WEB EXCLUSIVE

Acute primary health care needs of Syrian refugees immediately after arrival to Canada

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Editor's key points

- This study explores the health and health care use of a group of Syrian refugees newly arrived in Canada who were housed in hotels in Ottawa, Ont, and received care through on-site triage clinics staffed by nurse practitioners and interpreters.
- The total number of clinic visits among the 338 clinic-visiting Syrian refugees was 577, which resulted in 822 diagnostic assessments. Although there were no statistically significant differences between adults and children in the number of visits to the clinics and the number of assessments received, adults were prescribed more medications and received more laboratory test requisitions compared with children.
- Chronic conditions such as hypertension and child development disorders were among the top diagnostic assessments requiring multiple visits. The clinics ran during the winter months, and the patients were housed in hotels in close quarters, where communicable diseases can spread easily. It is then not surprising that upper respiratory infections, pharyngitis, and cough were 3 of the top 5 diagnostic assessments across the sexes and age groups.

Abstract

Objective To describe the population of Syrian refugees who received care at temporary triage clinics, the health issues addressed, and the health services used in the clinics.

Design Cross-sectional retrospective study using electronic extraction of medical data of refugees attending the primary care triage clinics.

Setting Temporary triage clinics in Ottawa, Ont.

Participants Newly arrived Syrian refugees temporarily housed in hotels in Ottawa in 2016.

Main outcome measures Demographic characteristics (age and sex), number of clinic visits per patient, diagnostic assessments (categorized using the ENCODE-FM [Electronic Nomenclature and Classification of Disorders and Encounters for Family Medicine] at each patient visit [≥1 diagnostic assessment could be entered per visit]), laboratory tests requested per visit, and medications prescribed per visit.

Results Of the 912 newly arrived Syrian refugees, 338 (37.1%) visited the clinics, resulting in 822 diagnostic assessments (154 different types of ENCODE-FM diagnostic assessments). Refugees' age ranged from 1 month to 62 years, with a median age of 13.5 years. Among the refugees, 50.9% were female and 1 patient's sex was not documented in the electronic medical record. The number of visits to the clinic per patient varied from 1 to 7. Most frequent diagnoses were as follows: acute upper respiratory infection (24.0%), social-cultural problems (11.2%), and pharyngitis (8.6%). Most frequent diagnoses for multiple clinic visits included hypertension, acute upper respiratory infection, and child developmental problems. Adults were prescribed significantly more medications ($P=.036$) and received significantly more laboratory test requisitions ($P=.006$) compared with children.

Conclusion Primary care triage clinics on-site where newly arrived Syrian refugees were housed provided basic care for simple ambulatory conditions and might have prevented overloading of other components of the health care system.

Les besoins en soins de santé primaires aigus des réfugiés syriens immédiatement après leur arrivée au Canada

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Résumé

Objectif Décrire la population de réfugiés syriens ayant reçu des soins dans des cliniques temporaires de triage, les problèmes de santé traités et les services de santé utilisés dans les cliniques.

Type d'étude Une étude transversale rétrospective à l'aide de l'extraction électronique des données médicales de réfugiés qui fréquentaient des cliniques de triage en soins primaires.

Contexte Des cliniques temporaires de triage à Ottawa (Ontario).

Participants Des réfugiés syriens nouvellement arrivés et logés temporairement dans des hôtels à Ottawa, en 2016.

Principaux paramètres à l'étude Les caractéristiques démographiques (âge et sexe), le nombre de visites aux cliniques par patient, les évaluations diagnostiques (catégorisées selon ENCODE-FM [Electronic Nomenclature and Classification of Disorders and Encounters for Family Medicine] à chaque visite par un patient [1 ou plusieurs évaluations diagnostiques pouvaient être inscrites par visite]), les analyses de laboratoire demandées par visite, et les médicaments prescrits par visite.

Résultats Parmi les 912 réfugiés syriens nouvellement arrivés, 338 (37,1%) ont visité les cliniques, ce qui a entraîné 822 évaluations diagnostiques (154 types différents d'évaluations diagnostiques selon ENCODE-FM). L'âge des réfugiés variait entre 1 mois et 62 ans, l'âge médian étant de 13,5 ans. Au nombre des réfugiés, 50,9% étaient des femmes, et le sexe de 1 patient n'était pas documenté dans le dossier médical électronique. Le nombre de visites par patient allait de 1 à 7. Les diagnostics les plus fréquents étaient les suivants: infection aiguë des voies respiratoires supérieures (24,0%), problèmes socioculturels (11,2%) et pharyngite (8,6%). Les diagnostics les plus fréquents expliquant les visites multiples aux cliniques incluaient l'hypertension, l'infection aiguë des voies respiratoires supérieures et les problèmes développementaux chez les enfants. Les adultes ont reçu significativement plus de prescriptions de médicaments ($p = ,036$) et ont fait l'objet d'un nombre significativement plus élevé de requêtes d'analyses de laboratoire ($p = ,006$) par rapport aux enfants.

Conclusion Les cliniques de triage en soins primaires sur place, là où les réfugiés syriens nouvellement arrivés étaient logés, ont fourni des soins de base pour des problèmes ambulatoires simples, et pourraient avoir aidé à prévenir l'engorgement d'autres composantes du système de santé.

Points de repère du rédacteur

- Cette étude étudie la santé et l'utilisation des soins de santé chez un groupe de réfugiés syriens nouvellement arrivés au Canada qui étaient logés dans des hôtels à Ottawa (Ontario) et recevaient leurs soins dans des cliniques de triage sur place, où travaillaient des infirmières praticiennes et des interprètes.
- Le nombre total de visites aux cliniques par les 338 réfugiés syriens qui les fréquentaient atteignait 577, lesquelles ont mené à 822 évaluations diagnostiques. Quoiqu'il n'y ait pas eu de différences statistiquement significatives entre les adultes et les enfants quant au nombre de visites dans les cliniques et à celui des évaluations effectuées, les adultes ont reçu plus de prescriptions de médicaments et de requêtes d'analyses de laboratoire par rapport aux enfants.
- Parmi les principales évaluations diagnostiques exigeant de multiples visites figuraient des problèmes chroniques comme l'hypertension et les troubles du développement chez les enfants. Les cliniques se tenaient durant les mois d'hiver, et les patients logeaient à l'hôtel dans des endroits confinés, où les maladies transmissibles peuvent se propager facilement. Il n'est donc pas surprenant que les infections des voies respiratoires supérieures, la pharyngite et la toux se trouvent parmi 3 des 5 principales évaluations diagnostiques quels que soient le sexe et le groupe d'âge.

In a massive humanitarian effort, Canada resettled 26506 Syrian refugees between November 2015 and April 2016. The ongoing civil war in Syria has led to the displacement of more than 6.3 million people internally and 5 million externally.[1,2] Ottawa, Ont, received about 1500 Syrian refugees between November 2015 and March 2016,[3] and Refugee 613—an intersectoral group of health, social, and settlement sectors—tried to anticipate their health needs and coordinate services.[4,5] As a nonpartisan, grassroots effort, Refugee 613 aims to help refugees with successful integration through providing timely information to stakeholders and planning and coordinating logistical support for initiatives related to refugee resettlement, including organizing a health task force addressing refugee issues.[6] Although refugees complete an immigration medical examination before arriving in Canada, local health care staff do not receive most of this clinical information.[5]

Large numbers of government-assisted refugees (GARs), referred to Canada for resettlement by the United Nations Refugee Agency or another referral organization, started arriving in Ottawa, Ont, in late December 2015. The GARs are sponsored by the Canadian government and are different from refugee claimants, who apply for asylum once reaching Canada through their own means, and privately sponsored refugees, who are supported for their first year by groups of private Canadian citizens. Temporary housing was arranged in 3 hotels for the GARs. From late December 2015 to April 2016, 912 individuals stayed in the hotels for an average of 27.5 days (Siffan Rahman, Ottawa Newcomer Health Centre, personal communication, May 2017). Plans to provide evidence-based initial medical assessments had to be postponed owing to the sudden large influx of refugees arriving during respiratory virus season.[7-9] Free primary care health clinics staffed by nurse practitioners (NPs) and interpreters were set up in the hotels. The clinics functioned from January to March 2016, at which point most refugees were housed. Data gathered during these clinics were documented in the electronic medical record (EMR) systems of 1 of the 3 community health centres (CHCs) running the clinics. Having seen the initial needs of the new arrivals, including winter respiratory viruses, Ottawa Public Health also offered influenza immunization and dental screening clinics.

Refugees to Canada are likely to have poor health outcomes compared with other immigrants owing to premigration and post-migration factors.[10-12] Among Syrian refugees, common chronic conditions include cardiovascular-, musculoskeletal-, and respiratory-related diseases.[13] Additionally, in Europe, Syrian refugees have had trauma-related problems, infectious diseases, gastrointestinal problems, and neurologic problems.[14] Mental health conditions were expected owing to the distress of war, violence, displacement, or loss of family and friends.[4,15-17]

At the time of arrival of Syrian refugees to Canada, little was known about their immediate health care needs. The objective of this study was to describe the population attending the clinics, the health issues addressed, and the health services used. This study adds to the literature on the health needs of Syrian refugees living in refugee camps in countries such as Jordan, Lebanon, and Turkey, as well as their self-reported health care needs in Canada.[18] This information might be of use in planning and tailoring needs-based health services for future sudden influxes of large groups of new arrivals to Canada.

Methods

Participants

Participants included all Syrian refugees who completed a visit at 1 of the 3 triage clinics at the hotels staffed by the 3 CHCs in Ottawa between December 2015 and March 2016.

Data collection

Data for this cross-sectional retrospective review of EMRs came from the 3 CHCs in Ottawa that staffed the hotel triage clinics. It includes data from clinical encounters (ie, documentation in the medical record) for all refugees who completed at least 1 visit at one of the clinics. It excludes visits for influenza immunization and dental screening, visits to other primary care providers, or visits to emergency departments.

Data sets generated and analyzed during the study are from the patient databases of Somerset West, Pinecrest-Queensway, and South-East Ottawa CHCs. These data are not publicly available owing to patient privacy and confidentiality, but are available from the corresponding author (W.D.) upon request. The study received research ethics approval from the Ottawa Health Sciences Network Research Ethics Board.

Measures

Data were collected using an electronic query to the EMR Nightingale on Demand used at the 3 CHC sites. This query extracted information about demographic characteristics (age and sex), number of visits per patient, diagnostic assessments at each patient visit (primary care providers could enter as many assessments per visit as they wished), laboratory tests requested per visit, and medications prescribed per visit.

Analysis

Diagnostic assessments were categorized in standard format using the ENCODE-FM (Electronic Nomenclature and Classification of Disorders and Encounters for Family Medicine) 5.0 diagnostic codes. Individual specific encounters and assessments were grouped into higher levels of etiological assessments based on a hierarchy of classification system presented by ENCODE-FM.

Data from the 3 triage clinics were combined, and descriptive statistics were generated using the statistical software JMP, version 12.2. We used t tests to generate P values at the .05 level of significance.

Results

The demographic characteristics of Syrian refugees, as well as the types of health services used in their care and the health issues addressed, were as follows.

Demographic characteristics

Of 912 newly arrived Syrian refugees, 338 (37.1%) who lived at the hotels visited the clinics, which resulted in 822 diagnostic assessments (154 different types of ENCODE-FM diagnostic assessments). Refugees' age ranged from 1 month to 62 years, with a median age of 13.5 years; 50.9% were female, and 1 patient's sex was not documented in the EMR (**Table 1**).

Health care use

The number of visits to the clinic per patient varied from 1 to 7. One patient received up to 18 diagnostic assessments over multiple clinic visits and another patient received up to 24 laboratory test requisitions over multiple clinic visits. Among those who were prescribed medications, the number varied from 1 to 5. **Table 2** describes the health care use (total visits and assessments) at the clinics, and **Table 3** presents the percentage of medications prescribed and laboratory tests requisitions, both by sex and age groups. Although there were no statistically significant differences between adults and children in the number of visits to the clinics and number of assessments received, adults were prescribed significantly more medications ($P=.036$) and received more laboratory test requisitions ($P=.006$) compared with children. **Table 4** shows the percentage of patients who used health care services in the clinics. There was no statistically significant sex difference for health care use patterns.

Clinic visits

Of the clinic-visiting refugees, 60.1% of patients made only 1 visit, 21.5% made 2 visits, 10.7% made 3 visits, and 7.7% made 4 to 7 visits.

Assessments

Figure 1 illustrates the top 20 diagnostic assessments out of the 154 different types of diagnostic assessments made. Acute upper respiratory infection (URI) was the most frequent assessment (24.0%), followed by problem with the social-cultural system (11.2%), which included factors such as immigrants with language difficulties, language barriers, post-immigration stress, and problems with adjustment to a new country or culture. Figure 2 describes the top 10 diagnostic assessments for sex and age groups: acute URI was the most frequent assessment for each sex and age group. Figure 3 describes the assessments requiring multiple visits by patients. Both chronic (eg, hypertension) and acute (eg, URI) problems resulted in multiple visits.

Discussion

This study presents a profile of the immediate primary care needs of a group of Syrian GARs immediately after their arrival in Canada and before they found permanent housing. They were a relatively young population group and primarily sought care for acute conditions at a single visit. However, a substantial number made repeat visits for both acute and chronic conditions. Others have found that Syrian refugees readily seek health care for acute and chronic conditions.[14,19,20]

The clinics were staffed by interpreters and NPs. In other settings, interpreters have been associated with increased satisfaction of patients and providers, and with improved diagnostic assessments.[21]

Although children younger than 18 comprised a greater proportion in our population group, adults received more medication prescriptions and laboratory test requisitions, a pattern that has also been noted by others.[22,23] In one study, 87% of adult Syrian refugees received medication prescriptions at their most recent health care visit,[22] whereas in our study, among the individuals who were prescribed medications, 52.4% were adults. This difference might be attributable to the frequency of acute self-limited conditions (such as URI) in our study, which are not generally treated with prescription medications.

Differences in prescribing patterns between health systems might also play a role. Physicians in different European countries have been found to have very different prescribing patterns.[24] The providers in the clinics were NPs, and a study in the United States found different prescribing patterns between physicians and NPs, noting that NPs tended to prescribe more antibiotics for URIs.[25] Very few laboratory tests were ordered in our study. It is difficult to know with certainty whether

Table 1. Demographic characteristics of Syrian refugees (N = 338): *Mean (SD) age of all 338 refugees was 19.97 (16.55) years.*

	SEX			AGE GROUP	
VALUE	FEMALE	MALE	UNKNOWN	ADULT*	CHILD
N, %	172 (50.9)	165 (48.8)	1 (0.3)	150 (44.4)	188 (55.6)
Mean (SD) age, y	21.44 (16.22)	18.55 (16.79)	1.00 (0.00)	NA	NA

NA—not applicable.
*Adults were aged ≥18 y.

Table 2. Health care use of Syrian refugees (N = 338)

HEALTH CARE USE	N (%)	MEAN (SD) VISITS OR ASSESSMENTS	P VALUE*
Total visits	577 (100.0)	1.71 (1.10)	
• Female patients	289 (50.1)	1.68 (1.01)	.623†
• Male patients	287 (49.7)	1.74 (1.18)	
• Adults‡	269 (46.6)	1.79 (1.17)	.203
• Children	308 (53.4)	1.64 (1.04)	
Total assessments	822 (100.0)	2.43 (2.07)	
• Female patients	418 (51.1)	2.43 (2.07)	.979†
• Male patients	400 (48.9)	2.42 (2.09)	
• Adults‡	402 (48.9)	2.68 (2.54)	.062
• Children	420 (51.1)	2.23 (1.58)	

*P values for t tests provided.
†The patient listed with unknown sex was not considered.
‡Adults were aged ≥18 y.

Table 3. Syrian refugees who were prescribed medications (n = 126) and who received laboratory test requisitions (n = 30)

VARIABLES	TOTAL VARIABLES, N (%)	MEAN (SD) PRESCRIBED MEDICATIONS OR LABORATORY TEST REQUISITIONS	P VALUE*†
Prescribed medications	192 (100.0)	1.52 (0.90)	
• Female patients (n = 73)	107 (55.7)	1.47 (0.82)	.414
• Male patients (n = 53)	85 (44.3)	1.60 (1.01)	
• Adults‡ (n = 66)	111 (57.8)	1.68 (1.01)	**.036**
• Children (n = 60)	81 (42.2)	1.35 (0.73)	
Laboratory test requisitions	269 (100.0)	8.97 (7.25)	
• Female patients (n = 16)	138 (51.3)	8.63 (7.23)	.789
• Male patients (n = 14)	131 (48.7)	9.36 (7.52)	
• Adults‡ (n = 22)	239 (88.9)	10.86 (7.13)	**.006**
• Children (n = 8)	30 (11.1)	3.75 (4.77)	

*P values for t tests provided.
†Boldface indicates statistical significance (ie, $P < .05$).
‡Adults were aged ≥18 y.

the NPs avoided ordering laboratory tests because they were mainly providing triage assessments of acute self-limited conditions or because they were not certain that follow-up of results would be possible for people who would soon be moving on to other housing. Of note, and perhaps explaining why very few investigations were ordered, connecting people with ongoing primary care providers was not part of the clinics' mandate. Close

Table 4. Percentage of health care services used in the triage clinics (N = 338)

USE OF HEALTH CARE SERVICES	NO, %	YES, %
Patients making > 1 visit	60.1	39.9
Patients receiving > 1 assessment	42.3	57.7
Patients who were prescribed medications	62.7	37.3
Patients who received laboratory requisitions	91.1	8.9

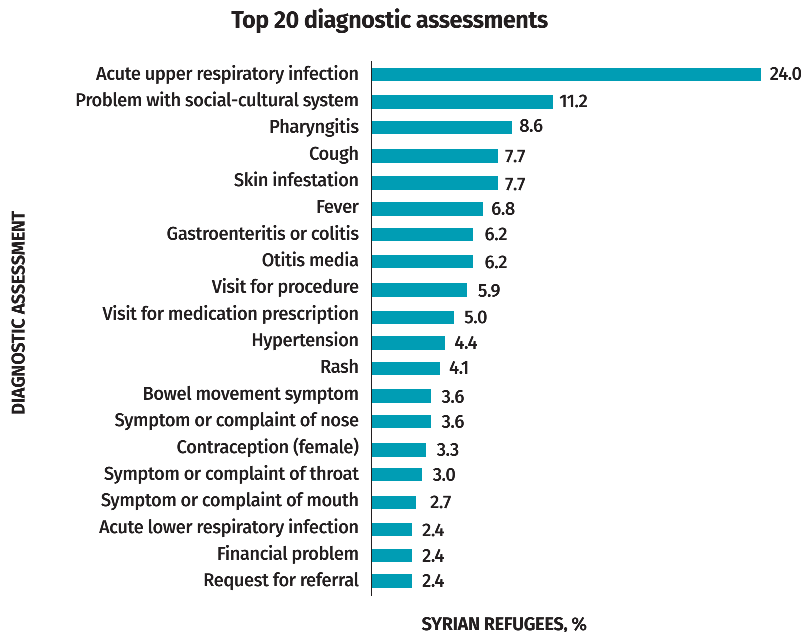
to 89% of laboratory tests ordered were for adults, who tend to have greater numbers of health conditions needing care during and after displacement.[13,26-28] The greater proportion of patients receiving more than 1 diagnostic assessment (57.7%) might reflect the acute and chronic complex health care needs of Syrian refugees after arrival, which can include multiple comorbidities.[13,14,27,28]

The clinics ran during the winter months, and the patients were housed in hotels in close quarters, where communicable diseases can spread easily. It is then not surprising that URI, pharyngitis, and cough were 3 of the top 5 diagnostic assessments across the sexes and age groups. Similar patterns of illnesses from influenzalike outbreaks were noted in other parts of Canada among newly arrived Syrian refugees.[29,30] It is unknown whether the influenza immunization clinics run by Ottawa Public Health changed the pattern of illness presenting at the triage clinics. Problems with the social-cultural system was the second most common diagnostic assessment. The social conditions represented in this diagnostic assessment include many that most of the refugees likely experienced, such as immigrants with language difficulties. Inconsistency in documentation or reserving the diagnostic social codes for people with more difficulty coping with displacement are the potential reasons that these codes were not used for all assessments.

Chronic conditions such as hypertension and child development disorders were among the top diagnostic assessments requiring multiple visits. Hypertension and cardiovascular diseases among Syrian refugees outside of Canada are the most prevalent chronic conditions among adults and result in high levels of care-seeking.[13] Similar observations have been noted among other refugees of Middle Eastern descent in Canada.[31] Child development disorders have also been noted in other groups of Syrian refugees in Canada.[32] Care-seeking by refugees from Syria tends to be high and can depend on the type of chronic conditions.[23]

Outside of Canada, there are reports of high rates of mental distress among Syrian refugees,[4,15,19] but mental health diagnoses were not recorded in the top 20 diagnostic assessments in our population group. Specific guidelines have been given to medical staff to avoid screening for trauma and mental illness in the arriving

Figure 1. Top 20 diagnostic assessments among Syrian refugees (N = 338)



refugees and instead provide empathic and understanding care to avoid triggering mental distress.[5] Syrian refugees to Canada also have good self-perceived health,[18] which could account for the low rates of mental health diagnoses among these newly arrived patients. Nevertheless, mental health and chronic conditions can be expected to emerge after several months once the refugees are resettled.[32] Post-displacement challenges after resettlement might also play a role in emerging mental distress among refugees.[33-35] In our study, problem with the social-cultural system was the second most common diagnostic assessment, and it is possible that this term was used to describe visits where the stresses and strains of migration were specifically discussed, possibly accounting for the low number of mental health diagnoses recorded despite anticipation of mental health issues.[36]

Strengths and limitations

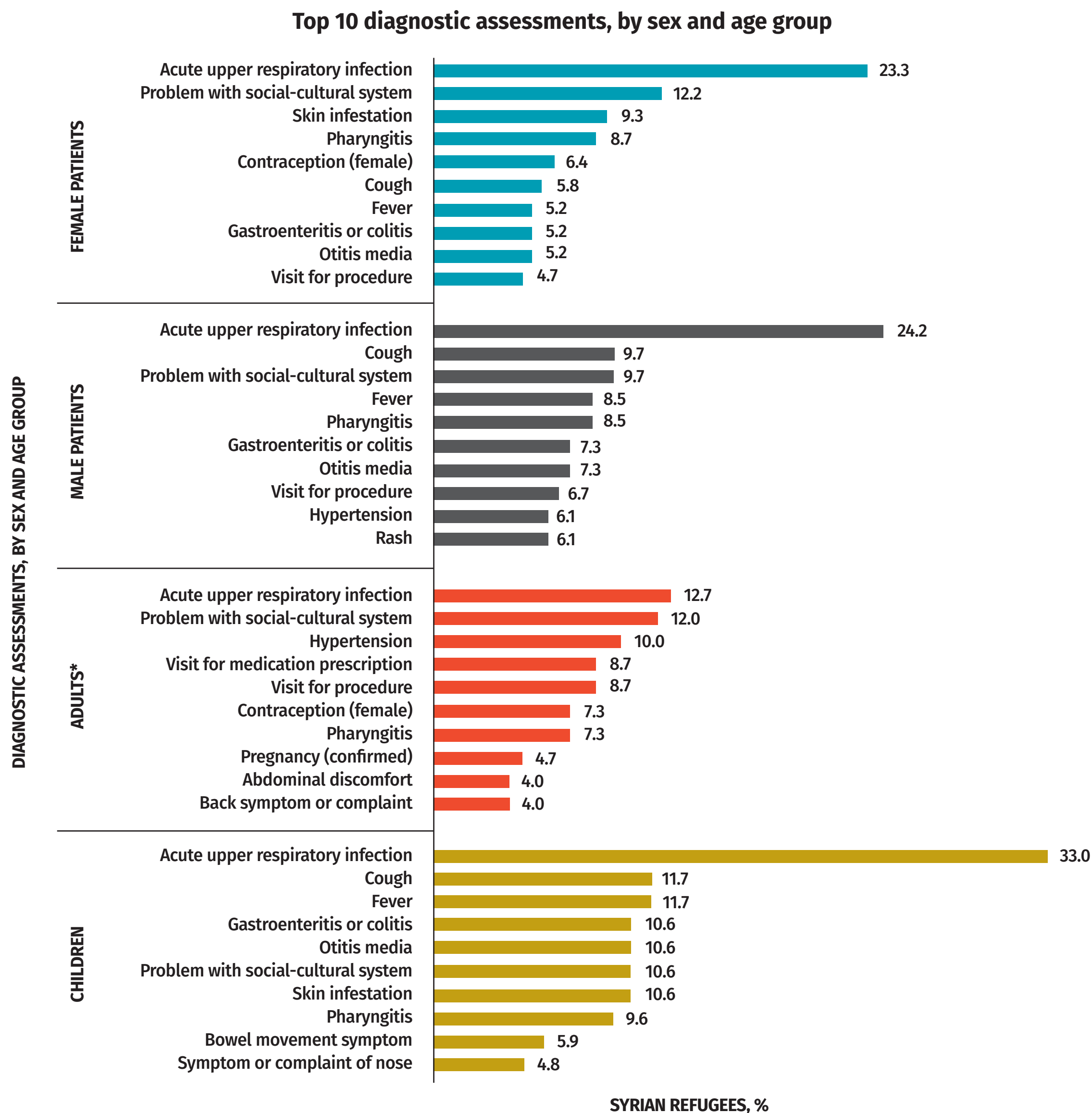
Because the data for this study come directly from primary care records created at the point of care, the study provides a robust portrait of the care received by Syrian refugees in the triage clinics. Unfortunately, the data do not allow us to understand the use of other parts of the health care system (such as commercial walk-in clinics, emergency departments, specialists, or hospitals) by the refugees. We also cannot know whether having the triage clinics on-site at the hotels led to an increase in use of services by this refugee group, as Syrian refugees outside of Canada describe barriers (such as cost) that limit health care service use.[13,27] We also do not know if the refugees had unmet health care needs and whether they were satisfied with their care. Top reasons in the literature for unmet health care needs include long wait times, lack of time to seek care, and costs.[18]

Ensuring that refugees have access to family doctors and primary care after initial assessments should be a part of the integration process,[18] with attention to possible emerging mental health illnesses and chronic diseases. Inequity of access to health care services should be minimized and the cultural context of refugees should be considered when delivering care.[22,32]

Conclusion

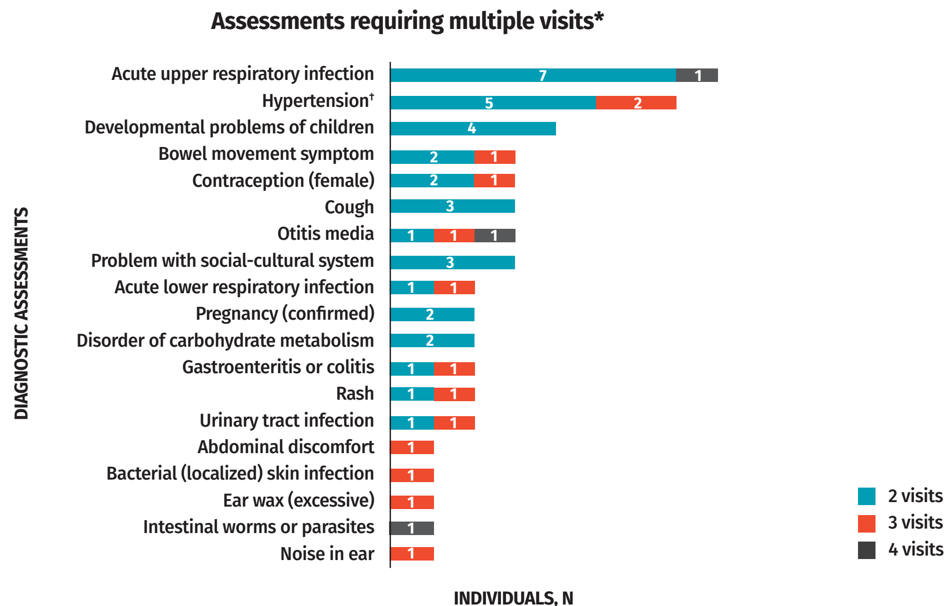
Canada's rapid humanitarian action in 2015-2016 led to a large influx of Syrian refugees, challenging the health care services provided. This study describes one approach to dealing with the immediate health care needs of that group through on-site clinics staffed by NPs and interpreters. While we cannot say with certainty that this approach led to better care or more efficient use of the health care system, we do know with certainty that a large volume of care was provided, which either would have had to be provided elsewhere (where interpreters were not readily available) or would not have been provided at all. Future studies could compare approaches to this issue in different Canadian cities, including continuity of the immediate care provided with services to address long-term health care needs.

Figure 2. Top 10 diagnostic assessments among the sex and age groups of Syrian refugees: *Female patients (n = 172), male patients (n = 165), adults (n = 150), and children (n = 188).*



*Adults were aged ≥ 18 y.

Figure 3. Assessments requiring multiple visits to the triage clinic among Syrian refugees (n = 60)



*The following are assessments that are not included in this graph and required 2 visits by patients: anorexia symptom; back symptom or complaint; disability or limited function; disturbance of sleep; dizziness; fever; financial problem; gait abnormality; inflammatory bowel disease; lipid metabolism disorder; pharyngitis; postpartum symptom, complaint, or sign; problem with health care; request for referral; request for test results; substance abuse; vaginal symptom, complaint, or sign; visits for diabetes education; and visit for procedure.

†A total of 8 patients were seen for hypertension; 1 patient had 5 visits for hypertension.

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Contributors
Dr Darwish contributed to implementation of the methods, preparation of the manuscript, and statistical analysis of the manuscript. **Dr Muldoon** contributed to the development and implementation of the methods, analysis of data, and preparation of the manuscript. Both authors reviewed and approved the manuscript for submission.

Competing interests
None declared

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