Recommended Chelation Protocol for Children With BLLs ≥45 µg/dL

Before Providing Chelation Therapy

- Confirm the blood lead level (BLL) ≥45 µg/dL with a venous specimen processed as an emergency test unless symptoms of encephalopathy are present.
- Obtain an abdominal x-ray to look for lead solid ingestion; if radio-opaque particles are found or recent ingestion is witnessed, use a cathartic.
- Arrange hospitalization and chelation therapy at a facility with expertise in treating lead-poisoned children.
- Provide chelation therapy in, and discharge child to, a lead-safe environment. Do not discharge until the New York City Department of Health and Mental Hygiene (NYC DOHMH) inspects the home.
- Inform the NYC DOHMH of hospital admission by calling 646-632-6002. The NYC DOHMH can provide referrals to providers with expertise in treating lead intoxication and referrals to temporary lead-safe housing.

Chelation Therapy For Children with Venous BLLs ≥45 µg/dL[1-3]

BLLs (µg/dL)	Agent, Dosage,[a] and Administration	Special Considerations	Follow-up
<45	Chelation therapy not routinely recommended		See reverse for **Recommended Follow-up Blood Lead Test Schedule for Children**
45 to <70	**DMSA (succimer, 2,3-meso-dimercaptosuccinic acid):** • 1050 mg DMSA / m^2 / 24 hours[a] ÷ q8 hours PO x 5 days; round dose to nearest 100 mg/day, and then ÷ 100-mg capsules as evenly as possible for q8-hour dosing schedule. • On discharge, continue DMSA 700 mg / m^2 / 24 hours[a] ÷ q12 hours x 14 days.[b]	• Monitor for anemia, neutropenia, and hepatic toxicity.	• Schedule weekly health care visits to monitor compliance and signs of toxicity. • Monitor BLLs weekly until level stabilizes, then follow **Recommended Follow-up Blood Lead Test Schedule for Children** (see reverse). • Monitor erythrocyte protoporphyrin (EP) level to help assess timing of exposure.[e]
	OR (alternating treatment if DMSA not tolerated, ie, vomiting medication) • **$CaNa_2EDTA$ (calcium disodium edetate, calcium disodium versenate):** ◦ 1000 mg $CaNa_2EDTA$ / m^2 / 24 hours[a] ÷ q6 hours IV infused slowly x 5 days	• Maintain urine specific gravity below 1.015. • Discontinue any iron. • Monitor for renal and hepatic toxicity.	• Monitor BLLs biweekly until level stabilizes, then follow **Recommended Follow-up Blood Lead Test Schedule for Children** (see reverse). • Monitor EP level to help assess timing of exposure.[e]
≥70 and no symptoms of encephalopathy	**Combine DMSA and $CaNa_2EDTA$[c]** • 1050 mg DMSA / m^2 / 24 hours[a] ÷ q8 hours PO x 5 days; round dose to nearest 100 mg/day and then ÷ 100-mg capsules as evenly as possible for q8-hour dosing schedule ***AND*** (beginning 2 hours after first dose of DMSA) • 1000 mg $CaNa_2EDTA$ / m^2 / 24 hours[a] ÷ q6 hours IV infused slowly x 5 days • On discharge, continue DMSA 700 mg / m^2 / 24 hours[a] ÷ q12 hours x 14 days[b]	• Maintain urine specific gravity below 1.015. • Discontinue any iron. • Monitor for anemia, neutropenia, and renal and hepatic toxicity.	• Schedule weekly health care visits to monitor compliance and signs of toxicity. • Monitor BLLs weekly until level stabilizes, then follow **Recommended Follow-up Blood Lead Test Schedule for Children** (see reverse). • Monitor EP level to help assess timing of exposure.[e]
≥70 and symptoms of encephalopathy	**Combine BAL (British anti-Lewisite, dimercaprol) and $CaNa_2EDTA$** • 450 mg BAL / m^2 / 24 hours[a] ÷ q4 hours IM x 3-5 days (number of days on BAL based on clinical improvement) ***AND*** (beginning 4 hours after first dose of BAL) • 1500 mg $CaNa_2EDTA$ / m^2 / 24 hours[a] (2 g / 24 hours max) as continuous infusion x 5 days	• Monitor mental status. • Screen for peanut allergy and G6PD (glucose-6-phosphate dehydrogenase) deficiency.[d] • Pretreat with antihistamines. • Discontinue any iron. • Monitor for neutropenia, and renal and hepatic toxicity.	• Retest 3 days after chelation course completed; if BLL ≥45 µg/dL, provide second chelation course. • Monitor BLLs biweekly until level stabilizes, then follow **Recommended Follow-up Blood Lead Test Schedule for Children** (see reverse). • Monitor EP level to help assess timing of exposure.[e]

[a]For children aged <5 years, body surface area calculations typically give higher doses, which are recommended (see reverse for the **Body Surface Area Nomogram**); [b]additional 14 days of q12-hour dosing reduces BLL rebound after therapy ends; [c]found effective and safe in this range in a limited number of children; [d]BAL is prepared in peanut oil and has also caused hemolysis in patients with G6PD; [e]the BLL reflects more recent exposure to lead, while the EP reflects more chronic exposure (once elevated, the EP remains elevated for several months even after exposure has ceased and the BLL has fallen)

1. Adapted from Beers MH, Berkow R, eds. *The Merck Manual of Diagnosis and Therapy,* 17th ed.1999:chap 263, table 8.
2. Rhoads GG, Rogan WJ. *Pediatrics.*1996;98(1):162-163.
3. Besunder JB, et al. *J Pediatr.* 1997;130(6):966-971.

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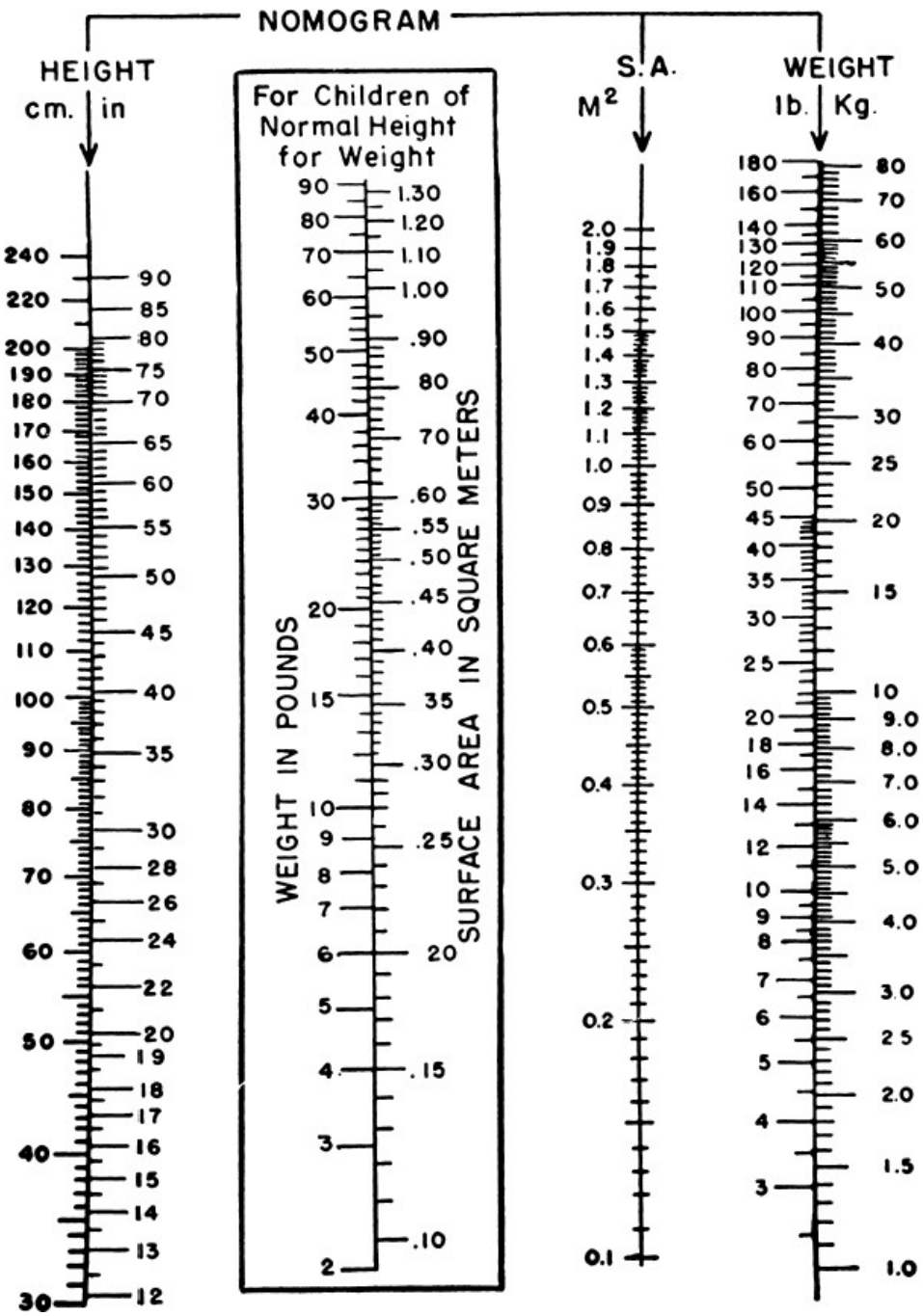
NYC Health

Body Surface Area Nomogram[a]



[a]Reprinted from Park MK. *Park's Pediatric Cardiology for Practitioners*. 4th ed. 2014:476. Copyright 2005. Used with permission from Elsevier.

Recommended Follow-up Blood Lead Test Schedule for Children

Fingerstick BLLs ≥3.5 µg/DL		Venous BLLs ≥3.5 µg/DL		
Capillary Test Result (µg/dL)	**Confirmatory Venous Test**	**Venous BLL (µg/dL)**	**Early Follow-up Test (first 2 to 4 tests after identification)**	**Late Follow-up Test (after BLL begins to decline)**
3.5 to <10	Within 3 months[a]	**3.5 to <10**	1 to 3 months[a]	6 to 9 months
10 to <20	Within 1 month	**10 to <20**	1 to 3 months[a]	3 to 6 months
20 to <45	Within 2 weeks	**20 to <45**	2 weeks to 1 month	1 to 3 months
≥45	Immediately	**≥45**	As soon as possible	Chelation with follow-up

[a]Health care providers may choose to repeat BLLs within 1 month for patients newly identified with an elevated BLL to confirm that BLL is not rising rapidly