

*Age-Specific Excess Deaths Associated with Stroke — Continued*

death rates for black and white populations may be overstated (9). Second, although variations among subpopulations may exist, the burden of stroke deaths is not shown for subgroups within the larger racial/ethnic groups. Third, the smaller sizes of populations of As/Pis and Als/ANs can result in unstable estimates and produce overstated or understated death rates from year to year. Finally, this analysis did not control for stroke risk factors.

Reducing stroke mortality among groups at highest risk largely depends on reaching them before unhealthy behaviors are adopted. Public health interventions can be community-based or can target persons at greatest risk. For example, in 1999, CDC began Racial and Ethnic Approaches to Community Health 2010 (REACH), community-based, culturally appropriate approaches to reduce cardiovascular disease and stroke among racial/ethnic populations. The national Brain Attack Coalition educates the public about the early warning symptoms of stroke to increase the likelihood of early diagnosis and prompt, effective treatment. Targeted research and evaluation among racial/ethnic populations may help identify differences among subpopulations related to lower socioeconomic or educational levels or related to adverse environmental factors. CDC is working with 11 state-based prevention and education programs that aim to reduce cardiovascular disease and stroke by improving nutrition, increasing physical activity, and promoting healthy behaviors.

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**Elevated Blood Lead Levels Among Internationally Adopted Children — United States, 1998**

Lead poisoning has been reported recently among Chinese children adopted by U.S. citizens (1). However, little is known about the prevalence of elevated blood lead levels (BLLs) among adoptees from China and other countries. Persistent sources of lead expo-

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sure outside the United States include leaded gasoline exhaust; industrial emissions; cottage industries (e.g., battery breaking and recycling plants); traditional medicines; and some cosmetics, ceramic ware, and foods (2). In 1998, approximately 15,000 orphans from countries outside the United States who were adopted abroad or were to be adopted in the United States by U.S. citizens were issued U.S. immigrant visas—a nearly two-fold increase over 1988 (L. Lewis, Immigrant and Visa Control and Reporting Division, VISA Office, Bureau of Consular Affairs, U.S. State Department, personal communication, August 1999) (3). Some orphans have been abandoned for extended periods and have no obtainable medical history (4). Immigrants aged <15 years are not required to have serologic or blood tests either in their country of origin or on entry into the United States unless exposure to syphilis or human immunodeficiency virus is suspected (5). To obtain reports on the prevalence of elevated BLLs ( $\geq 10$   $\mu\text{g}/\text{dL}$ ) among international adoptees, CDC contacted 12 international adoption medical specialists identified through the Joint Council on International Children's Services and two collaborating medical specialists (6). This report summarizes the results of that investigation, which suggest that international adoptees may arrive in the United States with elevated BLLs.

Of the 14 reporting sites contacted, nine had data on blood lead tests among adopted children who immigrated during 1991–1999. The data represented seven clinical practices where blood lead tests were conducted by venipuncture (five of which tested all international adoptees for BLLs) and two surveys by pediatric providers. Data were included if at least 25 children were tested from a specified country or region.

The prevalences of elevated BLLs ranged from 1% to 13% among Chinese adopted children and from 1% to 5% among Russian adopted children (Table 1). In six of the nine reports on Chinese children and four of the six reports on Russian children, 70% or more of the children were tested for elevated BLLs within 4 weeks of arrival to the United States. Among 223 Chinese children surveyed by one site (Table 1), the prevalence of elevated BLLs was 2.3 times higher (18%) among children tested within 4 weeks of arrival in the United States than among children tested after 4 weeks (8%). Limited data were available on the prevalence of elevated BLLs among adopted children from other countries of origin (Table 1).

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**Editorial Note:** Most of the reported prevalences of elevated BLLs among Chinese adoptees were higher than the prevalence among U.S. children (7). Among U.S. children aged 1–2, 3–5, and 6–11 years, the prevalence of elevated BLLs during 1991–1994 was 6%, 4%, and 2%, respectively (7). For some adopted children, blood lead testing occurred soon after arrival to the United States, suggesting that exposure occurred before emigration. The lower prevalence of elevated BLLs among Chinese children tested later than 4 weeks after arrival than among those tested within 4 weeks of arrival further indicates that, for many of these children, elevated BLLs probably developed before they arrived in the United States.

## Elevated Blood Lead Levels Among Internationally Adopted Children — Continued

TABLE 1. Blood lead levels (BLLs) among internationally adopted children from Asia, Eastern Europe, and Central and South America — United States, 1991–1999

Country of origin	No. tested	Elevated BLLs		Highest reported BLL (µg/dL)	No. weeks tested after arrival in U.S.	% tested within 4 weeks of arrival	Mean age (range) in mos.	Years of immigration	Reporting site <sup>a</sup>
		No.	(%)						
<b>ASIA</b>									
China	138	2	(1)	15	0–36	79%	15 (8–96)	1996–99	(1)
	48	3	(6)	14	0–50	55%	18 (6–75)	1996–98	(2)
	30	2	(7)	19	0–52	87%	16 (7–71)	1997–99	(3)
	25	2	(8)	24	2–50	70%	22 (10–96)	1997–99	(4)
	184	21	(11)	54	0–2	100%	16 (4–43)	1994–98	(5)
	92	10	(11)	50	0–16	—	14 (3–39)	1991–98	(6)
	60	7	(12)	23	0–25	98%	12 (5–54)	1994–99	(7)
	83	11	(13)	25	0–165	75%	16 (5–57)	1992–98	(8)
	223	29	(13)	50	0–160	51%	25 (2–57)	1993–96	(9)
	Cambodia	71	5	(7)	27	0–38	79%	11 (3–54)	1997–99
Asia (excluding China)	47	1	(2)	10	0–156	—	— (4–123)	1987–98	(6)
<b>EASTERN EUROPE</b>									
Russia	219	2	(1)	12	0–2	100%	27 —	1993–99	(5)
	74	1	(1)	12	0–105	85%	23 (5–125)	1991–98	(3)
	57	1	(2)	15	0–52	45%	32 (6–105)	1996–98	(2)
	41	1	(2)	14	3–20	71%	13 (7–108)	1997–99	(1)
	81	2	(3)	11	0–120	83%	23 (5–88)	1996–99	(3)
	85	4	(5)	11	0–244	—	— (3–108)	1992–98	(6)
Eastern Europe (excluding Russia)	33	1	(3)	11	1–195	35%	46 (13–150)	1994–98	(2)
74	5	(7)	15	0–248	—	— (1–93)	1989–97	(6)	
<b>CENTRAL AND SOUTH AMERICA</b>									
95	1	(1)	22	0–424	—	— (1–106)	1982–97	(6)	

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Data are limited on the prevalence of elevated BLLs among children living in China. Among selected populations of children aged 1–6 years living in China, prevalences of elevated BLLs of up to 38% have been reported (8). Among Russian school-aged children, prevalences of elevated BLLs of up to 58% have been reported in one city (CDC, unpublished data, August 1999). The lower prevalence of elevated BLLs among children who have emigrated from China and Russia compared with levels among children residing in China and Russia may be related to variations in lead exposure by region of country or to the expected decline in BLLs over time once children have arrived in the United States and are no longer exposed to sources of lead.

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In this report, most of the children screened by the international adoption clinics were from Russia or China. Similarly, of all U.S. immigrant visas issued to orphans in 1998, most (55%) were issued to children from Russia and China (L. Lewis, Immigrant and Visa Control and Reporting Division, VISA Office, Bureau of Consular Affairs, U.S. State Department, personal communication, August 1999). Because most children immigrating as adoptees are not screened by the international adoption medical specialist clinics in this report, selection bias may affect this sample.

The American Academy of Pediatrics recommends that children who have been adopted or emigrated from countries where lead poisoning is prevalent should be screened for elevated BLLs (9). CDC recommends that young children at high risk for lead exposure be screened with a blood lead test (10). Accordingly, international adoptees from countries where lead poisoning is prevalent should receive a blood lead test after arrival in the United States. Some adopted children have had high enough levels to warrant chelation therapy ( $>45 \mu\text{g/dL}$ ). Children with elevated BLLs should receive follow-up medical attention that adheres to CDC guidelines and state and local policies and laws, and their families should receive information on the prevention of lead poisoning (10). For children with BLLs high enough to warrant source investigation, investigators should consider that lead exposure may have occurred before arrival in the United States in addition to considering sources of lead exposure in the current environment.

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