

Original Publication

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Healthy Homes, Healthy Futures: A Home Visitation Curriculum for Pediatric Residents

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Citation: Essel KD, Yalamanchi S, Hysom E, Lichtenstein C. Healthy homes, healthy futures: a home visitation curriculum for pediatric residents. *MedEdPORTAL*. 2016;12:10480. https://doi.org/10.15766/mep_2374-8265.10480

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Abstract

Introduction: A working knowledge of the home and neighborhood environment is critical to understanding the barriers that families face when struggling with obesity. Most doctors are only given the opportunity to address individuals with obesity in the office setting and usually describe their counseling abilities as ineffective. This focused home visitation curriculum offers a unique tool to improve residents' understanding of the social determinants of health, how these determinants relate to obesity, and critical obesity-management skills. **Methods:** The curriculum requires residents to review three PowerPoint modules and an article on motivational interviewing. Residents then implement what they have learned by doing two home visits with a family from their continuity clinic and completing a windshield survey of the family's neighborhood. This publication includes all of the materials necessary to facilitate the curriculum, including scripts for the residents to use at each visit, resources for the family, and curriculum evaluation tools. **Results:** Twenty residents who completed the curriculum reported improved counseling skills and improved understanding of the social determinants of health. During postcurriculum qualitative interviews, residents described the experience as eye-opening and revealed that lessons learned from the visits will alter how they approach patients who are obese in their future clinical practice. **Discussion:** The program has been integrated into our pediatric residency curriculum and completed during a first-year community health rotation, but it could be completed at any time during resident training.

Keywords

Social Determinants of Health, Motivational Interviewing, Nutrition, Childhood Obesity, Overweight, Pediatric Residents, Home Visitation, Physical Activity, Healthy Lifestyles

Educational Objectives

After completion of this curriculum, residents will be able to:

1. Discuss appropriate child nutrition recommendations.
2. Illustrate how social determinants of health affect obesity.
3. Apply motivational interviewing skills to guide a family struggling with obesity through choosing appropriate personal healthy living goals.
4. Formulate personalized recommendations for a family struggling with obesity based on what is learned from a home and neighborhood assessment and discussions with the family.

Introduction

The United States is facing a large, multifactorial obesity epidemic that has been linked to a rise in many disease states, such as type 2 diabetes, hypertension, and heart disease.^{1,2} Although obesity in children is widespread across the United States, Washington, DC, is at the center of the epidemic. When compared to all 50 states, Washington, DC, ranks third for the highest prevalence of obesity in children 10-17 years old (21.4%).³

Most doctors are only given the opportunity to address obesity in the office setting. Clinicians often encourage parents to create a healthy home environment, but without understanding the barriers that may

Appendices

- A. Healthy Homes Curriculum Checklist.docx
- B. How to Choose a Family .docx
- C. Pre- and Posttest of Obesity Stigma.pdf
- D. Home Visitation 101.pptx
- E. Nutrition & Health 101.pptx
- F. Social Determinants of Health 101.pptx
- G. Assessment Visit Script .docx
- H. Healthy Homes History .docx
- I. Healthy Homes Assessment Checklist.docx
- J. Healthy Homes Road Map to Success.docx
- K. Healthy Living Goals Worksheet.docx
- L. Healthy Homes Windshield Survey.docx
- M. Healthy Homes Intervention Recommendations.docx
- N. Intervention Visit Script .docx
- O. Healthy Lifestyle Action Plan.docx
- P. Resident Reflections Document.docx

All appendices are peer reviewed as integral parts of the Original Publication.

exist for the family or the practical resources available to its members, office-based counseling is deemed by providers to be ineffective.⁴ Families agree that the sheer complexity of the topic often makes these visits overwhelming.^{4,5}

It is increasingly apparent that the causes of obesity are not merely physiological, but multifactorial, with an increased burden of illness for lower socioeconomic-status populations.^{6,7} Thus far, most primary care pediatric clinical strategies and recommendations have suggested addressing the multifactorial causes of obesity through behavioral lifestyle modification.⁸⁻¹⁰ While it is increasingly evident that these programs at medium- to high-intensity levels show short-term benefits,¹¹ these programs will continue to be limited in their long-term effectiveness without addressing the social determinants of health related to obesity.

One important social determinant of health related to obesity is the home and neighborhood environment of the patient. This curriculum was primarily created to allow residents to learn more about specific neighborhoods, while at the same time exploring the best ways to discuss obesity management with families that are likely from a different background than the residents themselves. Home visitation models are used all around the world and have great potential to provide unique gains for both the family that is visited and for the person who is conducting the visit. Although there has been limited research on the use of home visitation in resident-centered interventions for obesity in children, previously published research on home visits during pediatric residency has shown improved understanding of community resources and insights into families' perspectives, in addition to tangible skills that providers may use in future clinical encounters such as referrals and communication strategies.¹²⁻¹⁷ In addition, multiple home visitation programs for children with obesity have been conducted focusing on prevention and management and using strategies to address barriers that exist within the home and in the local community, but none of these were part of residency training.¹⁸⁻²¹ This home visitation curriculum builds on that previous work to offer a unique opportunity to integrate the medical home model into a chronic care model and therefore serve as a tool for obesity management in underserved families. It offers residents more intensive training on obesity management than the standard residency program by providing specific lectures and the opportunity to practice new skills for discussing obesity with families, while giving residents a real-life view of the barriers faced by the families in their care.

The secondary aim for this curriculum was to increase awareness of the often-subconscious obesity stigma that too commonly permeates our culture and society. Although there are very limited data on physician stigma towards children with obesity, a large national study showed that doctors on average show both strong implicit and explicit antifat biases towards obese adults.²² This can result in doctors spending less time with and ordering more tests for patients who are obese, whom they believe to be less self-disciplined. This stigma ultimately results in patients being more vulnerable to psychological effects and cycles of unhealthy lifestyle behaviors.²³⁻²⁷ By having residents spend time in the neighborhoods and homes of the families they are treating, they have an opportunity to better understand the social and environmental contributors to obesity and potentially reduce any negative feelings towards patients who are obese.

Prior to creating this curriculum in 2013, we completed a needs assessment of the pediatric residents in the Community Health Track at Children's National Health System in Washington, DC. Based on the results of the assessment and an extensive literature review of both home visit programs and obesity interventions around the world, we developed a framework for the curriculum. We then consulted with leaders from other residency programs with successful home visit curricula to determine best practices for implementation. All of the modules were then created in partnership with content experts: Two registered dietitians reviewed the nutrition module, the Director of Home Visiting for a local agency provided key materials for the Home Visiting 101 module (Appendix D), a community social worker provided key safety recommendations, and the Director of the Community Health Track reviewed the Social Determinants of Health 101 module (Appendix F). Once created, several residents previewed each module, and modifications were made based on their feedback.

Although this curriculum was created for pediatric residents, it can be used by any resident who treats patients who have obesity. Most residents do not have lessons focused specifically on obesity but rather learn about parts of obesity during various rotations. The novel approach of this curriculum is that it provides a way for residents to learn about the topic in a concentrated fashion while also learning to be more empathetic to the barriers that families struggling with obesity face. Residents are able to learn more about the communities in which the families live and how to talk to the families outside of the medical setting. Additionally, the curriculum allows residents to learn about motivational interviewing and then apply it in a patient encounter, which is a transferable skill for other medical problems. There are no prerequisite skills or knowledge needed for the curriculum. It is expected that most learners completing the curriculum will not have done a home visit before.

Methods

This interactive curriculum is based on some of the principles of adult learning theory such as one that Malcolm Knowles described in his assumptions about adult learners, namely, that using an approach based on the learner's own personal experiences increases the learner's interest in the topic. We also incorporate tools that will help learners address problems they face in their everyday experience, which encourages them to be more motivated to derive their own solutions to these problems.²⁸ Since most residents will have seen a child who has obesity within the first few sessions of their continuity clinic and struggled with how to address the issue in the confines of a short office visit, the assumption is that they will therefore have intrinsic motivation to learn more about the topic. The PowerPoint modules ensure that all participating residents have a baseline level of knowledge about obesity, nutrition, and the social determinants of health. Then the article on motivational interviewing provides residents with a skill for communicating their knowledge with a family. The residents then have the home visits, which enable them to cement their new knowledge and skill. Additionally, the resources included in this curriculum that encourage reflection allow the learning that has taken place to be solidified. Aside from the materials provided here, there are several resources necessary to fully implement the home visitation curriculum, including required personnel, internet resources, resource storage capabilities, and time.

Personnel

We highly recommend having someone serve as a coordinator for the curriculum. The coordinator will help to facilitate residents' experience and can serve as the person who is responsible for updating resources. The Social Determinants of Health 101 module (Appendix F) has information specific to Washington, DC, and would need to be modified to represent the local community that your students serve. If residents are scattered across multiple continuity clinic sites, it makes it more difficult to coordinate the visits and adequately prepare students for the subculture of each community that may create different challenges to creating healthy lifestyle interventions.

There are several types of people who can serve in the coordinator role. If this curriculum is included in a rotation where residents are already learning about and visiting community resources, the coordinator can be the person who runs that rotation. This is who we used to fill this role as we have our Community Health Track. If the curriculum is integrated into the continuity clinic experience, the preceptor may be the best person for this role. The coordinator can also be a nonmedically trained person who has an interest in obesity management.

If you choose not to record narrated slides for the PowerPoint modules, someone will need to present them in a didactic session. Using the scripts under each slide, the presenter could be anyone with basic familiarity of the concepts, including senior residents. For safety purposes and to ensure that the visits run smoothly, at least one other person (two, if possible) should accompany each resident on the home visits. This could be the curriculum coordinator, the presenter, another staff person familiar with the curriculum, or a senior resident who has already performed a home visit. The person accompanying the resident does not need to be an expert in home visiting, but it is preferable if that person has some familiarity with the community. Lastly, finding a local dietitian familiar with the community and the social determinants of

health who will meet with residents will enable a more meaningful discussion of potential strategies to share with families during the intervention visit.

Resources

Residents will need access to the internet to be able to complete the supplementary motivational interviewing module, discover local resources, and research the neighborhood's demographic and socioeconomic characteristics. Residents will also need access to a resource storage database so that there is one accessible place where all the curricular files are stored. This could be a USB drive that can be distributed to the residents with everything preloaded or an internet-based learning management system. This ensures residents have access to all modules, documents, and resources they will need for the visits.

Time

Effective implementation of the program requires 10 hours to fully complete the training and home visits. Each module takes about 1 hour to complete, and the article will take about 30 minutes to read. We allotted 2 hours for each home visit, so as to include travel time to and from the visit. It will take residents about an hour to do the windshield survey, 30 minutes to meet with the dietician, and an additional hour to put together the recommendations for the family. Although we have residents complete this curriculum during a 4-week community health block in the first year of training, the curriculum can be done at any time during residency training when residents will have the time to go on two home visits 2-4 weeks apart. Our residents reported that the intern year was the ideal time to do the curriculum so that they could apply the skills learned throughout the rest of their training.

Preparing for the Curriculum

Prior to the rotation during which they will be conducting the home visits, residents should meet with the coordinator. During this session, the coordinator should go over the Healthy Homes Curriculum Checklist (Appendix A) as it provides a detailed time line of when each document should be used and when each module should be completed. The coordinator should also review the How to Choose a Family document (Appendix B) and discuss where the resident can find all the documents and modules needed for the visits. The residents can be given the pretest on obesity stigma (Appendix C) at this meeting, or a link to an online version of the pretest can be embedded in the slides in the Home Visitation 101 module (Appendix D) to assess residents' predilection for obesity stigma.

After the initial meeting, residents will need to complete three modules and read one article in preparation for the home visit:

- Home Visitation 101 module (Appendix D): a 1-hour training that details how to conduct a safe and successful home visit.
- Nutrition & Health 101 module (Appendix E): a 1-hour educational module describing basic pediatric nutrition concepts.
- Social Determinants of Health 101 module (Appendix F): a 1-hour module that describes the effects of social determinants on the health of families.
- Motivational interviewing training article²⁹: a basic overview of motivational interviewing in obesity management.
 - Residents may also choose to complete a supplemental motivational interviewing module created by the American Academy of Pediatrics (Change Talk)³⁰; this interactive educational module teaches residents skills surrounding motivational interviewing.

After completing the introductory modules, the residents should pick a family from their continuity clinic using the How to Choose a Family document (Appendix B) as a guide. The residents should do their best to arrange a time with the family for the visit when both the primary caregiver and the child will be in the home. Lastly, they should confirm the date and time with the curriculum coordinator to ensure a team of two to three people can attend. A few days prior to conducting the first home visit, residents will call the selected family to confirm the appointment and establish visit expectations. Appendix B includes the script for this call.

Preparing for and Conducting the Assessment Visit

A few days before the first home visit, the residents should print out and review the five assessment visit documents. The Assessment Visit Script (Appendix G) will give the resident an idea of what to say during the visit, including important history questions (Appendix H) about the patient's diet and exercise habits and other health care issues, such as food insecurity. The Healthy Homes Assessment Checklist (Appendix I) is an itemized list that assists residents in assessing different aspects of the patient's home environment. The Healthy Homes Road Map to Success (Appendix J) provides basic healthy lifestyle recommendations and will be completed with the family at the end of the visit and then left with the family. The fifth document that should be brought to the first home visit is the Healthy Living Goals Worksheet (Appendix K), which will be left with the family to help to assist them in brainstorming goal ideas between the first and second home visits.

Preparing for and Conducting the Intervention Visit

Residents are required to complete several tasks between the first and second home visits. They will first need to complete the Healthy Homes Windshield Survey (Appendix L) to assess the family's neighborhood for play areas, safety, and food availability, among other things. Residents are encouraged to research the demographic and socioeconomic factors affecting the neighborhood in conjunction with actual observation. The windshield survey can be done prior to, or after, the first home visit.

To guide the family towards healthful behaviors, residents must create a tailored list of Healthy Homes Intervention Recommendations (Appendix M). In order to promote interdisciplinary patient management, we developed relationships with local dietitians who met with each resident for a 30-minute consult to discuss the patient's barriers and possible solutions to assist the family in making more healthy choices. The resident then incorporates the information gathered through the assessment visit, the windshield survey, the neighborhood research, and the dietetic consultation to produce a list of fewer than 10 SMART (specific, measurable, attainable, realistic, timely) health recommendations for the family. Residents can also use resources available in the Home Visitation 101 module or publicly available websites, such as www.choosemyplate.gov, to complete the intervention recommendations. Although the residents' visit is focused on obesity prevention and management, they may find and add to the list more pressing solutions that are necessary for the family members to better manage their overall health.

During the second visit, the residents will review the recommendations they have created (Appendix M). Using motivational interviewing skills, residents should then work collaboratively with the family to set goals for healthy living (Appendix N) and leave a completed Healthy Lifestyle Action Plan (Appendix O) with the family. Residents are encouraged to upload the Healthy Homes Intervention Recommendations (Appendix M) document into their patient's electronic medical record so the recommendations can continue to be used to set reasonable and achievable healthy goals with the family.

After the second home visit, coordinators should administer the posttest on obesity stigma (Appendix C) to determine if there has been a change in the residents' obesity stigma. The coordinators should also meet with the residents to discuss the reflection questions (Appendix P) or ask that the residents complete them on their own.

Results

Twenty residents have successfully complete the home visit curriculum. In addition, we have evaluated this curriculum in two ways. The first was by having residents complete a pre- and posttest on their comfort in counseling patients and families about healthy lifestyle combined with the Antifat Attitudes Questionnaire.³¹ We were able to detect a significant difference in confidence in counseling families on physical activity ($p < .03$), weight management ($p < .02$), and healthy eating ($p < .0004$) between the pre- and posttest. Due to the low rate of antifat attitudes at baseline, we were unable to detect any significant changes in antifat attitudes.

We also did a qualitative study of the resident experience of conducting an obesity-focused home visit by individually interviewing 13 residents within 4 weeks of their curriculum completion. During their interviews,

the residents uniformly felt that home visiting was a valuable experience and that they learned things about the family and neighborhood from the visit they otherwise would not have known. When asked about the value of the curriculum, residents responded as follows:

- “To see firsthand how a patient lives at home and how the home environment can affect health.”
- “I think the value is . . . just like getting to feel more in touch with your community and having a better appreciation for their lives and what it means to live where they live and have the resources that they do and have the jobs that they have.”
- “I would say that beforehand I probably asked more superficial questions about like the environment and the neighborhood and at least now in my clinic a lot of the families do seem to be from that area, I think I do have a better grasp on like what there actually is.”

Discussion

As discussed above, our residents found this curriculum to be an invaluable tool in helping to understand the conditions in which their patients live and to gain a much deeper appreciation for how nonmedical factors influence health. The expanded amount of time that the residents were able to spend during the home visit also gave them an opportunity to practice newly learned obesity-management skills, such as motivational interviewing, outside of the time constraints of a busy office-based clinical encounter.

This curriculum can be used with any resident in any year of training to help teach about the multifactorial causes of obesity as well as how to effectively counsel families around obesity management. It is specifically designed to include experiential learning by having residents apply the concepts they are being taught in the modules during the home visits, when completing the windshield survey, and when creating and presenting recommendations to the family. Although the modules can be reviewed in a didactic fashion, active learning can be increased by narrating the modules, having residents view them on their own, and then bringing the residents together for a discussion of concepts and questions. Narrating the modules also allows the residents to stop at any point and explore some of the additional resources mentioned. Our residents felt that the lessons learned from going through the curriculum were invaluable and were applicable to almost every encounter in their continuity clinic.

It should be noted that all of the residents who participated in the home visit program were part of our Community Health Track. These residents are likely more open and interested in learning about the community and social determinants of health. However, we believe that this program would be valuable for all residents who intend to work in the primary care setting. The program was originally designed for use with pediatric residents in Washington, DC, but it can be adapted to meet the needs of any residency training program that wants a more intensive obesity-management curriculum for its residents and has time in their schedule to implement home visits.

The following components helped make the program successful:

- Having a 4-week block with a relatively flexible schedule allowed our residents to fit in the two home visits around the family’s schedule. This is very important as scheduling the visits was found to be the most difficult part of the program.
- Giving residents protected time to complete the modules ensured that everything was completed satisfactorily.
- Narrating the modules allowed residents to view them at their convenience.
- Posing the program as a concierge service that would allow us to create a plan specific to the family, its neighborhood, and the barriers it was specifically facing helped to get higher acceptance rates when offering home visits. Some families are reluctant to have anyone come into their homes for any reason.
- Informing other practitioners in the continuity clinic sites about the program allowed for a larger pool of possible families as it was sometimes difficult finding a family familiar to the resident.
- Reminding the residents a few days before the visit to call the family and confirm the visit and also reminding them to print out all the materials that they would need was useful. (We found it helpful to

divide resources into three folders: Materials to Get You Started, Assessment Visit Documents, and Intervention Visit Documents).

- Spending a few minutes prepping the residents prior to going into the home was also very helpful. Residents were reminded that they would be the ones leading the visit and were given an opportunity to review any last-minute questions with the program coordinator.
- Scheduling the second visit at least 1 week, and preferably 2-3 weeks, after the first visit gave the family a chance to try to implement some of the goals set at the first visit, as well as sufficient time for the residents to put together the resources they were going to bring with them on their second visit.
- Instructing residents to insert a copy of their Healthy Homes Intervention Recommendations (Appendix M) into the clinic chart of the patient whom they saw during the home visit allows other providers to see what was recommended for this family. In addition, we had two residents who were able to complete only one home visit to the family. Having the plan in the patient's chart allows other providers to review the resources and recommendations with the family at a future clinic appointment.
- Intermittently ensuring that all materials remain accessible on whatever platform you are using is important. All hyperlinks should be tested and all materials updated on a regular basis.

In order to reduce the time it takes to complete this curriculum, one change to consider is to have the residents do the first home visit and windshield survey and then have the family come to the office to review the resources and recommendations. In order to decrease even further the amount of time and coordination required, we are exploring the possibility of virtual home visits using camera and video technology.

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Disclosures

None to report.

Funding/Support

None to report.

Prior Presentations

Essel K, Jonnalagadda S, Lichtenstein C. Healthy homes, healthy futures program: a home visitation curriculum to help facilitate more dynamic and effective communication strategies between pediatric residents and families of obese/at risk children. Presented at: Pediatric Academic Societies (PAS) Annual Meeting; April 25-28, 2015; San Diego, CA.

Essel K, Jonnalagadda S, Lichtenstein C. Healthy homes, healthy futures program: a home visitation curriculum to help facilitate more dynamic and effective communication strategies between pediatric residents and families of obese/at risk children. Presented at: American Pediatric Association Region IV Annual Meeting; February 20-21, 2015; Charlottesville, VA.

Essel K, Jonnalagadda S, Lichtenstein C. Healthy homes, healthy futures program: a home visitation curriculum to help facilitate more dynamic and effective communication strategies between pediatric residents and families of obese/at risk children. Presented at: Children's National Research & Education Week; April 7-11, 2014; Washington, DC.

Ethical Approval

This publication contains data obtained from human subjects and received ethical approval.

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Received: January 18, 2016 | **Accepted:** July 26, 2016 | **Published:** October 2, 2016