Lead Exposure in Radiator Repair Workers: A survey of Washington State radiator repair shops and review of Occupational Lead Exposure Registry data

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List of Definitions and Acronyms

ABI……American Business Information, Inc.

ABLES.....Adult Blood Lead Epidemiology and Surveillance – a NIOSH program

ALERT.....Adult Lead Exposure Reduction and Testing – a project conducted by SHARP

BLL.....Blood lead level

DOH.....Washington State Department of Health

CDC.....Centers for Disease Control and Prevention

DOL……..U.S. Department of Labor

L&I.....Washington State Department of Labor and Industries

NARSA……..National Automotive Radiator Service Association

NIOSH.....National Institute for Occupational Safety and Health

OSHA.....Occupational Safety and Health Administration

Registry.....Occupational Lead Exposure Registry

SHARP.....Safety & Health Assessment & Research for Prevention

SIC.....Standard Industrial Classification

WAC.....Washington Administrative Code

WISHA.....Washington Industrial Safety and Health Act – Washington's state OSHA program

µg/dl.....Micrograms per deciliter of whole blood – the unit of measurement for blood lead levels

Executive Summary

In Washington State, radiator repair workers have the greatest number of very elevated ($\geq$ 60 µg/dl) blood lead levels reported to the Occupational Lead Exposure Registry (Registry) of any other worker population. Consequently, we assessed lead exposure in Washington State's radiator repair workers by reviewing Registry data and conducting a statewide survey of radiator repair businesses. The goals of this study were to: 1) determine the number of radiator repair workers potentially exposed to lead, 2) estimate the extent of blood lead data underreporting to the Registry, 3) describe current safety & health practices in radiator repair shops, and 4) determine appropriate intervention strategies to reduce exposure and increase employer and worker awareness. A total of 250 radiator repair shops were identified using four sources of information: on-line Yellow Page™ business listings, a business directory on CD-ROM, the Registry, and the National Automotive Radiator Repair Association (NARSA) membership list. Survey responses were obtained from 79 percent of shops. Of these 197 shops, 79 (40 percent) reported that they repaired copper-brass radiators, an activity that is associated with relatively high lead exposures. Statewide, 135 employees were reported to perform "high exposure" repairs (i.e., potentially eligible for annual blood lead testing under the Lead Standard) and 32 owner-operators were identified (with no employees). An assessment of the Registry's ability to detect elevated blood lead levels in radiator repair workers revealed that approximately 23 percent of these workers are captured by the Registry. Workplace practices and controls designed to minimize lead exposures were frequently lacking in "high exposure" shops and only 16 percent and 35 percent of employers, respectively, had provided air- and blood-lead testing in the previous 12 months. Many shops requested technical assistance in the form of educational materials and 80 percent requested a free-of-charge, confidential consultation. Combining data derived from an occupational health surveillance system and a statewide mail survey proved effective at characterizing lead exposures and directing public health intervention in Washington State.