Integrating social needs screening and community health workers in primary care: the Community Linkage to Care Program

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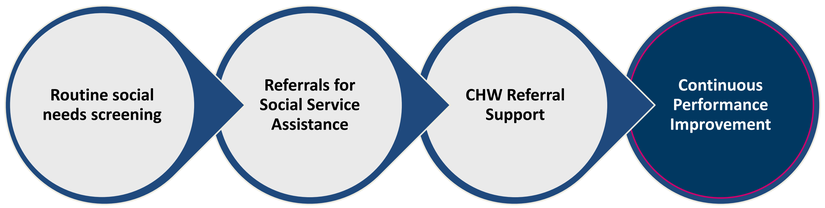
BACKGROUND

- In the United States, 1 in 5 children live in poverty including 47% of children in the South Bronx.
- Social Determinants of Health (SDH) influence asthma, obesity, infant mortality, and developmental outcomes in children. Screening for social needs has been associated with increased access to services and improved health outcomes.
- Community Health Workers (CHWs) are uniquely positioned to provide a link from clinical care to community resources and serve a role in mitigating social needs.
- The Community Linkage to Care (CLC) program aims to integrate social needs screening and outreach using CHWs (figure 1).

Figure 1: Community Linkage to Care Program Simplified Process Map
(CHW= Community Health Worker)



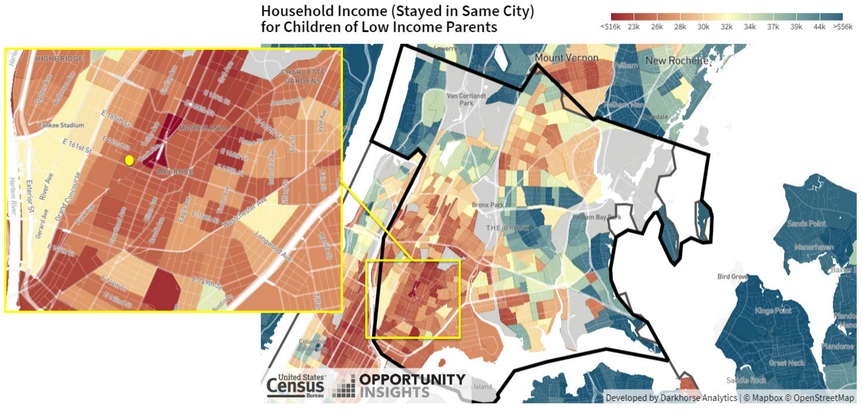
OBJECTIVE

- To assess the Community Linkage to Care (CLC) pilot program's effect on connecting families with unmet social needs to services via CHWs.

METHODS

Setting: Urban ambulatory clinic located in the Bronx (figure 2).
Design: A multidisciplinary team performed process mapping, developed clinical workflow and led iterative analyses. Using a pragmatic study design in a pediatric primary care practice, we utilized prospectively collected social needs screening data from a 10-item standardized instrument and patient demographics. The primary outcome, *referral status*, was defined as "successful" when a family accessed, obtained or utilized a recommended service. Bivariate analysis and logistic regression models were used to identify factors associated with the primary outcome.

Figure 2: Household Income data of Children in Bronx County, New York from *The Opportunity Atlas*
(map insert: ambulatory clinic location indicated by yellow dot)



RESULTS

- Key elements of the CLC program established through an iterative process included: *SDH Screening, Referral Protocol, CHW Accompaniment, Administrative Liaison(s), Provider Champion(s)* and *Performance Improvement*.
- From December 2017-18, 4,948 families were screened for social needs during routine well child visits, representing 72% of eligible visits, and resulting in 984 screens with 1 or more positive social needs (figure 3).
- At the end of the 12-month period, 43% of referrals were defined as "successful".
- Sex, age, race, ethnicity, preferred language and category of social need were not significantly associated (p-values > 0.05) with primary outcome, *referral status*, in either bivariate analysis or multivariate models.
- Greater than 4 CHW outreach encounters [adjusted Odds Ratio(aOR) 1.92; 95% CI 1.06-3.49] and follow-up time greater than 30 days [aOR 0.43; 95% CI 0.25-0.73] had statistically significant association with "successful" *referral status* outcome (figure 4).

Table 1: Descriptive Summary of Referrals from December 1, 2017 to November 30, 2018

Caregivers Requesting CHW Assistance for social needs	287
Outreach attempts between CHW & Caregiver, total [median, range]	856 [3, 1-13]
Initial Encounter Method	
In-person (warm hand-off)	18 (6)
Phone	269 (94)
Follow-up Time* median [25th-75th IQR], days	46 [25-67]
SDH Needs Identified by Caregiver	
Total no. social need categories, [range]	511 [1 – 6]
1	166 (61)
2-3	97 (32)
≥4	24 (7)
Housing	202 (40)
Benefits (Public Assistance)	96 (19)
Food Insecurity	78 (15)
Childcare Assistance	48 (9)
Legal	34 (7)
Transportation	22 (4)
Utilities	21 (4)
Employment Services	10 (2)

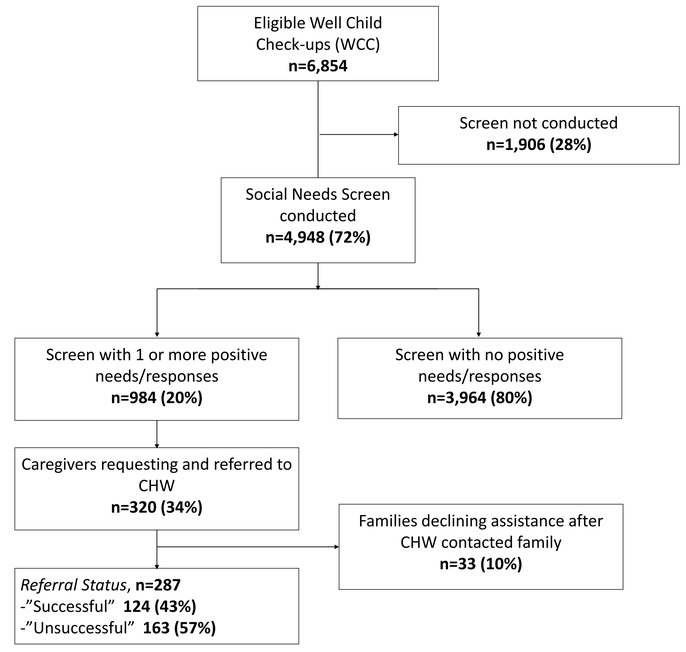
Abbreviations: no.=total number, *All data presented as n (%) unless otherwise indicated.*
*Follow-up time define as time between initial encounter with caregiver with CHW to time at which referral closed by CHW.

Figure 4: Correlates of "successful" referral (n=287)

	Successful n (%)	Unsuccessful n (%)	Unadjusted Analyses Odds Ratio	Unadjusted Analyses 95% CI	Adjusted Analyses [I] Odds Ratio	Adjusted Analyses [I] 95% CI
Total	124 (43)	163 (57)				
Child Sex						
Male	66 (46)	77 (54)	ref.			
Female	58 (40)	86 (60)	0.77	0.49 -1.26		
Child Age						
< 4 years	50 (48)	55(52)	ref.		ref.	
≥4 years	74 (41)	108(59)	0.75	0.46 - 1.22	0.72	0.44 - 1.19
Preferred Spoken Language						
English	88 (40)	131 (60)	ref.		ref.	
Spanish	34 (53)	30 (47)	1.69	0.96 -2.95	1.68	0.94 - 2.99
Outreach attempts, no.						
1-3	91 (41)	132 (59)	ref.		**ref.**	
≥4	33 (52)	31 (48)	1.5	0.88 - 2.70	**1.92**	**1.06 - 3.49**
Follow-up Time, days						
<30	49 (54)	41 (46)	ref.		**ref.**	
≥30	75 (38)	122 (62)	0.51	0.31 - 0.85	**0.43**	**0.25 - 0.73**
Initial Encounter Method, no.						
In-person (warm hand-off)	9 (50)	9 (50)	ref.			
Phone	115 (43)	154 (57)	0.75	0.29 - 1.94		
Social Needs Identified, no.						
1	73 (44)	93 (56)	ref			
2-3	40 (41)	57 (59)	0.89	0.54 - 1.50		
≥4	11 (46)	13 (54)	1.08	0.46– 2.54		

Abbreviations: no.=total number, CI=confidence interval, ref.= reference group [I] Model adjusts for child age, preferred spoken language, outreach attempts, and follow-up time, included based on backward stepwise regression

Figure 3: Flow Diagram for Community Linkage to Care Program from December 1, 2017 to November 30, 2018.



DISCUSSION

- CLC Program pilot implementation was feasible in "real world" ambulatory setting with approximately 72% of families screened for social needs during eligible visits.
- Less than half (43%) of families reported "successful referrals" suggesting mixed effectiveness and opportunities for improvement, though this approximated range of outcome data reported in literature (32-63%).
- Patient demographics were not observed to be significantly associated with referral outcomes.
- Multivariate analyses highlighted important programmatic considerations in terms of maximizing outreach attempts within short period following referral (<30 days).
- Next steps include improving CHW accompaniment strategies like increasing in-person handoffs and communication via mobile phone applications.