

1. PROJECT INFORMATION

HRSA-11-016

Well-Child Care Redesign: A New Model of Care for Children in Low-Income Families

2. DESCRIPTION OF THE STUDY

Well-child visits early in childhood may be the only opportunity before a child reaches preschool to identify and address important social, developmental, behavioral, and health issues. Early and thorough attention to these issues may have substantial long-term health benefits. Moreover, the failure of individuals to reach their full developmental potential or to avoid chronic debilitating diseases may generate crippling costs both to economic productivity and to the social welfare, criminal justice, and health care systems. In our current system of well-child care, the opportunity for action through preventive health services is often missed—many children and families routinely receive inadequate quantity and/or quality of services. These deficiencies in care are often greatest for children in low-income families.

In light of these deficiencies, pediatricians and researchers have begun to describe “well-child care redesign” as an agenda for change in child preventive health services. Efforts toward redesign aim to radically alter the current system of well-child care beyond what more modest and incremental quality improvement campaigns can achieve. In partnership with the largest public health plan in the United States, L.A. Care Health Plan, we combined the perspectives of three major well-child care stakeholder groups—providers, parents, and payers (e.g., health plans)—with a community advisory board and expert panel to design and pilot test a new model for the delivery of well-child care to children ages 0-3 years.

This new model of care was developed using a framework that considers alternative structures for care: non-physician providers (nurses, lay health educators, social workers), non-traditional formats (group visits, internet, phone), and non-clinical locations (daycare centers, home visits, grocery stores) for well-child care services. Input from the well-child care stakeholder groups, the community advisory board, and the expert panel helped create not only a model that was patient-centered, sustainable, and feasible for use with L.A. Care’s pediatric members, but also a redesign methodology that is reproducible for other health plans and communities.

Parent-focused Redesign for WCC Encounters with Newborns, Infants and Toddlers (PARENT)

The one-on-one visit model that was developed is PARENT, a comprehensive model for well-child care that includes: 1) a parent coach (i.e., health educator) to provide anticipatory guidance, psychosocial screening and referral, and developmental/behavioral surveillance, screening, and guidance at each well-visit; 2) a web-based tool to facilitate pre-visit screening and customize visits to parents’ needs, 3) an automated text message service for periodic, age-specific health messages to families, and 4) a brief, problem-focused encounter with the pediatric clinician.

3. REVIEW OF THE LITERATURE

Well-child care (WCC) is the foundation of pediatric primary care in the United States. Pediatricians provide the vast majority of WCC from infancy through adolescence. Through these visits they have a unique opportunity to identify and address social, developmental, behavioral, and health issues that could have significant impact long-term.¹

Studies have demonstrated multiple deficiencies in WCC.²⁻⁶ Pediatric providers are currently not providing many important recommended preventive and developmental services, and most parents leave visits with unmet WCC needs.^{2-4, 7} Many of these deficiencies occur more frequently among children in low-income families.⁵

Practice redesign may create a more effective and efficient system of healthcare delivery. Proposals to improve WCC delivery include changes such as utilizing group visits, incorporating non-physician child developmental specialists into the visit, and instituting standardized screening by non-physician staff.⁸⁻¹⁰

Although practice redesign in large, integrated delivery systems has been described,^{11, 12} smaller practices with ≤5 physicians provide most primary care.¹³ Additionally, small practices and community health centers (CHCs) are a critical source of primary care for children in low-income communities.^{14, 15} These practices and clinics report major barriers to effective WCC¹⁶ and will need explicit processes for selecting and implementing innovative delivery models in ways that are feasible and customized for their families. One such explicit process is a community-based adaptation of the modified Delphi method known as the RAND/UCLA Appropriateness Method (RAM),¹⁷ and was used for this study. A full literature review on well-child care practice redesign was completed and published as part of this project.¹⁸

4. STUDY DESIGN AND METHODS

Study Design

Phase 1: Developing a New Model of Care.

The research team completed 3 studies that served as preliminary studies to the proposal. In these studies we collected data on the perspectives on WCC practice redesign for 1) a national sample of general pediatricians,¹⁹ 2) low-income parents in South Los Angeles,²⁰ and 3) California health plans and medical groups that care for low-income children²¹, to help guide this project and create a Well-Child Care (WCC) Framework. We synthesized the views of these three WCC stakeholder groups (providers, parents, and payers) into a new model for the delivery of WCC services for low-income families, using an explicit and reproducible process that included a CAB and an expert panel in a modified Delphi process.

In developing this model, the CAB and expert panel used their own expertise combined with the perspectives of the major stakeholders previously collected and organized. The CAB included providers, staff, administration, and parent representatives from two pediatric practices identified through L.A. Care. The CAB's role was to help ensure that the new model of care could be feasible and acceptable to community served by these practices. The CAB also considered the likely costs of each model. In contrast, the WCC expert panel included nationally or regionally recognized experts in child health services: clinicians, researchers, executives, and advocates. Using the RAND/UCLA modified Delphi method, the expert panel evaluated possible models for potential effectiveness in providing care that a) addressed parents' specific concerns and needs (i.e., is patient-centered), b) provided nationally-recommended WCC services, and c) promoted timely and appropriate follow-up and referrals.

The research team worked with the CAB through a series of meetings to organize stakeholder perspectives into 6-10 possible models of care that would be feasible to the partner practices. The expert panel then conducted a 2-stage modified Delphi process to select the top 3 models based on the three criteria of potential effectiveness. Finally, the CAB reconvened to select one of these 3 models to be pilot-tested with the partner practice sites, focusing on feasibility, acceptability, and relative cost. This process was detailed in a publication.²²

Phase 2: Pilot Test.

Participants. Parents or legal guardians arriving at one of the clinical sites for an acute or well-visit with infants ≤ 12 months were invited by either a UCLA research assistant (RA) or clinic staff to speak with the RA about a WCC redesign study. Interested parents were screened for eligibility and consented either in person or over the phone by an RA. Participants (henceforth "parents") were ineligible if they a) did not speak English or Spanish, b) were < 18 years of age, c) planned to move outside of Los Angeles County or change primary care providers within the next 12 months, d) had limited availability for Monday-Friday visit scheduling, or e) were currently employed by the participating pediatric practice.

Enrollment into the RCT began June 2013 and ran through December 2013. A total of 270 parents were approached and screened for eligibility by UCLA staff during the 6 month recruitment period. Of the 270 parents that were screened, 15 parents did not meet the eligibility criteria for the study. A total of 251 participants were enrolled into the study and completed a baseline survey.

The baseline survey consisted primarily of demographics and general questions regarding the index child's health. A total of 161 children were enrolled at Site A and 90 were enrolled at Site B. The Site A clinic serves a higher number of patients, therefore we found it necessary to enroll a greater number of children at that site. At enrollment, parents were individually randomized into the intervention group (n=126) or control group (n=125). The randomization was based on a computer generated allocation sequence that the research assistant would refer to after parents had been screened for eligibility and had consented to participate in the study. Parents were informed at enrollment if they would receive usual care or the redesigned model of care. Control participants received usual WCC (one-on-one visit with the pediatric clinician), and intervention families received the PARENT intervention.

PARENT Intervention

The PARENT intervention has four key components: 1) a parent coach (i.e., health educator) to provide anticipatory guidance, psychosocial screening and referral, and developmental/behavioral surveillance, screening, and guidance at each well-visit; 2) a web-based tool to customize the visit to the parents' needs and facilitate pre-visit screening, 3) an automated text message service to provide periodic, age-specific health messages to families, 4) and a brief, problem-focused physician encounter.

Parent Coach

The Parent Coach was a bilingual health educator with Master's level training in public health. In the year and a half the pilot study took place; she split her time 2 days a week at each clinic. She was available on the 5th day of the week to hold "Parent Coach Office Hours". She was available to answer non-clinical questions related to health education, psychosocial concerns, parenting or behavior and development during her office hours. The parent coach also used her time to provide visit reminders or follow up with parents that had had concerns during their last WCC visit.

Web- Based Well Visit Planner

The Well-Visit Planner (WVP) tool was developed by Child and Adolescent Health Measurement Initiative (CAHMI) as a pre-visit tool to help parents select priorities for their child's well-visit, complete screening questions and receive web-based anticipatory guidance. The questions are based on standardized questions from Bright Futures recommended health risks and educational topics for each well-visit. This tool was available for all intervention children that were between the ages of 4 months to 24 months. The tool was customized for each clinic and translated into Spanish to meet the needs of parents at each clinic.

HealthyTxt™

Parents in the redesigned model of care were given the opportunity to enroll in the HealthyTxt™ service during enrollment. Some parents opted to participate in the text service further into the study. The messages were modified from the library of text messages to meet the needs of each practice site. Bi-monthly messages provided parents with information and tips about her child's development and growth and how to keep baby safe and healthy. Messages were sent to parents according to their child's age.

Surveys

At 12-months post enrollment, 226 surveys (90%) were completed. We were unable to reach the remaining 23 participants for a 12 month survey follow up. Parents completed survey by phone or in person at their respective clinical site. All participants were given up to two additional months after their survey due date to reply to our request to complete a survey.

Interviews

Thirty randomly selected intervention participants were interviewed to assess parental perspectives on the additional services that were implemented as part of the redesigned model of care. Parents were eligible to participate if they 1) were in the intervention group, 2) completed a 12-month post enrollment survey, and 3) remained at their original clinic site during the 12 month study period. Two cohorts of 15 parents, 10 parents from site A and 5 parents from site B, completed the interview.

Record Review

A comprehensive review of each child's health chart took place after the completion of the study. Parents granted permission, during enrollment, for UCLA staff to review health charts to record well-child visits, sick visits, and developmental screenings.

Statistical Methods

Prior to enrollment, we calculated that a sample size of 240 participants would provide 80% power to detect "medium" effect sizes²³ or larger (0.41 standard deviations or approximately 8 points on a 0-100 scale) using non-response-weighted adjusted regression analyses of the 12-month composite scores for receipt of preventive care services measures, assuming an 80% completion rate.

All analyses were performed using an intention-to-treat analysis. All non-dichotomous outcome measures were transformed to a 0-100 scale to create composite scores. We examined differences between intervention and control groups for baseline characteristics. We compared intervention and control groups on each of our outcome measures, using t-tests for continuous outcomes, and chi-squared analyses for dichotomous outcomes. Since our continuous outcome measures were not normally distributed, we conducted sensitivity analyses using a non-parametric test (Wilcoxon) to examine intervention/control group differences. We conducted an additional sensitivity analysis that assessed intervention effects with adjustment for any characteristics that were found to be significantly different between control and intervention groups at baseline. We also examined the correlation between baseline measures and outcomes to determine if multivariate analyses would be necessary to include any baseline characteristics (including practice site) that were moderately or highly correlated with outcomes in the control group. Finally, we used linear and logistic

regression to determine if there was dose response to the intervention, using number of parent coach encounters as the intervention dose.

5. DETAILED FINDINGS

Two hundred and fifty one participants were enrolled and randomized into the study. Two hundred and thirty three participants completed a 6-month post enrollment survey and 226 participants completed a 12-month post enrollment survey. The mean child age at enrollment was 4.5 months. 77% of index children were Latino, 18% were Black, 45% were in Spanish-primary language households, 54% had highest household education level \leq high school, and 64% had annual household income of $<$ \$20,000 (See Table 1 for details).

Intervention parents scored significantly higher on receipt of anticipatory guidance, health information, psychosocial assessment, family centered care, and standardized developmental screening; they also reported higher helpfulness of care and more compliance with home safety health behaviors. Intervention parents were less likely to report ≥ 2 ER visits over the 12-month period. In adjusted regressions, intervention effects were confirmed (See Table 2 for details).

6. DISCUSSIONS AND INTERPRETATION OF FINDINGS

A parent coach-led intervention designed to improve WCC for publicly-insured children ages 0-3 resulted in robust improvements in parent-reported quality of WCC and a substantial reduction in ED utilization.

Among the preventive care services examined, we found the largest improvements in psychosocial screening for family risks, with a 23-point difference between intervention and control families. To adequately address the multiple psychosocial threats to the health and well-being of children in low-income families, we must first identify families' needs, such as difficulty paying for basic living expenses, parental depression, or lack of social support. We do not have data to know if parents in the intervention group were more likely to successfully utilize community resources identified for various psychosocial needs; however, the parent coach provided parents with referrals to community-specific resources based on identified needs on the Well Visit Planner.

The PARENT intervention has four main elements, but the Parent Coach is the core of the intervention, and guides parents through the use of each element. The inclusion of non-physicians as part of a team approach to preventive care is widely recognized as a key component in preventive care quality improvement and WCC delivery system redesign.^{24, 25-27}

The PARENT intervention uses a non-physician provider as part of a team-based approach to WCC. The role of the parent coach is not to enhance WCC as currently provided by the pediatrician,²⁸ but to instead serve as the primary provider of anticipatory guidance, psychosocial screening, and developmental/behavioral surveillance and screening, thus reducing reliance on a physician as a primary provider of routine WCC services.

We found a significant effect of the intervention on ED utilization, with a 52% reduction in the rate of children with ≥ 2 ED visits, which would represent a substantial savings in costs over a large population of children. The rate of ED utilization in our control group is similar to national data demonstrating that 15.3% of Medicaid-insured children under age 6 made ≥ 2 ED visits in the previous 12 months.²⁹ We do not have data to explain why parents made fewer ED visits in the intervention group, however, based on what is known on parents' reasons for ED use, we can hypothesize some potential reasons.³⁰⁻³² It is possible that the increased focus on parental concerns and anticipatory guidance during well-visits reduced the need for potentially unnecessary ED visits or for injury-related ED use. Additionally, the relationship with the parents and PC may have reduced parent need for ED use to gain reassurance on non-urgent concerns.

We did not find that intervention children were more likely to be up-to-date on WCC compared to control. Additionally, we did not find any difference between the two groups on urgent care utilization. This suggests that the decreased ED utilization does not seem to be replaced by increased urgent care utilization.

The major cost of this intervention was the parent coach salary at approximately \$20 per hour plus benefits. Small independent practices serving a predominately Medicaid managed care population will need incentives to make this intervention financially sustainable. Financial incentives for reducing overall costs of care or for providing higher quality of care and experiences of care to families may help make PARENT a sustainable model for care.³³

There are limitations to our study. First, we are unable to report which aspects of the intervention are driving each of the intervention effects. Next, the intervention was tested in two independent pediatric practices using one parent coach. To enhance generalizability of our findings, we will need to test the intervention across multiple clinical sites with multiple parent coaches. Additionally, the usual care condition of WCC quality

provided at our partner practices likely exceeded usual care nationally in various domains (e.g, developmental screening),³⁴⁻³⁵ which may also limit generalizability. We also recognize the potential for contamination. It is possible that clinicians spent less time on education and guidance during well-visits on control days as well as their intervention days when the PC was involved. However, we did not detect any difference in parent ratings of overall care, and parent experiences of care in the control group were generally very good. Finally, our sample was limited to a predominately low-income, minority population. Our aim was to develop and test a community-specific model of WCC to improve care for publicly-insured children in the low-income communities served by the partner clinical sites, thus our findings may not be generalizable to other populations, such as privately-insured children or children in higher SES families.

Conclusions

Our findings suggest that this Parent Coach-led model for WCC can improve the receipt of comprehensive WCC for low-income families, and potentially lead to cost savings by reducing ED utilization. Replication of these findings across a larger number of clinics and practices will inform the broader use of this intervention in primary care.

7. Products

Presentations

1. Coker TR, Chacon SM, Elliott MN, Bruno Y, Chavis T, Biely C, Contreras S, Mimila N, Chung PJ. Well-Child Care Clinical Practice Redesign: A Randomized Controlled Trial of a Parent Coach-Led Model for Low-Income Children. Platform presentation, Late Breaking Abstract Session at the Pediatric Academic Societies Annual Meeting. San Diego, CA, April 2015.
2. Coker TR, Chacon SM, Elliott MN, Bruno Y, Chavis T, Biely C, Contreras S, Bethell C, Mimila N, Mercado J, Chung PJ. Well-Child Care Clinical Practice Redesign: A Randomized Controlled Trial (RCT) of a Parent Coach-Led Model for Low-Income Children. Abstract Submission for Late Breaking Abstract Session at the Academy Health Annual Research Meeting. Minneapolis, MN. June 2015.
3. Coker TR. A Parent Coach-Led Model of Well Child Care for Low-Income Children. Invited Presentation at the LA Care Health Plan Symposium on Pediatric Primary Care. Los Angeles, CA, March 2015.
4. Coker TR. A Parent Coach-Led Model of Well Child Care for Low-Income Children. Invited Presentation at the LA Care Health Plan Child Health Advisory Committee Meeting. Los Angeles, CA, March 2015.
5. Coker, TR. Primary Care Delivery System Design for Low-Income Populations. Invited Grand Rounds Presentation at Baylor College of Medicine, Texas Children's Hospital, February 2015.
6. Coker TR. Well-Child Care's Future in Pediatrics: Well-Child Care Practice Redesign. Invited Grand Rounds Presentation at University of Tennessee Health Science Center, Le Bonheur Children's Hospital, September 2013.
7. Coker TR, Moreno C, Shekelle PG, Chung PJ. Clinical Delivery Redesign at the Practice Level: Creating a New Model for the Delivery of Well-Child Care Services. Poster presentation at the Pediatric Academic Societies Annual Meeting. Washington, D.C., May 2013.
8. Coker, TR. Well-Child Care Redesign. Guest Lecturer at the UCLA School of Public Health, Health Policy and Management Course: *Health Services Organization*, May 2013.

Publications- Published

1. Coker, T. R., Windon, A., Moreno, C., Schuster, M. A., & Chung, P. J. (2013). Well-child care clinical practice redesign for young children: a systematic review of strategies and tools. *Pediatrics*, 131 Suppl 1, S5-25
2. Coker, T. R., Thomas, T., & Chung, P. J. (2013). Does well-child care have a future in pediatrics? *Pediatrics*, 131 Suppl 2, S149-159
3. Mooney, K., Moreno, C., Chung, P. J., Elijah, J., & Coker, T. R. (2014). Well-child care clinical practice redesign at a community health center: provider and staff perspectives. *J Prim Care Community Health*, 5(1), 19-23
4. Coker, T. R., Moreno, C., Shekelle, P. G., Schuster, M. A., & Chung, P. J. (2014). Well-child care clinical practice redesign for serving low-income children. *Pediatrics*, 134(1), e229-239.

Publications- In Preparation

5. Coker TR, Chacon SM, Elliott MN, Bruno Y, Chavis T, Biely C, Contreras S, Bethell C, Mimila N, Mercado J, Chung PJ. Well-Child Care Clinical Practice Redesign: Well-Child Care Clinical Practice Redesign: A Randomized Control Trial of a Parent Coach-Led Model among Low-Income Children (in-process)
6. Coker TR, Chacon SM, Elliott MN, Bruno Y, Chavis T, Biely C, Contreras S, Bethell C, Mimila N, Mercado J, Chung PJ. A Randomized Control Trial of a Parent Coach-Led Model for Well-Child Care for Young Children: Parent Experiences. (planned)
7. Coker TR, Chacon SM, Elliott MN, Bruno Y, Chavis T, Biely C, Contreras S, Bethell C, Mimila N, Mercado J, Chung PJ. A Randomized Control Trial of a Parent Coach-Led Model for Well-Child Care for Young Children: Emergency Department Utilization and Cost Implications (planned)

Table 1. Participant Characteristics

	Total % (N)	Control % (N)	Intervention % (N)	p- value
Child and Household Demographics				
Child Race/Ethnicity				.41
Latino	77.3 (194)	78.4 (98)	76.2 (96)	
White, non-Latino	.8 (2)	.8 (1)	.8 (1)	
Black, non-Latino	17.9 (45)	15.2 (19)	20.6 (26)	
Other, non-Latino	4.0 (10)	5.6 (7)	2.4 (3)	
Child age at enrollment, Mean (SD)	4.5 (3.5)	4.8 (3.6)	4.2 (3.5)	.21
Gender, male	54.0 (122)	50.5 (56)	57.4 (66)	.30
Birth order of index child				.66
First child	35.5 (89)	36.8 (46)	34.1 (43)	
Not first child	64.5 (162)	63.2 (79)	65.9 (83)	
Highest household educational attainment				.95
Less than high school	17.5 (44)	16.8 (21)	18.3 (23)	
High school/GED	35.9 (90)	36.0 (45)	35.7 (45)	
Some college/ 2-year degree	36.3 (91)	37.6 (47)	34.9 (44)	
≥4-year college degree	10.4 (26)	9.6 (12)	11.1 (14)	
Marital Status				.46
Married	33.9 (85)	33.6 (42)	34.1 (43)	
Living with partner	32.7 (82)	29.6 (37)	35.7 (45)	
Single/Divorced	33.5 (84)	36.8 (46)	30.2 (38)	
Annual household income				.78
Under \$20,000	63.5 (158)	65.6 (82)	61.3 (76)	
\$20,000 to \$34,999	25.3 (63)	24.0 (30)	26.6 (33)	
\$35,000 or more	11.2 (28)	10.4 (13)	12.1 (15)	
Health Insurance - child				.27
Medicaid	95.2 (238)	95.2 (119)	95.2 (119)	
Private insurance	2.8 (7)	4.0 (5)	1.6 (2)	
Uninsured	2.0 (5)	0.8 (1)	3.2 (4)	
Household Primary Language				.65
English	55.4 (139)	56.8 (71)	54.0 (68)	
Spanish	44.6 (112)	43.2 (54)	46.0 (58)	
Country of Birth				.41
USA	61.8 (155)	59.2 (74)	64.3 (81)	

Other	38.3 (96)	40.8 (51)	35.7 (45)	
Years living in US, mean (SD)	15.4 (8.2)	16.3 (8.7)	14.4 (7.5)	.33
English Language Proficiency				.58
Very well	66.1 (166)	68.8 (86)	63.5 (80)	
Well	12.8 (32)	13.6 (17)	11.9 (15)	
Not well	11.2 (28)	8.8 (11)	13.5 (17)	
Not at all	10.0 (25)	8.8 (11)	11.1 (14)	
Child and Parent Health				
Child birth history				.62
Full term	93.6 (235)	94.4 (118)	92.9 (117)	
Premature	6.4 (16)	5.6 (7)	7.1 (9)	
Child has medical problems				.77
Yes	4.4 (11)	4.0 (5)	4.8 (6)	
No	95.6 (240)	96.0 (120)	95.2 (120)	
Child takes prescription medication				.79
Yes	5.2 (13)	4.8 (6)	5.6 (7)	
No	94.8 (238)	95.2 (119)	94.4 (119)	
Child overall health rating				.03
Excellent	63.0 (158)	68.0 (85)	57.9 (73)	
Very Good	26.3 (66)	19.2 (24)	33.3 (42)	
Good /Fair/Poor*	10.8 (27)	12.8 (16)	8.7 (11)	
Parent overall health rating				.60
Excellent	28.3 (71)	30.4 (38)	26.2 (33)	
Very Good	27.9 (70)	24.8 (31)	31.0 (39)	
Good	32.3 (81)	34.4 (43)	30.2 (38)	
Fair/Poor	11.6 (29)	10.4 (13)	12.7 (16)	
Depression over previous 2 years				.98
Yes	19.1 (48)	19.2 (24)	19.1 (24)	
No	80.9 (203)	80.8 (101)	81.0 (102)	
Depression over past 2 weeks				.73
Yes	20.7 (52)	21.6 (27)	19.8 (25)	
No	79.3 (199)	78.4 (98)	80.2 (101)	
Household Functioning				
Trouble paying for household expenses				.18
A lot of trouble/some trouble	49.0 (123)	44.8 (56)	53.2 (67)	
No trouble	51.0 (128)	55.2 (69)	46.8 (59)	
Trouble paying for household supplies (food, formula diapers, clothes)				.21
A lot of trouble/some trouble	39.0 (98)	35.2 (44)	42.9 (54)	
No trouble	61.0 (153)	64.8 (81)	57.1 (72)	
Help with caring for child from family members				.90
Yes	81.3 (204)	81.6 (102)	81.0 (102)	
No	18.73 (47)	18.4 (23)	19.1 (24)	

*Fair/poor category combined with Good since fair/poor has n=1

PROJECT FINAL REPORT

Table 2. 12-month Post Enrollment Results for Primary Outcome Measures (n=226)

	Control % (N) or Mean (SD)	Intervention % (N) or Mean (SD)	p-value
Utilization (% ,n)			
Well-visits up to date	75.7 (84)	74.8 (86)	.88
Sick visits			.49
2 or more	39.6 (44)	37.7 (43)	
Emergency Department Visits			.04
2 or more	21.6 (24)	10.4 (12)	
Receipt of Preventive Care Services Mean Scores (SD)			
1. Anticipatory Guidance	77.4 (24.5)	89.3 (12.9)	<.001
2. Health Information	89.6 (22.2)	96.3 (13.8)	.008
3. Psychosocial Assessment	77.9 (29.0)	94.9 (13.5)	<.001
a. Family Risks Assessment	70.9 (36.4)	93.3 (19.1)	<.001
b. Tobacco, Drug, & Alcohol Assessment	91.9 (21.9)	98.3 (11.3)	.007
Receipt of Preventive Care Services % (n)			
4. Structured Developmental Screening	81.1 (90)	92.2 (106)	.01
5. Parental D/B Concerns Addressed	73.8 (59)	90.2 (83)	.005
Experiences of Care (mean, sd)			
Family Centered Care	92.4 (13.0)	96.3 (8.2)	.008
Helpfulness of Care	82.1 (19.4)	91.3 (12.3)	<.001
Overall Rating of Care	91.7 (11.6)	94.5 (9.8)	.05

PROJECT FINAL REPORT

References

1. Bright Futures/American Academy of Pediatrics. *Recommendations for Preventive Pediatric Health Care*. Elk Grove, IL: American Academy of Pediatrics; 2008.
2. Schuster M, Duan N, Regalado M, Klein D. Anticipatory guidance: What information do parents receive? What information do they want? *Arch Pediatr Adol Med*. 2000;154:1191-1198.
3. Bethell C, Reuland CH, Halfon N, Schor EL. Measuring the quality of preventive and developmental services for young children: National estimates and patterns of clinicians' performance. *Pediatrics*. 2004;113:1973-1983.
4. Halfon N, Regalado M, Sareen H, et al. Assessing development in the pediatric office. *Pediatrics*. 2004;113:1926-1933.
5. Olson LM, Inkelas M, Halfon N, Schuster M, O'Connor KG. Overview of the content of health supervision for young children: Reports from parents and pediatricians. *Pediatrics*. 2004;113:1907-1916.
6. Leatherman S, McCarthy D. *Quality of Health Care for Children and Adolescents: A Chartbook: The Commonwealth Fund*; 2004.
7. Chung PJ, Lee TC, Morrison JL, Schuster MA. Preventive care for children in the United States: Quality and barriers. *Ann Rev Public Health*. 2006;27:491-515.
8. Rice RL, Slater CJ. An analysis of group versus individual child health supervision. *Clin Pediatr*. 1997;36:685-689.
9. Schor EL. Rethinking well-child care. *Pediatrics*. 2004;114:210-216.
10. Minkovitz CS, Hughart N, Strobino D, et al. A practice-based intervention to enhance quality of care in the first 3 years of life: The Healthy Steps for Young Children Program. *JAMA*. 2003;290:3081-3091.
11. Kilo CM, Wasson JH. Practice Redesign And The Patient-Centered Medical Home: History, Promises, And Challenges. *Health Aff (Millwood)*. 2010;29:773-778.
12. Taylor EF, Machta RM, Meyers DS, Genevro J, Peikes DN. Enhancing the Primary Care Team to Provide Redesigned Care: The Roles of Practice Facilitators and Care Managers. *The Annals of Family Medicine*. 2013;11:80-83.
13. National Center for Health Statistics. National Ambulatory Medical Care Survey: 2010 Summary Tables. National Center for Health Statistics. Available at: http://www.cdc.gov/nchs/ahcd/web_tables. Published 2010. Accessed November 1, 2013.
14. Shi L, Lebrun LA, Hung LM, Zhu J, Tsai J. US primary care delivery after the Health Center Growth Initiative: comparison of health centers, hospital outpatient departments, and physicians' offices. *J Ambul Care Manage*. 2012;35:60-74.
15. Forrest CB, Whelan EM. Primary care safety-net delivery sites in the United States: A comparison of community health centers, hospital outpatient departments, and physicians' offices. *JAMA*. 2000;284:2077-2083.
16. Mooney K, Moreno C, Chung PJ, Elijah J, Coker TR. Well-Child Care Clinical Practice Redesign: A Community Health Center's Perspective. *Journal of Primary Care and Community Health*. 2013;5:19-23.
17. Fitch K, Bernstein S, Aguilar M, et al. *The RAND/UCLA Appropriateness Method User's Manual*. Santa Monica, CA: RAND Corporation; 2001.
18. Coker TR, Windon A, Moreno C, Schuster MA, Chung PJ. Well-Child Care Clinical Practice Redesign for Young Children: A Systematic Review of Strategies and Tools. *Pediatrics*. 2013;131(S1):5-25.
19. Coker T, Casalino L, Alexander G, Lantos J. Should our well-child care system be redesigned? A national survey of pediatricians. *Pediatrics*. 2006; 118: 1852-1857.
20. Coker TR, Chung PJ, Cowgill BO, Chen L, Rodriguez MA. Low-income parents' views on the redesign of well-child care. *Pediatrics*. 2009; 124: 194- 204.
21. Coker TR, Duplessis HM, Davoudpour R, Moreno C, Rodriguez MA, Chung PJ. Well-child care practice redesign for low-income children: the perspectives of health plans, medical groups, and state agencies. *Acad Pediatr*. 2012; 12 (1): 43-52.

PROJECT FINAL REPORT

22. Coker TR, Moreno C, Shekelle PG, Schuster MA, Chung PJ. Well-child care clinical practice redesign for serving low-income children. *Pediatrics*. 2014; 134 (1): e229-e239.
23. Cohen J. *Statistical Power Analysis for the Behavioral Sciences*. New York: Lawrence Erlbaum Associates; 1988.
24. Coker TR, Thomas T, Chung PJ. Does Well-Child Care Have a Future in Pediatrics? *Pediatrics*. 2013; 131 (S1):149-159.
25. Green LV, Savin S, Lu Y. Primary Care Physician Shortages Could Be Eliminated Through Use of Teams, Nonphysicians, And Electronic Communication. *Health Aff. (Millwood)*. 2013; 32 (1);11-19.
26. Duncan PM, Pirretti A, Earls MF, et. al. Improving Delivery of Bright Futures Preventive Services at the 9- and 24- Month Well Child Visit. *Pediatrics*. 2015;135(1):e178-e186.
27. Taylor EF, Machta RM, Meyes DS, Genevro J, Peikes DN. Enhancing the Primary Care Team to Provide Redesigned Care: The Roles of Practice Facilitators and Care Managers. *The Annals of Family Medicine*. 2013;11(1):80-83.
28. Zuckerman B, Parker S, Kaplan-Sanoff M, August M, Barth MC. Healthy Steps: A case study of innovation in pediatric practice. *Pediatrics*. 2004; 114:820-826.
29. National Center for Health Statistics. *Health, United States 2011: With special feature on socioeconomic status and health*. Hyattsville, MD 2012.
30. Berry A, Brousseau D, Brotanek JM, Tomany-Korman S, Flores G. Why do parents bring children to the emergency department for nonurgent conditions? A qualitative study. *Ambul. Pediatr*. 2008;8(6):360-367.
31. Kubicek K, Liu D, Beaudin C, et al. A profile of nonurgent emergency department use in an urban pediatric hospital. *Pediatr. Emerg. Care*. 2012;28(10):997-984.
32. Gindi RM, Jones LI. reasons for emergency room use among U.S. children: Naitonal Health Interview Survey, 2012 NCHS data brief: no 160. Hyattsville, MD: National Center for Health Statistics; 2014.
33. Margolius D, Bodenheimer T. Transforming primary care: from past practice to the practice of the future. *Health Aff*. 2010;29 (5):779-784.
34. Bethell C, Reuland C, Schor E, Abrahms M, Halfon N. Rates of Parent- Centered Developmental Screening: Disparities and Links to Services Access. *Pediatrics*. 2011;128(1):146-155.
35. Bethell C, Peck C, Schor EL. Assesing health system provision of well-child care: the Promoting Healthy Development Survey. *Pediatrics*. 2001;107:1094-1094.