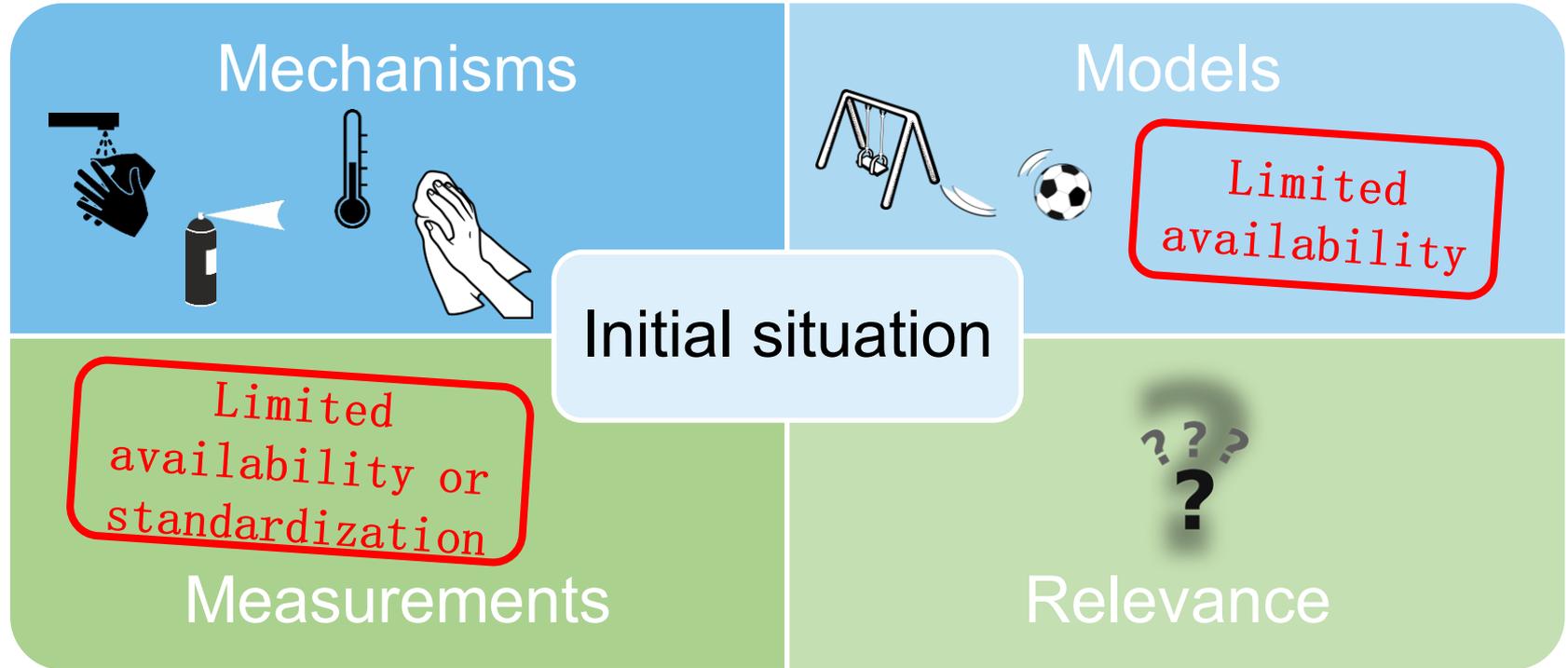


# Systematic review and meta-analyses on the relevance of occupational oral exposure

Marlene Dietz, Wiebke Ella Schnieder, Urs Schlüter,  
Anke Kahl

# Oral exposure in the workplace



# Perspectives on occupational oral exposure

REACH Guidance R.14

Considered to be addressed by good occupational hygiene

15.6 % of UK's working population orally exposed

Hints from parallel exposure monitoring

Publications

 **Occupational oral exposure could be relevant for total exposure**  
 **Systematic investigation**

ECHA: doi:10.2823/678250; Cherrie, J.: doi:10.1093/annhyg/mel035

# Conduction of search

## Search strategy

- Work & oral & exposure & „relevance / estimation / biomonitoring“
- Liquids

## Criteria

- Population** Worker
- Outcome** Oral exposure  
*Relevance, estimations, biomonitoring*

## Search

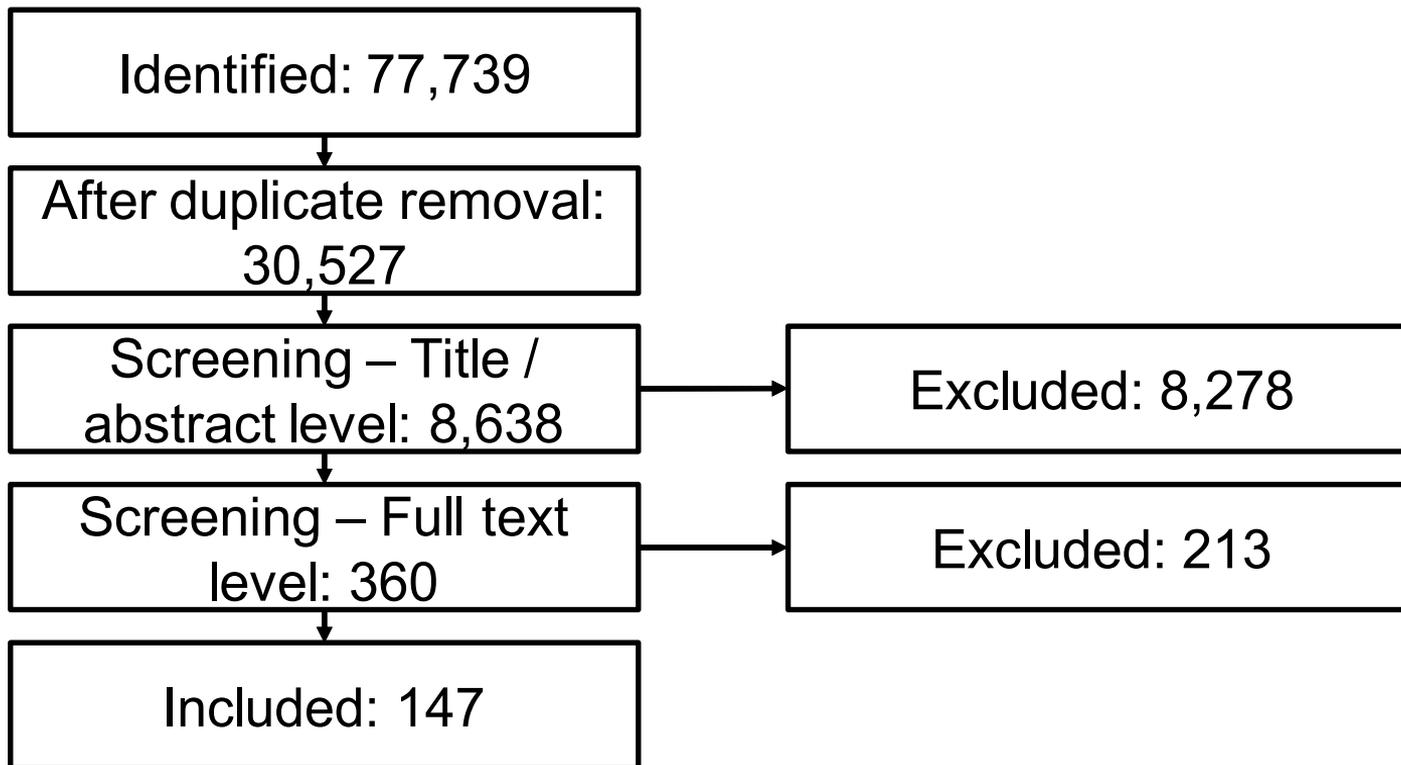
## Databases

- PubMed
- Web of Science
- COCHRANE
- bergischbib
- Deutsche Nationalbibliothek

## Websites

- BAuA
- EPA
- HSE
- IOM
- NIOSH
- OECD
- RIVM
- TNO
- WHO

# Relevance of occupational oral exposure – Flowchart



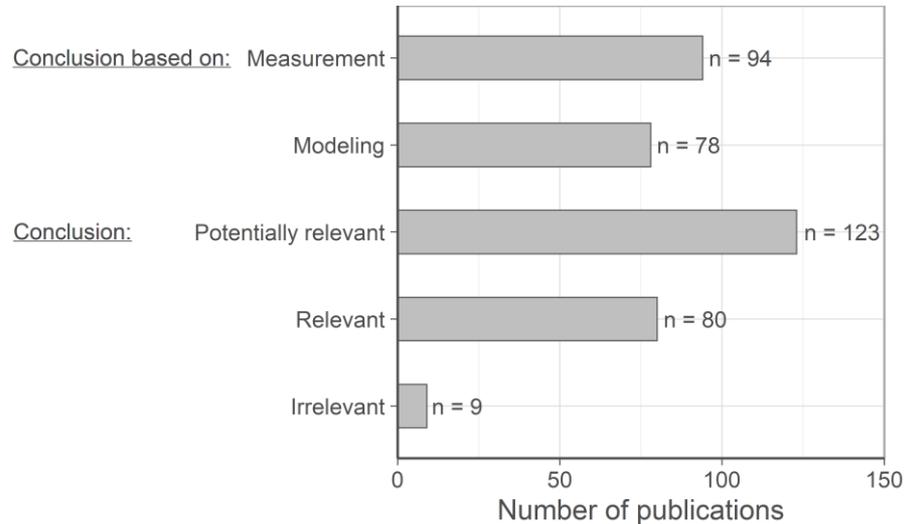
# Concept matrix

- Extraction of information from publications
- Development of concepts
- Structured processing of information obtained

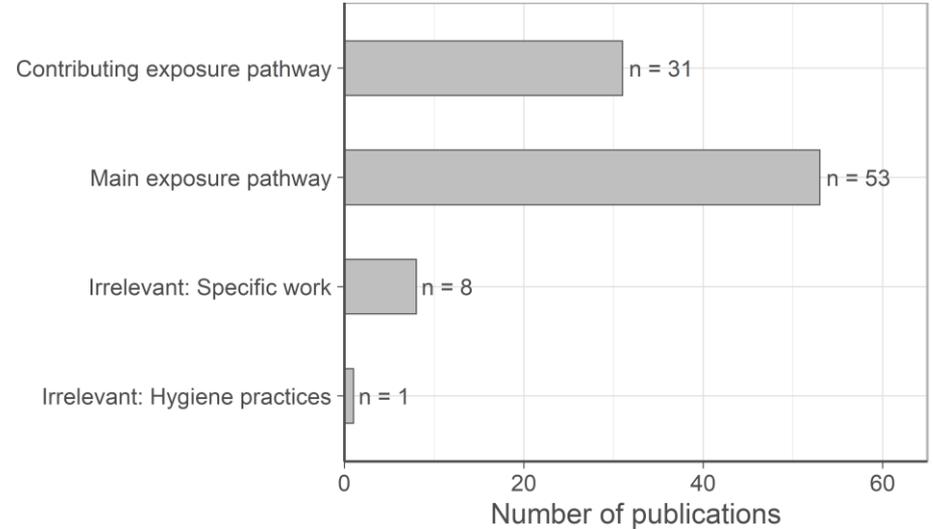
Paper	Irrelevant (Occ. Hygiene)	Potentially relevant	Main exposure pathway	...
1	x			
2		x		
3			x	x
...				

# Relevance assessment

## Database



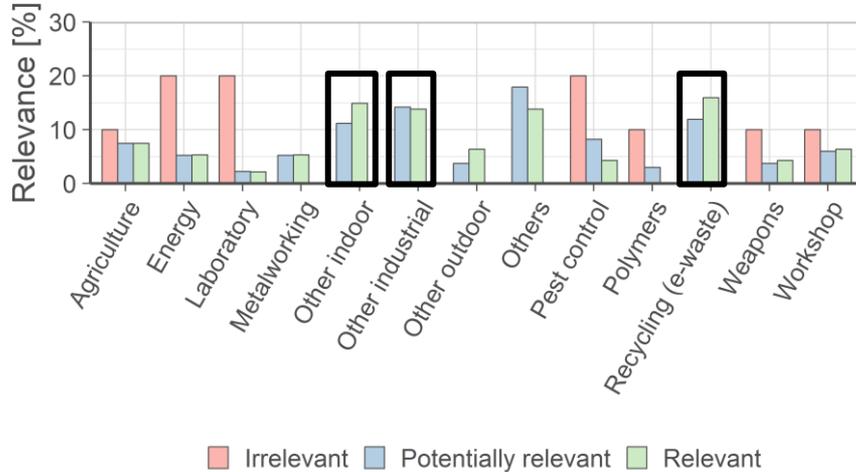
## Conclusions



➤ Occupational oral exposure relevant for at least some workplaces

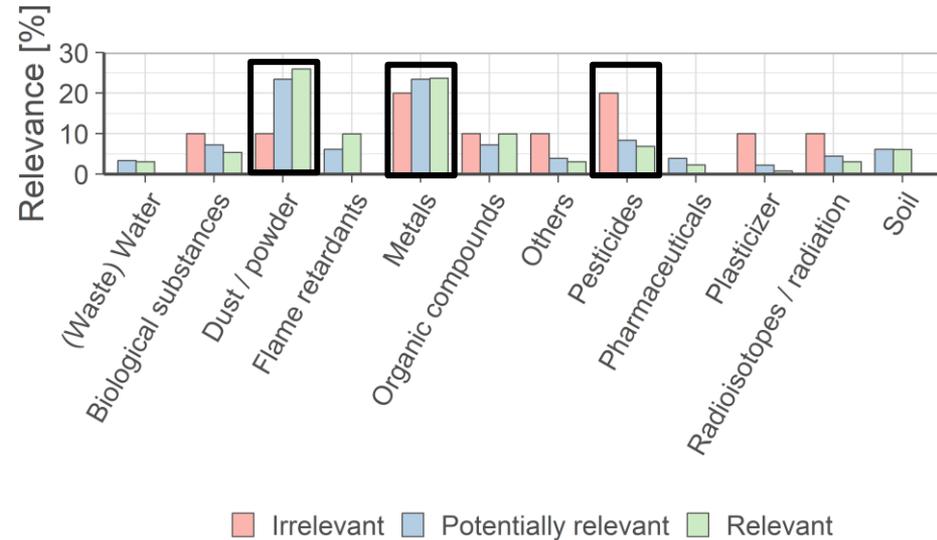
# Workplaces and substance groups

## Workplaces



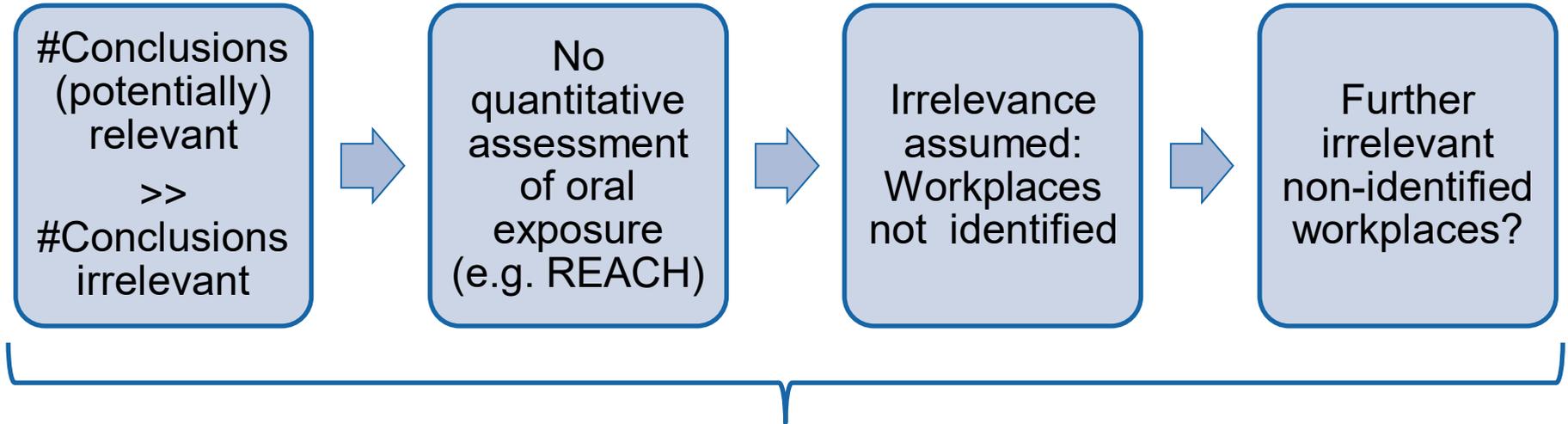
➤ Relevant workplaces identified

## Substances



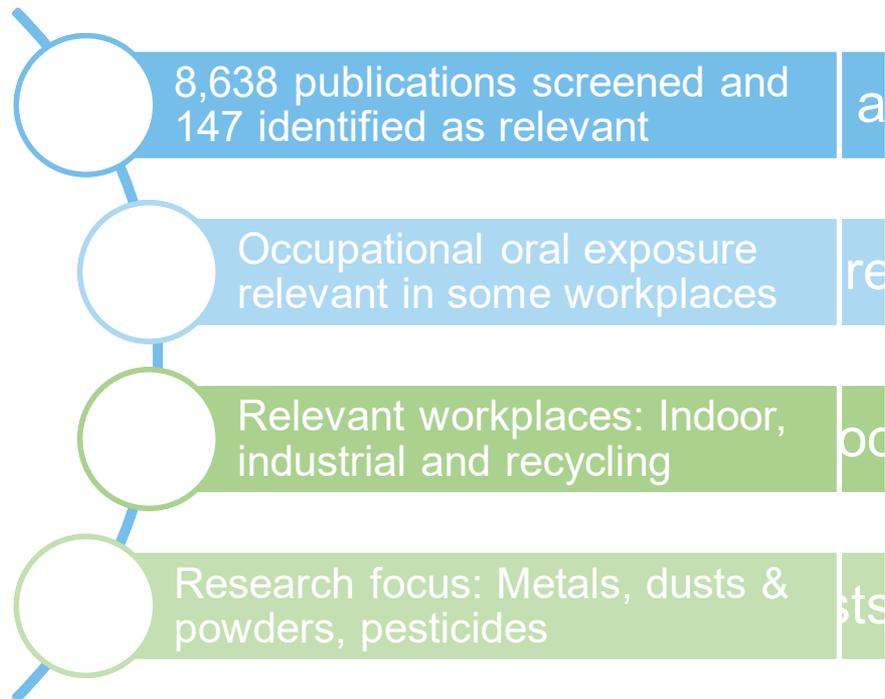
➤ Focus of research identified

# Discussion: Bias in relevance



Relevance: Based on recent research excluding non-published perspectives on irrelevance of occupational oral exposure

# Summary



## The relevance of oral exposure in the workplace: a systematic review and meta-analysis

Marlene Dietz <sup>1 2</sup>, Wiebke Ella Schnieder <sup>1 3</sup>, Urs Schlüter <sup>1</sup>, Anke Kahl <sup>2</sup>

Affiliations + expand

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[Free PMC article](#)

### Abstract

**Introduction:** The inclusion of all relevant exposure routes in the exposure assessment is essential for the protection of workers. However, under European chemical regulations but also for workplace risk assessments according to occupational safety and health (OSH) requirements, the quantitative assessment of oral exposure is usually neglected assuming good occupational hygiene. In contrast, several studies point to the importance of unintentional ingestion in the workplace. To our knowledge, there is no systematic analysis of the extent of this exposure route.

**Methods:** Therefore, the aim of this study was to assess systematically the current knowledge on the relevance of occupational oral exposure using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method. Five electronic databases and nine institutional websites were searched for all publications on the relevance. The data were extracted into a concept matrix. In the subsequent meta-analysis, the identified conclusions on the relevance were analyzed. In addition, the measurement methods or modeling approaches that were described for occupational oral exposure were determined as well as the potentially relevant workplaces and substances.

# Further work on occupational oral exposure

## Literature

Behavior & hygiene

Mechanisms

Measurement data

## Transfer of chemicals

Method development

Experimental investigation

## Model

Development

Contributions of aerosols

Testing

## Measurement methods

External project

Development

Evaluation

# Thank you for your attention!

Marlene Dietz

Federal Institute for Occupational Safety and Health  
Unit 4.1.4: Exposure Assessment, Exposure Science

Friedrich-Henkel-Weg 1-25  
44149 Dortmund, Germany

Dietz.Marlene@buaa.bund.de

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