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Connecting Refugees to Medical Homes Through Multi-Sector Collaboration

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Abstract

As increasing numbers of refugees have resettled globally, an interdisciplinary group of stakeholders in Forsyth, North Carolina, recognized obstacles preventing coordinated medical care, which inspired the development of our Refugee Health Collaborative. This study assessed the Collaborative's impact on access to coordinated care within patient-centered medical homes (PCMH). A Collaborative-developed novel algorithm guided the process by which refugees establish care in PCMHs. All refugees who established medical care in the two primary health systems in our county (n=285) were included. Logistic non-linear mixed models were used to estimate the differences between three time frames: pre-algorithm, algorithm implementation and refinement, and ongoing algorithm implementation. After algorithm implementation, there has been a significant decrease in the time required to establish care in PCMHs, increased provider acknowledgment of refugee status, and decreased emergency department (ED) visits. Multi-disciplinary, organized collaboration can facilitate enhanced access to care for refugee families at the population level.

Keywords

refugee; immigrant; medical home; community partnership; cross-sector collaboration; access to care

Introduction

As the number of refugees has increased worldwide, the resettlement process has become exceedingly complex. Often facing harrowing, traumatic conditions in their countries of origin, during their journeys, and upon resettlement, refugees are at risk for psychological distress, infectious diseases, obesity, and other chronic conditions.^{1–4} The Centers for Disease Control and Prevention (CDC) recommends that refugees receive a domestic

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medical examination within 30 to 90 days of U.S. arrival.⁵ Connecting refugees to patient-centered medical homes (PCMH) for the domestic examination or immediately thereafter can facilitate continuous, comprehensive, family-centered, and culturally effective care.⁶

Given the complexity of the US healthcare system, refugees may face barriers that include language and cultural differences, mistrust, lack of transportation, other logistical challenges, and limited health literacy.⁷ Although limited research has examined interdisciplinary models that promote the establishment of PCMH for refugees in the US,^{8,9} 89% of medical providers caring for refugees are interested in collaboration to enhance access to care for refugee families.¹⁰

As refugees were increasingly welcomed into Forsyth County, medical providers and public health professionals observed a lack of local infrastructure to facilitate access to high quality healthcare. An interdisciplinary group of fifteen stakeholders, including pediatric and family medicine providers, representatives from the local Refugee Resettlement Agency (RRA) and the department of public health (DPH), and the state refugee health coordinator, co-founded the Forsyth County Refugee Health Collaborative in January 2015 (Figure 1). Prior to formation of the Collaborative, there was no coordinated process to connect refugee patients to healthcare.

The Collaborative developed an algorithm to streamline the process by which refugee care is coordinated (Figure 2), raised community awareness regarding the complex needs of refugees, and recruited providers to help address these needs. As depicted, prior to arrival in the US, refugees undergo an overseas medical examination. The local RRA receives these results and is responsible for several concurrent actions: scheduling appointments for refugees for additional screenings (e.g. TB, Hepatitis B, and lead) with a DPH nurse, recommending a specific PCMH to the Department of Social Services (DSS) for Medicaid assignment, and establishing initial office visits with PCMH providers within 30 days of refugees' arrivals. The DPH shares records from the nurse visit and overseas with the PCMH.

The aim of this study was to assess the impact of the Collaborative's algorithm on timely establishment of care in a PCMH, communication between DPH and PCMH prior to the initial office visit, provider awareness of refugee status, and number of visits to the emergency department (ED).

Methods

After obtaining institutional IRB approval, a list of all refugees who resettled in Forsyth County from July 2014 to June 2017 (n=335) was obtained from the RRA. Data was pulled from a comprehensive electronic medical record (EMR) chart review on all refugees who had established medical care in the county's two primary healthcare systems (n=285), through which most local primary care and all county emergency room visits were discernible. The remaining refugees (n=50) were excluded from the study, as they had likely either relocated from Forsyth County or received care from a private provider outside of the two systems. The number of refugees excluded was proportional to those resettled in each

year, with similar demographics represented in the exclusion group (Table 1). There were a total of 20 unique countries represented among the 285 participants in the study, including 41% from Syria, 17% from the Democratic Republic of Congo, 7% from Chad, and 5% from Iraq (Table 1).

Data was separated into adults (n=130) and children under 18 (n=155) and again into three time frames: July 2014 – June 2015, pre- algorithm; July 2015 – June 2016, algorithm implementation and refinement; and July 2016 – June 2017, ongoing algorithm implementation. Data was abstracted from each participant's EMR and entered into an excel file. Measures included the number of days between a refugee's arrival into the U.S. and establishment of care in a PCMH, receipt of the patient's overseas medical records by the PCMH from the DPH prior to initial office visits, provider acknowledgment of the patient's refugee status in the EMR, and the number of ED visits.

Single variable logistic non-linear mixed models were used to estimate the differences between time frames; pairwise differences and 95% confidence interval for each comparison were calculated, with significance assumed if $p < 0.05$. No correction for multiple testing was applied to outcomes, as those selected for analysis were related and were used to evaluate consistency across findings. All analyses were performed using SAS, version 9.4 (Cary, NC, US).

Results

The number of refugees resettled more than doubled between the pre-algorithm year and the algorithm implementation and refinement years. Correspondingly, the average time it took refugees to establish care increased between these first two study years (Table 2). However, there was a substantial decrease in the time to establish care in a PCMH for adults and children (Table 2). The combined mean is a 37.5% reduction from the algorithm implementation and refinement period to the ongoing algorithm implementation period.

Table 3 depicts outcomes regarding provider acknowledgement of refugee status, number of ED visits, and PCMH receipt of overseas records from DPH prior to initial office visits. Most notable is the marked decrease in the number of ED visits from the pre-algorithm period to the ongoing algorithm implementation period. The ED visit rate during the ongoing algorithm implementation time frame is less than half than the pre-algorithm period.

Discussion

Given the competing priorities and complex needs of recently arrived refugee families, implementing recommended standards of care can be challenging, yet remains of critical importance to the health of this vulnerable population. These results suggest that multi-disciplinary efforts can facilitate enhanced access to timely care for refugee families. As providers are more aware of refugee status and the RRA builds relationships with medical providers, complex medical issues can be more carefully and promptly considered and assessed. For example, when RRA representatives recognize pending resettlement of an individual with a medical complexity (e.g., infectious diseases, insulin-dependent diabetes

mellitus, and hereditary neurologic conditions), they work with fellow Collaborative members prior to refugee arrival in the USA to establish urgent care upon arrival, preventing unnecessary ED visits. Enhanced communication has also generated program development. For instance, the RRA secured funding for and hired a mental health provider, and medical providers in the Collaborative have subsequently referred families for mental health services at the RRA.

There are several limitations to this study. The single study site may limit generalizability, particularly given state-to-state variability in the resettlement process. Additionally, several refugees who were resettled in Forsyth County were excluded from the analysis due to lack of available EMR data. This may reflect bias towards families who had established care in the primary health systems and thus were more likely to attend appointments. Although ED visit data was pulled directly from the primary EMR systems that encompass the only emergency rooms in Forsyth County, the data does not reflect ED visits outside of Forsyth county or visits to privately-owned urgent care centers. Finally, external factors may have negatively impacted utilization of medical care as well as documentation of refugee status in the EMR, specifically establishment of Executive Orders and subsequent court decisions in 2017 limiting refugee resettlement, excluding travel from Muslim-majority countries, and increasing immigration enforcement. These policies and the subsequent public discourse may have impeded access to health care during the ongoing algorithm implementation phase in the setting of fear and uncertainty for populations threatened by public discourse.

The strength of this Collaborative is grounded in building ongoing trust across multidisciplinary partners, enhancing communication between healthcare service providers, optimizing access to community resources, and facilitating education of providers and families. Next steps for the Collaborative emphasize ongoing challenges, including structural barriers to information exchange, family no-show rates for follow-up appointments, limited care coordination after RRA support services wane, and limited health literacy. In response, the Collaborative's clinical care subcommittee is developing a system to consolidate and transfer information coming from overseas records, the DPH, and medical practices into a single record. In an effort to continue to monitor health outcomes over time, a registry was created within our health system's EMR to enable the Collaborative to further address the healthcare needs of this vulnerable population. The education subcommittee is supporting a partnership between with the YMCA and the local mosque to implement a health literacy curriculum for families. Regarding care coordination, the RRA is expanding the capacity of Good Neighbor Teams (GNT), volunteers who assist with ongoing medical needs, including coordination of appointments, beyond the duration of RRA support.

Conclusions

As refugee families resettle into communities, they typically face competing priorities and intricate needs that can impede access to quality healthcare. Organized, cross-sector collaboration, grounded in trusting relationships between stakeholders, can enhance access to and utilization of care for refugee families at the population level. Many of the processes implemented and lessons learned by our collaborative may be adapted and modified to support health of refugees in other communities.

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Figure 1.
Development Process and Aims of the Forsyth County Refugee Health Collaborative

Figure 2.
Healthcare Coordination Algorithm

Table 1.

Participant Demographics

Group	Country of Origin	Number of participants	% of total
Inclusion Group (n = 285) *	Syria	117	41
	Democratic Republic of Congo	48	17
	Chad	21	7
	Burma	18	6
	Iraq	16	6
	Eritrea	15	5
	Somalia	12	4
	Bhutan	9	3
	Ethiopia	9	3
	Pakistan	5	< 1
	South Africa	4	< 1
	Cambodia	2	< 1
	Iran	2	< 1
	Thailand	2	< 1
	Cuba	1	< 1
	El Salvador	1	< 1
	Kenya	1	< 1
	Uganda	1	< 1
	Vietnam	1	< 1
	Yemen	1	< 1
Exclusion Group (n = 50) **	Bhutan	9	18
	Burma	9	18
	Iran	8	16
	Democratic Republic of Congo	7	14
	Syria	6	12
	Ethiopia	3	6
	Somalia	3	6
	Cuba	2	4
	Iraq	2	4
	Turkey	1	2

* The average age at time of arrival was 22 years of age, with 139 females and 146 males.

** The average age at time of arrival was 25 years of age, with 18 females and 32 males.

Table 2.

Days to Establish Care in PCMHs Among Refugees in Forsyth County *

Group	Year	N =	Mean (SD) **	Comparison ***	Mean Difference	95% CI	p-value
Children	1	32	72 (56)	Year 1 vs 2	6	(-16, 28)	0.60
	2	68	78 (56)	Year 1 vs 3	-22	(-45, 1)	0.056
	3	55	49 (46)	Year 2 vs 3	-28	(-47, -10)	0.003
Adults	1	18	85 (81)	Year 1 vs 2	31	(-16, 78)	0.20
	2	58	116 (112)	Year 1 vs 3	-15	(-63, 33)	0.53
	3	54	70 (57)	Year 2 vs 3	-46	(-79, -13)	0.007
Both	1	50	77 (66)	Year 1 vs 2	19	(5, 43)	0.12
	2	126	96 (88)	Year 1 vs 3	-17	(-41, 7)	0.17
	3	109	60 (53)	Year 2 vs 3	-36	(-55, -17)	0.0002

Year 1 = pre-algorithm, July 2014 – June 2015; Year 2 = algorithm implementation and refinement, July 2015 – June 2016; Year 3 = ongoing algorithm implementation, July 2016 – June 2017

* Results determined by linear regression

** Number of days

*** Earlier time minus later time

Table 3.

Provider Refugee Status Acknowledgement, Communication Between DPH and PCMH, and Number of ED Visits Among Refugees in Forsyth County, NC*

Group	Measure	Year	N (%)	Comparison**	% Difference	95% CI	p-value
Children	Refugee status acknowledged	1	94	Year 1 vs 2	0.3	(-9.9, 10.5)	0.96
		2	94	Year 1 vs 3	-19.2	(-33.6, -4.8)	0.009
		3	75	Year 2 vs 3	-19.5	(-32.4, -6.5)	0.003
	Prior communication with DPH	1	78	Year 1 vs 2	-3.1	(-20.9, 14.7)	0.73
		2	75	Year 1 vs 3	5.5	(-12.0, 23.0)	0.53
		3	84	Year 2 vs 3	8.6	(-5.7, 22.9)	0.23
	ED visits	1	41	Year 1 vs 2	-12.3	(-32.6, 8.0)	0.23
		2	28	Year 1 vs 3	-24.3	(-44.0, -4.5)	0.017
		3	16	Year 2 vs 3	-12.0	(-26.7, 2.7)	0.11
Adults	Refugee status acknowledged	1	56	Year 1 vs 2	26.9	(1.7, 52.1)	0.037
		2	82	Year 1 vs 3	11.1	(-15.3, 37.5)	0.41
		3	67	Year 2 vs 3	-15.8	(-15.8, 0.3)	0.055
	Prior communication with DPH	1	50	Year 1 vs 2	-7.9	(-34.6, 18.8)	0.56
		2	42	Year 1 vs 3	0.9	(-26.1, 27.9)	0.95
		3	51	Year 2 vs 3	8.8	(-9.9, 27.6)	0.35
	ED visits	1	39	Year 1 vs 2	0.7	(-25.3, 26.8)	0.95
		2	40	Year 1 vs 3	-18.5	(-43.7, 6.7)	0.15
		3	20	Year 2 vs 3	-19.3	(-36.0, -2.6)	0.024
Both	Refugee status acknowledged	1	80	Year 1 vs 2	8.7	(-3.8, 21.2)	0.17
		2	89	Year 1 vs 3	-9.4	(-23.4, 4.7)	0.19
		3	71	Year 2 vs 3	-18.1	(-28.3, -7.8)	0.0006
	Prior communication with DPH	1	68	Year 1 vs 2	-8.0	(-23.6, 7.6)	0.31
		2	60	Year 1 vs 3	-0.4	(-16.1, 15.3)	0.96
		3	68	Year 2 vs 3	7.6	(-4.8, 20.0)	0.23
	ED visits	1	40	Year 1 vs 2	-6.4	(-22.4, 9.6)	0.43
		2	34	Year 1 vs 3	-21.7	(-37.1, -6.2)	0.006
		3	18	Year 2 vs 3	-15.3	(-26.3, -4.2)	0.007

Year 1 = pre-algorithm, July 2014 – June 2015; Year 2 = algorithm implementation and refinement, July 2015 – June 2016; Year 3 = ongoing algorithm implementation, July 2016 – June 2017

* Results determined by linear regression

** Earlier time minus later time