

Health Service Access and Utilization among Syrian Refugees and Affected Host Communities in Lebanon

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The influx of Syrian refugees into Lebanon poses an immense burden on the health system. A survey of Syrian refugees and Lebanese host communities was conducted in early 2015 to characterize health-seeking behaviours and service access. A total of 1,376 refugee and 686 host community households were surveyed using cluster design with probability-proportional-to-size sampling. Access to health care and medication was worse among refugees as compared to the host community; the primary barrier to care in both groups was cost. Strengthening primary health services and educating communities about rational care-seeking and home treatment of mild illness may decrease health costs and reduce the burden on the Lebanese health system. Health system

reform towards universal health care for refugees and vulnerable Lebanese that is supported by the international community could help to ensure integration and provide less costly and more sustainable health services access for refugees.

Keywords: Syria, Lebanon, refugee, host community, humanitarian assistance, health services

Introduction

Challenges presented by the growing trend of displaced populations settling in more urban non-camp settings in middle-income countries are compounded by global demographic and epidemiologic transitions. To face these challenges, traditional assistance mechanisms of establishing parallel systems of refugee assistance in host countries must shift towards integration of refugee assistance into existing systems (Spiegel *et al.* 2010; Gutierrez and Spiegel 2012; IFRC 2012; UNHCR 2015e). Given the protracted nature of current crises like those in Syria, Iraq and Ukraine, strengthening existing systems, capacity and infrastructure to meet refugee needs may provide the most sustainable solution to addressing increased demand for health services and providing more comprehensive care to both refugees and affected host communities (El-Khatib *et al.* 2013).

Since the beginning of the Syrian crisis in 2011, an estimated 7.6 million Syrians have been displaced within Syria and another 4.5 million have fled the country as refugees, mostly to neighbouring countries (UNHCR 2017; ACAPS 2014). As host to 1.07 million registered Syrian refugees, Lebanon has the highest number of refugees per capita worldwide. Providing health care to this population poses significant challenges. The Lebanese health system has incurred immense costs for delivering services, strengthening capacity and maintaining infrastructure to meet the growing demand for health care brought on by the recent influx of Syrian refugees (UNHCR 2015f). Unlike other countries hosting large numbers of Syrian refugees, Lebanon has not established formal camps for Syrian refugees and there are no health facilities dedicated to providing services only to the refugee population (UNHCR 2015c). Delivery of health services for Syrian refugees in Lebanon is based on a primary health care strategy. Syrian refugees may utilize primary health care services in approximately 100 out of 217 existing Ministry of Public Health (MoPH) primary health care centres (PHCCs) and 900 existing PHCCs/dispensaries across the country with subsidized rates (Caritas *et al.* 2013). Referrals for secondary and tertiary services are then managed by a third-party private administrator (UNHCR 2013; World Bank 2013; OCHA 2014; UNHCR 2015b). Though each individual case is evaluated, the majority of coverage for secondary and tertiary care is provided for life-saving emergencies, delivery and care for newborns.

Despite some subsidized primary care, many refugees are not able to access needed secondary and tertiary care because of resource and funding constraints; many cases which could have received early intervention do not receive care at all or until their condition is advanced enough to be considered a health emergency. The cost of care and demand for secondary and tertiary services are particularly prominent given the high burden of non-communicable diseases (NCDs) among both Syrian refugees and the Lebanese. The complexity of managing these conditions and the limited resources available for refugee health care is apparent given the current coverage gap for secondary and tertiary care. For both those that receive subsidized care and those whose treatment costs are not covered, the burden of even a small out-of-pocket payment can serve as a barrier to care, in particular given the poor financial situation and increasing debt of many refugee households (UNHCR 2015d). An estimated 39 per cent of Syrian refugees in Lebanon are not receiving needed medical care because of the costs of treatment and medication (Edwards 2015).

The Lebanese government, national actors and the international community face significant challenges in addressing the needs of affected refugee and host community population in Lebanon, in particular given Lebanon's highly fragmented and privatized health system (Smith 2003; Khatib 2004; Crisp *et al.* 2012; IGSPS 2012; World Bank 2013; Amara and Aljunid 2014). In light of the continuing concern for, and obligation to protect, the health of Syrian refugees and affected host communities, we undertook this study to with the aim of characterizing health access and service utilization in Lebanon and informing humanitarian policy and decision-making. This article sought to assess adult health needs, care-seeking behaviours and barriers to health care with a particular focus on comparison between Syrian refugees and affected host communities in Lebanon.

Methods

A survey of Syrian refugees and Lebanese host communities was conducted in March and April 2015 to characterize health-seeking behaviours and health service access. A cluster design with probability-proportional-to-size sampling was used to attain a nationally representative sample of Syrian refugees living outside of camps. Sample size was determined for key objectives based on the most conservative prevalence estimate of 50 per cent; calculations assumed 80 per cent power and a design effect of 2.0. The planned sample was increased from the minimum identified size of 900 refugee households to 1,400 refugee households and 700 Lebanese host community households to provide increased precision of point estimates and additional power.

Given the concentration of Syrian refugees and the low cost of visiting many locations due to the country's small size, a 100 cluster \times 21 household (14 Syrian refugee households and seven host community households) design

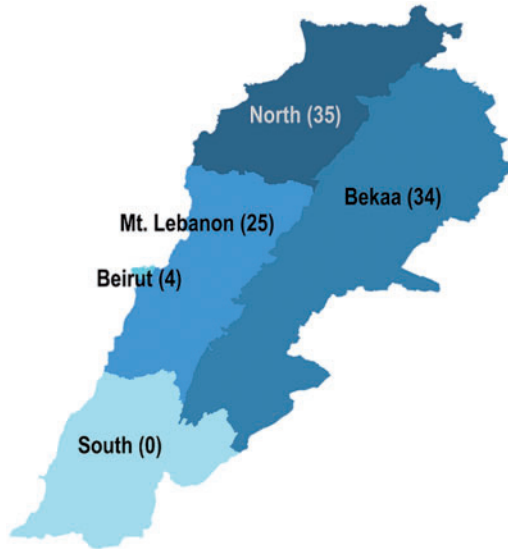


Figure 1.
Cluster Allocation by Governorate

was used. Probability-proportional-to-size sampling using United Nations High Commissioner for Refugees (UNHCR) registration data was used to assign clusters to cadastrals, assuming that non-registered refugees had similar residence patterns. Permission to survey in certain security-sensitive areas as planned could not be attained, which necessitated a redraw of 28 clusters assigned to 22 inaccessible cadastrals. Clusters were reassigned to accessible areas using probability-proportional-to-size sampling. The final cluster assignment included 35 clusters (35 per cent) in the North Governorate, 34 clusters (34 per cent) in Bekaa Governorate, 25 clusters (25 per cent) in Mount Lebanon Governorate, four clusters (4 per cent) in Beirut Governorate and two clusters (2 per cent) in the South Governorate (Figure 1). Only two cadastrals in the south were accessible to the survey team; presenting data from only these locations was not sufficiently representative of the Governorate and would violate cluster-sampling assumptions, thus the two South Governorate clusters were excluded from the analysis.

ARC GIS software was used to randomly allocate cluster start points within cadastrals. Coordinates in populated areas were used and the nearest intersection to the start point, usually within a half-kilometre, was used as the starting survey location. Teams were provided with coordinates and satellite-imagery maps, and were instructed to navigate to start points using mapping software such as Google Maps. At the start location, interviewer pairs were sent in different directions to locate households; they approached the nearest business likely to be used by refugees and asked

to be referred to nearby Syrian households. Other key informants, notably community residents, were used when there were no nearby shops. When interviewers reached a household that consented to participate, the first interview in the cluster was conducted; upon completion, respondents were asked for a referral or introduction to the nearest Syrian household. This referral process was used until 14 Syrian refugee interviews were completed. Following each two completed interviews with Syrian refugee households, interviewers proceeded to the nearest Lebanese household and completed an interview. To improve representativeness and geographic coverage of the sample, no more than three households within the same apartment building were included.

To sample informal tented settlements (ITS), the team estimated the size and area by walking transects and/or the perimeter. When necessary, the ITS was divided into sub-areas of similar size that were assigned to different interviewers. Interviewers located the middle of the settlement/area, spun a pen to randomly select a direction and then walked in the indicated direction, counting the number of shelters passed before reaching the edge of the settlement/area. A randomly selected number between one and the total number of shelters passed was used to identify the starting household. This process was repeated until the necessary number of interviews was complete.

Only Syrian households arriving in Lebanon in 2011 or later were eligible to participate, as the aim was to capture the experiences of those displaced by the conflict. However, only one household arrived in Lebanon before 2011. Families with both Lebanese and Syrian members were considered Syrian refugees if they arrived in Lebanon in 2011 or later and lived in Syria prior to this time. Families who had never lived in Syria were considered as Lebanese host community households for the survey.

The questionnaire was initially developed for use in Jordan and was adapted to the Lebanese context by consensus between partner organizations. The questionnaire focused on health service utilization, access and barriers to care, children's health and chronic medical conditions. The Arabic translation of the Jordan questionnaire was adapted for Lebanon and a formal pilot test conducted. Lebanese interviewers, most of whom had prior experience conducting surveys with Syrian refugees in Lebanon, received two days of classroom training that focused on the questionnaire, e-data collection, interview techniques, sampling and basic principles of human subjects' protections (i.e. voluntary participation, informed consent, protection of privacy and personal information, etc.), after which two additional days of practical field training were held. To protect the anonymity of respondents, no unique identifiers were recorded and verbal consent was obtained. Interviews lasted between 30 and 60 minutes, depending on the household size, number of children and individuals with chronic medical conditions. Data was collected on tablets using the Magpi mobile data platform by DataDyne LLC (Washington, DC). Interviewers were supervised by team leaders in addition to a national and international study coordinator; team

leaders checked data records for completion prior to leaving communities. Uploaded records were subsequently verified for quality and completeness by the study coordinator as they were uploaded so that concerns could be addressed immediately.

Data was analysed using Stata 13 (College Station, TX) and Tableau Desktop (Seattle, WA) using descriptive statistics and standard methods for comparison of means and proportions. Differences in household characteristics by care-seeking in Lebanon were examined using chi-square and *t*-test methods. Characteristics with statistical significance $p < 0.10$ were included in the adjusted logistic regression model. The Stata 'svy' command was used to account for the cluster survey design so that standard errors of the point estimates and model coefficients were adjusted for survey design effects. Amounts in Lebanese Pounds were converted to US dollars at a rate of 1,500 LBP per US\$1.

The study was approved by the Institutional Review Board at the American University of Beirut. The Johns Hopkins Bloomberg School of Public Health Institutional Review Board also reviewed the protocol and determined that members of the Johns Hopkins Bloomberg School of Public Health team were not involved in human subjects research because they did not have direct contact with participants or access to personal identifiers.

Results

A total of 2,165 households were approached to participate. Of these, 1.9 per cent ($n=40$) were not at home, 0.2 per cent ($n=4$) were previously interviewed, 0.05 per cent ($n=1$) were ineligible and 2.7 per cent ($n=58$) refused. The final sample included 2,062 households (1,376 Syrian refugees and 686 host Lebanese households), which equates to a response rate of 93.6 per cent.

Health-Seeking and Service Utilization

Reasons for needing care, the time frame of most recently needing care, receipt of care and reasons for not seeking care are presented in Table 1. A substantial proportion of households, both refugee (88.5 per cent) and host community (93.6 per cent), reported that medical care was needed for an adult household member within the month preceding the survey ($p<0.001$). The primary reasons reported for needing adult health care included infections or communicable disease, chronic medical conditions and NCDs, obstetric/gynaecological care and injuries. Though the leading reasons for needing care were similar for refugee and host community households, there were statistically significant differences in their distribution between the two populations ($p<0.001$).

Nearly three-quarters (74.5 per cent) of all households that needed health care for an adult member reported receiving care with a statistically significantly larger proportion of host community households receiving needed care

Table 1

Health Care Needs among Adult Syrian Refugees and Host Communities in Lebanon

	Survey total (n=1,860)		Syrian refugees (n=1,218)		Host community (n=642)		Population comparison p-value
	%	95 CI	%	95 CI	%	95 CI	
Households with any adult member needing care in Lebanon	90.2	(88.4, 91.7)	88.5	(86.3, 90.4)	93.6	(91.4, 95.2)	<0.001
Households with any adult member needing care in Lebanon within year preceding survey	84.6	(82.3, 86.7)	84.6	(82.0, 86.9)	84.7	(81.3, 87.6)	0.952
<i>Reason for needing health services</i>							
Infection or communicable disease	41.3	(38.4, 44.2)	40.5	(37.3, 43.8)	42.9	(38.3, 47.6)	<0.001
Chronic/non-communicable disease	17	(15.0, 19.3)	14.6	(12.5, 17.0)	21.9	(18.3, 25.9)	
Obstetric/gynaecological	9.1	(7.8, 10.7)	10.8	(9.1, 12.8)	5.7	(4.0, 8.0)	
Injury	8.7	(7.4, 10.1)	9.2	(7.6, 11.1)	7.6	(5.7, 10.1)	
Dental care	5.2	(4.1, 6.5)	5.4	(4.2, 6.9)	5	(3.1, 7.0)	
Pregnancy complication	3.4	(2.7, 4.3)	4.3	(3.3, 5.6)	2	(0.9, 3.1)	
Skin problem	3	(2.3, 3.9)	3.4	(2.6, 4.6)	2.1	(1.1, 3.7)	
Gastrointestinal	1.3	(0.9, 1.8)	1.0	(0.6, 1.8)	1.7	(0.9, 3.1)	
Eye problem	1.3	(0.8, 1.9)	1.1	(0.6, 1.9)	1.5	(0.7, 3.3)	
Emotional or mental health	1.1	(0.7, 1.7)	1.3	(0.7, 2.2)	0.7	(0.3, 1.8)	
Joint pain	1.1	(0.8, 1.7)	1.1	(0.7, 1.9)	1.2	(0.6, 2.5)	
Renal	1	(0.6, 1.6)	1.2	(0.7, 2.0)	0.5	(0.2, 1.6)	
Other	6.6	(5.5, 8.1)	6	(4.8, 7.4)	7.9	(5.9, 10.6)	
<i>Time frame when care was last needed*</i>							
Less than 2 weeks ago	37	(34.7, 39.4)	38.8	(36.1, 41.7)	33.6	(30.1, 37.4)	<0.001
2 weeks to less than 1 month ago	27.3	(25.0, 29.8)	28.3	(25.6, 31.2)	25.4	(21.6, 29.5)	
1 month to less than 3 months ago	20.5	(18.5, 22.6)	20	(17.8, 22.5)	21.3	(18.1, 25.0)	
3 months to less than 6 months ago	5.7	(4.8, 6.7)	5.3	(4.2, 6.8)	6.4	(4.8, 8.4)	
6 months to less than 1 year ago	3.3	(2.6, 4.1)	3	(2.3, 4.0)	4	(2.5, 5.5)	
More than 1 year ago	6.2	(4.9, 7.7)	4.4	(3.2, 6.0)	9.5	(7.2, 12.4)	

	n=1,745	n=1,164	n=581	
<i>Received care last time care was needed**</i>				
Yes, sought and received care	74.5 (71.6, 77.2)	69.3 (65.5, 72.9)	84.9 (81.9, 87.4)	<0.001
No, sought but did not receive care	6.1 (4.6, 7.9)	8.2 (6.2, 10.6)	1.9 (1.0, 3.7)	
Did not seek care	19.4 (17.4, 21.7)	22.5 (20.0, 25.2)	13.3 (10.8, 16.1)	
<i>Location most recent adult health care received***</i>	n=1,300	n=807	n=493	
Primary care facility	35.6 (32.7, 38.7)	46.1 (42.2, 50.1)	18.5 (14.7, 22.9)	<0.001
Private clinic	34.3 (31.4, 37.3)	24.3 (20.8, 28.1)	50.7 (46.0, 55.4)	
Hospital	10.1 (8.3, 12.2)	7.6 (5.8, 9.8)	14.2 (11.4, 17.6)	
Pharmacy	18.8 (16.1, 22.0)	21.3 (18.0, 25.0)	14.8 (11.6, 18.7)	
Other	1.2 (0.7, 1.9)	0.7 (0.3, 1.6)	1.8 (1.0, 3.4)	
<i>Reason for deciding not to seek care***</i>	n=106	n=95	n=11	
Could not afford provider costs	86.8 (76.2, 93.1)	86.3 (75.4, 92.9)	90.9 (59.6, 98.5)	Insufficient sample size for population comparison
Could not afford transportation costs	1.9 (0.5, 7.4)	2.1 (0.5, 8.2)	0	
Equipment or drugs are inadequate	1.9 (0.5, 7.5)	2.1 (0.5, 8.3)	0	
Long wait time on previous visit(s)	1.9 (0.5, 7.4)	2.1 (0.5, 8.4)	0	
No family permission	1.9 (0.5, 7.5)	2.1 (0.5, 8.3)	0	
No transportation/difficult to access	0.9 (0.1, 6.5)	0	9.1 (1.5, 40.4)	
Disliked provider's attitude on previous visit(s)	0.9 (0.1, 6.7)	1.1 (0.1, 7.4)	0	
Could not take time/other commitments	0.9 (0.1, 6.7)	1 (0.1, 7.4)	0	
Appointment scheduled/still waiting	0.9 (0.1, 6.6)	1.1 (0.1, 7.3)	0	
Did not know where to go	0	0	0	
Other	1.9 (0.5, 7.5)	2.1 (0.5, 8.3)	0	

As percentage of cases in which it was reported that care was needed in Lebanon.

As percentage of cases in which it was reported that care was needed in the past year in Lebanon.

As percentage of cases that sought care last time it was needed in Lebanon.

As percentage of cases that did not seek care last time it was needed in Lebanon.

(84.9 per cent) as compared to refugees (69.3 per cent) ($p < 0.001$). Differences in care-seeking between refugee and host community households maintained statistical significance when factoring in households that sought but did not receive care (82 per cent of refugees and 1.9 per cent of host community households; $p < 0.001$). Cost was the most commonly reported reason for not seeking care among both refugee and host community adults needing care.

Approximately half of refugees who sought care did so in primary care facilities, followed by private clinics, pharmacies and hospitals. Differences in adult care-seeking location were statistically significant between refugees and host communities ($p < 0.001$); the greatest proportion of host community households sought care in private clinics, followed by a much smaller proportion seeking care at primary care facilities, pharmacies and hospitals (Table 1). Differences in reason for needing care differed significantly by facility type among both refugees and host community households ($p < 0.001$ among both groups) and are presented in detail in Table 2 and Figure 2.

Predictors of Care-Seeking

Results of univariate and multivariate logistic regression analyses for predictors of sector-specific care-seeking for adults are presented in Table 3. Among Syrian refugees, significant differences in the adjusted odds of care-seeking were observed by year of arrival in Lebanon and socio-economic status. Refugees arriving in Lebanon in 2013 or 2014 had 25 per cent lower odds of care-seeking as compared to those arriving in 2011 or 2012. Care-seekers in the highest socio-economic quartile had 1.64 times higher odds of care-seeking as compared to those in the lowest quartile; odds of care-seeking for the second and third quartiles were 1.28 and 1.09, respectively. Among host community respondents, those in the second socio-economic quartile had 2.26 times significantly higher odds of care-seeking as compared to those in the bottom quartile; odds of care-seeking for the third and top quartile in the host community were 1.69 and 1.79, respectively. In both refugees and host communities, there were no statistically significant differences in adjusted odds of care-seeking by geographic region of residence, crowding or household head education level. There were also no statistically significant differences in adjusted odds of care-seeking for refugees by UNHCR registration status.

Access to Medicines

Medication prescription at the most recent visit to health facility was common among adult refugee care-seekers, though no significant differences were observed by provider type ($p = 0.287$). Among refugees prescribed medication 88.9 per cent were able to obtain all of the prescribed medications. The proportion of refugees obtaining prescribed medication was statistically significantly different by facility type, with the highest proportion observed in pharmacy care-seekers (96.4 per cent) and the lowest among hospital care-seekers (83.9 per cent) ($p = 0.009$). Among refugees that did not access medications,

Table 2a

Health Service Utilization among Adult Syrian Refugees in Lebanon*

	Syrian refugees												Facility comparison	p-value
	Overall						By facility type							
	Primary care facility (n=372)		Private clinic (n=196)		Pharmacy (n=172)		Hospital (n=61)		Pharmacy (n=172)		Hospital (n=61)			
%	95 CI	%	95 CI	%	95 CI	%	95 CI	%	95 CI	%	95 CI			
<i>Reason for seeking care*</i>														
Infection or communicable disease	38.2	(34.4, 42.2)	32.5	(27.5, 38.0)	28.1	(21.8, 35.3)	69.2	(60.5, 76.7)	18.0	(9.5, 31.5)				<0.001
Chronic/non-communicable disease	14.1	(11.9, 16.7)	14.8	(11.5, 18.8)	16.8	(12.6, 22.1)	10.5	(6.2, 17.1)	11.5	(5.0, 24.2)				
Obstetric/gynaecological	12.9	(10.7, 15.4)	17.5	(13.9, 21.7)	17.3	(12.9, 22.9)	0.6	(0.1, 4.1)	4.9	(1.6, 14.4)				
Injury	8.9	(7.2, 10.9)	6.2	(4.2, 9.1)	7.7	(4.6, 12.4)	4.1	(1.9, 8.5)	42.6	(29.9, 56.4)				
Pregnancy complication	5.9	(4.5, 7.7)	7.5	(5.2, 10.9)	9.2	(5.9, 14.0)	0.0		1.6	(0.2, 10.2)				
Dental care	5.4	(4.0, 7.2)	6.7	(4.7, 9.6)	6.1	(3.4, 10.9)	2.9	(1.2, 6.8)	1.6	(0.2, 10.9)				
Skin problem	3.6	(2.5, 5.2)	3.0	(1.7, 5.2)	4.1	(2.1, 7.9)	4.7	(2.3, 9.0)	3.3	(0.8, 11.8)				
Renal	1.5	(0.9, 2.5)	1.9	(0.9, 3.8)	2.0	(0.8, 5.2)	0.0		1.6	(0.2, 11.2)				
Eye problem	1.4	(0.7, 2.5)	1.6	(0.6, 4.0)	1.5	(0.5, 4.6)	0.6	(0.1, 4.2)	1.6	(0.2, 10.9)				
Joint pain	1.1	(0.6, 2.1)	1.1	(0.4, 2.8)	1.5	(0.5, 4.6)	0.0		3.3	(0.8, 11.8)				
Emotional or mental health	0.9	(0.4, 1.8)	1.1	(0.4, 2.8)	0.5	(0.1, 3.6)	0.0		3.3	(0.8, 12.6)				
Gastrointestinal	0.6	(0.3, 1.5)	0.3	(0.0, 2.0)	0.5	(0.1, 3.7)	1.2	(0.3, 4.4)	1.6	(0.2, 11.2)				
Other	5.6	(4.4, 7.2)	5.9	(4.0, 8.7)	4.6	(2.3, 8.9)	6.4	(3.5, 11.4)	4.9	(1.6, 14.2)				
Population comparison p-value	<0.001		0.134		0.003		0.242		0.025					
<i>Prescribed medication during most recent health facility visit*</i>														
	93.5	(91.3, 95.2)	91.9	(88.7, 94.3)	94.4	(90.1, 96.9)	96.5	(89.6, 98.9)	91.8	(82.4, 96.4)				0.287
Population comparison p-value	0.462		0.821		0.633		0.764		0.700					
<i>Able to obtain all medications prescribed during most recent provider visit**</i>														
	88.9	(86.1, 91.3)	85.4	(80.6, 89.1)	90.3	(84.8, 93.9)	96.4	(92.1, 98.4)	83.9	(70.8, 91.8)				0.009
Population comparison p-value	<0.001		0.109		0.008		0.278		0.092					

Among cases that received care.

Among cases that received medication during visit.

Table 2b

	Host community															
	Overall	Primary care facility						Private clinic			Pharmacy		Hospital		Facility comparison	
		(n=484)	(n=91)	%	95CI	%	95CI	(n=250)	%	95CI	(n=73)	%	95CI	(n=70)		%
<i>Reason for seeking care*</i>																
Infection or communicable disease	39.0 (33.9, 44.5)	37.4 (29.6, 45.8)	32.8 (26.6, 39.7)	79.5 (67.6, 87.7)	21.4 (12.8, 33.7)	<0.001										
Chronic/non-communicable disease	23.6 (19.6, 28.0)	24.2 (16.9, 33.3)	25.6 (20.2, 31.8)	9.6 (4.6, 19.0)	30.0 (20.3, 41.8)											
Obstetric/gynaecological	6.8 (4.9, 9.5)	13.2 (7.8, 21.4)	7.6 (4.7, 12.2)	2.7 (0.7, 10.3)	0.0											
Injury	7.9 (5.7, 10.7)	5.5 (2.3, 12.7)	6.0 (3.6, 9.8)	1.4 (0.2, 9.3)	24.3 (15.2, 36.5)											
Pregnancy complication	2.1 (1.1, 3.7)	2.2 (0.6, 8.3)	3.2 (1.6, 6.2)	0.0	0.0											
Dental care	5.2 (3.4, 7.8)	0.0	9.6 (6.3, 14.5)	1.4 (0.2, 9.3)	0.0											
Skin problem	2.3 (1.2, 4.2)	6.6 (2.7, 15.2)	2.0 (0.8, 4.7)	0.0	0.0											
Renal	0.6 (0.2, 1.9)	0.0	0.4 (0.1, 2.8)	0.0	2.9 (0.7, 10.9)											
Eye problem	1.7 (0.8, 3.5)	2.2 (0.5, 8.4)	2.4 (1.1, 5.3)	0.0	0.0											
Joint pain	0.6 (0.2, 1.9)	0.0	1.2 (0.4, 3.6)	0.0	0.0											
Emotional or mental health	0.6 (0.2, 1.9)	0.0	0.4 (0.1, 2.9)	1.4 (0.2, 9.3)	1.4 (0.2, 9.8)											
Gastrointestinal	1.9 (1.0, 3.5)	2.2 (0.5, 8.6)	2.0 (0.8, 4.7)	0.0	2.9 (0.7, 10.7)											
Other	7.9 (5.7, 10.7)	6.6 (3.2, 13.3)	6.8 (3.8, 11.8)	4.1 (1.3, 12.5)	17.1 (10.1, 27.6)											
Population comparison p-value	<0.001	0.134	0.003	0.242	0.025											
<i>Prescribed medication during most recent health facility visit*</i>																
Population comparison p-value	93.0 (90.2, 95.0)	91.2 (83.3, 95.6)	93.2 (89.5, 95.7)	97.3 (89.5, 99.3)	90.0 (80.7, 95.1)	0.608										
Able to obtain all medications	0.462	0.821	0.633	0.764	0.700											
prescribed during most recent provider visit**	n=450	n=83	n=233	n=71	n=63											
Population comparison p-value	96.9 (94.8, 98.2)	94.0 (86.9, 97.3)	97.4 (94.4, 98.8)	100	95.2 (85.8, 98.5)	0.134										
Population comparison p-value	<0.001	0.109	0.008	0.278	0.092											

Among cases that received care.

Among cases that did not receive care.

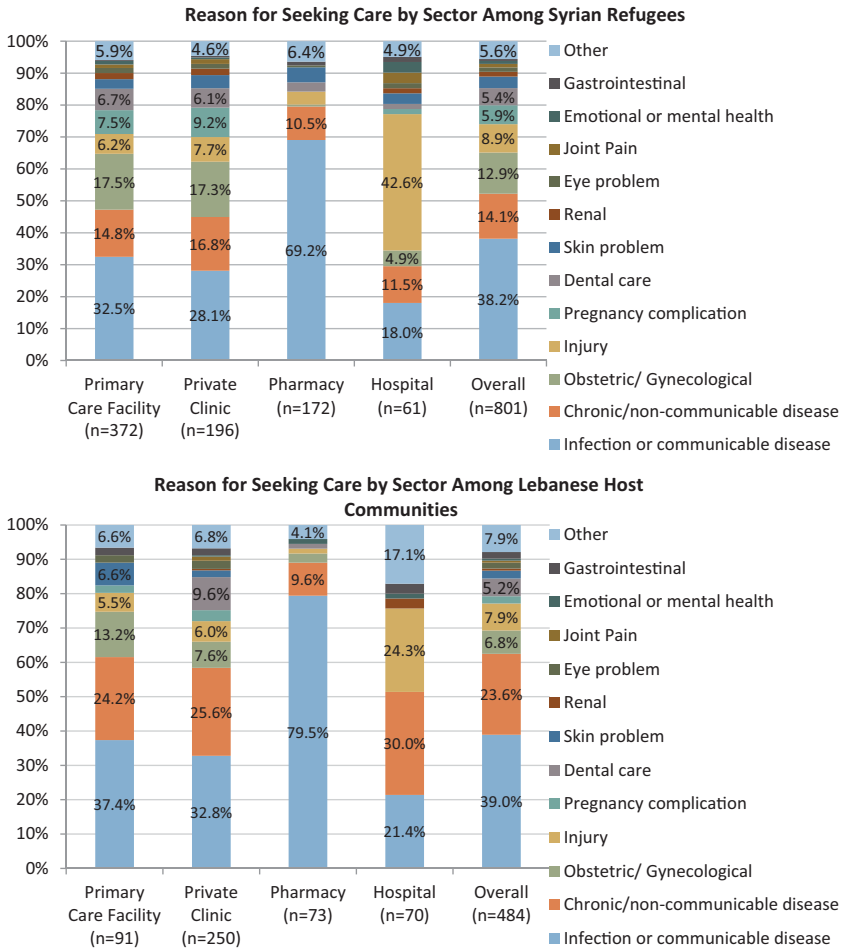


Figure 2. a. Reason for Seeking Care by Sector Among Syrian Refugees. b. Reason for Seeking Care by Sector Among Lebanese Host Communities

the primary reason was that the household could not afford the medication, with a smaller proportion citing that the medication was out of stock at the facility; reasons for not obtaining medications are presented in Figure 3. Most host community care-seekers also reported being prescribed medication at their most recent visit to health facility and a significantly higher proportion of host community members prescribed medicines (96.9 per cent) were able to obtain all prescribed medications than in the refugee population ($p < 0.001$). Compared to refugees, a smaller proportion of host community respondents cited inability to afford the medication as the reason for not obtaining all prescribed medications, though higher proportions cited that the medication was out of stock at the facility and that they chose a different treatment (Figure 3).

Table 3

Odds of Care-Seeking for Adult Syrian Refugees and Host Communities in Lebanon

	Syrian refugees (n=1,218)				Host community (n=642)			
	Sample characteristics		Odds of seeking care		Sample characteristics		Odds of seeking care	
	%	95 CI	Crude OR**	Adjusted OR***	%	95 CI	Crude OR**	Adjusted OR**
<i>Region of residence</i>			Reference	Reference			Reference	Reference
Beirut/Mt. Lebanon	29.1	(20.9, 39.1)			29.8	(21.4, 39.8)		
Bekaa	33.8	(25.0, 43.9)	0.67	0.70 (0.46, 1.05)	34.3	(25.4, 44.4)	1.29	1.36 (0.79, 2.34)
North	37	(27.8, 47.3)	0.97	1.01 (0.69, 1.49)	36	(26.9, 46.2)	1.00	1.09 (0.64, 1.87)
<i>Household characteristics</i>								
Crowding (5+ sleeping room)	44.7	(40.8, 48.8)	0.79	0.78 (0.57, 1.05)	8.7	(6.5, 11.7)	0.91	0.98 (0.37, 2.58)
Registered with UNHCR	75.9	(72.9, 78.6)	1.01	1.09 (0.76, 1.56)		—	—	—
<i>Household head education (highest level completed)</i>								
None	16.3	(13.5, 19.6)	Reference	Reference	13.7	(11.0, 16.9)	Reference	Reference
Primary	37.8	(34.3, 41.3)	0.84	0.82 (0.54, 1.24)	29.9	(26.1, 34.0)	0.91	0.82 (0.40, 1.66)
Preparatory	31.9	(29.1, 34.9)	1.02	0.98 (0.62, 1.55)	25.4	(22.2, 28.8)	1.32	1.14 (0.46, 2.81)
Secondary or higher	14	(12.0, 16.2)	0.84	0.76 (0.45, 1.29)	31	(26.8, 35.5)	1.39	1.18 (0.49, 2.88)
<i>Socio-economic quartile (based on monthly expenditures)</i>								
Bottom	24	(20.8, 27.5)	Reference	Reference	25.2	(21.8, 29.1)	Reference	Reference
second	24.5	(22.1, 27.0)	1.24	1.28 (0.81, 2.01)	24.6	(21.5, 28.0)	2.21	2.26 (1.11, 4.57)
third	25.5	(22.8, 28.4)	1.10	1.09 (0.72, 1.65)	25.2	(21.9, 28.9)	1.83	1.69 (0.90, 3.17)
Top	26	(22.5, 29.9)	1.63	1.64 (1.09, 2.46)	24.9	(20.9, 29.4)	1.88	1.79 (0.89, 3.62)
<i>Year of arrival in Lebanon</i>			Reference	Reference		—	—	—
2011–12	45.9	(42.5, 49.2)	Reference	Reference		—	—	—
2013–14	54.1	(50.8, 57.5)	0.72	0.75 (0.57, 0.99)		—	—	—

*Care-seeking defined as having sought care last time it was needed.
 †Bold indicates statistically significant (p < 0.10) findings.

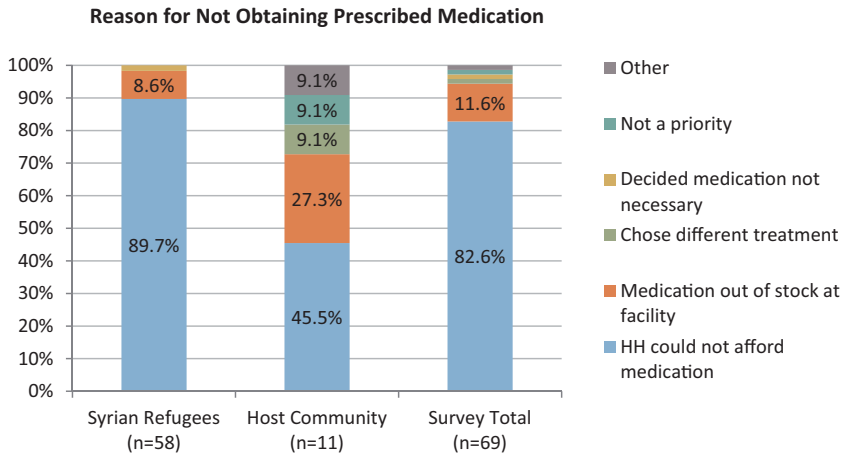


Figure 3.
Reason for Not Obtaining Prescribed Medication

Spending on Health

Details about the total and component costs of treatment (consultations and medications) for both refugee and host community households are provided in Table 4 and in Figure 4. Among the 801 Syrian refugee families that sought care with expenditure information, most reported an out-of-pocket payment (Table 4a). The average total out-of-pocket cost per visit among all refugees seeking care was US\$47.2 (US\$23.8 for consultations, US\$23.4 for medications); however, the median values were lower at US\$26.5 for total costs, US\$6.6 for consultations and US\$16.6 for medication. There was a statistically significant difference in total out-of-pocket cost per visit by facility type, with the greatest difference between hospitals (US\$141.9) and pharmacies (US\$18.9) ($p < 0.001$).

Among the 484 host community families that sought care and reported expenditure information, most reported an out-of-pocket payment (Table 4b). The average total out-of-pocket cost per visit among all host community families seeking care was US\$126.5 (US\$73.9 for consultations, US\$52.6 for medications); however, as with refugee care-seekers, the median values were lower, at US\$59.7 for total costs, US\$29.9 for consultations, and US\$29.9 for consultations and medication. There was a statistically significant difference in total out-of-pocket cost per visit by facility type, with the greatest difference between hospitals (US\$325.5) and pharmacies (US\$26.1) ($p < 0.001$). Costs at primary-level facilities were also significantly different among the host community; private clinic care-seekers incurred an average cost US\$57.7 higher than primary care facility care-seekers ($p = 0.002$). Average host community household out-of-pocket costs were significantly higher than refugee households for consultation and medication, as well as

Table 4a

Out-of-Pocket Payments for Consultations, Medications and Health Care Visits among Syrian Refugee Adults

	Syrian refugees												Facility comparison p-value	
	Overall			By facility type						Hospital				
	%	95 CI	n	Primary care facility	Private clinic	Pharmacy	Hospital	%	95 CI	%	95 CI	%		95 CI
<i>Among all care-seekers</i>														
Total Costs	Median	26.5	26.5	372	n = 196	n = 172	n = 61							<0.001*
	Mean	47.2	(41.8, 52.7)	32.8	53.1	13.3	79.6							0.346**
	Population comparison p-value	<0.001		0.022	<0.001	0.121	<0.001							
Consultation costs	Median	6.6		4.6	26.5	0.0	53.1							<0.001*
	Mean	23.8	(19.5, 28.2)	13.2	36.7	(28.1, 45.3)	113.9							<0.001**
	Population comparison p-value	<0.001		0.175	0.011	0.176	0.004							
Medication costs	Median	16.6		13.3	26.5	13.3	16.6							0.166*
	Mean	23.4	(21.2, 25.6)	19.6	34.0	(28.1, 39.8)	28.0							<0.001**
	Population comparison p-value	<0.001		0.002	<0.001	0.102	<0.001							
<i>Among care-seekers with any payment</i>														
Total costs	Median	29.9		26.5	53.1	16.6	109.5							<0.001*
	Mean	51.8	(45.8, 57.8)	35.9	74.5	(62.8, 86.2)	169.7							<0.001**
	Population comparison p-value	<0.001		0.019	<0.001	0.137	<0.001							
Consultation costs	Median	6.6		6.6	26.5	0.0	66.3							<0.001*
	Mean	26.1	(21.3, 31.0)	14.5	38.7	(29.7, 47.8)	136.2							<0.001**
	Population comparison p-value	<0.001		0.172	0.016	0.176	0.007							
Medication costs	Median	19.9		16.6	27.5	16.6	23.2							0.068*
	Mean	25.7	(23.2, 28.1)	21.4	35.8	(29.6, 42.0)	33.5							<0.001**
	Population comparison p-value	<0.001		0.001	<0.001	0.116	<0.001							
<i>Among households paying for consultation</i>														
Consultation costs	Median	13.3		6.6	26.5	13.3	13.3							<0.001*
	Mean	34.5	(28.6, 40.4)	15.5	39.1	(30.1, 48.1)	136.2							<0.001**
	Population comparison p-value	<0.001		0.160	0.009	—	0.004							
<i>Among households paying for medications</i>														
Medication costs	Median	20.9		23.2	33.2	16.6	29.9							<0.001*
	Mean	30.0	(27.2, 32.7)	27.5	41.4	(34.4, 48.3)	39.7							<0.001**
	Population comparison p-value	<0.001		0.006	<0.001	0.137	<0.001							

p-value for comparison of means across all facility types.
 p-value for comparison of means across primary-level facilities (primary care facilities and private clinics).

Table 4b
Out-of-Pocket Payments for Consultations, Medications and Health Care Visits among Host Community Adults

	Host community												Facility comparison p-value				
	Overall			By facility type													
	%	95 CI		Primary Care Facility			Private Clinic			Pharmacy				Hospital			
<i>Among all care-seekers</i>																	
Total Costs	Median	n=484	n=91	n=250	n=73	n=70											
	Mean	59.7	34.5	71.3	16.6	149.3											
	Population comparison p-value	126.5	(103.7, 149.4)	120.5	(94.8, 146.1)	26.1	(17.5, 34.8)	325.5	(237.7, 413.3)								<0.001*
Consultation costs	Median	<0.001	0.022	<0.001	0.121	<0.001											0.002**
	Mean	29.9	10	33.2	0	84.2											<0.001*
	Population comparison p-value	73.9	(55.6, 92.3)	28	(7.2, 48.9)	63.1	(43.4, 82.7)	0	(0.0, 0.0)	244.7	(166.4, 323.0)						0.019**
Medication costs	Median	<0.001	0.175	0.011	0.176	0.004											<0.001*
	Mean	29.9	19.9	33.2	16.6	48.1											0.001**
	Population comparison p-value	52.6	(45.4, 59.8)	34.7	(25.4, 44.0)	57.4	(47.3, 67.5)	26.1	(17.5, 34.8)	80.8	(58.2, 103.4)						0.001**
<i>Among care-seekers with any payment</i>		<0.001	0.002	<0.001	0.102	<0.001											
Total costs	Median	n=461	n=83	n=247	n=67	n=64											
	Mean	63	36.5	73	16.6	187.4											
	Population comparison p-value	133.3	(109.2, 157.4)	121.9	(96.0, 147.8)	28.5	(19.2, 37.7)	356	(264.5, 447.6)								<0.001*
Consultation costs	Median	<0.001	0.019	<0.001	0.137	<0.001											0.006**
	Mean	33.2	10	33.2	0	102.8											<0.001*
	Population comparison p-value	77.9	(58.5, 97.2)	30.7	(8.0, 53.5)	63.8	(44.0, 83.6)	0	(0.0, 0.0)	267.7	(184.9, 350.4)						0.033**
Medication costs	Median	<0.001	0.172	0.016	0.176	0.007											<0.001*
	Mean	55.4	(47.8, 63.0)	38.1	(28.4, 47.8)	58.1	(47.9, 68.3)	28.5	(19.2, 37.7)	88.4	(64.6, 112.1)						<0.001*
	Population comparison p-value	<0.001	0.001	<0.001	0.116	<0.001											0.004**
<i>Among households paying for consultation</i>		n=373	n=76	n=237	n=0	n=60											
Consultation costs	Median	33.2	12.9	33.2	–	157.5											<0.001*
	Mean	95.9	(73.4, 118.5)	33.6	(8.9, 58.2)	66.5	(46.2, 86.9)	–	–	285.5	(195.4, 375.6)						0.046**
	Population comparison p-value	<0.001	0.160	0.009	–	0.004											
<i>Among households paying for medications</i>		n=424	n=72	n=224	n=70	n=58											
Medication costs	Median	33.2	26.5	36.5	16.6	56.4											<0.001*
	Mean	60.3	(52.3, 68.4)	43.9	(32.3, 55.5)	64.1	(53.2, 75.0)	27.2	(18.3, 36.2)	97.5	(73.0, 122.0)						0.011**
	Population comparison p-value	<0.001	0.006	<0.001	0.137	<0.001											

p-value for comparison of means across all facility types.

p-value for comparison of means across primary-level facilities (primary care facilities and private clinics).

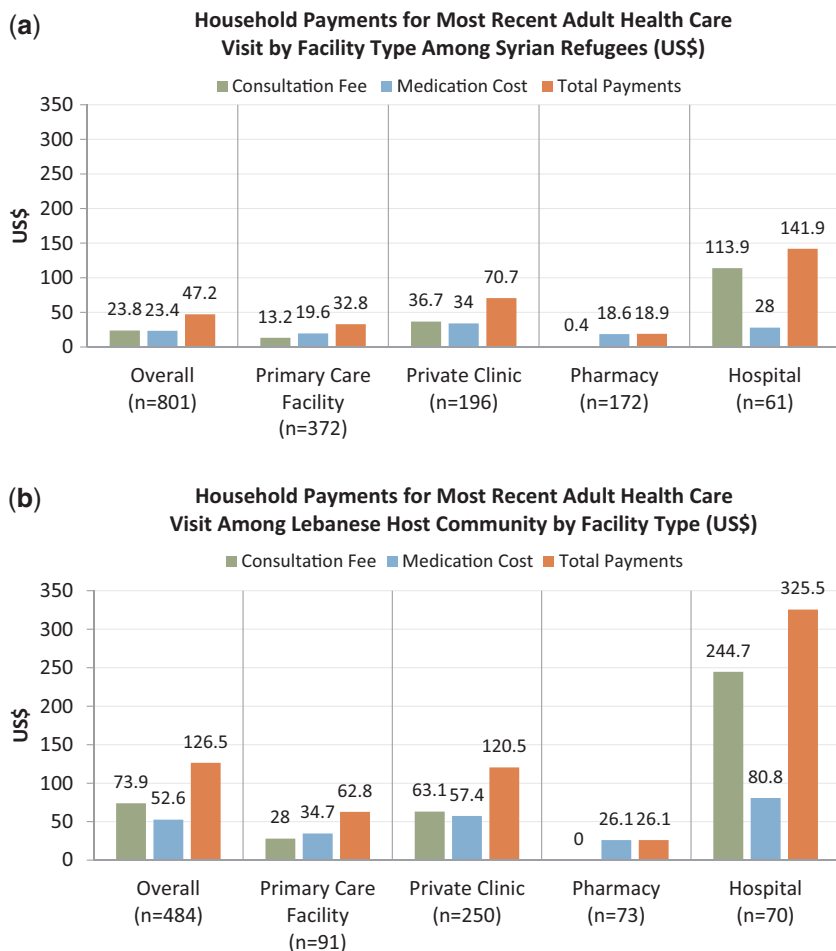


Figure 4.

a. Household Payments for Most Recent Adult Health Care Visit by Facility Type Among Syrian Refugees (US\$). **b. Household Payments for Most Recent Adult Health Care Visit Among Lebanese Host Community by Facility Type (US\$)**

overall, with average costs to host community households as high as US\$81.5 greater than refugee household costs.

Hospitalizations

Hospitalization of a household member in Lebanon for reasons other than childbirth in the year preceding the survey was significantly lower among refugee households (20.2 per cent) as compared to host community households (43.1 per cent) ($p < 0.001$). Refugee households and host community households reported similar numbers of hospitalizations in the year preceding

the survey, with an average of 1.6 (range=0–38) among refugees and 1.7 (range=1–20) among host community households ($p=0.638$). The primary reasons for hospitalization among refugee households included injury, digestive conditions, infection or other acute illnesses, and respiratory conditions (Table 5). Primary reasons for hospitalization among host community households were significantly different, with cardiovascular conditions accounting for a greater proportion of hospitalizations, followed by digestive conditions, injury, respiratory conditions and genitourinary conditions. No significant differences were observed between those utilizing private versus public hospitals in either population group.

Significant differences in hospital utilization were observed between refugees and host communities ($p<0.001$). More than half of hospitalizations were in a private sector facility (60.8 per cent, confidence interval (CI): 54.3–70.0 among refugees; 77.0 per cent, CI: 71.3–81.9 among the host community) with a minority using public hospitals (37.1 per cent, CI: 30.9–43.6 among refugees; 21.0 per cent, CI: 16.2–26.6 among the host community). The average length of hospitalization was 4.5 days (range 1–180) among refugees and 4.9 days (range=1–75) among host community households. There were no statistically significant differences in length of hospital stay by sector in either population group. Out-of-pocket payments for the most recent hospitalization are presented in Table 5. Though similar proportions of refugee and host community households reported an out-of-pocket payment for the most recent hospitalization, average costs for host community households were US\$304.1 higher than refugee households.

Discussion

The high demand for health care among Syrian refugees, where the majority of households reported an adult needed medical attention within the month preceding the survey, is indicative of the burden placed on the Lebanese health system by the more than one million Syrian refugees now in Lebanon (UNHCR 2014a). Infectious diseases were the predominate reason for needing medical care followed by chronic conditions, obstetric/gynaecological needs and injuries; this was true for both Syrian refugees and the Lebanese host community and is aligned with earlier observations of health status of Syrian refugees in Lebanon (UNHCR 2013).

Just over half (50.4 per cent) of Syrian refugee households had one or more members with a chronic health condition. UNHCR figures estimates that 14.6 per cent of adult Syrian refugees in Lebanon have a chronic disease and similar Syrian refugee surveys in Jordan found that 39.8 and 43.4 per cent of households in Jordan had at least one household member with a chronic health condition (UNHCR 2014a, 2014b; Doocy *et al.* 2015). The demographic transition, longer life expectancies and changes in lifestyle patterns portend an increasing burden of NCDs in the Middle East and findings are consistent with pre-crisis patterns (Doocy *et al.* 2013, 2015). Previous

Table 5

Hospitalizations in Lebanon Among Syrian Refugees and Host Communities

Reason for most recent hospitalization**	Syrian refugees						Host community						
	Overall*			By sector			Overall*			By sector			
	(n=272)			(n=169)			(n=290)			(n=228)			
	Point	95 CI	Sector comparison p-value	Point	95 CI	Sector comparison p-value	Point	95 CI	Sector comparison p-value	Point	95 CI	Sector comparison p-value	
Injury	19.9	(15.2, 25.5)	0.428	20.7	(15.2, 27.6)	0.428	14.5	(10.7, 19.3)	0.428	14.5	(10.7, 19.4)	0.506	
Digestive	16.2	(12.0, 21.4)		17.2	(12.0, 23.9)		15.9	(12.3, 20.2)		14.5	(8.2, 24.4)		
Infection or other acute illness	13.6	(10.3, 17.7)		18	(12.5, 26.3)		7.9	(5.5, 11.3)		8	(3.5, 17.5)		
Respiratory	12.9	(9.6, 17.1)		13	(8.9, 18.6)		13.4	(9.5, 18.7)		8.1	(3.4, 18.0)		
Gonitourinary	10.7	(7.4, 15.1)		11.8	(7.5, 18.2)		12.8	(9.2, 17.4)		11.3	(5.0, 23.7)		
Cardiovascular	9.9	(7.1, 13.8)		11.2	(7.4, 16.7)		23.4	(18.2, 29.6)		22.6	(13.4, 35.4)		
Cancer/neoplasm	2.2	(1.0, 4.8)		4	(1.5, 9.8)		3.1	(1.6, 5.8)		2	(0.2, 11.0)		
Other	14.7	(11.5, 18.7)		15.5	(9.7, 23.9)		9.0	(6.1, 13.0)		9.7	(4.3, 20.3)		
Population comparison p-value		0.001			0.051			0.024					
Reason for selecting hospitals**													
Affordable cost	26.1	(21.5, 31.3)	0.011	20.7	(15.0, 27.9)	0.011	10.7	(7.4, 15.3)	0.011	30.6	(19.7, 44.3)	5.3	(2.6, 10.2)
Emergency	22.8	(18.0, 28.5)		27.2	(19.7, 36.2)		17.9	(13.7, 23.1)		24.2	(13.8, 38.9)	16.2	(12.2, 21.3)
Referred by doctor	27.9	(22.1, 34.6)		30.2	(23.0, 38.5)		30.3	(24.6, 36.8)		25.8	(17.0, 37.1)	31.6	(25.3, 38.6)
Close to place of residence	14	(10.1, 18.9)		6.8	(3.5, 13.0)		18.3	(12.9, 25.5)		13.8	(9.9, 18.9)	16.1	(8.9, 19.0)
Like staff/treatment quality	3.3	(1.8, 6.1)		3.9	(1.5, 9.4)		3	(1.3, 6.8)		20.7	(16.0, 26.4)	1.6	(0.2, 11.0)
Other	5.9	(3.5, 9.6)		3	(1.0, 8.5)		7.7	(4.5, 12.8)		6.6	(4.2, 10.1)	2	(0.2, 11.0)
Population comparison p-value		<0.001			0.435			<0.001					
Hospitalization length (days)													
Median	2			2			3			3		3	
Mean	4.5	(2.9, 6.1)		5.2	(1.6, 8.8)		4.2	(2.9, 5.5)		4.9	(2.9, 8.0)	4.9	(4.1, 5.6)
Population comparison p-value		0.671			0.913			0.383					0.654
Paid for hospitalizations**	89.7	(86.0, 92.5)	0.291	87.6	(81.7, 91.8)	0.291	88.6	(84.6, 91.7)	0.291	87.1	(76.5, 93.3)	89	(84.0, 92.6)
Population comparison p-value		0.416			0.484			0.175					0.683
Cost to household for visit (US dollars)													
Median	199			199			199			165.8		199	
Mean	318.1	(267.6, 368.7)	0.061	354.2	(283.8, 424.7)	0.061	579.1	(472.0, 686.2)	0.061	457.2	(237.3, 677.0)	625.3	(494.2, 756.4)
Population comparison p-value		<0.001			0.108			<0.001					0.218
Cost to household for visit (US dollars)**													
Median	199			199			248.8			215.6		265.3	
Mean	355.2	(300.2, 410.2)	0.017	404.5	(328.9, 480.1)	0.017	659.3	(545.6, 773.0)	0.017	524.9	(280.5, 769.4)	702.3	(563.1, 841.5)
Population comparison p-value		<0.001			0.064			<0.001					0.241

Includes hospitalizations for which the hospital sector is unknown. As percentage of households with a hospitalization in Lebanon in the past six months. Among

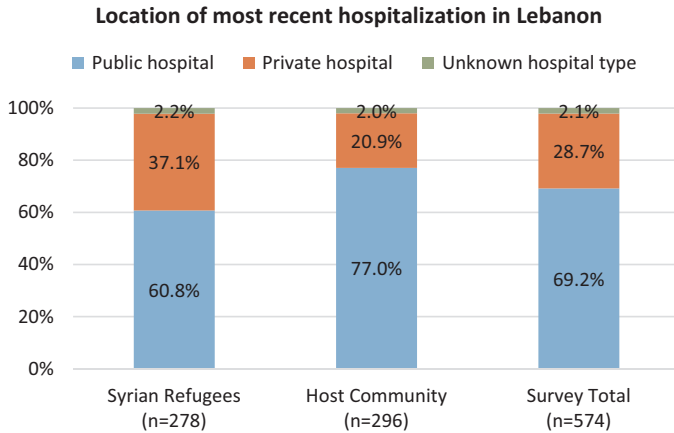


Figure 5.
Location of most recent hospitalization in Lebanon

studies in Syria found cigarette smoking was common across all age groups, and in particular among men (Ward *et al.* 2006). Low levels of physical activity were common in urban populations in particular women, and body mass index was shown to increase with age (Fouad *et al.* 2006). The high prevalence of both risk factors for chronic disease and conditions such as hypertension and diabetes in the older segments of the population suggest that, assuming no lifestyle changes after seeking refuge in Lebanon, increased prevention efforts coupled with good access to health services could have long-term benefits.

The costs for clinical services for refugees carried by the Ministry of Health, UNHCR and non-governmental organizations (NGOs) is greater in Lebanon than in other settings where NCDs account for a smaller portion of the burden of disease among refugees. A previous study by Amnesty International described the implications and unnecessary complications resulting from inadequate access or use of health care by Syrian refugees in Lebanon (AI 2014). Additional study of treatment adherence and the quality and continuity of care is warranted. Increased capacity and targeted services for refugees with chronic conditions including hypertension, diabetes and cardiovascular disease has helped improve disease control and health outcomes (Shahin *et al.* 2015). Additionally, efforts should be made to encourage those with chronic NCDs to regularly utilize primary care facilities rather than obtaining prescription refills directly at pharmacies for extended lengths of time. While this may increase the burden on already overstretched primary health care facilities, these efforts may help to improve the quality of care provided to refugees and Lebanese and reduce long-term costs for treating complications (Li *et al.* 2005; Abegunde *et al.* 2007; Ahern and Hendryx 2007; Kim 2007; De Brantes *et al.* 2010; WHO 2010). Early diagnosis and control of chronic medical conditions could improve health outcomes as well

as the need for costly tertiary care which would reduce the cost of health services, both in terms of out-of-pocket costs borne by refugees and for governments and international agencies that provided subsidized access to care.

Demand for health services was high, though care-seeking location decisions appeared rational, with many households seeking care at primary care facilities and private clinics rather than hospitals, which were infrequently utilized for the most recent illness requiring care reported by households. Though fewer households indicated that they most recently sought care at a pharmacy as compared to a primary or private care facility, the prevalence of pharmacy care-seeking suggests that homecare is common, particularly among Syrian refugees. Most often, those who first sought care at pharmacies did so for infection or communicable diseases, with a minority doing so for NCDs. Additional education and community outreach focused on appropriate homecare options and decision-making on when to seek care for minor illnesses could help populations better understand when to seek care and alleviate some of the caseload presenting at health facilities. Health promotion programmes can help improve health-seeking behaviour as well as build knowledge of home treatment for simple conditions such as upper respiratory infections.

While a higher proportion of Syrian refugees reported needing medical care within the preceding month as compared to Lebanese, a smaller proportion were able to obtain needed medical care. Health care was much less accessible for Syrian refugees than for the Lebanese host community. Overall, 31 per cent of adult refugees did not receive health care and, among those that were prescribed medication, 11 per cent did not obtain the medicines. This compares to 15 and 3 per cent, respectively, of Lebanese host community adults. Refugees living in informal settlements are more reliant on humanitarian assistance and likely to face the greatest difficulties in accessing public services; additional outreach efforts to this vulnerable subgroup are critical to ensure sufficient access to health services (ILO 2015a).

Despite subsidies, cost is a primary barrier to receiving needed services among both refugees and affected host community households—a finding aligned with the considerable out-of-pocket payments reported by care-seekers. As of August 2015, Syrian refugees registered with the UNHCR and targeted vulnerable Lebanese are entitled to subsidized care at approximately 116 of over 800 primary care facilities for a fee of 3,000–5,000 LBP (approximately US\$2–3) (UNHCR Inter-agency Coordination Lebanon 2015). An increasing number of PHCCs (nearly 200 as of August 2015) are part of the country's MoPH network, providing reduced-cost care for vulnerable Lebanese nationals (Ministry of Public Health of Lebanon 2015). Additional primary care facilities not in the MoPH network nor supported by UNHCR or NGOs often offer care at reduced rates. Care at these facilities is provided for non-registered Syrians for reduced cost and offer an opportunity for more affordable care to this otherwise missed population,

though costs vary dramatically and it is often difficult to identify clinics providing reduced-cost care (AI 2014). Conversely, diagnostic testing is only covered for certain vulnerable refugee groups (children under five years, adults 60 years and older, the disabled and pregnant or nursing women), for which UNHCR covers 85 per cent of diagnostic costs. Medication for chronic conditions are provided to refugees for a dispensing fee of 1,000 LBP (approximately US\$0.66) through an ongoing medication support programme run by the Young Men's Christian Association (YMCA); however, stocks are not always sufficient, and it can be challenging to get on the list (Caritas *et al.* 2013; YMCA, no date).

Despite the fact that 76 per cent of refugee households receiving care reported that all members were currently registered with UNHCR and 10 per cent reported that some members were currently registered with UNHCR, the average costs reported by refugees indicate that the standard subsidized cost of US\$2–3 for primary care at participating primary-level facilities is most often exceeded. Only 34 per cent of refugees reported that care received in a primary care facility with an out-of-pocket consultation cost of US\$3 or less. While it is possible that the total payment to the facility was reported, which includes both the consultation fee and diagnostic testing, the most likely explanation for this difference is that refugees received care at facilities not supported by an NGO/the UN or outside of the MoPH network. Even with numerous means of financial support for health care to refugee and host community populations in Lebanon, the difference in health care costs between the two groups is clear and contributes to ongoing tension between the two populations (UNHCR 2014c).

Overnight hospitalizations in Lebanon within the preceding year were reported by a much smaller proportion of refugee households than host community households. Hospital care is provided to Syrian refugees in Lebanon only by referral from a primary care facility or self-presentation in the case of a life-threatening emergency. Eligibility is limited to cases fitting into one of two categories: (i) emergencies (obstetric, medical and surgical) and (ii) elective cases for complementary investigations and/or specific treatment. Refugees not meeting eligibility criteria or otherwise seeking care at hospitals for non-life-threatening emergencies can be considered by the UNHCR Exceptional Care Committee to determine whether the case may be covered. If the case is not approved by the Exceptional Care Committee, refugees must directly pay the full cost of care (UNHCR 2015a). This may explain why hospitals were utilized at a lower rate for refugees than host community households; however, the highly privatized health system in Lebanon often makes care similarly as expensive for vulnerable Lebanese (IGSPS 2012; World Bank 2013).

Hospitals face a substantial burden of injury care, particularly among refugees, as observed in these findings. In addition to being the leading cause of inpatient stays among refugees and the third most common reason among the Lebanese host community, injuries were the most common reason for

hospital visits without an overnight stay among both refugees and host communities (42.6 and 24.3 per cent, respectively). Recent studies in Baghdad and Syria found burns and falls, most often occurring in the home, were a common source of injuries (Lafta *et al.* 2015; O'Carrol 2015). A similar pattern of burns is likely in Lebanon and has been observed as refugees tend to live in crowded, poorly maintained accommodation (AI 2014; ILO 2015b; WFP *et al.* 2015). Road traffic accidents have also been a noted problem for Syrian refugees in Lebanon, as have work-related accidents, as many refugees are working in the construction sector. More information about the nature of adult injuries in both groups could guide development of injury prevention programmes or refining of existing efforts, both of which could improve wellbeing and lower health service costs.

Despite gains in health indicators and overall progress in Lebanon's health sector in recent decades, the conflict in Syria and resulting refugee influx and crowding-out of Lebanese from health facilities has drawn the country further from its goal of universal health coverage and brought the attention of the international community. In an effort to address urgent health needs of vulnerable Lebanese households most affected by the Syrian conflict, a pilot project funded by the World Bank in partnership with the Lebanese MoPH is planned that aims to expand health coverage to poor Lebanese households (World Bank 2015). Through an essential health care package focused on primary care and disease management for select conditions, Lebanese households considered to be most vulnerable and affected by the conflict in Syria will be able to access subsidized health care. The pilot's second aim of building capacity of PHCCs in Lebanon for more sustained long-term solutions begins to extend benefits beyond targeted Lebanese households and towards all households utilizing PHCCs, Syrian and Lebanese alike. These efforts are a step towards the Lebanese MoPH's universal health coverage goal and present an opportunity for inclusion of refugees in a universal health coverage reform funded by the international community.

Limitations

With respect to sampling, reliance on UNHCR registration data may have resulted in sampling bias if the geographic distribution of registered and unregistered households differed. Reallocation of clusters in areas controlled by militarily and political factions where permission to conduct the survey was not secured, specifically in the south, southern suburbs of Beirut and northern areas of Bekaa, resulted in large area of the country being excluded. The survey coverage area included only 53 per cent of registered Syrian refugees and thus is not representative of the entire Syrian refugee population in Lebanon. In some of these areas, in particular south Beirut and north Bekaa, access to health services is perceived as particularly poor, thus survey findings may present a better picture of health access than if the entire country was included. The within-cluster referral process presents the

potential for bias, as respondents may not have always referred to the nearest household; referral procedures and small clusters size may have attenuated within-cluster similarities and the associated design effect. Replacement sampling, which was done for logistical purposes, could have contributed to bias if there were systematic differences between households with no one home compared with those interviewed. The Lebanese host community sample was selected using a neighbourhood approach and is reflective of those communities hosting the greatest number of refugees. As such, findings on the Lebanese host community population should not be generalized to the Lebanese population. Finally, interviews were conducted by Lebanese, which could have resulted in a higher refusal rate or influenced refugee responses to certain questions such as income. Finally, the two-to-one ratio of refugee to host community households in some instances yielded inadequate sample size for statistical comparisons.

Conclusions

Syrian refugees and affected host communities in Lebanon have difficulties accessing health services principally because of costs. Despite greater need for care, both health services and medication were less accessible to refugees than Lebanese host community members. Out-of-pocket payments in both groups were considerable and, while lower in absolute terms among refugees, when considering the exceptionally poor financial circumstances of most refugee households, even modest out-of-pocket payments are likely to present a significant financial burden to many households, which in some cases left health care out of reach. Given funding shortfalls and the gradual deterioration of economic status that occurs in many refugee households as a result of prolonged displacement, difficulties in accessing care are not likely to dissipate in the future and may in fact increase, in particular with limited livelihood opportunities for refugees and as support to refugee households wanes. In light of current funding shortfalls, it is crucial to address the question of whether the observed level of health care access will remain for Syrian refugees in Lebanon. Reducing out-of-pocket payments, either through current subsidy approaches or reform towards universal health coverage funded by the international community, is critical to supporting both refugee health and the overburdened Lebanese health system. Results from this study can be used to inform health sector planning and response in Lebanon immediately. More broadly, additional information is needed from a variety of contexts to better understand how to support the health needs of refugees in urban middle-income settings through existing health systems. Although this article focuses on Syrian refugees in Lebanon, evidence such as this, along with health financing and policy tools, begins to fill that gap and provides a framework for better understanding and guiding integration of services for refugees with existing services for host communities towards more equitable and efficient resource allocation.

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