



UNIVERSITY OF TEXAS  ARLINGTON

# The Silica Control Tool

An Online Application for Respirable  
Crystalline Silica Risk Assessment

Melanie Gorman Ng, PhD

University of British Columbia

# Outline

- Background
- Tool description
- Tool demonstration
- Continuing development
- Conclusions and acknowledgements
- Q&A



# Background



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# Background

- British Columbia Respirable Crystalline Silica (RCS) Regulation Change
- Construction Industry Challenges
- BCCSA – UBC - WorkSafeBC Relationship
- Silica Tool



# OHS Regulation

- Local regulator: WorkSafeBC
- *Substance specific* requirements for RCS
- 8-Hour Occupational Exposure Limit: 0.025 mg/m<sup>3</sup>
- Requirement to monitor exposure for any work activity that generates RCS dust, and create Exposure Control Plan (ECP)



# Equivalent Work Operations

Monitoring can be based on “objective monitoring data, that was collected during equivalent work operations through industry surveys or peer reviewed or scientific studies...”



# Construction Industry Challenges

- Work sites change rapidly
- Workers and companies move between sites
- Tasks vary within and between work shifts
- ~95% of BC employers are SMEs (small and medium sized employers)
- Lack of available exposure measurement data and industrial hygiene expertise



# Tool Description



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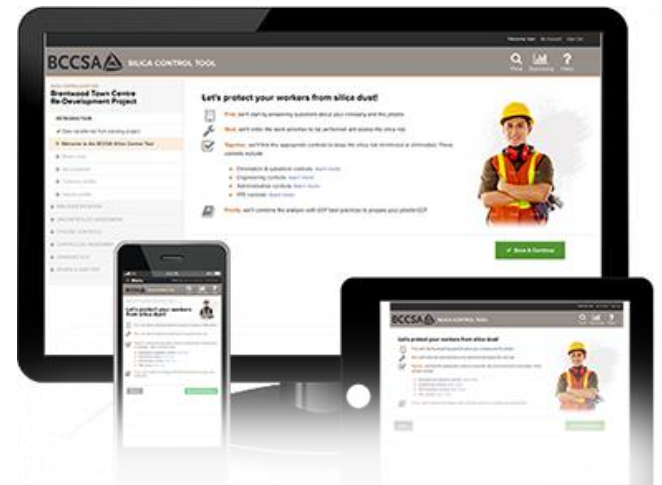
a place of mind



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# An On-line Silica “Tool”

- Help employers effectively use “Equivalent Work Operations” clause
- Educate employers and workers
- Produce effective ECPs
- Reduce effort and cost
- Improve quality of exposure data



# Benefits of Using Measurements

- Identify best practices
- Employers/employees become more knowledgeable
  - See and compare evidence of exposure and control effectiveness
- Can update with new measurements, monitor trends in exposure
- More easily calibrated to other jurisdictions
- Promotes data sharing



# Silica in Construction Database

- Database of silica in construction measurements, Beaudry *et al.* (2013)\*: N = 11 845
- Updated literature review in 2015: N = 3 653
- Canadian companies and govt.: N = 294
- Monitoring at BC worksites in 2015: N = 318

\*Beaudry C, Lavoué J, Suavé J-F *et al* (2013). Occupational Exposure to Silica in Construction Workers: A Literature-Based Exposure Database. *J Occup Environ Hyg*; 10(2):71-77.



# Statistical model built from database

Estimates exposure level based on:

- Process (e.g. cutting concrete with powered saw)
- Engineered controls (e.g. wetting, local exhaust ventilation)
- Industry Sector
- Project type (new, renovation, demolition)
- Work environment (indoor or outdoor)
- Region
- Duration



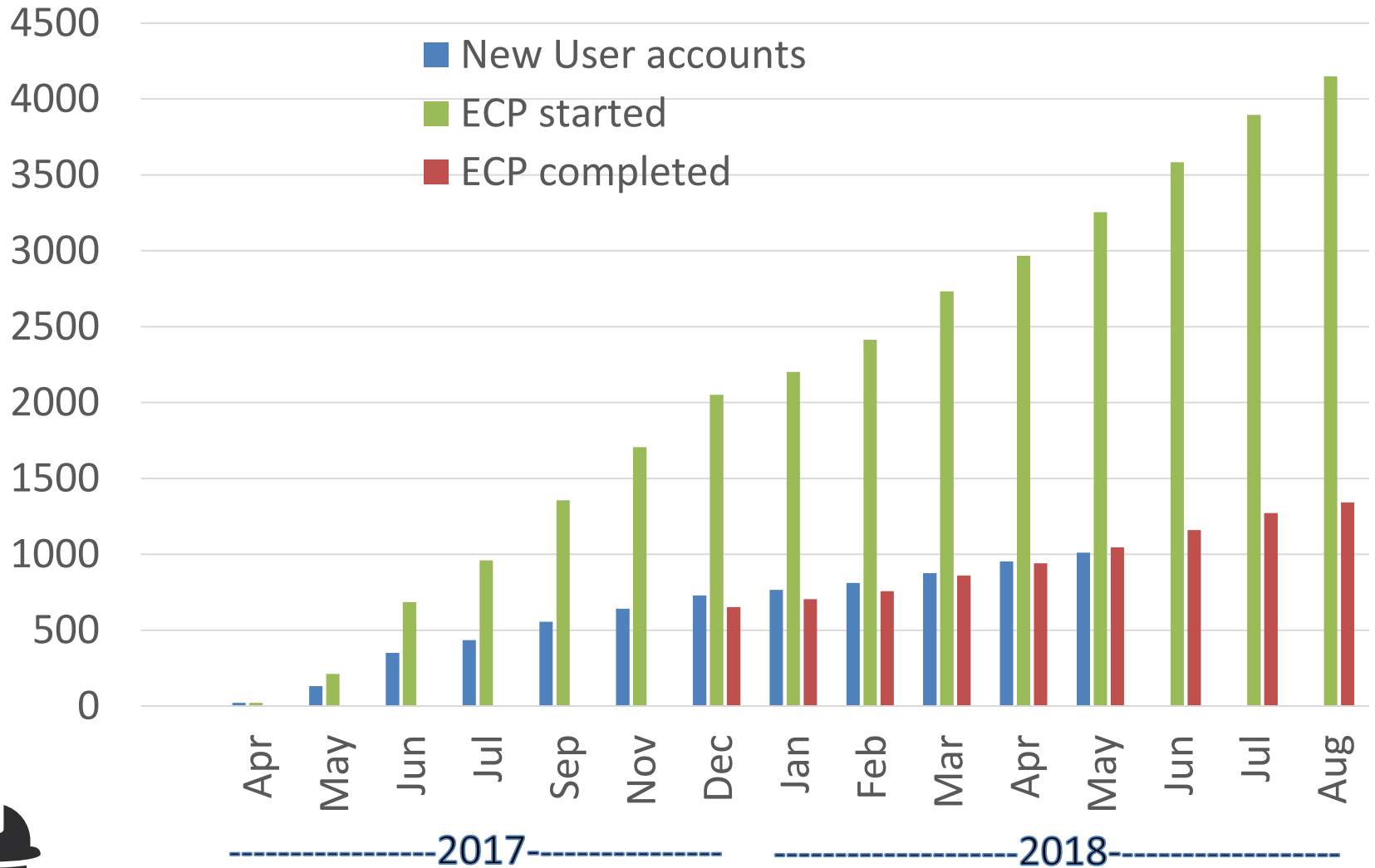
# Tool Demonstration



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# Usage Statistics – As of Aug 14 2018



# Continuing Development



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# Tool Implementation

- Silica Tool Coordinator provides support for users
- Training for local regulatory inspectors
- Continual data collection
- Tool updated in response to user requests and new data
- Tool V1.1 released October 2017
- Tool V1.2 in development



# Current Research

- Alberta OHS Futures
- Manitoba Research and Workplace Innovation
  - Extension to other jurisdictions
    - Industry survey (identify common silica processes)
    - RCS sampling
    - Refinement of modelling approach (Tool 2.0)



# Conclusions and Acknowledgements



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# Conclusions

- Data can be used beyond one-time compliance measure
- Good uptake by industry and support from regulator
- Project encourages exposure measurement and sharing by employers
- Model and tool are updated as new data become available
- Working on bringing approach to other jurisdictions



# Acknowledgements

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# Contact

[mgorman.ng@ubc.ca](mailto:mgorman.ng@ubc.ca)

Silica Tool Coordinator, Kelly Stuart:  
[kstuart@bccsa.ca](mailto:kstuart@bccsa.ca)

