



BCI Voluntary BLL Program Update

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BLL Program Nomenclature and Terminology

Blood Lead Level (BLL)

- Units of blood in whole blood, measured as micrograms of lead per deciliter of blood ($\mu\text{g}/\text{dL}$)

Removal Level

- A BLL above which a worker must be removed from lead exposure in the workplace
 - Single Result Removal Level
 - Averaging Removal Level

Biological Limit Value (BLV)

- Regulatory maximum, but removal may not be required upon exceedance



Major Jurisdiction Blood Lead Regulatory Levels



US Federal (1978)

Single Removal: 60 $\mu\text{g/dL}$;
Average Removal: 50 $\mu\text{g/dL}$



US States: California, Michigan (and soon Washington, Oregon, Minnesota)

Single Removal: 30 $\mu\text{g/dL}$;
Average Removal: 20 $\mu\text{g/dL}$
Target, 10 $\mu\text{g/dL}$



EU Biological Limit Value

30 $\mu\text{g/dL}$ (2026 – 2028)
15 $\mu\text{g/dL}$ (starting 1 January 2029)



Australia

Single Removal: 30 $\mu\text{g/dL}$ males; 10 $\mu\text{g/dL}$ females

BCI Voluntary Blood Lead Improvement Program History

- 1938 – 1990s
 - BCI funded first industry sponsored BLL analysis and improvement program (1938)
 - Continued focus throughout the intervening decades
- 1996
 - BLL Benchmarking Survey started
- 1997
 - First formal voluntary BLL target adopted in partnership with U.S. OSHA
 - Updated regularly since
- 2001
 - Co-Developed Air-Control “eTool” Guidance with U.S. OSHA

BLL Voluntary Targets – Continuous Improvement

- 1997 (BCI & U.S. OSHA)
 - 40 µg/dL
- 2013 (BCI & Eurobat)
 - 30 µg/dL
- 2017 (BCI, ILA, ABR, Eurobat)
 - 25 µg/dL by end 2019
 - 20 µg/dL by end 2025
- 2022 (BCI, ILA, ABR, Eurobat)
 - Strengthened continuous improvement commitment
 - Adopted recommended consensus response actions

BCI Voluntary BLL Program Commitments

- **Member Commitment:**

- “Continuous improvement in the management of employee lead exposures and striving to achieve blood lead levels as low as reasonably practicable respecting the application of the hierarchy of controls.”

- **Member Continuous Improvement Goal:**

- No worker with a blood lead level (BLL) above 20 µg/dL by the end of 2025
- Implement a Worker Biological Monitoring and Training Protocol utilizing the Recommended Protocols.

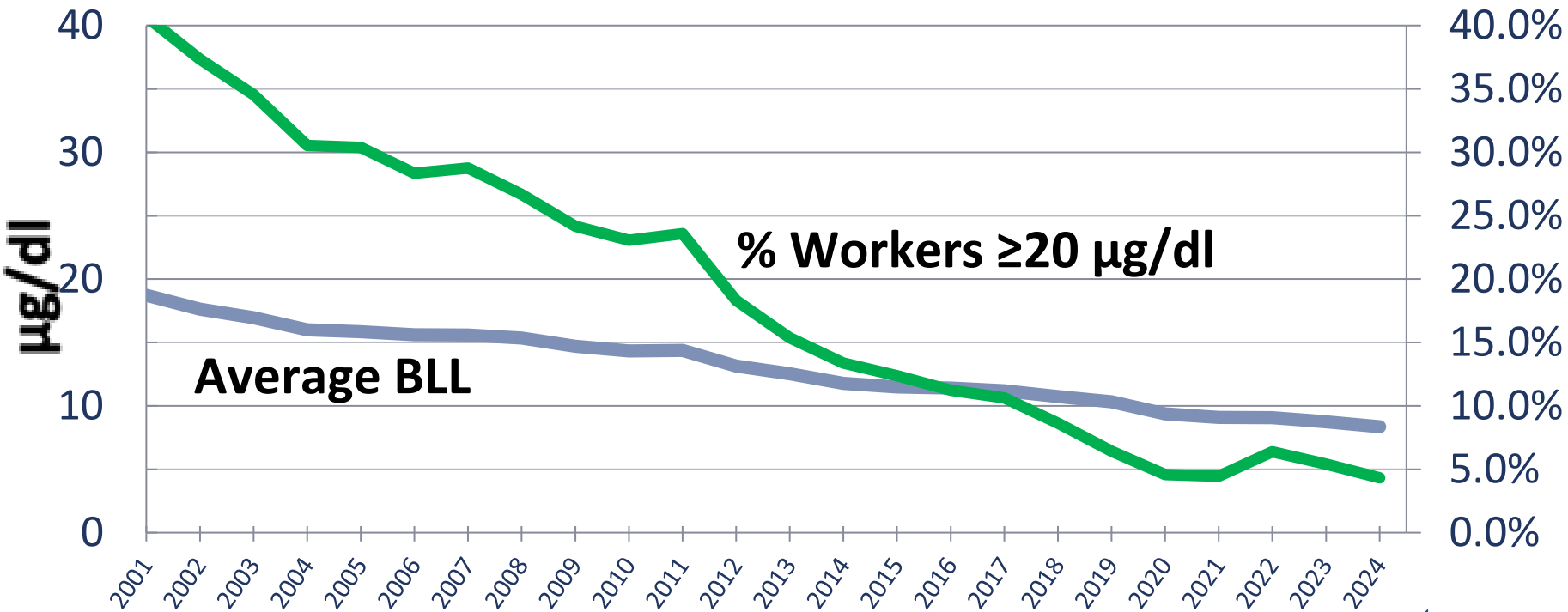
Recommended Response Protocols

- Mandatory Training for all exposed workers
- BLL testing minimum once per year
 - All workers exposed more than 10 days per year, or as required by law
 - Frequency increases with additional exposure risk
- Employee Training and Response measures at various BLLs
- Development of written BLL control plans
- Program documents available to non-BCI member organizations upon request

BLL Benchmarking Program @ BCI

- Started collecting data in 1996
- Open to any member company with lead-exposed employees
 - MEMBER DATA COMPLETELY ANONYMOUS
- Quarterly benchmarking survey
 - Must participate to receive results
- Quarterly benchmarking report
 - 3 Categories: Battery Plants, Secondary Smelters, Oxide Production
- Program forms are available for free to global partner associations to implement

Twenty Years of Continuous Improvement



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Thank You!



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Battery Council International



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