The Immigrant Health Initiative:

A Study of Health Care of Recent Immigrants in

Dutchess County, New York

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EXECUTIVE SUMMARY

Adjacent to one of the primary entry points of immigration to the U.S., the lower counties of New York State have seen a dramatic rise in the population of recent immigrants over the last decade. Prior studies have documented numerous barriers to accessing health care for this community. These barriers continue to exist today and represent an ongoing deficit in the overall health of our community. This report describes a recent study conducted in the New York Hudson Valley region with the goal of further documenting these barriers among the population of recent immigrants. A survey was developed to collect data on health, healthcare seeking behaviors, and barriers to accessing care among immigrants residing in the U.S. less than 10 years. This survey was administered via individual interviews, conducted one on one, in two different areas of Dutchess County identified as having higher concentrations of recent immigrants: the city of Poughkeepsie, and the more rural municipalities of Eastern Dutchess County. A total of 290 surveys were administered from August 2009 through June 2010 - 51% in Poughkeepsie and 49% in Eastern Dutchess.

Summary of Findings

- A large population of recent immigrants, many originating in Mexico and Central America, live and work in New York's Hudson Valley and experience obstacles to obtaining basic health care.

  The majority of subjects described themselves as Hispanic/Latino and approximately half have arrived within the last five years. Barriers encountered include lack of health insurance, language, cost, and availability and awareness of services.

- Female gender is the most significant factor influencing healthcare seeking behavior.

  The chance of females seeking medical care is 8.7 times greater than for males. This finding is in part likely a result of the existence of readily available entryway programs for women particularly with respect to prenatal care and child health. Women are more likely to be insured, visit a healthcare provider, participate in some preventive health screening, and consequently to report one or more chronic diseases.

- Longevity in the U.S. and health insurance are the second most common factors associated with seeking health care.

  Immigrants in the U.S. greater than five years are 3.3 times more likely to seek care than those who have been here less than five years. This advantage extends to both acute and preventive health visits. A trend was noted toward a decline in health status after

immigration; however this is unrelated to duration in the U.S. Individuals with insurance are 3.2 times more likely to seek medical care than the uninsured.

- Language remains an important factor in healthcare seeking behavior for immigrants.

  Individuals with some English speaking ability are 2.4 times more likely to participate in regular physical exams than those who do not speak English. Respondents who speak English well are 2.5 times more likely to have health insurance. In multivariate analysis, however, language is not a determinant of seeking health care.

- Feelings of sadness or depression are widespread among the recent immigrant population.

  81% of immigrants interviewed described feelings of sadness or depression primarily related to separation from family in their homeland. Counseling is under-utilized (1.7%). There is no evidence of alcohol abuse, with 70% reporting never drinking alcohol, and under one third drinking only occasionally.

- Immigrants residing in urban areas are more likely to participate in health screening for infectious diseases. This same subgroup also demonstrates greater usage of emergency services.

INTRODUCTION

Immigrants compose approximately 22% of the population of New York State, with estimates of undocumented individuals ranging from 650,000 to 925,000.[1] New York ranks fourth in the nation among states with a large, growing population of unauthorized immigrants.[2] The U.S. population is composed of over 39 million foreign born individuals, and in 2008 it was estimated that 11.9 million unauthorized immigrants lived in the U.S. The population of recent immigrants to the mid and lower Hudson Valley region of New York State has dramatically increased over the last decade. The percent of foreign born in Dutchess County has grown from 8.4% in 2000 to approximately 11% in 2008. Recent immigrant data are only currently available for the decennial Census 2000; at that time 32% of foreign born had come to the county within the last 10 years (2.7% of the total population). In 2008, close to half of Dutchess County foreign born individuals did not have U.S. citizenship.[3,4]

Prior studies have documented the challenges facing recent immigrants engaging our healthcare system. Legal immigrants to the U.S. are twice as likely as their U.S. born counterparts to lack health insurance. Delayed or forgone care is much more common among immigrants due to financial burden, language barriers, traditional beliefs, and residence outside a major urban center.[5] Lack of health insurance, transportation, patient-provider communication, and legal status discrimination have also been widely reported.[6] These obstacles lead to under-utilization of screening and outpatient primary care services, shifting the burden of care to more acute presentations and frequent use of emergency departments, particularly in the pediatric population.[7] In 2007, the New York Medical College conducted a survey of seven counties in the lower Hudson Valley to determine the challenges in meeting healthcare needs of the growing immigrant population.[8] The counties surveyed included Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, and Westchester. The study, conducted in collaboration with each of the seven County Health Officers, examined data collected from discussion with recent immigrants, area healthcare providers, and key informants. The authors outlined several obstacles to optimizing the health of immigrants in this region. One of the primary recommendations from this study was the need for departments of health involvement in further research on specific barriers to healthcare access for this special population. The investigators in this study decided to respond to the findings and conclusions of the New York Medical College Report, and further evaluate patterns of healthcare access, barriers to access, and existence of culturally and linguistically appropriate services in our region. In light of the exponential growth of immigrant populations in Dutchess County, barriers to providing appropriate routine as well as preventive and specialty services become more critical, and perpetuate a disparity in health care.

In this study, we hypothesized that numerous barriers to delivery of adequate health care for recent immigrant populations exist, representing ongoing obstacles to the health of our community as a whole. These consist of language, finances, education, awareness, transportation, health insurance, and health seeking behaviors in the patient's country of origin. We also hypothesized that health seeking behaviors among immigrants are related to individual perceptions of health status as well as use of healthcare resources in the country of origin. Our study also set out to explore whether use of emergency services for primary health care is a direct result of existing barriers to access. And finally we hypothesized that engagement in cancer screening services and specialty care treatment are both limited by existing barriers to healthcare access.

METHODOLOGY

Two regions in Dutchess County were identified as having high concentrations of immigrants - (1) the City of Poughkeepsie – considered urban, and (2) the Eastern Dutchess corridor which is considered primarily rural and encompasses (from North to South) Pine Plains, North East, Stanford, Amenia, Washington (Millbrook), Wassaic, Salt Point, Dover/Dover Plains, Wingdale, and Pawling. The target population was defined as any foreign born adult, at least 18 years of age, who has resided in the U.S. no more than 10 years and lives in one of the two selected regions in Dutchess County. A few individuals living outside the county line where included if they met all other criteria and were found to access services in Dutchess County.

Determination of Sample Size: Community health center 2008 statistics and Census 2000 zip code tabulations were used to establish target sample sizes of (1) 150-180 for the City of Poughkeepsie and (2) 120-150 for Eastern Dutchess, with a 90-95% confidence interval. The need for a range was due to uncertainties regarding project timeline and budgetary constraints which were not clearly defined at the onset of the project and were liable to change during the course of the project. Other data issues are addressed under Study Limitations.

Survey Design: The survey content focused primarily on health seeking behaviors in both country of origin and the U.S., personal and family health history, access and barriers to primary and specialty care, and use of hospital emergency department. Questions were primarily close-ended, either multiple choice or "select one of many" answers. The majority of questions gave the respondent the opportunity to provide an answer not included in the predetermined choices. The survey was prepared in both English and Spanish. Pre-testing was iterative. As the survey was pre-tested, revisions were made, and pre-testing resumed until the final product was achieved.

Survey Administration and Recruitment: Interviewers were both male and female and were fluent in Spanish. Prior to going into the field, all were familiarized with the nature of the project, the survey instrument, and the protocol for survey administration. A scripted introduction was used; confidentiality was assured, and respondents were informed that they were free not to answer any questions they did not want to. Surveys were conducted from August 2009 through June 2010. The survey was administered at different locations such as restaurants, small stores, health center waiting rooms, farms and churches. Additional recruitment was achieved through friends and family members of initial respondents. Interviews were conducted both during the day and evening, primarily during the work week but also on weekends. Attempts were made to choose venues and times that would capture both male and female respondents. An incentive of 10 dollars was offered. The survey was administered verbally, with the interviewer recording responses in writing as answers were given. The survey took approximately 30 minutes to complete.

Data Entry and Analysis: Project staff entered the survey results in a Microsoft Access database developed by a biostatistician from the Dutchess County Department of Health who also trained staff on how to enter the data. Data were analyzed using Stata/IC 10.0 and Microsoft Access. The data set was analyzed as a whole and as a comparison between the two regions. Distributions and p values were calculated for all variables. In addition to descriptive statistics, a number of independent variables were examined in the context of health seeking behaviors using logistic regression; these included gender, longevity in the U.S., language, health insurance status, education, and rural versus urban area of residence. Since Guatemalan and Mexican respondents constituted the majority of respondents, comparisons were also made between these two groups.

RESULTS

Individuals interviewed for this study included 141 respondents from a more rural setting (Eastern Dutchess) and 149 from an urban environment (Poughkeepsie) composing a total population of 290 immigrants arriving in the U.S. within the last 10 years. Eighty three percent were under the age of 45 with a median age of 31. The population was 45.5% male and 54.5% female. Ninety two percent described their race as Hispanic and the majority originated in Mexico and Central America; however, the study also included recent immigrants from South America, the Caribbean, Africa, and Southeast Asia (Figure 1).

Table 1

Demographic Characteristics of Study Population					
Characteristic		Total	Eastern Dutchess	Poughkeepsie	p Value
		N = 290	N = 141 (48.6%)	N = 149 (51.4%)	
Gender	Male	45.5%	34.2%	57.4%	0.000
	Female	54.5%	65.8%	42.6%	
Age	18-24	19.7%	15.4%	24.3%	
	25-34	44.1%	45.0%	43.6%	
	35-44	19.3%	17.4%	21.4%	
	45-54	12.4%	17.4%	7.1%	
	55-59	1.4%	0.7%	2.1%	
	60+	2.8%	4.0%	1.4%	
	Refused	0.3%	0.7%	0.0%	
	Mean age	33.4	31.5	35.2	
	Median age	31	29	32	
Race/Ethnicity	Hispanic/Latino	92.4%	97.2%	87.9%	0.030
	White	1.7%	0.7%	2.7%	
	Black	2.8%	0.0%	5.4%	0.007
	Other	2.1%	2.1%	2.0%	
	Refused	1.0%	0.0%	2.0%	
Region of Origin	Mexico	59.7%	41.8%	76.5%	0.000
	Central America	26.9%	47.5%	7.4%	0.000
	Guatemala	*23.8%*	*46.1%*	*2.7%*	
	South America	9.0%	9.9%	8.1%	
	Caribbean	3.1%	0.0%	6.0%	
	Africa	0.7%	0.0%	1.3%	
	Asia	0.7%	0.7%	0.7%	
Education	University	13.7%	14.5%	12.9%	
	High School	47.4%	43.5%	51.0%	
	6-8th grade	17.5%	27.5%	8.2%	0.000
	5th grade or less	20.0%	13.8%	25.9%	0.012
	None	1.4%	0.7%	2.0%	

Table 2

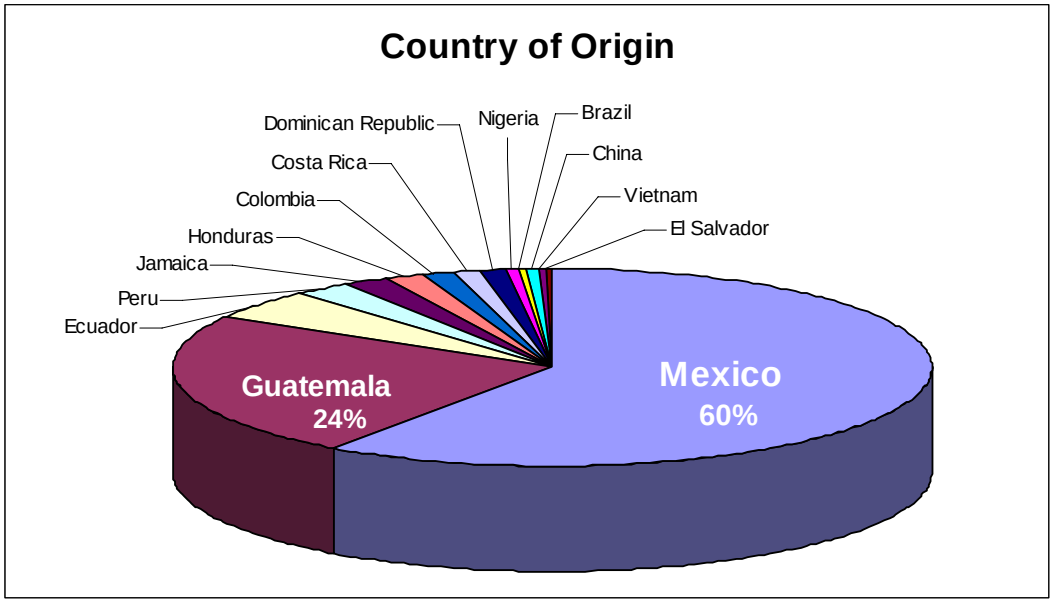
Social, Economic, and Living Characteristics of Study Population					
Characteristic		Total	Eastern Dutchess	Poughkeepsie	p Value
		N = 290	N = 141 (48.6%)	N = 149 (51.4%)	
Residence in U.S.	< 1 year	3.4%	3.4%	3.5%	
	1-5 years	52.4%	46.3%	58.9%	0.035
	6-10 years	44.1%	50.3%	37.6%	0.033
Came to the U.S. alone		61.3%	65.7%	57.1%	
Knew someone upon arrival		83.0%	89.4%	77.0%	0.007
Employed		68.9%	78.7%	59.5%	0.000
Live with someone		88.6%	88.7%	88.6%	
	** Living arrangements*	*(n = 257)*	*(n = 125)*	*(n = 132)*	
	Immediate family/ relatives	*74.2%*	*40.0%*	*87.1%*	*0.000*
	Unrelated adults	*21.9%*	*60.0%*	*15.2%*	*0.010*
	Other relatives	*16.4%*	*18.4%*	*14.4%*	
	Own/spouses parents	*5.5%*	*2.4%*	*8.3%*	
Have children < 18 years		63.7%	54.3%	72.5%	
	*** Live with parent(s)*	*(n = 140)*	*(n = 54)*	*(n = 86)*	
		85.9%	*74.0%*	*95.5%*	

Note: Variables in italic reflect population subsets. For example, the 63.7% of individuals who have children < 18 years is equal to 140 individuals; 85.9% of these individuals have their child/children living with them.

** Respondents had the option to multi select the types of living arrangements, therefore % may add up to > 100%*

*** 17% of Poughkeepsie respondents did not answer this question. Therefore a p value was not calculated.*

Figure 1

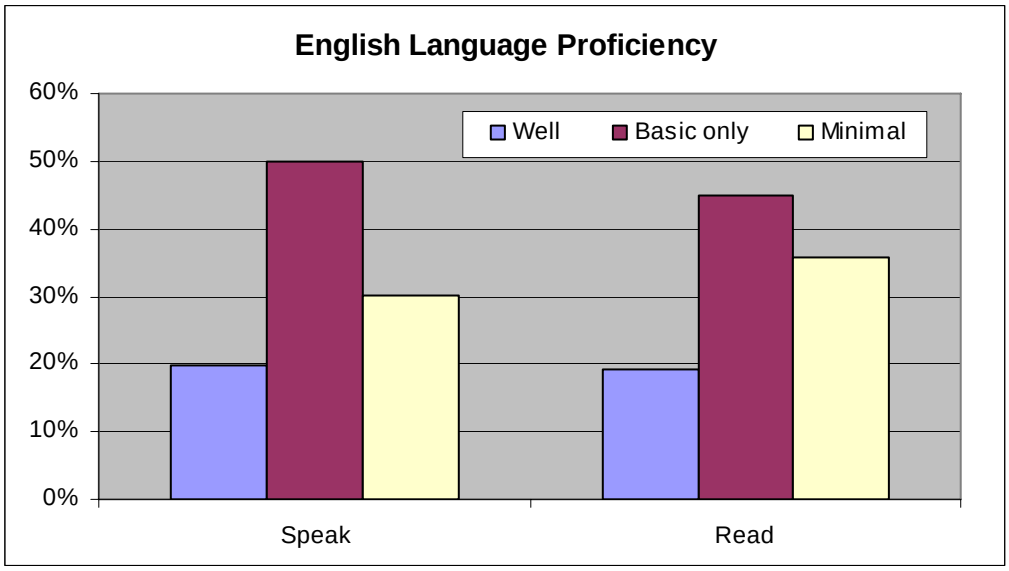


There was a broad distribution of level of education with 13.7% of respondents indicating higher education beyond high school. The overwhelming majority listed Spanish as their primary language (96.9%), and 75.9% speak at least some English (Table 3). The rate of English speaking was equally distributed between males and females (74.2% of males and 77.2% of females). Of those who answered "English" when asked about languages spoken, approximately 30% stated they "hardly speak English," with the remainder indicating an ability to speak basic things only or communicate well for everything (Figure 2). Of the immigrants who indicated "Spanish" when asked about languages spoken, 11.7% of this group described their ability to read Spanish as "hardly read" or "basic things only." Social situations among the study population varied considerably. The majority did not live alone (89%), and of these, approximately 75% lived with immediate family members while 22% lived with unrelated adults. Sixty four percent of respondents have children under the age of 18; of this group, 14% do not live with their children. Almost two thirds of immigrants arrived in the U.S. alone but most were connected with a friend or family member upon arrival (83%) (Table 2).

Table 3

Languages Spoken by Immigrants				
	Total	Eastern Dutchess	Poughkeepsie	p value
	N = 290	N = 141	N = 149	
Spanish	96.9%	98.6%	94.6%	
English	75.9%	68.1%	83.2%	0.003
Kekchi/Quechua	4.8%	9.2%	0.0%	0.000
Haitian Creole	0.3%	0.7%	0.0%	
Other	3.8%	4.3%	3.4%	

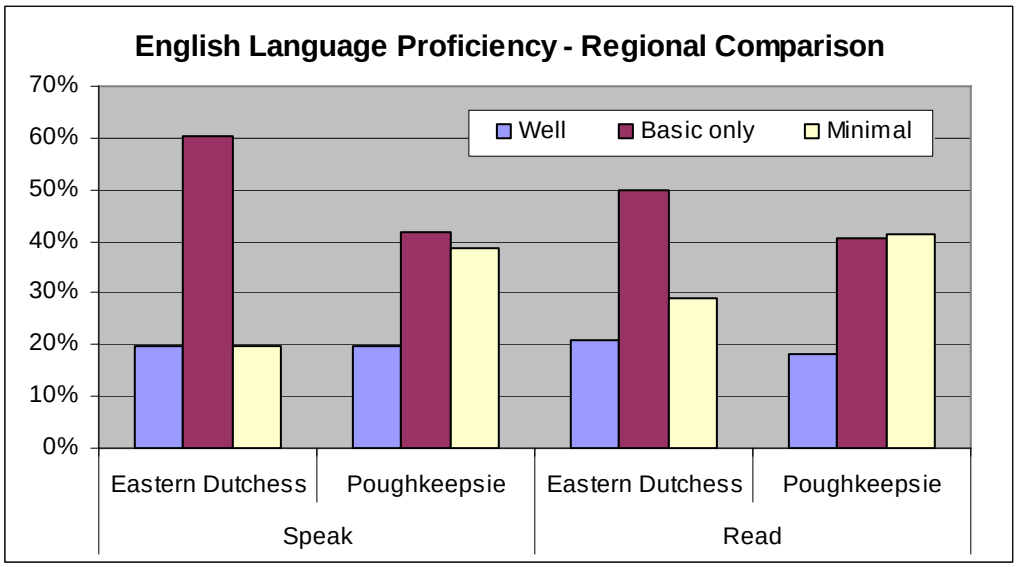
Figure 2



This study was conducted in two areas of Dutchess County, which has a total population of approximately 293,000.[4] Poughkeepsie is a city located on the Hudson River, in the densely populated South Western quadrant of the county. While it accounts for only 5% of the total county population and covers only 4% of the county's total square miles, it numbers over 29,000 residents and it is by far the most densely populated municipality in the county - at 5,811 population per square mile compared to 349 population per square mile for the entire county, and 3,096 population per square mile for the county's second most densely populated municipality, the city of Beacon (population 14,566).[3,4] Eastern Dutchess is a much more rural area, scattered with numerous small communities. In the study population, 51.4% of respondents were from Poughkeepsie and 48.6% from Eastern Dutchess. The urban study population is

largely made up of immigrants originating in Mexico (76.5% of total urban population), and additionally includes a wide variety of countries of origin in much smaller numbers. The rural segment of the study population is somewhat evenly divided between immigrants originating in Mexico and Guatemala (41.8% and 46.1% of total rural population respectively) with much less diversity beyond these two groups. While data were analyzed regionally, associated findings are only reported where major differences or unexpected similarities were observed. In terms of language ability, respondents in the urban environment were significantly less likely to speak any English (19.8% vs 38.5%, p=0.003) than residents in rural parts of the county (Figure 3).

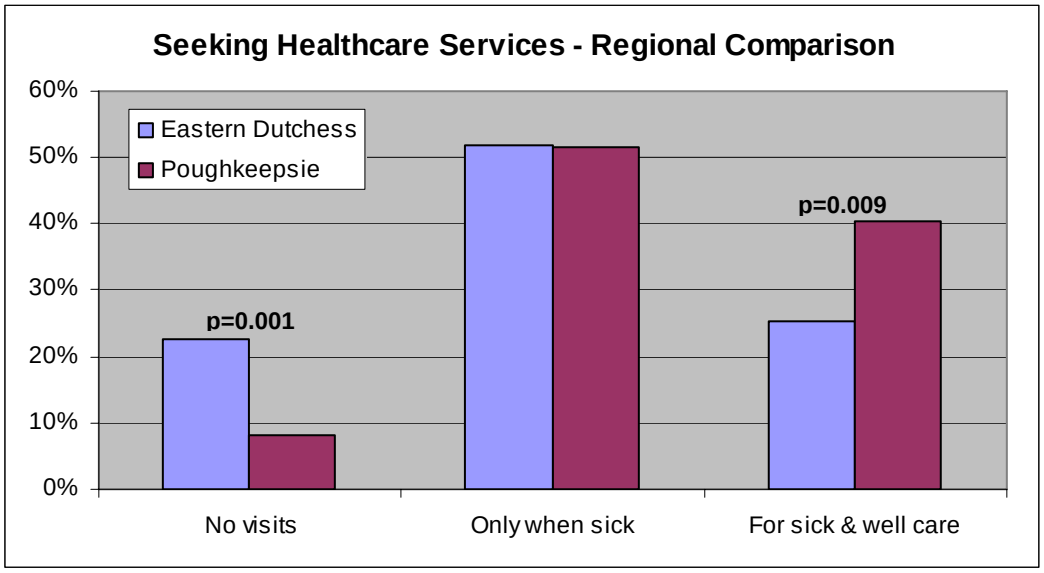
Figure 3



Note: There were statistically significant differences between Eastern Dutchess and Poughkeepsie for speaking proficiency categories "Basic only" and "Minimal" (p=0.006 and p=0.003 respectively).

Healthcare seeking behaviors among immigrants living in urban versus rural environments were somewhat different. Approximately half of immigrants go to the doctor only when sick in both environments. Those who reside in the city, however, were much more likely to seek preventive health visits or regular check-ups (40.3% vs 25.3%, p=0.009) than their rural counterparts (Figure 4). Likewise, recent immigrants in the rural setting were more likely to indicate they "never go to the doctor" (22.7% vs 8.1%, p=0.001). However, these urban versus rural differences in healthcare seeking behavior were not significant in multivariate analysis.

Figure 4

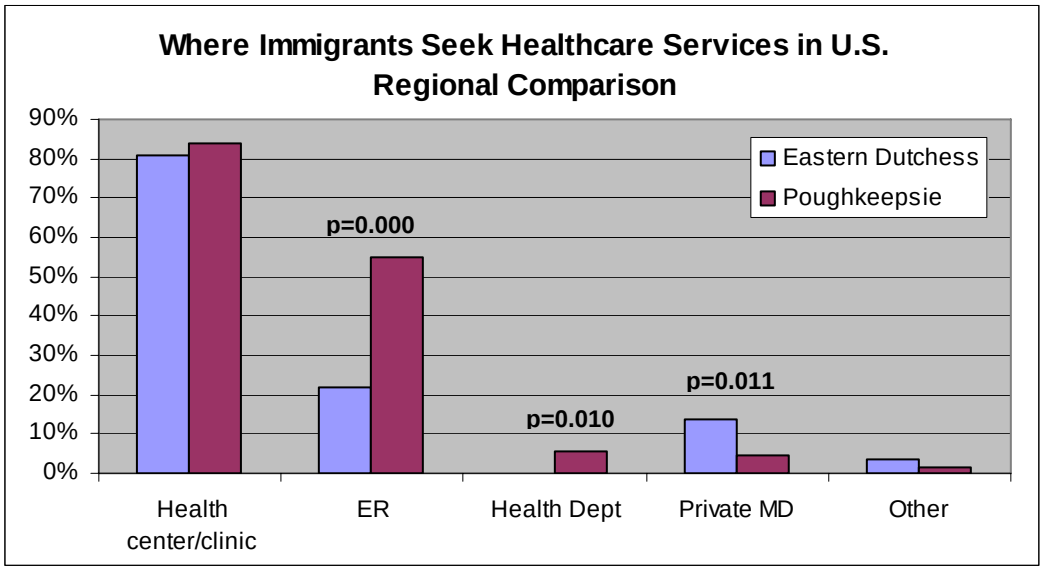


Significantly higher rates of screening for Tuberculosis (TB) (53.7% vs 33.3%, p<0.001), Sexually Transmitted Diseases (STD) (63.8% vs 40.0%, p<0.001), and HIV screening (68.5% vs 47.5%, p <0.001) were observed in Poughkeepsie (Table 4). For individuals who did seek the care of a physician, those living in the city were much more likely to receive care at a hospital emergency room (ER) (54.7% vs 22%, p<.001) (Figure 5).

Table 4

Regional Differences in Screening Behaviors			
	Eastern Dutchess	Poughkeepsie	p value
Screening Behavior	N = 141	N = 149	
STD screening	40.4%	63.8%	0.000
TB screening	33.3%	53.7%	0.000
HIV screening	47.5%	68.5%	0.000

Figure 5



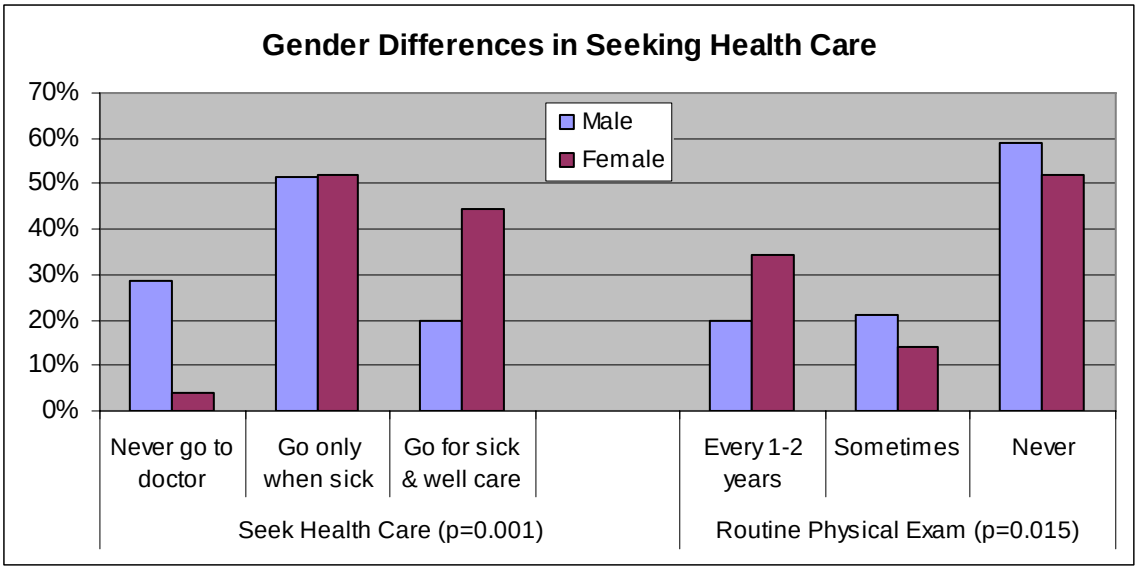
The overall rate of health insurance among this population of immigrants is low at 12.5% in this study. Females and individuals residing in the U.S. greater than five years were more likely to have health insurance. The majority of immigrants living with children under the age of 18 indicated that their children do have health insurance (94%). Almost three quarters of respondents were aware of persons who could help them get needed health services, and about the same proportion knew that children and pregnant women could get insurance regardless of documentation status. A number of questions in the survey were designed to measure use of healthcare services by the immigrant population. Approximately half of respondents, regardless of gender, indicated they seek care (go the doctor) only when sick (Table 5). Females were much more likely to engage in preventive health or routine healthcare visits than males (34.2% vs 19.7%, p=0.015). Likewise, the rate of never going to the doctor was much higher among males than females (28.8% vs 3.8%) (Figure 6). In general females were much more likely than males to seek any type of healthcare services (OR 8.7, 95% CI 3.08 – 24.58, p<0.001).

Table 5

Seeking Healthcare Services	
	Total Population
	N = 290
Never go to doctor	15.2%
Go to doctor *	84.8%
Number who go to doctor	*n = 246*
Only when sick	*51.4%*
For sick & well care	*33.5%*

** Italics reflect breakdown of "Go to doctor". Slight differences in decimals are due to rounding*

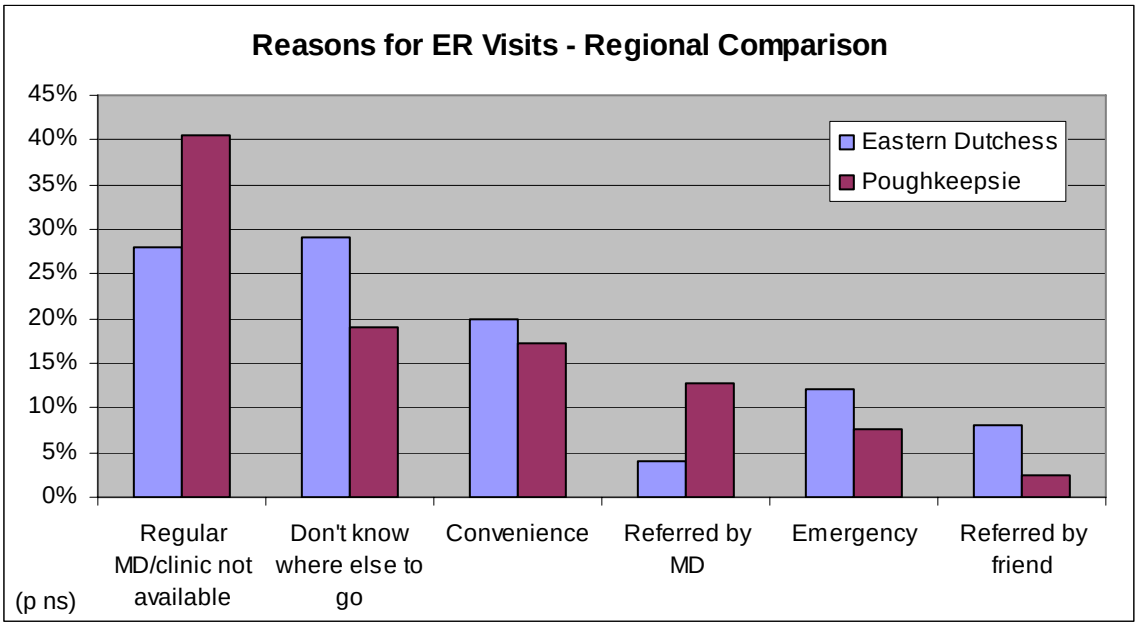
Figure 6



Duration of residence in the U.S. greater than five years also was a significant predictor of seeking health care (OR=3.3, 95% CI 1.39 – 7.92, p<0.008). Of the individuals living with children under 18 years of age, 90.8% visit the doctor regularly for well child check-ups. Among those who indicated they never go to the doctor, over half stated they were never sick, 21% listed cost as the reason, and some said they didn't know where to go (14%) or were afraid to seek medical care (9%). The majority of respondents who did access any health care (84.8%) became aware of a particular healthcare provider or facility via friends or family ("word of mouth"), as opposed to other vehicles such as advertising.

In order to better define the modalities of the healthcare system accessed by the study participants, we asked those who have sought medical care to specify the nature of the facility. Eighty three percent indicated a health center or clinic as opposed to a private physician (8.6%) or health department (3.3%) (Figure 5). Use of the ER was more difficult to measure due to some overlap in responses. Of the 246 people reporting any healthcare engagement, 40.7% have used the ER, and these visits were much more common in Poughkeepsie ($p<0.001$). Of the total cohort of ER users, 21% said they did not know where else to go, 17% said it was the most convenient, 37% said their regular physician or clinic was not available, and 19% were seen for an emergency or referred by a physician (Figure 7). Medical problems reported as the reason for an ER visit varied widely and included several acute and non-acute complaints.

Figure 7



A number of survey questions were designed to evaluate the ease or difficulty with which the study population interacts with the U.S. healthcare system. Over 75% said they were able to get an appointment to see a healthcare provider within one to two weeks, and most felt it was easy to do so. Only a small group reported difficulty making appointments, and language was cited as a factor. Table 6 illustrates that language is an important factor influencing immigrants' choice of healthcare providers. Convenience was significantly more important to residents of Eastern Dutchess than in Poughkeepsie. Of the total study population, 54% reported that the doctor spoke their language. Investigation of how the other half communicates with their healthcare provider found that 75% were aided by an on-site medical interpreter, and 15% used interpretation by a friend or family member (Table 7). A significant difference

in healthcare provider native language abilities was documented between Eastern Dutchess (62.3%) and Poughkeepsie (47.7%, p=0.027). Utilization of medical interpreters is significantly greater in Poughkeepsie (81.8% vs 62.2%, p=0.047), while immigrants in Eastern Dutchess more often bring their own interpreter (p=0.019).

Table 6

Factors Influencing Choice of Healthcare Providers				
	Total	Eastern Dutchess	Poughkeepsie	p value
	N = 233	N = 109	N = 137	
Speak my language	37.3%	45.0%	27.7%	0.007
Like the way I am treated	36.9%	35.8%	34.3%	
Affordable	29.2%	21.1%	32.8%	0.045
Most convenient	25.8%	38.5%	13.1%	0.000
Only one I know of	18.9%	13.8%	21.2%	
Does not require documentation	16.3%	25.7%	7.3%	0.000
Other	8.6%	7.3%	10.2%	

Table 7

Primary Healthcare Provider Language Skills by Region				
	Total	Eastern Dutchess	Poughkeepsie	p value
Ability to speak native language *	**N = 290**	**N = 109**	**N = 137**	
Yes	54.2%	62.3%	47.7%	0.027
A little	8.9%	12.3%	6.2%	
No	36.9%	25.5%	46.2%	0.001
Communication in absence of native language exchange				
(Includes "A little" and "No")	N = 103	**N = 37**	**N = 66**	p value
Medical interpreter	74.8%	62.2%	81.8%	0.047
Bring own interpreter	14.6%	27.0%	7.6%	0.019
Other	12.6%	13.5%	12.1%	
Telephone language line	1.0%	0.0%	1.5%	

***** *The comparison of "Yes" versus "A little" + "No" was also statistically significant at p=0.027*

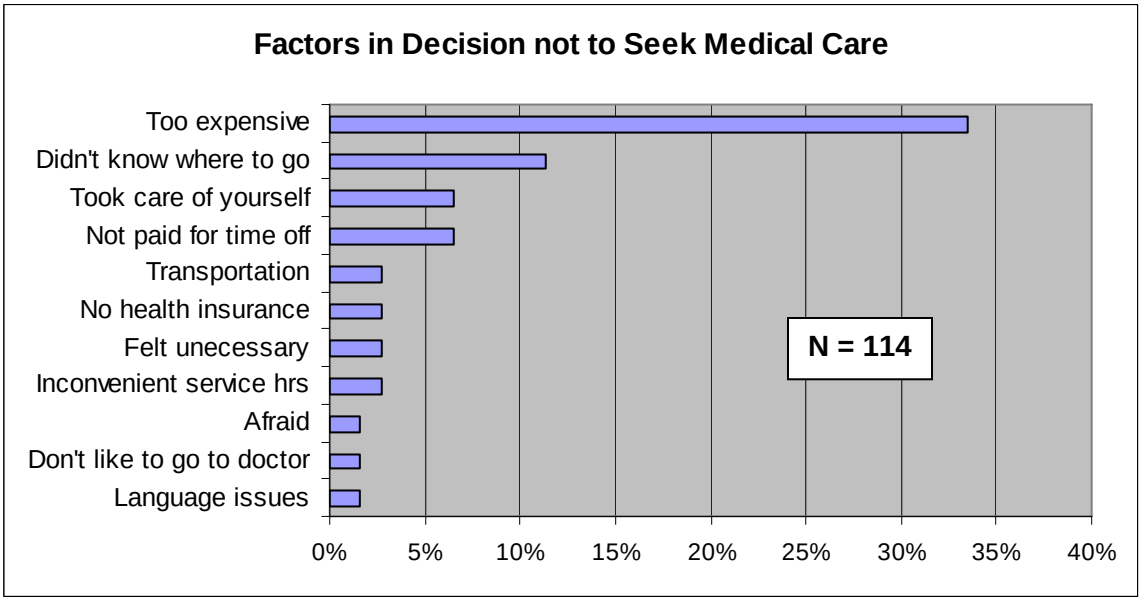
At the doctor's office, 77% of immigrants reported that health videos and brochures were available in their language. Another objective was to assess ability to visit a doctor's office or healthcare

facility. One quarter of respondents reported some difficulty in this endeavor, many identifying transportation as a limiting factor. Finding a means of getting to an appointment was more often a factor in rural areas (33%) versus urban (18%). A slightly smaller number indicated getting time off from work as a difficulty (Table 8). As a screening question for barriers to healthcare access, participants were asked if there was ever a time when they did not seek medical care even though they may have had a true need for such. Forty percent responded in the affirmative. When this subgroup was asked to define the reason for this avoidance, the most common response involved cost of services (Figure 8). Other responses included lack of awareness of healthcare providers, hours of availability, and time off from work.

Table 8

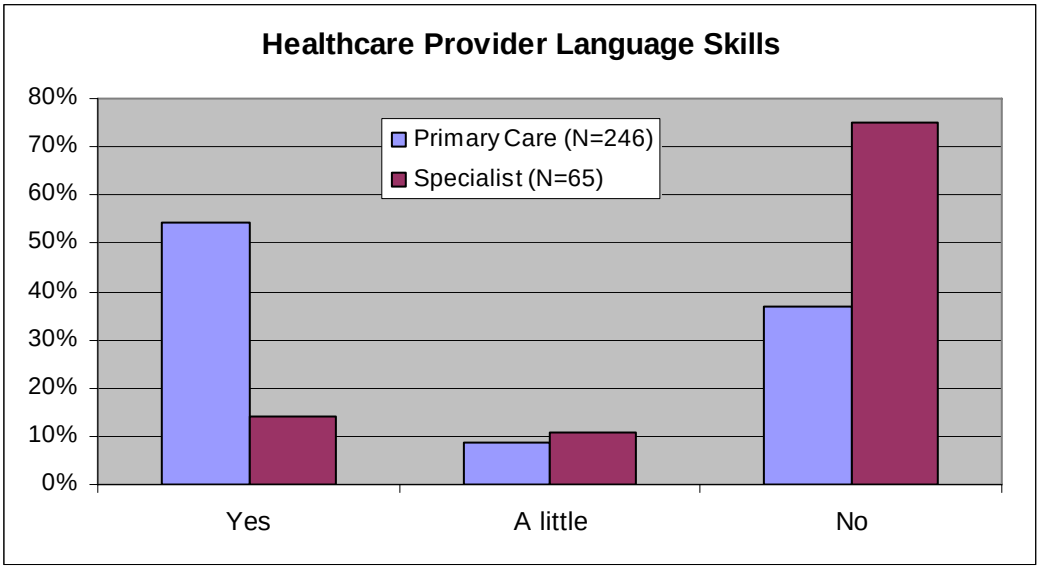
Barriers to Accessing Healthcare Providers				
Question	Total	Eastern Dutchess	Poughkeepsie	p value
	N = 246	N = 141	N = 149	
Difficulty getting to the doctor	25.0%	33.0%	18.3%	0.014
Reasons for difficulty	N = 58	N = 35	N = 22	
Transportation	70.2%	97.1%	17.1%	0.000
Getting time off from work	15.8%	8.6%	17.1%	
Miscellaneous	29.8%	8.6%	39.0%	

Figure 8



Because involvement of additional healthcare providers and specialists can add another layer of complexity to our health system, a portion of the survey was designed to evaluate engagement in specialty care. Of the respondents who have ever had health care in the U.S., 38.5% had at some point been referred to a specialist. The majority of these individuals (70.7%) completed this referral visit or consultation. The most common reason given by those who did not visit the specialist was cost. Individuals completing specialist appointments were asked about their method of payment. Thirty seven percent had insurance coverage, while 55% paid in cash. Only 14% indicated that the specialist spoke their language (Figure 9). At the specialist's office, 43% received the aid of a medical interpreter, while 36% used interpretation by a friend or family member. A portion of the survey was designed to evaluate participation in dental care. Approximately half of respondents indicated they go to the dentist regularly. Among those who do not receive dental care, the major reason listed was cost. This was a much greater factor in the city of Poughkeepsie than in Eastern Dutchess (p=0.02).

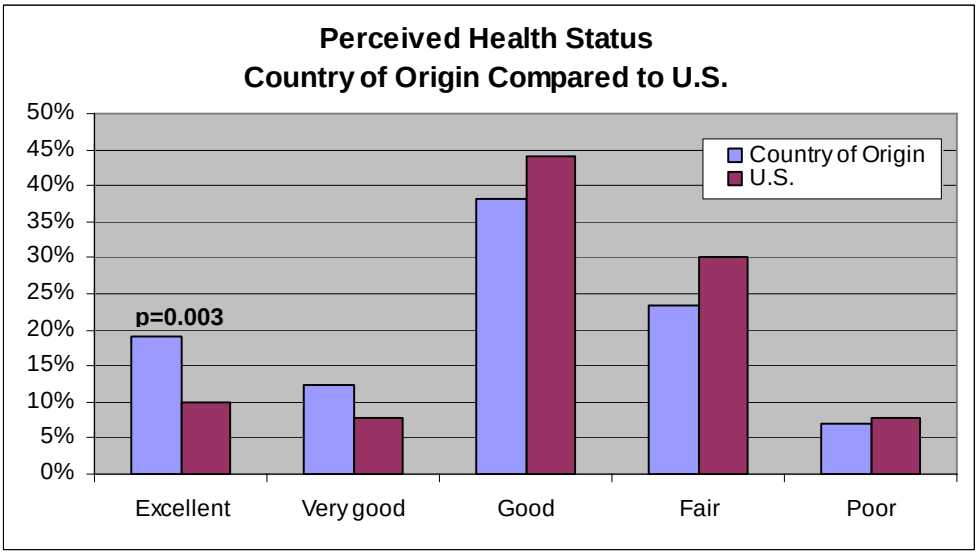
Figure 9



Note: Statistical comparison was not performed.

Participants were asked to describe their health status in the U.S. and in their country of origin, prior to immigration to the U.S. When rating their health status in country of origin, 69.7% claimed good to excellent health and 30.3% indicated fair to poor. When rating their health status after moving to the U.S., the aggregate distribution was similar (62.1% and 37.9%); however, among immigrants who initially felt their health was "excellent" in country of origin (19%), there was significant change (p=0.003) in health perception after immigration, with only 10% claiming to have "excellent" health (Figure 10).

Figure 10



The survey examined actual rates of medical problems reported by respondents when in country of origin and when in the U.S. (Table 9). The most common health problems did not reveal a significant change between the two locations with the exception of individuals identifying depression as a health issue. Recent immigrants were more likely to report these symptoms after arriving in the U.S. than in country of origin (18.3% vs 9.7%, p=0.004). This finding was uniform for both males and females; however, persons currently residing in an urban environment reported more health problems overall after immigrating to the U.S. than those now living in rural areas. Self reported use of tobacco and alcohol was extremely low in this study. Nearly 90% of respondents were non-smokers; 29.3% of respondents reported drinking alcohol occasionally and less than 1% drink daily.

Table 9

Reported Health Problems in Country of Origin and U.S.

	Total Population (N = 290)		p Value
	Country of Origin	U.S.	
Hypertension	7.6%	11.0%	
Diabetes	2.8%	6.2%	
Heart disease	2.1%	2.4%	
Cancer	0.0%	0.7%	
Sexually transmitted diseases (STD)	0.7%	2.8%	
HIV	0.0%	0.0%	
Depression	9.7%	18.3%	p = 0.004

Portions of the survey were designed to examine healthcare seeking behaviors in country of origin in an effort to better understand immigrants' approach to the U.S. healthcare system. Of the 290 respondents, 273 indicated they had some involvement with health care prior to immigration. Three quarters indicated that their usual point of contact occurred at a "public clinic" or "public hospital" (74%) while only 25% went to a "private clinic or doctor." Two percent of patients reported care from a "traditional healer" and 6.6% went to a "pharmacy" only. Almost two thirds of immigrants acknowledged use of herbal remedies (63.4%) in country of origin, yet only 36.6% use these remedies in the U.S. Over half of those who use these remedies in the U.S. indicated they did not admit use of herbal remedies to their current physician. Nearly 50% said their doctor did not ask about use of herbal remedies. Some felt that the doctor was not interested in knowing about herbal medicines (21.6%), or would want them to take Western medicines instead (21.6%). In some cases (19.6%), respondents felt it was not important for the doctor to know about herbal remedies (Table 10).

Table 10

Use of Herbal Remedies and Communication with Healthcare Provider	
	Total Population
Use of herbal remedies	**N = 290**
In country of origin	63.4%
In the U.S.	36.6%
	p = 0.000
Do you tell your doctor about these remedies?	**N = 106**
No	57.8%
If No, why not?	**N = 52**
The doctor does not ask	47.1%
I don't think the doctor is interested in knowing	21.6%
The doctor will want me to take Western medicine instead	21.6%
It's not important for the doctor to know	19.6%
The doctor thinks they are bad/does not believe in them	5.9%

Analysis of health problems reported by recent immigrants revealed a significant increase in rates of depression after arriving in the U.S. (Table 9). Individuals reporting feelings of "sadness" or "depression" in the U.S. included 81% of the total study population (Table 11). These feelings were most often related to separation from family (79.1%) and were more often reported in Eastern Dutchess than in Poughkeepsie (p=0.037) (Figure 11). Other reasons given included feelings of loneliness and/or isolation,

concern for housing or working conditions, and feeling unwelcome by the community. Concerns for housing or work conditions were more often a factor in Poughkeepsie ($p<0.001$). Means of coping with feelings of sadness and depression were addressed in the survey. Many immigrants cope with these feelings by talking with friends and family members (Figure 12).

Table 11

Mental Health	
Survey question	**Total Population**
	N = 290
Do you feel or have you felt sad or depressed in the U.S.?	
Yes	81.0%
If Yes, why?	**N = 234**
Miss family	79.1%
Feel alone/isolated	27.8%
Housing/work conditions	26.5%
Feel unwelcome/unwanted	19.2%
Having problems with spouse/partner	10.7%
Other	10.3%
What do you do when you feel sad/depressed?	
Talk to friends/family	58.7%
Go to church/pray	15.3%
Physical activity	17.9%
Passive activity (e.g. music, movies)	11.1%
Do nothing	8.1%
Go to doctor	2.1%
Go for counseling	1.7%

Figure 11

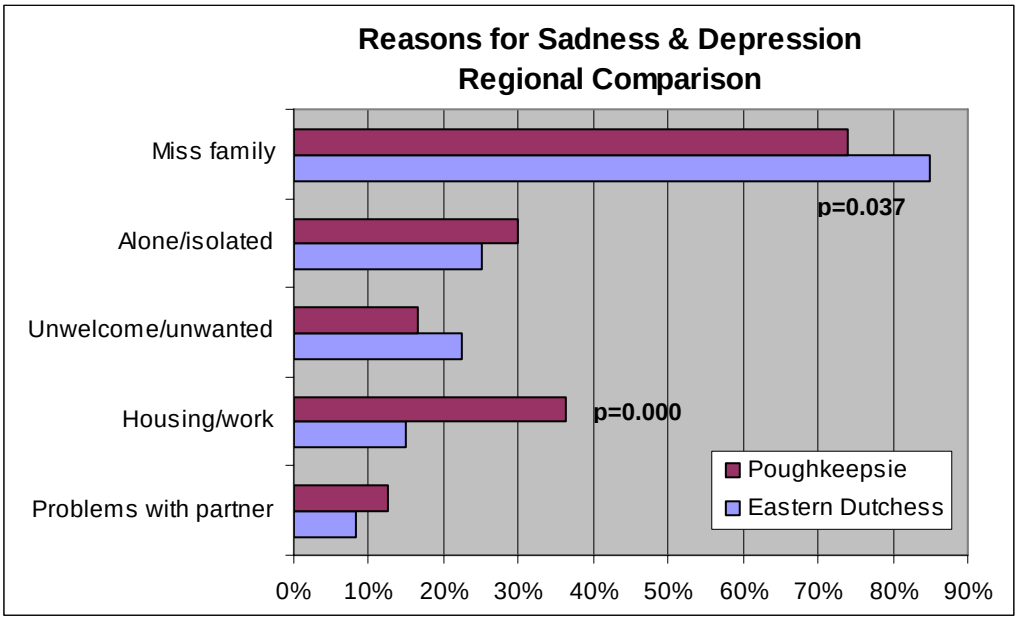
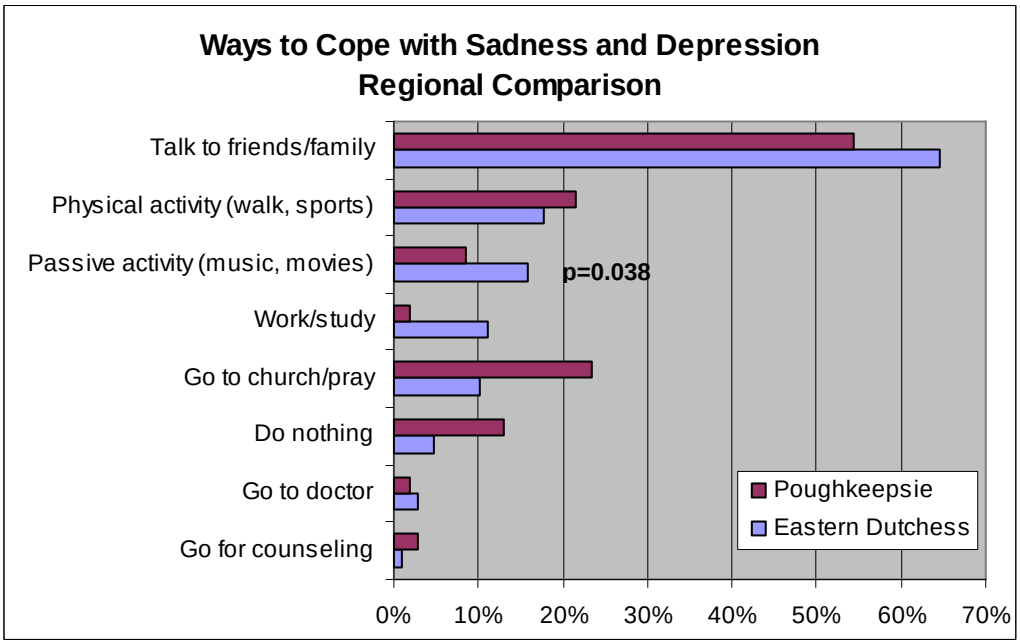


Figure 12



DISCUSSION

The primary purpose of this study was to gain a better understanding of the health status of recent immigrants to the U.S. in lower New York State, and to explore barriers to their engagement in our current healthcare system. Many studies have examined barriers in providing health care to this growing population; however, this investigation is unique on multiple levels. The major strength of the study lies in the fact that data were collected through an in depth, one on one interview, most often conducted in the respondent's native language. A key component of this interview process involved evolution of trust between the interviewer and interviewee, allowing collection of detailed information regarding personal health, health beliefs, and healthcare seeking behaviors. These interactions were also likely impacted by training of the interviewers prior to the initiation of data collection. Another key component of this study was an effort to examine possible linkages between health and healthcare seeking behaviors in the U.S. versus in country of origin. This design was driven by the hypothesis that behaviors in country of origin would continue in spite of population migration and be a significant determinant of the means by which recent immigrants approach (or avoid) our current healthcare system in the U.S. This investigation was also designed to look beyond acute and primary care among immigrants by further evaluating their interaction with medical specialists and specialty care.

Gender as a Predictor of Healthcare Seeking Behavior

The strongest predictor of any outcome variable in this study was female gender. Women were 8.7 times more likely to seek medical care than males. In 2007, among the entire U.S. population, females were 1.3 times more likely to attend outpatient visits to physician offices and hospital outpatient and emergency departments, 351 for males and 452 for females (number of visits per 100 persons age adjusted) representing a 22% differential.[9] Likewise, females in this study were significantly more likely to have health insurance, seek health care at a health center or clinic (as opposed to a private physician or ER), and be screened for STDs and TB. It is well recognized that in general women are more likely than men to seek health care. This study of recent immigrants contains a relative bias in age distribution toward a younger population, with nearly 85% of individuals under the age of 45. Therefore the vast majority of females in the study population are of childbearing age and obstetrics is a major component of their healthcare need. For many this likely represents their only pressing need for interaction with the healthcare system upon relocation to the U.S.

In New York State, uninsured pregnant women are enrolled in Medicaid, formerly known as Prenatal Care Assistance Program (PCAP) providing prenatal care, hospital care during pregnancy and delivery, social services, HIV counseling/testing, as well as assistance in other programs such as dental

care, immunizations, lead poisoning prevention, nutrition counseling, screening for genetic disorders and testing for fetal well-being. The prenatal care providers must deliver services in a culturally sensitive manner to all pregnant women including those with limited English proficiency and must offer interpretation services to the pregnant patients whose primary language is not English.[10] Prenatal care services are available both in Poughkeepsie and in Eastern Dutchess. These services are also available in Poughkeepsie at the Vassar Brothers Medical Center. Immigrant women and children may also benefit from The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) which is also available in both the rural and urban areas. Medicaid coverage may be available if the immigrant requires treatment for an emergency medical condition and this requires a doctor's certification if hospitalized. In order to qualify for the Bad Debt and Charity Care programs at the area hospitals, some require completion of the Medicaid application. For patients with limited English proficiency, this can be cumbersome.

Beyond childbearing, however, females in this study were more likely to report medical history of chronic diseases. It is doubtful that the female immigrant population has a higher rate of disease, but rather a higher rate of medical diagnosis based on their much greater likelihood of engagement with the healthcare system in general. The data indicate that females demonstrate a significantly greater involvement in preventive health visits as well as acute care compared to males (34.3% vs 19.7%). Programs established to facilitate women's health are designed to connect the patient with other preventive health and screening services. These patients can often be enrolled in an insurance plan, establish a medical home, and thereby provide a gateway for their children and spouse to also receive primary health care. Almost all respondents with children under 18 in their household indicated that the dependents were insured and greater than 90% reported involvement in well child visits to a physician. Children and adolescents under age 18 may be eligible for free or low cost insurance coverage through Child Health Plus. This insurance may be free or cost a monthly free depending on the family's income.

Among the study participants, rates of screening for STDs and infectious diseases were more than two times greater for women than men; these statistics likely largely reflect the efficacy of programs such as the Medicaid prenatal program in this immigrant population. Women's health is also the focus of the Cancer Services Program (CSP) that provides cancer screening to uninsured patients regardless of documentation status. Recent immigrants of appropriate age in this study participated in mammograms (80%) and Pap smear (67.5%) often with assistance of CSP. This figure is well above the average usage rate for mammograms in the Hispanic U.S. population (62%) as of 2008.[9] New York State Department of Health Cancer Services Program funds the provision of comprehensive breast, cervical and colorectal cancer screening services and prostate cancer education to underserved populations through local

partnerships. The priority for cervical and breast cancer screening is for women ages 40 and older who meet the income guidelines. Rural women and women who have emigrated from other countries, in particular, find access to cervical cancer screening services to be a problem. Of special concern are ethnic and racial minority groups and women who are medically underserved because they live in isolated rural communities.[11]

Awareness of Services

One of the major challenges superseding existence of public assistance programs for immigrant populations is always awareness.[12-15] This barrier becomes particularly evident in patients with limited English proficiency.[16,17] In general, the recent immigrant population surveyed in this study demonstrated a good understanding of general health concepts such as avoiding smoking and substance abuse, regular exercise, healthy diet, protection from STDs, and need for prenatal care. However, critical gaps in awareness of service availability were also documented. Approximately 10% of respondents did not know how to contact persons who could facilitate a connection with needed health services. Fifteen percent of females were unaware that children and pregnant women could get health insurance. Of those individuals who indicated that at some point they had needed medical care but did not receive it, 11.4% said they "didn't know where to go." Our study found a overall high rate of ER usage for primary care (40.7%), significantly more so among the urban population. Approximately 20% of immigrants who reported to the ER did so because they "didn't know where else to go." The above discussion has demonstrated how individual health programs often open the door to a wide array of services for immigrants. The key therefore becomes the initiation of that original point of contact. From the survey we observed the importance of "word of mouth" among the recent immigrant population in generating awareness of health services. When asked how they learned of a particular doctor or clinic they visited, 84.8% responded that friends or family had made them aware, leading to an appointment or visit.

Healthcare Services and Safety Net Providers

The healthcare providers in Dutchess County serving the immigrant population are primarily community health centers that provide family medicine, including newborn care, pediatrics, gynecology and general adult internal medicine. Additional services include dental care, mental health, nutrition, prenatal care, podiatry, diabetes care, and specialty gynecology. Many of the healthcare providers speak Spanish and are able to communicate with patients in their native language. These centers also offer trained medical interpreters. Some community health centers in rural parts of the county do not have bilingual Spanish speaking staff or medical interpreters, and immigrants reported traveling greater distances for health care to circumvent these gaps in service. As revealed in the study, 37% choose their

healthcare provider or clinic because they speak their language. A critical aspect to accessing healthcare services at the community health centers is the Patient Care Partner and outreach worker. As reported in the study, 73% of respondents stated that someone at their doctor's office or clinic or people in other organizations can help them access care that they need. A key component is having culturally and linguistically competent staff members with direct knowledge of available services in the community. They assist immigrants in accessing the healthcare system by coordinating provider referrals, enrollment assistance for health insurance coverage, linking patients to discount prescription assistance and providing interpretation and transportation. There are community based initiatives which help improve access for the immigrant population. Clinics in the city of Poughkeepsie are available for TB, STD and HIV testing and has bilingual Spanish English staff available. Although these clinics are free of charge, they no longer offer evening services. Such clinics do not exist in the more rural parts of the county, which may be a contributing factor in our finding that lower rates of screening exist in this area.

Duration of Residence in the U.S.

It is clear from history that displaced populations accommodate and adapt to their new environment over time. This occurs by two sequential mechanisms: initially via establishment of a new subculture or subpopulation composed predominately of fellow immigrants and later via eventual integration into the surrounding culture. This first phase is a much more precarious situation in terms of need for health care.[18-22] To examine this phenomenon more carefully, our study population can be analyzed in two groups according to duration of residence in the U.S, namely less than five years versus equal to or greater than five years. In the multivariate analysis, other than gender, duration of time in the U.S. is the only additional significant factor in determining seeking health care among recent immigrants (OR = 3.3). A number of factors may account for this increase. Integration into a local population over time automatically brings heightened awareness of available services that target uninsured or disadvantaged individuals. Another possibility is that as an immigrant is considerably removed from engagement in health care from the day of relocation to the U.S. (including preventive health care), chronic or sub-acute health issues neglected over time become acute health issues necessitating health care. Although reported rates of medical problems in the study were not significantly different between time in country of origin and in the U.S. (exclusive of depression), a trend toward increased rates of hypertension and diabetes was observed. Other studies have documented the fact that over time as immigrants adopt the diet and activity levels of industrialized America, there may be a measurable decline in health.[23-25] Another factor is acquisition of health insurance over time. With longer duration of residence in the U.S. immigrants are more likely to be connected to public services that may allow health insurance enrollment, and possibly to acquire health insurance through the workplace. It is likely that

there is a strong correlation between increased healthcare usage and longer time spent in the U.S.; unfortunately only 12.5% of our total study population is insured and it is therefore difficult to draw any conclusions. Having health insurance was obviously a strong predictor of involvement in both acute care as well as preventive health care (OR = 3.2). Progressive improvement in access to services is also reflected in significantly higher rates of screening for TB and HIV among patients residing in the U.S. greater than five years.

English Language Proficiency

Yet another important factor determining increased rate of health care over time may be acquisition of English language skills. Historically this issue has been most frustrating for immigrants and healthcare providers alike.[16, 26-28] In this study, multivariate analysis indicated that immigrants speaking English are 2.4 times more likely to be involved in preventive health care. This is evidence that language remains a significant barrier to obtaining comprehensive health care for immigrants. It should be noted however that in our logistic regression model, speaking English was not a significant predictor of healthcare engagement versus no health care. One might hypothesize that recent immigrants with little to no English language ability would be much more hesitant to approach the U.S. healthcare system. Overall, the data here indicate that may not be the case. Language is a significant factor in preventive healthcare visits as well as having insurance. Further evidence that this issue drives healthcare seeking behavior is found in the observation that 50-60% of respondents reported that their healthcare provider speaks their language. The vast majority of Spanish speaking study participants who seek health care are served by local community health centers that emphasize bilingual providers. In rural environments where patients have to travel much farther to seek any health care, we found that 62% of immigrants indicated the doctor speaks their language. We also found that in Eastern Dutchess, Spanish speaking individuals travel far beyond local providers to attend clinics with Spanish speaking providers, and some can access transportation provided by one of the community health centers. Potential bias exists in our analysis of language as a factor in this study by nature of the fact that slightly over 75% of the survey population claimed English speaking ability. A small subset of respondents was recruited in association with ESL classes.

Another interesting finding from the survey regarding language is the important role played by the medical interpreters. As part of a regional effort to enhance provision of Culturally and Linguistically Appropriate Services (CLAS) as outlined by U.S. Department of Health and Human Services, medical interpreter programs have been initiated within community health centers as well as area hospitals.[29] In this study, approximately half of immigrants were able to converse with their primary care physician in their native language. Of the other half, 75% reported use of a medical interpreter. While these figures

represent noteworthy progress over levels of language assistance provided in the recent past, our data also indicate that a non-negligible percentage of patients is still being interviewed with the aid of a family member as interpreter (36% when seeing a specialist, 15% when seeing a primary care provider). This ongoing practice represents a disparity in health care, relying on family members who may have no medical knowledge and limited ability to relay information regarding disease and treatment.

Health Status and Health Perception

A number of investigators have explored the issue of potential decline in health of immigrants living in a new environment.[30, 31] As discussed above, this study confirmed that immigrants living in the U.S. greater than five years were more likely to seek health care. Due to very low rates of disease in this study we are unable to reach conclusions regarding significant changes in immigrant health status over time, with the exception of mental health. Although our study does not contain a native born control group, the results likely reflect what has been previously described as the "healthy immigrant effect".[31] Migrant populations, in the absence of armed conflict, tend to be healthier when compared to the surrounding population for a variety of reasons. Healthier and younger persons are more likely to leave their country of origin and have some success finding labor in the U.S. Likewise new immigrants benefit from recipient country health screenings and many likely possessed healthier behaviors in country of origin than their U.S. native born counterparts. In the rural immigrant population in this study, we found individuals were more likely to be newer to the U.S., and more often young males. An important factor in this area appears to be emergence of farms requiring migrant and seasonal labor in Eastern Dutchess. As these farms have flourished, the need for farm workers has rapidly increased, contributing to an influx of recent immigrants within the last five years. In addition to health status of recent immigrants we also measured health perception, and it is interesting to note that there is only minimal correlation between the two. In general we observed that with longer duration of residence within the U.S., immigrants have the perception that their own health status declines. This finding was not significantly different when stratified by gender, and rural residents had slightly better health status perception than urban residents.

Mental Health

One of the most striking components of the data is the prevalence of symptoms of depression observed for the immigrant population as a whole. This is a well described phenomenon among immigrants from a wide variety of different cultures.[32-37] In many societies including the U.S. this diagnosis tends to be somewhat taboo and therefore the true rate of symptoms is often underestimated. The fact that over 80% of respondents admitted these symptoms indicates a definitive need for mental health outreach to the recent immigrant population. In addition to economic adversity and acculturative

stress, separation from family and loved ones represents a major life stressor contributing to their symptoms. Under/unemployment based on education and experience may also be a factor. Survey respondents listed the absence of friends and family as the most common cause of symptoms of depression (79.1% of those reporting symptoms). Other common responses included feelings of loneliness and isolation, undesirable housing or work conditions, or feeling unwelcome/unwanted in their new country. Respondents were also asked what strategies if any they employ to deal with these emotions. Talking with friends and family was the most common response. Several others indicated sports, exercise, recreation, and religion as avenues they found helpful in alleviating their symptoms of depression. Our survey also documented that in spite of apparently widespread symptoms of sadness or depression as reported by immigrants, less than 2% seek counseling for these issues.

For a variety of reasons discussed above, the recent immigrant population is challenged in its transition into a new society. Although sadness and depression are only one of the challenges, they have a far-reaching impact as a whole on the immigrants' health status. Symptoms of depression have a direct effect on other lifestyle factors such as maintaining a healthy diet, exercise, and stress management. Depressive disorders can disturb these factors thereby contributing to increased rates of chronic health problems such as obesity, diabetes, hypertension, and substance abuse. Future efforts to improve immigrant health care could have a significant impact through attention focused on mental health services. Although it is common for health centers to ask screening questions for depression, there are barriers in terms of follow-up care due to language and lack of Spanish-speaking mental health providers in Eastern Dutchess.

Use of Emergency Services

A combination of several barriers to healthcare access for the immigrant population leads to often inappropriate or avoidable use of the ER.[7, 38-40] This phenomenon is by no means limited to recent immigrants, particularly in an era of an expanding population of uninsured individuals in general. Lack of awareness of health services often leads patients, who may have limited English language ability, to seek care at a local ER with non-emergent complaints. These patients then acquire large amounts of debt from their ER visit for management of a non-acute problem that could have been handled at a primary care facility. Hospitals also incur added costs in providing care for these patients which will not be reimbursed. Data from this study indicate that 40% of the survey population that has had any health care in the U.S. has used the ER at some point; 80% of these visits were stimulated by non-acute medical complaints. While many immigrants resorted to the ER due to lack of awareness of services (21%), others, often because of work schedules and hours of availability of primary care resources, stated their regular healthcare provider was unavailable (37%). Other reasons cited for ER visits were that the

individual did not know where else to go, or that it was the most convenient option. Subsequently, some respondents indicated they feared returning to the ER as a result of large unpaid bills incurred there for prior medical care. These responses indicate the need for focus on improved awareness of services including charity care programs and clinics operated by local health organizations. Institution of patient navigator programs in other arenas has provided a solution allowing more successful connection of needs and services. Likewise, targeting full time employed patients with extended hours for primary care services one to two days per week would be beneficial. These efforts should be strongly considered in urban habitats where ER usage was much greater, likely as a result of convenience.

One hypothesis in our study was that healthcare seeking behaviors in country of origin may determine healthcare seeking behaviors after immigration to the U.S. One such behavior would be choosing a facility or a source of health care, such as the ER. Seventy nine percent of respondents indicated they attended a public hospital or clinic in their country of origin, and only 25% reported visiting a private clinic or physician. These statistics may reflect the prevalence of two tiered healthcare systems in countries where governments often provide a substantial amount of comprehensive health care to the public, and private physicians are available to individuals with the means to pay their fees. Because the immigrants in this study primarily accessed health care in a public setting in their country of origin, it is possible that this past experience may play a role in ER usage in the U.S. Our limited data preclude a firm conclusion regarding the contribution of past healthcare experiences.

Specialty Care

In many communities safety net providers have made significant progress in overcoming many barriers to providing primary care to address health needs of recent immigrants. In many cases however, referral to specialty care is indicated and may add an entirely new layer of complexity for these patients in navigating our health system. Data from this survey indicate that the majority of individuals referred are in fact able to receive specialty care consultations and subsequent treatment (70.7%); however, cost was the most common reason cited for not attending an appointment with specialists. Evidence of the economic burden of specialty care on recent immigrants is further supported by data indicating that 55% of them paid cash for their visit. This information underlines the importance of maintaining programs that subsidize specialty care services for uninsured patients. We also documented that unlike local primary care offices, the majority of specialty care providers do not speak the patient's language, and less than half provided medical interpreters. This stresses the need for expanding medical interpretation services to specialty care offices.

Study Limitations

Analysis of an investigation of this nature is not complete without a critical evaluation of limitations of the study. It was not possible to generate a sample size via true probability sampling. Probability sampling, where every member of the target population has a chance of being included in the sample, allows one to apply survey findings to the entire target population.

To accomplish probability sampling, one needs a reliable population baseline. However, it is difficult to do so for immigrant populations for several reasons and a composite of sources was used to estimate a "representative" sample. Immigration data are difficult to compile due to different methodologies and scopes in data sources (i.e. U.S. Census Bureau and U.S. Citizenship and Immigrations Services). Undocumented individuals are not counted in official records. At the moment, the U.S. Census Bureau decennial census is the only data source for zip code level demographics identifying "recent immigrant" status. Since the last decennial Census was done in 2000, "recent" is defined as between 1990 and 2000. More recent intercensal population estimates indicate that Dutchess County has been experiencing growth in ethnic diversity, particularly in its Hispanic/Latino population but it was not possible to utilize these data for sample size determination. Recent census data does not provide stratifications for variables such as age, gender, and education. Therefore, when these variables are addressed in the sample, it cannot be ascertained if the distributions are representative of the actual population or an incidental under/over representation (e.g. higher percentage of females versus males). While community health center statistics were instrumental in providing estimates of number of foreign born individuals who access its services, they could not capture those who do not access their services. Because of the inability to establish an accurate demographic baseline for the target population, it is preferable to think of independent variables as contributors to rather than predictors of outcome variables.

The sampling issue is compounded by potential recruitment bias. Every effort was made to canvas a variety of environments such as healthcare settings, houses of worship, food establishments, and work sites.

There exists a major difference in gender proportions between the two geographic areas incorporated in data collection. In Poughkeepsie, survey respondents tended to be longer residents of the U.S. more likely to live in family units, and more often female; however, rural immigrants were more likely to be male, have shorter duration of residence, and live with unrelated adults (60%) – a combination of characteristics often observed in such areas. Thus, the gender proportions would appear to support a cultural/geographic bias rather than a true recruitment bias.

Some bias regarding healthcare access may exist in the data as a result of recruitment of some respondents from community health center waiting rooms. However, the number of these immigrants was small in relation to the total study population (less than 10%), and the fact that these individuals were clearly already contacting the healthcare system allowed data enrichment based on their present and past experiences. Likewise, the study was definitely oriented toward capturing the experiences of the Latino population even though other immigrants were included. Although recent immigrants from Latin American countries form the vast majority in this region of New York State, this study may not offer extension of the observations and conclusions regarding healthcare access to the other under-represented immigrant populations.

Finally, self-reported responses carry an intrinsic bias. Respondents may under-report undesirable behaviors and may over-report desirable behaviors. Ability to recall information, dynamics between interviewer and interviewee, survey content and cultural bias may also affect responses.

CONCLUSIONS

Recent immigrants to the U.S. face many of the same difficulties and challenges as other displaced populations around the world. Integration into a new society that may be less than welcoming poses threats on multiple levels to individual well-being. As these individuals struggle to establish a new home and economic viability, often personal and family health is subjected to lower priorities. Existing barriers to healthcare access exacerbate this situation of neglect, and this scenario is repeated exponentially throughout our region. The presence of a growing subset of our population with increasingly less health care represents not only an opportunity but a mandate to make a significant impact in improving access for this at risk population. This study collected current data on the health status of the recent immigrant population from both rural and urban settings in our county. It provides useful insight into barriers impacting preventive, primary, and specialty care access on a personal level, as well as institutional and system-wide deficiencies in the region.

Obtaining adequate health care remains a challenge for recent immigrants interviewed in this study. This report characterizes a sizeable immigrant population that is largely uninsured, and with variable success in meeting its healthcare needs. Children and women of childbearing age appear to benefit significantly from the New York State Medicaid program in terms of preventive health care. Outside of this subgroup, however, there exists ample room for improvement in involvement of immigrants in primary care. We have observed numerous examples of the Medicaid program providing a doorway for female immigrants to the healthcare system in general, often facilitated by safety net providers, leading to preventive health, and in many cases insurance enrollment and establishment of a medical home.

Study of healthcare seeking behaviors in country of origin confirmed that the majority of immigrants are accustomed to a healthcare delivery system oriented around a public clinic or hospital as opposed to private physicians. This is likely a contributing factor to immigrants seeking health care at hospital clinics and affordable community health centers. Such centers, by virtue of providing care to the immigrant population, are aware of their particular needs and situations and have extended additional services. This model further facilitates their care by heightened awareness of special needs and extension of additional services to immigrants by these community health centers.

While language as a barrier to health care was not as evident in this study as in others, it is clear that it remains an important factor in retention of immigrants' involvement in health care over time, as evidenced by the proliferation and patronage of Spanish speaking providers at community health centers. Likewise, it is a determining factor for participation in regular screening physical exams. Language and cost remain significant barriers for immigrants when specialty care is needed.

As this study was conducted, a substantial amount of testimony from recent immigrants was encountered by the interviewers yet only a percentage of their experience is captured by the survey questions. We found that many respondents expressed profound gratitude when they learned that a group of people were even concerned with their difficulties in getting needed health care. In the course of survey administration, interviewers were able to connect respondents to healthcare services as well as provide information. The overwhelming majority have immigrated to the U.S. due to low wages or lack of employment in their country or origin, and shared their desire to provide a better future for their children and their willingness to risk everything for that cause. Some immigrants indicated professional careers and advanced University training left behind in their country to move to the U.S., work at whatever job they could find, and send money home to support their families. This study also highlights a significant impact of immigrants' relocation to the U.S. on the individual's mental health. This population of recent immigrants, most often displaced by economy, appears to experience a high rate of symptoms of depression directly related to sequelae of relocation. These symptoms are an important factor and determinant of an individual's overall health and therefore should be a significant consideration in any approach to improving health care for immigrants.

RECOMMENDATIONS

Based on data gathered and interpreted above, this study points to several areas for further study and intervention as follows:

1. Develop novel pathways that take advantage of a significant female gender bias in initial health care involvement among immigrants, for the purpose of engaging entire family units in affordable, easily accessible, primary care that leads to regular preventive health visits and establishment of a medical home.

2. Focus on preventive health care particularly in rural areas where there is a deficit in STD and TB screening. Evidence for more chronic health problems in urban areas also suggests a need for preventive health care and education regarding health maintenance and healthy behaviors.

3. Enhance awareness among specialty care providers of the importance of language interpretation services for limited English proficiency patients. This may include improved availability of medical interpretation services for specialty care practice sites and facilities.

4. Develop strategies to minimize unnecessary ER visits, particularly in urban areas. This would include education/awareness programs to direct immigrants to affordable primary care providers, and possibly efforts to expand office hours to facilitate care of patients unable to leave work during the business day. Establishment of a patient navigator program should also be explored to facilitate connections between patients and available services and improve awareness.

5. Focus efforts to facilitate engagement of recent immigrants in health care on individuals in country for less than five years, as they are significantly less likely to seek services. These efforts would likely revolve around improving their awareness of services and resources. It is also apparent that native language communication is much more critical in this newly arrived population.

6. Improve access to dental care for immigrants, particularly in the city of Poughkeepsie where cost was a significant limiting factor.

7. Promote dialogue between healthcare providers and recent immigrants regarding the use of herbal remedies. We found no evidence of resistance to modern pharmaceuticals and most patients indicated reasonable compliance with medical therapy; however, a significant number of immigrants indicated they also use herbal remedies and there was no discussion of this therapy with their healthcare provider. While these treatments are most often harmless,

without such dialogue they can at times be counterproductive and place patients at significant risk of treatment complications.

8. Healthcare providers should be particularly aware of elevated risk of mental health issues among recent immigrants. These individuals endure considerable stress from multiple elements involved in relocating to and surviving in a new culture under difficult conditions. Support services that target the unique circumstances of immigrants dealing with loss and stress of separation from family, community, and culture need to be developed.

DISCLAIMER

This study represents an independent investigation. It is not affiliated with, endorsed by, or a representation of Hudson River HealthCare, HealthQuest Medical Practice, or Vassar Brothers Medical Center.

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Data collection and entry was done primarily by our two research assistants Roberto Muller and Katia Chapman. A study of this magnitude would not have been possible without these two assistants who devoted significant time to seeking immigrants to interview and listened to their stories. Juan Basilio Sanchez and Hope Viers both conducted surveys as well. Translation of the survey into Spanish was performed by Maria Teresa Muller, RN. Solange Muller, MPH was invaluable in training of interviewers, supervision of data collection, and conducting interviews.

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Finally we thank the immigrants who generously gave their time during the interviews and shared their stories about the challenges and hopes of fulfilling their dreams in new communities. Many have left their homeland to embark on a perilous journey into the unknown and have faced considerable challenges. Many have expressed frustration and resignation in seeking health care in a country where they are unfamiliar with the language, culture, and their rights in seeking treatment. Many experience a deep sadness of having left family members behind in their country of origin but hold tightly to the hope of providing their children with a new life. This hope is challenged by the difficulty of finding work, accessing health care, and living with fear of not being able to remain in the U.S. As investigators we are grateful for their trust, and we hope that this study will contribute to improved health of a population that is now an expanding part of our changing communities and our nation of immigrants.

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