

Clinical pathology selected abstracts

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Decreases in blood lead level testing among children during COVID-19

November 2022—Exposure to lead may cause severe illness in children, including neurological damage, organ failure, and even death. The Centers for Disease Control and Prevention and other agencies recommend routine testing for blood lead levels (BLL) as part of a well-child examination to identify elevated levels and, subsequently, eliminate exposure to lead and initiate therapeutic interventions. The CDC's position is that there is no safe BLL for children, and the agency considers a blood lead reference value of 5 µg/dL sufficient to prompt clinical and public health measures. However, routine testing for BLL began to decline as COVID-19 started to disrupt routine health visits, despite the CDC developing guidance for conducting environmental inspections and public health home visits. The CDC conducted a study to assess BLL testing trends among children during the pandemic compared with a time period prior to the pandemic. The agency analyzed data from 34 state and local health departments pertaining to children younger than six years old. The data were from January to May 2019 (prepandemic) and January to May 2020 (pandemic). They showed a 34 percent decrease in lead testing between both study periods, resulting in 480,172 fewer children tested. Due to the reduction in testing, an estimated 9,603 children with elevated BLL were missed. All of the health departments reported fewer children tested for BLL during the study period after the national COVID-19 emergency declaration (March–May 2020). The health departments also reported difficulty conducting medical follow-up and environmental investigations for children with elevated BLL because of staffing shortages and challenges with home visits during the pandemic. Although the CDC did not collect socioeconomic information, such as demographics, it predicted that a disproportionate number of children from racial or ethnic minority groups or families that have been economically or socially marginalized and who live in older housing with lead-based paint would be more affected by the lack of BLL testing during the pandemic. The decline in BLL testing correlated with the decline in other pediatric medical services, including emergency department visits, well-child visits, patient screenings, and vaccinations. The authors concluded that although telemedicine may provide an alternative to physician office or clinic visits, some types of in-person visits, including for BLL testing, are essential. The CDC recommends that health care providers identify children who have missed well-child visits and initiate the process of rescheduling appointments. The agency also recommends that states and local childhood lead-poisoning prevention programs examine data from blood lead surveillance and Medicaid to identify children who should undergo testing.

Courtney JG, Chuke SO, Dyke K, et al. Decreases in young children who received blood lead level testing during COVID-19—34 jurisdictions, January–May 2020. *MMWR*. 2022;70(5):155–157.

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Advances in measuring and monitoring HCQ levels in lupus patients

Hydroxychloroquine is a cornerstone of treatment for controlling lupus, and higher levels are associated with better outcomes. However, some studies suggest that there is no clear association between prescribed weight-based dosing of hydroxychloroquine (HCQ) and the resulting patient blood level. These observations indicate a need to follow patients' blood levels of HCQ instead of relying on the prescribed weight-based dose. Researchers initially thought that measuring HCQ levels at any point after several months of HCQ use was valid because of the drug's long half-life. However, it was discovered that even after six months, HCQ measured at several timepoints during a 12-hour period varied for the same patient by as much as 27 percent. Therefore, knowing the time of the last dose of HCQ is critical to correctly interpreting HCQ values. The authors summarized recent literature about HCQ levels and their relationship to lupus disease activity and toxicity risk. Liquid chromatography and mass spectrometry, alone or combined, are used to measure such levels. HCQ nonadherence is a widespread problem in treating

patients with lupus. However, no threshold level has been established to define nonadherence. A threshold of less than 200 ng/mL is frequently used in the literature. Numerous studies recommend levels of 500 to 1,000 ng/mL as a therapeutic target for HCQ levels, and many have linked higher disease activity with lower HCQ levels. The authors noted varied findings in the literature about HCQ levels relative to systemic lupus erythematosus with retinopathy, obesity, thrombosis, and pregnancy. They emphasized that in addition to identifying patients at risk for toxicities, HCQ levels may be used to identify the need for increased dosing. However, while higher HCQ levels are associated with lower lupus disease activity, adjustments based on low levels to achieve optimal disease control are not as well established. Based on recent literature, the authors concluded that prospectively following HCQ levels may help identify noncompliant patients and prevent medication toxicity, even if the therapeutic target range is uncertain. This is because toxicity risk increases over time and monitoring may lead to a decrease in HCQ dosage. The authors noted that reducing the dosage may be even more critical after five to 10 years of HCQ treatment.

Chakrabarti K, McCune WJ. Advances in the clinical use of hydroxychloroquine levels. *Curr Opin Rheumatol*. 2022;34:151–157.

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