

Lead Risks Overlooked in Sandblasters?

Steenland, *et al*, reported that sandblasters had the highest odds ratio (3.83) for end stage renal disease of any occupational group in Michigan.¹ Sandblasters were categorized as silica exposed. Lead exposed workers were considered as a separate category and were also found to be at an elevated risk for renal disease in reference to the area populations, although their risk was found to be lower than sandblasters (odds ratio = 1.73).

Lead may be a more important etiologic agent than silica in association with the observed excess of kidney disease in sandblasters. Sandblasting surfaces painted with lead can cause environmental contamination and lead poisoning in sandblasters.² Because of this risk, Maryland has banned open abrasive sanding (sandblasting) as a method of lead abatement.³ According to US census data, 20–30 percent of Michigan housing was built before 1940 and is thus likely to contain high concentrations of lead paint.⁴ In the Detroit area where 244/325 cases lived, the majority of residential property was built before 1970, and thus well before lead content of new residential paint was reduced to 600 ppm by the Consumer Product Safety Commission. Sandblasting is also used to clean non-residential property such as bridges, for which there is no current prohibition against the use of leaded paint.

I would be interested to know if the occupational histories obtained for the sandblasters in the Michigan study contain any indications of lead exposure, such as blasting bridges or older buildings. Also, it should be possible to determine if the sandblasters in the Michigan study were construction workers or manufacturing/general industry workers. If the "silica exposed" sandblaster cases with renal disease worked in construction rather than manufacturing, their disease could be related to the weaker occupational health protection standards available for construction compared to general industry workers. The US Department of Labor OSHA permissible exposure level (PEL) for lead is 200 micrograms per cubic meter of air for construction workers, compared to 50 $\mu\text{g}/\text{m}^3$ for manufacturing workers.⁵

By comparison, hand sanding for 5 to 22 minutes on lead painted surfaces has generated concentrations of 510 to

550 $\mu\text{g}/\text{m}^3$ air.⁶ Sandblasting could generate even higher concentrations. Sandblasters' risk of high dose lead exposure is increased further because typical respiratory protection used by sandblasters had been reported to be inadequate, especially in regards to respirable particles.⁷

In order to evaluate the relative contributions of silica and lead to sandblasters' risks of end stage renal disease, it would be helpful to locate silica-exposed sandblasters with less risk of lead exposure.

REFERENCES

1. Steenland K, Thun MJ, Ferguson CW, Port FK: Occupational and other exposures associated with male end stage renal disease: A case/control study. *Am J Public Health* 1990; 80:153–157.
2. Landrigan PJ, Baker EL, Himmelstein JS, *et al*: Exposure to lead from the Mystic river bridge: The dilemma of deleading. *N Engl J Med* 1982; 306:673–676.
3. Maryland Title 26, Department of the Environment, 1988: 26.02.07 Procedures for Abating Lead Containing Substances from Buildings.
4. Agency for Toxic Substances and Disease Registry: The Nature and Extent of Lead Poisoning in Children in the United States: A Report to Congress. Atlanta, GA: US Department of Health and Human Services, July 1988.
5. 29 CFR 1910.1025 (US Dept. of Labor General Industry lead standard) and 29 CFR 1926.55 (US Dept of Labor Construction Industry lead standard).
6. Feldman RG: Urban lead mining: lead intoxication among deleaders. *N Engl J Med* 1978; 298:1143–1145.
7. Glindmeyer HW, Hammad YY: Contributing factors to sandblasters' silicosis: inadequate respiratory protection equipment and standards. *JOM* 1988; 30:917–921.

Joseph Schirmer, CIH, MS
Public Health Educator-Epidemiologist, Environmental and Chronic Disease Epidemiology Section, Bureau of Community Health and Prevention, Wisconsin Department of Health and Social Services 1 West Wilson St., PO Box 309, Madison, WI 53701-0309

Drs. Steenland and Thun Respond

We appreciate the suggestion from Mr. Schirmer that lead exposure may have contributed to the increased risk of end-stage renal disease observed in sandblasters in our study of end stage renal disease. Sandblasting may indeed involve exposure from leaded paint. There are several factors, however, which strengthen the case for silica as an independent risk factor.

1. In our study, sandblasting had an odds ratio of 3.83, compared to 1.73 for lead workers. The higher risk in sandblasters, only some of whom are exposed

to lead, suggests that an exposure other than lead is responsible.

2. Our review of the work history of 8 renal cases and 3 controls in our study who were exposed to sandblasting (Table 1) suggests that only two (cases 2 and 4) worked in jobs with probable exposure to leaded paint.

TABLE 1—Cases and Controls with Exposure to Sandblasting

Case 1,	toolmaker, 35 yrs, 5 hrs/wk sandblasting tools
Case 2,	construction worker, 1 yr, 4 hrs/wk sandblasting
Case 3,	toolmaker, 5 yrs, 4hrs/wk sandblasting tools
Case 4,	brewery worker, 14 yrs, 5 hrs/wk sandblasting trucks before painting
Case 5,	meatworker, 2 yrs, 40 hrs/wk, sandblasting meat container
Case 6,	motor repairman, 1 yr, 10 hrs/wk, sandblasting motors
Case 7,	sandblaster, 3 yrs, 40 hrs/wk, sandblasting caskets
Case 8,	sandblaster, 10 yrs, 40 hrs/wk in sandblasting company
Control 1,	milller, 9 yrs, 1 hr/wk, sandblast parts
Control 2,	auto repair, 12 yrs, 1 hr/wk sandblast parts
Control 3,	setup man (tools), 5 yrs, 40 hrs/wk, sandblast parts

3. Rats and rabbits which have been implanted or injected with silica gel develop interstitial nephritis and glomerular lesions.¹
4. Sandblasters with silicosis have an unusually high prevalence of antinuclear antibody (ANA) positivity without other stigmata of lupus erythematosus,² suggesting that silica-induced immunologic abnormalities may provide a mechanism for renal injury.
5. Cases of silica-associated nephropathy, reported in the literature, have all shown evidence of glomerulopathy as well as interstitial disease.³ Similar data have been reported from an autopsy series of silicotics.⁴ Glomerular involvement is not a common feature of lead-induced kidney disease.

In summary, the literature on silica and glomerulonephritis suggests that the occurrence of renal disease in silica-exposed workers, particularly in those with silicosis, should be examined further.

REFERENCES

1. Policard A, Collet A: Experimental study of renal lesions caused by the elimination of silica. *J d'Urol Med Chir* 1954; 60:164–171.

- Jones R, Turner-Warwick M, Ziskind M, *et al*: High prevalence of antinuclear antibodies in Sandblasters' silicosis. *Am Rev Respir Dis* 1976; 113:393-395.
- Orosio A, Thun M, Novak R, *et al*: Silica and glomerulonephritis: case report and review of the literature. *Am J Kidney Diseases* 1987; IX, 3:224-230.
- Kolev K, Doitschinov D, Todorov D: Morphologic alterations in the kidneys by silicosis. *Med Lav* 1970; 61:205-210.

N. Kyle Steenland, PhD

Michael J. Thun, MD, MPH

National Institute for Occupational Safety and Health, R13, Robert A. Taft Laboratories, 4676 Columbia Parkway, Cincinnati, OH 45226-1998

Hospital Policy, Practice Re HIV Testing for Pregnant Women and Newborns

Hospitals with maternity services may play an essential role in identifying human immunodeficiency virus (HIV) infection among women and children, since the majority of HIV-infected women are of childbearing age,¹ and perinatal exposure is the most common route of pediatric HIV infection.² The Centers for Disease Control recommends HIV testing for "all women of childbearing age with identifiable risk factors for HIV infection."³ Other experts have begun to argue for expanded HIV testing, including universal testing of pregnant women.^{4,5} In order to define current hospital practice regarding HIV testing for pregnant women and newborns, we conducted a telephone survey of maternity hospitals between November 1988 and February 1989.

One-hundred and fifty urban hospitals were randomly chosen for survey by selecting every fifteenth hospital from a list of all US hospitals with more than 900 births per year.⁶ Eighty-four of these hospitals were located in the 20 cities with the highest prevalence of AIDS (acquired immunodeficiency syndrome) cases,⁷ and 66 in cities with lower AIDS prevalence. For each hospital, an attempt was made to reach a contact person knowledgeable about that institution's policies and practices regarding HIV testing. Complete responses were obtained from 60 percent of high risk and 79 percent of low risk hospitals. Survey results are summarized in Table 1.

The majority of responding hospitals had written policies on HIV testing, and required written consent for testing both women and newborns. Hospitals in cities with higher or lower AIDS preva-

TABLE 1—Survey Results

	All Hospitals (n = 102)	High Risk (n = 50)	Low Risk (n = 52)
	R	R	R
Hospitals not offering HIV testing for women and newborns	6	1	5
Hospitals has written a policy on HIV testing	71	36	35
Hospital requires written consent for HIV testing in women	93	47	46
Hospital requires written consent for HIV testing in newborns	86	44	42
Hospital offers HIV testing to all pregnant women in high risk groups	89	45	44
Hospital offers HIV testing for all infants of women in high risk groups	80	45	35
Hospital offers HIV testing for all infants of HIV-positive mothers	92	50	42
Hospitals offers HIV testing to all pregnant women	2	2	0
Hospital offers HIV testing for all newborns	4	2	2

lence were similar with regard to development of written policies, use of written consent, and use of HIV testing for women in high-risk groups. Hospitals in lower risk cities were less likely to offer testing for newborns of HIV-positive mothers and newborns of mothers at high risk for HIV infection. Five of the six hospitals not performing any HIV testing were located in lower risk areas.

This survey suggests that HIV testing is probably available to women and newborns in the vast majority of US urban hospitals with larger maternity services. In areas of lower AIDS prevalence, however, 10 percent of the responding hospitals said they do not do any HIV testing. In high risk areas, a small number of hospitals have begun to offer HIV testing for all pregnant women, or for all newborns.

REFERENCES

- Guinan ME, Hardy A. Epidemiology of AIDS in women in the United States. *JAMA* 1987; 257:2039-42.

- Falloon J, Eddy J, Weiner L, Pizzo P. Human immunodeficiency virus infection in children. *J Pediatr* 1989; 114:1-30.
- Public health service guidelines for counseling and antibody testing to prevent HIV infection and AIDS. *MMWR* 1987; 36:509-15.
- Minkoff HL, Holman S, Beller E, Delke I, Fishbone A, Landesman S. Routinely offered prenatal HIV testing. *N Engl J of Med* 1988; 319:1018.
- Rhame FS, Maki DG. The case for wider use of testing for HIV infection. *N Engl J of Med* 1989; 320:1248-54.
- American Hospital Association data tape, 1986.
- Centers for Disease Control. HIV/AIDS surveillance report. July 1988.

Rachel M. Schwartz, MPH

Marguerite Dresser, BA

National Perinatal Information Center, 668 Eddy St./3rd Floor, Providence, RI 02903

Edward C. Maynard, MD

Department of Neonatology, MCCM-Memorial 119 Belmont St., Worcester, MA 01605

© 1990 American Journal of Public Health

Commitment to Quality Care

The call for increased commitment to quality improvement in health care by Schoenbaum¹ in the April issue of the *Journal* is already being answered. On December 19, 1989, the Agency for Health Care Policy and Research was established in the Public Health Service under the Omnibus Budget Reconciliation Act of 1989 (PL 101-239). The agency's mission is to enhance the quality, appropriateness, and effectiveness of health care services and to improve access to such services. This will be accomplished through a broad base of scientific research and through the promotion of improvements in clinical practice and in the organization, financing, and delivery of health care services.

Among a broad array of research activities, a central element of the new agency will be conducting and supporting research on the outcomes of health care service and procedures, as well as assessing the impact of those outcomes on the US population. The long-term goal of this program, known as the Medical Treatment Effectiveness Program, is to change the assessment of health care services from a focus on process (what was done) to outcomes (what resulted) from those processes of medical care. It will focus on data base development and dissemination of research findings, in addition to patient outcomes research,² becoming a major source for collaborative governmental and private efforts to develop clinical practice guidelines.