

Clinic-Based Financial Coaching and Missed Pediatric Preventive Care: A Randomized Trial

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abstract

OBJECTIVES: Poverty is a common root cause of poor health and disrupts medical care. Clinically embedded antipoverty programs that address financial stressors may prevent missed visits and improve show rates. This pilot study evaluated the impact of clinic-based financial coaching on adherence to recommended preventive care pediatric visits and vaccinations in the first 6 months of life.

METHODS: In this community-partnered randomized controlled trial comparing clinic-based financial coaching to usual care among low-income parent-infant dyads attending pediatric preventive care visits, we examined the impact of the longitudinal financial intervention delivered by trained coaches addressing parent-identified, strengths-based financial goals (employment, savings, public benefits enrollment, etc.). We also examined social needs screening and resource referral on rates of missed preventive care pediatric visits and vaccinations through the 6-month well-child visit.

RESULTS: Eighty-one parent-infant dyads were randomized (35 intervention, 46 control); nearly all parents were mothers and more than one-half were Latina. The rate of missed visits among those randomized to clinic-based financial coaching was half that of controls (0.46 vs 1.07 missed of 4 recommended visits; mean difference, 0.61 visits missed; $P = .01$). Intervention participants were more likely to have up-to-date immunizations each visit (relative risk, 1.26; $P = .01$) with fewer missed vaccinations by the end of the 6-month preventive care visit period (2.52 vs 3.8 missed vaccinations; $P = .002$).

CONCLUSIONS: In this pilot randomized trial, a medical-financial partnership embedding financial coaching within pediatric primary care improved low-income families' adherence to recommended visits and vaccinations. Clinic-based financial coaching may improve care continuity and quality in the medical home.



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Dr Schickedanz conceptualized and designed the study, obtained and maintained access to the data, performed the statistical analyses, drafted the initial manuscript, and approved the manuscript submitted. Dr Holguin, Ms Rhone-Collins, and Ms Robinson made integral contributions to the intervention design, critically reviewed and revised the manuscript, and approved the manuscript submitted. Lorraine Perales collected the data, critically reviewed and revised the manuscript, and approved the manuscript submitted. Drs Tehrani and Lynne Smith made integral contributions to the intervention implementation, critically reviewed and revised the manuscript, and approved the manuscript submitted. Drs Chung and Szilagyi contributed integrally to the study design, critically reviewed and revised the manuscript, and approved the manuscript submitted.

WHAT'S KNOWN ON THIS SUBJECT: The American Academy of Pediatrics recommends pediatricians address poverty and financial hardship, and medical-financial partnerships offer tools to do so in clinical practice. Whether a medical-financial partnership delivering financial coaching affects pediatric preventive care use has not been examined.

WHAT THIS STUDY ADDS: The financial coaching intervention reduced missed preventive visits by roughly half in the first 6 months of life for parent-child dyads in this pilot randomized study. Pediatric practices may increase primary care use and vaccination through medical-financial partnerships addressing poverty.

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Poverty is a key social determinant of health, and economic factors such as wealth, income, and debt have been shown to impact health, illness, and mortality.^{1,2} Financial hardship predicts worse health outcomes, especially to those exposed early in life.³⁻⁶ The American Academy of Pediatrics (AAP) recommends all families be screened for financial hardship as part of preventive health care visits,^{7,8} and medical and professional organizations have recommended that clinical care address upstream economic determinants of health.⁹⁻¹⁴

Poverty also often complicates and undermines medical management and treatment, leading to forgone care through missed clinic visits because of cost or other poverty-related access challenges.¹⁵ Financial stress can force families to focus on basic needs that may be more urgent than preventive medical care visits. When asked, many low-income parents of pediatric patients express interest in clinic-based financial services,¹⁶⁻¹⁸ suggesting unmet demand for such services and recognition of the relevance of financial well-being to their children's health. A growing literature has shown clinic-based free tax preparation is readily accepted and delivers substantial income benefits.^{16,19,20} Clinically integrated financial services could lead to improved health outcomes through reduced financial stress, greater health care visit adherence, and higher preventive health care service receipt.

Medical-financial partnerships (MFPs), defined as collaborations between health systems and financial capability services to improve health, integrate antipoverty services into clinical care.²¹ Financial coaching has grown over the past decade as a standardized, evidence-based, and strengths-based approach to helping

low-income families achieve their economic potential through client-driven pursuit of financial goals and antipoverty services to improve financial literacy, income, budgeting, savings, and credit.²² In addition to regular 1-to-1 visits with a coach in which participant financial capability goals are identified and addressed through motivational interviewing and planning, financial coaching programs also routinely connect clients with underused financial resources, including federal antipoverty programs. Financial coaching has been shown to reduce financial stress, increase income, build savings, reduce debt, and improve credit in experimental and quasi-experimental studies.²³⁻²⁵

Published pediatric preventive care visit no-show rates at clinics serving families on Medicaid are high, ranging from 25% to 50%.^{26,27} This impedes low-income families from accessing pediatric preventive care's benefits, including timely screening, anticipatory guidance, and vaccine administration. Poverty-related social needs are consistently associated with missed pediatric visits.²⁸ Few interventions substantially improve preventive care visit show rates, perhaps because they rarely address parents' competing social and economic priorities known to prevent visit attendance.²⁹⁻³¹ Tackling poverty and its consequences as root causes of visit nonadherence could lead to lower no-show rates by increasing the perceived value and relevance of the visit to the parents or by addressing poverty-related barriers to visit adherence, such as transportation problems and inability to afford time off work, or indirect barriers such as competing demands on parents' time and attention from pressing social needs like food and housing insecurity. It is unclear, however, whether addressing poverty as part of

preventive pediatric care could impact the likelihood of families and children attending pediatric care visits.

This randomized trial examined the impact of a MFP integrating financial coaching into pediatric primary care on visit adherence in the first 6 months of life, as well as consequent impact on immunizations. This study presents early findings of a multiyear pilot trial, findings that may be especially relevant to pediatric practices and low-income patients grappling with economic consequences of the COVID-19 pandemic.

METHODS

Study Setting

We conducted this randomized controlled trial of clinic-based financial coaching among low-income parents at the pediatric primary care clinic at Harbor-UCLA, an academically affiliated safety net medical center and second largest in Los Angeles County's Department of Health Services. Data for this study of early findings were collected from November 2018 to January 2020, before the COVID-19 pandemic, and participants accrued complete outcome data for this study's endpoints by January 2020.

Participants, Recruitment, and Enrollment

English- and Spanish-speaking adult parents and their infants younger than 4 months of age presenting to care for scheduled, nonacute primary care visits at the study clinic were eligible to participate. These parent-infant dyads were approached, recruited, and enrolled from clinic waiting areas or examination rooms by research staff between fall 2018 and summer 2019. Informed consent was obtained in English or Spanish by study staff who randomized participants to either intervention (clinic-based financial coaching plus

usual care) or control (usual care) arm using computer-generated simple randomization. Participants received \$20 incentive cards at enrollment and the 6-month follow-up. More than one-half of families were enrolled 1 to 4 weeks after birth, three-quarters enrolled before infants' 2-month visits, and the remainder enrolled at the 2-month visit. Usual care included standardized social needs screening forms (Supplemental Fig 4) and clinician referral to community-based resources for identified needs, as well as routine clinic visit reminder calls, text messages, and mailings. Participant well-child visit adherence and vaccinations were measured during visits after enrollment up to the 6-month preventive visit or child age 9 months, whichever came first.

This study presents early findings of a secondary outcome (preventive pediatric care visit adherence rate) from the first year of a 5-year randomized controlled trial of clinic-based financial coaching. For the broader trial, parent-reported survey outcomes are collected every six months, meaning follow-up results accumulate more slowly than the preventive pediatric visit attendance outcome, which has at least four data points per participant by the time the first parent-reported measures are collected. The visit adherence outcome is, therefore, expected to be better-powered than the primary parent-reported health measures, which have not been analyzed at this early stage of the broader study at the time of this publication.

Intervention and Control

Intervention arm parents received financial coaching services as part of their infants' well-child visits, with coaching usually taking place in examination rooms while parents waited for clinicians. Financial coaches delivering the intervention

were in social work training programs and received at least 16 hours of additional financial coaching training before working with participants under direct supervision thereafter by a licensed clinical social worker and pediatrician. The coaches received an ongoing curriculum on motivational interviewing, social determinants of health, community partnerships, integrated health care, and more. Coaches were paired with intervention participants at enrollment and followed up with them in-person during periodicity schedule preventive care clinic visits and remotely throughout the study period at least monthly (often more depending on parent need/interest).

The intervention was developed based on the well-established financial coaching model that has grown widely in the financial services field but has not been applied in health care.^{32,33} The approach was specifically modeled after that implemented by LIFT, a national financial coaching organization and the study's community partner agency. The intervention's clinical integration feasibility, model fidelity, and acceptability were confirmed through workflow time motion analyses, participant focus groups, and clinic-wide surveys indicating high demand for clinic-based financial services (Bell O, Wu O, Perales L, et al., unpublished data). Consistent with prior literature, we confirmed underuse of public benefits, such as supplemental nutrition assistance and utilities discounts, among clinic families, despite universal eligibility by virtue of their Medicaid enrollment (A.S., L.P., and M.H., unpublished data).

The financial coaching model prioritizes longitudinal client-coach relationships as the foundation for trust and motivation toward client financial behavior change in alignment with client-directed

financial goals, strengths, and needs. The study financial coaching intervention consisted of interrelated components furthering parent financial goal plans to address areas of greatest financial potential jointly determined by participant and coach. Goals and action plans were developed through motivational interviewing and shared decision-making with coaches at each visit. Coaching also included assessment of income (including public benefits eligibility/receipt), savings, credit, debt, and taxes, as well as expense reduction opportunities through household budgets. Coaches identified parent strengths and navigated participants to and through cost-saving services and public benefits, such as affordable child care, transportation and utilities discounts, nutrition assistance, and free tax preparation to access child tax credits. Financial coaching encounters in clinic lasted approximately 20 to 40 minutes (often before/after primary pediatricians met with the families), and parents were provided written referral materials and diapers when requested. Parents communicated with their coaches between visits via phone and text-based messaging at least monthly to advance financial goals.

The control group received usual clinical care. Usual care included telephonic clinic visit reminder calls from clinic staff 1 to 2 days in advance (with voicemails left and 3 call attempts if calls were unanswered), a text message visit reminder from the health system roughly 3 days before the appointment, a mailed postcard visit reminder, and paper-based social needs screenings at each preventive visit (the same reminders and social needs screenings received by the intervention group) as part of a universal clinic protocol. Screens were reviewed by pediatricians

and nurse practitioners providing external resource referrals (most commonly for acute material hardships); those with positive screens were instructed to take resource sheets available in every clinic examination room. These referrals did not include financial coaching, however.

Outcomes and Data Collection

The primary outcome of missed preventive care pediatric visits was measured as the rate of attendance at recommended 1-, 2-, 4-, and 6-month visits per the AAP Periodicity Schedule (ie, number of visits attended out of number recommended, at each Periodicity Schedule interval and overall through the 6-month visit period). Data regarding preventive pediatric visits at the study clinic site were available from the electronic health record for all participants. Appointments were considered missed if they were not attended and the child aged into the window at which a subsequent visit was recommended (eg, a child would be marked as having missed a 6-month preventive visit if he or she did not attend a primary care visit after 6 months of age and the child turned 9 months old, and he or she did not have an early preventive care visit before 6 months to administer 6-month vaccines). Visits were included in outcome analyses if they occurred after the time of enrollment and before the end of the 6-month visit period in the Periodicity Schedule, regardless of follow-up time elapsed.

Because children who miss preventive pediatric visits early in life (especially at 2, 4, and 6 months, when AAP recommends primary series poliovirus, diphtheria and pertussis, rotavirus, hepatitis B, and *Haemophilus influenzae* vaccinations) would be expected to also miss needed vaccinations; this would

have a large impact on health in its own right. Post hoc, we explored the number of missed vaccine doses to capture the impact of missed visits. The vaccination outcome was assessed (1) based on the total count of incomplete recommended vaccinations at the end of the child's eighth month of life and (2) as a binary indicator of whether the child was up to date on vaccinations at the end of each recommended preventive visit child age window according to the harmonized Centers for Disease Control Advisory Committee on Immunization Practices and AAP schedules.³⁴ Vaccinations were verified through electronic health record data from the California Immunization Registry, allowing us to measure vaccinations given anywhere in California.

Other measures collected at baseline and follow-up included child age, parent sex, household size, employment, race/ethnicity, language, income, savings, and debt.

Statistical Analyses

We used *t* tests and tests of proportions to compare participant baseline characteristics. To assess missed-visit and vaccine outcomes, we examined zero-inflated negative binomial regression models for these zero-inflated and overdispersed count outcomes (Stata, *zinb*), and incidence rate ratios were estimated using an exposure variable of the number of preventive pediatric care visits recommended in the AAP Periodicity Schedule after participant enrollment through the end of the 6-month preventive visit period. Differences in rates and counts between intervention and control groups were assessed via postestimation (Stata, *margins*). Longitudinal generalized estimating equation regression models interacting the study arm variable

with a follow-up time period variable for each visit were used to estimate the difference in rates attending 1-, 2-, 4-, and 6-month well-child visits, as well as differences in rates of vaccination completion and counts of vaccines missed. All models used intent-to-treat analytic frames and 2-sided alphas, using Stata 14 (StataCorp, College Station, TX).

The study was approved by UCLA and Harbor-UCLA/Lundquist Research Institute institutional review boards and registered on ClinicalTrials.gov (NCT03736590; <https://clinicaltrials.gov/ct2/show/NCT03736590>).

RESULTS

Eighty-one parent participants were randomized to receive financial coaching plus social needs screening and referral (intervention, *N* = 35) or usual care (including social needs screening and referral but no financial coaching; control, *N* = 46; Fig 1). The intervention and control groups had similar characteristics (Table 1). At baseline, parent participants were mostly female, half were Latina, just over half were employed or pursuing educational programs, a majority were English-speaking, and their average income was just above the federal poverty level for a family of 4.

On average, the intervention participants identified 3.8 (SD ± 2.1) financial goals and made progress on or completed 3.2 (SD ± 2.1) during the study period. The most common goals were finding child care, full-time employment, and/or enrolling in public benefits. Intervention participants significantly increased average monthly household income 6 months after enrollment compared with their baseline income (change of \$1761; 95% confidence interval [CI],

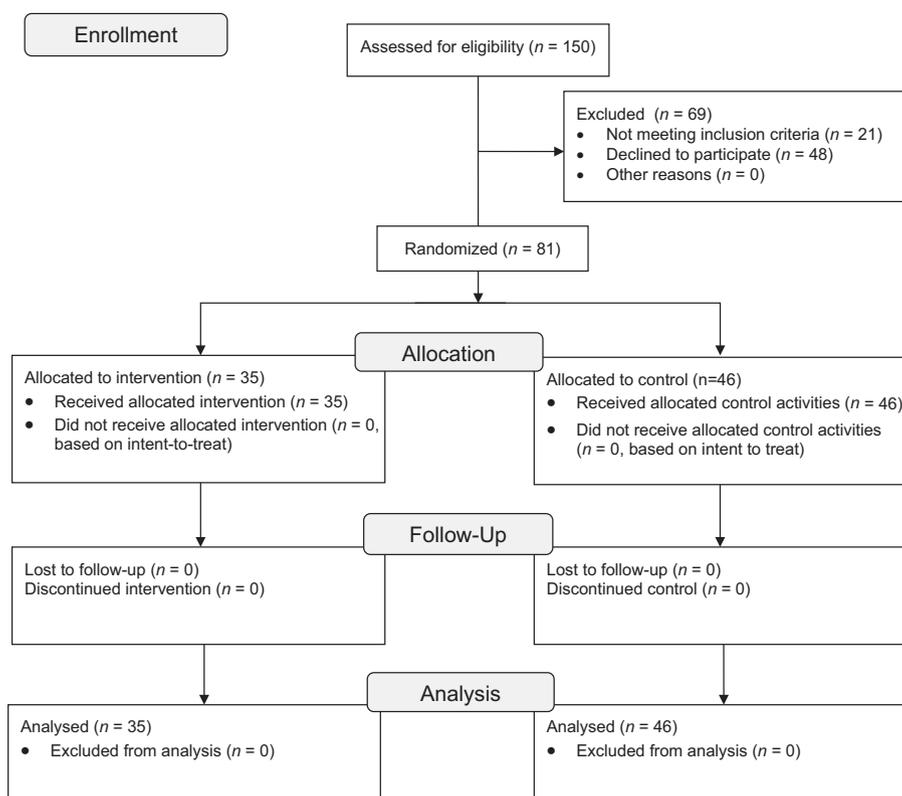


FIGURE 1
CONSORT flow diagram.

\$457–\$3065) and their increase in monthly income was \$876 (95% CI, –\$717 to \$2469) greater than control participants. Average savings increased by \$842 (95% CI, –\$640 to 2325) among intervention participants by 6 months, with a relative change of \$1504 (95% CI, –\$873 to \$3882) compared with controls.

Missed Preventive Care Visits

In the primary intent-to-treat analyses, financial coaching parents missed 0.61 (95% CI, 0.16–1.05) fewer preventive pediatric visits relative to control parents in the

time period from the 1-month visit to the 6-month visit recommended by the AAP Periodicity Schedule (0.46 vs 1.07 visits missed; $P = .01$). A similar gap in mean number of missed visits was observed between the groups when the outcome was limited to the 2-, 4-, and 6-month visits at which primary immunization series are administered (0.48 visits; 95% CI, 0.04–0.91; $P = .03$). The likelihood of attending each preventive care visit between 1 and 8 months of age was more than 20% higher for financial coaching parents relative to the control group (relative

rate, 1.28; 95% CI, 1.06–1.54; $P = .009$). The effect was strongest at the 2 and 4-month visits (Fig 2).

Immunizations

On average, control group children had missed or delayed 1.45 (95% CI, 0.48–2.42) more recommended vaccinations at the study site clinic than those of parents in the intervention group through the 6-month well-child visit period (2.52 vaccines versus 3.98; $P = .002$). For each well-child visit period, parent-child dyads receiving financial coaching were more than 25%

TABLE 1 Participant Characteristics at Baseline

| Characteristics | Intervention (n = 35) | Control (n = 46) | P for difference |
|---|-----------------------|------------------|--------------------------------|
| Married/domestic partner | 42.8% (15) | 41.3% (19) | All comparisons nonsignificant |
| Female | 93.9% (33) | 93.3% (43) | |
| Latinx | 48.5% (17) | 52.2% (24) | |
| Primary language English | 66.7% (23) | 56.5% (26) | |
| High school education or less | 51.5% (18) | 54.3% (25) | |
| Employment income/y (if any, in thousands of dollars) | \$24.7 (SD \$15.0) | \$27.0 (\$15.0) | |
| Household employment/training | 63.6% (22) | 52.2% (24) | |

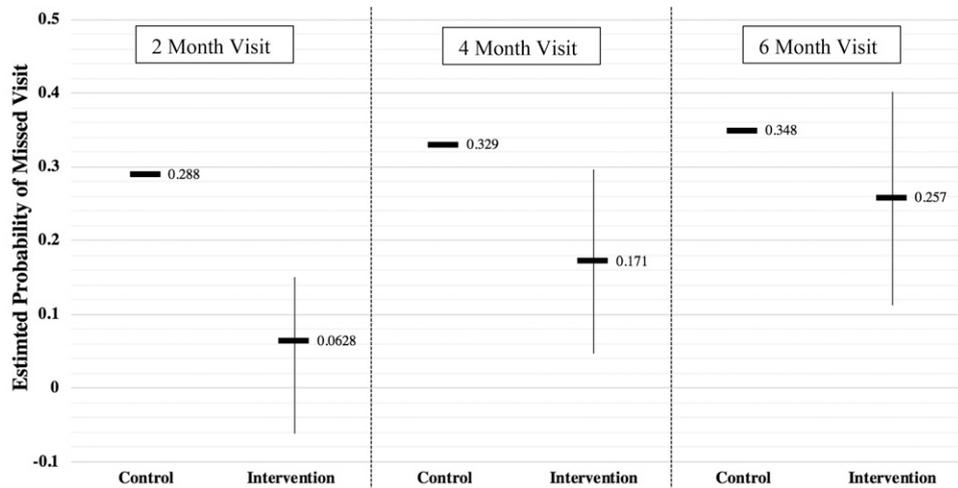


FIGURE 2

Estimated probability of missed 2-, 4-, and 6-month preventive pediatric care visits, medical-financial partnership intervention versus comparison.

more likely to be up to date on recommended child vaccines (relative rate, 1.26; 95% CI, 1.05–1.51; $P = .01$).

Children in financial coaching families had higher rate of completion of all vaccines for any given visit overall and greater average number of vaccines received at each visit compared with controls (Fig 3), with an average difference of 0.8 vaccinations received per visit at 2-, 4-, and 6-month visits (95% CI, 0.4–1.21; $P < .001$). Intervention children remained more likely to have

received recommended vaccines even when accounting for vaccinations administered California-wide according to the California Immunization Registry (average difference in vaccines missed 0.5 per visit; 95% CI, 0.26–0.73; $P < .001$).

DISCUSSION

In this randomized trial, we found clinically integrated financial coaching led to lower rates of missed preventive pediatric visits and fewer missed immunizations through 6 months of child age

among low-income parent-child dyads. The effects were sizable at a difference of approximately half a visit of the 4 recommended between the child age of the 1- and 6-month visit window. Our findings suggest clinic-based financial services through MFPs can influence primary care use and vaccinations.

Missed appointments are a persistent, costly, and health care-disrupting problem for primary pediatrics clinics serving low-income families expected to benefit most from MFPs, with no-show rates reaching 50% in some studies.^{28,35}

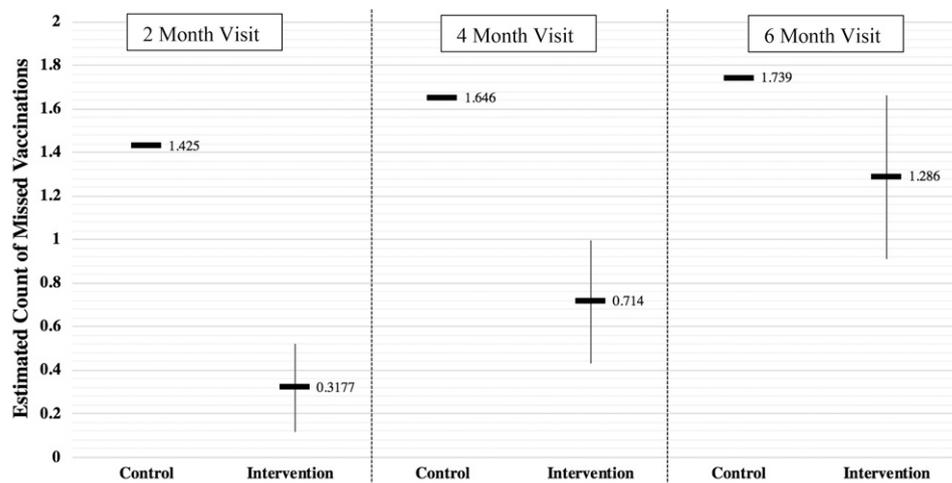


FIGURE 3

Estimates of counts of missed 2-, 4-, and 6-month vaccinations at study site clinic, medical-financial partnership intervention versus comparison.

Poverty-related social needs and other measures of financial hardship are among the most consistent predictors of no-shows,^{29,36} yet interventions to increase visit attendance have tended not to focus on underlying financial needs of families.^{37,38} Our study suggests that addressing financial goals and needs can improve preventive visit care adherence and vaccinations. This may partially offset resource costs to clinics of MFP programs, in addition to optimizing the host of health, developmental, and psychosocial benefits of preventive pediatric care.³⁹⁻⁴¹

This study was not designed to determine mechanisms by which MFPs affect visit attendance, though it highlights possibilities. Although financial coaches in our study communicated with participants between clinic visits (like many health care team members), those communications focused on financial stressors and parent-centered goal progress, not clinic visit adherence or reminders. In fact, the coaches were trained specifically to take the long view of building supportive, trusting, nonjudgmental relationships with parents rather than to attempt thwarting no-shows, which were accepted as normal deprioritizations of visits by parents juggling family, work, financial, and social responsibilities. Much of the financial coaches' work focused on supporting parent financial capabilities and strengths while addressing parent-identified economic hardships known to create

barriers to visit attendance, perhaps preventing those barriers from occurring or persisting. Therefore, the MFP may have created greater trust in the health care team by virtue of the coaching approach and new motivation to attend clinic visits by offering clinic-based resources of interest to parents aligned with their self-identified financial goals.⁴² This may have led to "spillover" effects on visit adherence. Future studies should explore these potential mechanisms.

Limitations

Limitations of our study are its small size at a single site. There was no feasible way to blind participants or clinic staff, and we cannot rule out unmeasured collateral intervention effects spreading through clinic staff to controls. We did not access information on whether parents declined vaccines, which is uncommon in this clinic. There was no difference in attrition between study arms. Impacts driven by individual coaches or program practices may account for client successes that might not persist in future implementations.

CONCLUSION

Clinically integrated financial coaching through an MFP increased adherence to preventive pediatric care visits and vaccination in low-income parent-child dyads. This suggests a dual benefit of such programs to patients and clinics alike, which may incentivize health system implementation despite the

new personnel and service integration required. The impact of this pilot intervention appeared strongest at the earliest preventive care visits, which might suggest an optimal intervention duration or window for implementation. Future studies should evaluate mechanisms and effects of such programs over the medium to long run, including child health impacts, which may be driven by increased visit adherence and vaccinations as well as increased family financial security.

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ABBREVIATIONS

AAP: American Academy of Pediatrics
CI: confidence interval
MFP: medical-financial partnership

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Deidentified individual participant data will be made available. The data will be made available on publication to researchers who provide a methodologically and ethically sound proposal for use in achieving the goals of the institutional review board–approved proposal. Proposals should be submitted to aschickedanz@mednet.ucla.edu.

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