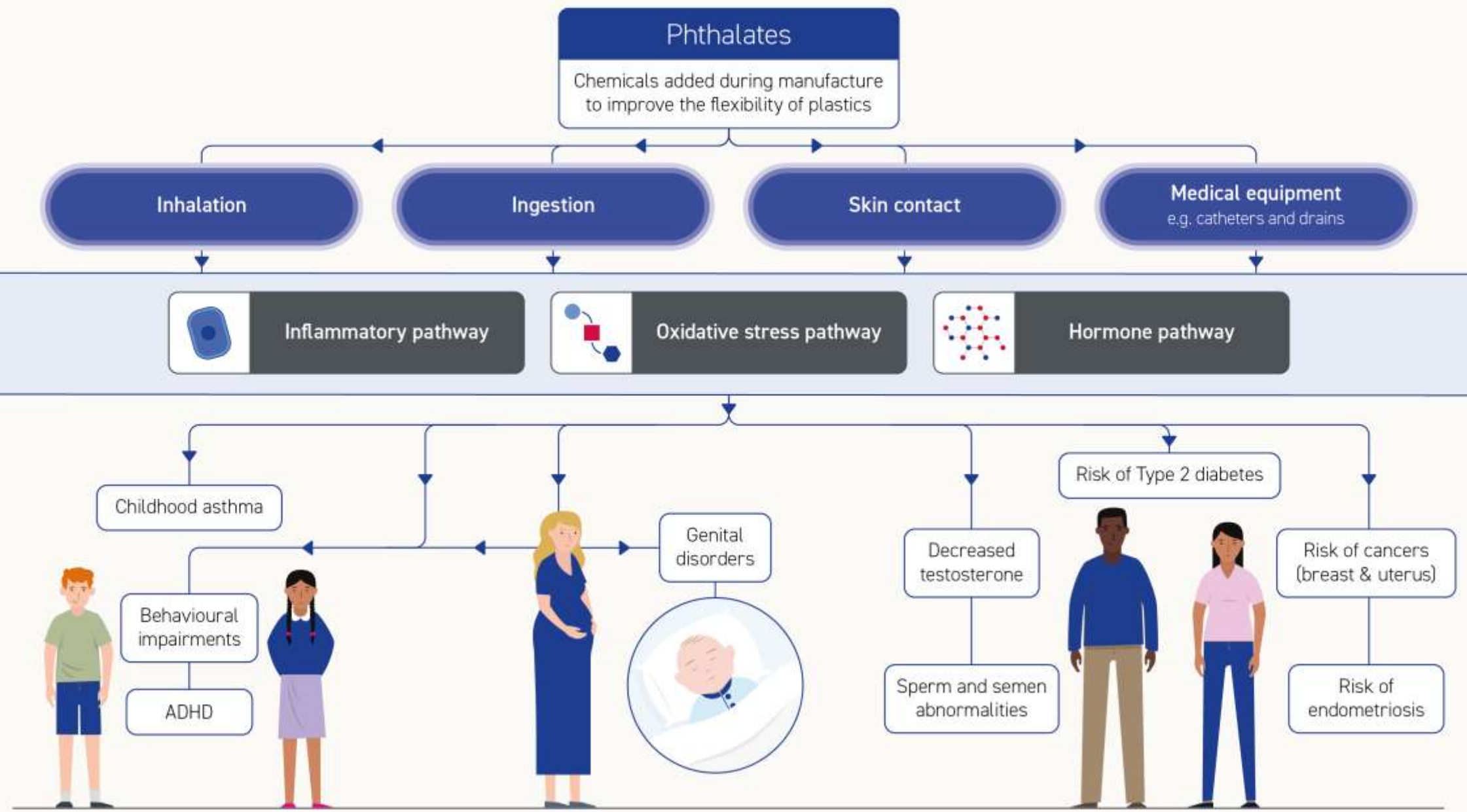




An overview of 42 structured reviews of primary epidemiological studies linking human exposure to phthalates and human health outcomes

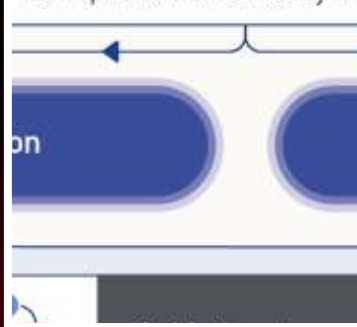


Summary finding:
People who had been exposed to phthalates had
higher risks of negative health outcomes



Phthalates

Chemicals added during manufacture to improve the flexibility of plastics



Behavioral impairment

ADHD

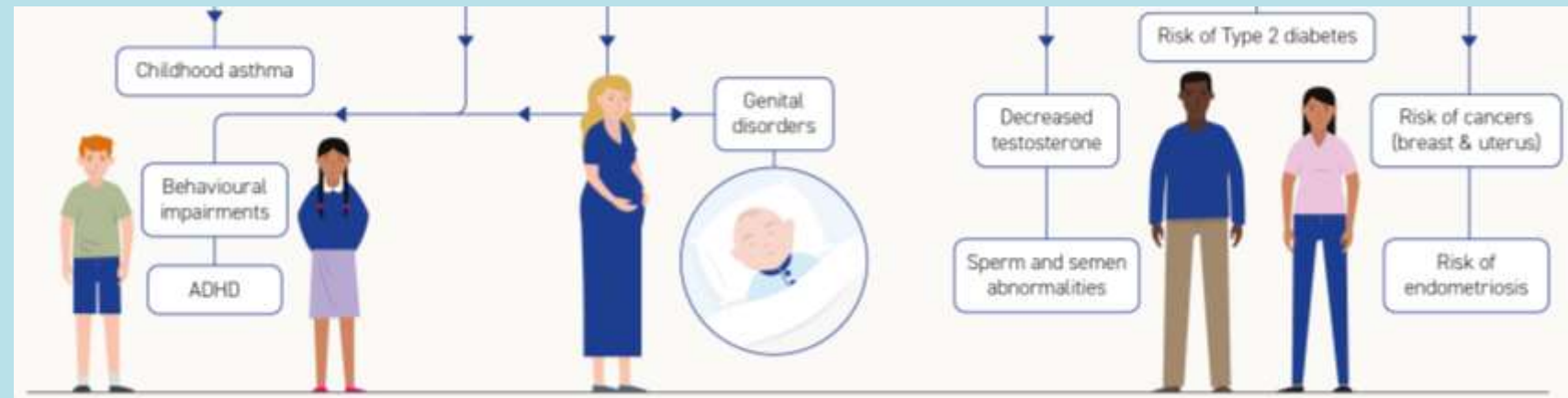
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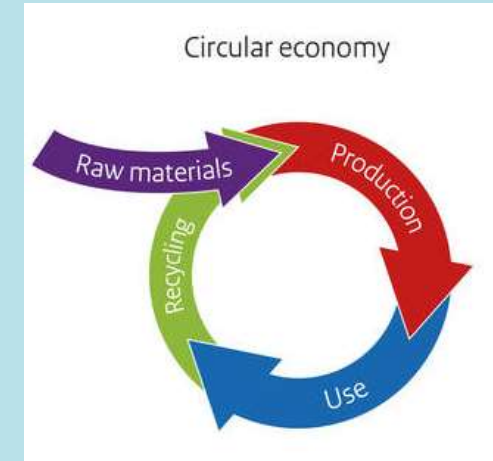
Phthalates (breast & uterus)

Risk of endometriosis

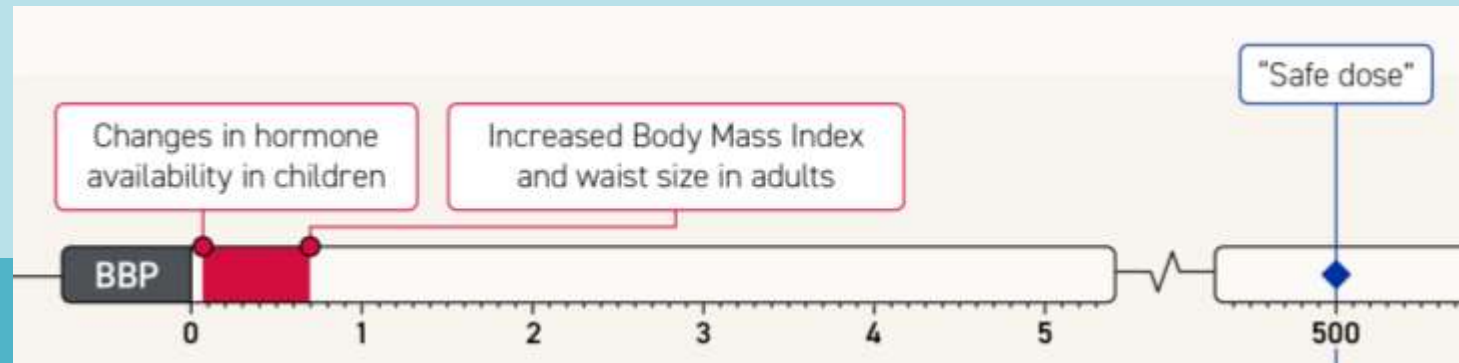
Phthalates are associated with a number of negative health outcomes



There is a lack of evidence on the contribution of phthalates from the circular economy



Negative health impacts are seen even at exposures below current “safe doses”



Summary

Human health impacts of phthalates uncovered by a 'review of reviews'



Eales, J et. al. *Environment International*. 158 (2022) 106903



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Health impacts of phthalates occur below current regulatory levels

Phthalates are chemicals added during manufacture to improve the flexibility of plastics.

Data from 41 published studies shows significant difference in the relationship between human health endpoints and phthalates.

Daily intake of four types of phthalate

($\mu\text{g}/\text{kg}$ of bodyweight)

Key



Range of phthalate intake from study data



Current lower limit of "Safe dose" from European chemicals regulatory agency (ECHA 2016 risk assessment)

