

**The Westlawn Partnership for a Healthier Environment:
Evaluation of the Healthy Homes Project**

Steven A. John, Anne Dressel, and Betty Koepsel

Abstract

An Environmental Protection Agency funded intervention to reduce indoor air pollutants and increase the use of green-cleaning products was implemented in Milwaukee, Wisconsin, by the Westlawn Partnership for a Healthier Environment (WPHE) using the Healthy Homes framework. Indoor air quality is an environmental justice issue in the Westlawn community, Wisconsin's largest public housing development, where low-income minorities suffer from disproportionately high rates of asthma. The WPHE, a coalition of community stakeholders who identified and prioritized environmental health concerns in the Westlawn neighborhood, developed a plan of action to address the top environmental health concerns in the community. This plan included implementation of a Healthy Homes program with a focus on promoting the use of green-cleaning products. To evaluate this intervention, a sample of program participants was surveyed using a combined longitudinal and post-test research design. Evaluation results suggest that participants had significantly greater knowledge of environmental indoor hazards and a significant increase in green-cleaning product use. No significant differences were measured for bleach or store-purchased cleaner use, but results tended towards the positive direction suggesting less frequent use. Cross-sectional needs assessment data that report prevalence of childhood asthma, smoking, fragrance use, mold, and home structural deficiencies are also discussed.

Introduction

As most individuals spend more than 80% of their time indoors, the control and mitigation of indoor hazards are important for not only health, but safety as well [1]. In an effort to reduce indoor-housing hazards, the Healthy Homes program has been developed and adopted throughout many urban areas of the U.S. The Healthy Homes model of intervention includes indoor environment assessments, advice, resources, and advocacy for residents to improve indoor environmental conditions [2]. These types of interventions are crucial in communities like Westlawn, home to Wisconsin's largest public housing development. Westlawn is a low-income, minority community, where residents suffer from disproportionately high rates of asthma. Improved indoor air quality, through a Healthy Homes intervention, can help to decrease asthma triggers.

Comprehensive tools have become publically available to promote widespread adoption of this model (e.g. <http://www.cdc.gov/healthyhomes/>), which have been disseminated as a result of the success of the Healthy Homes program in King County, Seattle, Washington [2-4]. In this first randomized controlled trial, participants received either a high-intensity or low-intensity intervention. The high-intensity group participants were offered materials such as bedding covers and vacuums, assistance with pest management, advocacy for improved housing, education, and social support. The low-intensity group received an assessment, action plan, limited education, and bedding covers. The findings from this study provided promising evidence that a comprehensive indoor-hazard reduction intervention can improve pediatric asthma caregiver quality-of-life scores and decrease the use of urgent health services for children with asthma. Of practical importance, the low-intensity group also had decreased days with asthma symptoms, increased caregiver quality-of-life scores, decreased use of medication for acute asthmatic episodes, and a decrease in activity limitations [2,4]. If larger programs are not feasible, the low-

intensity results suggest that small interventions implemented within a community of low-income residents in substandard housing situations may have positive results, though further evaluation efforts are needed.

A limited number of studies have measured the effectiveness of implementing duplicate or similar programs. However, we were able to identify two studies. A rigorous 6-month intervention similar to the initial randomized controlled trial with multiple in-home visits, but without a control arm, was implemented for low-income families in Lansing, Michigan. The intervention was found to increase caregiver knowledge of asthma, increase self-reported cleaning habits, and improve in-home environmental conditions. Children also had a decreased number of unscheduled visits to health care providers, emergency department visits, and hospitalizations as a result of asthma [5]. A second intervention in Hidalgo County, Texas, focused on a less rigorous curriculum of a single 45-minute intervention session in households of children with asthma. Post-test survey measures provided evidence that participants increased their knowledge of asthma triggers, household chemicals, and pests following the intervention. Behavioral modification measures also suggested changes in clutter management, ventilation, cleaning, child cooking safety, and in-home smoking cessation [6].

Previous studies provide evidence that positive results can be anticipated on a spectrum of intervention styles and focus using the Healthy Homes framework; however, no known intervention results have been published on the use of green-cleaning product promotion within the Healthy Homes model. Cleaning products are an indoor air quality hazard because of the harmful emissions that chemical cleaning solutions can release. A previous review of indoor air quality triggers for childhood asthma identified two important studies recognizing the negative health effects of cleaning solution use within the home [7]. Zock et al.[8] found a dose-response

relationship between the use of commonly-used glass-cleaning, furniture, and air-freshener sprays and adult asthma. Frequent bleach use was also found to be associated with more frequent lower-respiratory symptoms, but not with asthma [9]. The findings from these studies suggest the need for interventions, contained within the Healthy Homes model, that are aimed at reducing indoor air hazards from cleaning product emissions.

Westlawn Partnership for a Healthier Environment

The Healthy Homes program was implemented by the Westlawn Partnership for a Healthier Environment (WPHE). As previously published [12], the WPHE was formed in 2008 with funding from the U.S. Environmental Protection Agency's CARE (Community Action for a Renewed Environment) program. Indoor air quality, among other environmental health concerns, is an environmental justice issue of concern in the economically-disadvantaged community of Westlawn in Milwaukee, Wisconsin. Residents in this neighborhood suffer from disproportionately high rates of asthma and Milwaukee County ranks as the worst county within the state of Wisconsin for asthma-related hospitalizations and emergency department visits [10]. The rate of hospitalizations for asthma among children under the age of 5 years old in the Westlawn zip code (53218) is nearly twice that of Milwaukee County. Moreover, the rate of asthma-related emergency department visits among this age group is 1.5 times higher in this community compared to the county [11]. Thus, environmental health hazards associated with asthma disproportionately affect local residents within the Westlawn community.

Beginning in 2008, WPHE began meeting on a monthly basis to address these concerns by building a coalition of community stakeholders who identified and prioritized environmental health concerns in the neighborhood. They then implemented solutions to address those concerns. Over 60 environmental health concerns were initially identified by WPHE. Through a voting

process by WPHE members, the list was narrowed down to the top 9 concerns. Four of the top concerns were related to asthma triggers, including indoor air pollution, mold exposure, pesticide exposure, and outdoor air pollution [12].

WPHE developed a plan of action to address the top environmental health concerns in the community, which included implementation of a Healthy Homes program. To facilitate implementation of this program, three experienced Community Health Workers were hired in 2012, with one having primary responsibility for the Healthy Homes program.

Methods

Target Intervention Participants

Participants of the Healthy Homes program were recruited from neighborhood meetings, health fairs, outreach events, and through word-of-mouth. Eligibility to receive the Healthy Homes intervention and green-cleaning demonstration required the participant to be a resident of the target zip code. About 71% percent of residents of this area are Black or African American. The median age of residents is 25.8 years and 54.3% of residents identify as female [13].

Intervention

The full intervention was offered to all participants of the Healthy Homes program. Although experimental or quasi-experimental studies offer greater internal validity during evaluation, a control condition is required that receives a different or delayed intervention for some participants. The focus on action within this community coalition was the highest priority; therefore all were offered the intervention upon participant enrollment. Three Community Health Workers (CHWs) were recruited from the local community to plan and implement this program. In early program stages, nursing students and clinical instructors from the University of Wisconsin-Milwaukee also participated in intervention delivery as part of education and training exercises. In the final stages

of the program, participants were offered an in-home visit by a CHW and/or public health graduate student from the University of Wisconsin-Milwaukee. Additionally, a large group demonstration was offered to increase enrollment of participants that were not interested in an in-home visit.

In-home visits conducted by CHWs and the graduate student included an assessment using the Pediatric Environmental Home Assessment (PEHA) form [14]. This form, along with a mix of in-home observations and interviewing were used to assess homes for indoor hazards. Program staff then provided recommendations using the PEHA Nursing Action Plan. The PEHA form and action plan are publically available on the National Center for Healthy Housing's webpage [14]. All participants were provided a free green-cleaning kit and face-to-face education using the materials. Each kit came with a mop bucket, empty spray bottle, vinegar, baking soda, tea-tree oil, dropper, and micro-fiber cloth. Some participants were also provided hydrogen peroxide and allergen-impermeable pillow cases, but supplies were limited by funding. Written educational materials and instructions were also distributed with this kit, including the green-cleaning solution recipe as a sticker labeling the spray bottle.

Group presentation participants who did not receive an initial in-home visit were asked to individually complete the PEHA form. A similar educational curriculum was provided to participants of the group session and additional recommendations based on the surveyed responses using the PEHA form were provided by a follow-up phone call or visit. All participants were required to have attended a group-session or an in-home visit to receive the gift card incentives offered for participation in the program. Program staff then attempted at least one follow-up call or visit, but additional calls and visits were provided when needed.

Evaluation Recruitment

The Healthy Homes program began conducting home visits in May 2012, while this program evaluation occurred in the summer of 2013. New and past participants of the program were invited to participate in the evaluation. New participants were asked to complete a baseline survey in person or by telephone prior to the intervention. The evaluator contacted past participants by phone for follow-up survey completion which replicated the baseline survey questions. Contact with previous participants was attempted three times before calls ceased, but additional attempts were made if an alternative call time was preferred upon contact. This specific evaluation component of the Healthy Homes program did not receive any funding, nor did it provide any incentive for participation in the evaluation activities.

Survey Measures

The large breadth and scope of the Healthy Homes curriculum made it infeasible to develop an evaluation procedure that covered all of the topics in the program because the individually-tailored intervention was based on the presenting needs of each participant. Evaluation outcomes were determined based on the main curriculum provided to all participants and the anticipated outcomes within the project's logic model. These relevant outcomes included: education about household and environmental risks, use of knowledge to reduce risks, smoking cessation, decreased incidence and prevalence of asthma, decreased emergency room visits due to acute asthma attacks, reduced toxins in the air, fewer missed school days of children with asthma-related health issues, and reduced mold in homes.

Three primary measures were used within this evaluation: knowledge, behavioral change, and childhood asthma symptom frequency. To assess participants' knowledge of indoor hazards, an educational assessment scale was used. This educational assessment tool was adapted from a Healthy Homes program implemented in another community [6]. Twelve questions from the

previous evaluation were posed in addition to two added questions the authors deemed appropriate to the community action project (see *Figure 1* for assessment questions). This educational assessment was administered as a pre-test, post-test, and follow-up post-test to program participants. Since some participants were enrolled in the program prior to evaluation activities, these participants completed a follow-up assessment only. Participants were provided a statement and responded whether the statement was “true” or “false.” A third response of “I don’t know” was also provided to discourage participants from guessing. Summation scores of correct responses were used for data analysis, and “I don’t know” responses were coded as incorrect.

Figure 1. (a) Educational Assessment adapted from Carillo-Zuniga et al. [6].

Educational Assessment	
1.	Mold can cause asthma.
2.	A home is a shelter from the wind, animals or insects, sun, cold or hot air, and dust.
3.	The 7 principles of HH are: dry, clean, ventilated, pest-free, safe, contaminate-free, and maintained.
4.	Dust and moisture are normal and do not cause any health problems.
5.	The use of chemicals in the home can be dangerous.
6.	Second-hand smoke is directly linked to asthma.
7.	Mold does not cause any health problems.
8.	Having fresh air circulate in the home is not important.
9.	Eco-friendly products are healthier for cleaning purposes.
10.	Eco-friendly products can be made at less cost than regular cleaning products.
11.	Dust mites live in carpets, mattresses, clothing, and stuffed toys.
12.	80% of exposure to pesticides occurs inside the home.
13.	Paint that contains lead can cause neurological damage and learning problems.
14.	Microwaving food in plastic is a healthy food preparation technique.
*Correct responses: T, T, T, F, T, T, F, F, T, T, T, T, T, F [T= True; F= False; HH = Healthy Homes]	

Behavioral outcomes were measured by questions regarding cleaning frequency and product use, odor and mold management, and smoking. Five behavioral outcomes are reported. An example question from behavioral data include “In the past 14 days, how frequently do you use vinegar, or cleaner prepared using vinegar, to clean windows, mirrors, and glass?” Other questions

included frequency of vinegar use to clean flooring; baking soda use to clean bathtubs, toilets, sinks, and tile; bleach use; and store-purchased cleaner use when children are present in the home. Frequency outcomes of events in the past 14 days were measured on a 4-point Likert-type response scale from “always” to “never.”

Prevalence data related to childhood asthma, tobacco use, fragrance use, mold growth, and water-related damage in the home is presented as a needs assessment. Needs assessment data reported were measured from nine survey responses with response categories ranging from binary “yes/no” answers to 4-point Likert-type responses from “every day” to “not at all.” Childhood asthma was measured by the following question: “Has any child living in your home ever been told by a doctor, nurse, or other health professional that he or she has asthma?” Tobacco use was measured by asking participants “In the last 14 days, have you smoked any tobacco products (e.g., cigarettes or cigars)?” and an applicable follow-up frequency measure was then asked. Participants that smoked were also asked if they had attempted to quit or smoked in their home in the past 14 days. All participants were then asked “In the last 14 days, how frequently did anyone smoke inside of your home?” Finally, participants were asked about the presence and location of mold growth in their home, as well as responding whether they currently had any water damage, high moisture areas, or leaks in their home. When applicable, survey questions were adopted from the Youth Risk Behavior Survey [15] and previous Healthy Home literature [4,5].

Data Analysis

Data were analyzed using SAS software Version 9.3. Educational assessment scores were obtained by adding the number of correct responses for each participant (maximum = 14). Paired t-tests were used for dependent longitudinal analyses of continuous data. Participants with missing post-test scores were excluded from the analysis using the paired t-test. All follow-up continuous

data was aggregated and compared to the imputed mean of longitudinal baseline scores and compared by t-test analysis. One-sample median t-test analyses for ordinal behavioral outcome data with imputed median scores of longitudinal baseline responses were also used.

Results

Sample

Thirty-nine participants of the Healthy Homes program were recruited to complete this evaluation. Demographics of the participants are listed in *Table 1*. Longitudinal participants (n = 22) completed a baseline survey prior to the intervention and post-test educational assessment within two weeks of intervention, followed by a follow-up survey greater than 14 days after the intervention (median=64 days, range=39-177 days). Past participants completed a follow-up phone survey (35% response rate; median post-intervention delay = 33 days, range = 14-375; see *Table 2*).

Educational Outcomes

Participants had significantly greater knowledge scores for environmental indoor hazards at post-test [$M_{\text{diff}} = 0.15$ ($SD_{\text{diff}} = 0.12$); $t(19) = 5.38$, $p < 0.0001$] and follow-up (FU) [$M_{\text{diff}} = 0.14$ ($SD_{\text{diff}} = 0.14$); $t(12) = 3.61$, $p = 0.0036$] compared to baseline [$M = 0.75$ ($SD = 0.15$)] in paired analyses; significant differences were also found in the aggregated comparative analysis to the baseline mean score obtained from longitudinal participants only [$M_{\text{FU}} = 0.85$ ($SD_{\text{FU}} = 0.12$); $t(29) = 4.38$, $p = 0.0001$].

Behavioral Outcomes

A significant increase in green-cleaning product use was found; participants reported more frequent use of vinegar to clean windows, mirrors, and glass (M-statistic = 6, $p = 0.0169$) and flooring (M-statistic = 12, $p < 0.0001$) at follow-up compared to baseline median scores.

Participants also recorded more frequent use of baking soda at follow-up (M-statistic = 13, $p < 0.0001$). No significant differences were measured for bleach or store-purchased cleaner use (M-statistic ≤ 5 , $p > 0.05$) at follow-up compared to baseline median scores, but the non-significant differences were skewed in the positive direction suggesting less frequent use.

Table 1. Participant Demographics.

Participant Demographics			
	Pre-test Group	Follow-up Group	<i>p</i> value
<i>Variable</i>	(<i>n</i> = 22)	(<i>n</i> = 17)	
Age	55.00 (S.D. = 13.83)	44.35 (S.D. = 15.10)	0.0277
<i>Variable</i>	<i>Count</i>	<i>Count</i>	
Gender			
Female	20	17	
Male	2	0	
Ethnicity			
Non-Hispanic	21	17	
Hispanic	1	0	
Race			
Black / African American	17	13	
Hmong/Laotian	0	1	
White	2	0	
Multi-racial or other	3	3	
Education			
Less than high school diploma	7	2	
High school diploma or GED	5	5	
Some college, no degree	6	7	
One-year college degree	1	0	
Two-year college degree	3	2	
Four-year college degree or more	0	1	
Employment			
Full-time employed	4	4	
Part-time employed	1	5	
Unemployed	13	5	
Retired	4	2	
Other	0	1	
Insurance			
Private insurance	3	4	

Medicare and/or Medicaid	17	9
No insurance	2	4
Marital Status		
Never married, not living with sig. other	10	8
Never married, living with sig. other	3	1
Married	3	6
Widowed	3	1
Divorced	3	1

Table 2. Phone Survey Respondents.

Phone Survey Respondents		
Participation	Count	%*
Completed survey	17	35
Contact failure	27	56
Declined	4	8
Ineligible (e.g. partial program)	5	NA
Total	53	
*Eligible respondents only.		

Needs Assessment

Descriptive data collected in this evaluation offer a needs assessment of residents within the community that participated. Asthmatic children were present within 36% of the homes surveyed. Thirty-eight percent of participants smoked a tobacco product within the previous 14 days, but only 40% of those had attempted to quit. Most applicable to indoor air quality, 87% of respondents who smoked tobacco products had smoked them in the home. Thirty-one percent of all participants had anyone smoking tobacco products within the home daily. Household products that emit fragrance were used in 72% of homes, and 57% of those reported daily use. Thirty-six percent of participants reported mold growth within their home, and 51% of all participants reported current water damage, high moisture areas, or leaks within the home.

Discussion

This evaluation study found that the WPHE was successful in educating participants in the core components of this Healthy Homes curriculum. Past and current participants scored higher on the post-test assessments compared to pre-test scores. Although the post-test scores were significantly different between those who completed the pre-test and those who did not (data not reported), our conclusions are limited because of the noticeably different participant characteristics between each group. These demographic differences may be the result of fluctuating community outreach events which attract different groups of people. Nonetheless, the aggregated analysis conducted was conservative because of lower scores from participants without pre-test measures.

This study also provided needs assessment data for future programming considerations. Many of the participants recruited had children in their home with asthma, and smoking was highly prevalent within the surveyed group. The majority of smokers were habitual smokers who smoked daily in their home. Data also suggest mold growth and current water damage, high moisture areas, and leaks in the home appear to be a large problem within this low-income community. More public health programs targeting childhood asthma, smoking cessation, and structural deficiencies contributing to mold growth in this aging housing stock are needed.

Limitations

Several limitations are present with this evaluation. First, the evaluation did not begin at the start of intervention recruitment. This prevented the collection of baseline data from all participants and limited the sample size. Second, we do not know how the low follow-up rate of past participants may have biased the results. Third, participants of the group demonstration self-reported indoor hazards by filling out the PEHA form. This procedure was different than the participants who had in-home visits where the CHW or other trained individual administered this assessment. Although many of the PEHA questions were obtained by self-report through interview

only, we were unable to predict the influence of this procedural change on our results. Lastly, all of the outcomes were self-reported measures of health and behavior, which may contain biases. Both feasibility and cost limitations inhibited the ability to conduct more rigorous data collection procedures within this evaluation.

Conclusions

In this evaluation study, we found that community-driven Healthy Homes programs are both feasible and effective in educating neighborhood residents on indoor housing hazards in low-income, urban communities. These programs require limited resources, but have dramatic, positive effects on local residents' daily lives.

Acknowledgments

This work was supported by the U.S. Environmental Protection Agency CARE Program, Level I (RE-00E69301) and Level II (RE-00E00932). Additional support was provided by the U.S. Environmental Protection Agency Environmental Justice Small Grant Program, the Wisconsin Division of Public Health—Healthy Homes Mini-Grant Program, and the Helen Bader Foundation. The funding organizations were not involved in the preparation, review, or approval of this article.

This evaluation was completed as part of the Field Experience component of the Master of Public Health program in the Joseph J. Zilber School of Public Health at the University of Wisconsin-Milwaukee by the lead author. All authors would like to acknowledge Community Health Workers Necole Huffman and Sally Nickerson for their valuable work and effort within the Westlawn Partnership for a Healthier Environment and the Healthy Homes program. We are also indebted to the participants who made this evaluation possible.

Author Contributions

Steven A. John was responsible for the overall design and implementation of the evaluation. These responsibilities included data collection, processing, and analysis. As lead author, Steven A. John also performed the majority of writing and revising. Anne Dressel served as Co-Site Preceptor of the lead author's Field Experience component of the Master of Public Health degree program. She also assisted with drafting the manuscript, and provided editing and revising assistance. Betty Koepsel also served as Co-Site Preceptor of the lead author's Field Experience, and provided comments and suggestions in the evaluation design and manuscript drafts. Anne Dressel and Betty Koepsel have been integral members of the Westlawn Partnership for a Healthier Environment, for which Dressel serves as the Project Director and Koepsel serves as the Project Coordinator. All authors provided valuable contributions to this study, and the final submitted manuscript was approved by all authors.

Conflicts of Interest

The authors declare no conflict of interest.

References

1. Klepeis, N.E.; Nelson, W.C.; Ott, W.R.; Robinson, J.P.; Tsang, A.M.; Switzer, P.; Behar, J.V.; Hern, S.C.; Engelmann, W.H. "The national human activity pattern survey (NHAPS): A resource for assessing exposure to environmental pollutants." *Journal of Exposure Analysis and Environmental Epidemiology* **2001**, 11, 231-252.
2. Krieger, J.W.; Takaro, T.K.; Allen, C.; Song, L.; Weaver, M.; Chai, S.; Dickey, P. "The Seattle-King County Healthy Homes project: Implementation of a comprehensive approach to improving indoor environmental quality for low-income children with asthma." *Environmental Health Perspectives* **2002**, 110, 311-322.
3. Krieger, J.W.; Song, L.; Takaro, T.K.; Stout, J. "Asthma and the home environment of low-income urban children: Preliminary findings from the Seattle-King County Healthy Homes project." *Journal of Urban Health: Bulletin of the New York Academy of Medicine* **2000**, 77, 50-67.
4. Krieger, J.W.; Takaro, T.K.; Song, L.; Weaver, M. "The Seattle-King County Healthy Homes project: A randomized, controlled trial of a community health worker intervention to decrease exposure to indoor asthma triggers." *American Journal of Public Health* **2005**, 95, 652-659.
5. Largo, T.W.; Borgianni, M.; Wisinski, C.L.; Wahl, R.L.; Priem, W.F. "Healthy Homes University: A home-based environmental intervention and education program for families

- with pediatric asthma in Michigan.” *Public Health Reports (Washington, D.C.: 1974)* **2011**, 126, 14-26.
6. Carillo Zuniga, G.; Kirk, S.; Mier, N.; Garza, N.I.; Lucio, R.L.; Zuniga, M.A. “The impact of asthma health education for parents of children attending Head Start centers,” *Journal of Community Health* **2012**, 37, 1296-1300.
 7. Heinrich, J. “Influence of indoor factors in dwellings on the development of childhood asthma,” *International Journal of Hygiene and Environmental Health* **2011**, 214, 1-25.
 8. Zock, J.P.; Plana, E.; Jarvis, D.; Anto, J.M.; Kromhout, H.; Kennedy, S.M.; Kunzli, N.; Villani, S.; Olivieri, M.; Toren, K.; et al. “The use of household cleaning sprays and adult asthma: An international longitudinal study.” *American Journal of Respiratory and Critical Care Medicine* **2007**, 176, 735-741.
 9. Zock, J.P.; Plana, E.; Anto, J.M.; Benke, G.; Blanc, P.D.; Carosso, A.; Dahlman-Hoglund, A.; Heinrich, J.; Jarvis, D.; Kromhout, H.; et al. “Domestic use of hypochlorite bleach, atopic sensitization, and respiratory symptoms in adults.” *The Journal of Allergy and Clinical Immunology* **2009**, 124, 731-738.
 10. Wisconsin Department of Health Services, Division of Public Health, Bureau of Environmental and Occupational Health. Burden of Asthma in Wisconsin 2010. Available online: <http://www.dhs.wisconsin.gov/eh/asthma/pdf/BurdenofAsthma2010Web.pdf> (accessed on 4 July 2014).
 11. Wisconsin Department of Health Services, Division of Public Health, Bureau of Environmental and Occupational Health. E-mail message from C. Tomasallo to author (B.K.). 28 May 2013.
 12. Dressel, A.; Anderko, L.; Koepsel, B. “The Westlawn Partnership for a Healthier Environment: Promoting environmental justice and building community capacity.” *Environmental Justice* **2013**, 6, 127-132.
 13. US Census Bureau. http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_DP_DPDP1 (accessed on 13 August 2013).
 14. Pediatric Environment Home Assessment: Tools for Public Health and Visiting Nurses. <http://www.healthyhomestraining.org/nurse/PEHA.htm#Survey> (accessed on 13 August 2013).
 15. Asthma Survey Questions. <http://www.cdc.gov.ezproxy.lib.uwm.edu/asthma/questions.htm> (accessed on 14 August 2013).