

#### Chapter 4. Metals – Lead

1. Adgate JL, Rhoads GG, Lioy PJ. 1998. The use of isotope ratios to apportion sources of lead in Jersey City, NJ, house dust wipe samples. *Sci Total Environ* 221:171-80.
2. Agency for Toxic Substances and Disease Registry. 1999. Toxicological profile for lead [Web Page]. Located at: <http://www.atsdr.cdc.gov/toxprofiles/tp13.html>.
3. Andrews KW, Savitz DA, Hertz-Picciotto I. 1994. Prenatal lead exposure in relation to gestational age and birth weight: a review of epidemiologic studies. *Am J Ind Med* 26:13-32.
4. Angle CR, Manton WI, Stanek KL. 1995. Stable isotope identification of lead sources in preschool children-- the Omaha Study. *J Toxicol Clin Toxicol* 33:657-62.
5. Annett JL, Pirkle JL, Makuc D, Neese JW, Bayse DD, Kovar MG. 1983. Chronological trend in blood lead levels between 1976 and 1980. *N Engl J Med* 308:1373-7.
6. Aschengrau A, Beiser A, Bellinger D, Copenhafer D, Weitzman M. 1994. The impact of soil lead abatement on urban children's blood lead levels: phase II results from the Boston Lead-In-Soil Demonstration Project. *Environ Res* 67:125-48.
7. Aschengrau A, Zierler S, Cohen A. 1993. Quality of community drinking water and the occurrence of late adverse pregnancy outcomes. *Arch Environ Health* 48:105-13.
8. Baghurst PA, McMichael AJ, Wigg NR, Vimpani GV, Robertson EF, Roberts RJ, Tong SL. 1992. Environmental exposure to lead and children's intelligence at the age of seven years. The Port Pirie Cohort Study. *N Engl J Med* 327:1279-84.
9. Ballew C, Khan LK, Kaufmann R, Mokdad A, Miller DT, Gunter EW. 1999. Blood lead concentration and children's anthropometric dimensions in the Third National Health and Nutrition Examination Survey (NHANES III), 1988-1994. *J Pediatr* 134:623-30.
10. Banks EC, Ferretti LE, Shucard DW. 1997. Effects of low level lead exposure on cognitive function in children: a review of behavioral, neuropsychological and biological evidence. *Neurotoxicology* 18:237-81.
11. Beattie AD, Moore MR, Devenay WT, Miller AR, Goldberg A. 1972. Environmental lead pollution in an urban soft-water area. *Br Med J* 2:491-3.
12. Bellinger DC, Stiles KM, Needleman HL. 1992. Low-level lead exposure, intelligence and academic achievement: a long-term follow-up study. *Pediatrics* 90:855-61.
13. Bergdahl IA, Grubb A, Schutz A, Desnick RJ, Wetmur JG, Sassa S, Skerfving S. 1997. Lead binding to delta-aminolevulinic acid dehydratase (ALAD) in human erythrocytes. *Pharmacol Toxicol* 81:153-8.
14. Bernard AM, Vyskocil A, Roels H, Kriz J, Kodl M, Lauwerys R. 1995. Renal effects in children living in the vicinity of a lead smelter. *Environ Res* 68:91-5.
15. Binder S, Matte TD, Kresnow M, Houston B, Sacks JJ. 1996. Lead testing of children and homes: results of a national telephone survey. *Public Health Rep* 111:342-6.
16. Borja-Aburto VH, Hertz-Picciotto I, Rojas Lopez M, Farias P, Rios C, Blanco J. 1999. Blood lead levels measured prospectively and risk of spontaneous abortion. *Am J Epidemiol* 150:590-7.
17. Bornschein RL. 1985. Influence of social factors on lead exposure and child development. *Environ Health Perspect* 62:343-51.
18. Bouton CM, Pevsner J. 2000. Effects of lead on gene expression. *Neurotoxicology* 21:1045-55.

19. Bradman A, Eskenazi B, Sutton P, Athanasoulis M, Goldman LR. 2001. Iron deficiency associated with higher blood lead in children living in contaminated environments. *Environ Health Perspect* 109:1079-84.
20. Bressler J, Kim KA, Chakraborti T, Goldstein G. 1999. Molecular mechanisms of lead neurotoxicity. *Neurochem Res* 24:595-600.
21. Bressler JP, Goldstein GW. 1991. Mechanisms of lead neurotoxicity. *Biochem Pharmacol* 41:479-84.
22. Brody DJ, Pirkle JL, Kramer RA, Flegal KM, Matte TD, Gunter EW, Paschal DC. 1994. Blood lead levels in the US population. Phase 1 of the Third National Health and Nutrition Examination Survey (NHANES III, 1988 to 1991). *JAMA* 272:277-83.
23. Burns JM, Baghurst PA, Sawyer MG, McMichael AJ, Tong SL. 1999. Lifetime low-level exposure to environmental lead and children's emotional and behavioral development at ages 11-13 years. The Port Pirie Cohort Study. *Am J Epidemiol* 149:740-9.
24. Byers RK, Lord EE. 1943. Late effects of lead poisoning on mental development. *Am J Dis Child* 66:471-94.
25. Campbell MJ, Cogman GR, Holgate ST, Johnston SL. 1997. Age specific trends in asthma mortality in England and Wales, 1983-95: results of an observational study. *BMJ* 314:1439-41.
26. Centers for Disease Control and Prevention. 1973. Epidemiologic notes and reports. Human lead absorption - Texas. *MMWR* 22 :405-7.
27. Centers for Disease Control and Prevention. 1991. Preventing lead poisoning in young children: a statement by the Centers for Disease Control. Centers for Disease Control and Prevention, Public Health Service, U.S. Department of Health and Human Services.
28. Centers for Disease Control and Prevention. 1994. Epidemiologic notes and reports. Lead-contaminated drinking water in bulk-water storage tanks -- Arizona and California, 1993. *MMWR* 43:751,757-8.
29. Centers for Disease Control and Prevention. 1997. Screening young children for lead poisoning: guidance for state and local public health officials [Web Page]. Located at: <http://www.cdc.gov/nceh/lead/guide/guide97.htm>.
30. Centers for Disease Control and Prevention. 2000. Blood lead levels in young children - United States and selected states, 1996-1999. *MMWR* 49:1133-7.
31. Cook M, Chappell WR, Hoffman RE, Mangione EJ. 1993. Assessment of blood lead levels in children living in a historic mining and smelting community. *Am J Epidemiol* 137:447-55.
32. Cookman GR, King W, Regan CM. 1987. Chronic low-level lead exposure impairs embryonic to adult conversion of the neural cell adhesion molecule. *J Neurochem* 49:399-403.
33. Counter SA, Buchanan LH, Ortega F, Rifai N. 2000. Blood lead and hemoglobin levels in Andean children with chronic lead intoxication. *Neurotoxicology* 21:301-8.
34. Cunningham BA, Hemperly JJ, Murray BA, Prediger EA, Brackenbury R, Edelman GM. 1987. Neural cell adhesion molecule: structure, immunoglobulin-like domains, cell surface modulation, and alternative RNA splicing. *Science* 236:799-806.
35. D'Mello SR. 1998. Molecular regulation of neuronal apoptosis. *Curr Top Dev Biol* 39:187-213.
36. Danish Environmental Protection Agency. 2001. Denmark's lead ban a world first [Web Page]. Located at: <http://www.mst.dk/news/02070000.htm>.
37. Davey FD, Breen KC. 1998. Stimulation of sialyltransferase by subchronic low-level lead exposure in the developing nervous system. A potential mechanism of teratogen action. *Toxicol Appl Pharmacol* 151:16-21.

38. Delves HT, Diaper SJ, Oppert S, Prescott-Clarke P, Periam J, Dong W, Colhoun H, Gompertz D. 1996. Blood lead concentrations in United Kingdom have fallen substantially since 1984. *BMJ* 313:883-4.
39. Deshmukh M, Johnson EM Jr. 1997. Programmed cell death in neurons: focus on the pathway of nerve growth factor deprivation-induced death of sympathetic neurons. *Mol Pharmacol* 51:897-906.
40. Dewailly E, Ayotte P, Bruneau S, Lebel G, Levallois P, Weber JP. 2001. Exposure of the Inuit population of Nunavik (Arctic Quebec) to lead and mercury. *Arch Environ Health* 56:350-7.
41. Diaz-Barriga F, Batres L, Calderon J, Lugo A, Galvao L, Lara I, Rizo P, Arroyave ME, McConnell R. 1997. The El Paso smelter 20 years later: residual impact on Mexican children. *Environ Res* 74:11-6.
42. Dietrich KN, Berger OG, Succop PA, Hammond PB, Bornschein RL. 1993. The developmental consequences of low to moderate prenatal and postnatal lead exposure: intellectual attainment in the Cincinnati Lead Study Cohort following school entry. *Neurotoxicol Teratol* 15:37-44.
43. Dietrich KN, Succop PA, Berger OG, Keith RW. 1992. Lead exposure and the central auditory processing abilities and cognitive development of urban children: the Cincinnati Lead Study Cohort at age 5 years. *Neurotoxicol Teratol* 14:51-6 .
44. Dunah AW, Yasuda RP, Luo J, Wang Y, Prybylowski KL, Wolfe BB. 1999. Biochemical studies of the structure and function of the N-methyl-D-aspartate subtype of glutamate receptors. *Mol Neurobiol* 19:151-79.
45. Eriksson P. 1997. Developmental neurotoxicity of environmental agents in the neonate. *Neurotoxicology* 18:719-26.
46. Esteban E, Rubin CH, Jones RL, Noonan G. 1999. Hair and blood as substrates for screening children for lead poisoning. *Arch Environ Health* 54:436-40.
47. Farfel MR. 1985. Reducing lead exposure in children. *Annu Rev Public Health* 6:333-60.
48. Farias P, Borja-Aburto VH, Rios C, Hertz-Picciotto I, Rojas-Lopez M, Chavez-Ayala R. 1996. Blood lead levels in pregnant women of high and low socioeconomic status in Mexico City. *Environ Health Perspect* 104:1070-4.
49. Fels LM, Wunsch M, Baranowski J, Norska-Borowka I, Price RG, Taylor SA, Patel S, De Broe M, Elsevier MM, Lauwerys R and others. 1998. Adverse effects of chronic low level lead exposure on kidney function--a risk group study in children. *Nephrol Dial Transplant* 13:2248-56.
50. Fergusson JE. 1986. Lead: petrol lead in the environment and its contribution to human blood lead levels. *Sci Total Environ* 50:1-54.
51. Fergusson JE, Schroeder RJ. 1985. Lead in house dust of Christchurch, New Zealand: sampling, levels and sources. *Sci Total Environ* 46:61-72.
52. Finkelstein Y, Markowitz ME, Rosen JF. 1998. Low-level lead-induced neurotoxicity in children: an update on central nervous system effects. *Brain Res Rev* 27:168-76.
53. Fowler BA. 1998. Roles of lead-binding proteins in mediating lead bioavailability. *Environ Health Perspect* 106 Suppl 6 :1585-7.
54. Fox DA, Campbell ML, Blocker YS. 1997. Functional alterations and apoptotic cell death in the retina following developmental or adult lead exposure. *Neurotoxicology* 18:645-64.
55. Galal-Gorchev H. 1993. Dietary intake, levels in food and estimated intake of lead, cadmium, and mercury. *Food Addit Contam* 10:115-28.
56. Galke W, Clark S, Wilson J, Jacobs D, Succop P, Dixon S, Bornschein B, McLaine P, Chen M. 2001. Evaluation of the HUD lead hazard control grant program: early overall findings. *Environ Res* 86:149-56.

57. Ghosh A, Greenberg ME. 1995. Calcium signaling in neurons: molecular mechanisms and cellular consequences. *Science* 268 :239-47.
58. Gibson JL. 1892. Notes on lead-poisoning as observed among children in Brisbane. *Proc Intercolonial Med Congr Aust* 3:76-83.
59. Gibson JL. 1904. A plea for painted railings and painted walls of rooms as the source of lead poisoning amongst Queensland children. *Aust Med Gazette* 23:149-53.
60. Gilbert ME, Mack CM, Lasley SM . 1999. Chronic developmental lead exposure and hippocampal long-term potentiation: biphasic dose-response relationship. *Neurotoxicology* 20:71-82.
61. Goldstein GW. 1993. Evidence that lead acts as a calcium substitute in second messenger metabolism. *Neurotoxicology* 14:97-101.
62. GonzalezCossio T, Peterson KE, Sanin LH, Fishbein E, Palazuelos E, Aro A, HernandezAvila M, Hu H. 1997. Decrease in birth weight in relation to maternal bone lead burden. *Pediatrics* 100:856-62.
63. Gordon N. 1995. Apoptosis (programmed cell death) and other reasons for elimination of neurons and axons. *Brain Dev* 17:73-7.
64. Guilarte TR. 1997. Glutamatergic system and developmental lead neurotoxicity. *Neurotoxicology* 18:665-72.
65. Gulson BL, Cameron MA, Smith AJ, Mizon KJ, Korsch MJ, Vimpani G, McMichael AJ, Pisaniello D, Jameson CW, Mahaffey KR. 1998. Blood lead-urine lead relationships in adults and children. *Environ Res* 78:152-60.
66. Gulson BL, Jameson CW, Mahaffey KR, Mizon KJ, Korsch MJ, Vimpani G. 1997 . Pregnancy increases mobilization of lead from maternal skeleton. *J Lab Clin Med* 130:51-62.
67. Gulson BL, Mahaffey KR, Jameson CW, Mizon KJ, Korsch MJ, Cameron MA, Eisman JA. 1998. Mobilization of lead from the skeleton during the postnatal period is larger than during pregnancy. *J Lab Clin Med* 131:324-9.
68. Hanas JS, Rodgers JS, Bantle JA, Cheng YG. 1999. Lead inhibition of DNA-binding mechanism of Cys(2)His(2) zinc finger proteins. *Mol Pharmacol* 56:982-8.
69. Hernandez-Avila M, Smith D, Meneses F, Sanin LH, Hu H. 1998. The influence of bone and blood lead on plasma lead levels in environmentally exposed adults. *Environ Health Perspect* 106:473-7.
70. Hertzman C, Ward H, Ames N, Kelly S, Yates C. 1991. Childhood lead exposure in Trail revisited. *Can J Public Health* 82:385-91.
71. Hogan K, Marcus A, Smith R, White P. 1998. Integrated exposure uptake biokinetic model for lead in children: empirical comparisons with epidemiologic data. *Environ Health Perspect* 106 Suppl 6:1557-67.
72. Holscher C. 1999. Synaptic plasticity and learning and memory: LTP and beyond. *J Neurosci Res* 58:62-75.
73. Hsieh LL, Liou SH, Chen YH, Tsai LC, Yang T, Wu TN. 2000. Association between aminolevulinic acid dehydrogenase genotype and blood lead levels in Taiwan. *J Occup Environ Med* 42:151-5.
74. Huang YY, Colino A, Selig DK, Malenka RC. 1992. The influence of prior synaptic activity on the induction of long-term potentiation. *Science* 255:730-3.
75. Irgens A, Kruger K, Skorve AH, Irgens LM. 1998. Reproductive outcome in offspring of parents occupationally exposed to lead in Norway. *Am J Ind Med* 34:431-7.
76. Johnston MV, Goldstein GW. 1998. Selective vulnerability of the developing brain to lead. *Curr Opin Neurol* 11:689-93.

77. Kafourou A, Touloumi G, Makropoulos V, Loutradi A, Papanagiotou A, Hatzakis A. 1997. Effects of lead on the somatic growth of children. *Arch Environ Health* 52:377-83.
78. Kaufmann RB, Clouse TL, Olson DR, Matte TD. 2000. Elevated blood lead levels and blood lead screening among US children aged one to five years: 1988-1994. *Pediatrics* 106:E79.
79. Kelada SN, Shelton E, Kaufmann RB, Khoury MJ. 2001. Delta-aminolevulinic acid dehydratase genotype and lead toxicity: a HuGE review. *Am J Epidemiol* 154:1-13.
80. Kemper AR, Bordley WC, Downs SM. 1998. Cost-effectiveness analysis of lead poisoning screening strategies following the 1997 guidelines of the Centers for Disease Control and Prevention. *Arch Pediatr Adolesc Med* 152:1202-8.
81. Kern M, Audesirk G. 1995. Inorganic lead may inhibit neurite development in cultured rat hippocampal neurons through hyperphosphorylation. *Toxicol Appl Pharmacol* 134:111-23.
82. Kim R, Hu H, Rotnitzky A, Bellinger D, Needleman H. 1996. Longitudinal relationship between dentin lead levels in childhood and bone lead levels in young adulthood. *Arch Environ Health* 51:375-82.
83. Kirkwood A, Rioult MC, Bear MF. 1996. Experience-dependent modification of synaptic plasticity in visual cortex. *Nature* 381:526-8.
84. Kristensen P, Irgens LM, Daltveit AK, Andersen A. 1993. Perinatal outcome among children of men exposed to lead and organic solvents in the printing industry. *Am J Epidemiol* 137:134-44.
85. Landrigan PJ, Baker EL Jr, Feldman RG, Cox DH, Eden KV, Orenstein WA, Mather JA, Yankel AJ, Von Lindern IH. 1976. Increased lead absorption with anemia and slowed nerve conduction in children near a lead smelter. *J Pediatr* 89:904-10.
86. Landrigan PJ, Gehlbach SH, Rosenblum BF, Shoults JM, Candelaria RM, Barthel WF, Liddle JA, Smrek AL, Staehling NW, Sanders JF. 1975a. Epidemic lead absorption near an ore smelter. The role of particulate lead. *N Engl J Med* 292:123-9.
87. Landrigan PJ, Whitworth RH, Baloh RW, Staehling NW, Barthel WF, Rosenblum BF. 1975b. Neuropsychological dysfunction in children with chronic low-level lead absorption. *Lancet* 1:708-12.
88. Lanphear BP. 1998. The paradox of lead poisoning prevention. *Science* 281:1617-8.
89. Lanphear BP, Burgoon DA, Rust SW, Eberly S, Galke W. 1998. Environmental exposures to lead and urban children's blood lead levels. *Environ Res* 76:120-30.
90. Lanphear BP, Dietrich K, Auinger P, Cox C. 2000. Cognitive deficits associated with blood lead concentrations <10 microg/dL in US children and adolescents. *Public Health Rep* 115: 521-9.
91. Lanphear BP, Howard C, Eberly S, Auinger P, Kolassa J, Weitzman M, Schaffer SJ, Alexander K. 1999. Primary prevention of childhood lead exposure: A randomized trial of dust control. *Pediatrics* 103:772-7.
92. Lanphear BP, Matte TD, Rogers J, Clickner RP, Dietz B, Bornschein RL, Succop P, Mahaffey KR, Dixon S, Galke W and others. 1998. The contribution of lead-contaminated house dust and residential soil to children's blood lead levels. A pooled analysis of 12 epidemiologic studies. *Environ Res* 79:51-68.
93. Lanphear BP, Roghmann KJ. 1997. Pathways of lead exposure in urban children. *Environ Res* 74:67-73.
94. Lin S, Hwang SA, Marshall EG, Marion D. 1998. Does paternal occupational lead exposure increase the risks of low birth weight or prematurity? *Am J Epidemiol* 148:173-81.
95. Lindbohm ML, Sallmen M, Anttila A, Taskinen H, Hemminki K. 1991. Paternal occupational lead exposure and spontaneous abortion. *Scand J Work Environ Health* 17:95-103.

96. Lu B, Chow A. 1999. Neurotrophins and hippocampal synaptic transmission and plasticity. *J Neurosci Res* 58:76-87.
97. Maddaloni M, Lolocono N, Manton W, Blum C, Drexler J, Graziano J. 1998. Bioavailability of soilborne lead in adults, by stable isotope dilution. *Environ Health Perspect* 106 Suppl 6:1589-94.
98. Mahaffey KR, Annett JL, Roberts J, Murphy RS. 1982a. National estimates of blood lead levels: United States, 1976-1980: association with selected demographic and socioeconomic factors. *N Engl J Med* 307:573-9.
99. Mahaffey KR, Rosen JF, Chesney RW, Peeler JT, Smith CM, DeLuca HF. 1982b . Association between age, blood lead concentration, and serum 1,25- dihydroxycholecalciferol levels in children. *Am J Clin Nutr* 35:1327-31.
100. Manton WI. 1977. Sources of lead in blood. Identification by stable isotopes. *Arch Environ Health* 32:149-59.
101. Manton WI, Angle CR, Stanek KL, Reese YR, Kuehnemann TJ. 2000. Acquisition and retention of lead by young children. *Environ Res* 82:60-80.
102. Markovac J, Goldstein GW. 1988. Picomolar concentrations of lead stimulate brain protein kinase C. *Nature* 334:71-3.
103. Markowitz G , Rosner D. 2000. "Cater to the children": the role of the lead industry in a public health tragedy, 1900-1955. *Am J Public Health* 90:36-46.
104. Markowitz ME, Rosen JF. 1984. Assessment of lead stores in children: validation of an 8-hour CaNa<sub>2</sub>EDTA provocative test. *J Pediatr* 104. 104:337-41.
105. McBride WG, Black BP, English BJ. 1982. Blood lead levels and behaviour of 400 preschool children. *Med J Aust* 2:26-9.
106. McDonald JW , Johnston MV. 1993. Excitatory amino acid neurotoxicity in the developing brain. *NIDA Res Monogr* 133:185-205.
107. McElvaine MD, DeUngria EG, Matte TD, Copley CG, Binder S. 1992. Prevalence of radiographic evidence of paint chip ingestion among children with moderate to severe lead poisoning, St Louis, Missouri, 1989 through 1990. *Pediatrics* 89:740-2.
108. McMichael AJ, Vimpani GV, Robertson EF, Baghurst PA, Clark PD. 1986. The Port Pirie cohort study: maternal blood lead and pregnancy outcome. *J Epidemiol Community Health* 40:18-25.
109. Melman ST, Nimeh JW, Anbar RD. 1998. Prevalence of elevated blood lead levels in an inner-city pediatric clinic population. *Environ Health Perspect* 106:655-7.
110. Mielke HW, Reagan PL. 1998. Soil is an important pathway of human lead exposure. *Environ Health Perspect* 106 Suppl 1:217-29.
111. Millstone E, Russell J. 1995. Environmental lead and children's intelligence. Britain must replace its lead pipes to meet WHO standards for drinking water. *BMJ* 310:1408-9.
112. Moel DI, Sachs HK, Cohn RA, Drayton MA. 1985. Renal function 9 to 17 years after childhood lead poisoning. *J Pediatr* 106:729-33.
113. Morse DL, Landrigan PJ, Rosenblum BF, Hubert JS, Housworth J. 1979. El Paso revisited. Epidemiologic follow-up of an environmental lead problem. *JAMA* 242:739-41.
114. Murphy KJ, Regan CM. 1998. Contributions of cell adhesion molecules to altered synaptic weightings during memory consolidation. *Neurobiol Learn Mem* 70:73-81.
115. Needleman HL. 1997. Clamped in a straitjacket: the insertion of lead into gasoline. *Environ Res* 74:95-103.
116. Needleman HL, Gatsonis CA. 1990. Low-level lead exposure and the IQ of children. A meta-analysis of modern

studies. *JAMA* 263:673-8.

117. Needleman HL, Gunnoe C, Leviton A, Reed R, Peresie H, Maher C, Barrett P. 1979. Deficits in psychological and classroom performance of children with elevated dentine lead levels. *N Engl J Med* 300:689-95.
118. Needleman HL, Riess JA, Tobin MJ, Biesecker GE, Greenhouse JB. 1996. Bone lead levels and delinquent behavior. *JAMA* 275:363-9.
119. Nihei MK, Desmond NL, McGlothlan JL, Kuhlmann AC, Guilarte TR. 2000. N-methyl-D-aspartate receptor subunit changes are associated with lead-induced deficits of long-term potentiation and spatial learning. *Neuroscience* 99:233-42.
120. Norman EH, Hertz-Picciotto I, Salmen DA, Ward TH. 1997. Childhood lead poisoning and vinyl miniblind exposure. *Arch Pediatr Adolesc Med* 151:1033-7.
121. O'Flaherty EJ. 1998. A physiologically based kinetic model for lead in children and adults. *Environ Health Perspect* 106 Suppl 6:1495-503.
122. Onalaja AO, Claudio L. 2000. Genetic susceptibility to lead poisoning. *Environ Health Perspect* 108 Suppl 1:23-8.
123. Osman K, Pawlas K, Schutz A, Gazdzik M, Sokal JA, Vahter M. 1999. Lead exposure and hearing effects in children in Katowice, Poland. *Environ Res* 80:1-8.
124. Osman K, Schutz A, Akesson B, Maciag A, Vahter M. 1998. Interactions between essential and toxic elements in lead exposed children in Katowice, Poland. *Clin Biochem* 31:657-65.
125. Otto DA, Fox DA. 1993. Auditory and visual dysfunction following lead exposure. *Neurotoxicology* 14:191-207.
126. Paglia DE, Renner SW, Bhambhani K. 1999. Differential effects of low-level lead exposure on the natural isozymes of erythrocyte 5'-nucleotidase. *Clin Biochem* 32:193-9.
127. Paglia DE, Valentine WN, Dahlgren JG. 1975. Effects of low-level lead exposure on pyrimidine 5'-nucleotidase and other erythrocyte enzymes. Possible role of pyrimidine 5'-nucleotidase in the pathogenesis of lead-induced anemia. *J Clin Invest* 56:1164-9.
128. Pendergrass JC, Haley BE, Vimy MJ, Winfield SA, Lorscheider FL. 1997. Mercury vapor inhalation inhibits binding of GTP to tubulin in rat brain: similarity to a molecular lesion in Alzheimer diseased brain. *Neurotoxicology* 18:315-24.
129. Pirkle JL, Brody DJ, Gunter EW, Kramer RA, Paschal DC, Flegal KM, Matte TD. 1994. The decline in blood lead levels in the United States. The National Health and Nutrition Examination Surveys (NHANES). *JAMA* 272:284-91.
130. Pirkle JL, Kaufmann RB, Brody DJ, Hickman T, Gunter EW, Paschal DC. 1998. Exposure of the U.S. population to lead, 1991-1994. *Environ Health Perspect* 106:745-50.
131. Pocock SJ, Smith M, Baghurst P. 1994. Environmental lead and children's intelligence: a systematic review of the epidemiological evidence. *BMJ* 309:1189-97.
132. Ponka A, Salminen E, Ahonen S. 1993. Lead in the ambient air and blood specimens of children in Helsinki. *Sci Total Environ* 138:301-8.
133. President's Task Force on Environmental Health Risks and Safety Risks to Children. 2000. Eliminating childhood lead poisoning: A federal strategy targeting lead paint hazards [Web Page]. Located at: <http://www.hud.gov/offices/lead/reports/fedstrategy2000.pdf>.
134. Quintanilla-Vega B, Smith DR, Kahng MW, Hernandez JM, Albores A, Fowler BA. 1995. Lead-binding proteins in brain tissue of environmentally lead-exposed humans. *Chem Biol Interact* 98:193-209.

135. Rabinowitz M, Needleman H, Burley M, Finch H, Rees J. 1984. Lead in umbilical blood, indoor air, tap water, and gasoline in Boston. *Arch Environ Health* 39:299-301.
136. Rabinowitz MB. 1991. Toxicokinetics of bone lead. *Environ Health Perspect* 91:33-7.
137. Regan CM. 1993. Neural cell adhesion molecules, neuronal development and lead toxicity. *Neurotoxicology* 14:69-74.
138. Reissman DB, Staley F, Curtis GB, Kaufmann RB. 2001. Use of geographic information system technology to aid Health Department decision making about childhood lead poisoning prevention activities. *Environ Health Perspect* 109:89-94.
139. Rhainds M, Levallois P. 1997. Effects of maternal cigarette smoking and alcohol consumption on blood lead levels of newborns. *Am J Epidemiol* 145:250-7.
140. Rhoads GG, Ettinger AS, Weisel CP, Buckley TJ, Goldman KD, Adgate J, Liyo PJ. 1999. The effect of dust lead control on blood lead in toddlers: a randomized trial. *Pediatrics* 103:551-5.
141. Rice DC. 1993. Lead-induced changes in learning: evidence for behavioral mechanisms from experimental animal studies. *Neurotoxicology* 14:167-78.
142. Rice DC. 1996. Behavioral effects of lead: commonalities between experimental and epidemiologic data. *Environ Health Perspect* 104 Suppl 2:337-51.
143. Rice DC, Evangelista de Duffard AM, Duffard R, Iregren A, Satoh H, Watanabe C. 1996. Lessons for neurotoxicology from selected model compounds: SGOMSEC joint report. *Environ Health Perspect* 104 Suppl 2:205-15.
144. Rodier PM. 1995. Developing brain as a target of toxicity. *Environ Health Perspect* 103 Suppl 6:73-6.
145. Romieu I, Lacasana M, McConnell R. 1997. Lead exposure in Latin America and the Caribbean. Lead Research Group of the Pan-American Health Organization. *Environ Health Perspect* 105:398-405.
146. Roscoe RJ, Gittleman JL, Deddens JA, Petersen MR, Halperin WE. 1999. Blood lead levels among children of lead-exposed workers: A meta-analysis. *Am J Ind Med* 36:475-81.
147. Rothenberg SJ, Schnaas L, Perroni E, Hernandez RM, Martinez S, Hernandez C. 1999. Pre- and postnatal lead effect on head circumference: a case for critical periods. *Neurotoxicol Teratol* 21:1-11.
148. Ruff HA, Bijur PE, Markowitz M, Ma YC, Rosen JF. 1993. Declining blood lead levels and cognitive changes in moderately lead-poisoned children. *JAMA* 269:1641-6.
149. Rust SW, Kumar P, Burgoon DA, Niemuth NA, Schultz BD. 1999. Influence of bone-lead stores on the observed effectiveness of lead hazard intervention. *Environ Res* 81:175-84.
150. Sakai T, Morita Y. 1996. delta-Aminolevulinic acid in plasma or whole blood as a sensitive indicator of lead effects, and its relation to the other heme-related parameters. *Int Arch Occup Environ Health* 68:126-32.
151. Sallmen M, Lindbohm ML, Anttila A, Taskinen H, Hemminki K. 1992. Paternal occupational lead exposure and congenital malformations. *J Epidemiol Community Health* 46:519-22.
152. Scatton B. 1993. The NMDA receptor complex. *Fundam Clin Pharmacol* 7:389-400.
153. Schilling RJ, Bain RP. 1988. Prediction of children's blood lead levels on the basis of household-specific soil lead levels. *Am J Epidemiol* 128:197-205.
154. Schuhmacher M, Belles M, Rico A, Domingo JL, Corbella J. 1996. Impact of reduction of lead in gasoline on the blood and hair lead levels in the population of Tarragona Province, Spain, 1990-1995. *Sci Total Environ* 184:203-9.
155. Schwartz BS, Lee BK, Lee GS, Stewart WF, Simon D, Kelsey K, Todd AC. 2000. Associations of blood lead,

dimercaptosuccinic acid-chelatable lead, and tibia lead with polymorphisms in the vitamin D receptor and [delta]-aminolevulinic acid dehydratase genes. *Environ Health Perspect* 108:949-54.

156. Schwartz J. 1994. Low-level lead exposure and children's IQ: a meta-analysis and search for a threshold. *Environ Res* 65:42-55.
157. Schwartz J, Angle C, Pitcher H. 1986. Relationship between childhood blood lead levels and stature. *Pediatrics* 77:281-8.
158. Schwartz J, Landrigan PJ, Baker EL Jr, Orenstein WA, von Lindern IH. 1990. Lead induced anemia: dose response relationships and evidence for a threshold. *Am J Public Health* 80: 165-8.
159. Schwartz J, Landrigan PJ, Feldman RG, Silbergeld EK, Baker EL Jr, von Lindern IH. 1988. Threshold effect in lead-induced peripheral neuropathy. *J Pediatr* 112:12-7 .
160. Schwartz J, Otto D. 1987. Blood lead, hearing thresholds, and neurobehavioral development in children and youth. *Arch Environ Health* 42:153-60.
161. Schwartz J, Otto D. 1991. Lead and minor hearing impairment. *Arch Environ Health* 46:300-5.
162. Seifert B, Becker K, Helm D, Krause C, Schulz C, Seiwert M. 2000. The German environmental survey 1990/1992 (GerES II): reference concentrations of selected environmental pollutants in blood, urine, hair, house dust, drinking water and indoor air. *J Expo Anal Environ Epidemiol* 10:552-65.
163. Shen X, Rosen JF, Guo D, Wu S . 1996. Childhood lead poisoning in China. *Sci Total Environ* 181:101-9.
164. Shen XM, Wu SH, Yan CH, Zhao W, Ao LM, Zhang YW, He JM, Ying JM, Li RQ, Wu SM and others. 2001. Delta-aminolevulinic acid dehydratase polymorphism and blood lead levels in Chinese children. *Environ Res* 85:185-90.
165. Shotyk W, Weiss D, Appleby PG, Cheburkin AK, Gloor RFM, Kramers JD, Reese S, Van Der Knaap WO. 1998. History of atmospheric lead deposition since 12,370 (14)C yr BP from a peat bog, Jura mountains, Switzerland. *Science* 281:1635-40.
166. Silbergeld EK. 1990. Implications of new data on lead toxicity for managing and preventing exposure. *Environ Health Perspect* 89:49-54.
167. Silbergeld EK. 1992. Mechanisms of lead neurotoxicity, or looking beyond the lamppost. *FASEB J* 6:3201-6.
168. Silbergeld EK. 1997. Preventing lead poisoning in children. *Annu Rev Public Health* 18:187-210.
169. Sithisarankul P, Schwartz BS, Lee BK, Kelsey KT, Strickland PT. 1997. Aminolevulinic acid dehydratase genotype mediates plasma levels of the neurotoxin, 5-aminolevulinic acid, in lead-exposed workers. *Am J Ind Med* 32:15-20.
170. Smith CM, Wang X, Hu H, Kelsey KT. 1995. A polymorphism in the delta-aminolevulinic acid dehydratase gene may modify the pharmacokinetics and toxicity of lead. *Environ Health Perspect* 103:248-53.
171. Steinberg KK, Cogswell ME, Chang JC, Caudill SP, McQuillan GM, Bowman BA, Grummer-Strawn LM, Sampson EJ, Khoury MJ, Gallagher ML. 2001. Prevalence of C282Y and H63D mutations in the hemochromatosis (HFE) gene in the United States. *JAMA* 285:2216-22.
172. Succop P, Bornschein R, Brown K, Tseng CY. 1998. An empirical comparison of lead exposure pathway models. *Environ Health Perspect* 106 Suppl 6:1577-83.
173. Tera O, Schwartzman DW, Watkins TR. 1985. Identification of gasoline lead in children's blood using isotopic analysis. *Arch Environ Health* 40:120-3.
174. Thacker SB, Hoffman DA, Smith J, Steinberg K, Zack M. 1992. Effect of low-level body burdens of lead on the mental development of children: limitations of meta-analysis in a review of longitudinal data. *Arch Environ Health*

47:336-46.

175. Thomas KW, Pellizzari ED, Berry MR. 1999. Population-based dietary intakes and tap water concentrations for selected elements in the EPA region V National Human Exposure Assessment Survey (NHEXAS). *J Expo Anal Environ Epidemiol* 9:402-13.
176. Tong S. 1998. Lead exposure and cognitive development: persistence and a dynamic pattern. *J Paediatr Child Health* 34:114-8.
177. Tong S, Baghurst P, McMichael A, Sawyer M, Mudge J. 1996. Lifetime exposure to environmental lead and children's intelligence at 11-13 years: the Port Pirie cohort study. *BMJ* 312: 1569-75.
178. Tong S, Baghurst PA, Sawyer MG, Burns J, McMichael AJ. 1998. Declining blood lead levels and changes in cognitive function during childhood: the Port Pirie Cohort Study. *JAMA* 280:1915-9.
179. Torres-Sanchez LE, Berkowitz G, Lopez-Carrillo L, Torres-Arreola L, Rios C, Lopez-Cervantes M. 1999. Intrauterine lead exposure and preterm birth. *Environ Res* 81:297-301.
180. Tsaih SW, Schwartz J, Lee ML, Amarasiriwardena C, Aro A, Sparrow D, Hu H. 1999. The independent contribution of bone and erythrocyte lead to urinary lead among middle-aged and elderly men: The Normative Aging Study. *Environ Health Perspect* 107:391-6.
181. Turner AJ. 1897. Lead poisoning among Queensland children. *Aust Med Gazette* 16:475-79.
182. Turrigiano GG. 1999. Homeostatic plasticity in neuronal networks: the more things change, the more they stay the same. *Trends Neurosci* 22:221-7.
183. U.S. Department of Housing and Urban Development. 2001. National survey of lead and allergens in housing. Final report. Volume I: Analysis of lead hazards. Revision 6.0 [Web Page]. Located at: [http://www.hud.gov/offices/lead/techstudies/HUD\\_NSLAH\\_Vol1.pdf](http://www.hud.gov/offices/lead/techstudies/HUD_NSLAH_Vol1.pdf).
184. U.S. Environmental Protection Agency. 1977. Air quality criteria for lead. Washington, D.C.: Government Printing Office.
185. U.S. Environmental Protection Agency. 1994. Guidance manual for the integrated exposure uptake biokinetic model for lead in children (NTIS #PB93-963510). Washington, D.C..
186. U.S. Environmental Protection Agency. 1996. Urban soil lead abatement demonstration project. Volume 1: Integrated report.
187. U.S. Environmental Protection Agency. 1998a. National air quality and emission trends report, 1996 (EPA Document Number 454/R-97-013) [Web Page]. Located at: <http://www.epa.gov/oar/aqtrnd96/toc.html>.
188. U.S. Environmental Protection Agency. 1998b. Review of studies addressing lead abatement effectiveness: updated edition (EPA 747-B-98-001) [Web Page]. Located at: <http://www.epa.gov/lead/finalreport.pdf>.
189. U.S. Environmental Protection Agency. 1998c. Risk analysis to support standards for lead in paint, dust, and soil (EPA 747-R-97-006) [Web Page]. Located at: <http://www.epa.gov/lead/403risk.htm>.
190. U.S. Environmental Protection Agency. 2000a. National air pollutant emission trends, 1900-1998 (EPA 454/R-00-002) [Web Page]. Located at: <http://www.epa.gov/ttn/chief/trends/trends98/>.
191. U.S. Environmental Protection Agency. 2000b. National primary drinking water regulations for lead and copper. Final rule. *Federal Register* 65:1950-2015.
192. U.S. Environmental Protection Agency. 2001a. Lead. Identification of dangerous levels of lead. Final rule. *Federal Register* 66:1206-40.

193. U.S. Environmental Protection Agency. 2001b. National ambient air quality standards (NAAQS) [Web Page]. Located at: <http://www.epa.gov/airs/criteria.html>.
194. U.S. Food and Drug Administration. 1993. Guidance document for lead in shellfish [Web Page]. Located at: <http://www.cfsan.fda.gov/~frf/guid-pb.html>.
195. U.S. Preventive Services Task Force. 1996. Guide to clinical preventive services [Web Page]. Located at: <http://www.ahcpr.gov/clinic/cpsix.htm>.
196. Wang ST, Pizzolato S, Demshar HP, Smith LF. 1997. Decline in blood lead in Ontario children correlated to decreasing consumption of leaded gasoline, 1983-1992. *Clin Chem* 43:1251-2.
197. Wasserman GA, Musabegovic A, Liu X, Kline J, Factor-Litvak P, Graziano JH. 2000. Lead exposure and motor functioning in 4(1/2)-year-old children: the Yugoslavia prospective study. *J Pediatr* 137:555-61.
198. Watt GC, Britton A, Gilmour WH, Moore MR, Murray GD, Robertson SJ, Womersley J. 1996. Is lead in tap water still a public health problem? An observational study in Glasgow. *BMJ* 313:979-81.
199. Weiss B. 1990. Risk assessment: the insidious nature of neurotoxicity and the aging brain. *Neurotoxicology* 11:305-13.
200. Weller M, Schulz JB, Wullner U, Loschmann PA, Klockgether T, Dichgans J. 1997. Developmental and genetic regulation of programmed neuronal death. *J Neural Transm Suppl* 50:115-23.
201. Wetmur JG, Lehnert G, Desnick RJ. 1991. The delta-aminolevulinic acid dehydratase polymorphism: higher blood lead levels in lead workers and environmentally exposed children with the 1-2 and 2-2 isozymes. *Environ Res* 56:109-19.
202. Wigle DT, Charlebois EJ. 1978. Electric kettles as a source of human lead exposure. *Arch Environ Health* 33:72-8.
203. Winneke G, Altmann L, Kramer U, Turfeld M, Behler R, Gutsmuths FJ, Mangold M. 1994. Neurobehavioral and neurophysiological observations in six year old children with low lead levels in East and West Germany. *Neurotoxicology* 15:705-13.
204. World Health Organization. 1998. Guidelines for drinking water quality, 2nd edition, Vol. 2, Health criteria and other supporting information, 1996 (p 940-949) and Addendum to Vol. 2, 1998 (p 281-283) [Web Page]. Located at: [http://www.who.int/water\\_sanitation\\_health/GDWQ/index.html](http://www.who.int/water_sanitation_health/GDWQ/index.html).
205. World Health Organization. 2000. Guidelines for air quality [Web Page]. Located at: <http://www.who.int/peh/air/Airqualitygd.htm>.
206. Wright RO, Shannon MW, Wright RJ, Hu H. 1999. Association between iron deficiency and low-level lead poisoning in an urban primary care clinic. *Am J Public Health* 89:1049-53.
207. Yamakura T, Shimoji K. 1999. Subunit- and site-specific pharmacology of the NMDA receptor channel. *Prog Neurobiol* 59:279-98.
208. Yiin LM, Rhoads GG, Liyo PJ. 2000. Seasonal influences on childhood lead exposure. *Environ Health Perspect* 108:177-82.
209. Yip R, Parvanta I, Scanlow K, Borland EW, Russell DM, Trowbridge FL. 1992. Pediatric nutrition surveillance system - United States, 1980-1991. *MMWR* 41:1-41.