Maryland House of Delegates
Health and Government Operations Committee
2020 Legislative Session

House Bill 921

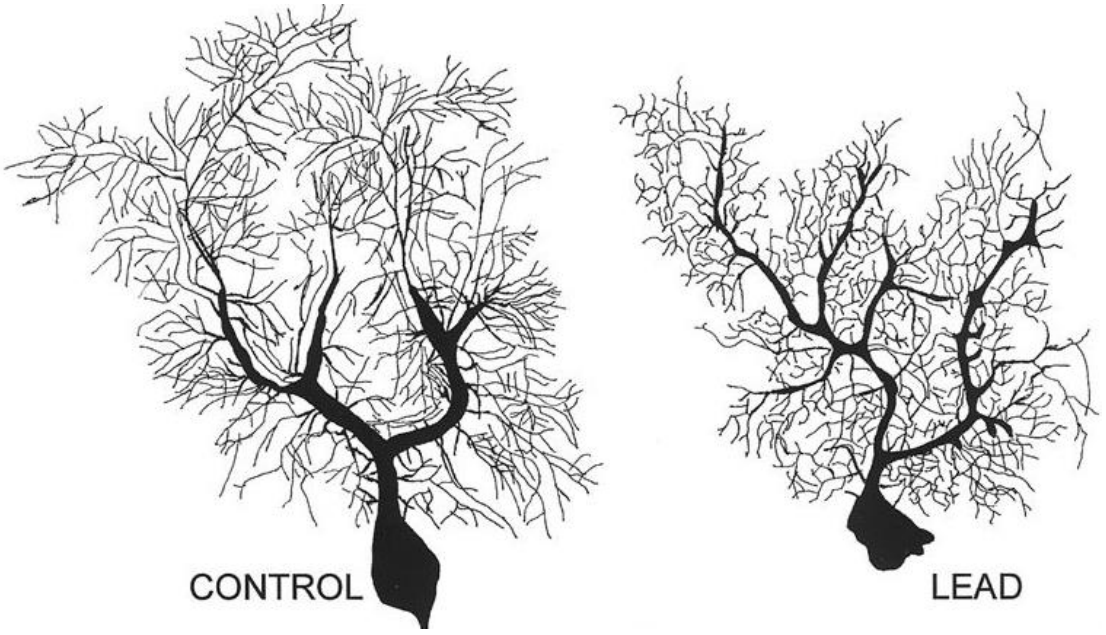
Dentists – Saliva Lead Screening Tests
Scope of Practice and Requirements

March 3, 2020

Presented by:

Maryland Dental Society
&
The Children's Oral Health Institute

Effects of Lead on Developing Brain Cells



Patrick & Anderson, 2000

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https://greenkidsdoc.wordpress.com/tag/lead-poisoning

I. Introduction

The Children's Oral Health Institute and the Maryland Dental Society are encouraged by the governance of the Maryland House of Delegates. We are especially proud of our health legislative history with the Health and Government Operations Committee and greatly appreciate the leadership of Chair, Delegate Shane Pendergrass, District 13 - Howard County and Vice Chair, Delegate Joseline Peña-Melnyk, District 21, Anne Arundel & Prince George's Counties. We appreciate the commitment of this entire Committee to promote ongoing improvements to health care ethics and moral standards for Maryland and for this nation.

Delegate Pat Young, District 44B, and Chair of the Baltimore County House Delegation has put forth legislation, House Bill 921 *Dentists – Saliva Lead Screening Tests - Scope of Practice and Requirements,* to further confront the devastating impact lead poisoning continues to have on our most vulnerable Marylanders. This legislation is in line with Maryland's, *Universal Testing Initiative* and the *Point of Care* testing for lead initiative.

We applaud Delegate Young's willingness to take action. We applaud his bipartisan endearing of you to stand with us and with all stakeholders because the stakes are too high for us not to unite. He, like many of us, can only image the pain and suffering of those exposed to, and living with this poison; our one- and two-year-old Maryland citizens, our elementary, middle and high school students, our elderly, our juveniles, our imprisoned and others.

Childhood lead poisoning cases in Maryland decreased last year to the lowest levels since the state's 1994 lead law. This according to the 2017 Childhood Blood Lead Surveillance report by the Maryland Department of the Environment. While the report also shows a decrease in the number of children with blood levels below the state law-defined elevated level, there remains concern based on guidance from the U.S. Centers for Disease Control and Prevention.[i]

Poisoning by lead is one of the most significant and widespread environmental hazards for children in Maryland. Children are at greatest risk from birth to age six while their neurological systems are developing. Effects of sustained exposure include learning disabilities, shortened attention span, irritability, and lowered IQ.[ii]

Failing to identify signs and symptoms of lead toxicity has led to misguided medical treatments.[iii] Children who survive severe poisoning may be left with mental retardation and behavioral disorders. The neurological and behavioral effects are believed to be irreversible.[iv]

II. Screening

Screening for lead via saliva has come of age. It is timely as such because we know unequivocally that lead and other metals are present in the saliva of exposed individuals. This proposal is for (a) saliva collection, plus the (b) biological testing of the sample using Inductively Coupled Plasma Mass Spectrometry (ICP-MS), with (c) reimbursement to the dentist and (d) shipping and storage cost yields a total approximate financing of $65.00. Therefore, this investment represents the fiscal note to the state of Maryland per individual screening as outlined below.

Passive Drool Saliva Screening will initially occur at age one and again at age two and at other possible ages up to the age of 18. **D0417** collection and preparation of saliva sample for laboratory diagnostic testing is the Code on the Dental Procedures and Nomenclature (CDT®), to bill for this oral screening of saliva.

$45.00	–	laboratory evaluation of the saliva sample
$ 2.00	–	Passive Drool Saliva Collection
$13.00	–	reimbursement to the dentists
$ 5.00	–	shipping & storage

$65.00

III. Testimony

We are confident in your wisdom to appreciate what is completely and fundamentally right about **House Bill 921 *Dentists – Saliva Lead Screening Tests - Scope of Practice and Requirements*.** We need your favorable support to improve the lives of children and families throughout our state by your commitment to pass this legislation. We ask that you favorably consider House Bill 921 to address and impact the following:

1) **Allow** dentists this opportunity to collect saliva from children 12 to 72 months of age for the purpose of screening for lead and other potentially toxic metals. The main potential benefit of screening for high lead levels is finding cases and preventing further exposure before symptoms of lead poisoning develop.[v]

   Medicaid's Early and Periodic Screening, Diagnostic, and Treatment Program (EPSDTP) **requires** all children to receive a **screening** blood lead test at 12 months and 24 months of age; children between the ages of 36 months and 72 months of age must receive a screening blood lead test if they have not been previously screened for lead poisoning. Point of Care (POC) or more applicable here for dentistry, Point of Service (POS), participation by dentists can be invaluable to achieving this goal with the addition of saliva screening for Maryland especially since:

   a. The state made it easier for doctors and **other health care providers** to conduct onsite or POC testing, in which they provide immediate results, <u>because it can be difficult to get patients to return for results</u>. The number of providers who offer such testing grew from 66 in 2015 to 94 in 2016.[vi]

   b. POC testing is provided by the Baltimore City Health Department to a patient at the time and place of care and, in combination with other measures has been shown to **increase the rate of lead testing** for children. They offer POC blood lead testing at <u>health fairs</u> and <u>other events</u>. Dental professionals who see their patients every six (6) months can offer a similar level of “Point of Service (POS)” screening or “Chair-side” POS for lead screenings.

Further, the ADA has published a guide to educate dentists and others in the dental community on coding for two unique in-office monitoring procedures pertinent to this chronic disease, (1) **D0411** (HbA1c - average blood glucose) in-office point of service testing and (2) **D0412** blood glucose level test – in-office using a glucose meter. These procedures provide an immediate finding of a patient's blood glucose level at the time of sample collection for the point of service analysis (enclosure).
https://www.ada.org/~/media/ADA/Publications/Files/CDT_D0411_D0412_Guide_v1_2019Jan02.pdf.

2) **Expand** the workforce of health care professionals dedicated to eradicating lead and other potential metal poisonings to include dentists. It is especially important to engage this practice now with projected doctor shortages and the potential impact this can have on patient care. The 2017 Update by the Association of American Medical Colleges (AAMC) indicates a projected shortfall of nearly 105,000 physicians by 2030.[vii] Accordingly, dentists too can impact Maryland's *Point of Care* lead initiative and thereby help to improve lead poisoning outcomes.

   Thus, coordination of care is critical to successful case management of lead exposed children. The profession of dental medicine can provide support to these invaluable coordination efforts. The **Community Dental Health Coordinator (CDHC)** can help to support the individualized plan of follow-up that must be devised and implemented for lead exposed children. Case managers, and primary care providers, in particular, must work collaboratively to ensure proper medical management and follow-up. The CDHC can support this plan of follow-up.

   *The American Academy of Pediatrics supports **widespread** lead screening of children, as well as funding programs to remove lead hazards from the environment.*

3) **Afford** dentists this Scope of Practice revision as the foremost oral health experts, and the best positioned to facilitate saliva collection, and as well identify gingival signs of metal toxicity that may appear (Figure 4).[viii]

4) **Encourage** Maryland dentists and physicians alike, to utilize 21st century technology for saliva screening, *Passive Drool Saliva Collection,* as a tool to get children screened as early as age one for lead and possible other potentially toxic metal exposures.

   Physicians are required by law to test children for lead at ages 1 and 2. While more than 80 percent of NYC children are tested for lead exposure at least once before their third birthday, only 50 percent of children are tested at both ages 1 and 2.[ix]

5) **Protect all health care providers** from unintended puncture injuries, scrape wounds and bloodborne exposures secondary to the capillary stick and venous blood draw that is currently utilized to screen and diagnosis lead poisoned children respectively.

Capillary blood collection involves puncturing the dermis layer of the skin to access the capillary beds that run through the subcutaneous layer of the skin. While this collection method has been in use for many years, especially for blood glucose testing, transmission of hepatitis B virus from infected blood and accidental injuries is on the rise as the number of tests performed involving finger-stick devices expands.

The lancing devices used to obtain a small sample of capillary blood, typically from patients' fingers, pose two principal risks: (a) transmission of infectious diseases between patients and (b) injuries related to the puncture device used to obtain the blood. These risks are an important public health issue that healthcare workers who collect these samples need to understand in order to prevent the spread of infectious diseases. In fact, audits of hepatitis B outbreaks associated with capillary blood sampling have increased in frequency over the past 20 years, with some outbreaks resulting in patient deaths.[x]

While *Passive Drool Saliva Collection* will not remove capillary blood sampling from the lead screening equation, it could, in addition to the many other benefits, prevent dangerous injuries and even save lives.

6) **Decrease false-positive outcomes**. For all of this often challenging, and even risky health care practice, capillary blood draw samples are prone to false-positive results. In this study of 3898 children, 59.8% of all test on capillary samples for lead exposure were false positives.[xi]

Both venous and capillary blood draws were associated with substantial false positive misclassification errors, amounting to 42% and 77% of screen positive tests, respectively. 31, 904 children screened during this study beginning in 1994[xii].

7) **Increase** compliance of parents who continue to resist having the "Standard of Care," blooding testing through the capillary stick or venous draw because they do not want their child to have yet another invasive test done. Saliva collection could likely simplify testing for parents.

Many pediatricians prefer the capillary test. "A prick to the finger is quicker and easier," explains Dr. Megan Sandel, a pediatrician at Boston Medical Center. She says that on babies especially, it can be challenging for doctors to find a vein to draw blood, and it can be difficult for parents to sit and watch their baby or child cry. Additionally, as Connie Hill and other parents have learned, the downside of the finger-stick is that it can result in a false positive. [xiii]

About two months ago, I had to take my 12-month old son into a blood lab so they can draw blood for a lead test. It was a brutal experience for my son as well as for myself. Another dad in our NYC Dads Group had a similar and frustrating experience with his son.[xiv]

However, whole saliva can be collected (a) noninvasively, and by (b) individuals with modest training, and (c) no special equipment is needed for the collection this fluid.

Diagnosis via the analysis of saliva is potentially valuable for children and adults since this collection of fluid is associated with fewer compliance problems as compared with the collection of blood.[xv]

8) **Educate** parents who do not send their children to daycare, or preschool, and who live in, "child care deserts." About half of Maryland's urban zip codes are child care deserts—home to more than 500,000 people, including 225,000 residents of Baltimore.[xvi] Therefore, since there are parents, relatives, or neighbors who stay at home with infants and toddlers, and these children often do not attend school until it is legally required, it is here, while at the **age one dental visit** that the saliva screening can be completed and the necessary referral made to the physician. At this visit, the dentist can screen for lead/metal, and prevent this from being a missed opportunity, an opportunity that may not return until this child does go to school and damage is irreversible.

   Take advantage of this educational opportunity to increase the lead poisoning equation to include pregnant women. Lead can pass from a mother to her unborn baby. The good news is that lead poisoning is preventable.[xvii] Lead readily crosses the placenta and has been measured in the fetal brain as early as the end of the first trimester.[xviii] Dentists too can take part in the state of Maryland's commitment to keep our babies safe from lead poisoning.

9) **Lessen** the financial burden on state and private pay insurance health benefit plans through saliva screening and the subsequent early detection thus eliminating and or reducing the amount of needed post exposure treatments and the subsequent cost.

   Chelation therapy is an approved treatment for poisonings caused by such heavy metals as iron, mercury, arsenic and lead. Treatment costs $75 to $125, and people often undergo dozens of these three-hour-long infusions over a period of several months. All in all, a treatment course can exceed $5,000—and it isn't typically covered by health insurance.[xix] The procedure isn't painful for most adults, but like with all injections, it's possible to feel some burning, redness or swelling at the **injection site**.

10) **Reduce, potentially,** incarcerations secondary to lead poisoning that have been linked to an increased number of those imprisoned in Maryland and nationwide[xx]. Avoid the cost of room and board for one inmate annually in Maryland at the expense to taxpayers to the tune of over **$44,601.00**.[xxi] Instead, an approximately $65.00 fiscal note, the cost for one *Passive Drool Saliva Screening* is a far better investment.

    Further, the *Salivary Screening* and the *Capillary Blood Stick* have similar beneficial outcomes. The use of oral fluid to screen for elevated body burdens of lead as an added option to the usual blood test sample is feasible with a negative predictive value of 100%, (meaning that if the sample is negative, lead is not present). This article went on to demonstrate eliminating the need for blood for lead screening in more than half of the referenced cases involving these children,[xxii] and without causing pain. Conversely, blood test on capillary samples are useful screening tool

to identify those with potentially elevated blood lead levels. However, here again, they are prone to false-positive results.[xxiii]

IV. Conclusion

Prevention is the hallmark of the dental profession, and like tooth decay, lead poisoning is preventable. Still, while the number of children with at least 5 micrograms of lead per deciliter of blood, the standard benchmark for determining lead poisoning, fell from 2,049 in 2017 to 1,825 last year, the number of children found with the highest levels of lead contamination was virtually unchanged, at nearly **400** cases.[xxiv]

This legislative initiative, House Bill 921 allowing dentists to utilize saliva collection to screen for lead (metals), that may have accumulated in the body does not require a research design. Instead, this opportunity begs for interprofessional collaboration and acceptance of the absolute screening utility of saliva collection to demonstrate evidence of or to rule out accumulation of lead. The ten (10) facts stated above, outlining our pathway in Maryland to endorse this bill is unprejudiced, and has clear corroboration by many respected expert researchers to support advancing this legislation.

Thank you for all you do for our great state. What has been here stated is not simply from the passion of wanting to have a piece of legislation passed but instead from the passionate desire to improve the human experience for citizens at risk, and for us all.

Sincerely,

Dr.Tamara Dulan
President
Maryland Dental Society

Dr. Winifred J. Booker
CEO & Director of Development
The Children's Oral Health Institute

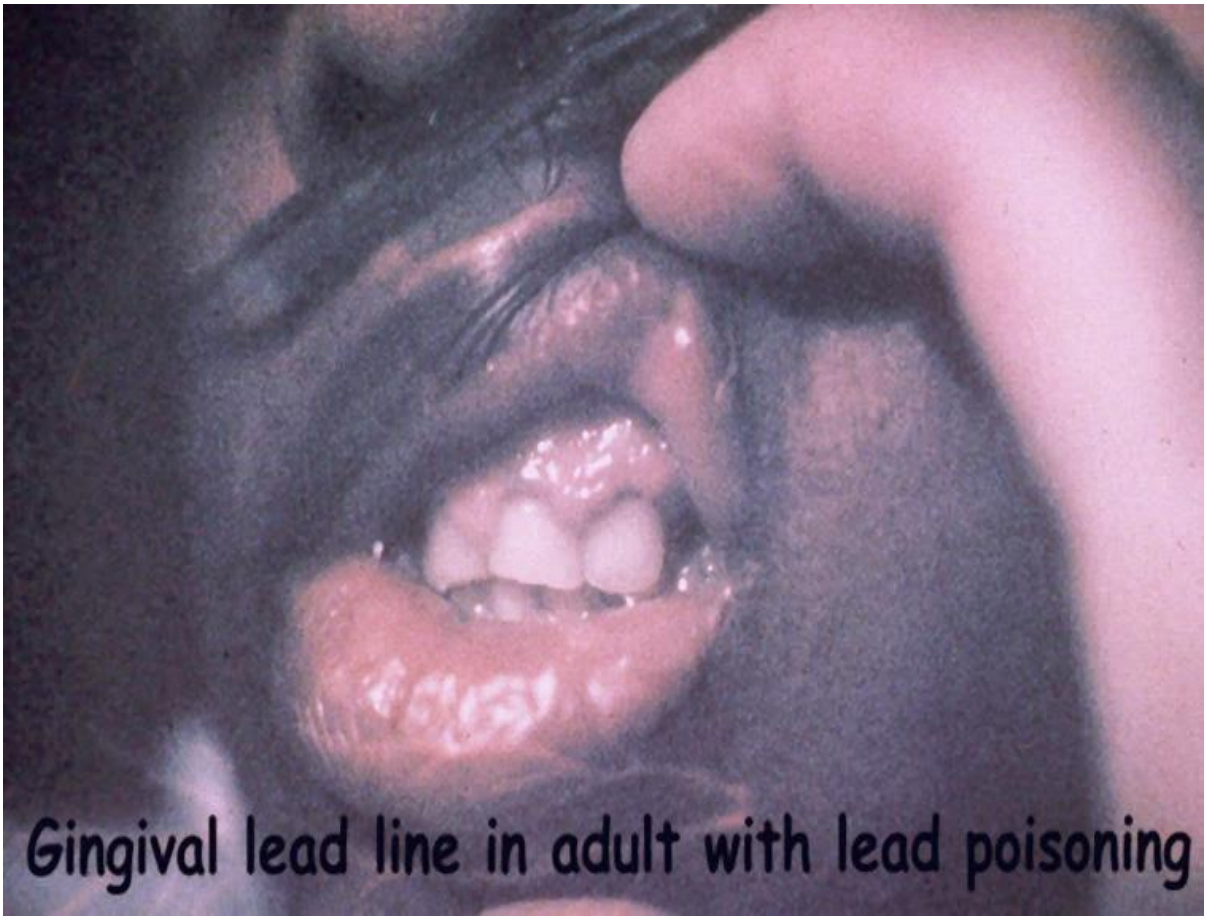

Figure 4. Lead lines on gingiva (Public domain) Check for a purplish line on the gums (lead line). This is rarely seen today, but if present, usually indicates severe and prolonged lead poisoning.

ENDNOTES

[i] *Lead poisoning in Maryland drops to lowest recorded levels, testing increases dramatically under state initiative:* Governor Larry Hogan proclaims Lead Poisoning Prevention Week in Maryland**,** Baltimore, Md (October 23, 2018). https://news.maryland.gov/mde/2018/10/23/lead-poisoning-in-maryland-drops-to-lowest-recorded-levels-testing-increases-dramatically-under-state-initiative

[ii] *Lead Poisoning Prevention Program* - Maryland Department of the Environment, 2020 https://mde.state.md.us/programs/Land/LeadPoisoningPrevention/Pages/PoisoningPreventionProgram

[iii] AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY CASE STUDIES IN ENVIRONMENTAL MEDICINE (CSEM) Lead Toxicity Course: WB2832 CE Original Date: June 12, 2017/CE Expiration Date: June 12, 2019 -https://www.atsdr.cdc.gov/csem/lead/docs/CSEM-Lead_toxicity_508.pdf

[iv] *Lead poisoning and health,* 29 August 2019: Key Facts- https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health

[v] *Screening for High Blood Lead Levels in Children and Pregnant Women.* Jill Jin, MD, MPH *JAMA.* 2019;321(15):1542. doi:10.1001/jama.2019.2944/ https://jamanetwork.com/journals/jama/fullarticle/2730616

[vi] *More children than ever getting tested for lead poisoning:* By Andrea K. McDaniels. The Baltimore Sun | Oct 27, 2017 https://www.baltimoresun.com/news/investigations/bs-md-sun-investigates-lead-poison-20171026-story.html

[vii] *A Closer Look at the Public Health Workforce Shortage* https://mphdegree.usc.edu/blog/a-closer-look-at-the-public-health-workforce-crisis

[viii] *AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY CASE STUDIES IN ENVIRONMENTAL MEDICINE* (CSEM) Lead Toxicity Course: WB2832 CE Original Date: June 12, 2017/CE Expiration Date: June 12, 2019 - https://www.atsdr.cdc.gov/csem/lead/docs/CSEM-Lead_toxicity_508.pdf

[ix] *Health Department Launches Child Blood Lead Testing Campaign:* Stephanie Buhle/Michael Lanza, https://www1.nyc.gov/site/doh/about/press/pr2019/child-blood-lead-testing

[x] *Capillary Blood Sampling: Strategies for Preventing the Spread of Infectious Diseases and Accidental Injuries*, JUL.1.2013 // Clinical Laboratory Newshttps://www.aacc.org/Publications/CLN/Articles/2013/july/PSF-Blood-Sampling.aspx

[xi] *Screening for Elevated Blood Lead Levels: False-Positive Rates of Tests on Capillary Samples, Minnesota, 2011-2017.* Wang, Amy MPH; Rezania, Zaynab MPH; Haugen, Kathryn M. B. BA; Baertlein, Luke MPH; Yendell, Stephanie J. DVM, MPH: Journal of Public Health Management and Practice: January/February 2019 - Volume 25 - Issue - p S44-S50 | https://journals.lww.com/jphmp/pages/articleviewer.aspx?year=2019&issue:

[xii] Diagnostic Testing Unwarranted for Children With Blood Lead 10 to 14 m g/dL: James D. Sargent, MD; Madeline Dalton, PhD; and Robert Z. Klein, MD | www. pediatrics.aappublications.org › e51.full.pdf

[xiii] *Has My Child Been Exposed To Lead? When And How To Test:* YOUR HEALTH Carolyn Beans August 4, 2016 – https://www.npr.org/sections/health-shots/2016/08/04/488579315

[xiv] *Drawing Blood From Baby Can Be a Harrowing Experience*: August 26, 2009 by Guest Contributor https://citydadsgroup.com/nyc/2009/08/drawing-blood-from-your-baby-can-be-a-harrowing-experience

[xv] *The diagnostic applications of saliva--a review.* Kaufman E[1], Lamster IB. Crit Rev Oral Biol Med. 2002;13(2):197-212. | https://www.ncbi.nlm.nih.gov/pubmed/12097361

[xvi] *Child Care Deserts - An Analysis of Child Care Centers by ZIP Code in 8 States* by Rasheed Malik, Katie Hamm, Maryam Adamu, and Taryn Morrissey Center for American Progress https://www.americanprogress.org/issues/early-childhood/reports/2016/10/27/225703/child-care-deserts

[xvii] *Childhood Lead Poisoning Prevention: Pregnant Women,* Centers for Disease Control and Prevention https://www.cdc.gov/nceh/lead/prevention/pregnant.htm

[xviii] *GUIDELINES FOR THE IDENTIFICATION AND MANAGEMENT OF LEAD EXPOSURE IN PREGNANT AND LACTATING WOMEN,* Centers for Disease Control and Prevention https://www.cdc.gov/nceh/lead/docs/publications/leadandpregnancy2010.pdf

[xix] *Chelation therapy offers small, if any, benefit for heart disease***|** Posted March 26, 2013| Stephanie Watson Executive Editor, *Harvard Women's Health Watch* https://www.health.harvard.edu/blog/chelation-therapy-offers-small-if-any-benefit-for-heart-disease

[xx] *New evidence that lead exposure increases crime*, Jennifer L. Doleac Up Front-Thursday, June 1, 2017 https://www.brookings.edu/blog/up-front/2017/06/01/new-evidence-that-lead-exposure-increases-crime

[xxi] *Prison spending in 2015*:Vera Institute of Justice- State spending on private prisons and local jails, https://www.vera.org/publications/price-of-prisons-2015-state-spending-trends

[xxii] J Anal Toxicol. 2016 Nov;40(9):744-748. Epub 2016 Sep 13. *Evaluating Oral Fluid as a Screening Tool for Lead Poisoning*. Gardner SL(1), Geller RJ

[xxiii] J Public Health Manag Pract. 2019 Jan/Feb;25 Suppl 1, Lead Poisoning Prevention:S44-S50. Screening for Elevated Blood Lead Levels: False-Positive Rates of Tests on Capillary Samples, Minnesota, 2011-2017.Wang A[1], Rezania Z, Haugen KMB, Baertlein L, Yendell SJ.

[xxiv] *Number of Children that tested positive for lead poisoning fell 11% in 2018*: Scott Dance, Baltimore Sun: October 23, 2018 https://www.baltimoresun.com/health/bs-hs-lead-poisoning-20191023-