

Revision, codes). This type of information would be useful in understanding differences in specific utilization rates and patterns.

Despite these limitations, there are very compelling reasons to engage in analyses such as the one presented here. The Physician and Other Provider PUF provides a nationally representative sample of allergy/immunology provider utilization patterns and provides a reasonable understanding of current national norms both within our field and compared with other providers.

As a publicly available tool, this database is being actively analyzed.^{2,3} The popular press has also brought this database into the public eye, most notably by the *New York Times*, which created a tool to search the database by physician name and location.⁷ High-profile commentaries have expressed both encouragement and caution surrounding this extensive data set.^{6,8} Although there are certainly limitations of using this database, the information is actively being analyzed by providers, patients, and payers.

Reimbursement data are only one side of the health care value equation. It is prudent of the allergy/immunology community to actively assess this information and be introspective in regard to how our patients' outcomes compare with the costs. This analysis presents one side of the health care value equation (ie, cost), and future steps are needed to balance the value equation (ie, outcomes and quality measures). Allergy/immunology providers are indeed striving to articulate and measure appropriate quality metrics.⁹ We anticipate this analysis and ones like it will help our field continue to articulate the high value of the care we provide.

Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.anai.2014.11.016>.

Andrew S. Nickels, MD
James T. Li, MD, PhD
Gerald Volcheck, MD
Division of Allergic Diseases
Mayo Clinic
Rochester, MN
Nickels.Andrew@Mayo.edu

References

- [1] Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use File. 2014. <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Physician-and-Other-Supplier.html>. Accessed April 10, 2014.
- [2] Nickels A, Li J, Volcheck G. Percutaneous and intradermal allergy skin test utilization in the United States 2012 Medicare population. *J Allergy Clin Immunol Pract*. 2014;2:807–809.
- [3] Harewood G, Alsaffar A. No association between Centers for Medicare and Medicaid Services Payments and volume of Medicare beneficiaries or per capita healthcare costs for each state. *Clin Gastroenterol Hepatol*. 2014. <http://dx.doi.org/10.1016/j.cgh.2014.08.017>.
- [4] Medicare Fee-For Service Provider Utilization & Payment Data Physician and Other Supplier Public Use File: A Methodological Overview. 2014. <http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Downloads/Medicare-Physician-and-Other-Supplier-PUF-Methodology.pdf>. Accessed April 10, 2014.
- [5] Jessen M, Malm L. Definition, prevalence and development of nasal obstruction. *Allergy*. 1997;52(40 suppl):3–6.
- [6] O'Gara PT. Caution advised: Medicare's physician-payment data release. *N Engl J Med*. 2014;371:101–103.
- [7] How much Medicare pays for your doctor's care. *New York Times* 2014. http://www.nytimes.com/interactive/2014/04/09/health/medicare-doctor-database.html?_r=0. Accessed October 20, 2014.
- [8] Brennan N, Conway PH, Tavenner M. The Medicare physician-data release: context and rationale. *N Engl J Med*. 2014;371:99–101.
- [9] Makatsori M, Pfaar O, Calderon MA. Allergen immunotherapy: clinical outcomes assessment. *J Allergy Clin Pract*. 2014;2:123–129.

Effectiveness of a computer module to augment the training of school staff in the management of students with food allergies



Food allergies have increased dramatically in children, affecting approximately 1 in 25 school-age children,^{1,2} with delays in treatment contributing to increased death,³ which can occur in school or daycare.⁴ The presence of nurses in schools varies greatly,⁵ suggesting a role for school staff with appropriate training. However, current training is informal and evidence-based training consistent with the Centers for Disease Control and Prevention guidelines is scarce. The purpose of this study was to evaluate the effectiveness of a computer-based learning module as an additional teaching tool to increase the knowledge and confidence of school staff in the recognition and management of food allergies.

This pre- and post-test study was implemented during the 2012 through 2013 school year by school nurses of the Massachusetts School Nurse Research Network interested in participation. The nurses presented the study at the beginning of the school year at orientation or a staff meeting as an option to the usual nurse-led didactic training. Usual nurse-led epinephrine administration demonstration was scheduled after the post-test. The voluntary convenience sample of school staff was at least 18 years of age; able

to read, write, and speak English; and able to operate a computer. No one was excluded from participation.

The intervention was a 30-minute, self-directed, noninteractive computer module, including visual PowerPoint (Microsoft Corp, Redmond, Washington) slides with audio presenting the fundamentals of food allergies; prevention, symptoms, and management of reactions; auto-injector administration; and social emotional issues. The program was created by pediatric allergists with guidance from the Massachusetts Department of Public Health School Health Services and reviewed by national experts and organizations to help school nurses deliver to staff content consistent with the Centers for Disease Control and Prevention and Massachusetts food allergy guidelines. This freely available online program has been edited twice since this study and can be accessed at <http://www.allergyhome.org/schools/management-of-food-allergies-in-school-what-school-staff-need-to-know/>.

The authors created paper pre- and post-tests with school nurses and pediatric allergists to measure knowledge, confidence, and attitude. The 11-item knowledge test was adapted from a test used by a Massachusetts school district and was scored 1 point for each correct answer. Confidence was measured by 4 items and attitude by 7 items on a 5-point scale, with a higher score suggesting greater confidence and a favorable attitude. A written evaluation described the location and timing of the module,

Disclosure: Authors have nothing to disclose.

Funding: This work was supported in part by grant K24 AI 106822 from the National Institutes of Health (principal investigator, Wanda Phipatanakul).

Table 1
Changes in knowledge, confidence, and attitude^a

	Pretest, mean (SD)	Post-test, mean (SD)	SEM
Total group (N = 85)			
Teachers (n = 58)			
Other staff (n = 27)			
Knowledge	8.6 (1.3)	10.1 (1.1)	0.15734
Teachers	8.6 (1.3)	10.2 (1.1)	0.18115
Other staff	8.2 (1.2)	9.9 (1.1)	0.31038
Confidence	11.5 (3.3)	14.6 (1.6)	0.30889
Teachers	11.4 (3.2)	14.5 (1.7)	0.35086
Other staff	11.4 (3.4)	14.7 (1.4)	0.62382
Attitude	23.0 (2.9)	26.0 (2.1)	0.25426
Teachers	22.9 (2.9)	26.1 (2.0)	0.30629
Other staff	22.9 (2.9)	25.4 (2.3)	0.45407

^a*P* < .001 by paired *t* test.

comparison with prior allergy training, and whether new allergy issues were raised. Pre- and post-test differences were tested by paired *t* tests (eMethods).

Most participants (88%) were women and teachers (68%), with the remaining participants reported as administrators, secretaries, or cafeteria staff (eTable 1). The sample included 85 participants from 6 schools (eTable 2). Response rates ranged from 8% to 36%, possibly owing to the start of the academic year and many professional commitments.

Participants reported significant increases in knowledge, confidence, and attitude scores (*P* < .001; Table 1, eTables 3–5). The sensitivity of change was tested by stratifying the sample into teachers (*n* = 58) and all other staff (*n* = 27). No significant difference was noted between the 2 groups by paired *t* tests or independent *t* tests. The 2 groups showed a significant increase in pre- and post-test scores. A regression was run to control for the variation of nursing hours, student enrollment, and staff experience. After controlling for full-time equivalent of nurses, student enrollment, and experience, the significant differences in knowledge, confidence, and attitude remained. On average, the knowledge pretest scores were 1.57 U lower than post-test scores (*P* < .001), confidence pretest scores were 3.09 U lower than post-test scores (*P* < .001), and attitude pretest scores were 2.92 U lower than post-test scores (*P* < .001).

In particular, the item regarding the risk of bullying increased from 29.4% of participants at pretest agreeing that children with food allergies are at risk of being bullied to 85.9% agreeing with the risk at post-test.

The significant increase in knowledge is important because of the large percentage of staff with previous training in a state that requires emergency anaphylaxis protocols and the reporting of anaphylaxis and epinephrine administration. The ease, flexibility, time of training, and positive experience suggest the feasibility of the program for school staff. The increase in scores, although significant, was small and the clinical significance is unclear; however, the staff reported learning new information, including allergens in nonfood school products; auto-injector insertion; anaphylaxis symptoms; effective surface cleaning; and hand washing. The increase in score of even 1 item can affect the prevention, recognition, or reaction in a child with an allergy. The clinical significance could be even greater in schools without a school nurse or other training program.

The increased recognition that children with food allergies are at risk for being bullied was not an anticipated finding and one that requires further study. In a study of individuals with food allergies reporting experiences with bullying, 21.4% reported staff as the perpetrators.⁶ This particular training appeared to influence staff's perception of the risk for being bullied and has implications to

decrease bullying, recognize children at risk for bullying, and intervene sooner if a child is being bullied.

Limitations of this study include its homogeneity, the small convenience sample, lack of a control group, self-selection bias such as facility with computers, and the unique characteristics of the schools and state. The study measurements were not previously validated, and although the pre- and post-test differences were significant, the clinical significance was not statistically measured.

These findings are encouraging and novel in showing the feasibility, practicality, and effectiveness of this computer-based model and provide evidence for larger-scale evaluation and consideration of dissemination in other school settings to determine its effectiveness.

This online module could enhance school preparedness in addressing the needs of students with food allergies. Awareness in adult learners regarding the increased risk for bullying of children with food allergies also could arise from this training.

Acknowledgments

The authors thank AllergyHome.org for the design of the computer module and the Massachusetts School Nurse Research Network for the recruitment of school nurses as coordinators and interventionists.

Supplementary Data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.anai.2014.11.020>.

Laura White, PhD, RN, CPNP^{*,†}
 Judy Aubin, RN, MSN, NCSN, MEd^{†,‡}
 Carol Bradford, BSN, RN, NCSN^{†,§}
 Catherine Alix, RN^{†,||}
 Laurette Hughes, PhD, RN^{*,†}
 Wanda Phipatanakul, MD, MS^{¶,#}

^{*}Boston College

Chestnut Hill, Massachusetts

[†]Massachusetts School Nurse Research Network
 Boston, Massachusetts

[‡]North Attleboro School District
 North Attleboro, Massachusetts

[§]Sudbury School District

Sudbury, Massachusetts

^{||}Foxborough Regional Charter School
 Foxborough, Massachusetts

[¶]Division of Pediatric Immunology and Allergy
 Boston Children's Hospital

Boston, Massachusetts

[#]Harvard Medical School
 Boston, Massachusetts

laura.white.3@bc.edu

References

- [1] Sampson HA. Anaphylaxis and emergency treatment. *Pediatrics*. 2013;111:1601–1608.
- [2] Branum AM, Lukacs SL. Food allergy among U.S. children: trends in prevalence and hospitalizations. NCHS Data Brief, no 10. Hyattsville, MD: National Center for Health Statistics; 2008. <http://www.cdc.gov/nchs/data/databriefs/db10.htm>. Accessed March 7, 2014.
- [3] Bock SA, Munoz-Furlong A, Sampson HA. Further fatalities caused by anaphylactic reactions to food, 2001–2006. *J Allergy Clin Immunol*. 2007;119:1016–1018.
- [4] Bock SA, Munoz-Furlong A, Sampson HA. Fatalities due to anaphylactic reactions to foods. *J Allergy Clin Immunol*. 2001;107:191–193.
- [5] National Association of School Nurses. FAQ 2012. http://www.nasn.org/portals/0/about/press_room_faq.pdf. Accessed March 7, 2014.
- [6] Lieberman JA, Weiss C, Furlong TJ, Sicherer M, Schirer SH. Bullying among pediatric patients with food allergy. *Ann Allergy Asthma Immunol*. 2010;105:282–286.

Download English Version:

<https://daneshyari.com/en/article/3191107>

Download Persian Version:

<https://daneshyari.com/article/3191107>

[Daneshyari.com](https://daneshyari.com)