Relevance of dust for early-life exposure to flame retardant chemicals: A cohort study

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Outline:

- Discussion of the development of my research and contribution to INFLAME.
- Discussion of my involvement with the VU and the INFLAME project to date

ESR-8 responsibilities to INFLAME

- Develop a mixed-methodological appro
  assess the relevance of dust for human
  exposure to flame retardants within ind
  environments, and the potential human
  k this poses

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gical uptake

key points from
description: 'hur
exposure", "indo
environments" a
health. in order t
fully an integrat
to this exposure

first step: identif
of interest; secon
research questio
then lead me to
methodology wh
include the follo

personal samplin
behavioural que
environmental m
and human-bio-
methods to answ
question

Population of Interest:

- 1 year (12 months): Developmental and Behavioural changes which may media personal exposure to household dust.

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hat shape

ios, with a
may impact
h trajectory

Thus, I've locate
population of int
year olds. There
of important dev
and behavioural
occur at this age

that may potent
personal exposu
retardant chemi
contacts with du

- There is an age related gradient in the distribution of BFRs across populations (Rose et al, 2010)

- Childs exposure to dust via mouthing behaviours alone is 9x that (Stapleton et al, 2008).

- Increased mobility across toddler groups shifts the burden of risk sure from diet alone to dermal and incidental ingestion of ho (Rose et al, 2010; Johnson et al, 2009)

gical and behavioural susceptibility associated with early life (Hubal e 00)

examples of smaller body and rapidly and tissue sy

coupled with independenc behaviours s touching and objects all co potential risk contaminant

cenarios and ability really ife.

sosures to s have been breast milk determined osures can be early life, al:

early life expos most critical fra evaluate due to developmental, and physiologic characteristics with early life

xample: PBDEs

Adverse hormonal processes (Gascon et al, 2010; Betts, 2008; Stapleton et al, 2008; Covaci et al, 2006)

Neuro-developmental disruption (CERCH, 2012

Possible “endocrine disrupting chemicals”

- e.g: action on the thyroid-hormone axis (Betts 2008)

Research Questions (in development):

dentify what chemicals are in household dust that
ers are coming into contact with within a sample
population;
What behaviours mediate the personal expo

I am still developin
protocol and my re
questions. Some pe
have considered an

just some question
with:

some of the be
associated wit
and quantify t
observational

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recruitment of a cohort for a concurrent study that is exploring chemical exposure during pregnancy from which I hope to draw my own study pop.

I am still workin methodology bu considering the

- Participant recruitment
- Sampling techniques:
  - Clothing dosimeters (gloves, socks, union suits
  - Time-activity logs/behavioural questionnaires/socio-demographic data
  - Direct observation of play time activities (quantify hand to mouth contacts, crawling, surface contacts e.g)
  - Identify compounds of interest/ establish non-invasive bio-monitoring methods to assess body burden/ biological behaviour of these chemical

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Research Activities to date:

- Literature review/protocol development
- Cohort recruitment/data management
- Dutch language course
- Visit to Zwolle to observe sample collection and meet families
- Participation in ATC3 (and now ATC4)

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Thank you for your time!

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