



Silica exposure in the construction industry

Effectiveness of a multidimensional randomized control intervention to reduce quartz exposure among construction **WORKERS**

Erik van Deurssen^{1,2}, Tim Meijster, Anjoeka Pronk² and Dick Heederik¹

¹ Institute for Risk Assessment Sciences (IRAS); ² Netherlands Organization for Applied Scientific Research (TNO)



Introduction

Study design/methods

Results

Discussion/conclusion

Introduction

- › Silica exposure is associated with potential health risks
- › Studies under real working conditions are scarce
- › Multidimensional intervention studies ('RCTs') combining technical, organisational and behavioural aspects are needed

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Study design

Baseline
(2011/2012)

- 8 companies

Silica exposure¹
Technical control measures
Organisation
Behaviour

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Study design

Documentary/PIMEX

Workshop managers

Workplace advice

Plenary sessions

Baseline
(2011/2012)

- 8 companies

Intervention
(2013)

- 4 companies

Silica exposure¹
Technical control measures
Organisation
Behaviour

Multidimensional
(Intervention Mapping)²

Baseline

Steering committee

Literature

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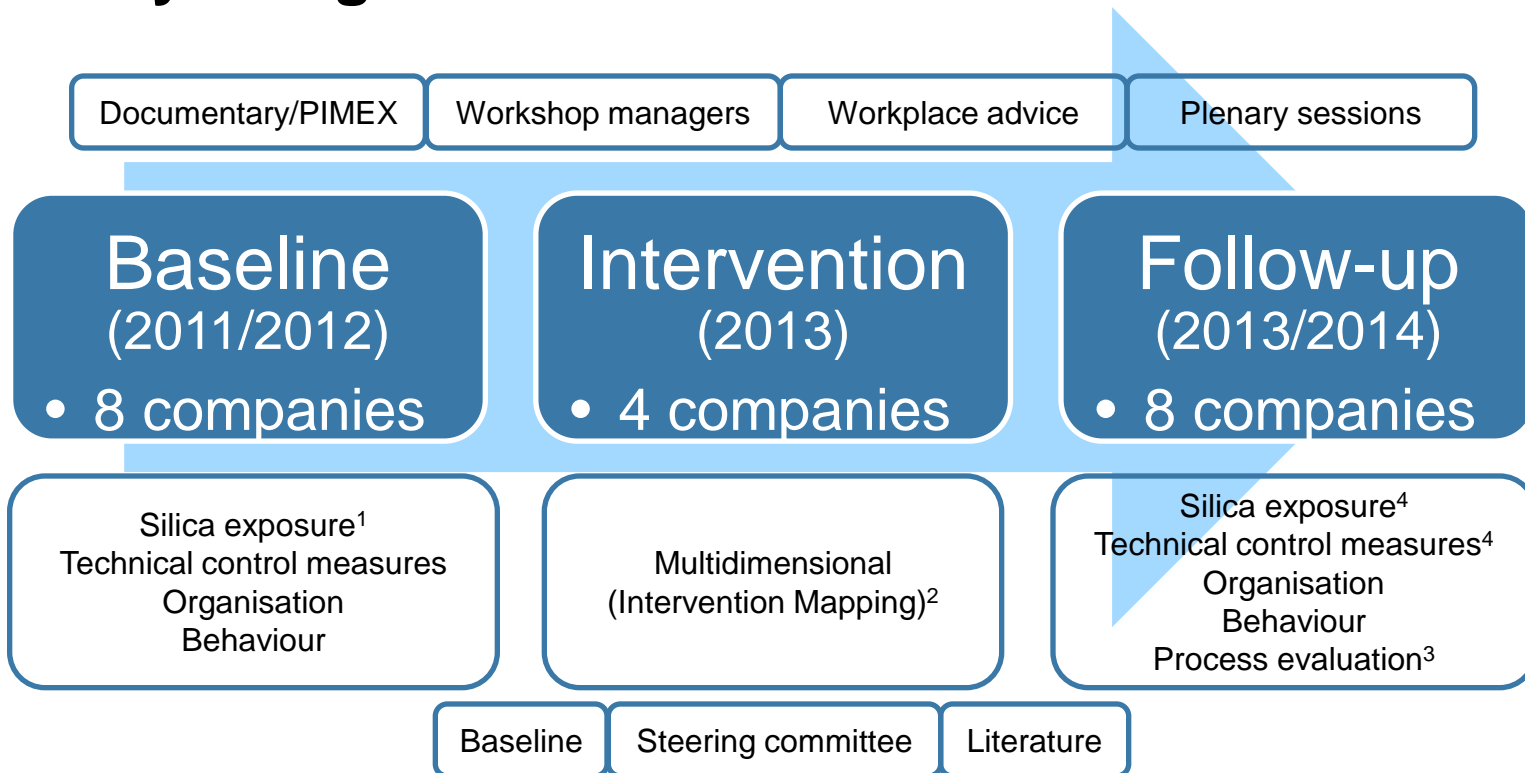


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Study design



¹ van Deurssen *et al.* (2014); ² Oude Hengel *et al.* (2014); ³ van Deurssen *et al.* (2015a); ⁴ van Deurssen *et al.* (2015b)



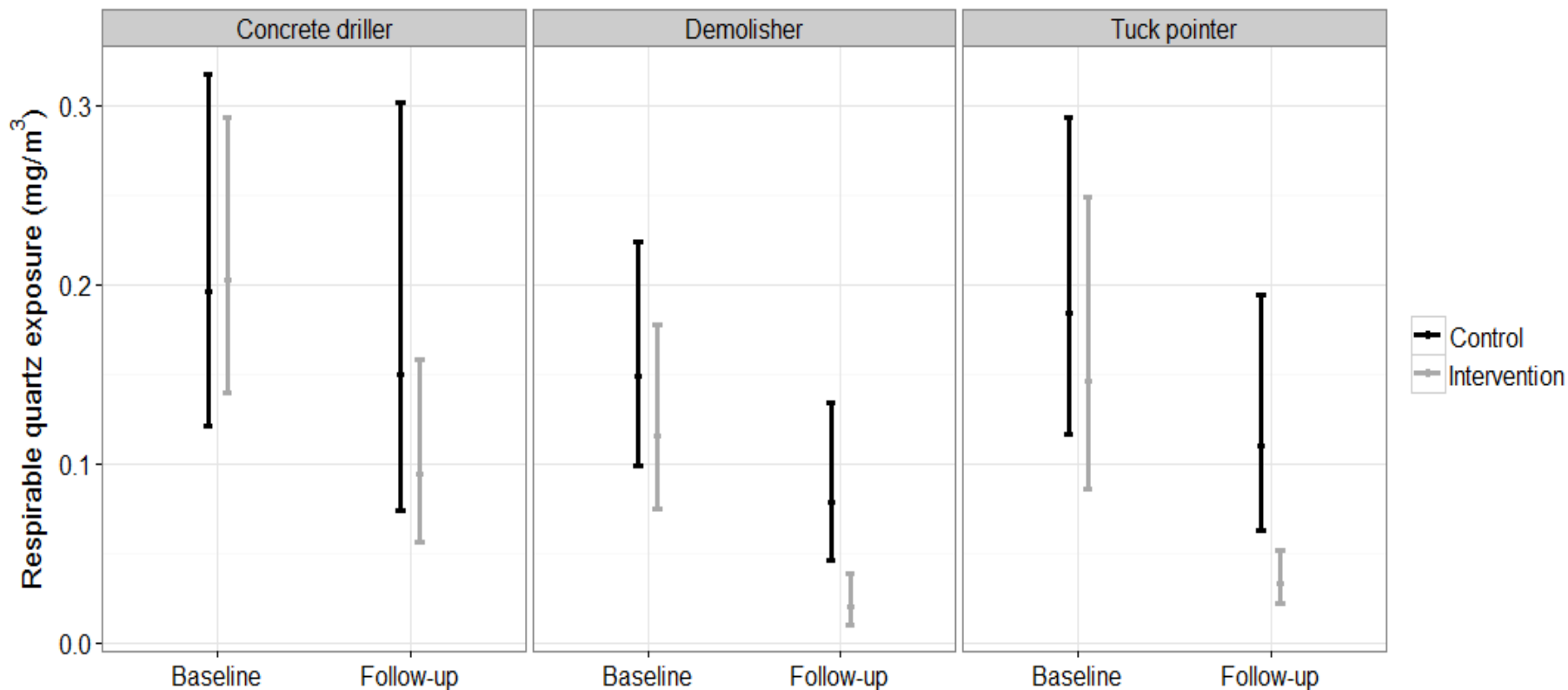
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Unadjusted analysis per job category





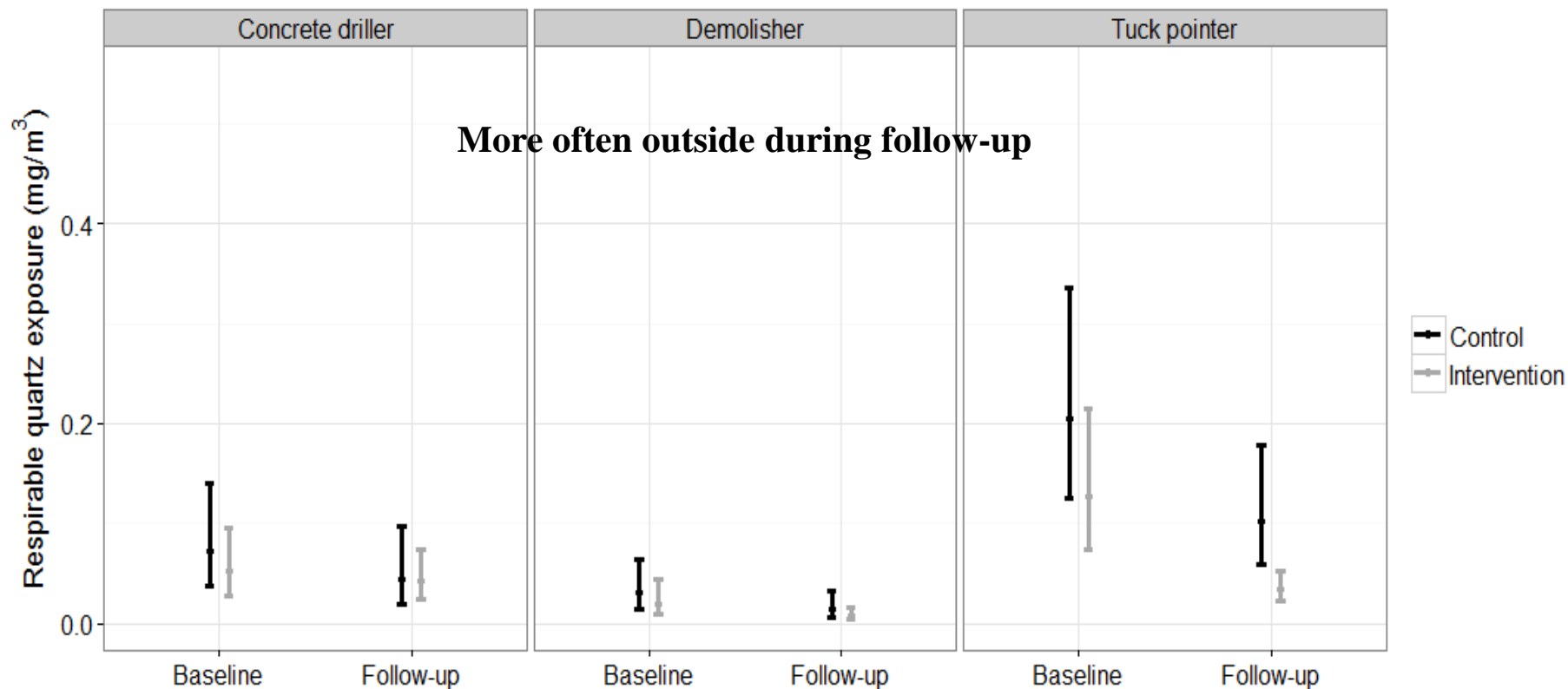
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Adjusted for work location





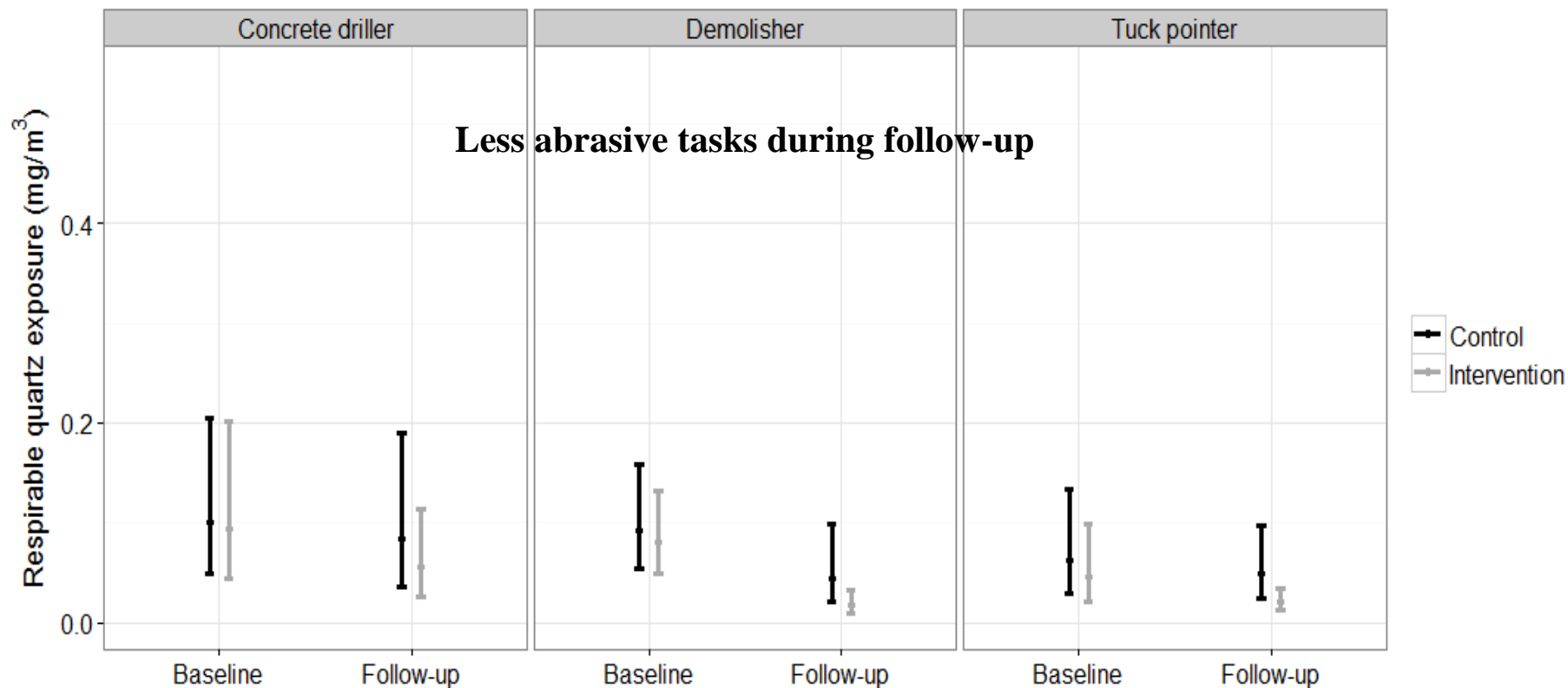
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Adjusted for performing abrasive tasks





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Behavioural factors

› Only available for subset of study population

| Scale | Control group (N=35) | | | Intervention group (N=29) | | |
|-------------------------|-------------------------------|-------------------------------|--------------|-------------------------------|-------------------------------|-------------|
| | t ₀ (min-max) | t ₁ (min-max) | Δ | t ₀ (min-max) | t ₁ (min-max) | Δ |
| Knowledge | 0,69 (0,28-0,92) | 0,71 (0,49-0,91) | 0,02 | 0,71 (0,44-0,87) [#] | 0,80 (0,61-1,00) [#] | 0,09 |
| Beliefs | 3,88 (2,50-5,00) | 3,77 (2,38-5,00) | -0,11 | 3,51 (1,75-4,75) | 3,74 (1,29-4,88) | 0,23 |
| Risk perception | 3,68 (2,83-5,00) [#] | 3,42 (2,17-4,50) [#] | -0,26 | 3,52 (2,17-4,67) | 3,73 (2,67-5,00) | 0,20 |
| Social influence | 3,22 (1,40-5,00) | 3,52 (2,00-5,00) | 0,31 | 3,25 (2,20-5,00) | 3,50 (2,40-4,80) | 0,25 |
| Motivation | 4,07 (2,36-5,00) | 4,00 (2,09-5,00) | -0,07 | 3,83 (1,55-5,00) | 4,10 (1,82-5,00) | 0,28 |



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Discussion

- › Other factors that changed over time taken into account; potential influence of inspection visits from labour inspectorate
- › Challenge to conduct cluster RCT design in construction industry
- › Questionnaire not validated; descriptive associations
- › Potential influence of 'Hawthorne effect'

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- › Structured intervention approach contributed at least partly to substantial reduction in exposure, **increased use** of technical control measures and improvement in some behavioural factors
- › Exact magnitude is difficult to assess

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