

Editorial |

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Children have at least 3 times the rate of living with smokers compared with nonsmoking adults.¹ Nonsmoking adults largely choose to live with other nonsmoking adults but children cannot advocate for themselves in the face of parental tobacco use. Unfortunately for children and the child health care clinicians trying to optimize patient health, parents do not reliably report tobacco smoke exposure (TSE) or in some cases may not know about it.

The simple but elegant study by Dempsey et al² heralds a paradigm shift in addressing family tobacco use and TSE for children. Despite low reported TSE rates, Dempsey and colleagues found that more than half of children aged 0 to 18 years in an urban public pediatric hospital clinic had evidence of TSE as documented by a reliable biomarker of tobacco exposure in young children, cotinine level.² The rates of TSE were significantly higher in African American children than white children. This was the first systematic study to include infants and children aged 0 to 3 years.

In addition to the high prevalence of TSE, other findings were of interest. Although National Health and Nutrition Examination Survey data would predict that younger children would have higher cotinine levels than older children, results from this study did not vary by age. Many shared sociodemographic factors predict both lead exposure and TSE, yet lead levels were not significantly correlated with cotinine levels. These findings may reflect special housing, seasonal, and environmental factors pertinent to midcoastal California. Likewise, medications for asthma were not associated with cotinine levels, although the sample size was small (n = 70) and the young age of children may have decreased the probability of receiving an asthma medication.

Dempsey and colleagues point out that measurement of TSE in young children increases the sensitivity of detection significantly over parental report. Parents who smoke often try to protect their children from TSE by smoking in a different room, opening windows, turning on a fan, or simply blowing the smoke in another direction away from their child.³ However, children of parents who smoke remain exposed at low levels even when parents smoke outdoors, including through thirdhand smoke exposure.⁴⁻⁵ Other children may be exposed from adults other than their parents, closed ventilation systems (for example, in multiunit housing), or in locations outside the home.

How can this newly found sensitivity be put to clinical use? Especially in cases where parents do not smoke, finding out that their child is exposed to tobacco smoke may come as a disturbing revelation. The discomfort is well founded given that the 2007 report⁶ by the US Surgeon General documents causal relationships between TSE and sudden infant death syndrome, impaired lung function, respiratory illnesses, otitis media, and asthma. The additional conclusion from the report by the US Surgeon General that there is no risk-free

level of TSE is important given that this study shows low levels of exposure are most common.

The findings naturally lead to speculation about whether parental discomfort might be usefully directed at TSE mitigation efforts, starting with parental smoking cessation. Perhaps if armed with the report stating that the biological TSE marker was found in the child's blood, the parent would be able to better enforce strict no-smoking policies in the home and car. Dempsey and colleagues did not circle back to the parents of children with positive test results. However, figuring out how to deal with this parental interaction to maximize the health of the child and the public will become an active research area for the future of biological documentation of TSE.

Documentation of such a high prevalence of TSE in this population lends further support to public policies for smoke-free multiunit housing because poor and medically underserved populations disproportionately live in apartments. Because smoking is more common among economically disadvantaged populations, multiunit housing is a source of childhood TSE even when nobody smokes in the child's unit.⁷ A host of legal and ethical arguments have been advanced recently for the promotion and enforcement of smoke-free multiunit public housing.⁸ The benefits of smoke-free housing include decreased TSE for everyone in the building, lower teen smoking initiation rates, decreased school absenteeism, enhanced incentive for smoking cessation, increased financial resources of dwellers owing to lower smoking rates, decreased fire risks, and lower cleaning and insurance costs for building owners.⁸⁻¹²

Most parents who are smokers and nonsmokers want to know whether their child is exposed to tobacco smoke and would accept a blood test to determine the result.³ Documentation of TSE might create a teachable moment to address the notions of no safe level of TSE, strictly smoke-free homes and cars, and the imperative to engage parents in the process of quitting smoking.

In the pediatric health care setting, one often asks parents whether they smoke tobacco. For parents who smoke, the answer usually includes a variant of “yes, but not around my kids” or “yes, but not inside the house.” Historically, the conversation would end there, the child health care clinician's responsibility fulfilled. With a documented positive laboratory test result, this scenario becomes the beginning of real tobacco dependence treatment.

Programs designed to help every parent try to quit smoking in the context of the child health care setting already exist.¹³ At least one of these programs, currently available in 15 states, works to address parental smoking by changing the existing office systems so that every parent who smokes is identified, given a motivational message, and offered a prescription for nicotine replacement medication and enrollment in the free state quitline.¹⁴⁻¹⁵ Faced with children who have biomarker documentation of TSE, clinicians will now have the biological evidence needed to advocate for smoke-free air for children and treat documented TSE by helping parents quit smoking.

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REFERENCES

- 1 King K, Martynenko M, Bergman MH, Liu YH, Winickoff JP, Weitzman M. Family composition and children's exposure to adult smokers in their homes. *Pediatrics*. 2009;123(4):e559-e564
[PubMed](#)

- 2 Dempsey DA, Meyers MJ, Oh SS, et al. Tobacco smoke exposure determined by plasma cotinine in infants and children attending urban public hospital clinics [published online May 7, 2012]. *Arch Pediatr Adolesc Med*[CrossRef](#)

- 3 Winickoff JP, Tanski SE, McMillen RC, et al. Acceptability of testing children for tobacco-smoke exposure: a national parent survey. *Pediatrics*. 2011;127(4):628-634
[PubMed](#)

- 4 Matt GE, Quintana PJ, Hovell MF, et al. Households contaminated by environmental tobacco smoke: sources of infant exposures. *Tob Control*. 2004;13(1):29-37
[PubMed](#)

- 5 Johansson A, Hermansson G, Ludvigsson J. How should parents protect their children from environmental tobacco-smoke exposure in the home? *Pediatrics*. 2004;113(4):e291-e295
[PubMed](#)

- 6 Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. *Children and*

Secondhand Smoke Exposure: Excerpts From the Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General. Atlanta, GA: Centers for Disease Control and Prevention; 2007

- 7 Wilson KM, Klein JD, Blumkin AK, Gottlieb M, Winickoff JP. Tobacco-smoke exposure in children who live in multiunit housing. *Pediatrics*. 2011;127(1):85-92
[PubMed](#)

 - 8 Winickoff JP, Gottlieb M, Mello MM. Regulation of smoking in public housing. *N Engl J Med*. 2010;362(24):2319-2325
[PubMed](#)

 - 9 Levy DE, Winickoff JP, Rigotti NA. School absenteeism among children living with smokers. *Pediatrics*. 2011;128(4):650-656
[PubMed](#)

 - 10 Pizacani BA, Martin DP, Stark MJ, Koepsell TD, Thompson B, Diehr P. Longitudinal study of household smoking ban adoption among households with at least one smoker: associated factors, barriers, and smoker support. *Nicotine Tob Res*. 2008;10(3):533-540
[PubMed](#)

 - 11 Pizacani BA, Martin DP, Stark MJ, Koepsell TD, Thompson B, Diehr P. A prospective study of household smoking bans and subsequent cessation related behaviour: the role of stage of change. *Tob Control*. 2004;13(1):23-28
[PubMed](#)

 - 12 Gilpin EA, Messer K, Pierce JP. Population effectiveness of pharmaceutical aids for smoking cessation: what is associated with increased success? *Nicotine Tob Res*. 2006;8(5):661-669
[PubMed](#)

 - 13 Dempsey JH, Friebely J, Hall N, Hipple B, Nabi E, Winickoff JP. Parental tobacco control in the child healthcare setting. *Curr Pediatr Rev*. 2011;7(2):115-122

 - 14 Winickoff JP, Dempsey JH, Friebely J, Hipple B, Lazorick S. *EQIPP: Eliminate Tobacco Use and Exposure*. Elk Grove Village, IL: American Academy of Pediatrics; 2011
-

- 15** Winickoff JP, Park ER, Hipple BJ, et al. Clinical effort against secondhand smoke exposure: development of framework and intervention. *Pediatrics*. 2008;122(2):e363-e375
[PubMed](#)

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