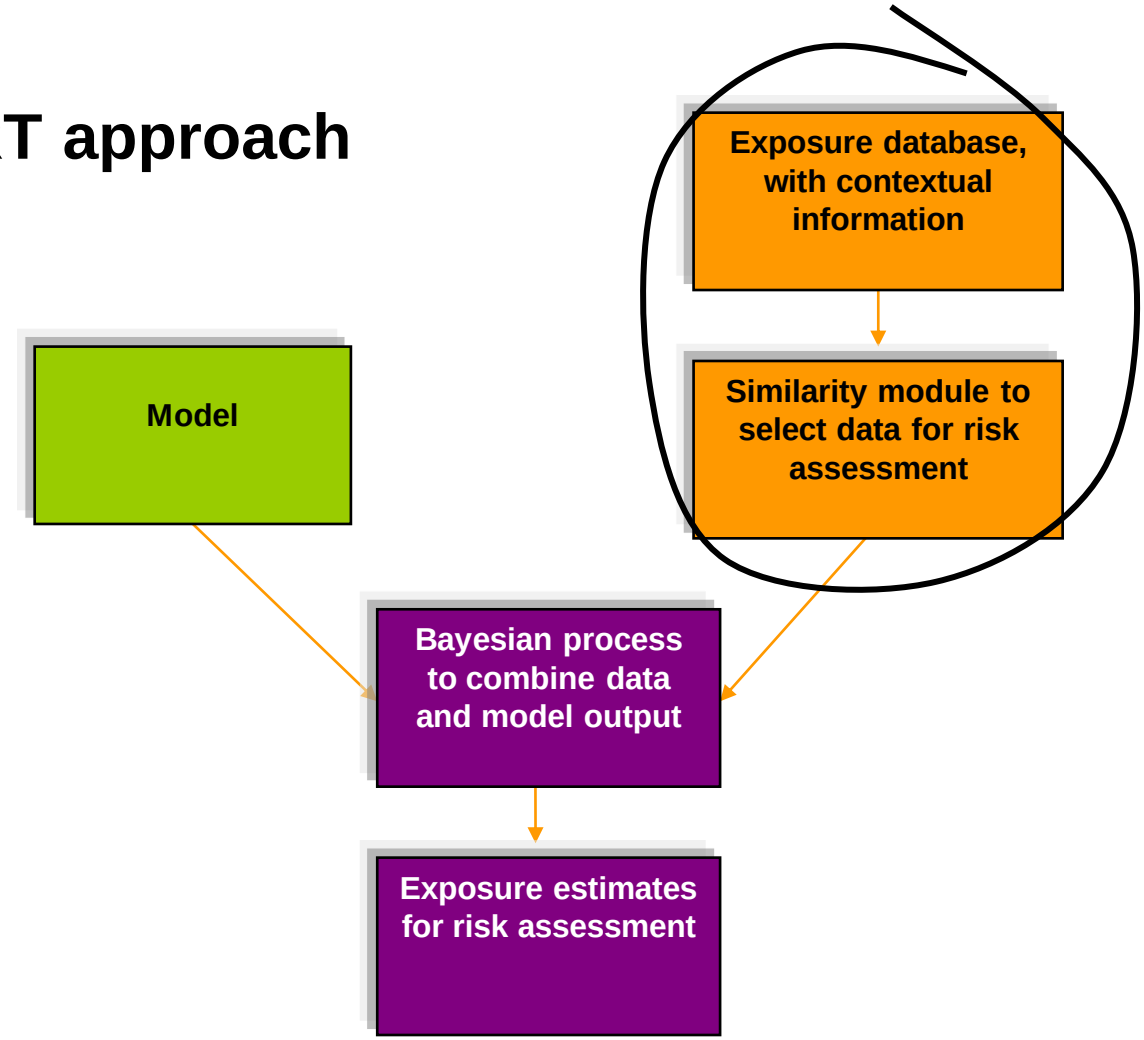



Toekomstplannen: ART v1.5 en verder

Erik Tielemans

ART approach



ART — About Analogous Data

A Bayesian update of the mechanistic model predictions can be carried out using analogous exposure data. There are two sources for analogous data:

1. Select from the ART exposure data library

Browse the built-in database and select from exposure scenarios that are deemed potentially compatible with the activities configured in the mechanistic model.

2. Upload own analogous data

In ART v1.5 you must make your own assessment as to whether the exposure measurements are analogous to your scenario. You should only upload measurements that you consider fully analogous.

If you would like to provide data from both sources, begin by browsing the exposure data library.

Return to mechanistic results

My Scenarios

Activity configuration

ART — Exposure Data Library

Show scenarios for: (•) Primary emission sources only ⓘ
( ) Primary and Secondary

All: ⏬ / ⏫

Scooping of coarse dust ⏫

This scenario describes the scooping of two types of powders (coarse dust (like sand)) in a testing environment. Operators were sampled for 12-30 minutes (per product) and performed the scooping of product during the entire sampling period.

In total 43kg calcium carbonate or aluminum oxide was used respectively. Scooping of product was performed at a use rate of 1-10kg/minute and at a dropping height of <0.5m. No localized controls were provided.

The exposure measurements reflect exposure levels to inhalable dust.

The activity was performed in a room of 30 m3 without ventilation.

Proj ref: Brouwer et. al. 2006 / Exposure statistics

Scooping of extremely fine dust ⏬

Scooping drugs [coarse dust] ⏬

Scooping drugs with LEV [coarse dust] ⏬

Dumping petroleum coke with truck ⏬

Scooping of coal ⏬

Loading bottle bags in glovebox ⏬

Small scale weighing in ventilated weighing enclosures ⏬

Dumping stones ⏬

Milling asphalt ⏬

My Scenarios

Activity configuration

The ART exposure data library consists of measurements covering different exposure types, i.e. dust, mist, vapours. A measurement belongs to a data set, called a scenario, which has an associated contextual description. The description has sufficient detail to allow you to make an informed decision about the relevance of the associated measurements to your assessment.

Scenarios deemed compatible with your configured activities are listed on this page. View the description for each scenario and for each one that you consider suitably analogous, click the name to select it.

You may select multiple scenarios. Once you have made your selection, click *Proceed to Bayesian Model* to continue.

Selected scenarios:

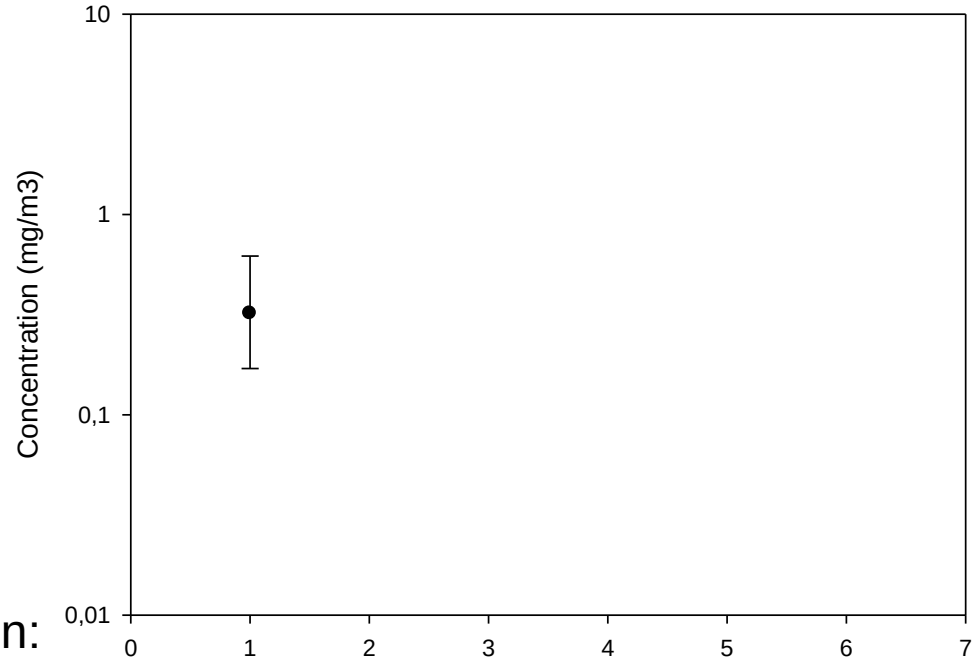
(click scenario name to select)

Upload my analogous data

Notes

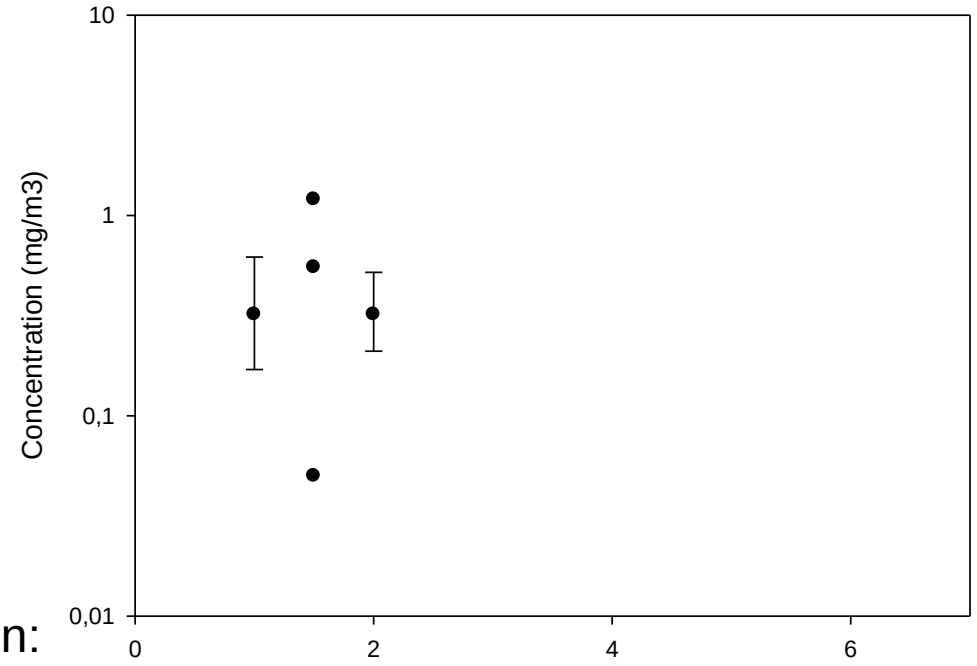

Weight of Evidence

Large sample size	>>	Small sample sizes
Multiple companies	>>	Single company
Uniform measurement series	>>	Heterogeneous measurement series

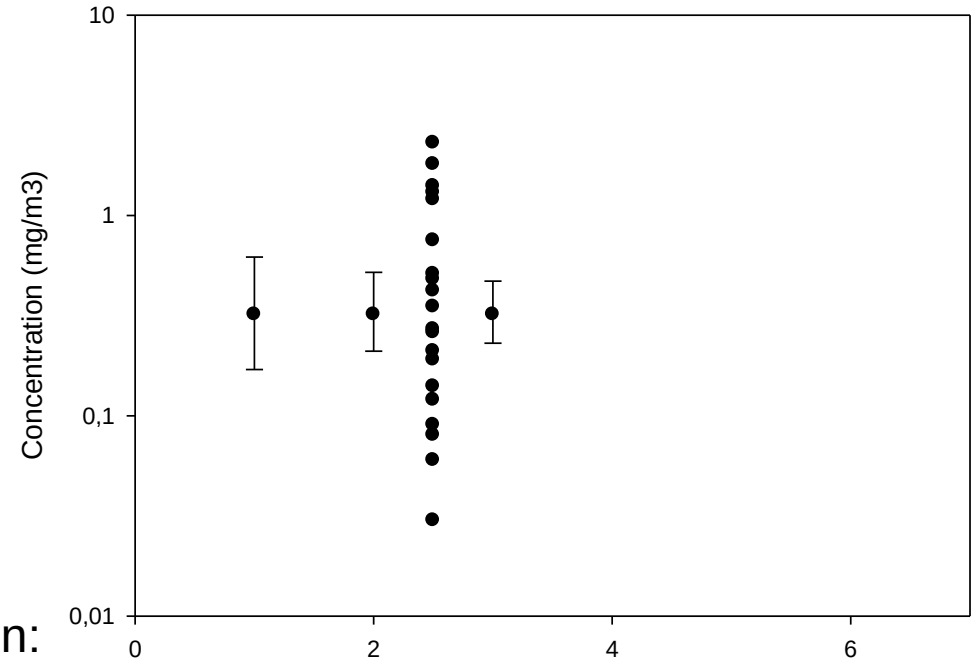
ART prediction:
GM: 0.32 mg/m^3
0.17-0.62 mg/m^3

Outcome mechanistic model: bottom loading

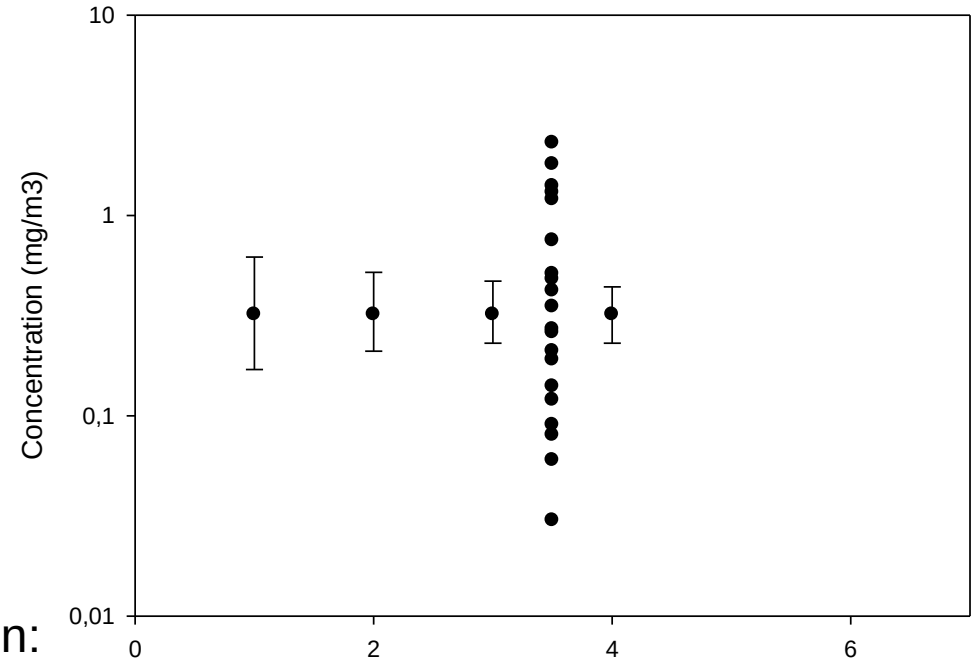
ART prediction:
GM: 0.32 mg/m^3
0.21-0.52 mg/m^3

Outcome mechanistic model: bottom loading + bayesian update 3 observations 1 worker

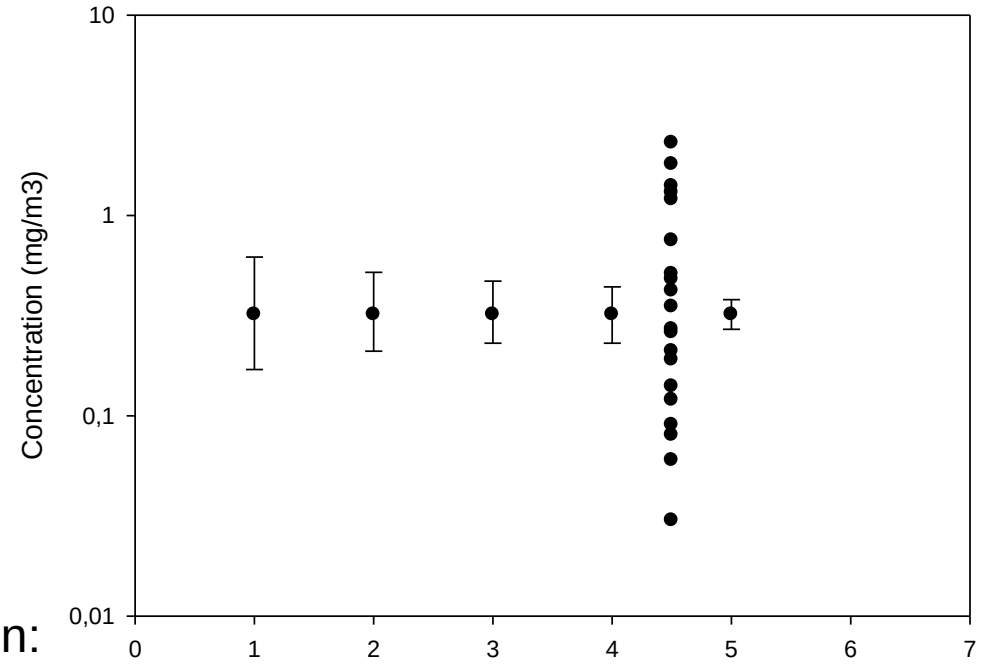
ART prediction:
GM: 0.32 mg/m^3
0.23-0.47 mg/m^3

Outcome mechanistic model: bottom loading + bayesian update 20 observations 1 worker

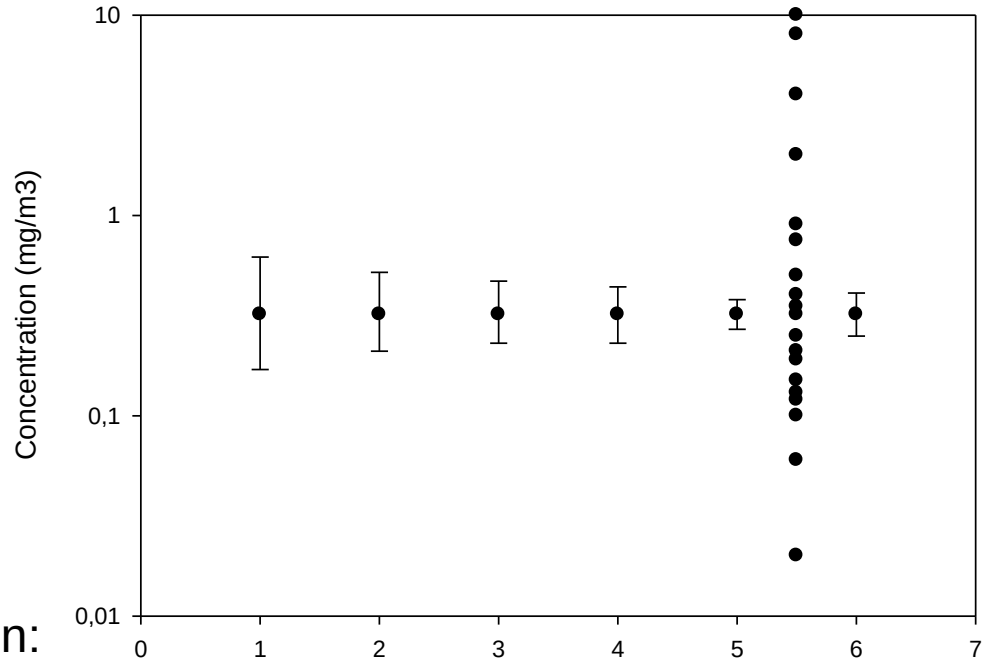
ART prediction:
GM: 0.32 mg/m^3
0.23-0.44 mg/m^3

Outcome mechanistic model: bottom loading + bayesian update 20 observations 20 workers

ART prediction:
GM: 0.32 mg/m^3
0.27-0.38 mg/m^3

Outcome mechanistic model: bottom loading + bayesian update 20 observations 20 workers, 20 companies

ART prediction:
GM: 0.32 mg/m^3
0.25-0.41 mg/m^3

Outcome mechanistic model: bottom loading + bayesian update 20 observations 20 workers, 20 companies, more variability in dataset


TNO innovation for life

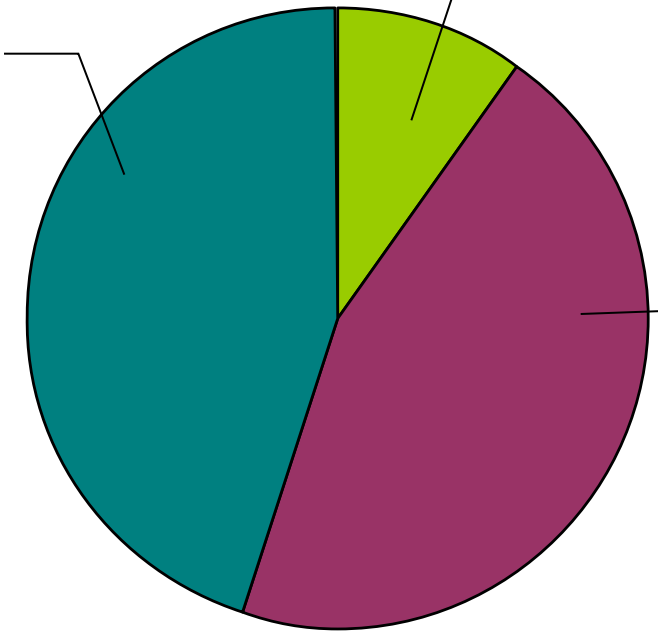
Next steps

- Reliability studie
- ART cursussen / opzet gebruikersgroep
- Samenwerking met NIOSH
- Model voor dermale blootstelling
- Continue verbetering van mechanistich model

Sources of uncertainty

Measurement error

Scenario uncertainty:
Missing contextual information



Model uncertainty:
-***Substance emission***
-***Efficacy RMM***
-***Outdoor dispersion***
-***Human behavior***
-*****