

Researchers Identify Involuntary Tobacco Smoke Exposure in Boston Public Housing Authority Residents with Salivary Cotinine Testing from Salimetrics.

A recent study from the Massachusetts General Hospital found a detectable level of the nicotine metabolite, cotinine, in 88% of non-smoking children and adults, indicating that they had been involuntarily exposed to tobacco smoke as a resident of the Boston Housing Authority. National estimates of second-hand smoke exposure, based on data from a previous CDC study were much lower.

([PRWEB](#)) January 31, 2013 -- Researchers from the Massachusetts General Hospital recently conducted a study of residents living in Boston public housing to assess tobacco smoke exposure. This pilot study found a detectable level of cotinine, the nicotine metabolite, in 88% of non-smoking children and adults. Significantly lower cotinine levels were found among residents in houses with strict no-smoking policies (0.40 ng/mL vs 1.07 ng/mL, $p=0.006$). The Boston Housing Authority has since become the nation's largest urban housing authority to adopt a comprehensive no-smoking policy, banning smoking in all of its 11,000 units in October 2012 (Rocheleau, 2012). A more in-depth study will focus on smoking rules for public housing authorities.

Previous studies on secondhand smoke exposure have often relied on self-reported levels, but problems with memory or false reporting are thought to have affected the validity of these studies' findings. To determine each resident's level of smoke exposure in this study, researchers collected a saliva sample in conjunction with a written survey. Using saliva analysis through the [Salimetrics Testing Laboratory](#) (State College, PA), Dr. Douglas Levy, Dr. Nancy Rigotti and Dr. Jonathan Winickoff were able to quantitatively assess salivary cotinine levels and tobacco smoke exposure among non-smoking residents of the Boston Housing Authority. The measurement of cotinine in saliva allows researchers to accurately quantify the amount of smoke exposure without the need to draw blood.

When nicotine from tobacco smoke is inhaled into the lungs, it enters the bloodstream where the principle metabolite produced in the liver is cotinine. Cotinine diffuses easily from blood into saliva, and salivary and blood levels are highly correlated. Cotinine in saliva has a longer half-life than nicotine (more than 10 hours), and the literature has documented it to be a specific and sensitive marker for determining exposure to tobacco and nicotine (Benowitz, 1996).

During data analysis, researchers separated active smokers from non-smokers by excluding residents with salivary cotinine values of >15 ng/mL. Out of the 51 remaining residents, salivary cotinine testing was able to identify elevated cotinine levels in 88% of participants. It is well-known that cigarette smoke contains nearly 7,000 chemicals and 60 carcinogens and children are particularly vulnerable to its effects. Of the 88% of residents who showed elevated cotinine levels, 31% were children. Here, mean cotinine levels were much higher than what had previously been reported in recent CDC and national studies (Kaufman, 2010; Wison, 2011; US EPA, 2010).

The Salimetrics Cotinine assay, used by the Salimetrics Laboratory, is specifically designed to work with saliva samples, in comparison to immunoassays from other manufacturers that are designed for use with blood or urine samples. Saliva is also easier and more efficient to collect and store as opposed to other biological testing fluids. The Salimetrics immunoassay is also cost effective when compared to alternative chromatographic assay methods, which is important for large-scale health-related studies that screen for cotinine levels.

- (1) Levy, D.E., Rigotti, N.A., Winickoff, J.P. (2013). Tobacco smoke exposure in a sample of Boston public housing residents. *Am J Prev Med*, 44(1):63-66.
- (2) Rocheleau M. (2012). [Boston set to become largest city in US to ban smoking in public housing](#).
- (3) Benowitz, N.L. (1996). Cotinine as a biomarker of environmental tobacco smoke exposure. *Epidemiol Rev*, 18(2): 188-204.
- (4) Kaufman, R., et al. (1999-2008). Vital signs: nonsmokers' exposure to secondhand smoke – U.S. *MMWR Morb Mortal Wkly Rep*, 2010; 59(35):1141-6.
- (5) Wilson, K.M., et al. (2011). Tobacco-smoke exposure in children who live in multiunit housing. *Pediatrics*, 127(1):85-92.
- (6) U.S. Environmental Protection Agency. (2010). [Blood Cotinine Level](#).

Contact Information

Chris Schwartz

Salimetrics

<http://salimetrics.com>

814-234-7748 210

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