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## **Review Article**

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# Design matters in home visiting improvement

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### **ABSTRACT**

Maternal and child health home visiting services play a critical role in healthcare within the United States. Programs are widely varied and services offered depend on local and regional adopted designs. Observational and experimental research provides mixed conclusive results. Some literature reports statistically significant positive outcomes for home visitation services while other research fails to duplicate or provide secondary matched findings. Future research design opportunities include national, inclusive, cross collaborative home visiting research that seeks to minimize limitations. Future home visiting programs should utilize research opportunities in public and private program redesign, continuous quality improvement as well as in accreditation for optimal effect on target populations. Only with strong, supportive research can maternal and child home visiting services be tailored, replicated and consistent across the United States.

Keywords: Home visiting, Maternal child health

## INTRODUCTION

Home visiting is widely accepted as an important intervention for maternal and child health. Home visits are provided to women throughout the prenatal and postpartum period as well as for infants and young children. Many different strategies are incorporated, making each program different than the next. Home for maternal and child health targets disadvantaged women of low socioeconomic status.<sup>1</sup>

For maternal child health, home visits are usually completed by nurses, paraprofessionals or other professionals.1 Home visiting can be both private and publically funded, and grants are administered through various avenues to various agencies. The federal government provided \$1.5 billion to home visiting for maternal child health from 2010-2014, with additional funds in 2015. In 2015, states served approximately 145,500 parents and children through the federal home visiting initiative. In fact, over 2.3 million home visits

have been documented since 2012.2 With both government and private resources allocated to home visiting, accuracy and efficiency is crucial in home visiting science.

Home visiting programs, as well as the evidence to support them, are complex and inconsistent. The effects of home visiting on child maltreatment as a whole are inconclusive and often not agreed upon within the literature, though the effects of parenting and reduction of maltreatment behaviors are observed. 1,3 Current literature has calculated that overall, families in home visiting programs are 1.5 times more likely to experience positive outcomes (compared to families that do not have experience with home visiting). Some literature has also found that birth outcomes, child physical health and child maltreatment were not affected by home visiting.<sup>4</sup> Additionally, it has also been documented that parental behavior, preterm births and low birth weight infants are positively associated with home visiting.<sup>5</sup>

Home visiting programs are part of a larger group of interventions aimed at healthy family and healthy child outcomes. The Department of Health and Human Services supports grant blocks to state programs for service delivery. Additionally, private and other public funds contribute to sustainability of initiatives.

Baseline statistics for outcomes often drive the selection of specific home visiting programs for maternal and child health. Significant interest in program evidence has been growing. Improvement in a child's cognitive and socialemotional outcomes, as well as parenting behaviors, relies on research that is grounded, consistent and able to make evidence-based recommendations on interventions. Additionally, it has been demonstrated that these interventions must stay true to original design for best practice. Therefore, assurance of ongoing data collection and continued improvement in programmatic design are imperative. Additionally, assurance of program quality is crucial. In recent years, the federal government has instituted HomVee, a project aimed at providing transparency and quality review of home visiting effectiveness.<sup>2</sup> The federal government has also supported the National Home Visiting Research Network (NHVRN) in effort to align research findings with policy and practice.4

As the focus on home visiting intensifies, accompanied by expectations of evidence, valid and reliable research is needed. While research studies are often performed to provide insight into specific outcomes, particularly to maintain and sustain programs, a stronger cohesive agreement allows for national collaboration.

## **CURRENT THEMES IN LITERATURE**

Recent literature provides a glimpse into the current state of experimental and observational research. Overarching themes identify opportunities to maximize research value through design. Literature reviews and meta-analyses also provide strong insight into previous research and recommendation follow-through.

Established and new programs have been thoroughly reviewed, using control matches, for strong insight.<sup>7,8</sup> Birth outcomes, service use and infant mortality have been assessed among home visiting programs. 5,9-13 Perspectives on home visiting were gained through qualitative data and perceptions on home visiting were collected from multiple studies. 14,15 Cultural adaptation and influence have also been studied. 16,17 Additionally, maternal health, depression and interpersonal relationships have been analyzed. Home visitor by profession is of significant focus in the literature, with analyses of community lay persons, paraprofessionals outcomes. 23,24 providing varied residents Interestingly, the majority of strategic plans outlined in the literature have not yet been implemented, evaluated or analyzed in recent research.

Overall use of home visiting in the United States was estimated to be at 13.6% of the 0-3 year old population, with child safety and access to health the main two home visiting discussions. Children born preterm or with low birth weight, children with adverse childhood experiences as well as those in poverty were more likely to receive home visitation services. While this study revealed basics on home visiting, it did not provide specifics or national statistics on prenatal services, nor were home visits stratified by public and private programs versus hospital home health acute care services, two very different approaches to home visiting. Home visiting is universal in many countries, though there is ongoing debate about evidence for impact as well as targeted versus universal programs.<sup>25</sup>

Both established and new programs are found in literature. Some studies of established programs have completed analyses without the use of controls. The Kentucky Health Access Nurturing Development Services (HANDS) has been reviewed to better understand changes in risk factors for mothers and fathers before and after the home visit program intervention. Four of the six risk factors decreased for both mothers and fathers after the intervention, including lifestyle behaviors and mental health, coping skills and support system, stresses and anger management skills.<sup>26</sup> Nurses for Newborns (NFN), a program that includes mothers regardless of how many previous pregnancies and children they have, has also been evaluated through comparison of program participants. The percent of mothers with a child maltreatment report was 12.2% for first time moms and 26.5% for mothers with three or more prior births. Caregiver stress and depression screening scores also increased significantly for moms with three or more prior births. There was almost no difference in NFN use, though first time moms were referred more.<sup>27</sup> Additionally, the MOM program was assessed. This intensive program visits mothers and babies up until the baby is 33 months old. The more home visits that were completed within the outlined structure, the more likely the completion of the pediatric appointment with the medical provider.<sup>28</sup>

The Healthy Start program was assessed in St. Louis, Missouri through a study of participants. Stratifying by dose of healthy start (amount of home visits provided to the prenatal women), it was found that home case management was a positive predictor of adequate prenatal care. Dose was not a significant predictor of infant birth weight for those with inadequate, intermediate and adequate prenatal care. For those with adequate plus prenatal care, it was found that the higher the dose of home visits, the lower the birth weight and the greater the odds of preterm birth. 11

Other studies have analyzed program outcomes utilizing matched controls. The home visiting consortium in Virginia, comprised of multiple established home visiting programs, was reviewed using secondary methodology.

After a strong data analysis, it was found that women who had a home visit during pregnancy were 87.5% less likely give birth to an infant of low birth weight, 4.5 times more likely to initiate breastfeeding and 39 times more likely to start contraceptives.9 It was also reported that those who participated in home visiting in Virginia were less likely to be abused compared to those who didn't participate.9 A study of the pathways program in Ohio demonstrated that women enrolled in the community health access project (CHAP) had a lower adjusted odds ratio for low birth weight of their infant, regardless of frequency of home visits.<sup>13</sup> In a Michigan study of Medicaid women who receive home visitation services, participants were more likely to receive prenatal care, a postnatal visit and their infants were more likely to receive the appropriate number of well-child visits over the first year of life.<sup>29</sup> An evaluation of the Minnesota visiting nurse agency (MVNA) reported that teens in the program experienced better birth outcomes than teens who were not in the program.<sup>10</sup>

The nurse family partnership (NFP) has been reviewed in multiple studies over the years. In a follow up with 12 year olds originally part of the NFP as infants, it was shown that the children visited by nurses were less likely to use alcohol, cigarettes and Marijuana. It was also revealed that these same children reported fewer internalizing disorders. These children had higher GPS in reading and math for specific grade levels, as well as higher group-based achievement test scores in reading and math in certain grades. No differences were found for sustained attention, externalizing behaviors, total behavioral problems or conduct grades for NFP children. In a second study involving the same NFP intervention, it was found that women visited by nurses were less likely to die in the two decades following the intervention. Children of these women, as well as those whose mothers only received the prenatal visit portion, were less likely to be arrested or convicted. There was also a reduction in child mortality.24

This same intervention produced a third research study found in this literature review, where results revealed that paraprofessional and nurse visits both showed better outcomes than control groups for some development items. At 6 years old, nurse-visited children were less likely than controls to be classified as having total behavioral problems, while paraprofessional-visited children had better behavioral regulation than controls. Paraprofessional visited children also displayed better visual attention and task switching at 9 years old than their peers in control groups.<sup>24</sup> Another effort to study professionals outside of nurses in home visits was a pilot study in resident home visits, where it was found that mothers provided home visits (by resident physicians) rated their quality of life higher and accessed acute services less.<sup>23</sup>

Intimate partner violence was studied within nurse family partnership interventions, finding that substance abuse and mental health of the mother are associated with intimate partner violence. Perinatal outcomes, including gestational age, prematurity, low birth weight and NICU admissions, were not associated with intimate partner violence. Exposure to intimate partner violence was associated with less contraception use after delivery, and women exposed to intimate partner violence were more likely to experience a pregnancy within 2 years after the birth of their first child. Only slightly lower average birth weight was associated with IPV. Overall, a woman at time of enrollment into home visiting was associated with 0.62 odds of having intimate partner violence. After delivery, her odds became 1.6. <sup>18</sup>

Maternal depression has been the focus of several studies. In instance, the assessment tools commonly used during home visits to screen women at risk for depression were analyzed. It was found that there was a range from 22%-75% of women identified as at risk, depending on tool used. An additional measure to identify for stressful life events was thought to be a solution for a more comprehensive screening process. He dinburgh postnatal depression screening (EPDS) was singled out and used in a large study of impact, it was found that depression was not detected in two-thirds of the maternal population studied. This finding is consistent with other studies.

When EPDS was studied within a healthy start program, it was found that women who screened positive for depression symptoms were not already receiving treatment. This finding is consistent with other studies. Once identified as positive for depressive symptoms, over half accepted referral and treatment. Interestingly, this percentage of treated individuals was higher than found in a Pittsburgh study, where less women accepted treatment after scoring high for depression. Feasibility of treatment was identified as the most likely contributing factor to difference.<sup>20</sup>

Focus group studies have revealed that clients and home visiting staff both felt trust and honesty were crucial part of depression conversations, and a personal connection to home visiting professionals was the strongest influence on whether depression conversations were truthful. Staff was less comfortable discussing depression than clients, and staff preferred other terms than the term depression. While not stated in literature, it is possible that healthcare staff prefer to use the term depression only after an actual clinical diagnosis. While staff voiced preference to refer maternal clients to appropriate services once depression was identified, clients preferred to discuss and cope with their depression directly with their home visitor.<sup>22</sup>

Aligned with the depression studies, a study that utilized data from seven home visitation programs reported that depression screens are positive for 25% of parents at initial visit, with half of those parents currently in treatment. The study found that depression decreased after the home visiting series, though 14% of parents

were consistently depressed. In total, untreated depression dropped from 11.9% at baseline to 8.5% after 12-18 months of home visiting. Depressed parents had lower health literacy but those depressed at initiation made great gains in health literature. After 12-18 months of health literacy gains, parents who were depressed at intake exhibited similar health literacy skills to nondepressed counterparts. Relatively low incidence of new onset cases of depression during the 12-18 months was also documented. This low incidence of new onset depression could be attributed to failed screening and recognition of depression on the home visitors' part, but it has also been documented in the literature that enhanced home visitation may prevent the onset of depression, mitigate depression in others, and prevent moderate depression symptoms from becoming chronic.<sup>19</sup> Thus, it is possible that the data produced in this study reflect previous studies' findings which point to potential for home visiting to protect against parental depression.

Perceptions of home visits are studied as well. Mothers report that they perceive health education to be the most common type of help received, and psychosocial supports ranking higher than other life needs. Both control and intervention groups in this perception study reported that home visitor assistance in changing health behaviors was low. <sup>15</sup> In a study where public health nurses were trained in specialized listening, there was no statistically significant difference in maternal outcomes between intervention and control groups. While no pregnancies occurred in the intervention group postpartum, there were more high school dropouts in the group that was provided specialized listening by the public health nurses. With a small sample size, it is difficult to assist true statistical significance. <sup>30</sup>

Attrition has also been studied. Women conveyed they are too busy, have housing issues, or they don't feel the program is helpful, and these are the top several reasons for leaving home visiting in NFP. Perception is clearly important to weight, as this same study revealed that the program documented reasons for attrition from NFP included excessive missed appointments, declination if services and inability to reach the program participant.<sup>14</sup>

The dispensing of contraceptives during home visits has been explored in recent literature, with the nurses from NFP displaying a wide range of perceptions in comfort and feasibility. After listening to nurses conveying their desire for better clinical and motivational training as well as pharmaceutical protocols, studies displayed contraceptive dispensing may be within a nurse scopes and feasible in NFP.<sup>31</sup> Studying and addressing perceptions in home visiting produces a world of benefits as well as insight into visitor and client differences.

Home telehealth for children with special needs was explored in a pilot study, where it was found that technical support was an issue in initial set up. Feasibility for telehealth in managing complex children was possible

once working through these technical support challenges. Though telehealth visits have been rated by nurses as similar to phone calls, unscheduled teleconference visits (due to change in child's condition) were rated as providing more information than a telephone call.<sup>32</sup>

Interventions to address children with special needs have been examined in cultural research. Community members, promotores, were trained to provide culturally sensitive health education for mothers of children with intellectual and development disabilities. Intervention participants reported better self-efficacy and self-care, and both intervention and control groups reported less depression symptoms and caregiver burden. 16 Additional cultural research focused on Latina communities found that culturally tailored programs resulted in parental reports of improvement in skills and knowledge. In contrast, Oklahoma's SafeCare program, assessed specifically within the American Indian parent population, found that parents did not perceive culture incompetence in a generalized program. SafeCare is a program for preschooler parents that provides for behavioral skill training for parents. It can be provided stand alone or in conjunction with other home visiting programs. American Indian parents rated SafeCare as higher quality, more beneficial and more culturally competent. They also reported that SafeCare provided for a working alliance with the home visitor. American Indian parents held the same recidivism rates as others in the SafeCare program.<sup>33</sup>

Physical health for children has been addressed in specialized home visit interventions. Dental services for infants and young children are an often overlooked health need, and access to services is also of public health concern. The Child Health Investment Partnership (CHIP) has a dental prevention program. CHIP provided for a targeted intervention in Virginia which consisted of home visits with education and fluoride application by nurses. An analysis of the CHIP dental prevention program found that utilization of dental services was higher among children enrolled in CHIP. These children were three times more likely to have at least one claim, providing researchers with assurance that a connection to a dentist, and thus preventive and cost effective services, was established.<sup>34</sup> An asthma intervention where home visits and education were customized to the needs of the families resulted in improvement in medication use as well as improvement in asthma indicators. A decrease in healthcare utilization and improvement in quality of life was also seen.35

There is extensive amount of data, conflicting evidence and applicability of research results on the topic of home visiting. Many recommendations are found within the literature. Despite the written material available, however, there is a scarcity of full scale research studies on quality alongside implementation of evidence-based home visiting methodology. While one journal did evaluate a current process that has continuous quality

improvement interwoven in the fabric of a Tennessee home visiting program, there were no concrete results of quality improvement or credentialing as it pertains to maternal and child health home visiting. The As a recent meta-analysis concluded, certain aspects of home visiting are more likely to be associated with specific outcomes, and selecting one programmatic approach to home visiting may not be as effective as redesigning and tailoring existing programs to address significant components. The Associated with the Ass

#### **DISCUSSION**

Home visiting is a complex health service with variables affecting research. Still, this review found that the majority of observational and experimental studies take great caution to account for as many variables as possible through strategic controls and matches. Another overarching strength in the literature is the consistent detail of professionals who home visit, accounting for differences in visitor background. Most of the sample sets for epidemiological and statistical insight were large. When the sample size was small, especially for qualitative data in focus groups and surveys, the data was consistent and comprehensive. Additionally, several studies provided fresh insight into original cohorts or built new research to add to previous investigations, effectively increasing data sets.

Limitations of these studies were chronic and common. Most studies were designed around a distinct population, either in one community or one state. Home visiting programs have historically been designed to target low income and underprivileged persons, but communities struggling with specific populations of underprivileged persons many not fully represent other communities' underprivileged makeup. Recent programs that are inclusive of all teen moms may provide a fresh perspective on sample analysis, but overall the populations remain in siloes in the literature. Some studies specifically addressed one ethnicity or one pediatric condition. While the studies were robust in quantity, the results are applicable to small, specific and targeted populations not necessarily representative of even one state. As the evidence for home visiting continues to be debated, researched and weighed into national structures of home visiting methodology, researchers and funders must address the pressing need for replicability and applicability in results.

Additionally, newer programs recognize the need for structured design, from professional training through home visit resource allocation. Time, frequency and other measures are crucial to capture in research. Still, much of home visit research does not account for these specifics. While establishing trust and interpersonal connection is vital between the home visitor and client, and thus each visit is tailored, research design must become better at quantifying these details.

Much of the maternal health home visiting literature refers to home visits without acknowledging the vast array of home health services available to the general population. Because acute care, coordination, continuum of services, quality and health services research are all on the new forefront of healthcare, home visits will become more complex. Future home visit professionals will cross paths and may cross responsibilities within a more comprehensive set of services. Additionally, home visiting for other Medicaid populations as well as Medicare and elderly populations may increase. As such, home visit research must distinguish roles and responsibilities and account for any acute care visits. There is also potential for future research study design to include data for multiple services and programs, through private-public research partnership design.

Additionally, there is enormous opportunity to design large scale home visiting research using continuous quality improvement. There is also overwhelming opportunity to build off of international data and international policy, with focus on universal home visit healthcare. While policy change may not be feasible in the United States, both program and study design is. Home visiting services, for the most part, are voluntary services at all community levels. Research participation is also voluntary. Unlike other avenues of healthcare, however, home visiting attempts to prevent negative outcomes that result in involuntary mandates on behalf of children. Thus, program design must take care to be as inclusive and available as possible.

Finally, new parental education and guidance is a healthy step for every member of the community. Thus, programs must take care to be inclusive of all new mothers and all infants, regardless of income or insurance. This shift provides for a stronger reach in services, a means to address for anyone who "falls through the cracks" between interstate moves, creates a culture that makes parental education the norm and provides for a strong base of service research. In line with parental education is the involvement of the father. While father involvement and education is critical, it is not a common component of maternal child health home visits. Healthcare professionals cannot expect to partially address fathers as partners or as part of the home environment without decidedly involving them in the full process. When program design is more inclusive, research design will follow suit, and in tandem improve home visiting for all. Instead of maternal and child home visiting, the future rests in family health home visiting, arguably only effective at a full scale with a robust and strategic national research design.

The specialty that is maternal and child health has grown in program delivery and research science. In the spirit of home improvement, decades of research have begun to redesign the field of home visiting. Just as in anything else, doing it right the first time ensures the best end result. Thus, inclusive and well thought out programmatic

design, decisive program implementation on a national level and large scale research of maximum effort will ensure the optimal future for home visiting.

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#### REFERENCES

- 1. Berger LM, Font SA. The Role of the Family and Family-Centered Programs and Policies. Futur Child. 2015;25(1):155-76.
- HRSA. Home Visiting. Available at: http://mchb.hrsa.gov/maternal-child-healthinitiatives/home-visiting. Accessed on July 31, 2016.
- 3. Donelan-McCall N, Eckenrode J, Olds DL. Home visiting for the prevention of child maltreatment: lessons learned during the past 20 years. Pediatr Clin North Am. 2009;56(2):389-403.
- 4. Duggan A, Minkovitz CS, Chaffin M, et al. Creating a national home visiting research network. Pediatrics. 2013;132:82-9.
- 5. Goyal NK, Teeters A, Ammerman RT. Home Visiting and Outcomes of Preterm Infants: A Systematic Review abstract. Pediatrics. 2013;132:502-516.
- HRSA. Child Health USA. Available at: http://mchb.hrsa.gov/chusa14/special-features/ federal-programs-promote-child-health.html. Accessed on July 31, 2016.
- 7. Kitzman HJ, Olds DL, Cole RE, Hanks CA, Anson EA, Arcoleo KJ, et al. Enduring Effects of Prenatal and Infancy Home Visiting by Nurses on Children. Arch Pediatr Adolesc Med. 2010;164(5):412-8.
- 8. Olds DL, Holmberg JR, Donelan-McCall N, Luckey DW, Knudtson MD, Robinson J. Effects of Home Visits by Paraprofessionals and by Nurses on Children. JAMA Pediatr. 2014;168(2):114.
- 9. Shah MK, Austin KR. Do home visiting services received during pregnancy improve birth outcomes? Findings from Virginia PRAMS 2007-2008. Public Health Nurs. 2014;31(5):405-13.
- Schaffer MA, Goodhue A, Stennes K, Lanigan C. Evaluation of a Public Health Nurse Visiting Program for Pregnant and Parenting Teens. Public Health Nurs. 2012;29(3):218-31.
- 11. Rotter B, Elliott M, Recktenwald A, Scharff D. The impact of dose of the St. Louis Healthy Start program and prenatal care adequacy on birth outcomes. J Nurs Educ Pract. 2015;6(2):123-9.
- 12. Krans EE., Davis MM. Strong Start for Mothers and Newborns: Implications for prenatal care delivery. Curr Opin Obstet Gynecol. 2014;26(6):511-5.
- 13. Redding S, Conrey E, Porter K, Paulson J, Hughes K, Redding M. Pathways Community Care Coordination in Low Birth Weight Prevention. Matern Child Health J. 2014;19(3):643-50.

- Holland ML, Christensen JJ, Shone LP, Kearney MH, Kitzman HJ. Women's Reasons for Attrition from a Nurse Home Visiting Program. JOGNN - J Obstet Gynecol Neonatal Nurs. 2014;43(1):61-70.
- 15. Roman LA, Raffo JE, Meghea CI. Maternal perceptions of help from home visits by nurse-community health worker teams. Am J Public Health. 2012;102(4):643-5.
- Magaña S, Li H, Miranda E, Paradiso de Sayu R. Improving health behaviours of Latina mothers of youths and adults with intellectual and developmental disabilities. J Intellect Disabil Res. 2015;59(5):397-410.
- 17. Owora AH, Silovsky JF, Beasley LO, Demoraeshuffine P. Lessons learned from adaptation and evaluation of home visitation services for Latino communities. Int Public Heal. 2012;4(3):251-9.
- 18. Scribano PV, Stevens J, Kaizar E. The effects of intimate partner violence before, during, and after pregnancy in nurse visited first time mothers. Matern Child Health J. 2013;17(2):307-18.
- 19. Smith SA, Moore EJ. Health literacy and depression in the context of home visitation. Matern Child Health J. 2012;16(7):1500-8.
- Segre LS, O'Hara MW, Brock RL, Taylor D. Depression screening of perinatal women by the Des Moines Healthy Start Project: program description and evaluation. Psychiatr Serv. 2012;63(3):250-5.
- 21. Price SK, Masho SW. What does it mean when we screen? A closer examination of perinatal depression and psychosocial risk screening within one MCH home visiting program. Matern Child Health J. 2014;18(4):765-71.
- 22. Price SK, Cohen-Filipic K. Daily life or diagnosis? Dual perspectives on perinatal depression within maternal and child health home visiting. Soc Work Public Health. 2013;28(6):554-65.
- 23. Lakin A, Sutter MB, Magee S. Newborn well-child visits in the home setting: A pilot study in a family medicine residency. Fam Med. 2015;47(3):217-21.
- 24. Olds DL, Kitzman H, Knudtson MD, Anson E, Smith J a, Cole R. Effect of home visiting by nurses on maternal and child mortality: results of a 2-decade follow-up of a randomized clinical trial. JAMA Pediatr. 2014;168(9):800-6.
- 25. Lanier P, Maguire-Jack K, Welch H. A Nationally Representative Study of Early Childhood Home Visiting Service Use in the United States. Matern Child Health J. 2015;19(10):2147-58.
- 26. Ferguson JM, Vanderpool RC. Impact of a Kentucky Maternal, Infant, and Early Childhood Home-Visitation Program on Parental Risk Factors. J Child Fam Stud. 2013;22(4):551-8.
- 27. Lanier P, Jonson-Reid M. Comparing Primiparous and Multiparous Mothers in a Nurse Home Visiting Prevention Program. Birth. 2014;41(4):344-52.
- 28. Radcliffe J, Schwarz D, Zhao H. The MOM Program: home visiting in partnership with pediatric care. Pediatrics. 2013;132:153-9.

- 29. Meghea CI, Raffo JE, Zhu Q, Roman L. Medicaid home visitation and maternal and infant healthcare utilization. Am J Prev Med. 2013;45(4):441-7.
- 30. SmithBattle L, Lorenz R, Leander S. Listening with care: Using narrative methods to cultivate nurses' responsive relationships in a home visiting intervention with teen mothers. Nurs Inq. 2013;20(3):18-198.
- 31. Jacob-Files E, Rdesinski R, Storey M. Should Home-Based Contraceptive Dispensing become a Routine part of Public Health Nurse Practice? Review of Nurse Perceptions. Public Health Nurs. 2014;32(6):702-10.
- 32. Cady R, Kelly A, Finkelstein S. Home telehealth for children with special health-care needs. J Telemed Telecare. 2008;14(4):173-7.
- 33. Chaffin M, Bard D, Bigfoot D, Maher E. Is a Structured, Manualized, Evidence-Based Treatment Protocol Culturally Competent and Equivalently Effective Among American Indian Parents in Child Welfare? Child Maltreat. 2012;17(3):245-52.

- 34. Brickhouse TH, Haldiman RR, Evani B. The impact of a home visiting program on children's utilization of dental services. Pediatrics. 2013;132:147-52.
- 35. Turcotte DA, Alker H, Chaves E, Gore R, Woskie S. Healthy homes: In-home environmental asthma intervention in a diverse urban community. Am J Public Health. 2014;104(4):665-71.
- 36. McCabe BK, Potash D, Omohundro E, Taylor CR. Seven-month pilot of an integrated, continuous evaluation, and quality improvement system for a state-based home-visiting program. Matern Child Health J. 2012;16(7):1401-12.
- 37. Filene JH, Kaminski JW, Valle LA, Cachat P. Components Associated With Home Visiting Program Outcomes: A Meta-analysis. Pediatrics. 2013;132:100-9.

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