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Reducing Exposure to Wood Dust in Joinery Workers and Furniture Makers

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Introduction

- Background
  - Exposure Survey
  - Intervention Study
- Video Exposure Monitoring
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  - Video
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- Where we are at
- Where we are heading

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Background – Exposure Survey

- 2008 – Exposure survey of inhalable dust, respirable dust, and formaldehyde.

	Inhalable Dust(mg/m^3)	Respirable Dust (mg/m^3)	Formaldehyde (ppm)
Joineries	2.48	0.27	0.014
Furniture Makers	1.22	0.12	0.012
All Workers	1.82	0.18	0.013

- Workplace exposure standard was 5 mg/m^3
- ACGIH standard - 1 mg/m^3
- From Dec 2010, WES lowered to 2 mg/m^3

Background – Intervention Study

- Previous study used 8-hour TWA
- No info on nature of the hazard
- Peak exposures can attribute >70% of TWA exposure *(Meijster, 2008)*
- Visualize workers' hazard exposure
- Better understanding
- Knowledge of risks + controls = improved health

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Video Exposure Monitoring

- Examples of combining collecting real time exposure data with video

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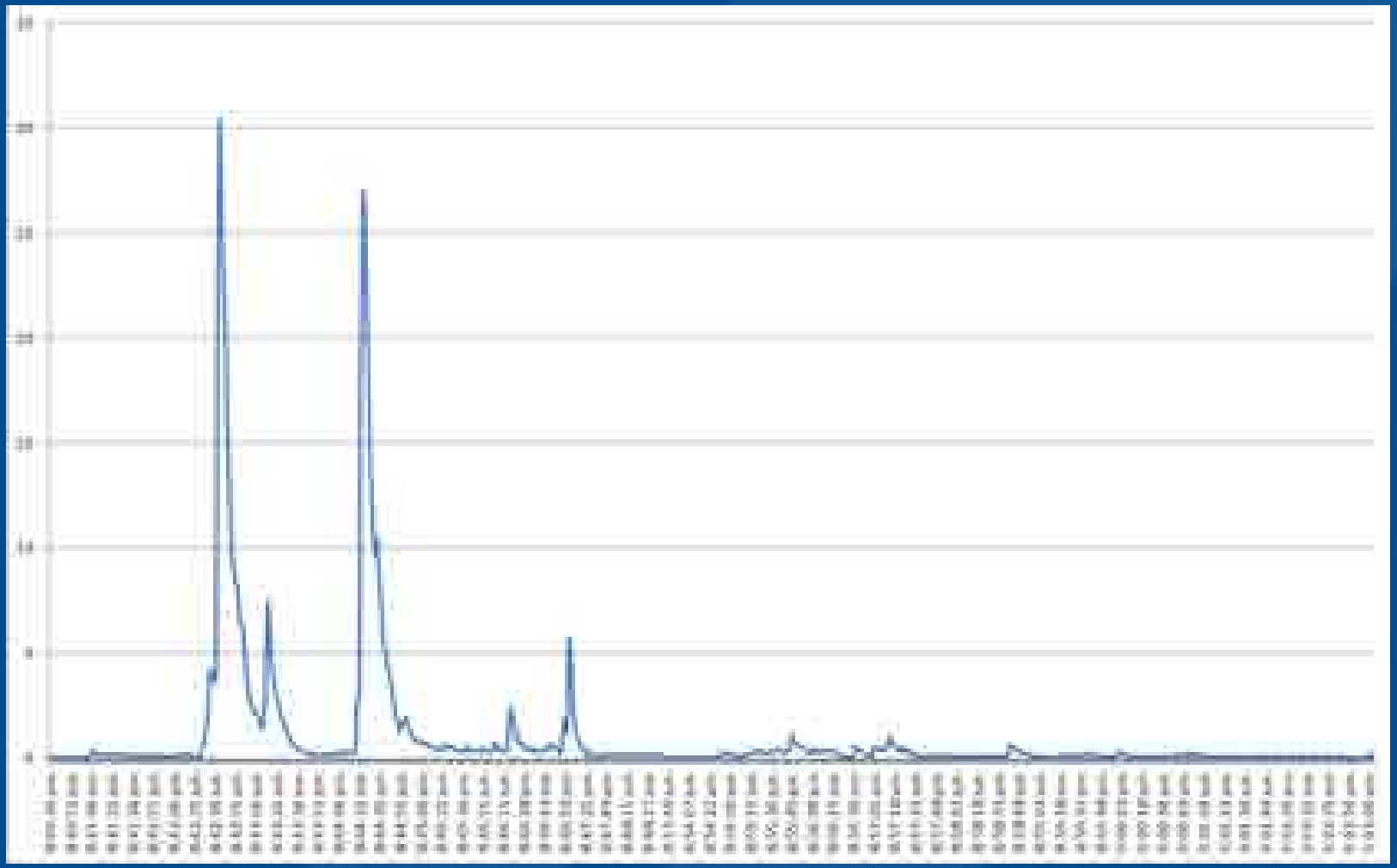
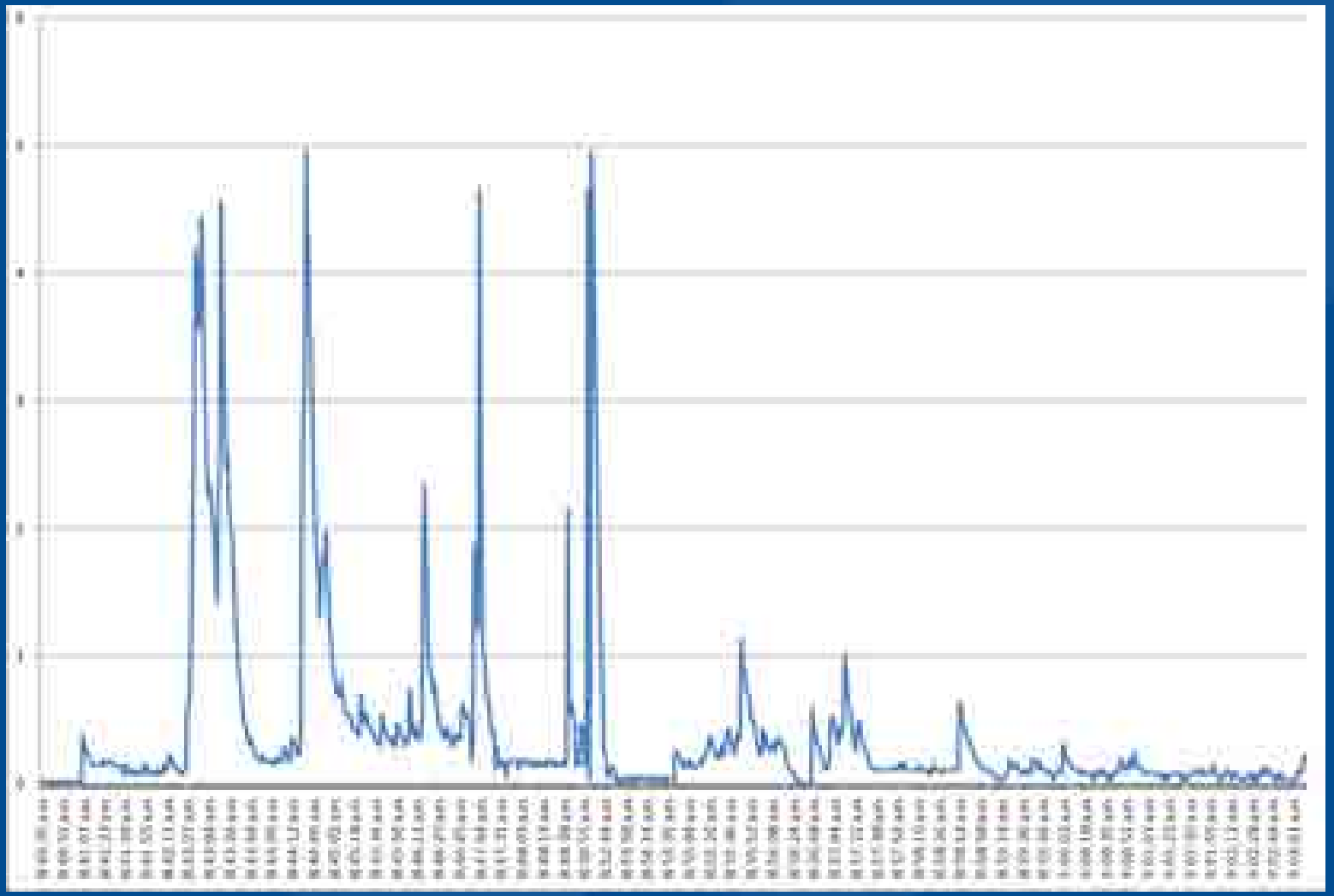
Graph showing all peaks over a sampling period



Graph showing peaks below 5 mg/m3
i.e. removed peaks >5 mg/m3



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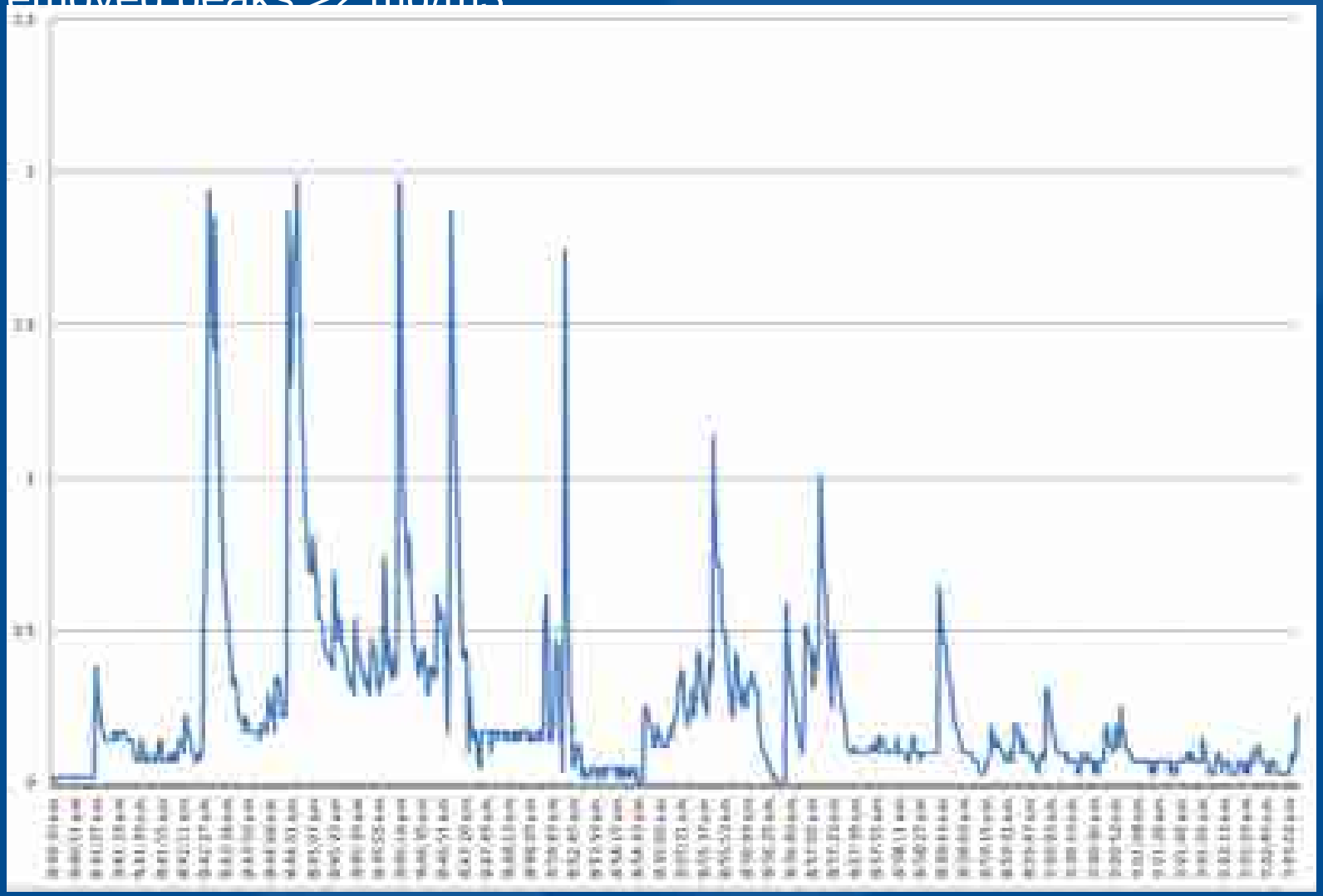
Graph showing peaks below 2 mg/m3
i.e. removed peaks >2 mg/m3



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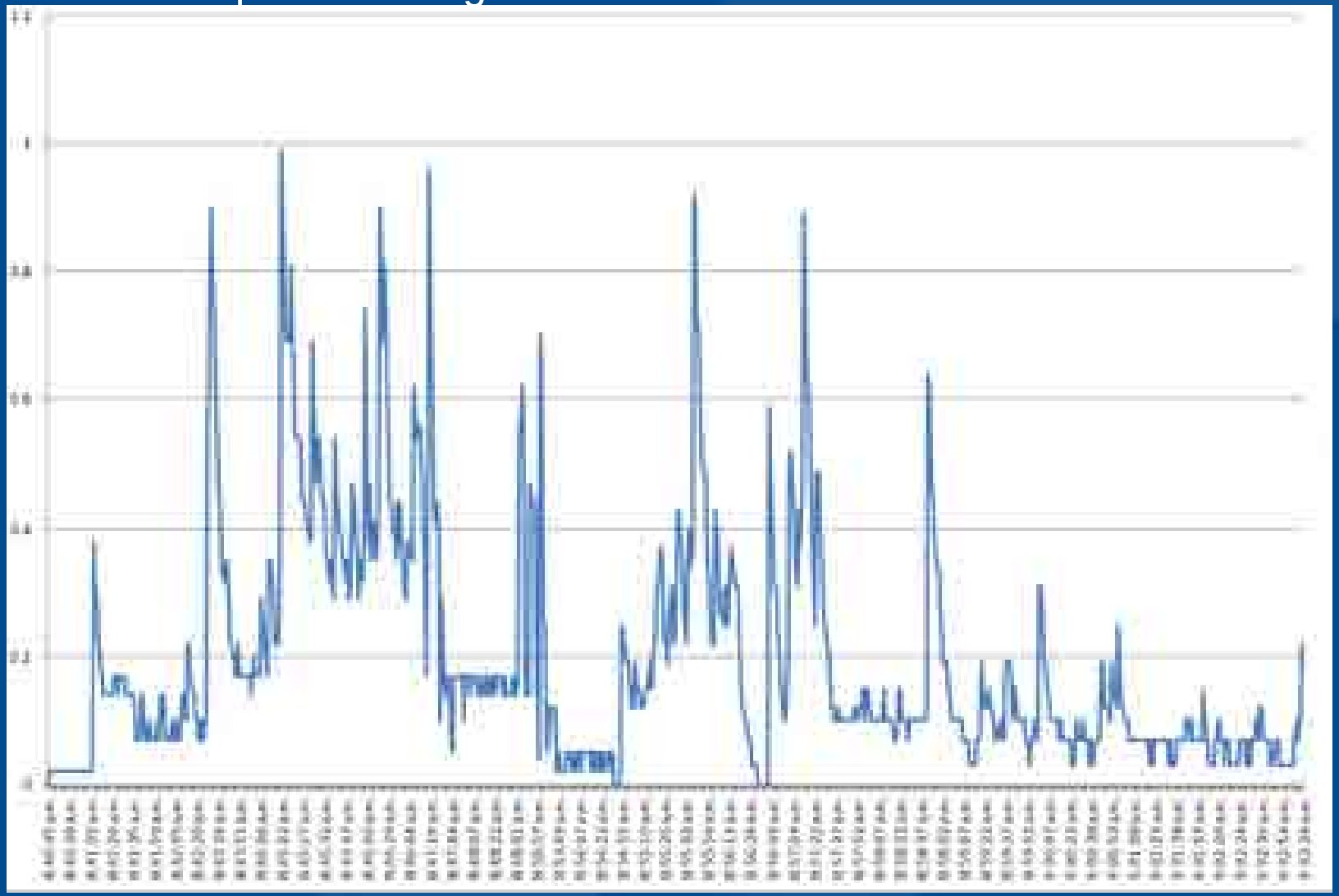
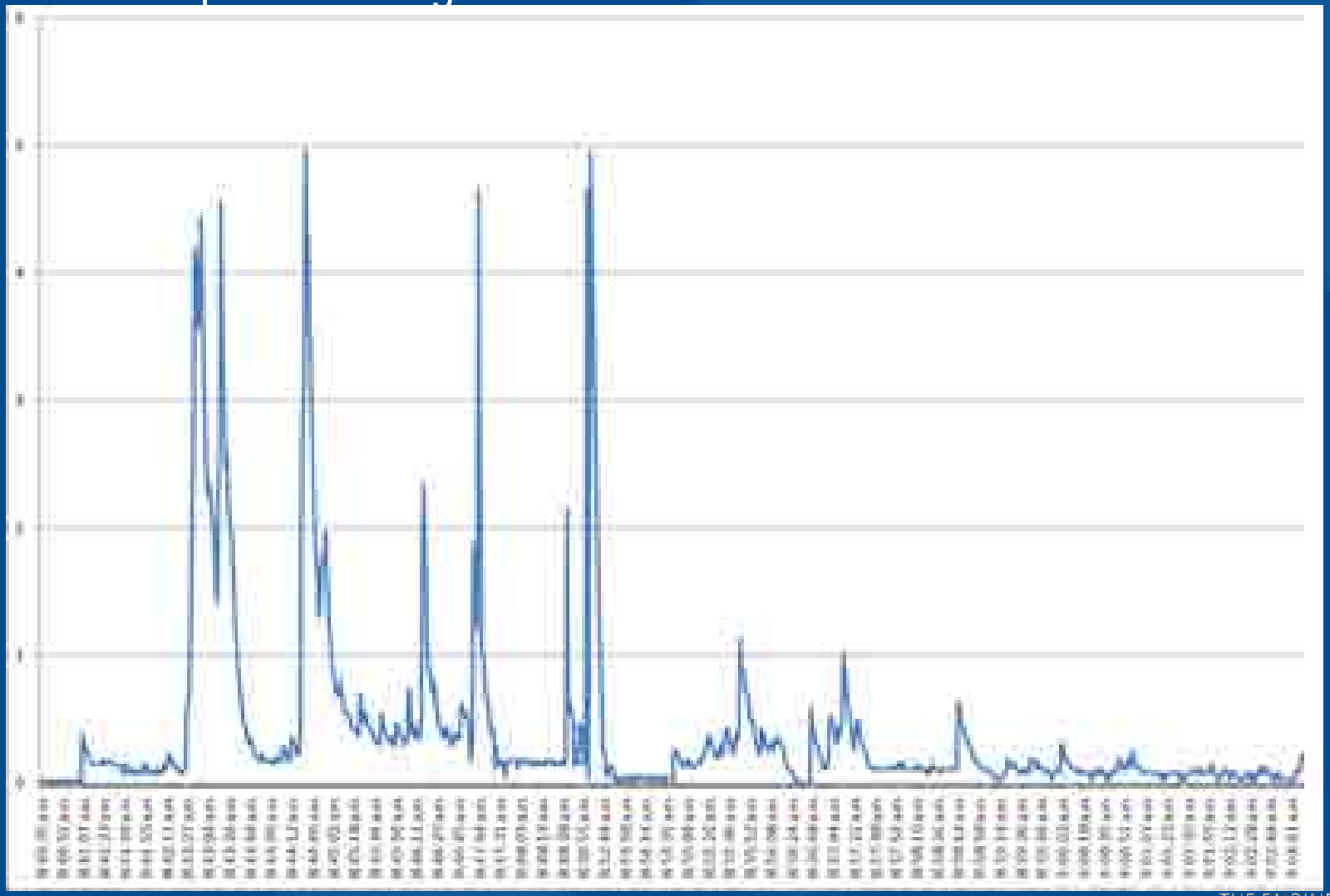
Graph showing peaks below 1 mg/m3
i.e. removed peaks >1 mg/m3

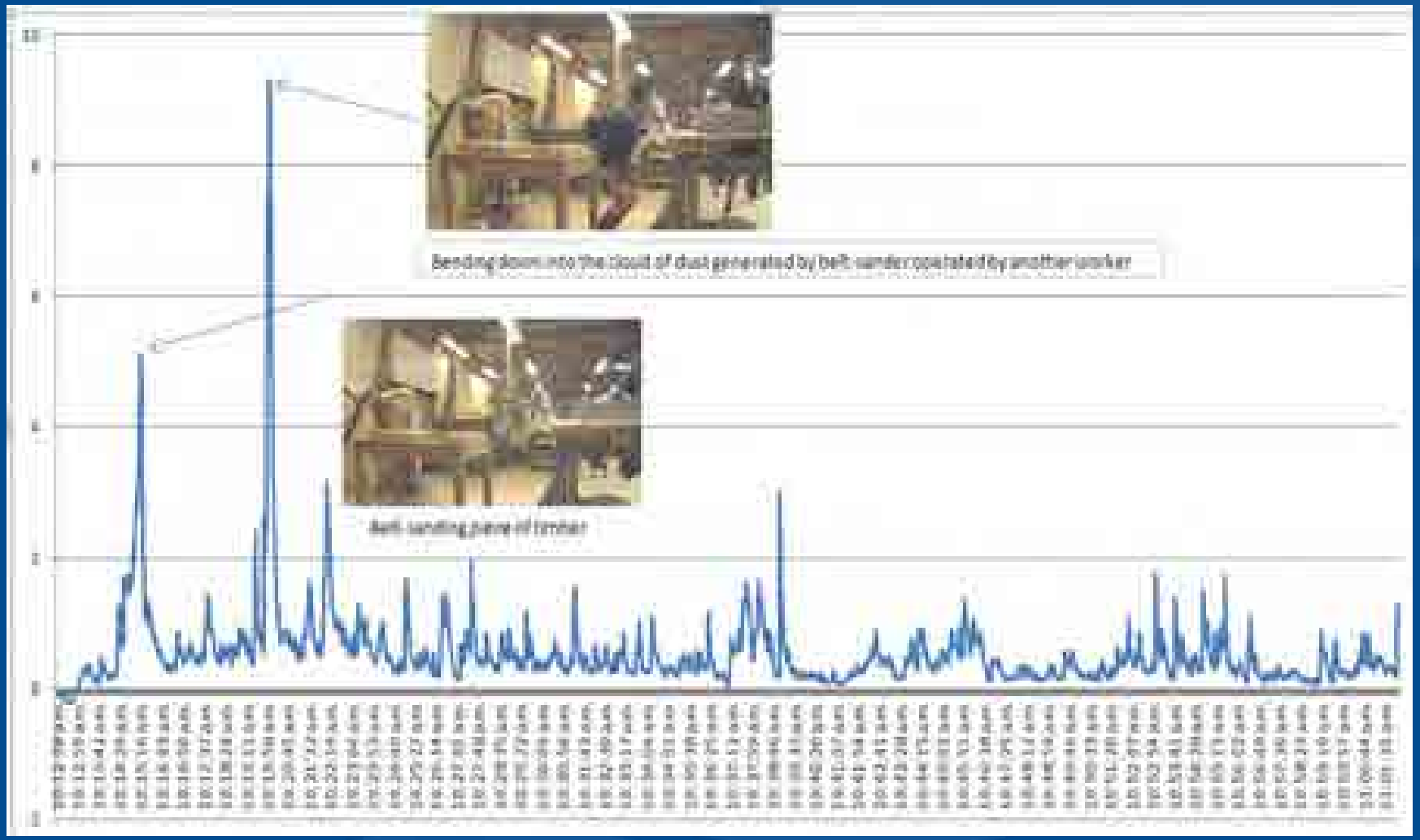


Routing MDF, blowing dust with mouth

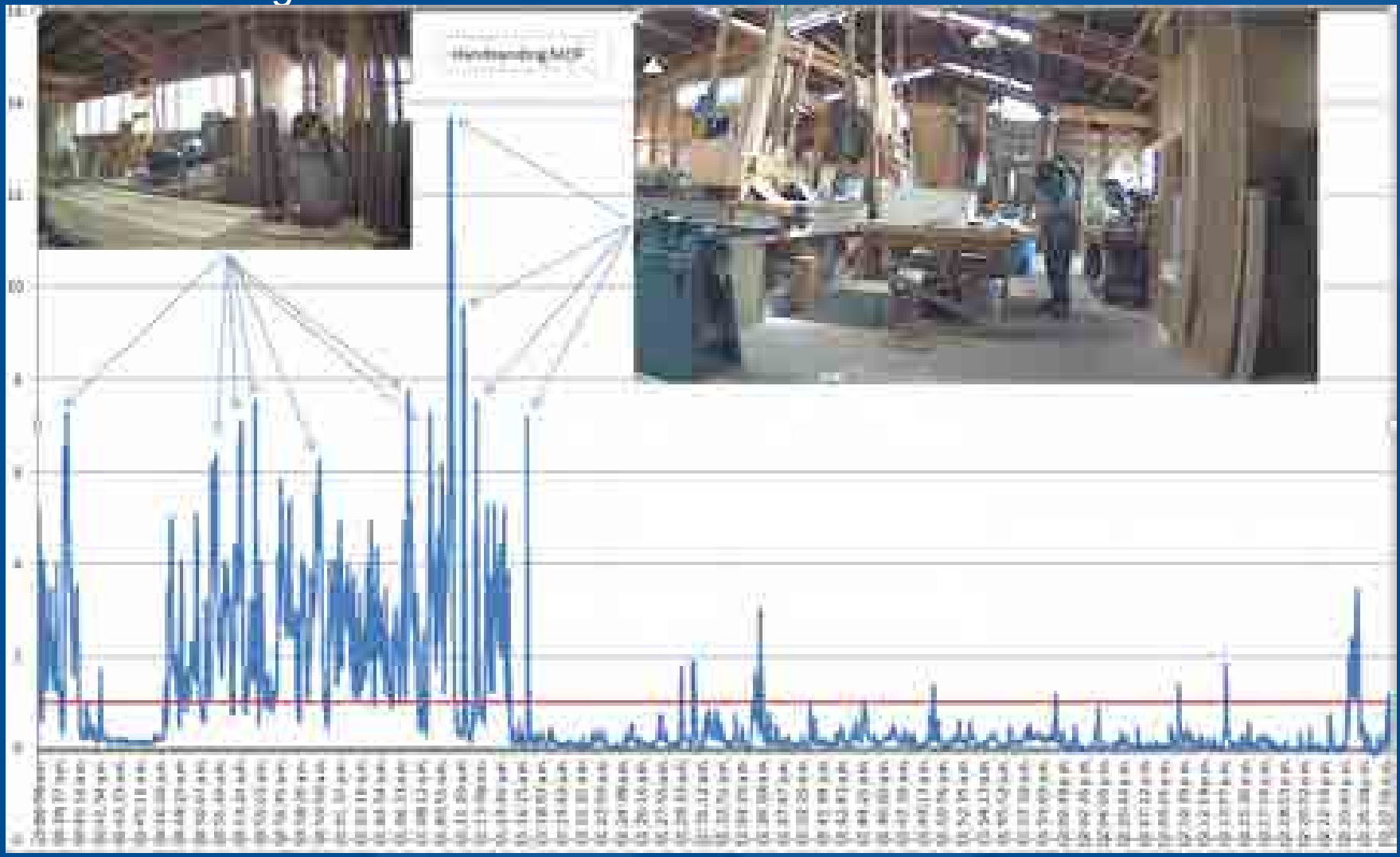
Graph showing peaks below 5 mg/m3
i.e. removed peaks >5 mg/m3



Belt-sanding timber, and exposed to wood dust generated by co-worker



Handsanding MDF



CNC produced dust upon ejection of particleboard. Residual dust on particleboard is exposed to worker who moves board

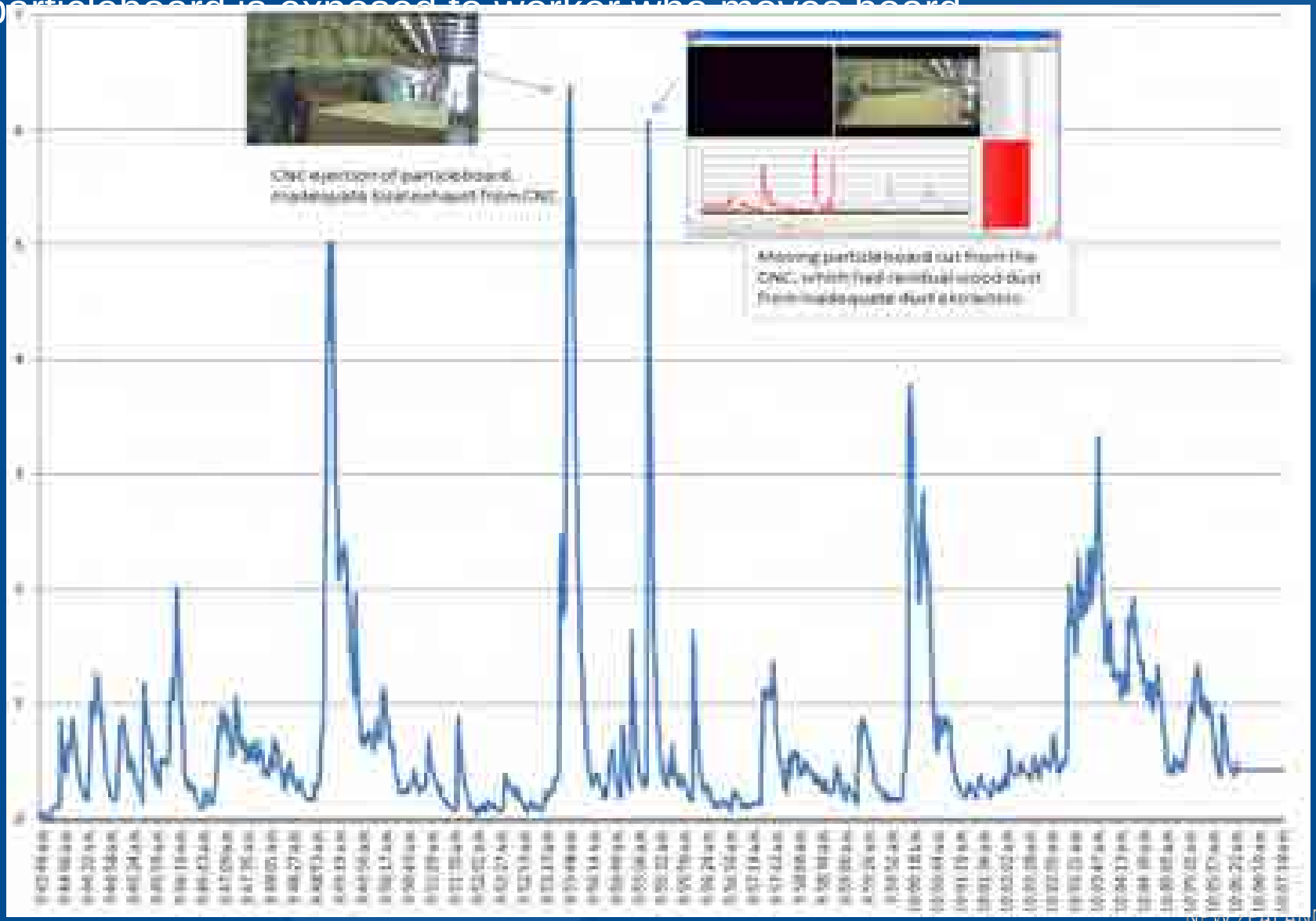


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Table

Sample	Min (mg/m 3)	Max (mg/m 3)	Average (mg/m3)	% red. w/o >1 mg/m3	Activity
1	0	18.54	0.56	32.3	Belt sanding, bandsaw, spindle moulder, misc
2	0	13.69	0.89	78.6	Handsanding, assembly, misc
3	0	6.85	0.24	11	CNC, misc
4	0	30.42	2.93	92.8	Routing, handsanding
5	0	17.93	0.65	59.5	CNC, cleaning
6	0	10.98	0.46	44.4	Handsanding, orbital sanding

Where we are at

- Identify high exposure activities
- Cost-effective interventions
  - Down draft tables
  - Plenums
  - Vacuum cleaning vs. dry wiping/sweeping
  - Engineering controls vs. behavioural controls
- % difference in exposure
  - Peaks eliminated
  - Tasks eliminated

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Where we are heading

- Implementing interventions
- 8-hour TWA inhalable dust sampling
- Compare pre-intervention exposure levels with post-intervention exposure levels.
- Implement successful intervention strategy in other workshops.
- So stay tuned…

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