Healthy Tomorrows Partnership for Children Program

Project Title: The Health Education and Adult Literacy (HEAL) Program

Project Number: H17MC07865

Director: Dodi Meyer, MD, Director Community Pediatrics

Grantee Organization: Trustees of Columbia University

Address: 622 W 168th St VC412
New York, New York 10032

E-Mail Address: dm11@columbia.edu

Phone Number: 212-305-6227

Home Page: www.communityped.org

Project Period: 2007 - 2012

Total Amount of Grant: $149,127

ANNOTATION:
Community Pediatrics at Columbia University and New York Presbyterian Hospital (NYPH), in partnership with the Community Health Worker Institute (CHWI) at Alianza Dominicana, proposed implementation of a Health Education and Adult Literacy (HEAL) program for low-income families with children in Northern Manhattan. The aim of HEAL is to decrease medication errors and increase compliance with treatment given by pediatricians by improving health literacy in the population served. We developed, implemented, and evaluated a culturally and linguistically appropriate curriculum targeted to community health workers and pediatric providers. Increased parent, physician, and community knowledge of disease and medication management was assessed through "pre" and "post" knowledge surveys. Feedback logs of interactions with patients and clients served, measured the impact of the program developed.

KEY WORDS: low health literacy, medication errors, poor treatment adherence, low-income, Latino immigrant population, pediatric providers, community health workers.

ABSTRACT:

The HEAL (Health Education & Adult Literacy) Program fulfills the mission of service, education, and research through community engaged projects at NewYork-Presbyterian/ Columbia University Medical Center. The program's primary goal is to improve health literacy among the patient population in Washington Heights and Inwood. Research demonstrates a correlation between literacy skills and overall personal health. Low health literacy is more prevalent among people with low income, limited education, limited English proficiency (LEP) minority populations and older adults. Families with low health literacy are at a particular risk for making errors in administration of medicine.

The HEAL (Health Education & Adult Literacy) program, funded by Healthy Tomorrows, initiated at New York-Presbyterian Hospital/ Columbia University Medical Center fulfills the mission of service, education, and research through community engaged projects. The program's primary goal is to improve health literacy among the patient population in Washington Heights and Inwood. This is accomplished by the development and implementation of a health education curriculum that was informed by focus groups in order to respond to the health literacy skills of the community served. This program is being implemented throughout the hospital's affiliated community based pediatric ACN (Ambulatory Care Network) sites, Best Beginning (Home Visiting Program at Alianza Dominicana), and local Early Head Start Programs.

The HEAL Program has a two-fold approach which consists of (1) health literacy training for pediatric providers and community health workers and (2) a one on one curriculum based health literacy intervention for patients in clinical and community based settings.

PURPOSE OF PROJECT AND RELATIONSHIP TO SSA TITLE MATERNAL AND CHILD HEALTH (MCH) PROGRAMS:

Community Pediatrics at Columbia University and New York Presbyterian Hospital (NYPH), in partnership with Alianza Dominicana's Community Health Worker Institute (CHWI), implemented the Health Education and Adult Literacy (HEAL) program for low-income families with children of Northern Manhattan. The aim of HEAL is to decrease medication errors and increase compliance with treatments prescribed by pediatricians through improving health literacy in the population served. We developed, implemented, and evaluated a culturally and linguistically appropriate curriculum targeted to community health workers and pediatric providers.

In keeping with Bright Futures goals, the HEAL program has fostered the partnerships between providers and communities by reaching out to families with low health literacy and sharing knowledge and tools necessary to empower them. This was accomplished by implementing the curriculum in a variety of venues that is not just limited to average health care settings. The curriculum was informed by focus groups comprised of community members who represent the population served. Families were not solely given the information, but they were given the opportunity to share their own views regarding the health topics that are shared with them. This has empowered caregivers to be active in their children's healthy development. The leadership of HEAL shared tools and lessons learned from the program with local AAP chapter while the director attended one of the executive council meetings to discuss the program. A relationship was established between the medical director and the director of Children's Aid Society.

GOALS AND OBJECTIVES:

Goal : The overall goal of HEAL is to decrease medication errors and increase compliance with treatments prescribed by physicians through the improvement of health literacy in the population served.

Objective 1: To develop culturally responsive health education materials regarding medication adherence using the basic tenets of health literacy

Objective 2: To train pediatric providers and family support workers to appropriately address low health literacy at different health care settings

Objective 3: To implement the above curriculum in four ACN pediatric outpatient clinics in the Washington Heights/Inwood neighborhoods of Northern Manhattan served by NYPH, Alianza Dominicana's Best Beginnings Program, and local EHS Programs.

METHODOLOGY:

The project was submitted and approved by the Columbia University Institutional Review Board (IRB). Prior to the design of the HEAL curriculum a thorough needs assesment was designed, which included three focus groups that were held within a community setting. These three focus groups, two in Spanish and one in English, with a total recruitment of 33 care-givers were conducted in partnership with Alianza Dominicana. The focus groups helped assess community needs with respect to health literacy as it informed the curriculum regarding understanding medication use, use of home remedies, the communication gap between providers and patients.

Secondly, an observational study that examined and documented the oral communication gap between patients' caregivers and medical providers was implemented. A research assistant observed residents and pediatric faculty using a validated communication checklist during medical encounters to elicit the use of health literacy sensitive terminology and culturally and linguistically appropriate communication. In turn, a patient exit interview regarding the quality of MD/patient interaction was performed by the research assistant. Pediatric residents in training then used the fore-mentioned checklist and the patient exit interview during their peer observation training session.

After the focus groups and the observational study of the communication were analyzed, a culturally and linguistically appropriate health literacy curriculum was designed and implemented. Based on the needs-assessment, the curriculum was initially divided into five units: preparing for a doctors visit, over-the-counter medications, prescription medications, home remedies, and medication management. The format utilized pictorials and educational materials written at a fifth grade reading level. The Spanish translation was developed with the input of native speakers from multiple countries that represent the communities in WHI in order to address the diversity of patients' origin and address issues of colloquialisms. A train the trainer manual was developed to train health care providers (pediatric residents, pediatric faculty and family support workers) to implement the curriculum in their respective settings. The effectiveness of the curriculum on trainees and caregivers was assessed through the use of pre and post knowledge tests.

The process and implementation of the health literacy curriculum served as model for replication and expansion of this approach to other areas of the hospital and community based organizations. Two years after the original HEAL curriculum was implemented two additional units were incorporated in direct response to the growing need for education on upper respiratory infections, specifically the H1N1 influenza epidemic. Emphasis was placed on the unnecessary use of antibiotics for these illnesses and the antibiotic resistance that emerges with this common practice. This expanded curriculum was developed jointly by the leaders of the HEAL program and a research team which resulted in the ACURI Project (Appropriate Care of Upper Respiratory infection), funded by a stimulus grant: NIH/NCHMD 1 RC1 MD004109-01.
This curriculum was implemented and tested at Columbia University and Children's Aid Society Early Head Start parent workshops.

EVALUATION:

First step of the evaluation consisted in doing a needs assessment prior to the development and design of the HEAL Curriculum, as described above.

Three focus groups were conducted in November 2007 at Alianza Dominicana Best Beginnings Program. Two focus groups conducted in Spanish (n=8, n=6) and one in English (n=8). A total of 22 participants were recruited. Largest numbers consisted between 20-24 and 30-34 years of age. The majority of the participants were female, born outside of the US, largely in the Dominican Republic and Mexico.

The analysis of Focus Groups findings regarding patient/doctor interaction demonstrated that the participants preferred to have explanations of specific ailments verbally, not with handouts.

Furthermore, caregivers expected their children to be examined thoroughly and expected to have doctors ask the family questions and listen to their concerns or comments. Participants also conveyed that they wanted an outline of a treatment plan that would give them several options, so that they can ultimately give their feedback to their doctors regarding their child's treatment plan. Participants also had a general distrust of medications that led them to have a fear of overdosing and side effects. In addition, they discussed substituting prescribed medicines with treatments that were not part of the original treatment plan. This practice among caregivers was generally not disclosed to their medical providers. Participants in the focus groups shared that they preferred to have detailed instructions that included visual aides such as tsp/ml conversion chart for oral syringes. They also mentioned that they generally selected over-the-counter medications (OTC) based on the recommendations given by friends and families or the ones used in the past. Most participants expected medication to be prescribed after visiting the doctors. The use of Home Remedies was another prevalent topic among the focus group participants. Some of them viewed home remedies as a secondary healing source after western medicine does not work. Others used home remedies when they considered that their children were too small for OTCs. Some of the participants shared that they don't tell their doctor about their use of home remedies because they thought it would insult the doctor/patient relationship, while other participants disclosed that they don't tell the doctor because they feared a negative response from their doctors.

Once the needs assessments were completed, the curriculum was designed and ready to be implemented by health care provider and family support workers. The following health care providers were trained to implement the HEAL curriculum: 16 pediatric faculty, 83 pediatric

residents, and 46 FSWs. Health literacy knowledge of medical providers and FSWs was assessed through a pre-post knowledge questionnaire. FSWs' score results were statistically significant using the Wilcoxon Nonparametric Test (W=3.493, p=0.0005). Since its inception, the implementation of the program has been extended to the training of 9 first year medical students at Columbia University's College of Physicians and medical school, and 30 volunteers who are 2nd and 3rd year pre-med students seeking to learn about health literacy and gain experience in effective communication skills regarding health topics covered in the HEAL curriculum.

Results/Outcomes

Since the initiation of the program in July 2007, 690 patients were approached in the ACN pediatric waiting rooms, 83% of patients encountered were interested in the curriculum; 49% of caregivers reported English as their preferred language, 37% Spanish, 1% other languages, with the remainder reporting no preference between their first language and English. The discussions were guided by the noted interests of the caregivers, which were documented in feedback logs. These logs were maintained by HEAL educators to document participant responses to the curriculum delivered to them. A review of topics that were discussed showed that out of the 690 patients encountered, 26% discussed preparing for a doctor's visit, 18% discussed over the counter medications, 16% discussed prescribed medications, 15% discussed home remedies, 12% discussed medication management, 10% discussed upper respiratory infections and 3% discussed use of antibiotics (The final two topics added in 2009—common cold and antibiotics—were not part of the original curriculum; as a result, the rate at which it was addressed in the waiting rooms is much lower than the rest). Coded feedback logs were used to document participants' responses and were assessed through qualitative analysis. The analysis

showed that the HEAL curriculum was well received by the primary caregivers of pediatric patients as a means of obtaining further health information of interest. Data gathered from qualitative analysis of patient-encounter feedback logs was completed to inform the program of its delivery in the waiting rooms of the ACN Sites. A total of 441 feedback logs were collected from the initiation of the program through December 2009. Of those 441 logs, the first 150 were selected for analysis. Findings led to the conclusion that the curriculum was well received and that it gave opportunities to give further give health information that patients' caregivers were interested in, while identifying knowledge gaps that could be in addressed by future waiting room interventions.

The HEAL Curriculum was also implemented in the randomized control study, Appropriate Care of Upper Respiratory Infections (ACURI), which evaluated a health literacy intervention among Latino Early Head Start parents.

ACURI Objectives:

1) Increase health literacy levels regarding upper respiratory infections (URI)
2) Decrease pediatric emergency department visits for viral upper respiratory infections
3) Determine the cost effectiveness of this intervention

The intervention outcome demonstrated that the mean composite knowledge/attitude score increased from 4.1 (total: 10) to 6.6 (P\.05). In addition, families improved care practices which resulted in a decrease number of unnecessary ER visits, and an improved attendance rate among intervention group o the Early Head Start Program.

The HEAL Program worked closely with a multidisciplinary team in the design and implementation of multimedia educational modules on fever assessment and medication administration. This project demonstrated that multimedia educational modules may be useful in improving health knowledge and care practices, especially regarding fever. Future research should assess the impact of such strategies on patient outcomes.

The objective of the Use of Multimedia and Health Education Project:

1) To assess effectiveness of multimedia education about (1) fever assessment and (2) medication administration on knowledge and care practices among parents in a pediatric emergency department (PED)

The 55 parents who participated (27 fever, 28 medication administration) were primarily mothers, Latino, immigrants, publicly insured, and at high risk of low health literacy as measured by the Newest Vital Sign. Subscale scores were calculated as number of correct answers out of 5 questions. There were no significant differences between groups in pre-test mean scores for fever (2.7 fever, 2.4 medication administration, $p=.18$) or medication subscales (4.1 fever, 4.2 medication administration, $p=.7$). On the fever subscale, both in the post-test (3.9 vs. 2.4, $p<.001$) and telephone test (2.1 vs. 1.6, $p=.03$) parents in the fever group had higher knowledge than those in the medication administration group. parents in the fever group improved more than those in the medication administration group ($p=.0002$). On the medication subscale, both

groups performed the same at post and telephone tests and improvement over time was the same (p=.95).

PUBLICATIONS/PRODUCTS:

Subramony A, MD, MBA, Meyer D. MD, Martinez E., Bregstein J., MD, Zimmerman J., DD, Stockwell M. MD, MPH, Larson E. RN, *PhD "Delivering Health Messages Using Information Technology in a Low Health Literacy Population"* PAS Poster Session April 2012, Boston, MA

Meyer D, Martinez E. *"Improving Health Literacy in a Low-Income Urban Community".* Forging the future of children's health care, 2011 NACHRI Annual Leadership Conference, October 9-12, 2011, Bellevue, WA.

Meyer D, Catallozzi M, Martinez E, Morel R. *"Health Education and Adult Literacy Program: Bridging the Communication Gap between Medical Providers and Patients".* Healthy Tomorrows Partnership for Children Program Training Meeting, July 2011, Chicago, IL.

Stockwell M, Catallozzi M, Rodriguez C, Subramony A, Martinez E, Barrett A, Martinez R, Meyer D.
"ACURI: Appropriate Care of URI. An intervention to address low health literacy for Latino families in Early Head Start". Pediatric Academic Societies Annual Meeting, May 2011, Denver, CO.

Cora-Bramble D, Meyer D "Culturally Effective Pediatric Care in a Community-based Health Program", **http://www.aap.org/commpeds/htpcp/default.htm.** Healthy Tomorrow Partnership for Children Program, American Academy of Pediatrics, April 2011Meyer D, Catallozzi M, Martinez E. "*Bridging the Communication Gap Between Medical Providers and Patients"*. Third national Leadership Summit on Eliminating Racial and Ethnic Disparities in Health, Office of Minority Health, February 2009.

Products created over the years include the following:

- HEAL Curriculum
- Volunteer Handbook
- ACURI Modules
- Multimedia Educational Modules (Fever Assessment & Med Administration)

DISSEMINATION/UTILIZATION OF RESULTS:

The project has been successfully integrated into the clinical sites and into residency training. Materials created by the program are available to all providers to give out during doctor-patient encounter. Lessons learned from HEAL will be embedded in continuity clinic lectures and featured in other forums of the residency training program. Our residents and graduates will be known for their strong foundation of community health, cultural competency and advocacy and they will incorporate this strength into daily medical practice whatever their field of choice.

Community Pediatrics has an infrastructure that supports ongoing collaborations with CBOs that will enhance both community health and collaborative partnerships. We will continue to recruit volunteers from city wide pre-med programs to implement the program in the waiting rooms of all our sites.

Curriculum is available to the public through our website (www.communityped.org) and we are in the process of submitting it for publication.

FUTURE PLANS/SUSTAINABILITY

Overall, the proposed project has become self-sustaining beyond the funding period. As described above. The HEAL training curriculum has been integrated into the Pediatric Residency Program. All pediatric residents get trained in health literacy and implementation of the curriculum at their clinical sites during their community pediatrics rotation. All 30 pediatric faculties practicing at the four outpatient clinics are the core teachers for the residency program, have been trained as well. The program coordinator for the program is now funded by New York Presbyterian Hospital to continue with this work and integrate it with Reach out and Reach, another waiting room intervention. The medical director and PI of this grant continues her work in health literacy.

We are exploring ways of introducing this program to the in-patient setting, where medication administration and management is key for a successful discharge and a medication reconciliation process. Based on the success of using I-pads to teach the content of this curriculum, we will seek funding to implement such an intervention in the in-patient setting.

We will continue to work with our community partners to ensure that on-going training continues and future collaborations are pursued to ensure the growth of our program.