

RESEARCH ARTICLE

Asthma education: different viewpoints elicited by qualitative and quantitative methodsScott A. Damon¹, and Richard R. Tardif²¹Centers for Disease Control, National Center for Environmental Health, Air Pollution & Respiratory Health Branch, Chamblee, GA, USA and²Oak Ridge Associated Universities, Oak Ridge, TN**Abstract**

Objective: This project began as a qualitative examination of how asthma education provided by health professionals could be improved. Unexpected qualitative findings regarding the use of Asthma Action Plans and the importance of insurance reimbursement for asthma education prompted further quantitative examination.

Methods: Qualitative individual interviews were conducted with primary care physicians in private practice who routinely provide initial diagnoses of asthma and focus groups were conducted with other clinicians in private primary care practices who routinely provide asthma education. Using the DocStyles quantitative tool two questions regarding Asthma Action Plans and insurance reimbursement were asked of a representative sample of physicians and other clinicians.

Results: The utility of Asthma Action Plans was questioned in the 2012 qualitative study. Qualitative findings also raised questions regarding whether reimbursement is the barrier to asthma education for patients performed by medical professionals it is thought to be. 2013 quantitative findings show that the majority of clinicians see Asthma Action Plans as useful. The question of whether reimbursement is a barrier to providing asthma education to patients was not resolved by the quantitative data.

Conclusions: The majority of clinicians see Asthma Action Plans as a useful tool for patient education. Clinicians had less clear opinions on whether the lack of defined reimbursement codes acted as a barrier to asthma education. The study also provided useful audience data for design of new asthma educational tools developed by CDC.

Keywords

Asthma Action Plan, clinicians, docStyles, physicians, reimbursement

History

Received 17 July 2014

Revised 4 September 2014

Accepted 11 September 2014

Published online 1 October 2014

Introduction

At least 25 million Americans have asthma – 9.3% of children and 8.0% of non-institutionalized adults [1]. Asthma affects minorities disproportionately [2] with poor and minority children more likely to have asthma and to have worse health outcomes associated with asthma [3]. Each year about 3400 Americans die from asthma-related complications [1]. In the absence of means to eliminate the disorder, treatment and education to minimize the frequency and intensity of asthmatic attacks are of paramount importance.

NIH guidelines argue that asthma management rests on four legs: assessing and monitoring asthma severity and control, forming a patient-provider education partnership, controlling environmental factors (asthma triggers) and comorbid conditions, and proper use of medications [4]. Self-management education performed by clinical providers is a key to both correct use of medication and avoidance of asthma triggers on the part of the individual with asthma and

his or her family. Two of the most important components of this education are the adoption of an “Asthma Action Plan,” sometimes called an asthma management plan or an asthma education plan, and education given to the patient and parents at the time of first diagnosis.

Previous research in this field did not focus on the specific question of improving the initial asthma diagnostic encounter to provide more effective self-management education. Babey et al. [5] and Johnson et al. [6] found socioeconomic status, literacy, race/ethnicity, and other influencers of effective self-management education, but offered only generalized recommendations. Flores et al. [7] and Howell [8] identified the need for better education of parents of children with asthma, identifying trigger avoidance and medication adherence, along with follow-up care as major factors, thus anticipating the NIH guidelines. They also noted the importance of parental attitudes regarding the preventability of asthma attacks. Davis et al. [9] identified specific concerns regarding physician financial incentives for self-management education.

For health communicators and educators, there is no substitute for knowledge of the target audience or audiences. Understanding audience knowledge, beliefs, attitudes, behavior, and learning styles is the key to communicating

Address for correspondence: Scott A. Damon, Centers for Disease Control, National Center for Environmental Health, Air Pollution & Respiratory Health Branch, Chamblee, GA 30341, USA. E-mail: scd3@cdc.gov

effectively to spur changes in behavior. This is true for asthma patients seen by clinical providers as well as for the providers themselves. The initial objective of this study was to assess the need for additional educational tools to help providers communicate with patients about asthma. Tools for that purpose specifically requested by providers in the qualitative phase of the study – multilingual videos and easily reproduced fact sheets on correct inhaler use – have been developed by CDC [10]. The qualitative study also examined barriers providers have to accomplishing education of their asthma patients. This paper discusses two unexpected findings about attitudes and practices related to Asthma Action Plans and insurance reimbursement.

This study examined qualitatively how education at the first diagnostic encounter could be improved and in doing so discovered unexpected questions for further quantitative exploration.

Methods

Qualitative phase

The objectives of the qualitative study were to explore practices, barriers, and facilitators regarding the provision of asthma education to people diagnosed with asthma; and to explore the practices, barriers, and facilitators to routine development and use of written asthma action plans.

There were two target audiences for this study: primary care physicians (pediatricians, family practitioners, internal medicine specialists) in private practice who routinely provide an initial diagnosis of asthma and other clinicians (registered nurses, medical assistants) in private primary care practices who routinely provide asthma education to patients.

In 2011 this qualitative study was determined to be exempted from institutional review board review by the Oak Ridge Site-wide IRB and subsequently found to be exempted from further review by the CDC Human Research Protection Office.

In two locations respondents were recruited using proprietary databases and screening instruments developed by ORISE and CDC. Interviews and focus groups were conducted at commercial market research facilities. To maximize participation, discussions with physicians were conducted through Individual In-depth Interviews (IDI) lasting 30 minutes. Discussions with other clinicians were conducted in one-hour focus groups composed of two to four people each. All interviews were conducted in English. Physicians were paid an incentive of \$75 and other clinicians were paid an incentive of \$50.

All physicians interviewed were board-certified in Pediatrics, Family Practice, or Internal Medicine; served as primary care physician for at least 50% of their patients; delivered at least 12 initial diagnoses of asthma in a typical year; and worked primarily in a private practice. The other clinicians reported providing, in a typical year, asthma treatment and control education to at least 12 patients after each patient's initial diagnosis of asthma and working primarily in a private practice.

At total of 33 respondents participated: 20 physicians and 13 other clinicians. Interviews and groups were conducted in Kansas City, Missouri; Houston, Texas; and Seattle,

Washington during July 2012. Among physicians, nine were female and 11 were male. All 13 other clinicians were female. Seven physicians were white, six African American, four Asian American, two did not specify, and one was Hispanic. Among other clinicians, 10 were whites and three were African-American. Up to two people observed the interviews from behind one-way mirrors. Questions were standardized and discussions facilitated by an experienced moderator were allowed to develop.

Interviews were recorded (audio only). Due to budget restraints no transcripts were prepared. Two observers independently took notes on each session. Analysis was based on multiple independent reviews of recordings and notes by the observers and other researchers for key themes and other findings.

Quantitative phase

DocStyles is a web-based survey conducted annually by Porter Novelli which has a main sample of primary care physicians and additional samples of other specialties. CDC frequently makes use of DocStyles and related Porter Novelli surveys through a contractual agreement. For this study specialties included pediatrics, family practice, internal medicine, registered nurses and medical assistants. In 2013 DocStyles samples were drawn from World One's Global Medical Panel of over 300 000 US healthcare professionals. Panelists are verified using a process that confirms both their identity and their status as a health care provider. Respondents are screened to include only those who practice in the United States, actively see patients, work in an individual, group, or hospital practice, and who have been practicing for at least three years.

CDC purchased the license to use the results of the 2013 DocStyles survey post-collection from Porter Novelli, and analysis of these data was exempt from institutional review board approval because personal identifiers were not included in the data file.

In 2013, 2657 health professionals were invited to participate in DocStyles. Of this sample released, 1757 completed the entire survey. One-hundred and ninety-four respondents did not complete the entire survey, 119 were terminated based on the screener questions, 89 were terminated due to filled quotas, and 498 did not respond to the invitation or tried to respond after the survey closed. A total of 1006 primary care providers (family and general practitioners and internists) completed the survey, as did 250 pediatricians, 250 nurse practitioners, and 251 obstetrician/gynecologists, though our analysis did not include the last group. The overall response rate was 74.0%.¹ Questions in this study are those identified as the titles of Tables 1 and 2. As questions are introduced into the survey on a cost-per-question basis these were the only two questions asked on asthma. In this study the question about asthma education plans had a five-point response range from "Strongly Agree" to "Strongly Disagree" and the question about compensation

¹Response rates are based on the percentage of qualified or eligible respondents completing the survey. More detail can be found at the following website: <http://www.answersresearch.com/response.php>.

Table 1. Quantitative findings: "Providing a written asthma education plan improves patient compliance".

	All	Family & general practice	Pediatrician	Internist	Nurse practitioner
Disagree & strongly disagree	5.4%	6.7%	6.4%	5.0%	1.6%
Neutral	13.7%	15.4%	13.6%	15.0%	7.6%
Agree & strongly agree	81.1%	78.0%	80.0%	79.0%	90.8%

Table 2. Quantitative findings: "How often does lack of compensation limit your ability to provide adequate asthma education at the time of diagnosis?".

	All	Family & general practice	Pediatrician	Internist	Nurse practitioner
Never/rarely	50.1%	47.5%	49.6%	49.8%	57.2%
Sometimes	35.3%	34.8%	34.0%	36.1%	36.0%
Usually/often	14.6%	17.7%	16.4%	14.0%	6.8%

had a five-point range of "Never," "Rarely," "Sometimes," "Usually," and "Often." Responses were tallied as shown in the tables. While DocStyles does offer some demographic breakdown of respondents no statistically significant differences in terms of respondent race, ethnicity, or other factors were found.

Results

The qualitative study yielded unexpectedly negative attitudes held by most physicians and other clinicians interviewed towards Asthma Action Plans which are a key part of NIH guidelines [4]. All respondents reported knowing of asthma action plans. A sample plan was provided to participants. Comments ranged from "I've been testing asthma for 25 or 30 years, so I don't need that" and "I don't even know what that [a written asthma action plan] would be" to "We're using it less since we went to electronic medical records," reflecting problems integrating AAPs into electronic records, although practitioners who did use them noted time savings and utility in assessing compliance at follow-up visits and the efficacy of control measures. Equally unexpected comments suggested lack of reimbursement poses little barrier to asthma education. Physicians noted "I spend more time than I bill," "You may have to compensate down the road... you make it up," and more succinctly "It all works out."

Other important themes found in the qualitative study included all respondents reporting asthma to be a high-priority condition in their practices, primary care physicians reporting being very comfortable in making an asthma diagnosis, and in some cases some reluctance to use the "asthma" label during diagnosis, for fear of either stigmatizing the patients, particularly children, or giving the patient a "pre-existing condition" that might hinder his or her ability to obtain health insurance.

In terms of education, respondents cited physicians as the cornerstone of asthma education for newly diagnosed patients, with other clinicians providing training on equipment such as inhalers, spacers, and nebulizers and reinforcing education provided by the physician. The existence of Certified Asthma Educators was widely unknown. Physicians varied

substantially in the amount of written educational materials they provide to their patients and patients' caretakers at an initial diagnosis of asthma and there was a virtually complete lack of knowledge of government resources for asthma education. All respondents cited the importance of good educational materials, adequate time for asthma education, and patient compliance. The first DocStyles question (Table 1) "Providing a written asthma education plan improves patient compliance." found agreement from an overwhelming majority either strongly (36.3%) or somewhat (44.8%) agreeing. Very few respondents fell into the two categories of strongly or somewhat disagreeing, less even than fell into the one category of "neither agree nor disagree." Nurse Practitioners in particular agreed with the statement and were the group most likely (49.6%) to agree strongly.

Lack of consistent insurance reimbursement is commonly considered a barrier to effective education. In 2011 CDC encouraged insurers to make it easier for clinicians to be reimbursed for individualized asthma services, such as intensive self-management education [11]. With regard to the second DocStyles question, "How often does lack of compensation limit your ability to provide adequate asthma education at the time of diagnosis?" less than one in six respondents responded "usually" or "often" with slightly over half responding that it was "never" or "rarely" an issue, and slightly over one third of respondents replying that lack of compensation was "sometimes" a barrier to what they saw as adequate education (Table 2). Among sub-groups nurse practitioners were least likely to cite reimbursement problems as a frequent barrier to quality education and most likely to say it was never or rarely an issue. Inpatient practitioners were also less likely to cite lack of compensation as a barrier to education than outpatient practitioners.

Discussion

NIH guidelines advise that asthma education should begin at the time of diagnosis [4], prompting the authors to design a qualitative study of how this initial education could be improved. In our qualitative study, two unexpected questions not central to the qualitative study's main purpose of

enhancing educational tools provided by CDC were raised for further examination. The utility of Asthma Action Plans, specifically recommended in the NIH guidelines, was questioned. Follow-up quantitative analysis indicated this questioning possibly to be a function of the inherent nature of qualitative research – that it can yield anomalous results specific only to the small group studied, and not representative of the wider population. It is possible that the small qualitative sample had not been adequately reached by the dissemination of asthma management plans as an educational tool, or that they constituted a “pocket” of laggards in adopting the tool, in use since at least the 1990s. While it may be that the quantitative survey respondents provided a socially acceptable response that the qualitative respondents did not, this seems less likely when we consider that the former were fully anonymous and the latter speaking face to face with an interviewer and, in focus groups, with peers.

NIH guidelines specifically recommend “Asthma self-management education that is provided by trained health professionals should be considered for policies and reimbursements as an integral part of effective asthma care” [4]. In our study, no disparity was found between qualitative and quantitative findings regarding whether reimbursement is a barrier to asthma education for patients being performed by medical professionals. Findings from the quantitative analysis corroborated these questions, raised in the qualitative study, suggesting that lack of compensation may not prevent clinicians from delivering what they consider adequate asthma education. While roughly half of respondents to the quantitative survey identified lack of compensation as “sometimes,” “usually,” “or “often” an impediment to quality education, roughly half also said it was “never” or “rarely” a burden, suggesting that clinicians may be finding ways to work around the barrier that prompted CDC specifically to recommend, in 2011, that employers and insurers “Provide reimbursement for educational sessions conducted by clinicians, health educators, and other health professionals” [11].

Conclusions

Quantitative data collected with the DocStyles instrument clearly indicate that qualitative focus group and IDI study participants who questioned the utility of Asthma Action Plans are not representative of the wider population of clinicians. Given that the use of Asthma Action Plans is an important component of NIH guidelines for asthma management this is a positive finding, as it indicates a primary tool for patient management of asthma is widely accepted among a representative sample of clinicians, which has positive implications for reducing the impact of asthma on related morbidity, functional ability, and quality of life.

DocStyles findings, like the focus group and IDI findings, call into question the view that reimbursement problems are a significant barrier to quality asthma education in the clinical setting, indicating that, while clear and direct reimbursement for education is obviously optimal, lack of insurance reimbursement may not be as great an impediment to education as is feared. This indicates that education of asthma patients and caregivers is occurring despite concerns about reimbursement, also a positive finding in terms of asthma management and avoidance of severe outcomes.

Acknowledgements

The authors wish to acknowledge Mark Herring, Kelli Martin, and Deborah McFalls for their contributions to the data collection and analysis.

Declaration of interest

The findings and conclusions in this report are those of the author and do not necessarily represent the views of the Centers for Disease Control. The author reports no conflicts of interest.

References

1. CDC. Fast Stats: Asthma. 2014. Available from: <http://www.cdc.gov/nchs/fastats/asthma.htm>.
2. Moorman JE, Akinbami LJ, Bailey CM, et al. National surveillance of asthma: United States, 2001–2010. National Center for Health Statistics. Vital and Health Statistics 2012;3. Available from: http://www.cdc.gov/nchs/data/series/sr_03/sr03_035.pdf.
3. President's task force on environmental health risks and safety risks to children: coordinated federal action plan to reduce racial and ethnic asthma disparities. 2012. Available from: http://epa.gov/childrenstaskforce/federal_asthma_disparities_action_plan.pdf.
4. NIH. Guidelines for the diagnosis and management of asthma (EPR-3). 2007. Available from: <http://www.nlm.nih.gov/guidelines/asthma/index.htm>.
5. Babey SH, Meng YY, Jones M. Many Californians with asthma have problems understanding their doctor. UCLA Center for Health Policy Research Brief. 2009. Available from: http://www.calendow.org/uploadedFiles/Publications/By_Topic/Disparities/Asthma/Asthma_Doctor_PB_0109.pdf.
6. Johnson RL, Roter D, Powe NR, Cooper, LA. Patient race/ethnicity and quality of patient-physician communication during medical visits. *Am J Public Health* 2004;94:2084–2090.
7. Flores G, Abreu M, Tomany-Korman S, Meurer J. Keeping children with asthma out of hospitals: parents' and pediatricians' perspectives on how pediatric asthma hospitalizations can be prevented. *Pediatrics* 2005;116:957–965.
8. Howell G. Nonadherence to medical therapy in asthma: risk factors, barriers, and strategies for improving. *J Asthma* 2008;45:723–729.
9. Davis P, Man P, Cave A, et al. Use of focus groups to assess the educational needs of the primary care physician for the management of asthma. *Med Educ* 2000;34:987–993.
10. CDC. Know how to use your asthma inhaler. 2013. Available from: http://www.cdc.gov/asthma/inhaler_video/.
11. CDC. Vital Signs: Asthma in the U.S. 2011. Available from: <http://www.cdc.gov/vitalsigns/asthma/index.html>.