

Review Article

The Patient-Centered Medical Home for Refugee Children in Rhode Island

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Purpose. To describe a “medical home” for pediatric refugees and its ability to provide culturally competent care, to partner with and train medical interpreters, and to improve health screening and follow-up adherence rates of pediatric refugees immigrating to Rhode Island. *Methods.* A retrospective chart review of refugees was performed. Background information, initial laboratory data, whether patients completed the recommended follow-ups scheduled at 1, 3, 6, and 12 months, and completion of tuberculosis treatment were recorded. *Results.* Since its initiation, 104 refugee children have attended the clinic ranging in age from 5 months to 18 years. Since the initiation of the medical home for refugee children in 2007, initial screening rates have gone up to 99-100% compared to a low of 41% in 2003–2006 prior to the establishment of the medical home. There was a 43% reduction in missed appointments in 15-month follow-up. *Conclusion.* The refugee “medical home” allows refugees to benefit from a comprehensive system for disease detection and ongoing primary health care.

1. Introduction

In 2010, 25,373 refugees under 18 years of age arrived in the United States (US), making up 35% of admitted refugees [1]. Refugees undergo medical screening overseas that focuses on medical eligibility for the US Refugee Program. After arrival to the USA, the Office of Refugee Resettlement requires refugees to receive a comprehensive physical exam within 30–60 days.

Refugee children arriving to the USA typically present with high rates of health problems that differ drastically from those seen in the general population. These include high rates of preventable conditions and infectious diseases, poor immunization status, elevated blood lead levels, poor nutrition and growth, poor dental health, and mental health issues [2, 3]. From November 2003 to November 2006, 2% of refugee children arriving to Rhode Island were human immunodeficiency virus (HIV) positive, 5% were diagnosed with malaria, 10% had a positive hepatitis B surface antigen, 21% of patients who returned stool were positive for pathogenic

parasites, 25% had elevated lead levels, and 28% had a positive PPD [4].

In spite of significant health needs, refugee children often lack access to coordinated and comprehensive screening and assessment. Linguistic barriers are apparent given the unfamiliarity of many refugees' languages. Trained medical interpreters for languages such as Kirundi, Krahn, Kunama, Arabic, Swahili, Kinyarwanda, Nepali, Karen, Tigrinya, Wolof, and Sango are often difficult to access. In addition, refugees arrive with few resources as they have left possessions, legal and medical documents, family, and basic social and cultural supports in their countries of origin. Refugee children must redefine their cultural identity, learn a new language, and deal with discrimination and social isolation [4].

The provision of culturally competent care to refugees is very important. Culturally competent care for pediatric patients improves health outcomes, patient satisfaction, and quality of care. Failure to consider language and culture can have adverse consequences for clinical care, including patient

safety and healthcare access [5]. Refugees are frequently unaccustomed with the difficulty to navigate US health-care system and may harbor a sense of mistrust towards medical practitioners. These problems are compounded by transportation issues, poor access to services, poverty, and unfamiliarity with preventive care.

Providing refugees with stable primary care is also vital for the treatment and management of their diverse medical needs. An initial screening process is not enough to address the health needs of refugees. Complete and appropriate follow-up of clinical conditions identified during the initial evaluation is crucial. Studies have shown that among different refugee clinics, screening practices can vary and follow-up is poor [6]. Although researchers have described at length the various medical issues that pediatric refugee patients can present with initially, little evidence exists as to how to effectively meet these medical needs over time in this vulnerable population. Thus, determining the best model for refugee clinics is essential to improve quality of care.

Coordination of care is a critical part of pediatric primary care, and its importance is becoming better recognized with the increase in attention to the benefits of the “medical home” model of care [7–10]. A targeted needs assessment of Rhode Island pediatric refugee population was performed through focus groups with refugee communities and interpreters. Three themes emerged: (1) interpreters who can also navigate the health care system are needed, (2) patients must trust their providers, and (3) patients are grateful to those who support their health and transition to their new community. These findings prompted the creation of Hasbro Children’s Hospital’s Refugee Health Clinic in 2007 to serve as a refugee medical home. By following the tenets of providing accessible, family-centered, continuous, comprehensive, coordinated, and culturally effective care, we hypothesize that a medical home is effective in improving screening rates, reducing missed appointments, and increasing adherence to treatment guidelines. This paper serves to describe the refugee medical home and to evaluate the extent to which it is effective in improving healthcare for refugee children.

2. Methods

Retrospective chart review was performed of pediatric patients who were screened at the Refugee Health Clinic at Hasbro Children’s Hospital between October 2007 and May 2010. This time frame was chosen to ensure that all children seen at the clinic after the initiation of the medical home for refugees were included and that each patient has been followed for at least 15 months at the time of chart review. Nearly 100% of refugee children arriving to Rhode Island are referred to the primary care clinics at Rhode Island Hospital/Hasbro Children’s Hospital. Inclusion criteria were age 0–18 years at initial intake visit at the Hasbro’s Refugee Intake Health Clinic. This study was reviewed and approved by the Rhode Island Hospital Institutional Review Board.

Information extracted from paper and electronic medical records of refugee children included age, sex, country of origin, country of exit, birthplace, language, and initial screening labs. Whether patients attended follow-up appointments

at 1, 3, 6, and 12 months and completed tuberculosis (TB) treatment was also recorded.

The effectiveness of the current model was assessed by determining whether or not patients completed the recommended follow-ups scheduled at 1, 3, 6, and 12 months. Screening rates for HIV, hepatitis B surface antigen, lead, and TB were also determined. These outcome measures were compared to previous published data [11] on similar measures before the establishment of the medical home from 2003–2006 in order to determine how much the clinic has changed patient care. Patients’ adherence to TB treatment plan was also assessed.

2.1. Setting: The Refugee Medical Home. In October 2007, the Hasbro Children’s Hospital’s Refugee Health Clinic was established to address the health care needs of refugee families. The Refugee Health Clinic, in coordination with other community providers, provides a “medical home” for refugee children and their families. Introduced in 1967 by the American Academy of Pediatrics as a means of storing medical records [12], the concept was expanded in 2002 to include these characteristics: accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective care [13]. It has proven a useful, cost-saving model for children with special health care needs [14] and can be an effective model for refugee children as well.

The Hasbro Children’s Hospital’s Refugee Health Clinic Medical Home model consists of four major components:

- (1) development of the Refugee Health Clinic, which provides timely intake exams and addresses specific medical needs of refugee children, including screening tests,
- (2) development of a coalition of providers who provide medical and community services,
- (3) training of interpreters to act as community health workers,
- (4) ongoing needs assessment of the refugee community and interpreters to improve access to health care.

The staff at the Refugee Health Clinic works closely with various departments of Hasbro Children’s Hospital as well as with providers in the community. The coalition of providers includes The International Institute of Rhode Island, Rhode Island Department of Health, St. Joseph Hospital Pediatric Dental Center, psychologists from Brown University and Rhode Island College, The Providence Public School Department, Rhode Island Housing, Rhode Island Hospital Medicine/Pediatrics Clinic, Neighborhood Health Plan of Rhode Island (the primary health insurer), Interpreter Services, Alpert Medical School of Brown University students, pediatric residents, and medicine/pediatric residents. This coalition coordinates care and gives voice to the needs of the refugee population.

2.1.1. Players in the Medical Home. The medical home at the Refugee Health Clinic is made of six components: (1) patients, (2) primary care providers, (3) trained medical interpreters, (4) mental health professionals, (5) dental

health professionals, and (6) the International Institute of Rhode Island (IIRI) (Figure 1). IIRI, a volunteer resettlement agency in Rhode Island, provides services such as access to healthcare, job placement, and basic needs assistance such as housing, food, and school enrollment. Each of the elements to the medical home plays an integral role in its ability to function successfully. Several of the players are discussed in more detail below.

2.1.2. *Interpreters.* The interpreters, most of whom are former refugees, are present at each primary care physician visit. They are trained as community health workers by physicians and dentists in 10 sessions covering common pediatric diseases, dental problems, and how to navigate the healthcare system (Table 1).

2.1.3. *The Patients: Refugee Children.* Over 1,400 refugees have resettled in Rhode Island since the year 2000; approximately half have been children [2].

2.1.4. *Primary Care Physicians.* The Refugee Health Clinic offers intake evaluations within 30 days of the child’s arrival to the USA. At the initial visit, the specific needs of the population are addressed by pediatric residents and attending physicians. After the initial screening visit, a follow-up protocol that consists of four visits at 1, 3, 6, and 12 months is followed. The first follow-up visit at 1 month occurs in the pediatric clinic where the children are “mainstreamed” into the general pediatric population. The same provider who performed their intake exam continues to see the same children. This provides continuity for the patients and allows for one provider to coordinate their care. This approach also allows the clinic to easily develop a tracking system to identify needs of the different refugee populations.

2.2. *Data Analysis.* Data was entered into a Microsoft Excel spreadsheet. A descriptive data analysis was carried out using STATA 10 (StataCorp LP, College Station, TX, USA) statistical package to determine frequencies and means.

3. Results

3.1. *Sample Characteristics.* Table 2 characterizes demographics of the study population of pediatric refugees seen at the clinic between September 2007 and May 2010. The refugee sample consisted of 104 refugee children between the ages of 5 months and 18 years with a mean age of 8.1 years (SD 0.45). Fifty-six percent (58) of the refugees were boys and 44% (46) were girls.

African refugee children represent 69% (72) of the study sample with the majority originating from Burundi (35), Democratic Republic of Congo (10), Eritrea (9), Somalia (7), and Liberia (6). Middle Eastern refugees compose 25% (26) of the study sample and were primarily from Iraq and Iran (Figure 2). In 2010, there were an increasing number of refugees from Burma and Nepal. When we looked at the country of birth, we found that many of our refugees from African countries were born and have spent all their lives

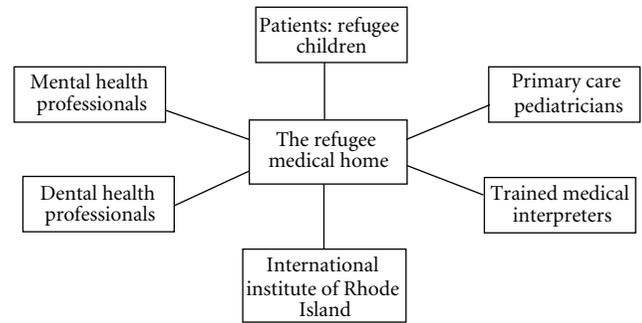


FIGURE 1: Players in the refugee medical home.

TABLE 1: Medical interpreter training topics.

(1) Health literacy (medications, pharmacies, insurance, etc.)
(2) Nutrition
(3) Lead
(4) Women’s health issues and sexually transmitted infections
(5) Oral health
(6) Mental health
(7) Infectious diseases (latent tuberculosis, hepatitis, etc.)
(8) Injury prevention
(9) Diabetes
(10) Hypertension

TABLE 2: Demographic characteristics of 104 refugee children attending the Hasbro Children’s Hospital’s Refugee Health Clinic from 2007 to 2010.

Characteristic	n (%)
Age	
0–6	48 (46%)
7–12	32 (31%)
13–18	24 (23%)
Sex	
Male	58 (56%)
Female	46 (44%)

in refugee campus. For example, of all the Burundi children seen at the clinic, 92% were born and have spent their lives in refugee campus in Tanzania.

3.2. *Screening Rates.* Compared to screening rates in 2003–2006, the medical home model increased screening rates to nearly 100% for diseases such as HIV, TB, lead, and hepatitis B (Table 3).

3.3. *TB Adherence.* Of the 22 patients who had positive PPD results, 19 completed nine months of Isoniazid (INH) treatment. The patients who did not complete treatment (3 out of 22) had relocated to a different state after their initial visit to the clinic.

3.4. *Missed Appointments.* Only 19.2% (20 out of 104) of refugee children arriving between 2007 and 2010 (after

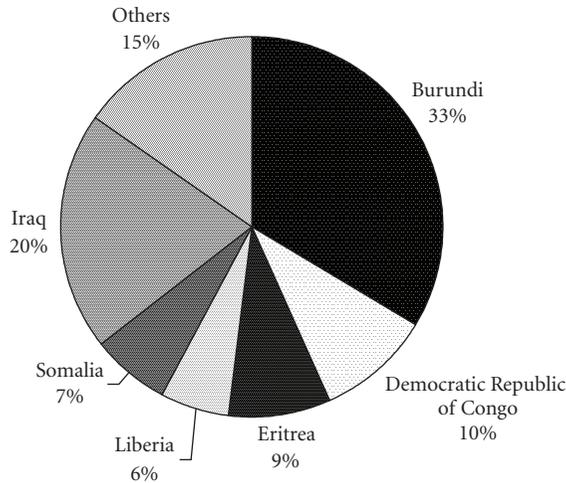


FIGURE 2: Country of origin of the 104 refugee children attending the Hasbro Children's Hospital's Refugee Health Clinic from 2007 to 2010.

establishment of the medical home) missed one or more follow-up appointments in contrast to 63% (124 of 198) of refugee children arriving between 2003 and 2006 [11]. Likewise, the mean number of missed appointments per patient from 2007 to 2010 was 0.35 (range 4) while the mean number of missed appointments per patient from 2003 to 2006 was 1.5 (range 4).

4. Discussion

The model of the Refugee Health Clinic at Hasbro Children's Hospital has been successful in providing for the health care needs of pediatric refugees. Since the initiation of the medical home for refugee children in 2007, initial screening rates have gone up to 100% compared to a low of 41% in 2003–2006 prior to the establishment of the medical home. In addition, 100% of children recommended TB treatment that remained in state completed a 9-month course of INH. Compared to prior to the establishment of the medical home, the number of children who missed one or more appointments decreased by 43%.

The success of this particular medical home model is likely multifactorial. An important aspect of care that the Refugee Health Clinic provides is healthcare that is culturally competent. One of the ways the medical home provides culturally competent care is by training its interpreters. Ready access to competent language services is imperative because inadequate health communication can lead to health disparities [15]. Professional interpreters are associated with decreased communication errors, increased patient comprehension, equalized health care utilization, improved clinical outcomes, and increased satisfaction in limited English proficiency patients [16].

The interpreters in the Refugee Health Clinic Medical Home do much more than serve as interpreters during the appointment. The interpreters, who are former refugees and from the refugee community themselves, also act as

educators, health promoters, and navigators of the health-care system for the refugee families. They are community health workers and promote health in their own refugee community in a culturally appropriate and timely way. They answer questions that patients and families may have about pharmacies, medications, illnesses, vaccinations, and health care and provide transportation to and from appointments for the patients. The series of ten training sessions they are required to attend prepare them to provide accurate and quality health information to patients.

In addition, interpreters are bidirectional educators. They educate not only the patients, but also the providers by helping them understand what a patient and his/her family's experiences may be, particularly when it comes to illness and health. This may be as practical as learning about traditional remedies and as complex as promoting the understanding of health and illness in the context of the patient's spirituality or culture. They guide providers in giving the most appropriate treatment plan that incorporates cultural needs that are unique to each family. The interpreters and providers also participate in quarterly meetings. These meetings create a foundation for better understanding of cultural differences within communities.

Another way the refugee medical home provides culturally competent care to its patients is by training its health care providers. Health professionals in developed countries may be unfamiliar with the wide range of conditions refugee children may present with and may be unprepared to provide the unique care that pediatric refugee patients often need. In addition to the interpreters' role in educating providers discussed previously, the refugee medical home trains its providers in issues relating to refugee health, so that the refugees that arrive to the clinic get the most appropriate and best care possible. The International Institute of Rhode Island gives providers resources to help them better understand the newest resettled communities that are arriving to the clinic.

Two components of the medical home, dental health and mental health, were not evaluated in this study because they were not fully incorporated into the refugee medical home during the time covered by this chart review. Dental health care is a major unmet health need of refugee children. Many refugee children have never received oral health care or have never been exposed to common preventative oral health measures such as a toothbrush, fluoridated toothpaste, or fluoridated water. Cote et al. noted that 51% of refugees who attended a refugee clinic in Massachusetts had dental caries experience and 48.7% with untreated decay. US children had caries experience similar to that of refugees (49.3%) but significantly lower risk of untreated decay (22.8%). Comparisons between refugee children and US children found significant differences for treatment urgency, untreated caries, extent of dental caries, and presence of oral pain [17].

In 2010, the Refugee Health Clinic implemented a dental screening component to the medical home. Prior to 2010, obtaining a dental appointment was often difficult. In addition to long waiting times that ranged on average between 3 and 8 weeks, patients had to go to a different

TABLE 3: Screening rates before and after establishment of the medical home for refugees.

	Tested (% of total sample) before medical home (2004–2006)	Tested (% of total sample) after medical home (2007–2010)
Human immunodeficiency virus	119 (60)	104 (100)
Hepatitis B surface antigen	176 (89)	104 (100)
Lead ≥ 10 mcg/dL	84 (41)	103 (99)
Complete blood count	186 (94)	104 (100)
Tuberculin skin test ≥ 10 mm	171 (86)	104 (100)

hospital to obtain dental care. To address these problems, the clinic now has a dental resident from St. Joseph Pediatric Dental Center present at the first appointment for dental screening. The dentist then schedules follow-up appointments for the patient to receive more thorough examinations and treatments if necessary. Subsequent visits occur in the dental clinic, but the appointments are with the same initial dentist. This promotes continuity and trust between the dental provider and the patient. The dentist follows up if the patient misses appointments and works extensively with the interpreters to address specific concerns.

Mental health issues, such as posttraumatic stress disorder, depression, and anxiety, are pervasive in the pediatric refugee population [18–20]. Systematic mental health screening, psychoeducation, and mental health referrals are necessary in the early primary care visits of newly arrived refugees in order to manage the many stresses refugee children face before, during, and after their migration [21]. The Refugee Health Clinic provides mental health screening approximately 6 months after arrival to give the children a chance to adjust to their new home. The mental health screen was developed with psychologists in partnership with the interpreters. The interpreters provide input into the screen to make sure that it is culturally appropriate. In addition, the interpreters undergo training in order to better understand mental health issues and the importance of mental health to the well-being of refugee children and their families. This provides the interpreters with the tools to better discuss mental health concerns with refugee families in a context that is more culturally acceptable.

Most importantly, a mental health professional is present at follow-up appointments to offer psychological support and screen for mental health problems, even if there is no identified mental health issue. Meeting in this context has diminished some of the stigma associated with mental health care. If mental health needs are identified, future appointments take place in the medical clinic where they receive the rest of their care.

4.1. Limitations. There are several limitations to this study. First, the study population represents a specific clinic sample, with the majority of refugees from African countries. Therefore, the results may not be generalizable to other refugee populations. Two components integral to refugee health, dental health and mental health, were not evaluated in this

study. Since dental screening is a new component of the medical home, an evaluation of whether the implementation of a dental health screening component into the medical home improves dental screening rates and attendance to follow-up appointments is necessary.

5. Conclusion

Refugee health assessments are important for better integration and healthier communities. The refugee “medical home” allows refugees to benefit from a comprehensive system for disease detection and follow-up care. The medical home at the Hasbro Children’s Hospital’s Refugee Health Clinic includes patients, dental health professionals, mental health professionals, the International Institute of Rhode Island, primary care physicians, pediatricians, and interpreters trained to serve as community health workers. The refugee medical home model has increased screening rates, increased completion of TB treatment, and decreased missed appointments of pediatric refugee patients in the Rhode Island community. Our findings suggest that the medical home is an appropriate model to improve the quality of care that pediatric refugees receive. The medical home model that is used at the Hasbro Children’s Hospital’s Refugee Health Clinic has been able to provide care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective to refugee children.

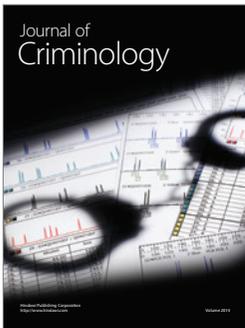
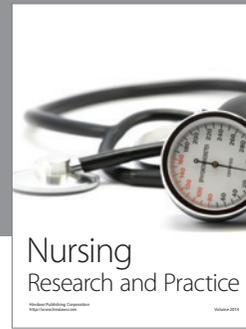
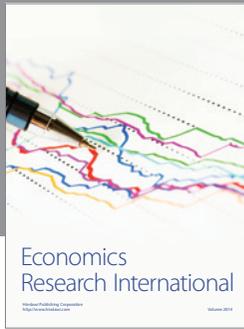
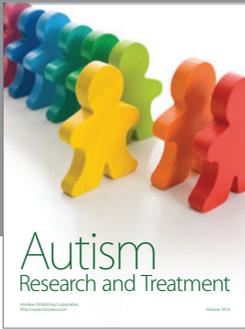
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