

The North Carolina Childhood Lead Poisoning Prevention Program

Ed Norman, MPH

North Carolina DHHS

Division of Public Health

Environmental Health Section

Environmental Program Manager

ed.norman@dhhs.nc.gov

(919) 218-6511

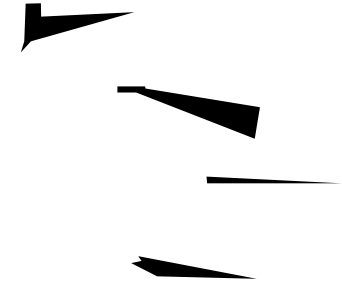


- **Ed Norman** manages several programs for the state including the Childhood Lead Poisoning Prevention Program (CLPPP), the child care and school sanitation programs, and the Health Hazards Control Unit (HHCU), which oversees asbestos and lead-based paint. He is an epidemiologist and has worked in childhood lead poisoning prevention for 35 years.

North Carolina Law

Lab
Results

- laboratory reporting of all blood lead test results
- investigation of confirmed lead poisoning and EBL cases
- remediation of identified hazards for confirmed lead poisoning cases



Statutes and administrative rules

- NCGS § 130A-131.5 &
130A-131.7 - 130A-131.H
- 15A NCAC 18A .3101 — .3111

NC Childhood Lead Poisoning Prevention Program

State Childhood Lead Surveillance Team and Regional EHSs
Division of Public Health/Environmental Health Section

Data management

Coordinate training & response

Environmental investigation & sampling

Local Health Department EHSs/Lead Nurses

Blood Lead Testing

Environmental investigation & sampling

Clinical case management

Education

Primary Care Providers

Risk screening

Blood Lead Testing

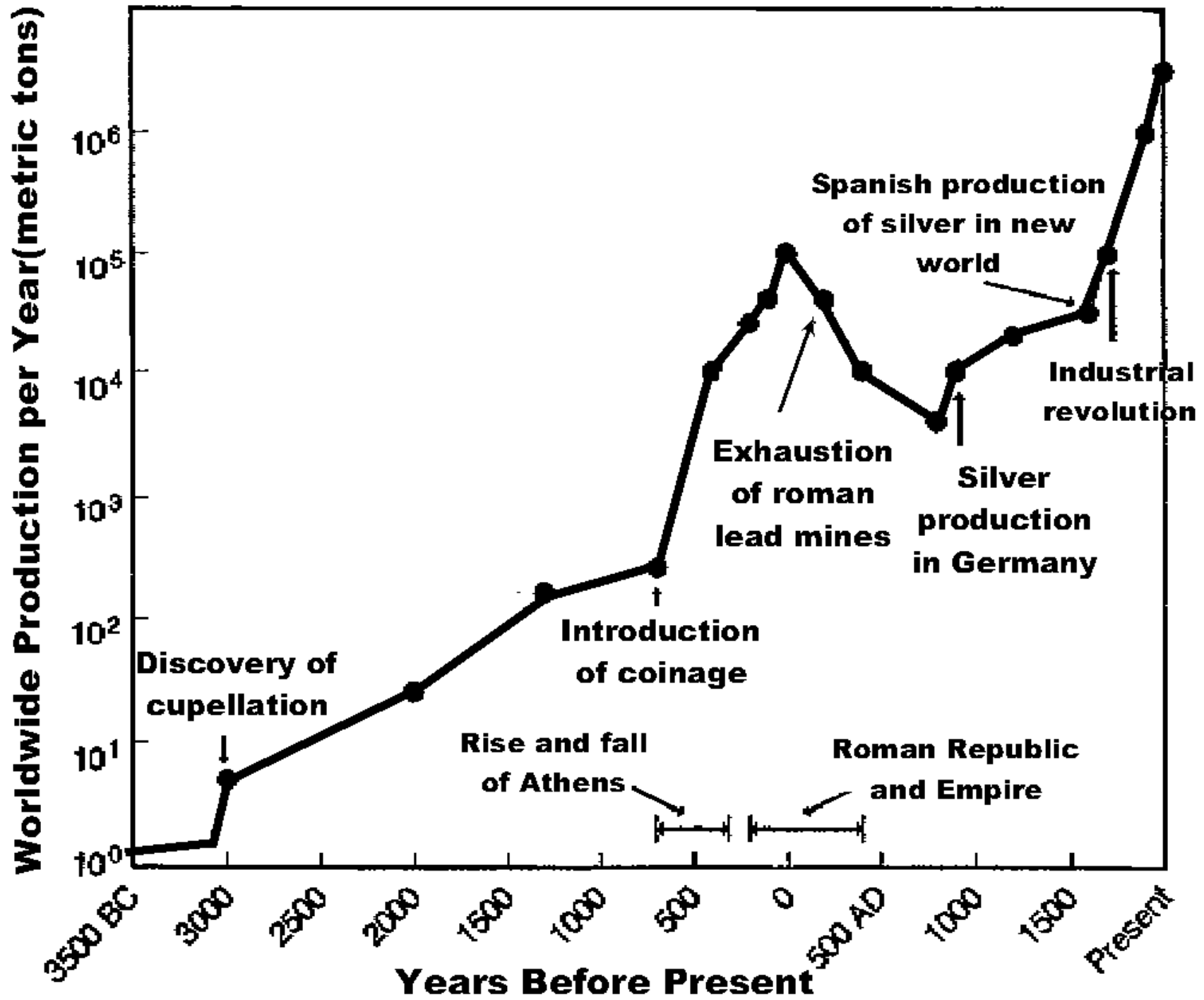
Clinical evaluation & interventions

Children's Environmental Health Regional Environmental Health Specialists:

- **Kimly Blount, Field Supervisor**
 - **Brenda Bass**
 - **David Brown**
 - **Barrette Gregory**
 - **Alan Huneycutt**
 - **Megan Lee**
 - **Ashley Mize**
 - **Carissa Moore**
 - **Robert Pearsall**
 - **Nykesse Roberts**
 - **Brittany Stevenson**
 - **Tonya Zimmerman**

Children's Environmental Health (Data Management Staff):

- **Melanie Napier (Team Leader/Epidemiologist)**
 - **Tena Hand (Data Manager)**
 - **Samantha Sites (Public Health Epidemiologist)**
 - **Ashley Stacy-Boddapati (Public Health Nurse)**
 - **Jeff Smedley (Public Health Epidemiologist)**
 - **Alex Brown (Public Health Epidemiologist)**



Historical record of industrial lead production in last 5,000 years

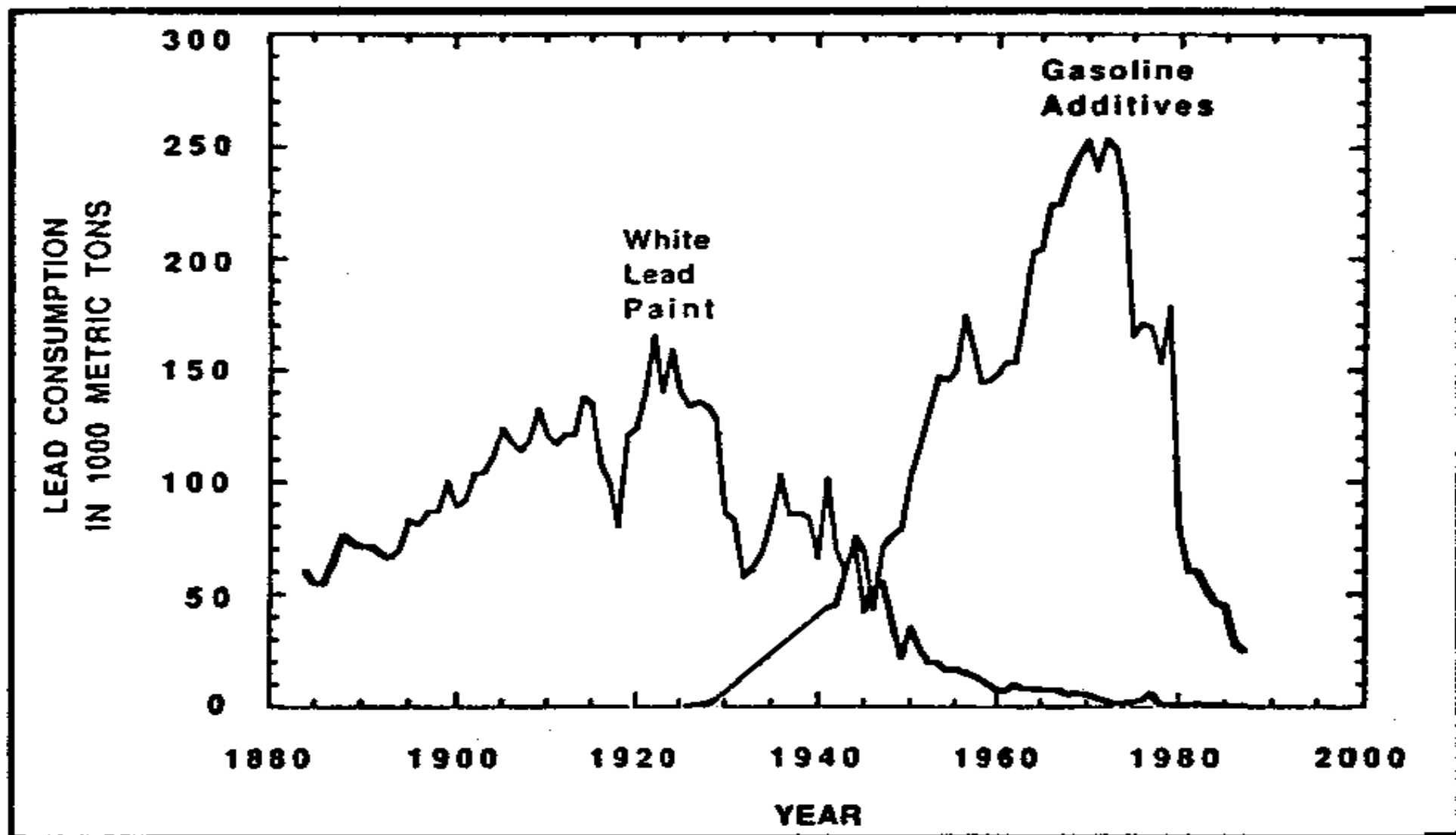
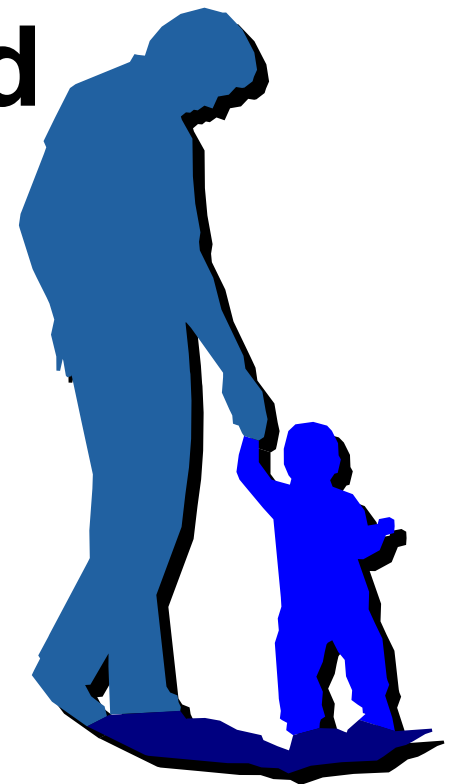


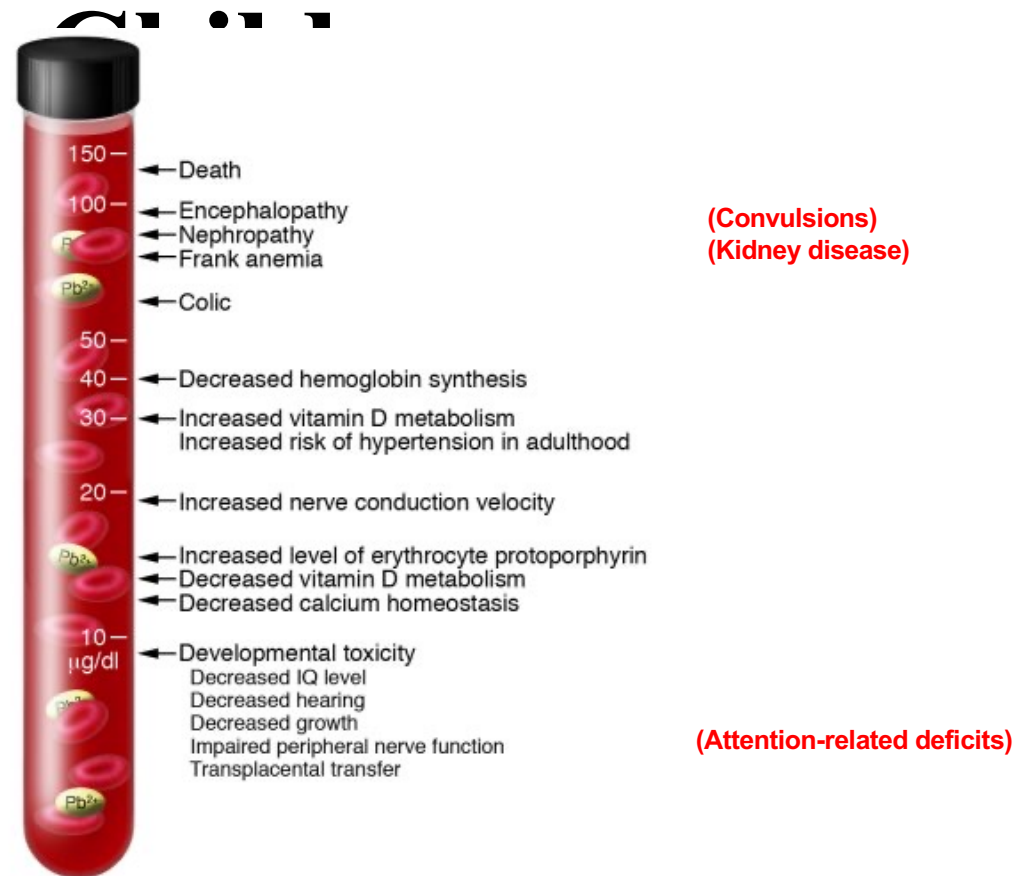
Figure 2. United States lead consumption, 1880-1987. Reprinted with permission from Clark S et al. Urban lead exposures of children in Cincinnati, Ohio. *Chemical Speciation and Bioavailability*. 1991;3:163-171. Copyright © 1991.

Children are at Greater Risk

- **hand to mouth activity**
- **greater sensitivity to lead**
- **absorb more lead**



Health Effects of Lead in



Bellinger DC, Bellinger AM. Childhood Lead Poisoning: The Torturous Path from Science to Policy. J Clin Invest. 2006 Apr;116(4):853-7. <http://www.jci.org/articles/view/28232>

Childhood Lead Poisoning Costs To The State:

Direct Medical & Public Health Costs

Special Education

Juvenile Justice

Lost Future Earnings

CDC Terminology

Blood Lead Reference Value:

3.5 $\mu\text{g}/\text{dL}$ or greater

North Carolina State Law

Elevated blood lead level (EBL):

5 $\mu\text{g}/\text{dL}$ or greater

Confirmed lead poisoning:

10 $\mu\text{g}/\text{dL}$ or greater

CDC Screening Guidelines

Universal assessment/targeted screening at 12 and 24 months or at first entry before age 6

In North Carolina, mandatory blood lead testing for Medicaid, WIC, & HealthChoice

Analysis at no charge through the State Laboratory



Elevated and Confirmed Childhood Lead Cases

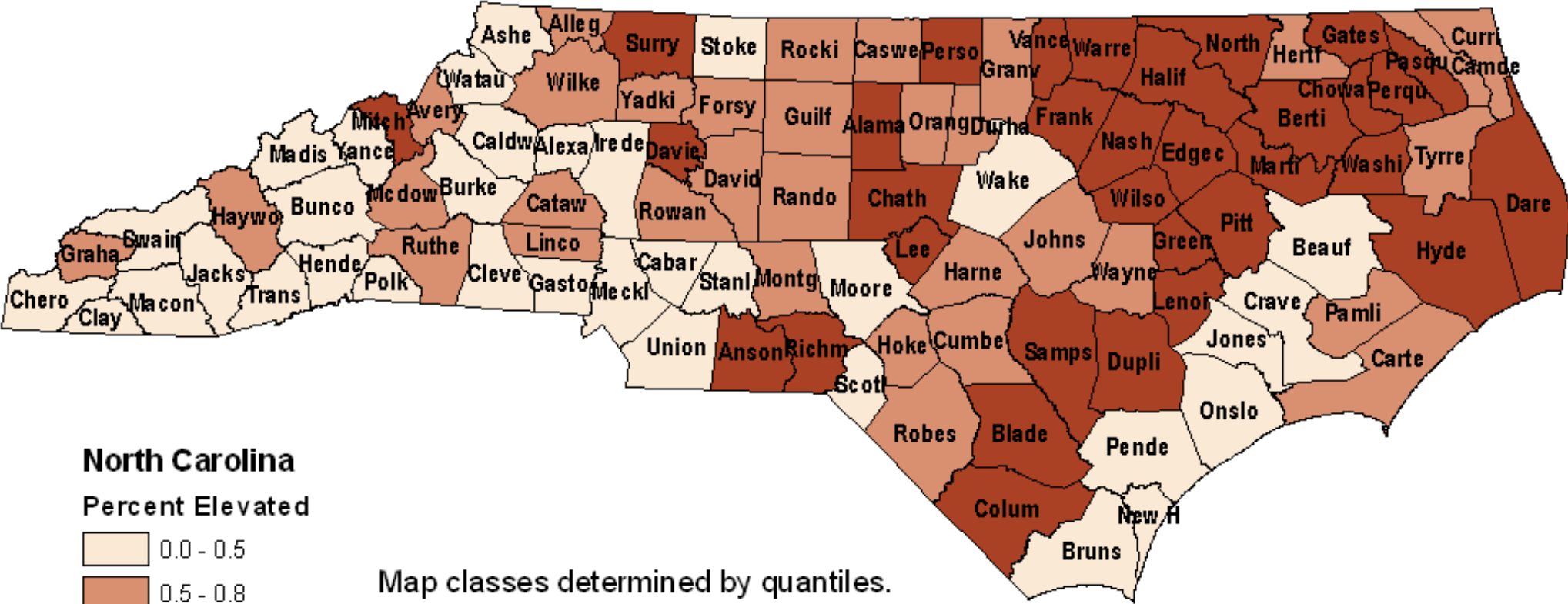
North Carolina Childhood Blood Lead Data

Children ages 1 and 2 years

Year	Quarter 1			Quarter 2			Quarter 3			Quarter 4			Totals		
	# Children	Confirmed		# Children	Confirmed		# Children	Confirmed		# Children	Confirmed		# Children	Confirmed	
		Tested	≥ 10		Tested	≥ 10		Tested	≥ 10		Tested	≥ 10		Tested	≥ 10
	5-9			5-9			5-9			5-9			5-9		
2019	35,384	76	22	33,538	85	24	35,066	87	30	30,939	60	45	134,927	308	121
2020	31,863	61	20	28,038	69	15	32,861	67	22	28,769	57	19	121,531	254	76
2021	32,892	44	18	30,482	62	31	30,580	51	30	30,862	60	20	124,816	217	99
2022	36,022	74	21	33,862	66	25	34,177	88	17	29,995	85	17	134,056	313	80
2023	35,563	90	21	33,531	113	43	34,650	126	32	30,774	97	29	134,518	426	125

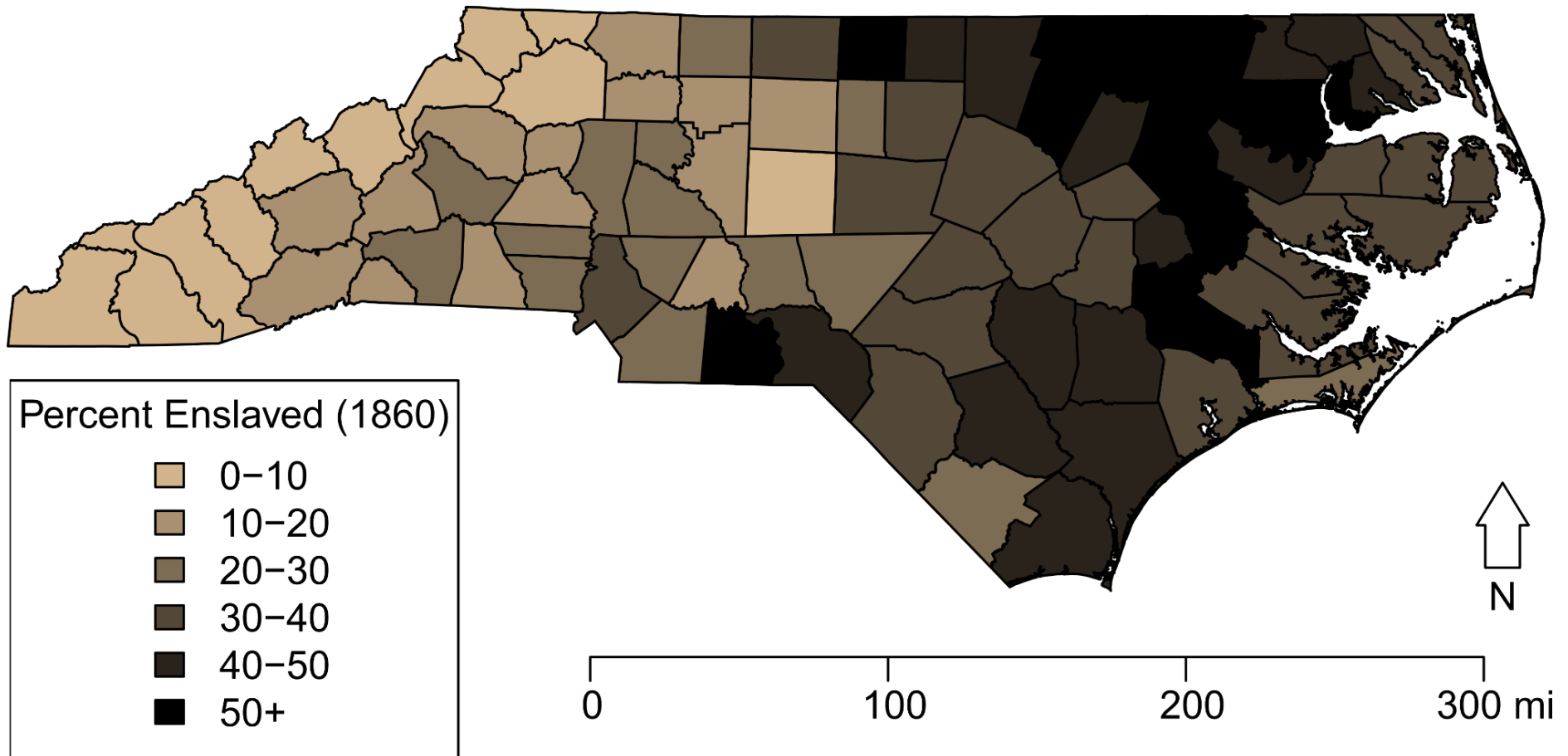
Quarterly numbers reflect a deduplicated count of children by quarter. Total numbers reflect a deduplicated count of children for the year. Source is NCLEAD surveillance system.

Percent of 1- and 2-Year Old Children with Blood Lead Level ≥ 10 ug/dL 2005-2009



Slavery in North Carolina (1860)

300,000 Slaves, or $\frac{1}{3}$ of NC's population



Source: 1860 Census: Population, Agriculture & Other Data [US, States & Counties]

Map constructed by Nat MacNeill, UNC-Chapel Hill, Epidemiology Department

Recent Issues

• **Required water testing at child care centers**

Amendment of child care sanitation rule 15A NCAC 18A .2816 and drafting a fiscal note. Funded by an EPA WIIN grant.

- 1) Initial samples collected by the child care operator using the EPA 3Ts method
- 2) Laboratories required to report test results to DHHS
- 3) Interim measures and mitigation mandated
- 4) Parent/staff notification & public availability of testing data required whenever elevated water lead levels confirmed
- 5) Monitoring conducted at routine sanitation inspections



NCDHHS

delivering the promise of science
for global good



Clean Water For Carolina Kids™

NC DHHS partners with RTI International, an independent nonprofit research institute, for the Clean Water for Carolina Kids program to identify and eliminate exposure to lead in water at licensed child care facilities across NC.

This work is being expanded to the Clean Classrooms for Carolina Kids program to identify and restrict or mitigate exposure to lead in water, lead-based paint, and asbestos hazards at public schools and child care facilities across NC.

American Rescue Plan Act (ARPA) (\$150 million)

- Test water for lead at all public & charter schools (similar to child care)
- Inspect all public schools and licensed child care facilities for lead-based paint and asbestos
- Provide funding for mitigation
- RTI International coordinating testing, inspection and water mitigation

Morbidity and Mortality Weekly Report

Childhood Lead Exposure Linked to Apple Cinnamon Fruit
Puree Pouches — North Carolina, June 2023–January 2024

Melanie D Napier, PhD; Alan Huneycutt, MPH; Carissa Moore; Chris Goforth, MS; Marc Komlos; Veronica Bryant; Scott M Shone, PhD; Larry D Michael, MPH; Edward H Norman, MPH