

# Clinical Pediatrics

## Stevens et al. article on food color additives analysis is invalid and misleading

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10 In their April 24, 2014 article, Stevens et al. report the results of analysis of synthetic  
11 colors concentrations in foods consumed by children<sup>1</sup>. Previously, they reported on synthetic  
12 color concentrations in beverages<sup>2</sup>.  
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16 The International Association of Color Manufacturers (IACM) has reviewed these studies  
17 carefully and found that both have substantial methodological limitations that render the results  
18 and conclusions invalid. The methods fail to account for the complexity of the food matrix and  
19 for interference among coloring substances. Specifically, inadequate color extraction methods  
20 resulting in complex matrix effects interfere with spectrophotometry; the absence of a matrix  
21 negative control is not sufficiently compensated by using an appropriate blank; standards for  
22 each color were not dissolved in matrix; the absence of color separation leads to overestimation  
23 of color concentrations due to the overlapping absorption profiles; and there is no method  
24 validation. The impact from the absence of normalization for matrix effects is greater for food  
25 products of more complex composition.  
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30 Unaware of or despite the methodological limitations, the authors have drawn misleading  
31 conclusions about food color safety and issue unfounded consumer advice. We believe it is  
32 important that such advice be based on accurate data.  
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36 There is a large volume of literature using appropriate and validated methods. The results  
37 of a recent FDA publication<sup>3</sup> are inconsistent with the results of Stevens et al.<sup>1,2</sup>. From personal  
38 communication with Stevens et al., we understand that they recognize the method limitations and  
39 are currently repeating the analysis reported in their publications. IACM believes that the data  
40 and conclusions in both Stevens et al. articles<sup>1,2</sup> are invalid and should be corrected or  
41 withdrawn.  
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## References

1. Stevens LJ, Burgess JR, Stochelski MA, Kuczek T. Amounts of artificial food dyes and added sugars in foods and sweets commonly consumed by children. *Clin Pediatr (Phila)*. 2014; April 24. [Epub ahead of print].
2. Stevens LJ, Burgess JR, Stochelski MA, Kuczek T. Amounts of artificial food colors in commonly consumed beverages and potential behavioral implications for consumption in children. *Clin Pediatr (Phila)*. 2014;53:133-140.
3. Harp BP, Miranda-Bermudez E, Barrows JN. Determination of seven certified color additives in food products using liquid chromatography. *J Agric Food Chem*. 2013;61(15):3726-3736.