

# Kentucky Refugee Health Assessment Report

## 2015

---



University of Louisville, School of Medicine  
Division of Infectious Diseases  
August 2016



**UL** GLOBAL HEALTH  
CENTER  
Global Health is Local Health



## Table of Contents

Executive Summary.....	3
Introduction.....	4
Demographics.....	6
Country of Nationality.....	6
Marriage Status.....	7
Language.....	8
Immigration & Health Clinics.....	9
Age.....	10
Region.....	11
Overseas Medical Exam Review.....	12
Class B Other Conditions.....	13
Presumptive Parasite Treatment.....	14
Pre-Departure Treatment.....	15
Health Profile of Refugees in Kentucky.....	16
Top Health Conditions.....	16
Top Referrals.....	17
Top Health Conditions by Country of Nationality.....	18
Body Mass Index.....	25
Urinalysis Result.....	27
Eosinophilia.....	28
Total Cholesterol.....	29
High Density Lipoprotein.....	30
Varicella Titer Levels.....	31
Tuberculosis Screening.....	32
Parasites.....	33
Comprehensive Metabolic Panel.....	36
Vision.....	37
Hearing.....	38
Survivors of Torture.....	39
Witness of Torture or Violence.....	40
Mental Health Screening.....	41
Hepatitis B.....	42
Dental Screening.....	43
Blood Lead Levels.....	44
Anemia.....	45
HIV & Syphilis.....	46
Hepatitis C.....	47

## Executive Summary

Every year approximately 3500 refugees enter Kentucky as part of the federal U.S. Refugee Program. As part of this resettlement process, refugees arriving in the United States are eligible to receive a domestic Refugee Health Assessment (RHA). While no national requirements exist for the RHA, the Centers for Disease Control and Prevention (CDC) and the Office of Refugee Resettlement (ORR) provide guidelines for data elements that could be collected. This report is an analysis of the Refugee Health Surveillance database, an ongoing data collection tool for the standardized Refugee Health Assessment using the data elements suggested by CDC and ORR. A total of 2376 adult and pediatric refugees were screened January through December 2015 in Louisville, Lexington, and Owensboro. The top health conditions identified in refugees include dental abnormalities, decreased visual acuity, TB exposure, RHS 15 positive/increased stress and anemia. Over 55% of refugees were considered overweight or obese, 14% had high cholesterol, and 45% had low HDL levels. Dental abnormalities were seen in 65% of refugees, and 19% had a positive mental health screening. A total of 12% of adult refugees had a positive T-SPOT/QFT (tuberculosis) test, and 32% tested positive for at least one parasite.

This analysis shows that the main health conditions facing refugees after arriving in the U.S. are chronic conditions that require long-term management. While referrals are made for refugees, many are lost to follow-up once they assimilate, due to a lack of insurance or lack of knowledge of the U.S. healthcare system. Upon review of these results, a systematic approach to solving the problem of long-term follow-up needs to be established for refugees in order to address and decrease the impact of chronic health conditions.



## Introduction

Refugees arriving in the United States are eligible to receive a domestic Refugee Health Assessment (RHA) as part of the resettlement process. The purpose of the medical screening is to follow up with any condition identified in the overseas medical evaluation, identify individuals with communicable diseases of public health importance, identify health conditions that could affect the resettlement process including employment, and serve as an introduction to the US healthcare system including establishing a primary care location. In Kentucky, RHAs are conducted at five clinics - three in Louisville (Family Health Centers-Americana, Home of the Innocents, and the University of Louisville 550 Clinic), one in Lexington (Bluegrass Community Healthcare Center) and one in Owensboro (Green River District Health Department).

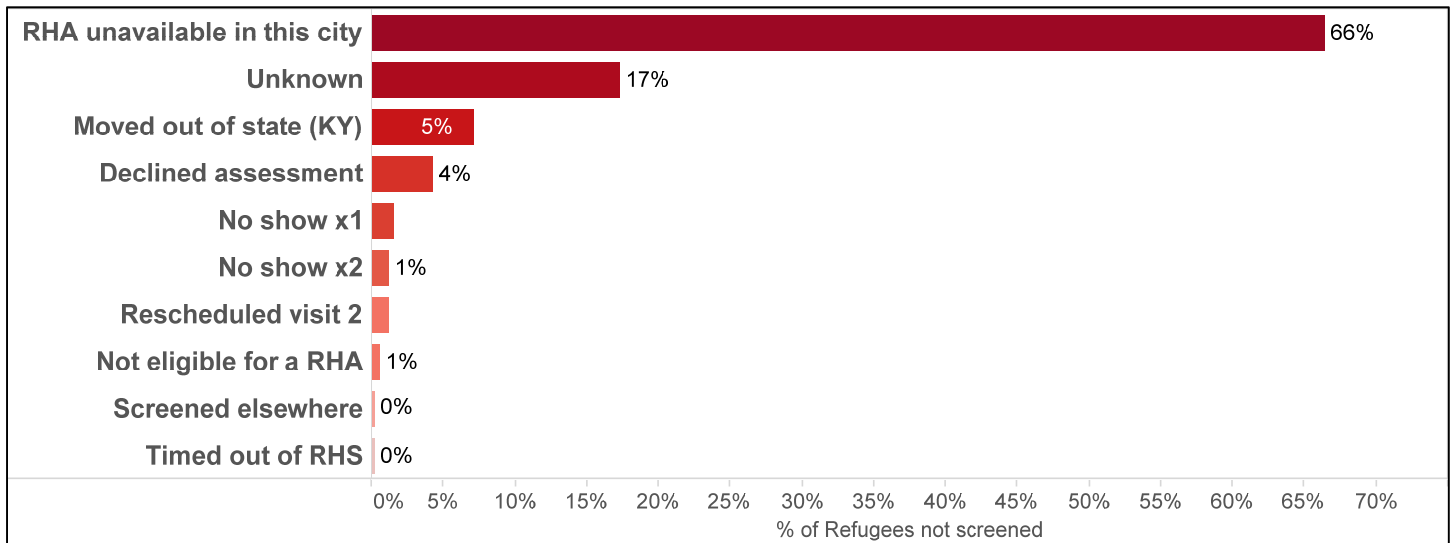
Refugee health assessments include a review of overseas medical information, a complete medical and socio-ethnic history, a physical exam, and laboratory screenings.

Refugees should receive a health screening within the first 90 days of arrival in the US. **Table 1** shows a comparison of the number of days between arrival and the RHA by month. Over 65% of refugees who arrived in Kentucky in 2015 received an RHA within 90 days.

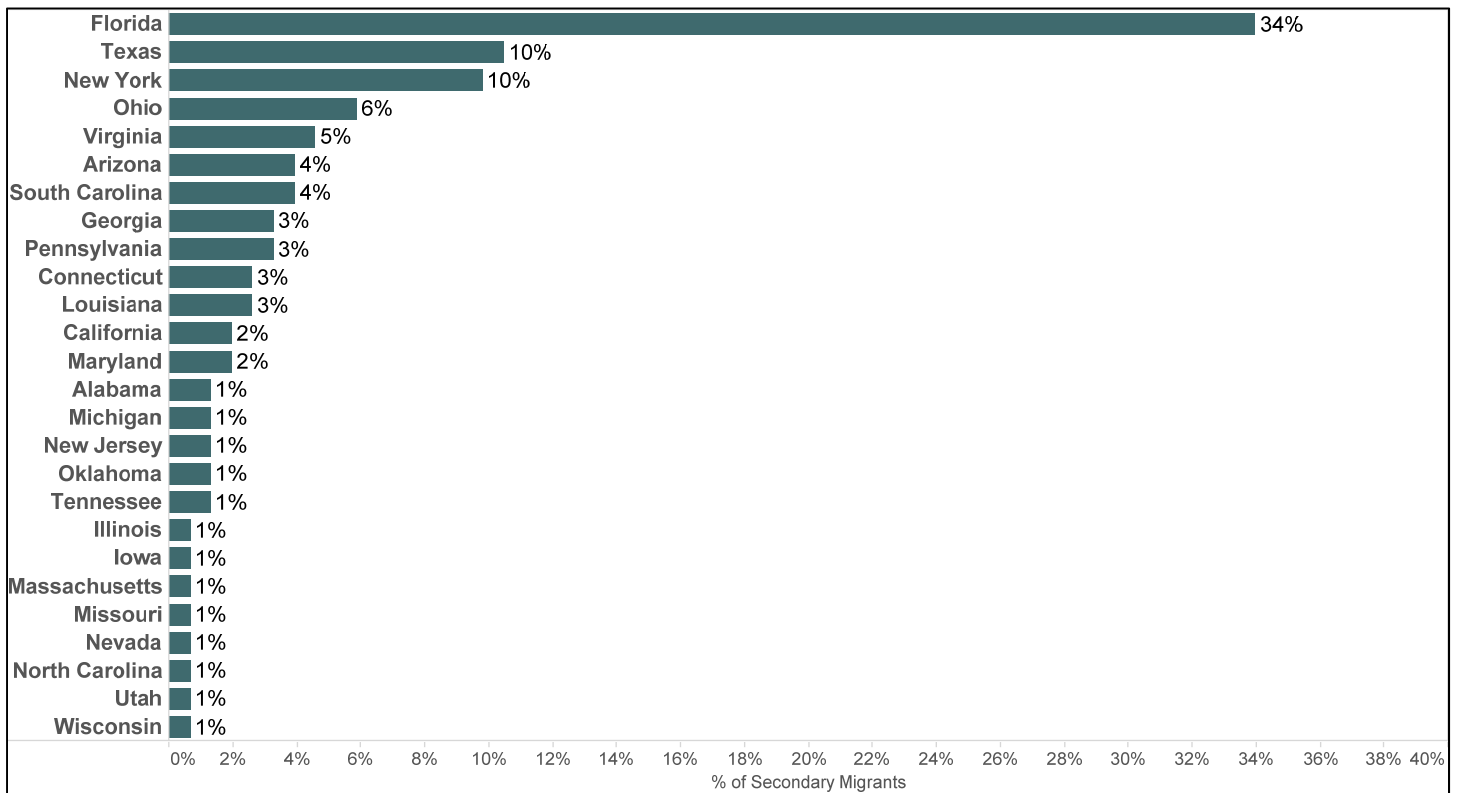
**Table 1 Refugee Health Assessments within 90 days of arrival, January through December 2015**

	0-30 days		31-90 days		>90 days		Not yet screened		Total
<b>January</b>	4	1.72%	148	63.79%	42	18.10%	38	16.38%	232
<b>February</b>	18	11.25%	95	59.38%	13	8.13%	34	21.25%	160
<b>March</b>	38	18.01%	92	43.60%	10	4.74%	71	33.65%	211
<b>April</b>	67	36.02%	91	48.92%	7	3.76%	21	11.29%	186
<b>May</b>	45	26.01%	92	53.18%	7	4.05%	29	16.76%	173
<b>June</b>	75	27.08%	141	50.90%	9	3.25%	52	18.77%	277
<b>July</b>	80	30.53%	132	50.38%	12	4.58%	38	14.50%	262
<b>August</b>	63	18.98%	175	52.71%	26	7.83%	68	20.48%	332
<b>September</b>	65	12.85%	216	42.69%	73	14.43%	152	30.04%	506
<b>October</b>	54	16.67%	97	29.94%	75	23.15%	98	30.25%	324
<b>November</b>	29	12.18%	92	38.66%	59	24.79%	58	24.37%	238
<b>December</b>	39	19.31%	109	53.96%	20	9.90%	34	16.83%	202
<b>TOTAL</b>	577	18.59%	1480	47.70%	353	11.38%	693	22.33%	3103

The figure below shows the reason the refugees were not screened.



Secondary migrants are refugees who were originally resettled in another state, then moved to Kentucky. Most secondary migrants who move to KY generally receive their health screening in their original state. The figure below depicts the top states where secondary migrant refugees were originally resettled.

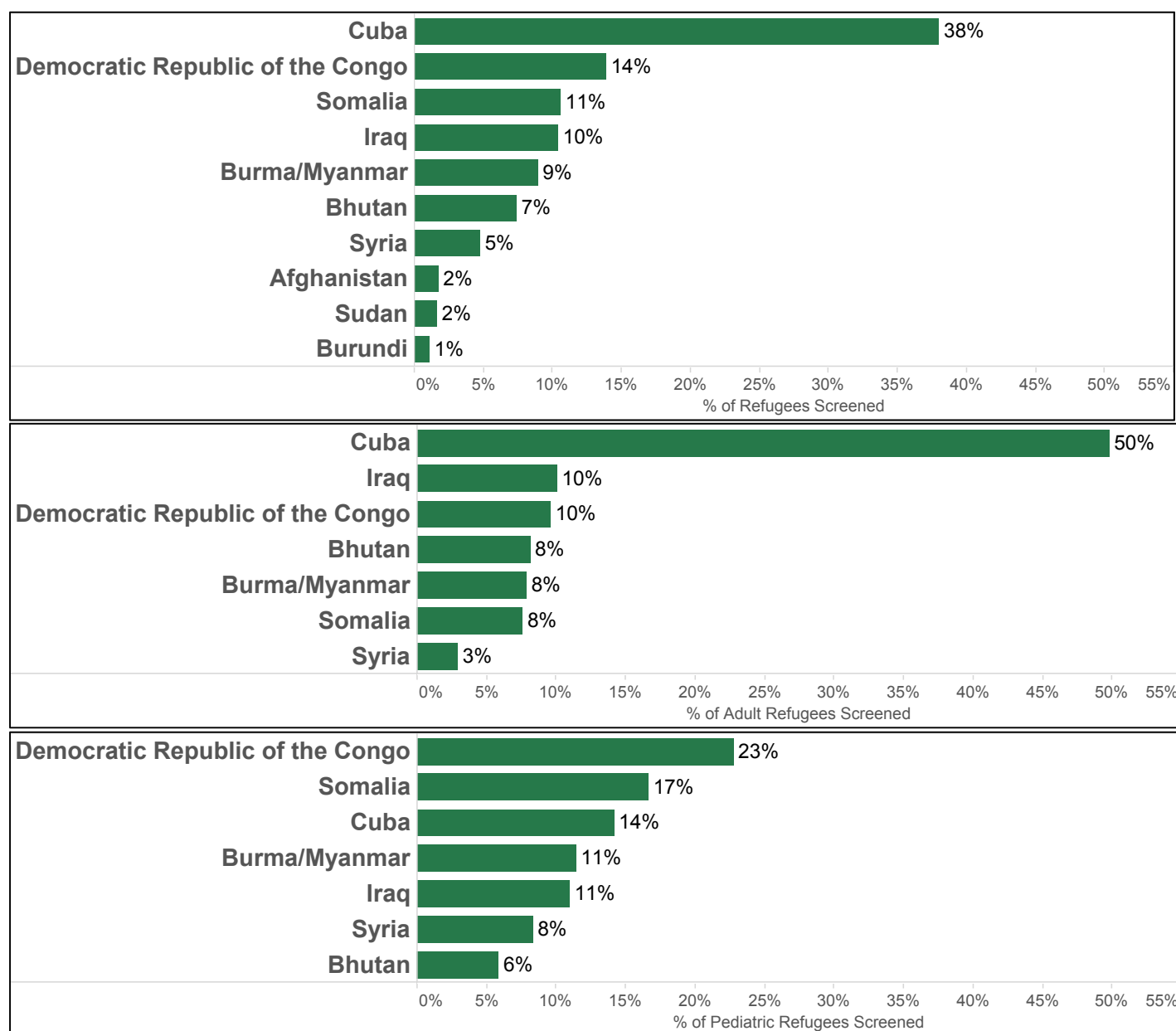


## Demographics

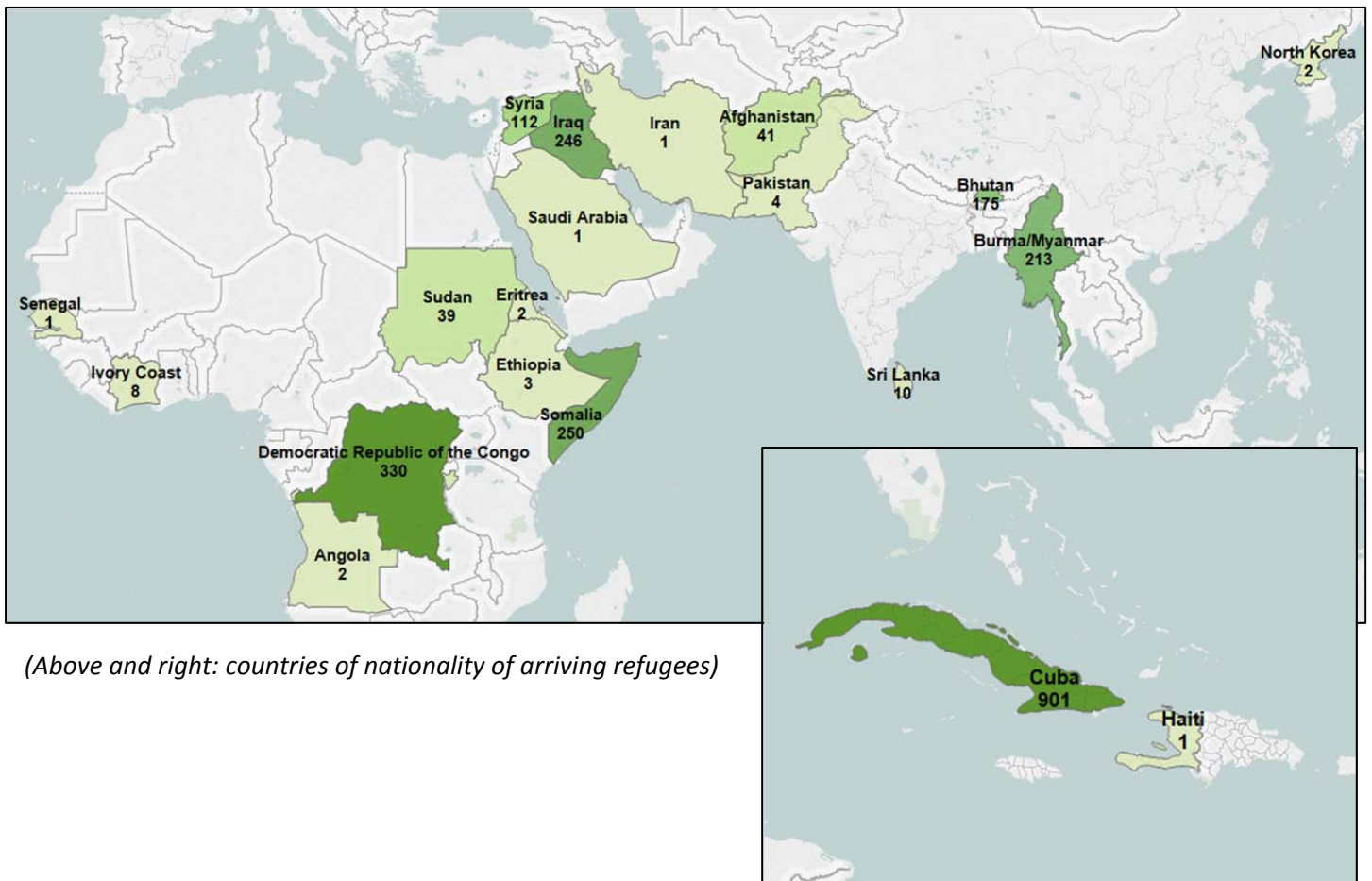
A total of 2376 patients were seen for a Refugee Health Assessment in Kentucky in January through December 2015; 1594 were adults 18 and older and 782 were children. RHA clinics collect demographic information from each patient including marriage status, preferred language, age, country of nationality, and country of departure.

### Country of Nationality

Refugees arrived in Kentucky from 21 different countries. Over 35% were from Cuba, 14% from Democratic Republic of Congo (DRC), 11% from Somalia, 10% from Iraq, 9% from Burma/Myanmar (called Burma through this report), etc. The figure below depicts the percentages of refugees arriving in Kentucky by the top countries of nationality representing adult and children refugees. The second figure depicts the top countries of nationalities of pediatric refugees who had a health screening in KY and the third figure depicts adults only. The fourth figure shows a map of the country of nationality and the frequency of refugees arriving to Kentucky from each of these locations.

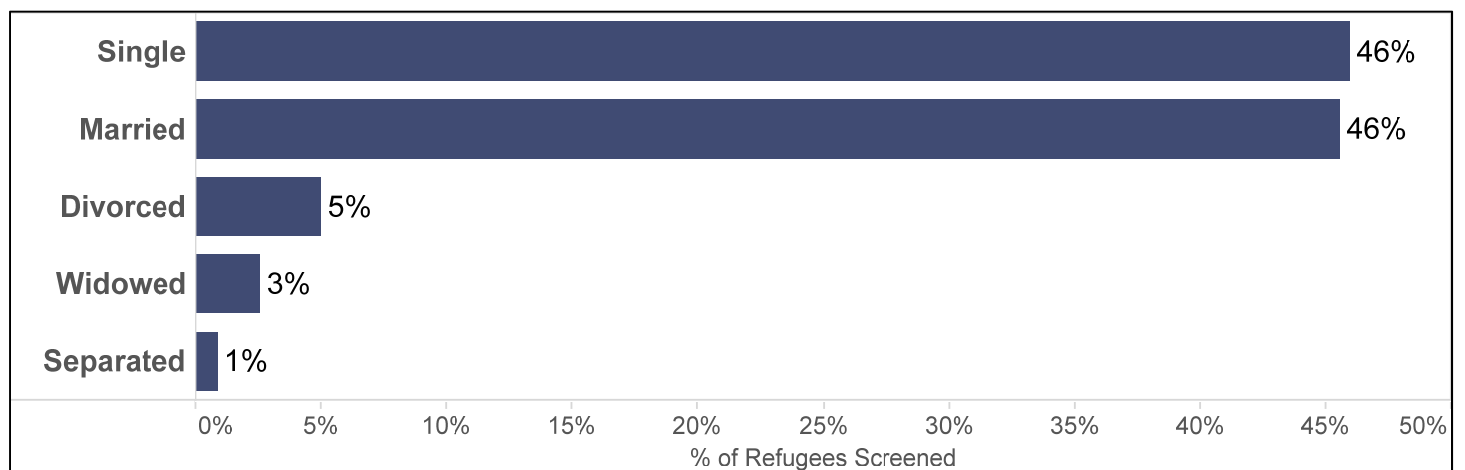






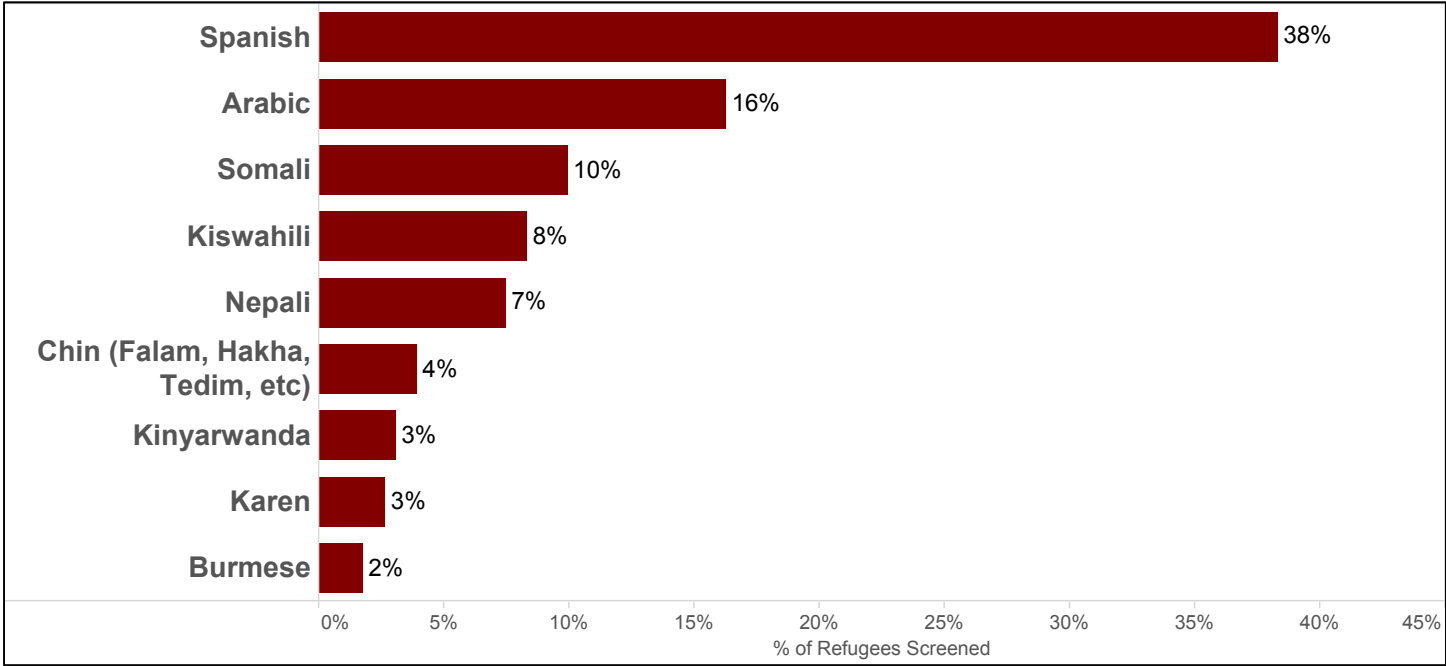
## Marriage Status

The figure below depicts the marriage status of refugees who had a health screening in Kentucky in 2015.



# Language

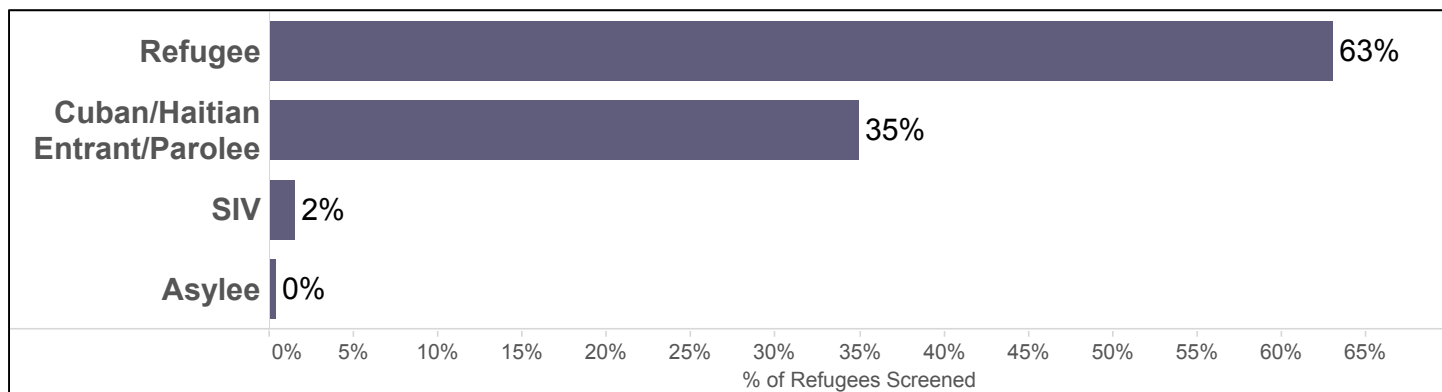
RHA clinics utilize in-person interpreters and phone interpreters to communicate with refugees in a variety of languages. With approximately 40 different languages represented, over 35% speak Spanish, 16% Arabic, 10% Somali, 8% Kiswahili, etc. The figure below depicts the percentage of the top languages spoken by refugees who had a health screening in Kentucky in 2015.





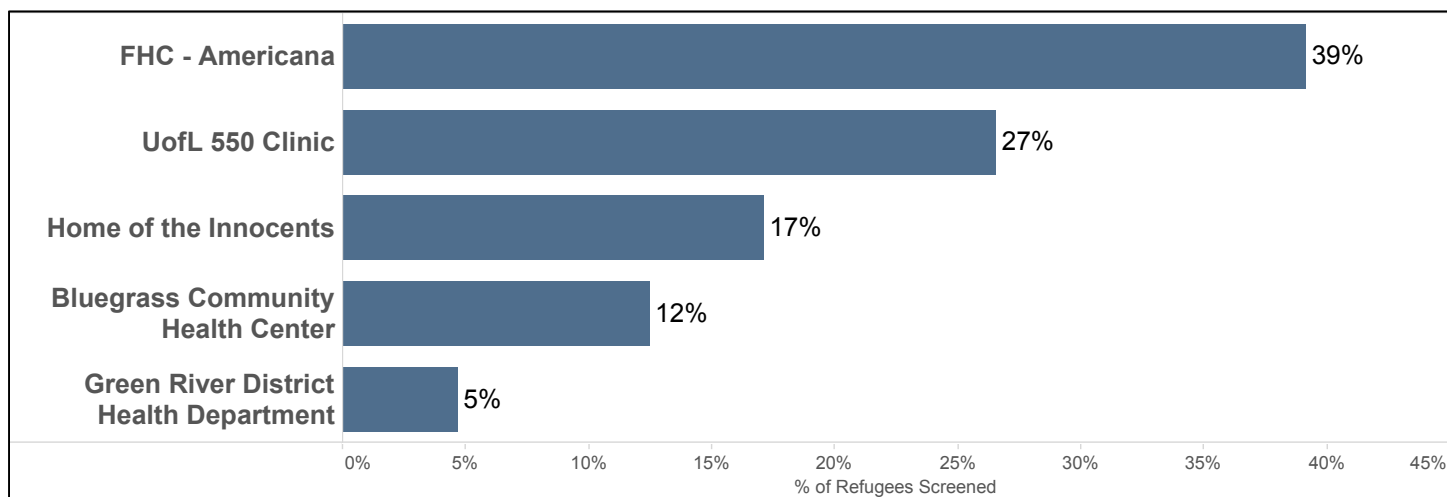
## Immigration Status

Kentucky resettles refugees, Cuban/Haitian Entrants and Parolees, Asylees, Special Immigrant Visas (SIV) and Victims of Human Trafficking. Throughout this report, “refugee” is used to refer to all those resettled in Kentucky. The figure below depicts the percentage of refugees with the given immigration statuses who had a health screening in Kentucky in 2015.



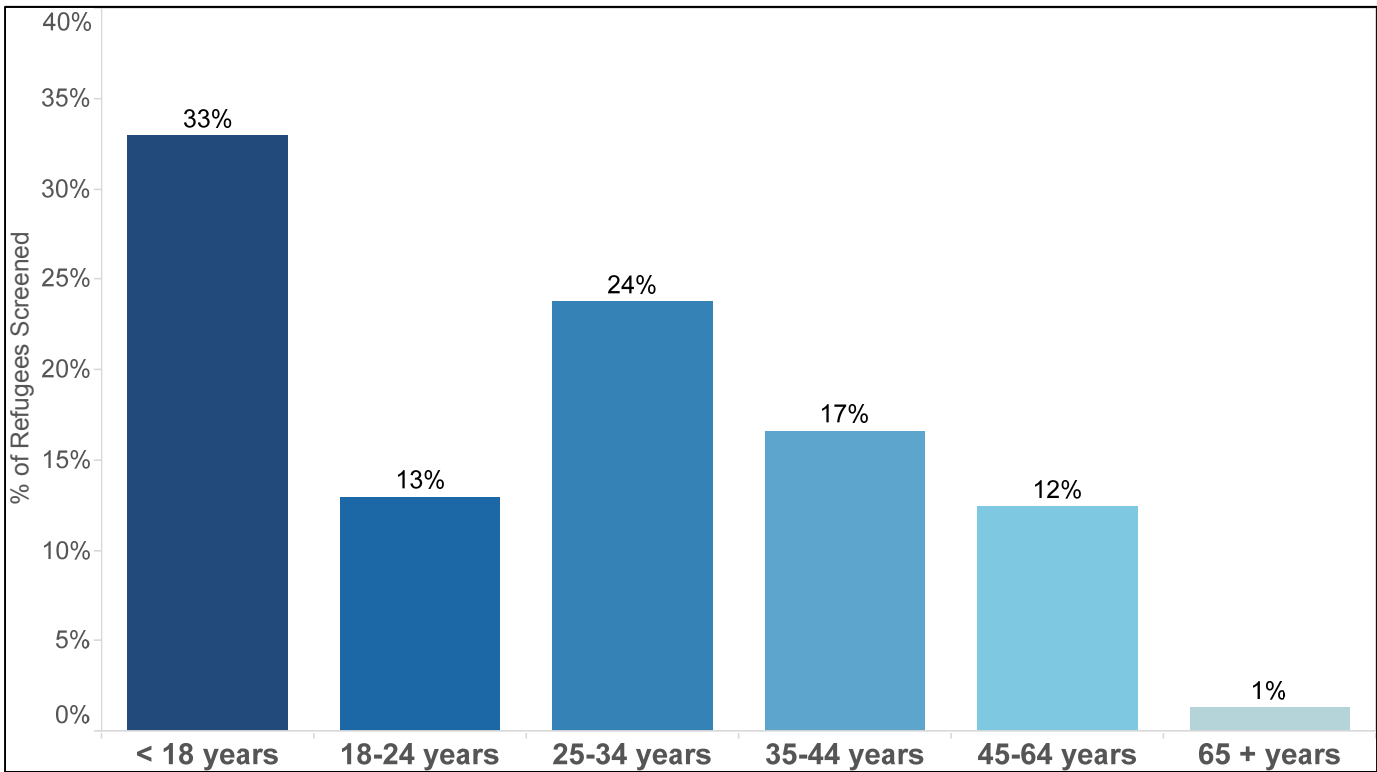
## Health clinics

Refugees receive a health screening at one of 5 clinics in Kentucky. The figure below depicts the percentage of refugees seen for a health screening at each clinic in Kentucky in 2015.



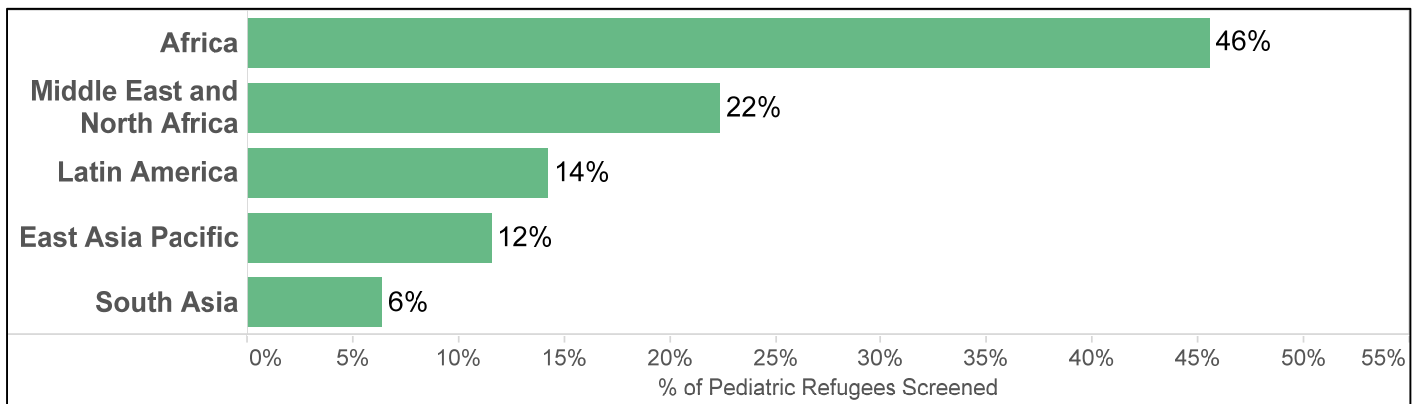
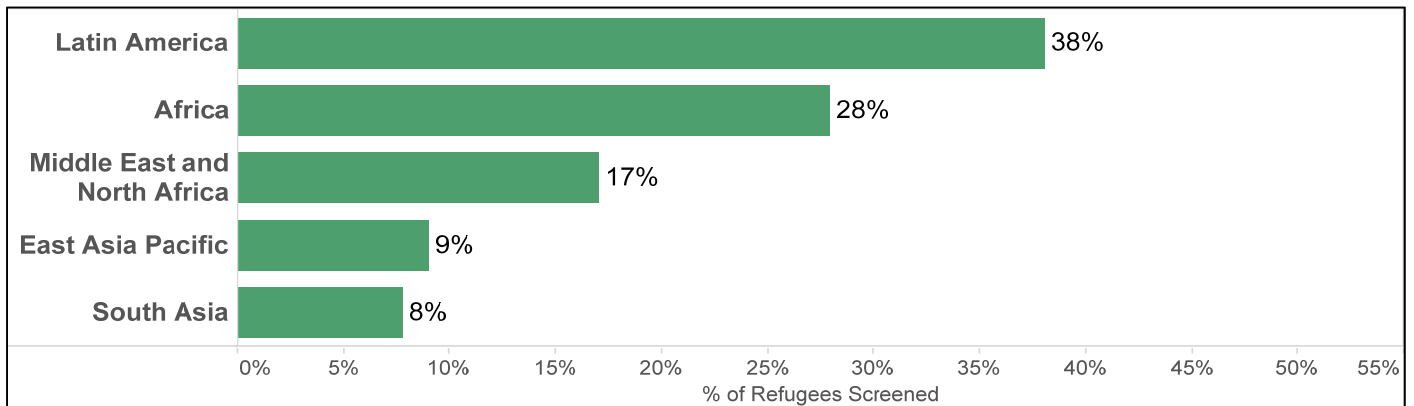
Age

The figure below depicts the age breakdown of refugees who had a health screening in Kentucky in 2015.



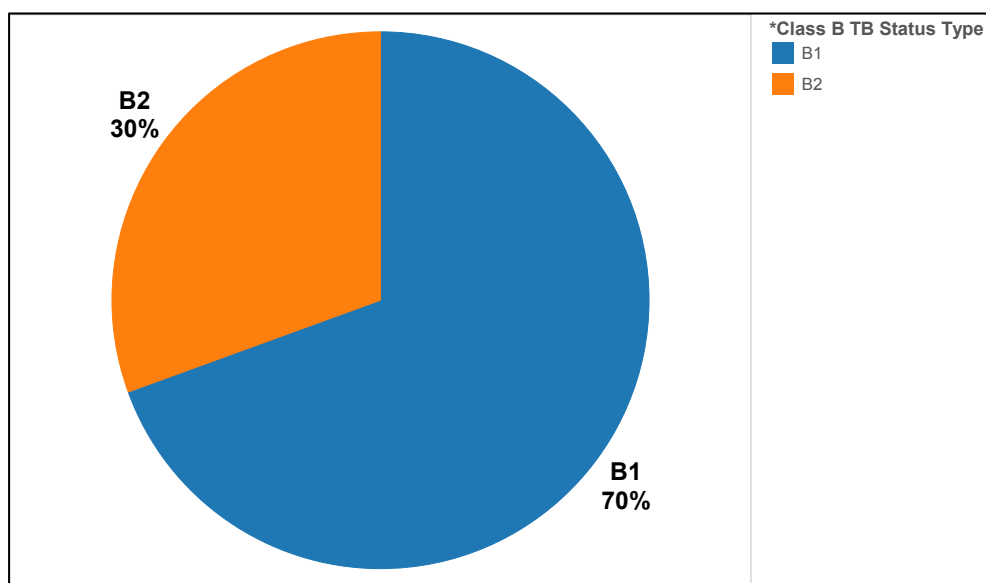
## Region

Refugees arrive in Kentucky from all over the world, with approximately 21 different countries of nationality represented arriving from over 40 countries. 38% of the refugees who had a health screening in KY are from Latin America, mainly Cuba; 28% from Africa, 17% from the Middle East, 9% from East Asia Pacific and 8% from South Asia. The second figure below depicts the region of nationality for pediatric refugees only.

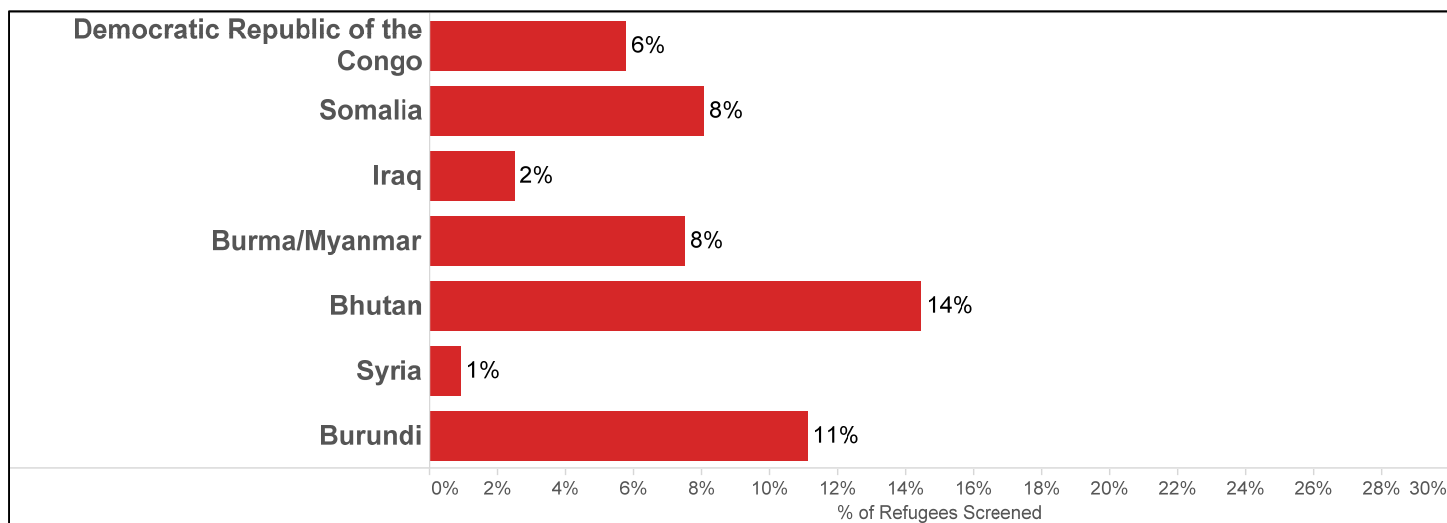


## Overseas Medical Exam Review

Refugees undergo an overseas medical exam before arriving in the United States. Class A conditions may keep refugees from entering into the United States and include diseases of public health significance, mental health disorders associated with violent behavior, and drug addiction. In 2015, specific conditions include active tuberculosis, untreated syphilis, untreated chancroid, untreated gonorrhea, untreated granuloma inguinale, untreated lymphogranuloma venereum, and Hansen's disease (Leprosy). Class B conditions are conditions that may interfere with the well-being of the refugee; the refugee should receive follow-up care soon after arrival in the United States and often treatment before departure. None of the patients seen in 2015 had a Class A condition; however, 4% of patients were diagnosed with a Class B TB condition. The figure below shows the percent of the type of Class B TB condition. A Class B TB B1 indicates an abnormal chest-x-ray with evidence of TB, and/or the individual has a history of treatment for active TB disease. A Class B TB B2 status indicates the refugee was diagnosed with a latent TB infection

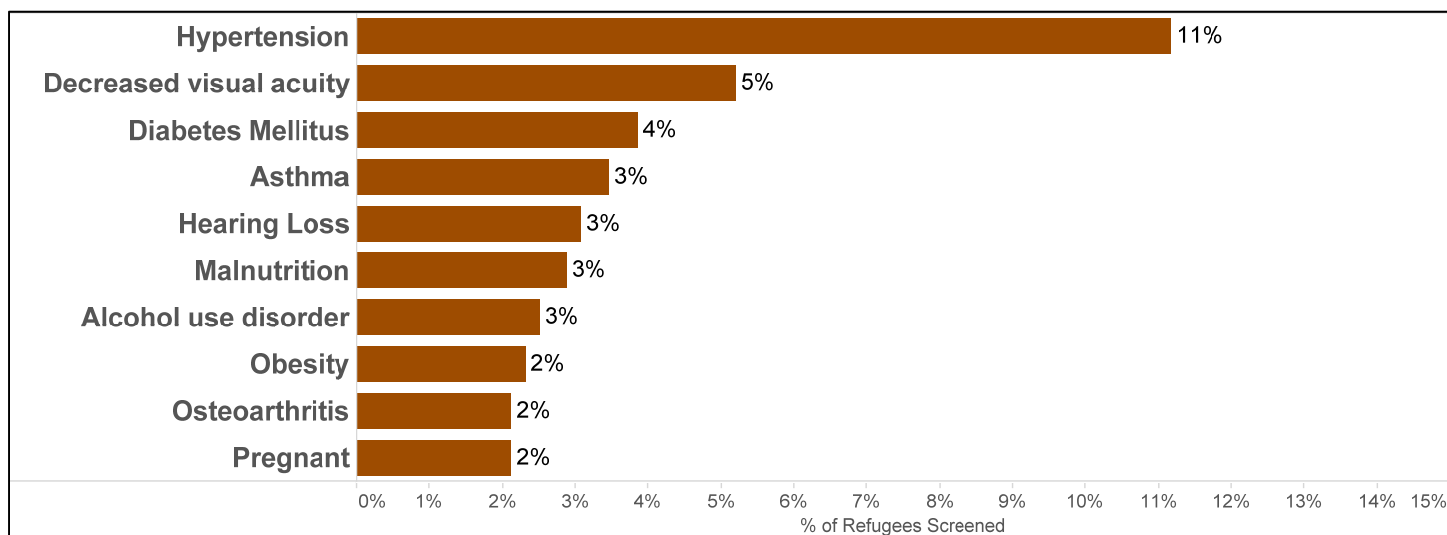
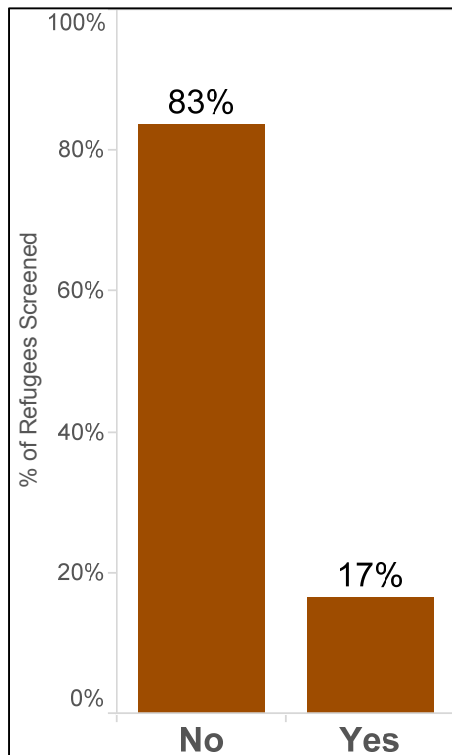


The figure below shows the percent of refugees from each country diagnosed overseas with a Class B TB condition.



## Class B Other Health Conditions

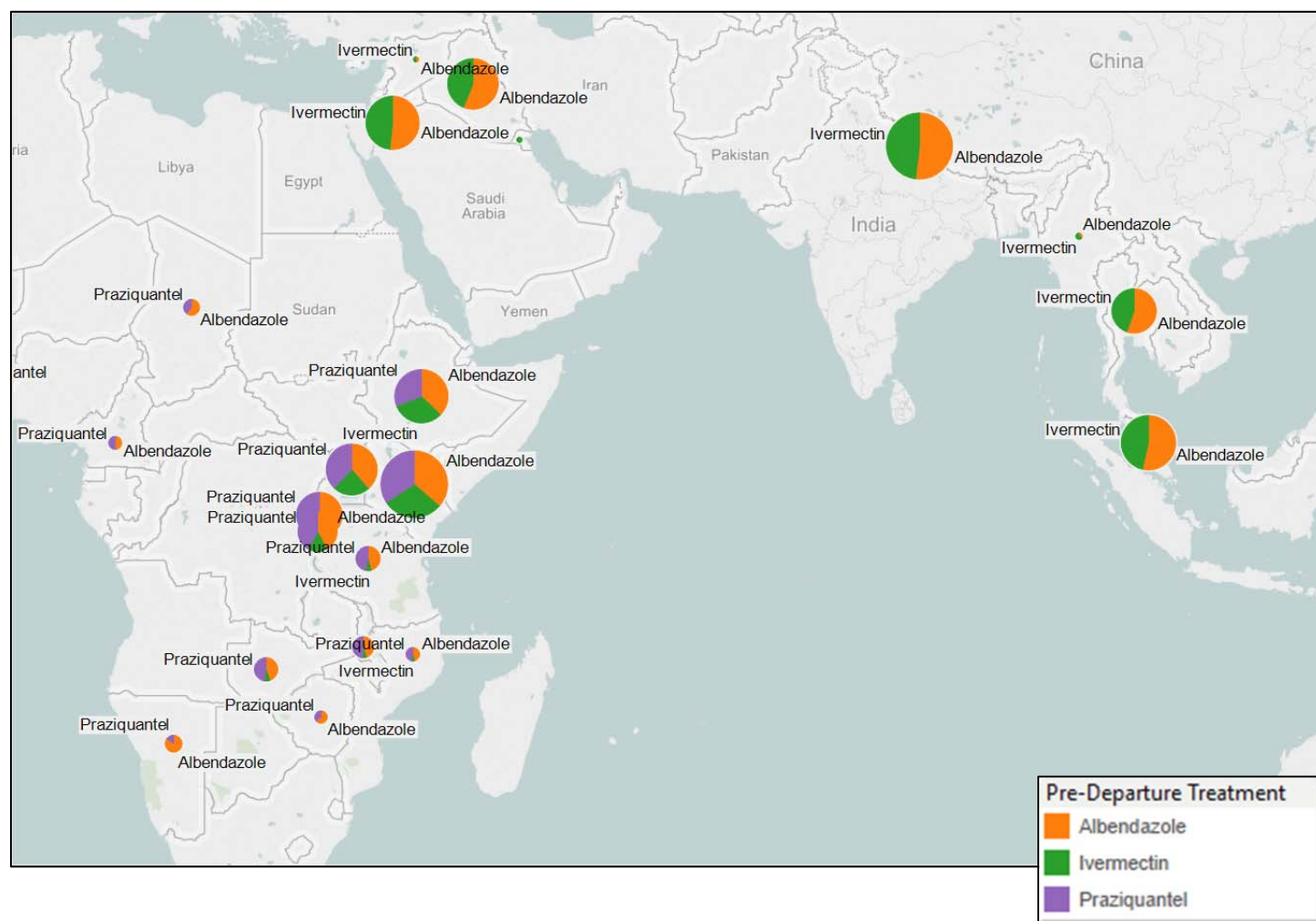
Overall, 17% of refugees who had a health screening overseas were diagnosed with a Class B Other Condition, as depicted in the figure below. The second figure below shows the top Class B Other Conditions reported from refugees who received a health screening in 2015.





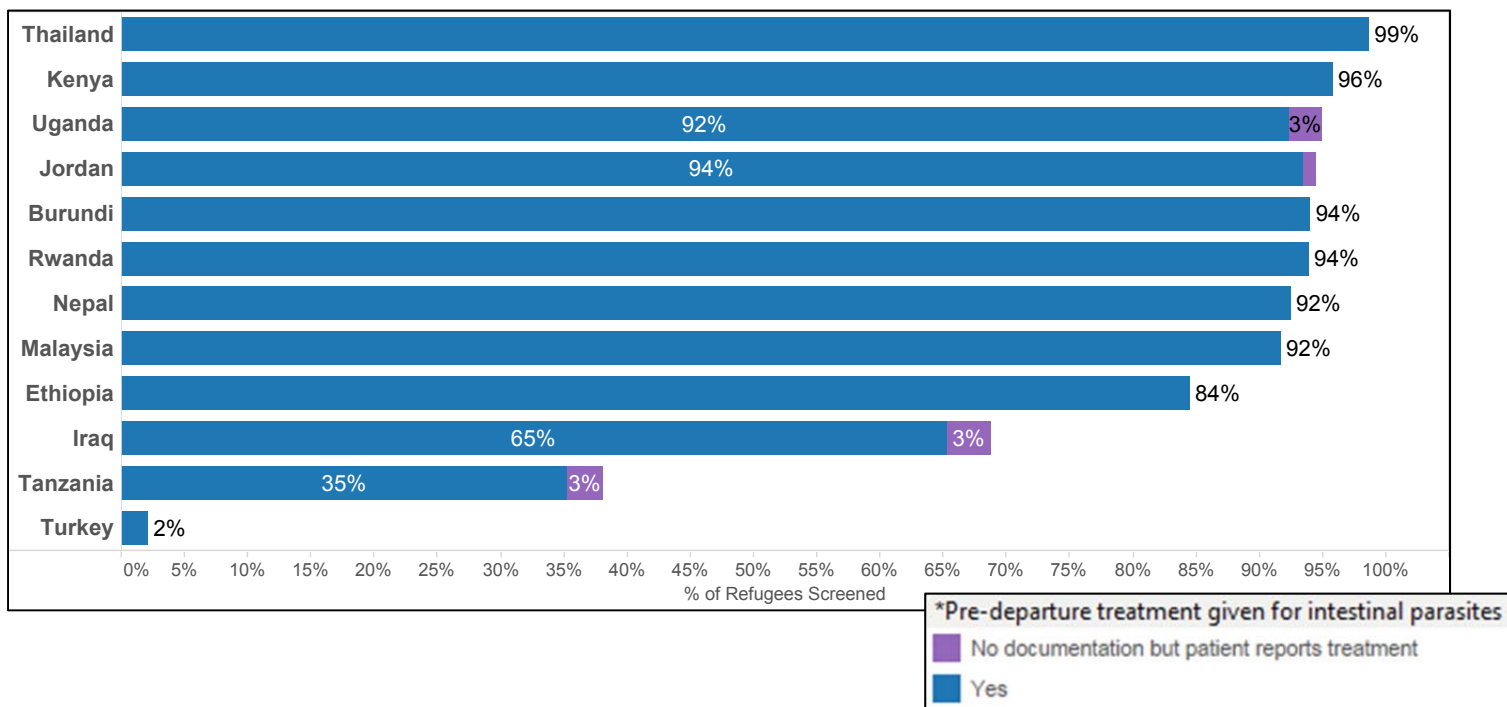
## Presumptive Parasite Treatment

Some refugees receive anti-parasitic medication prior to their departure to the United States. A total of 45% of patients seen in Kentucky received pre-departure intestinal parasite medication; 47% received Albendazole, 34% received Ivermectin and 19% received Praziquantel. In addition, 21% of patients received pre-departure treatment for malaria. The figure below shows the types of pre-departure treatment for intestinal parasites given by country of departure. The figure below also depicts the percent of the type of pre-departure treatment for intestinal parasites received by refugees by country of departure.



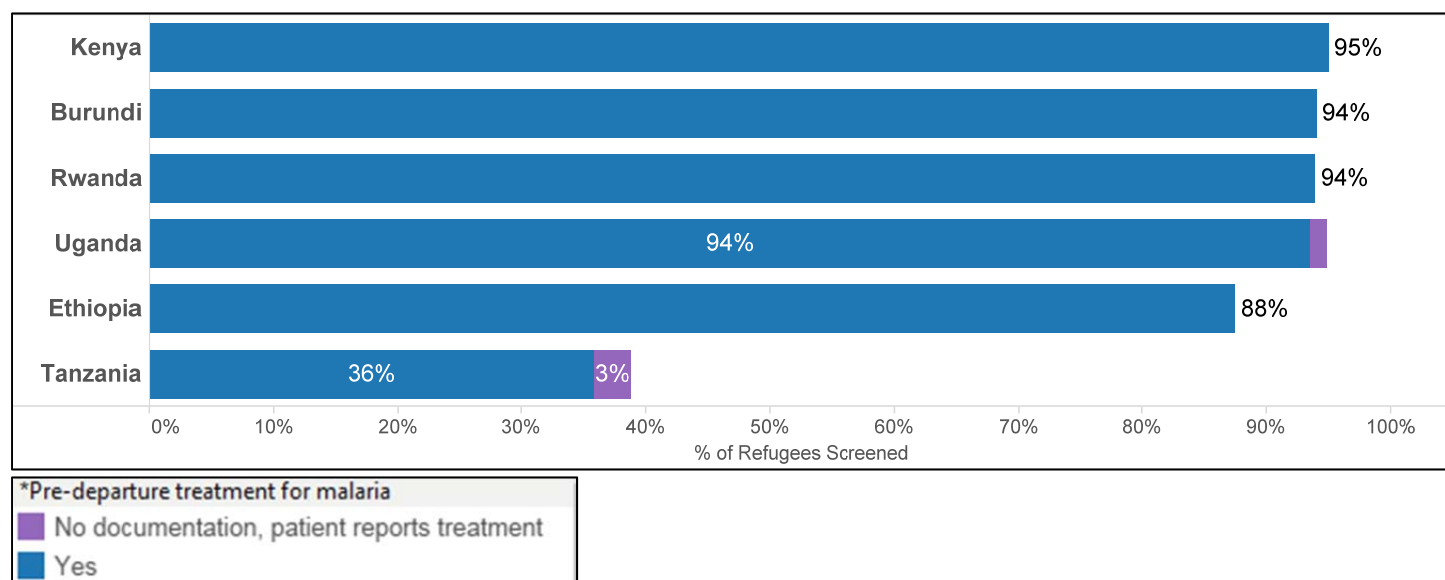
## Pre-Departure Treatment Given for Intestinal Parasites by Country of Departure

The figure below depicts the percentage of refugees who received pre-departure treatment for intestinal parasites by country of departure. Most refugees departing from Thailand, Kenya and Uganda arriving in Kentucky received pre-departure treatment or reported receiving treatment for intestinal parasites.



## Pre-Departure Treatment Given for Malaria by Country of Departure

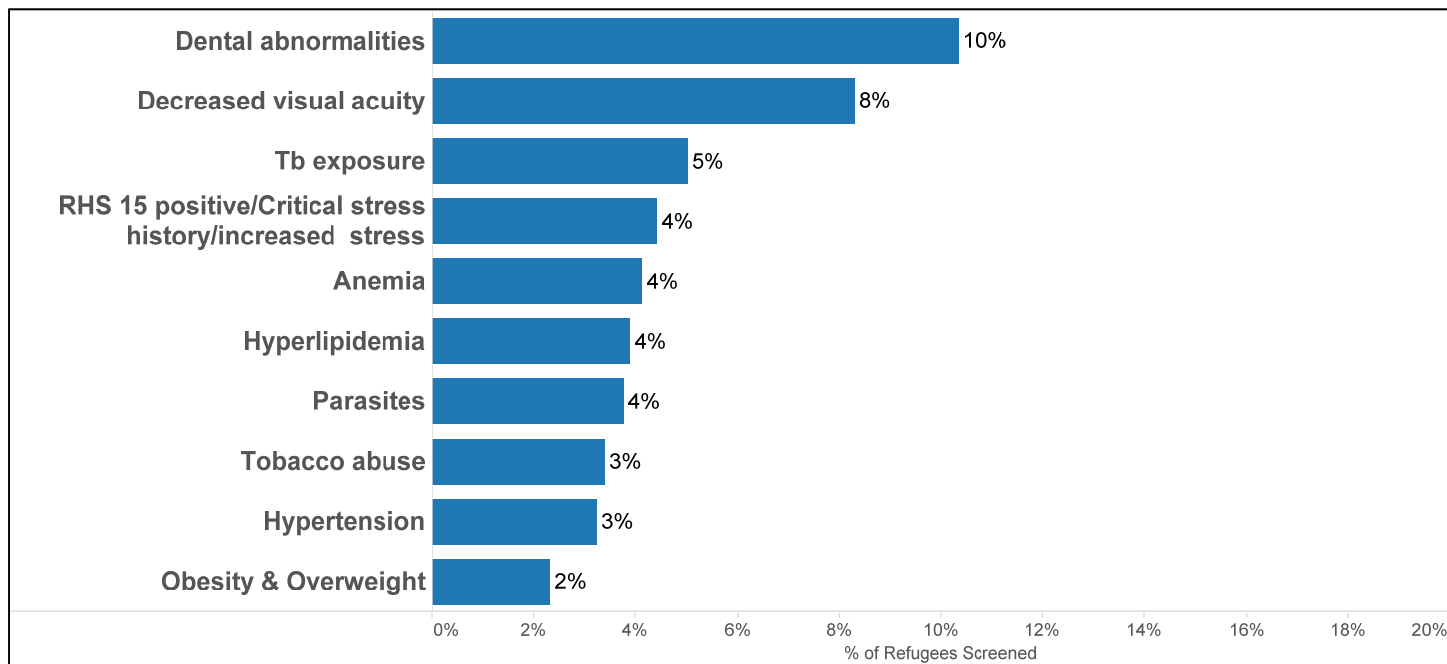
The figure below depicts the percentage of refugees who received pre-departure treatment for malaria by country of departure.



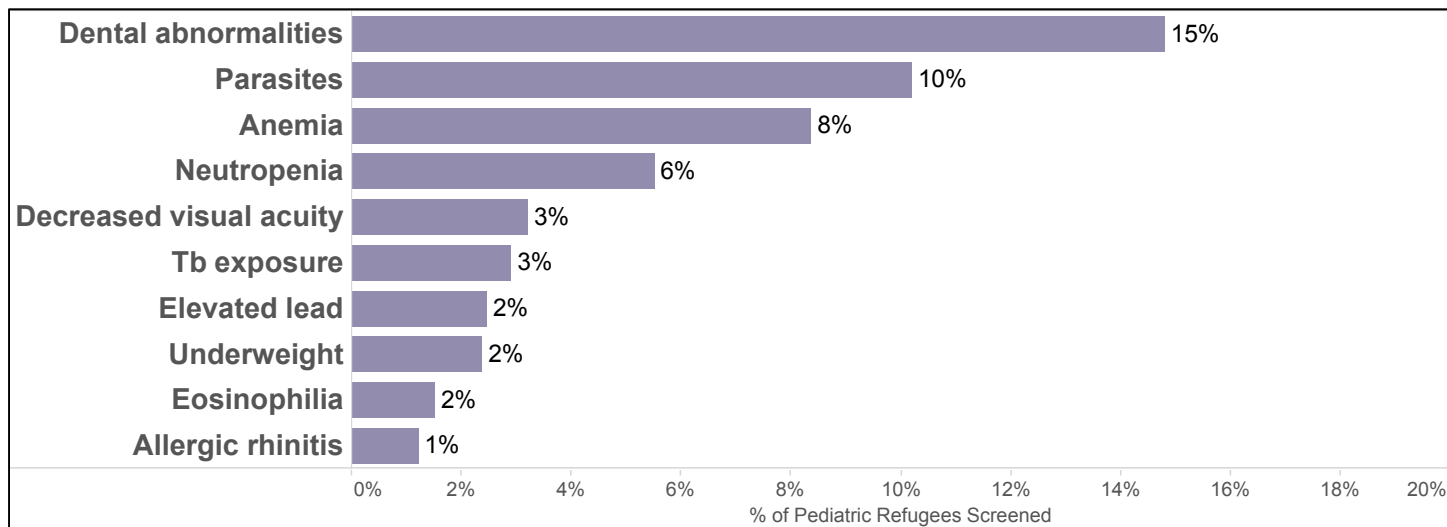
## Health Profile of Refugees in Kentucky seen in 2015

Refugees receive a comprehensive medical screening as part of the Refugee Health Assessment. The RHA includes screening for parasites, body mass index, urinalysis, eosinophilia, total cholesterol, high density lipoprotein, varicella titer, tuberculosis, complete metabolic panel, vision, hearing, mental health, hepatitis B, and dental, as well as other health indicators. Laboratory tests are reviewed with the refugee and the physician can make diagnoses and refer for follow up treatment. The figures below depict the percent of top diagnoses and the percent of top referrals for refugees screened in 2015 in Kentucky.

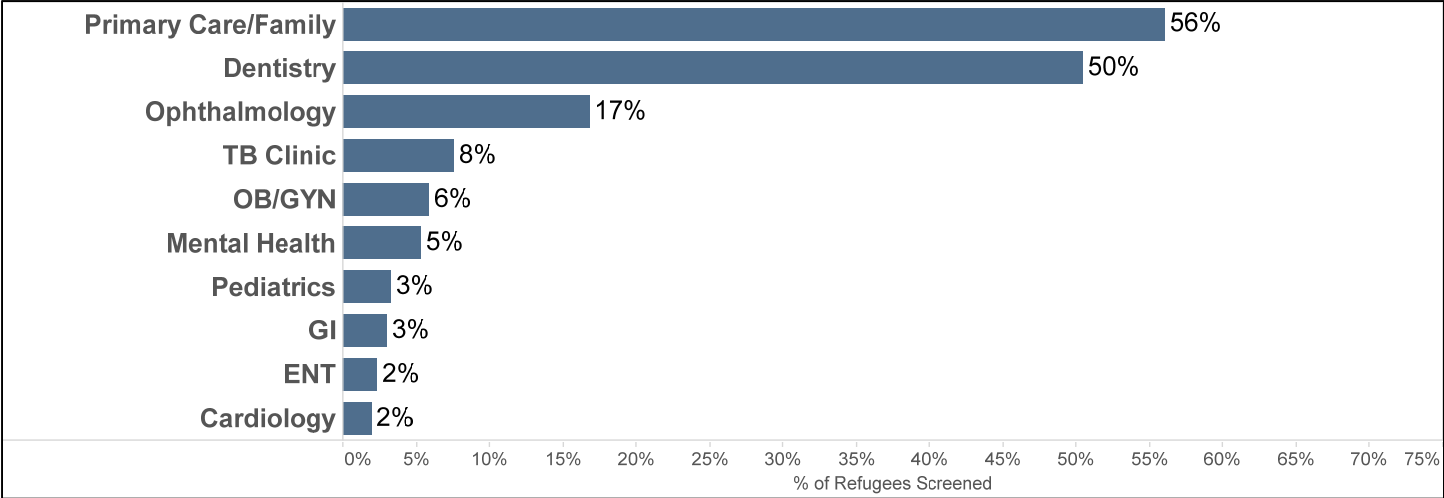
### Top Health Concerns for all patients seen in 2015



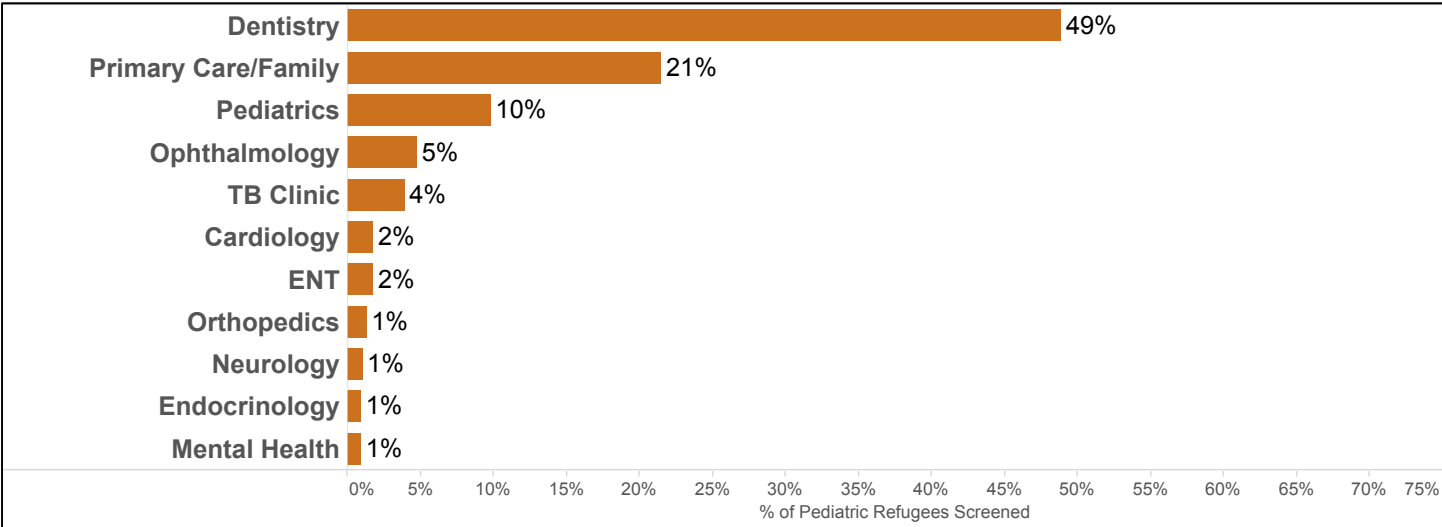
### Top Health Concerns for Pediatric Refugees



Top Referrals

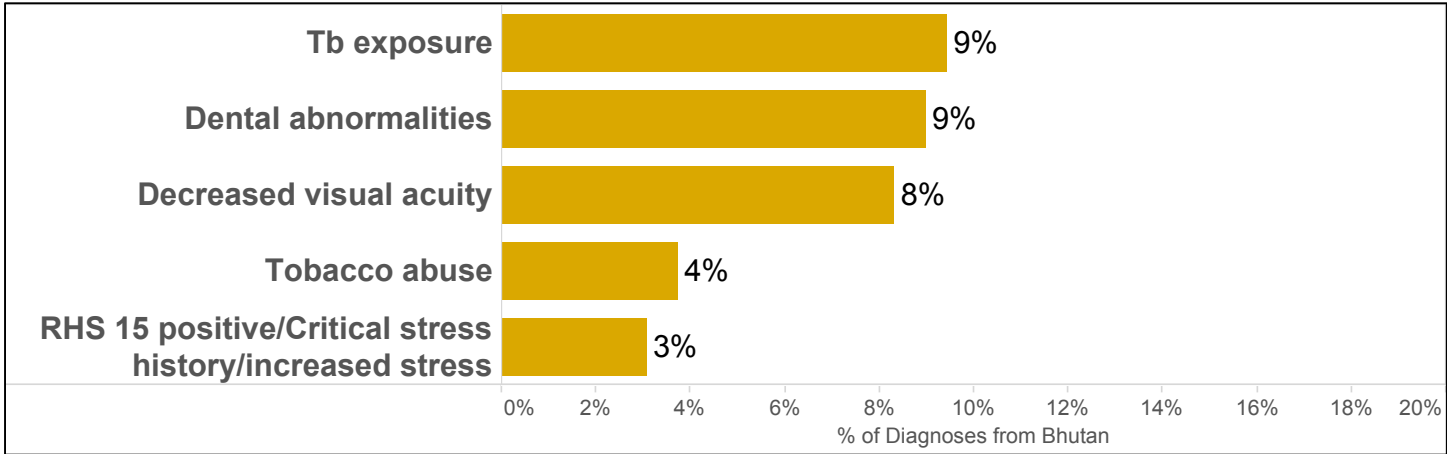


Top Referrals for Pediatric Refugees



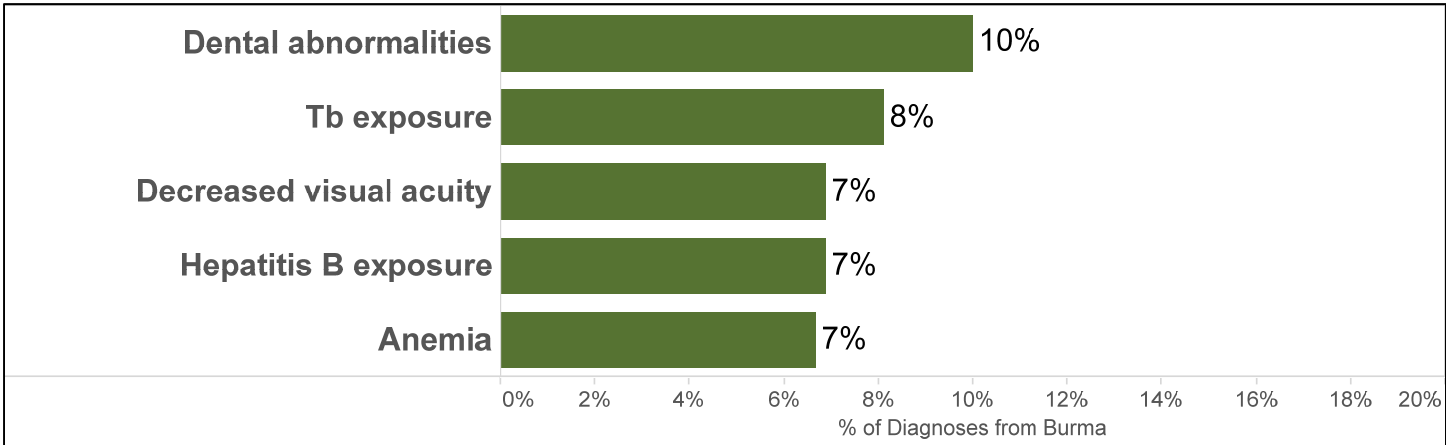
Top Health Conditions by Country of Nationality

Bhutan

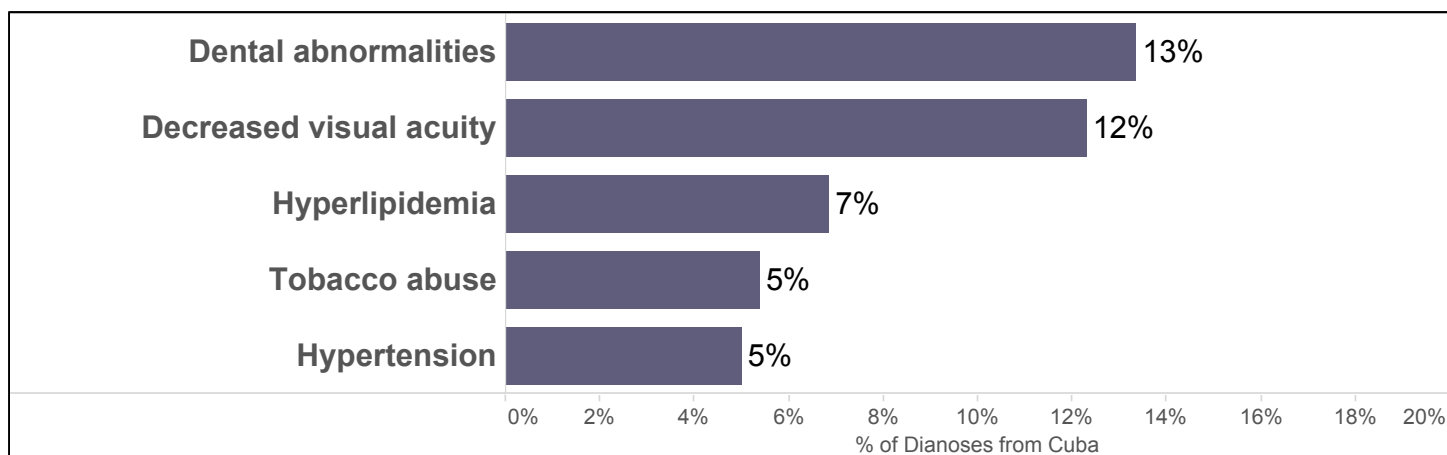




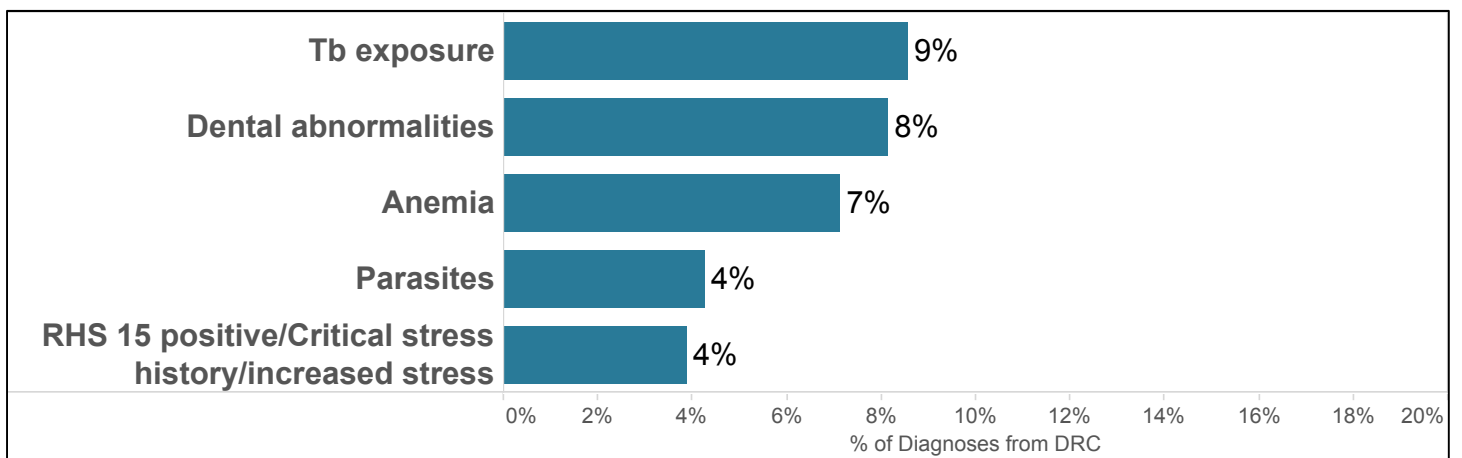
Burma



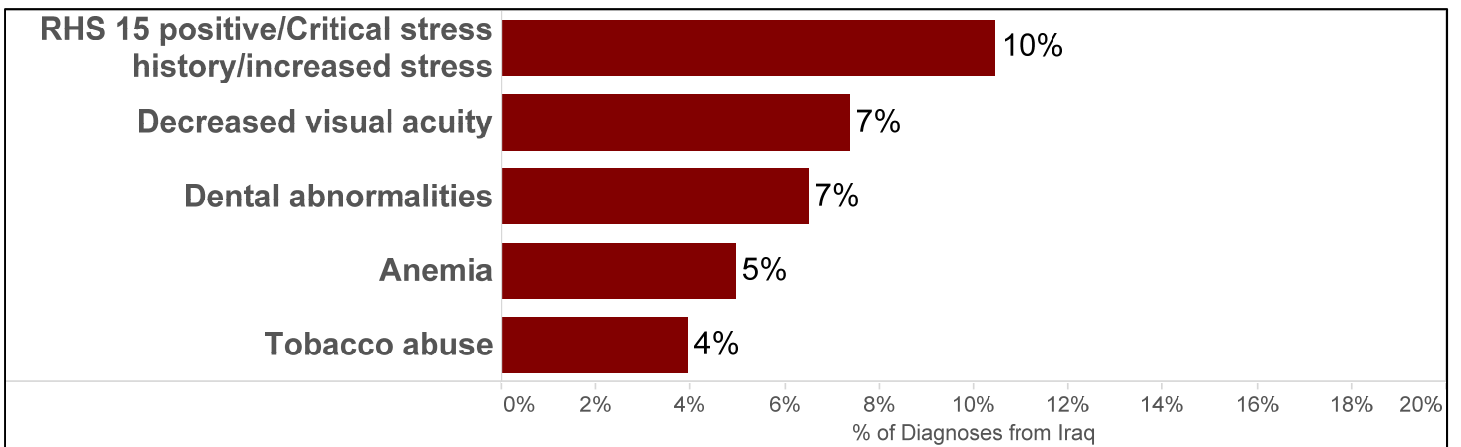
## Cuba



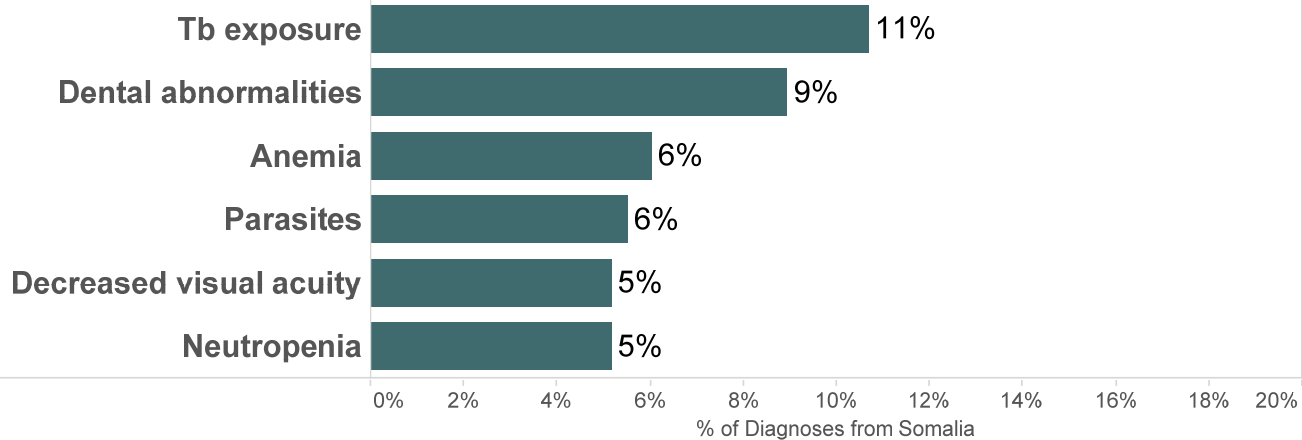
## Democratic Republic of the Congo (DRC)



## Iraq

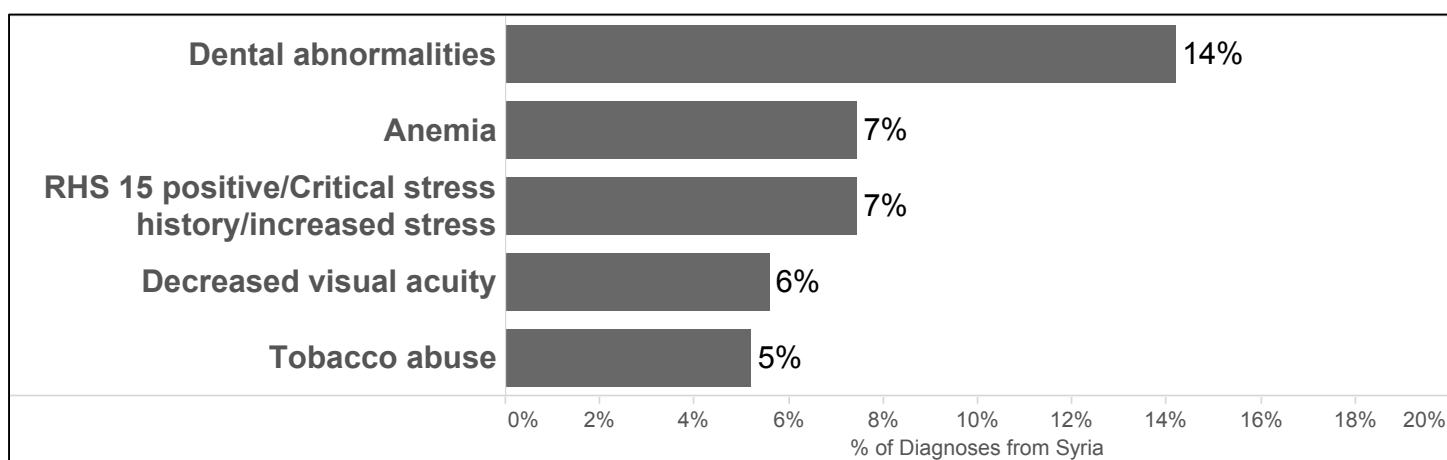


## Somalia



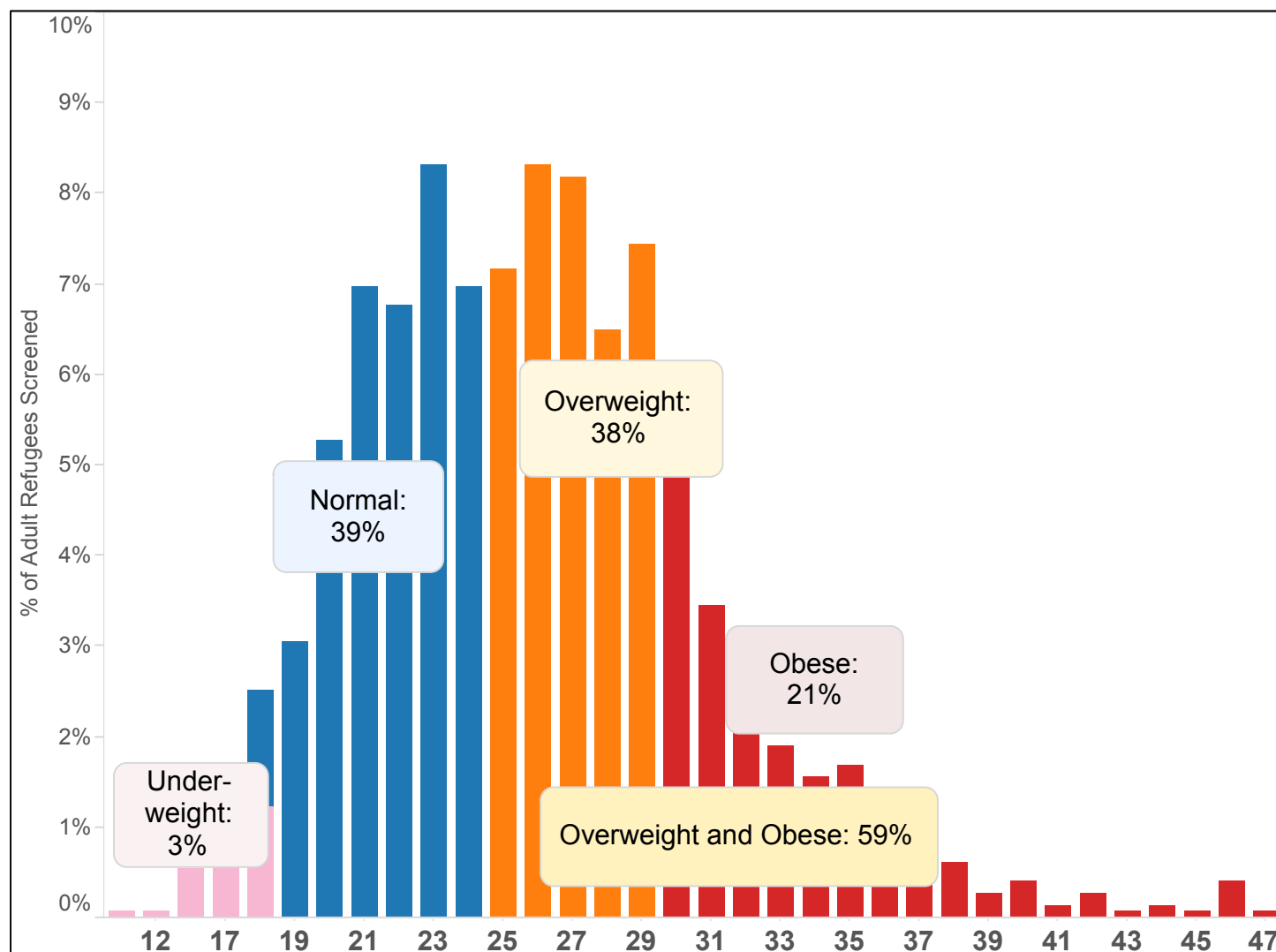


## Syria

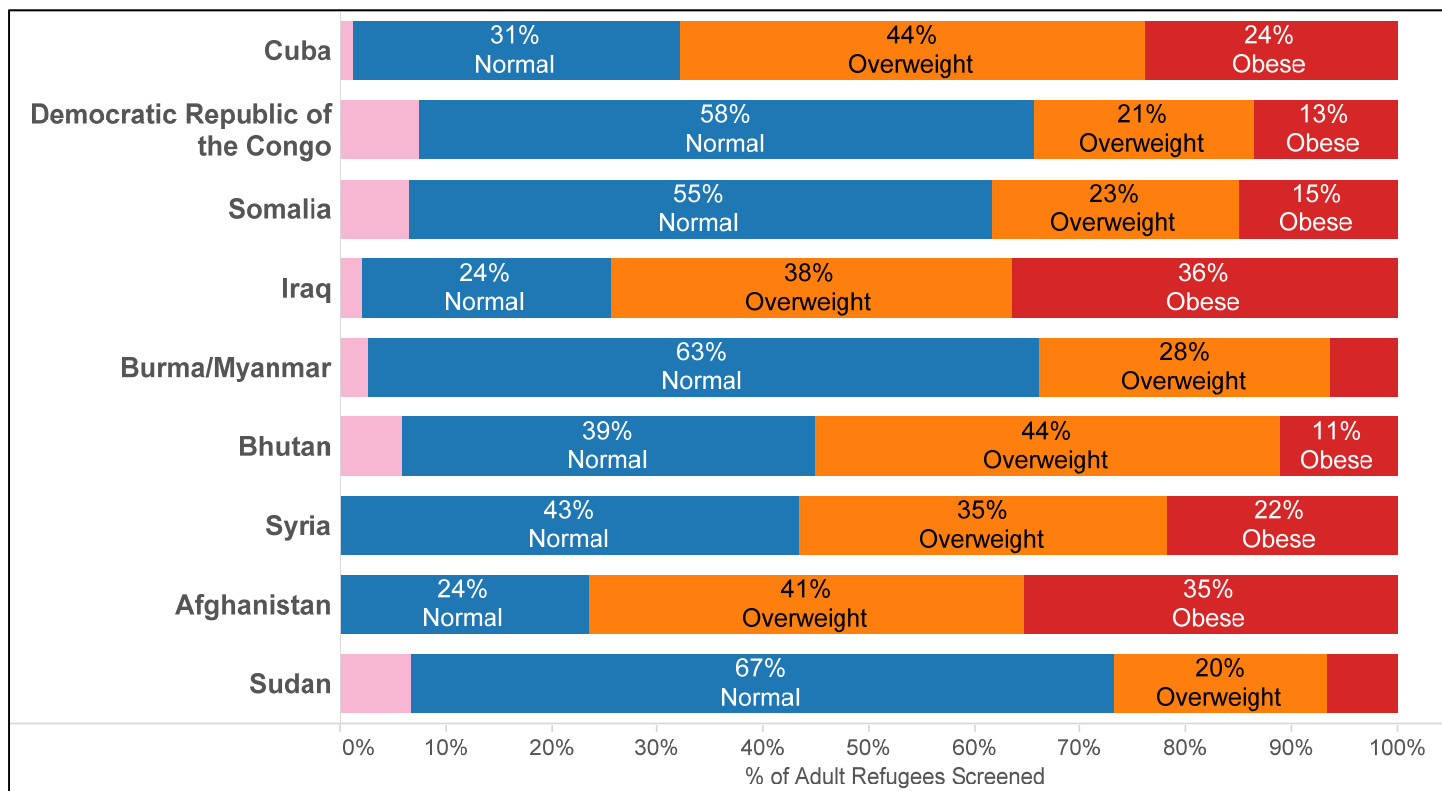


## Body Mass Index

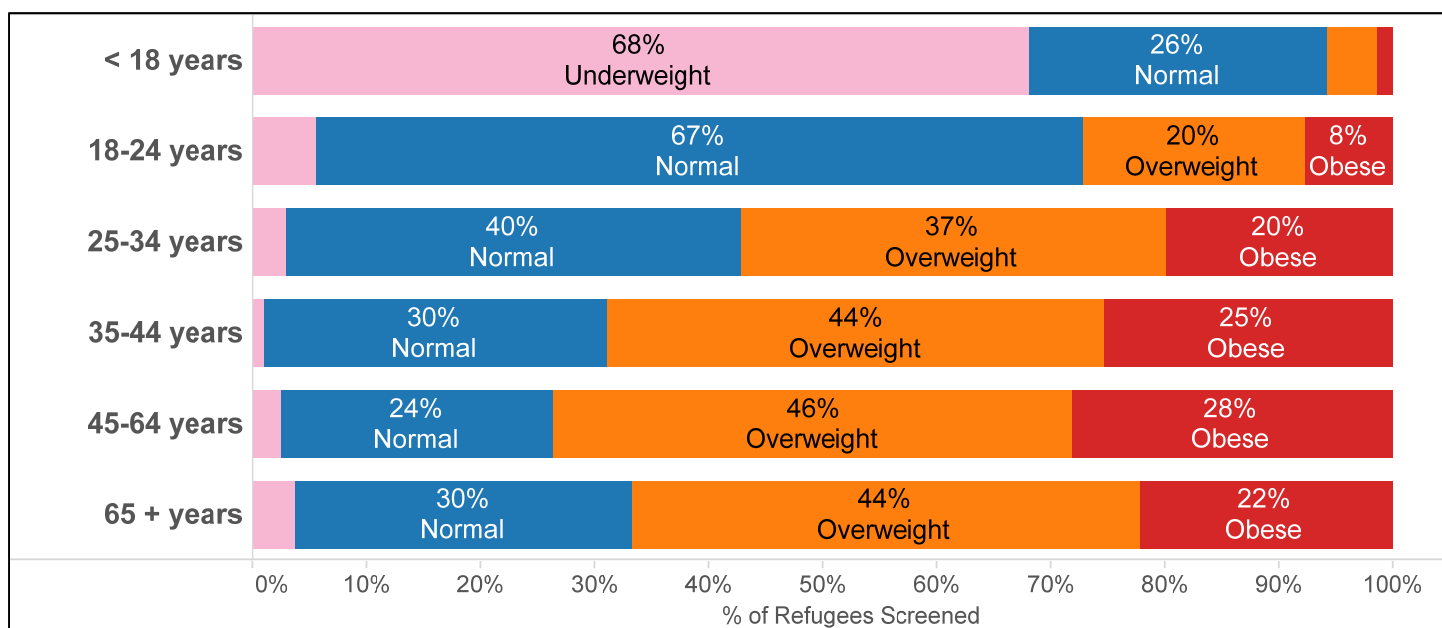
Body Mass Index (BMI) is calculated based on height and weight and used to determine body fat, which may indicate health problems. A BMI below 18.5 indicates underweight; 18.5 through 24.9 is considered normal weight; 25 through 29.9 overweight; and 30 and higher are defined as obese. Over half of refugees age 19 and older screened (59%) are considered overweight or obese. The figure below depicts the overall distribution of BMI for all refugees 19 years old and older.



Over 65% of refugees aged 19 years and older from Cuba, Iraq and Afghanistan are considered overweight or obese. A total of 8% of refugees from Somalia are considered underweight. Over 70% of refugees age 45-64 years are considered overweight or obese. Over 65% of children 2-17 years old are considered underweight. The first figure depicts the BMI category by nationality.

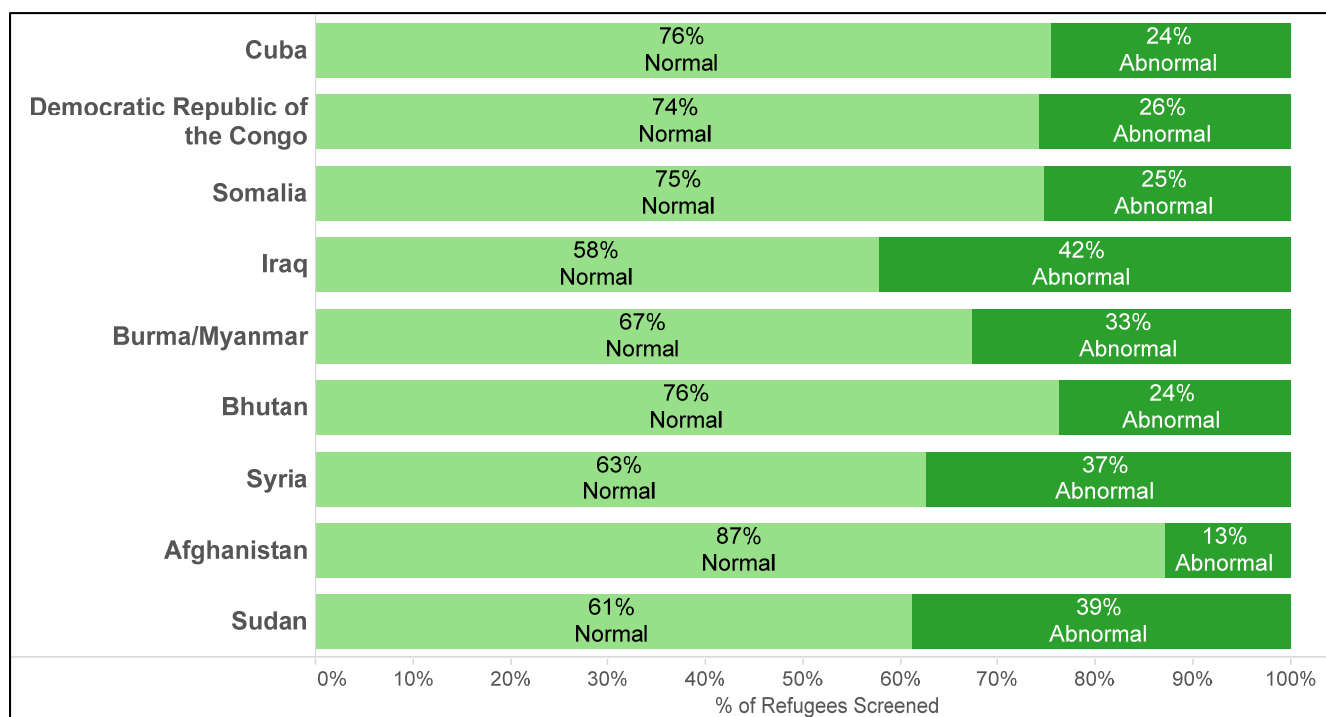
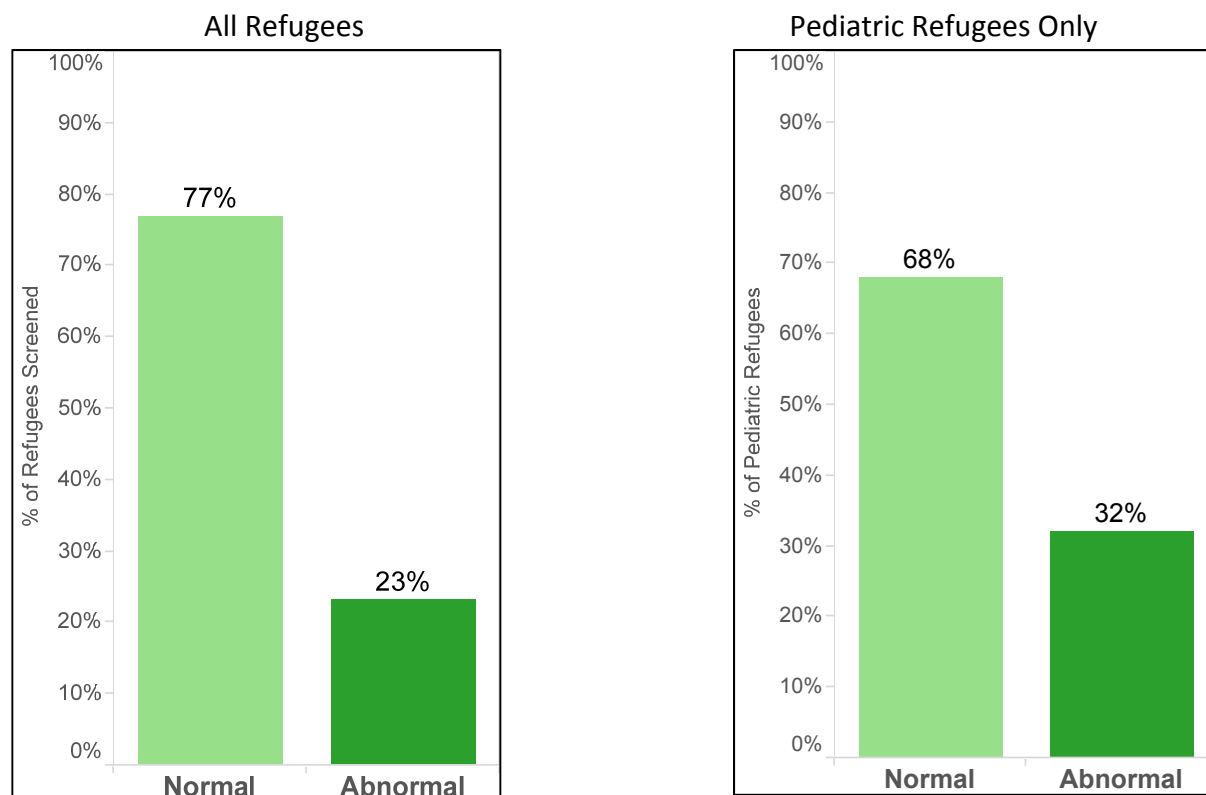


The second figure (below) shows BMI by age bracket.



## Urinalysis Result

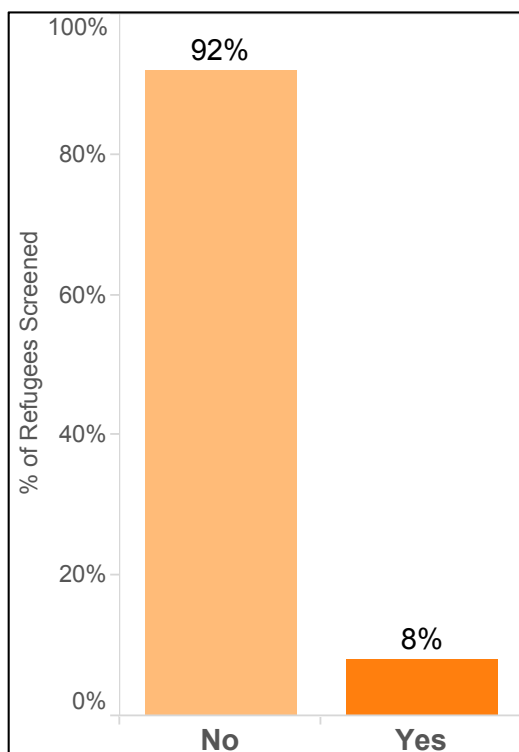
A urinalysis is performed on all refugees able to provide a clean catch specimen and includes glucose, blood and protein screening. Urinalysis is used to assess for a variety of conditions including urinary tract infection, diabetes and kidney disease. Overall, 28% of patients had an abnormal urinalysis, as depicted in the first figure below (left). The second figure (right) depicts urinalysis results for pediatric patients. The third figure below (bottom) shows urinalysis results by nationality. Iraq had the highest proportion of patients with an abnormal urinalysis (42%).



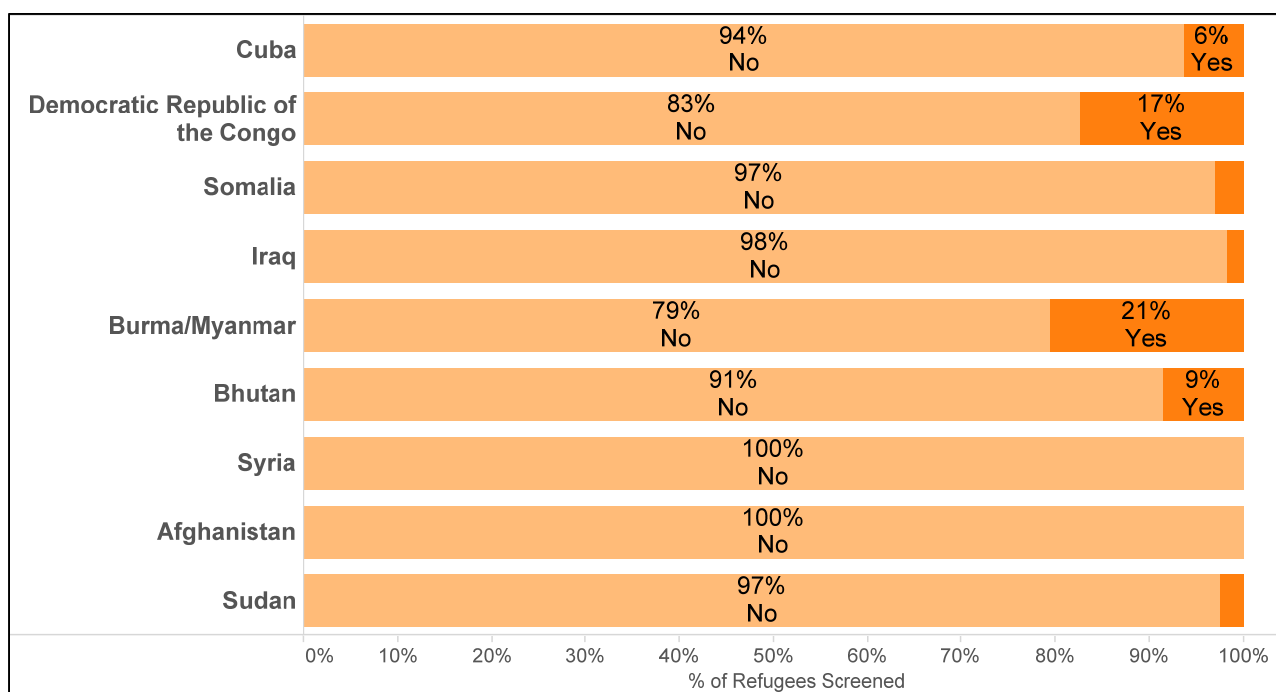
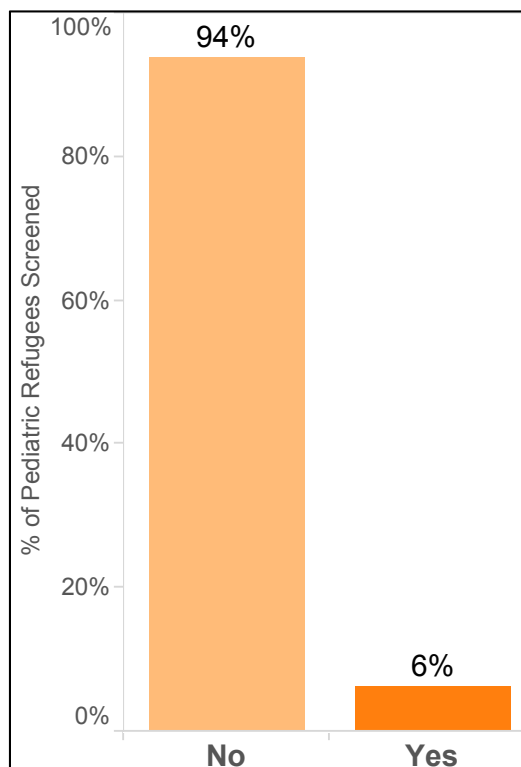
## Eosinophilia

Refugees are screened for eosinophilia, an increase in the number of eosinophils in the blood, indicating the presence of a parasite. Overall, 8% of patients screened showed presence of eosinophilia, as depicted in the first figure below (left). The second figure (right) depicts eosinophilia presence among pediatric refugees. The third figure below (bottom) shows the percent of refugees who have eosinophilia by country of nationality. Burma/Myanmar had the highest proportion of patients with eosinophilia (21%).

All Refugees

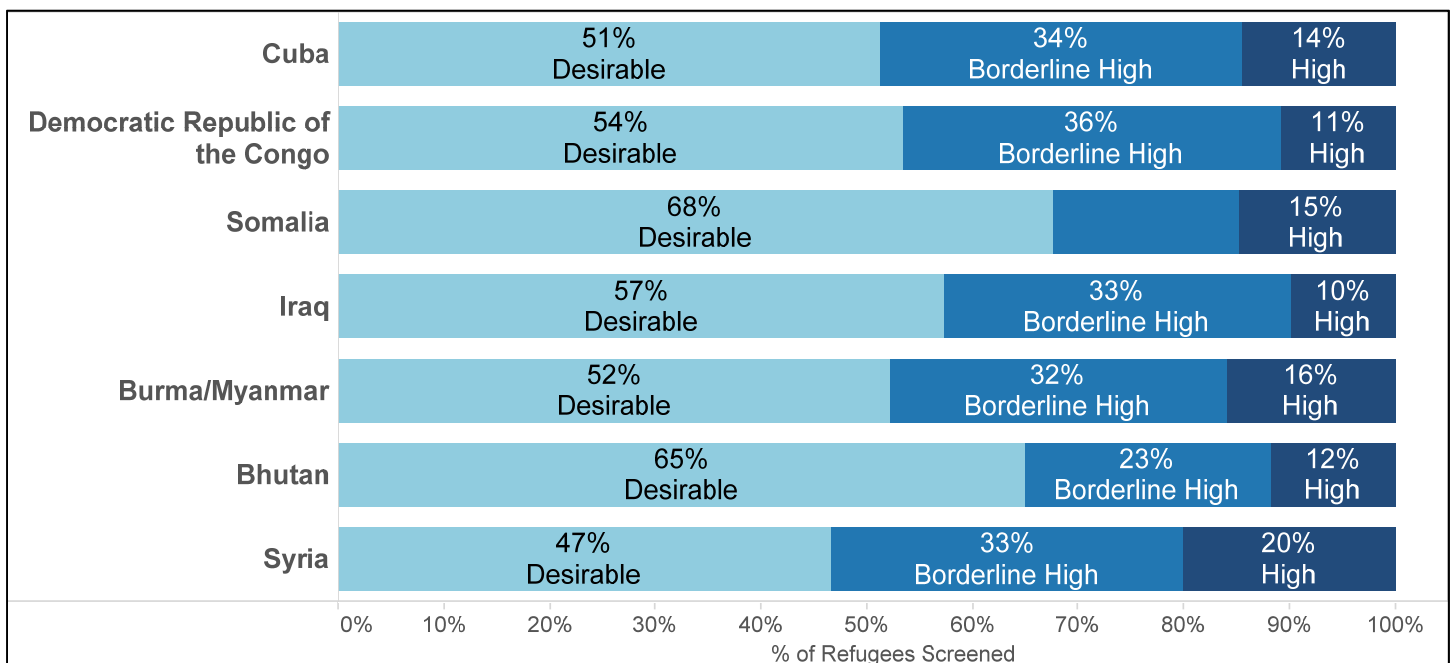
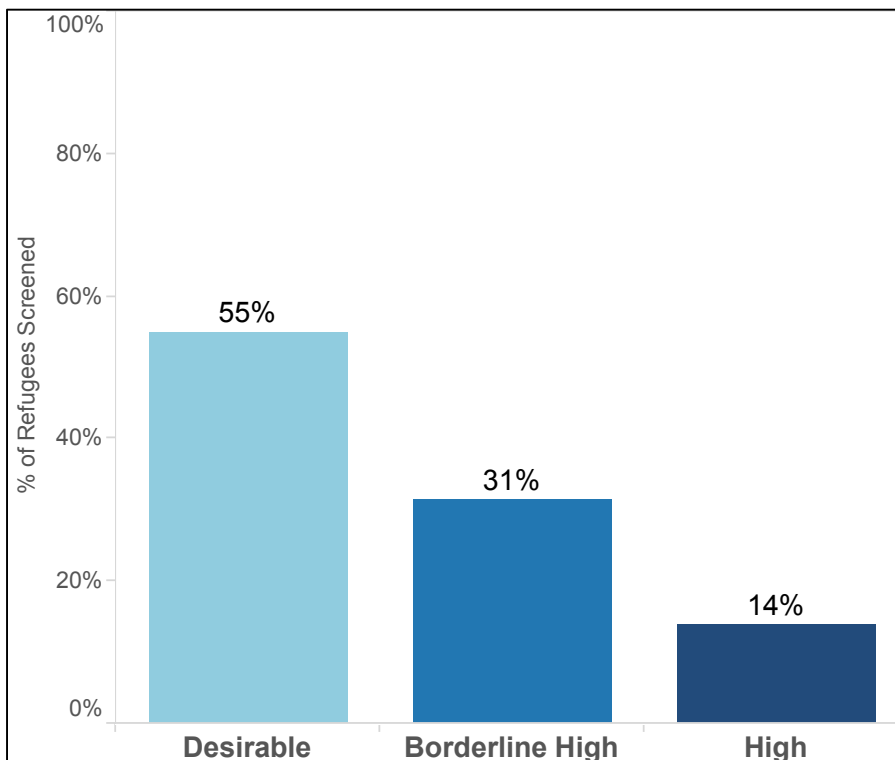


Pediatric Refugees Only



## Total Cholesterol

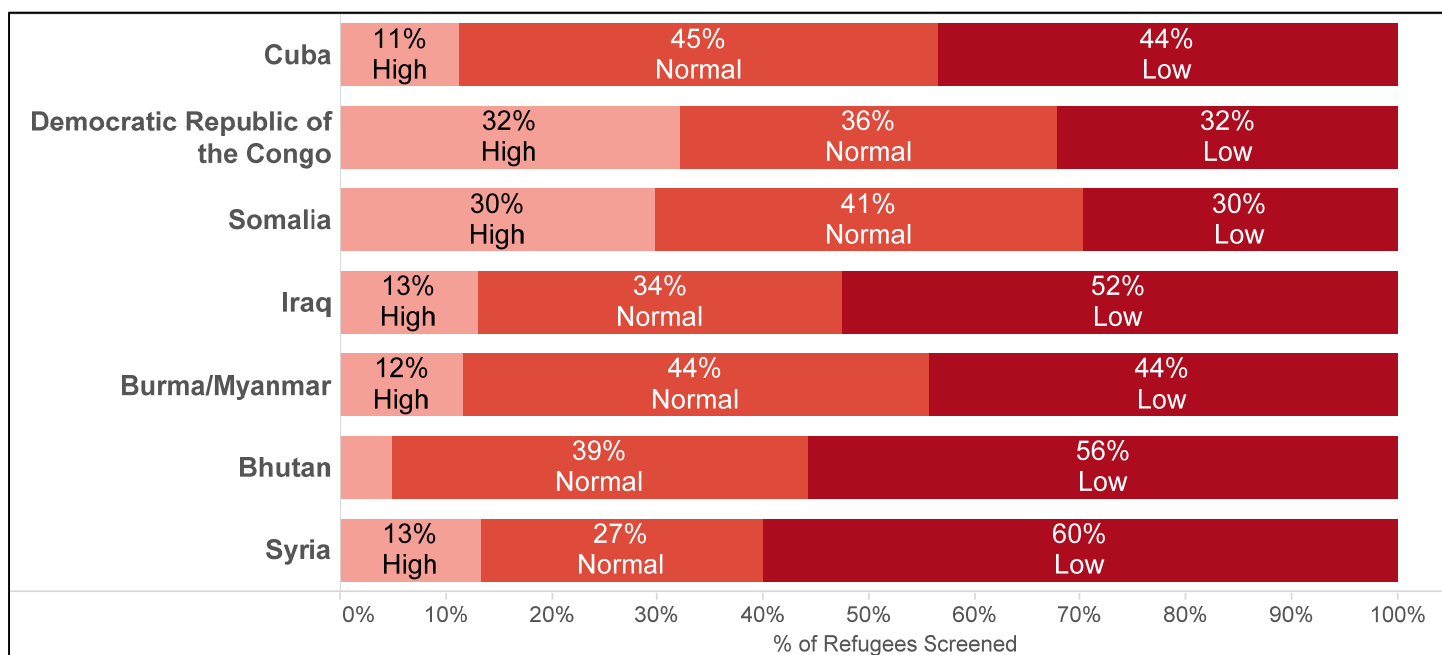
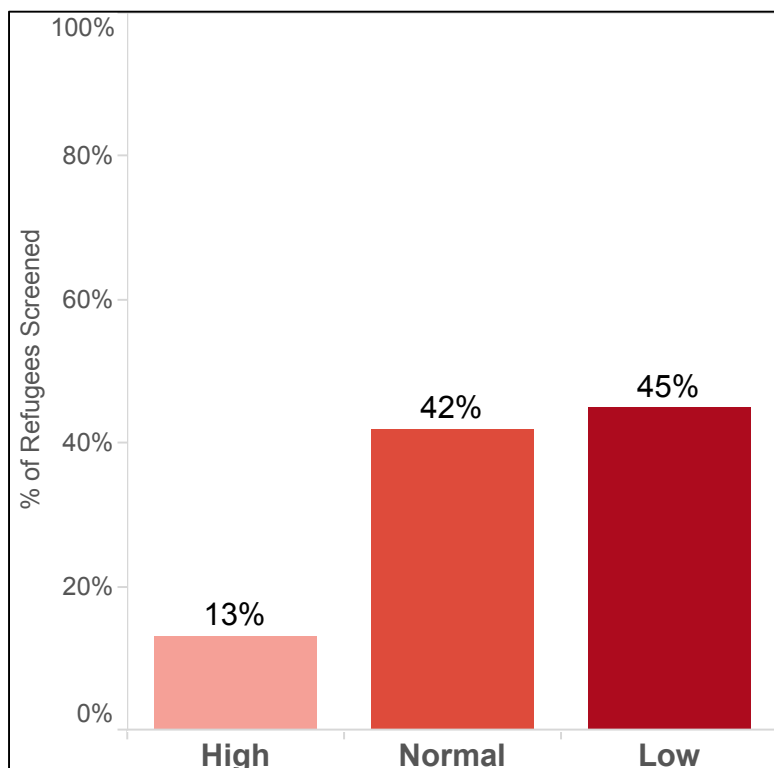
Men aged 35 years and older and women 45 years and older receive a total cholesterol screening to screen for risk of heart disease and stroke. A cholesterol level less than 200 mg/dL is considered desirable, 200 to 239 mg/dL borderline high and 240 mg/dL is defined as high. Overall, 14% of those tested had high cholesterol and 31% were considered borderline high, as depicted in the first figure below. The second figure below shows the cholesterol results by nationality (Afghanistan and Sudan are not included due to low number of test results). Syria had the highest proportion of patients with high cholesterol (20%).





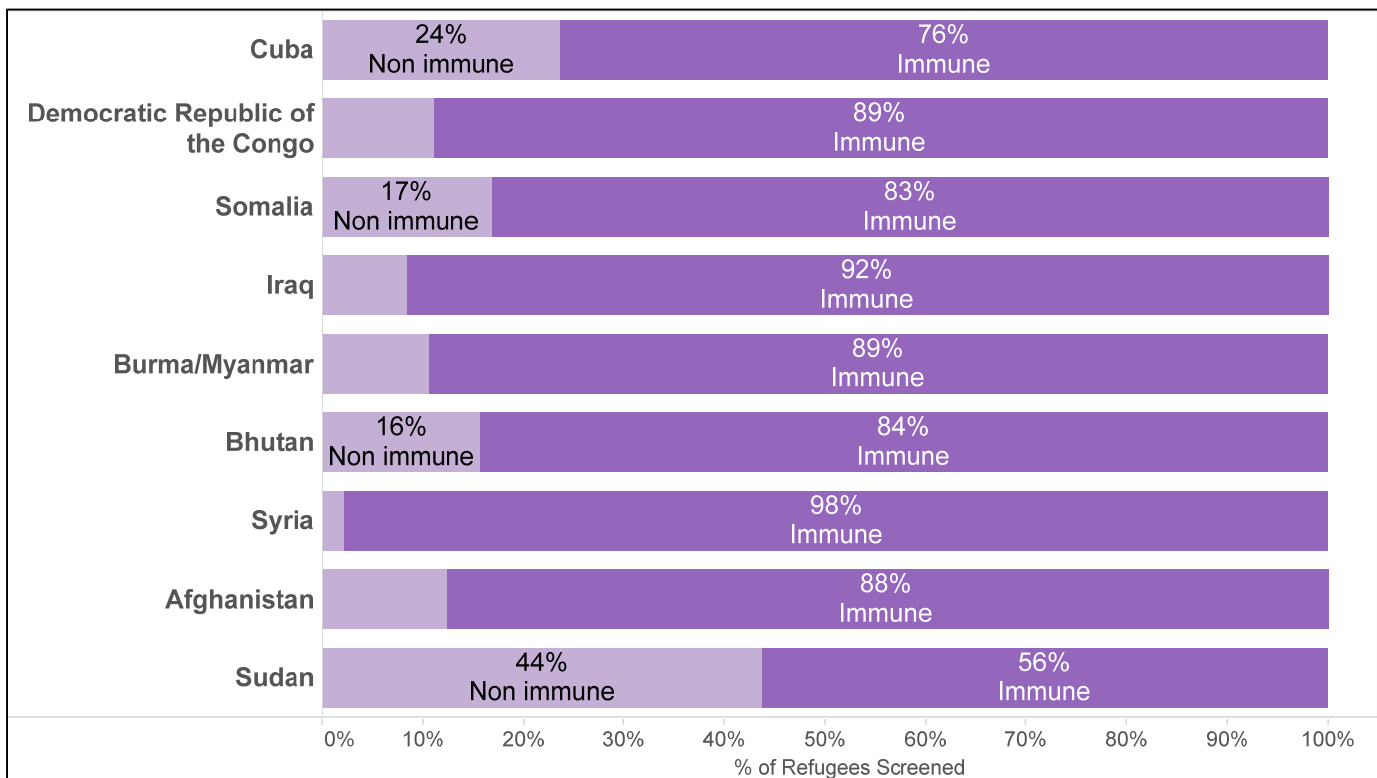
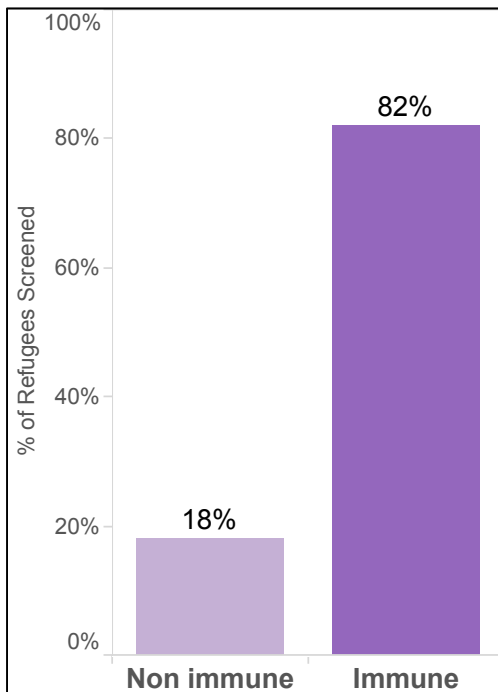
## High Density Lipoprotein

Men aged 35 years and older and women 45 years and older receive a high density lipoprotein (HDL) test. High HDL levels are protective against cardiovascular disease. HDL levels less than 40mg/dL for men and less than 50 for women are considered low and a risk for heart disease; 40 to 59 for men and 50 to 59 for women is normal; and 60 and above is defined as high. Overall, 45% of those tested had low HDL levels, as depicted in the first figure below. The second figure below depicts HDL results by country of nationality (Afghanistan and Sudan are not included due to low number of test results). Syria had the highest proportion of refugees with low HDL levels (60%).



## Varicella Titer levels

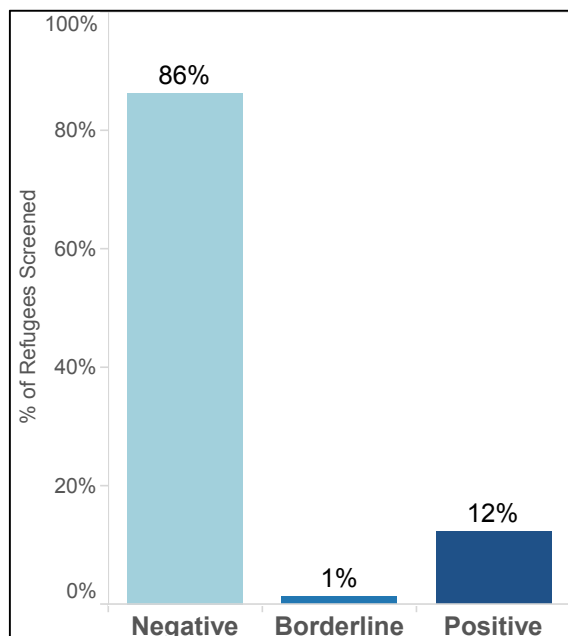
Varicella titer levels are drawn on adult refugees to determine if the patient has been exposed to the virus that causes chickenpox. Those who are not immune need to be vaccinated against the disease. Overall, 82% of refugees are immune to varicella, as depicted in the first figure of below. The second figure below depicts the varicella titer results by nationality. Syria had the highest proportion of patients who were immune to varicella (98%). (Children are not screened for varicella titers)



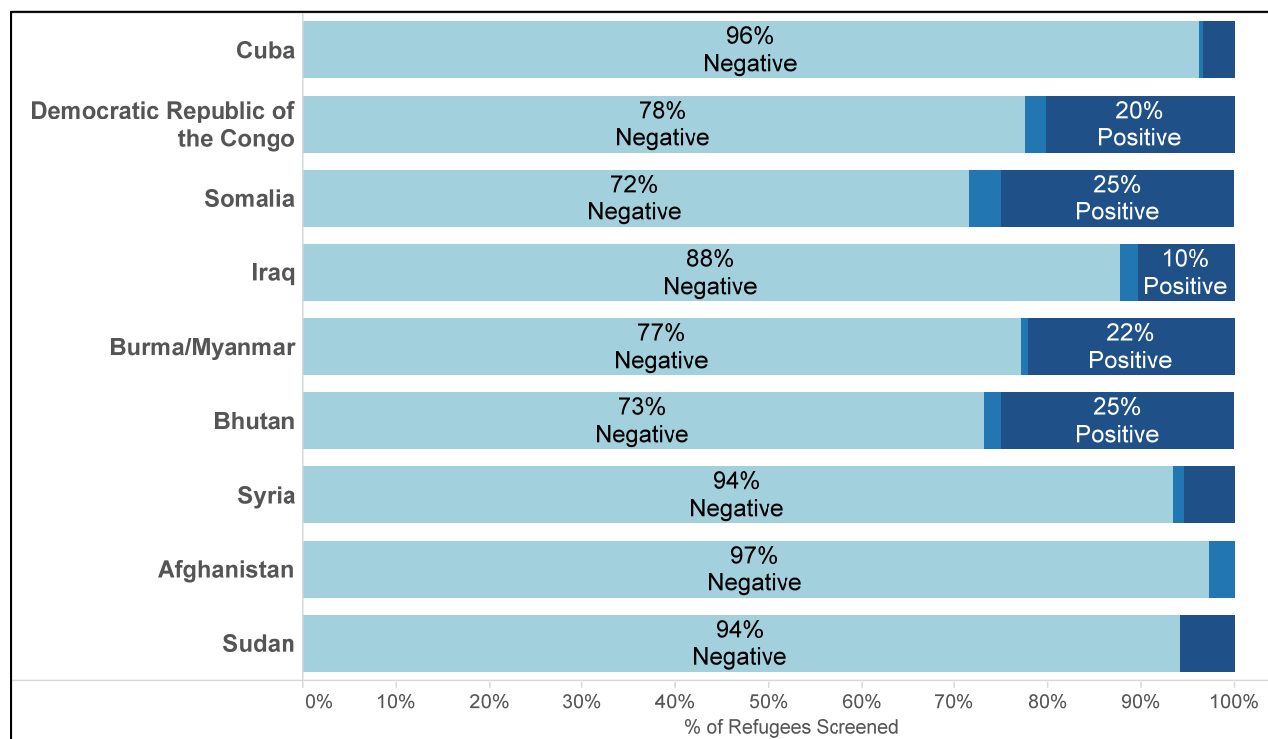
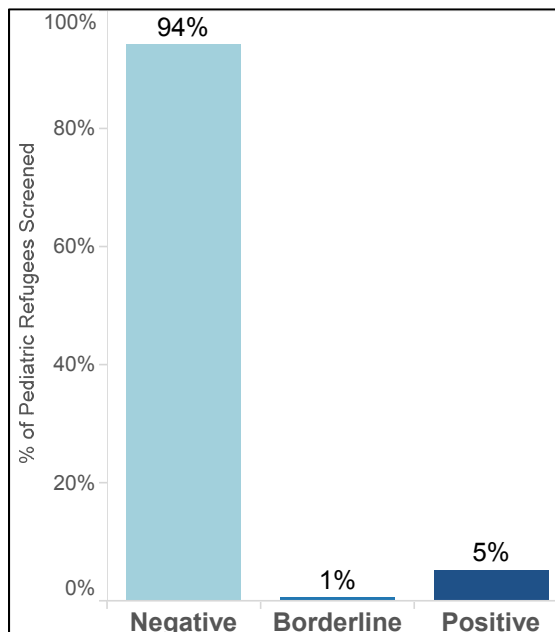
## Tuberculosis Screening

Refugees 4 years and older receive a T-SPOT.TB or Quantiferon Gold (QFT) test to determine tuberculosis status. A positive T-SPOT.TB/QFT indicates tuberculosis infection and patients are referred to the Health Department for follow up care. Overall, 12% of refugees tested have a positive T-SPOT.TB/ QFT, as depicted in the first figure below (left). The second figure below (right) depicts TB results for pediatric patients with a T-SPOT.TB/ QFT result. The third figure below (bottom) shows T-SPOT.TB/ QFT results by nationality. A total of 25% of refugees from Somalia and Bhutan had a positive T-SPOT.TB/QFT. Children younger than 4 years receive a tuberculin skin test (TST); 15% of those tested had a reactive TST (read as  $\geq 10\text{mm}$  induration).

All Refugees

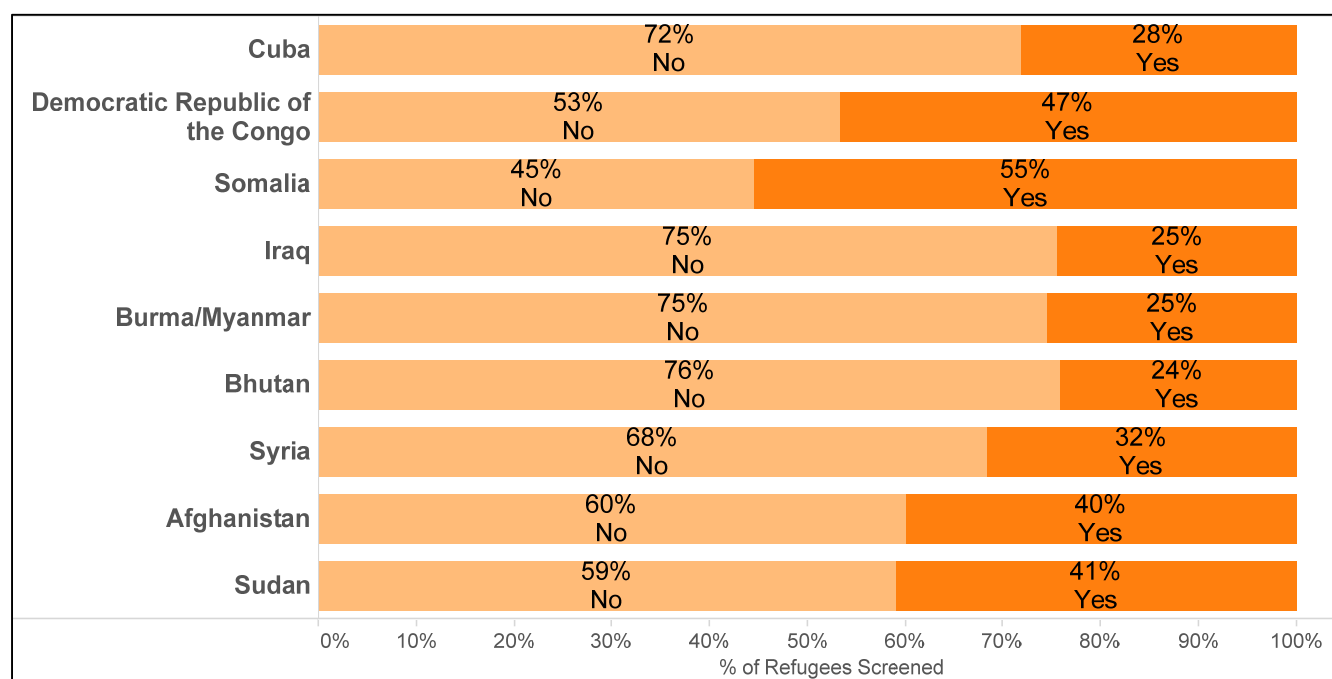
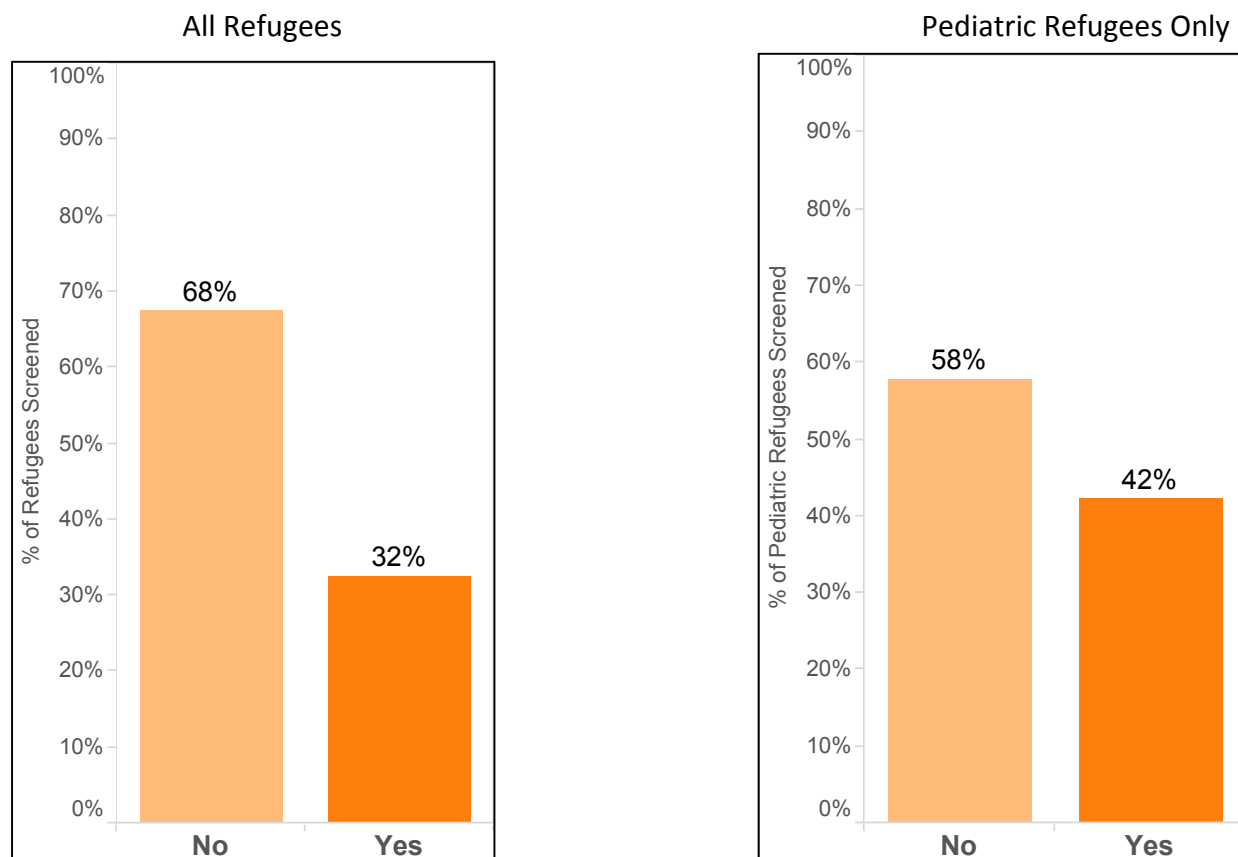


Pediatric Refugees Only

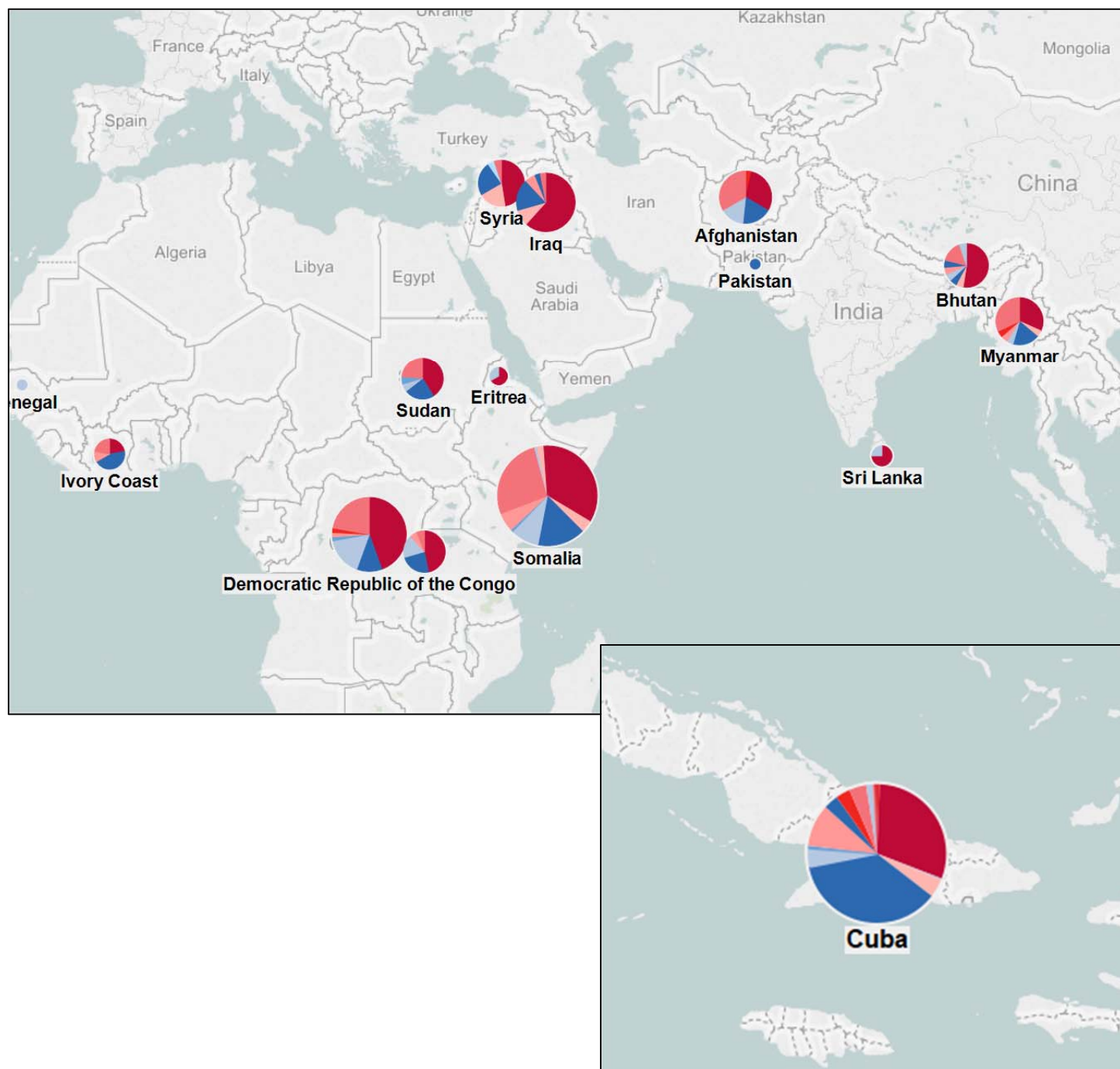


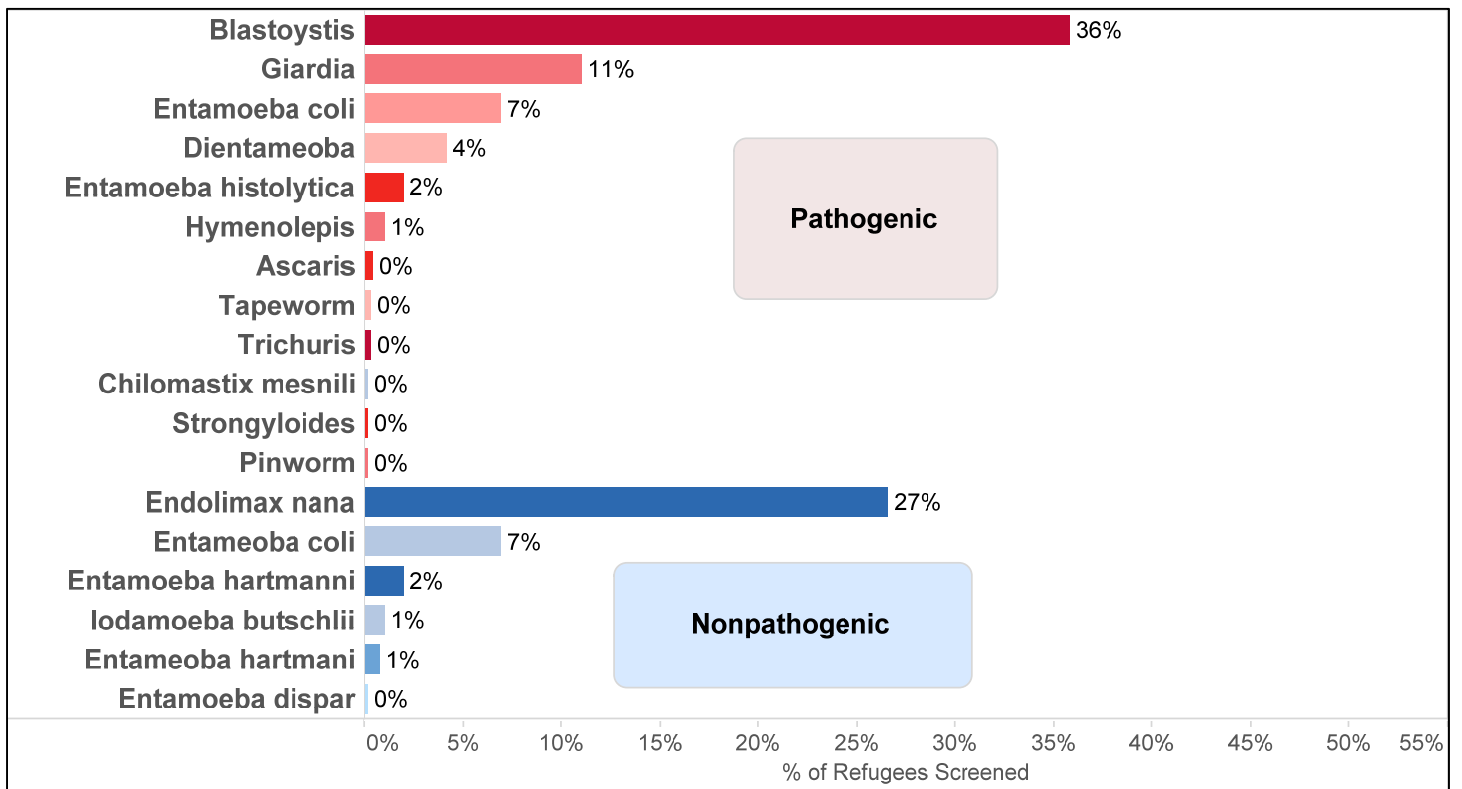
## Parasites

Refugees are screened for intestinal parasites as part of the Refugee Health Assessment. Overall, 32% of refugees screened tested positive for a parasite, as depicted in the figure below (left). The second figure below (right) depicts parasite results of pediatric patients. The third figure below (bottom) shows the proportion of patients who screened positive for a parasite by nationality. Somalia had the highest proportion of refugees who screened positive for a parasite (55%). The most common pathogenic parasite found was Blastocystis, followed by Giardia.

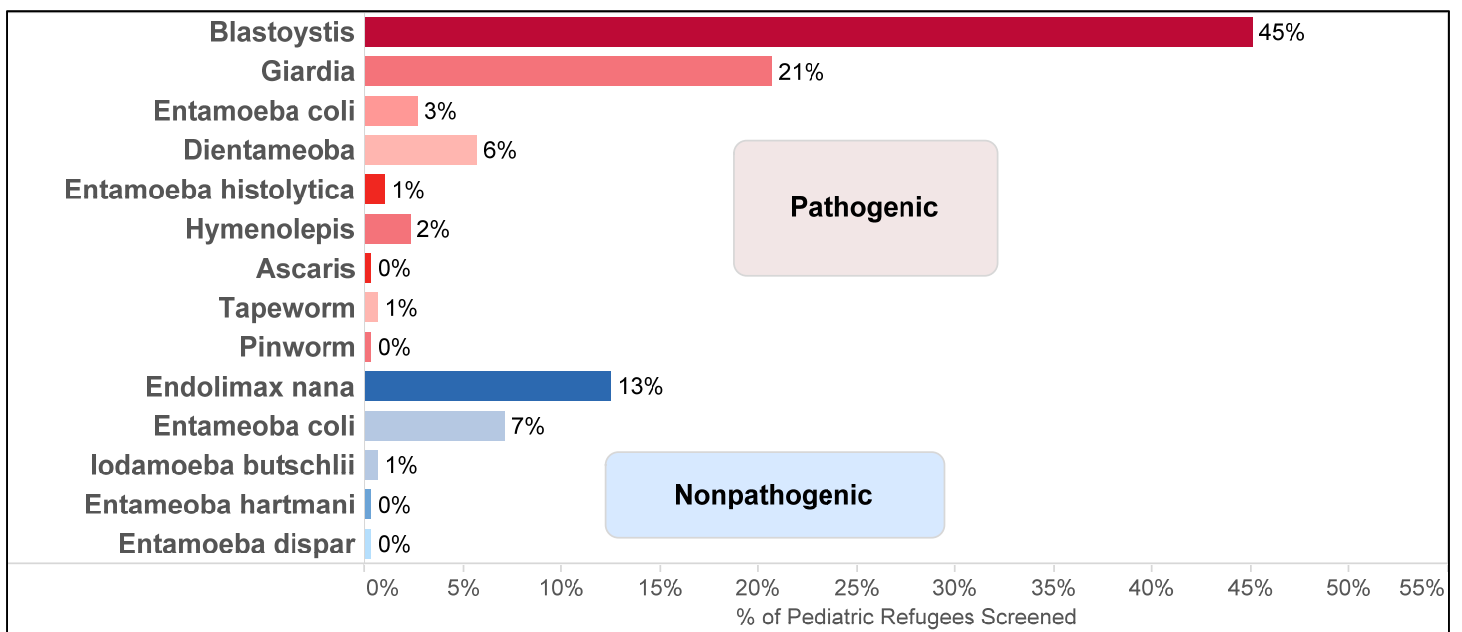


The first figure below depicts the type of parasites found by country of nationality. The second figure below shows the total number of parasites found.





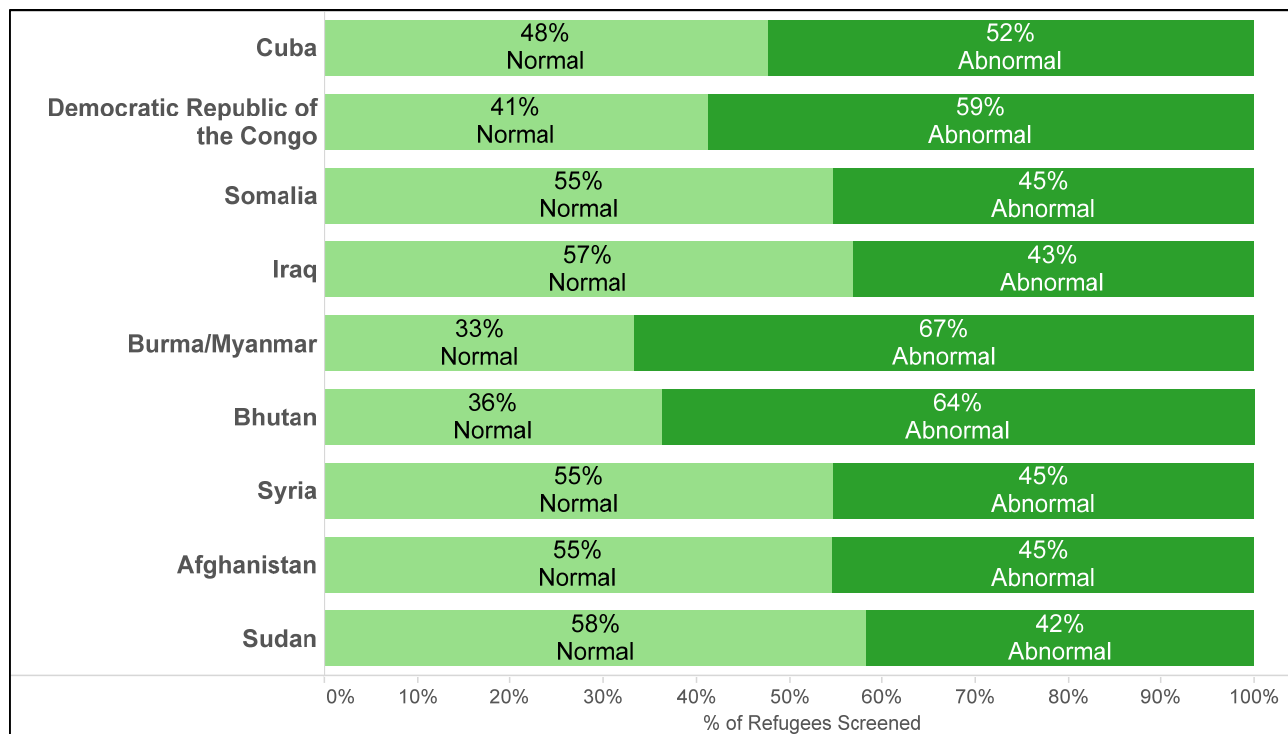
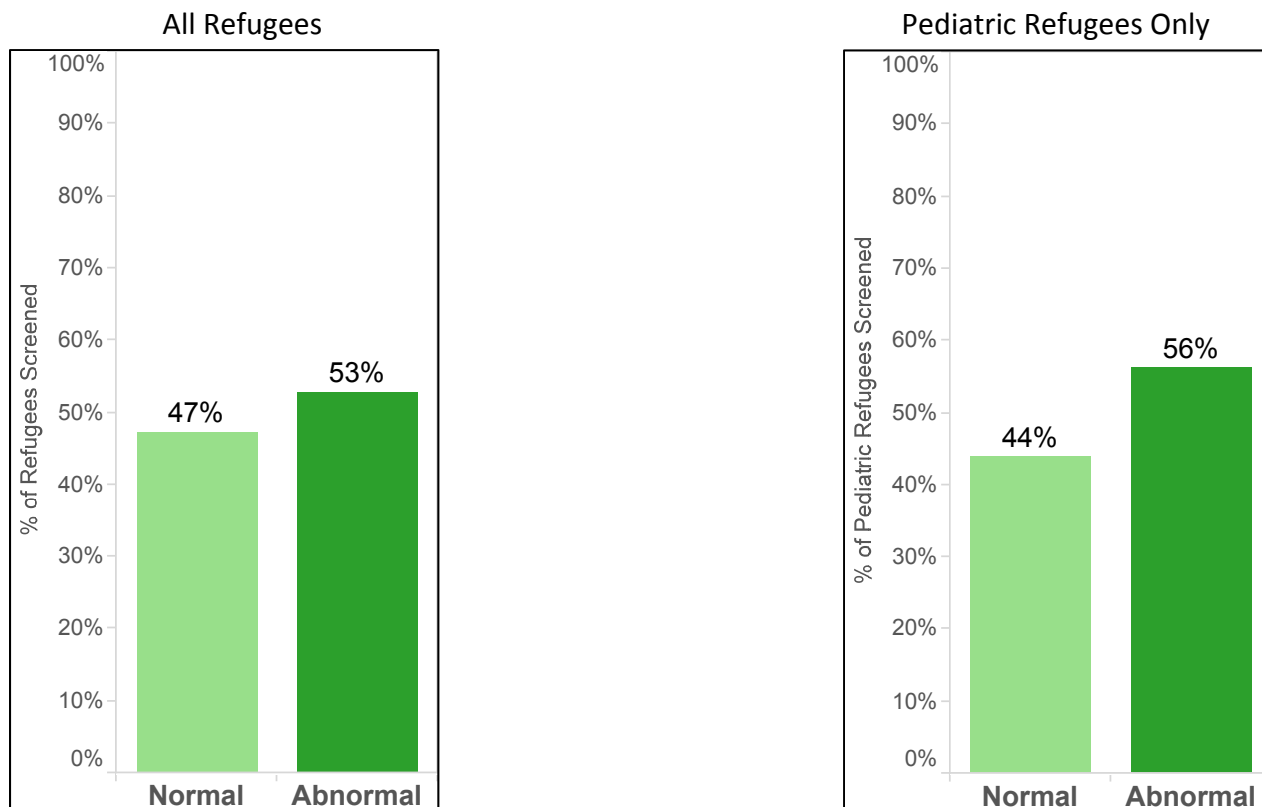
The figure below shows the percent of parasites found in children less than 18 years old.





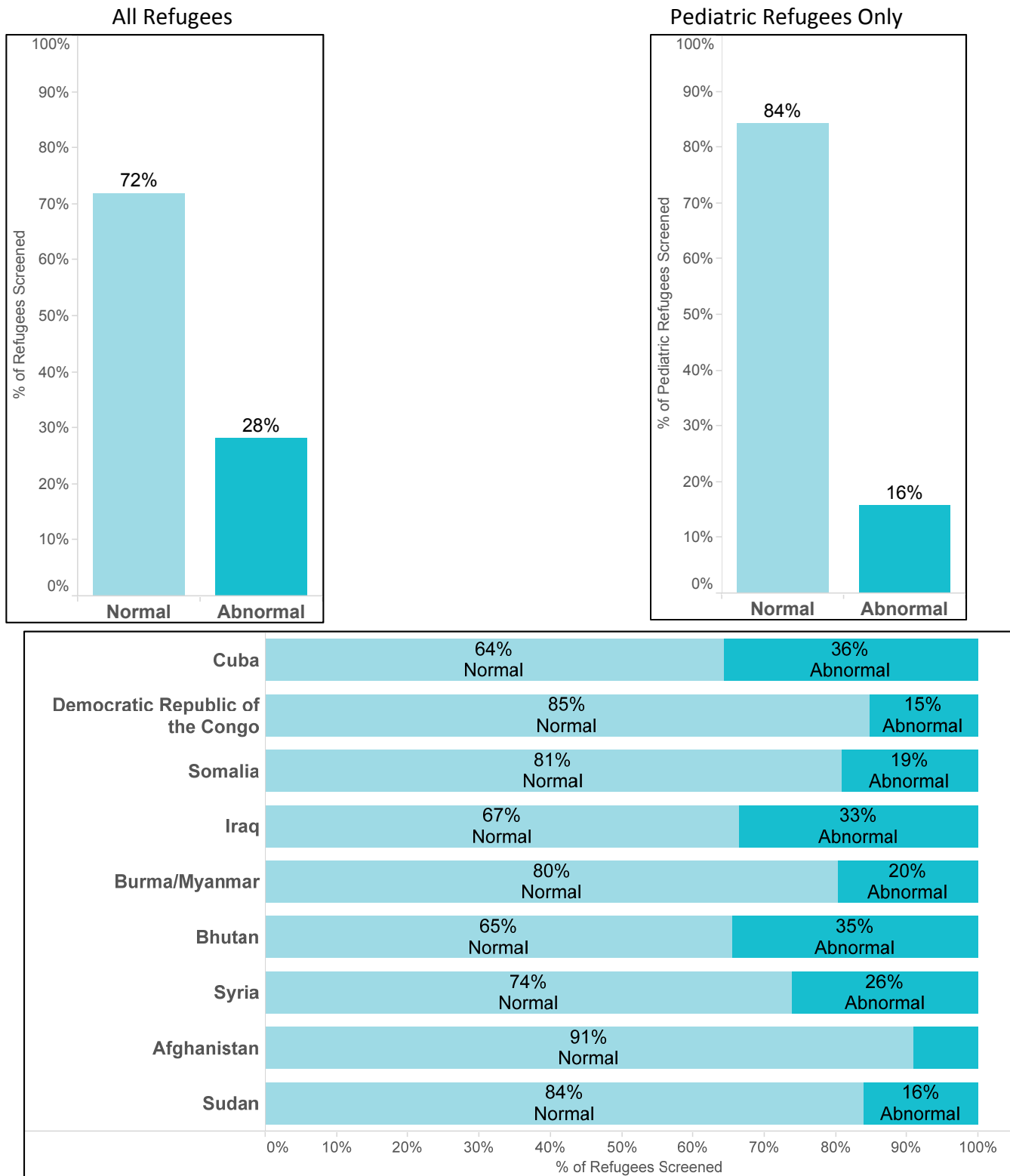
## Comprehensive Metabolic Panel

A comprehensive metabolic panel (CMP) is a group of blood tests that measures glucose level, electrolyte and fluid balance and kidney and liver function assessment. Overall, 53% of refugees screened had an abnormal CMP, as depicted by the first figure below (left). The second figure (right) depicts abnormal CMP results for pediatric refugees only. The third figure below (bottom) shows the CMP results by nationality. Burma/Myanmar had the highest proportion of patients with an abnormal CMP (67%).



## Vision

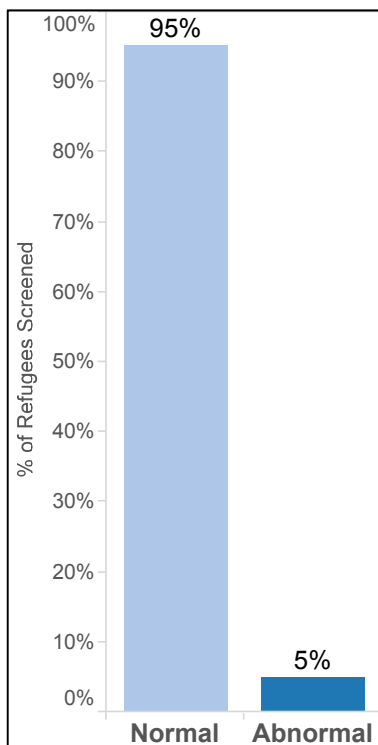
Refugees receive a vision screening as part of the RHA. Overall, 28% of refugees screened had an abnormal vision exam, as depicted by the first figure below (left). The second figure below (right) depicts the percent of abnormal vision screenings in pediatric refugees. The third figure below (bottom) shows vision screening results by country of nationality. Refugees from Cuba had the highest proportion of abnormal vision results (36%). Refugees with an abnormal vision screening may be referred to an optometrist or ophthalmologist.



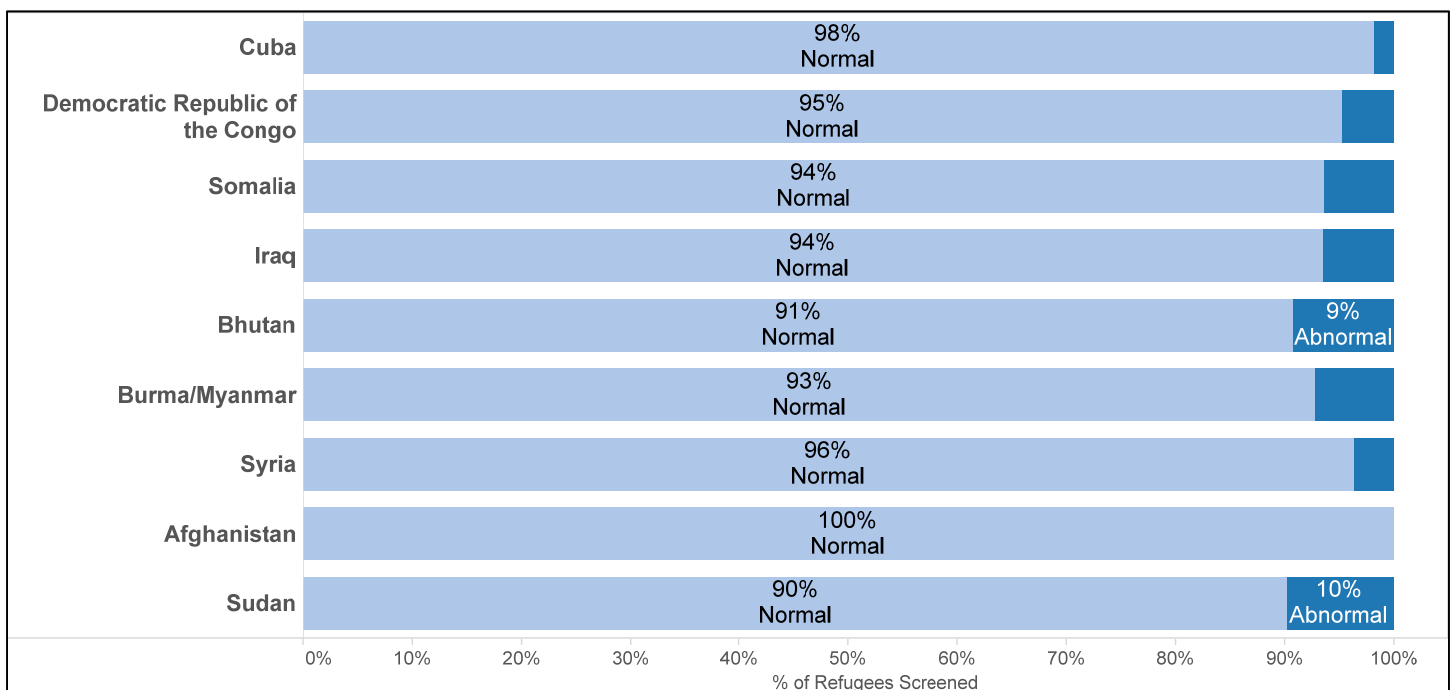
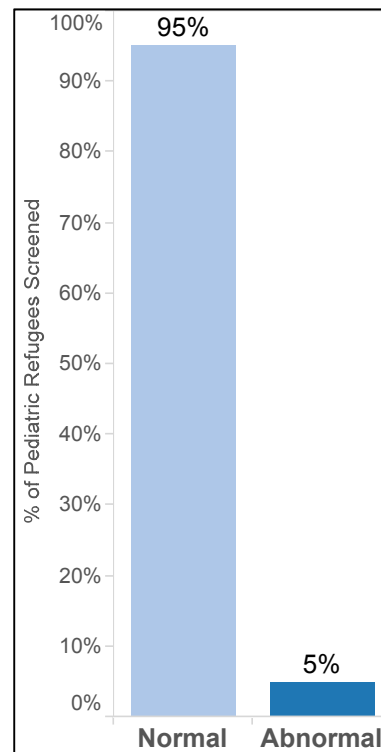
## Hearing

Refugees receive a hearing screening as part of the RHA. Overall, 4% of refugees screened had an abnormal hearing screening, as depicted in the first figure below (left). The second figure below (right) depicts abnormal hearing results for pediatric refugees. The third figure below (bottom) shows the hearing results by country of nationality. Sudan had the highest proportion of refugees with abnormal hearing results (10%). Refugees with an abnormal hearing screening may be referred to an audiologist or otorhinolaryngologist.

All Refugees

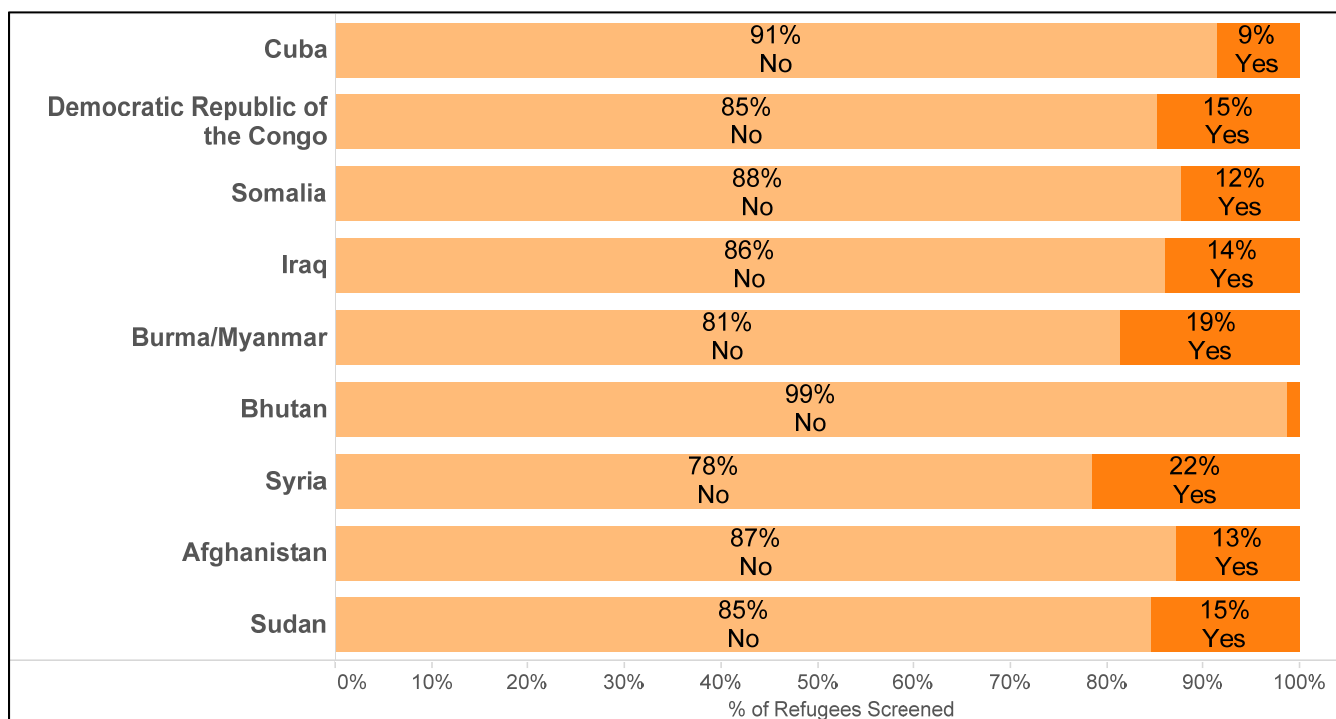
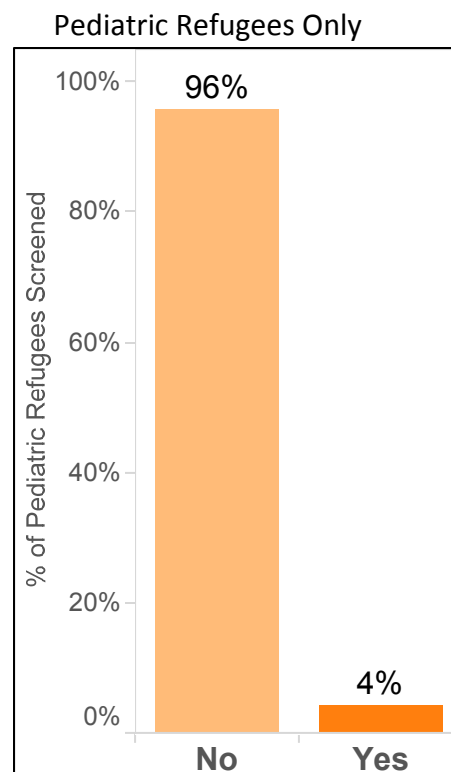
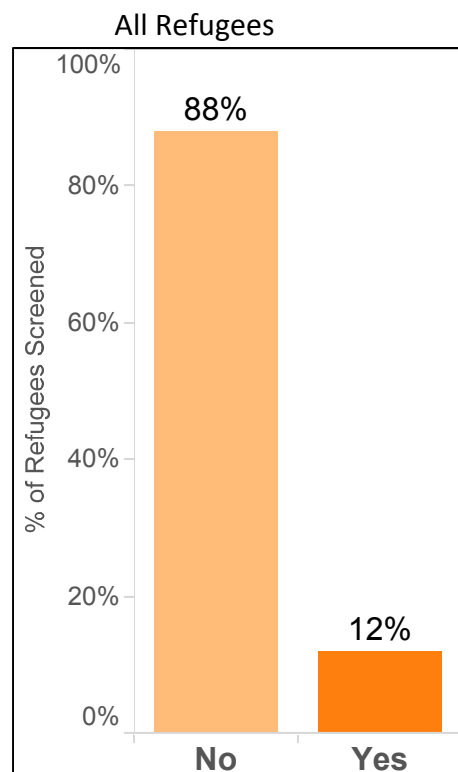


Pediatric Refugees Only



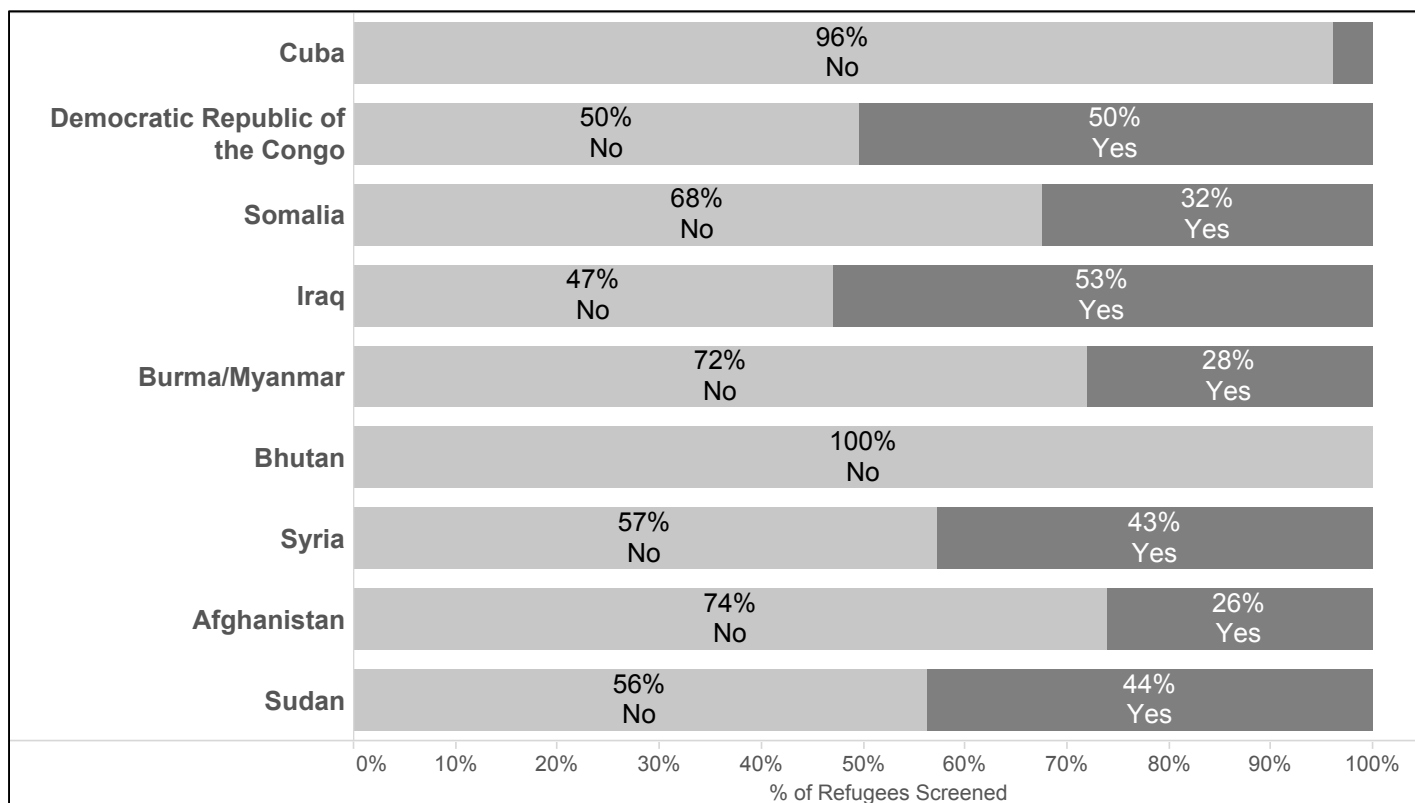
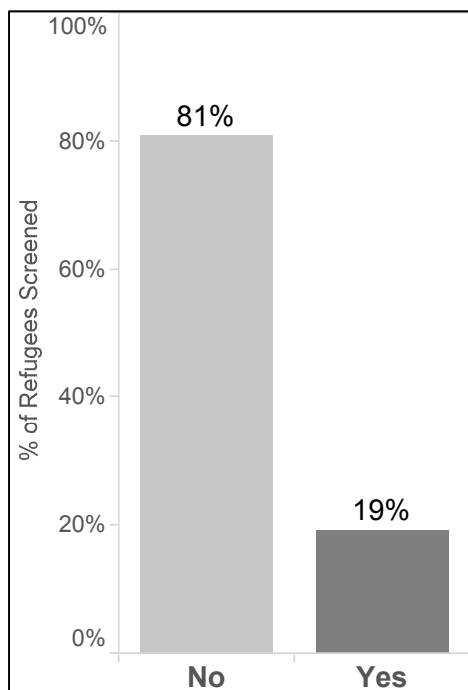
## Survivors of Torture

Refugees are asked if they witnessed or experienced torture in their lifetime. These questions, along with the Refugee Health Screener-15 (RHS-15), serve as an introductory mental health screening. Overall, 12% of refugees screened reported experiencing imprisonment, torture or violence, as depicted in the first figure below (left). The second figure below (right) depicts the percent of pediatric refugees who experience imprisonment, torture or violence. The third figure shows the proportion of refugees reporting experiencing imprisonment, torture or violence by country of nationality. Syria had the highest proportion of patients reporting experiencing imprisonment, torture or violence (15%).



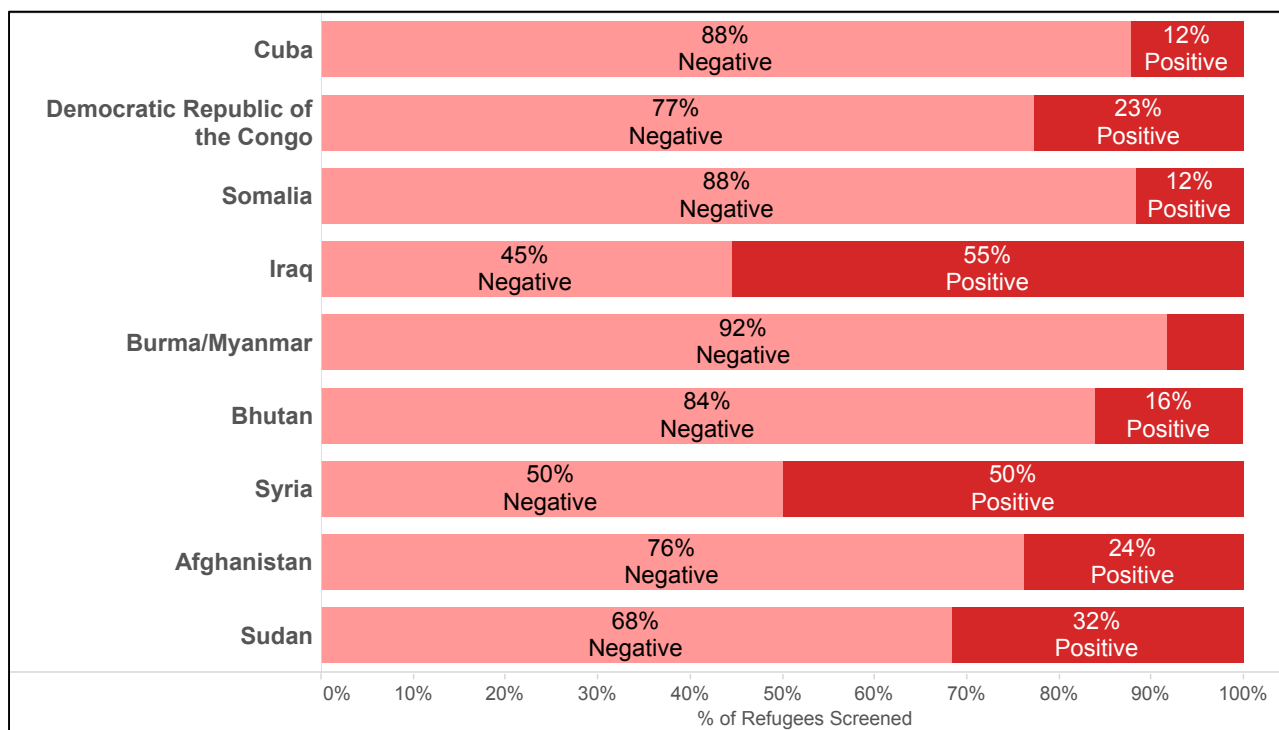
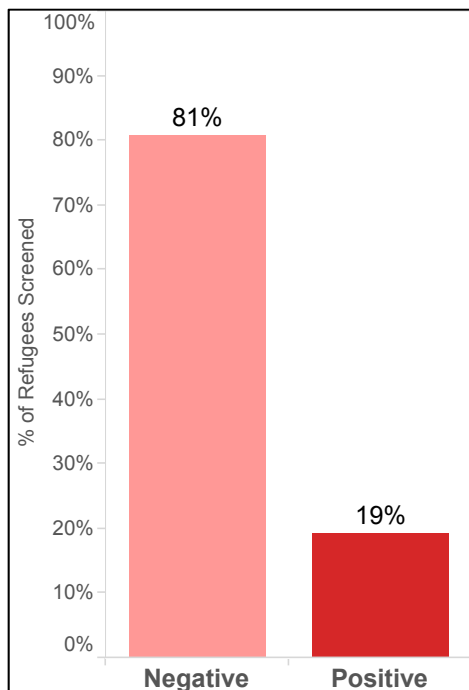
## Witness of Torture or Violence

Overall, 19% of refugees screened reported witnessing someone experiencing torture or violence, as depicted in the first figure below. The second figure below shows the percent of refugees witnessing someone experiencing torture or violence by country of nationality. Iraq had the highest proportion of refugees witnessing someone experiencing torture and violence (53%).



## Mental Health Screening

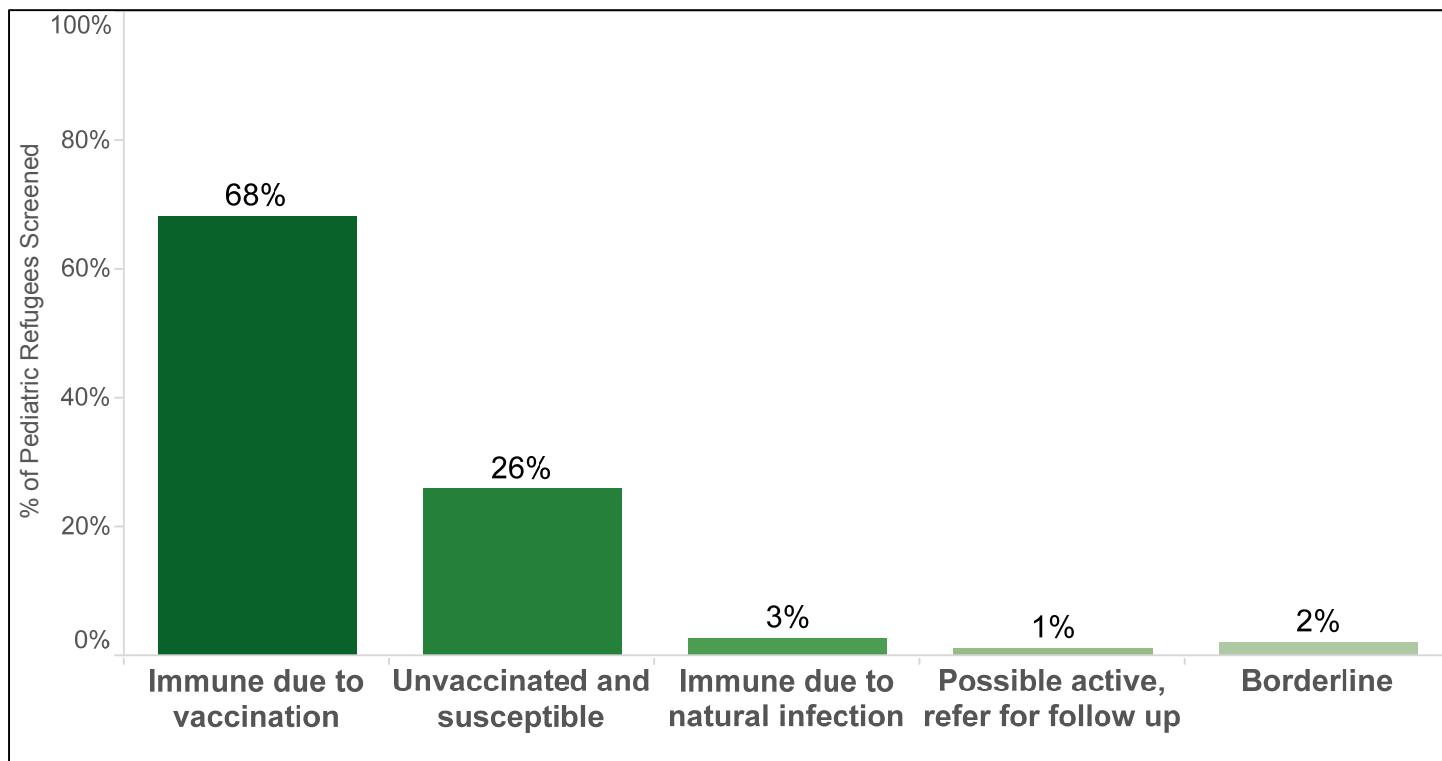
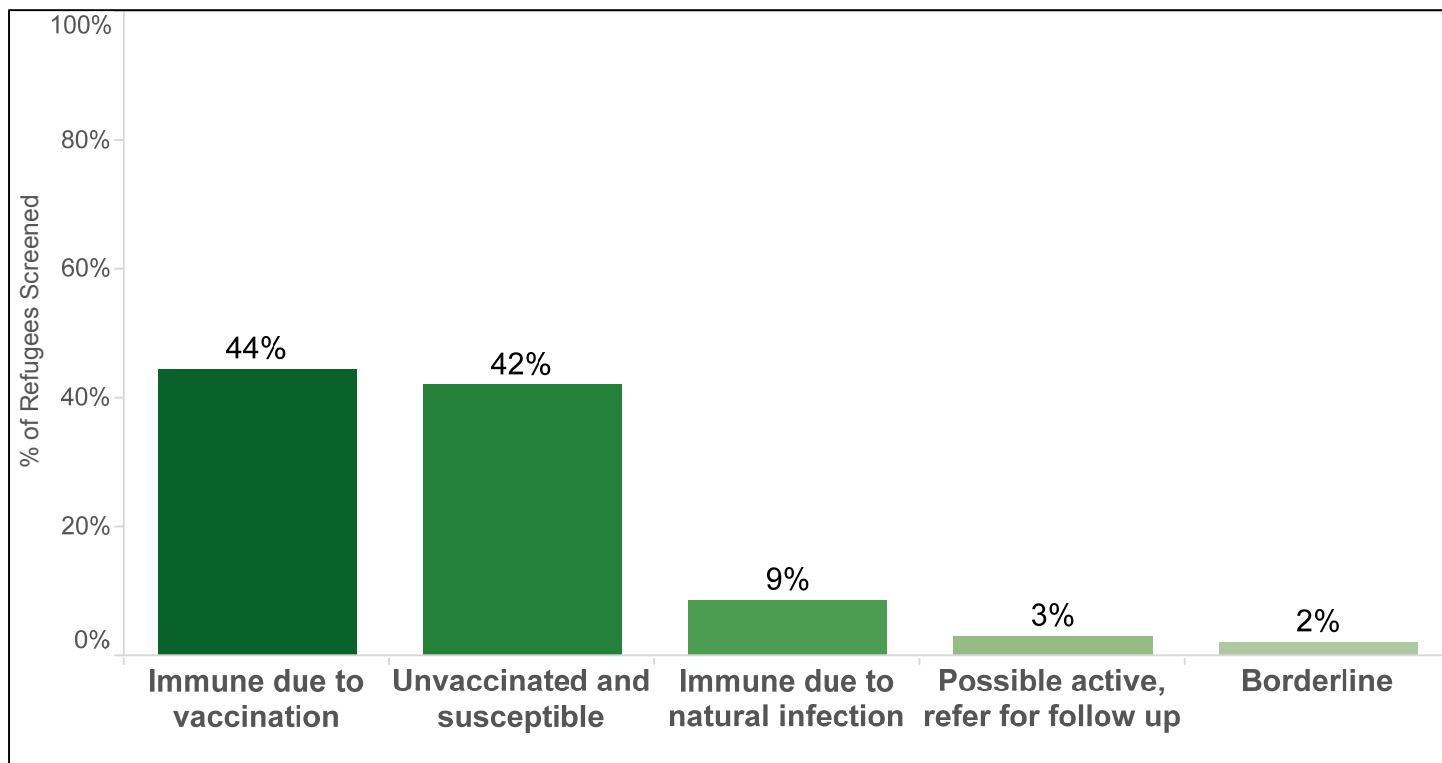
The Refugee Health Screener-15 (RHS-15) is a screening instrument developed to detect emotional distress in newly arrived refugees. An RHS-15 is completed by refugees 14 years and older during the RHA visit. Overall, 19% of those screened had a positive RHS-15 score. 55% of refugees from Iraq had a positive RHS-15. Refugees with a positive RHS-15 may be referred to the mental health coordinator. The first figure below shows the percent of refugees 14 years and older who had a positive mental health screening. The second figure below depicts the mental health screening results by country of nationality.





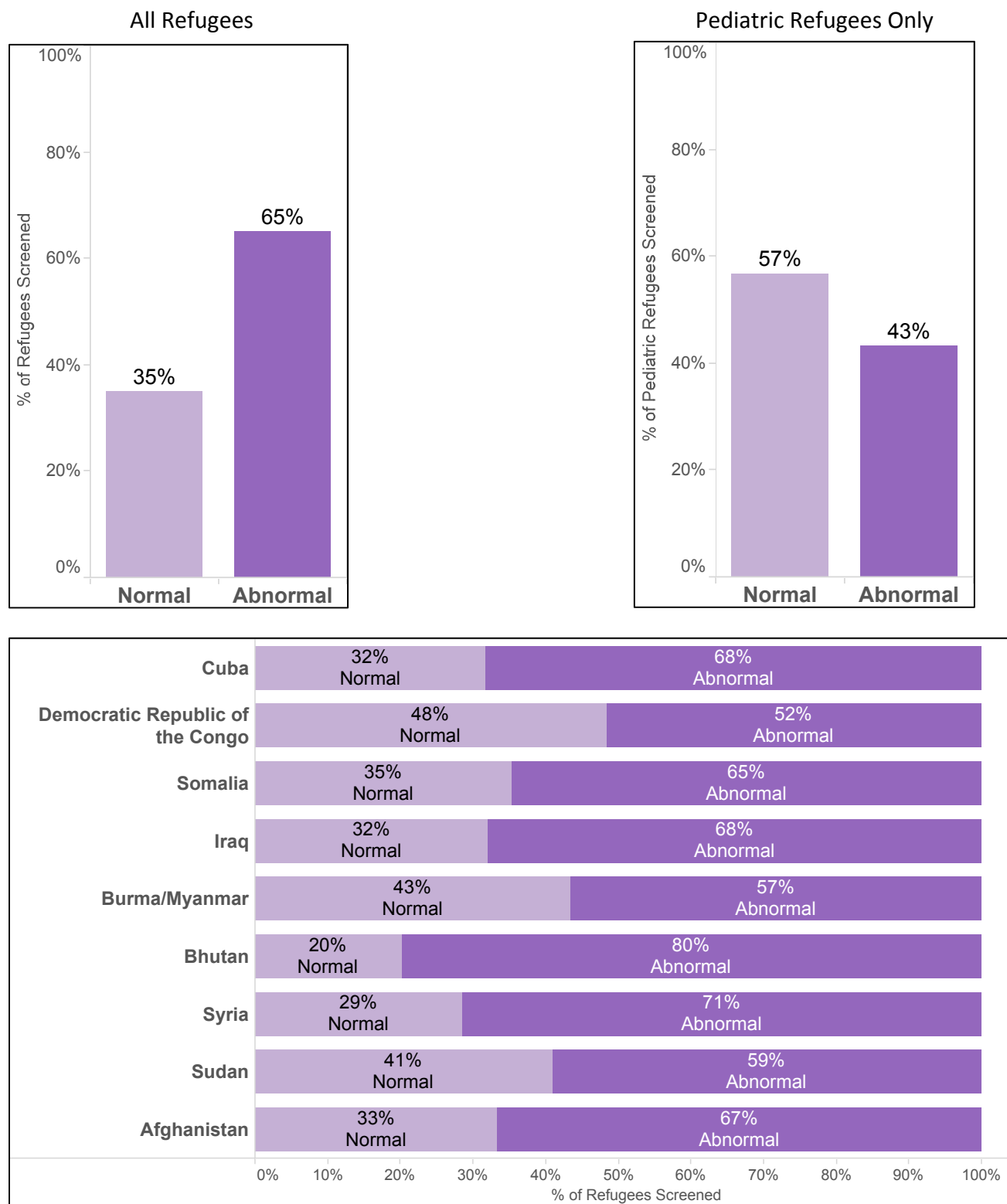
## Hepatitis B

Refugees are screened for Hepatitis B as part of the RHA. Overall, 3% of refugees screened positive for possibly active Hepatitis B, as depicted in the figure below. The second figure below depicts Hepatitis B results for pediatric refugees. Patients who have active Hepatitis B may be referred to Infectious Diseases for evaluation and follow-up.



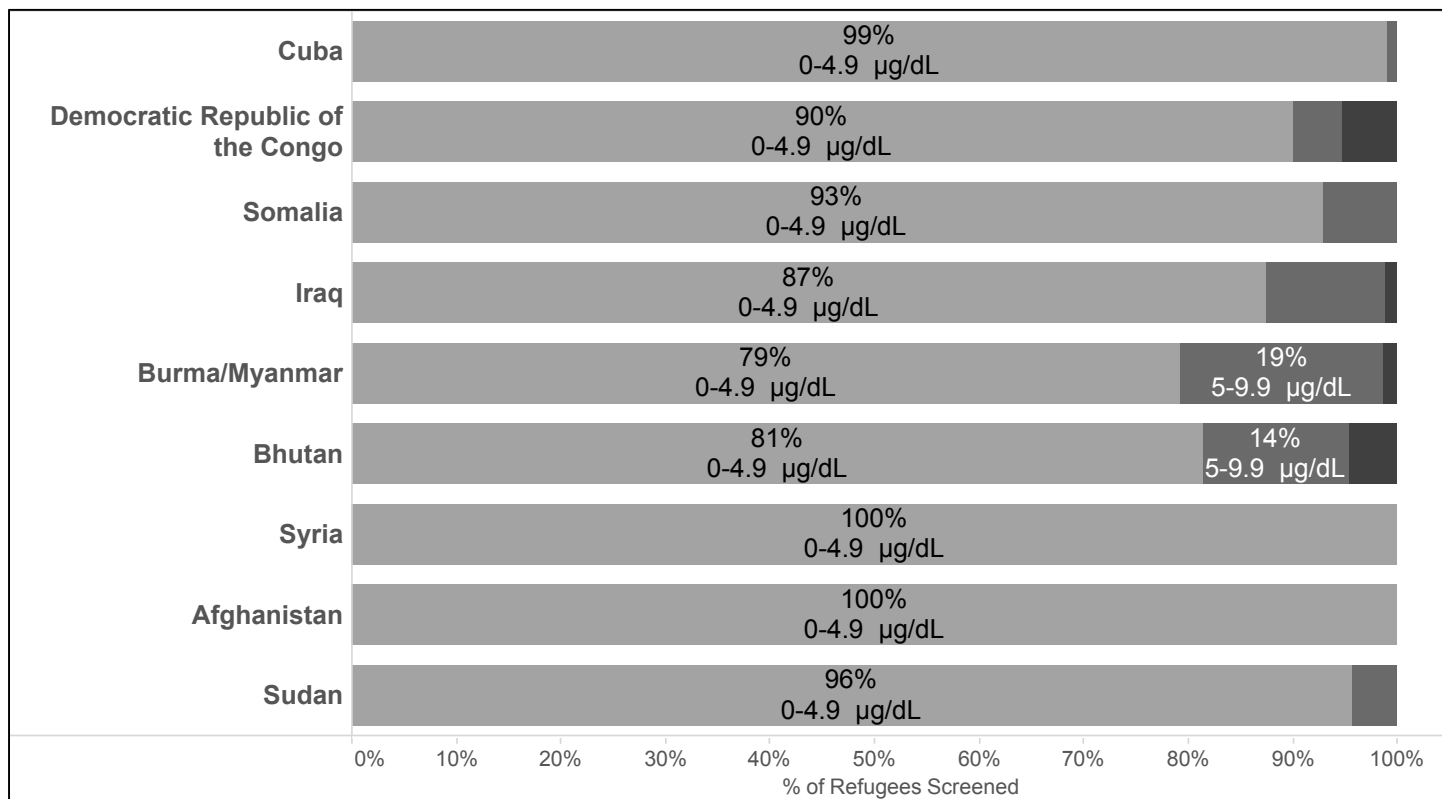
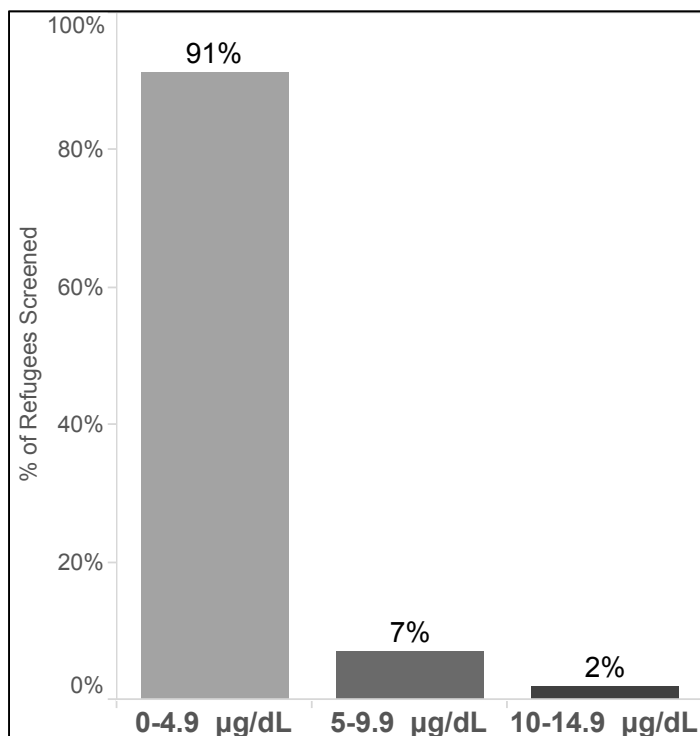
## Dental

Refugees receive a gross assessment of dental health as part of the RHA. Overall, 65% of refugees screened had an abnormal dental screening, as depicted in the first figure below (left). The second below (right) depicts dental abnormalities in pediatric refugees. The third figure (bottom) shows patients with an abnormal dental result by country of nationality. Bhutan had the highest proportion of refugees with dental abnormalities (80%). Dental abnormalities are the most common diagnosis among refugees.



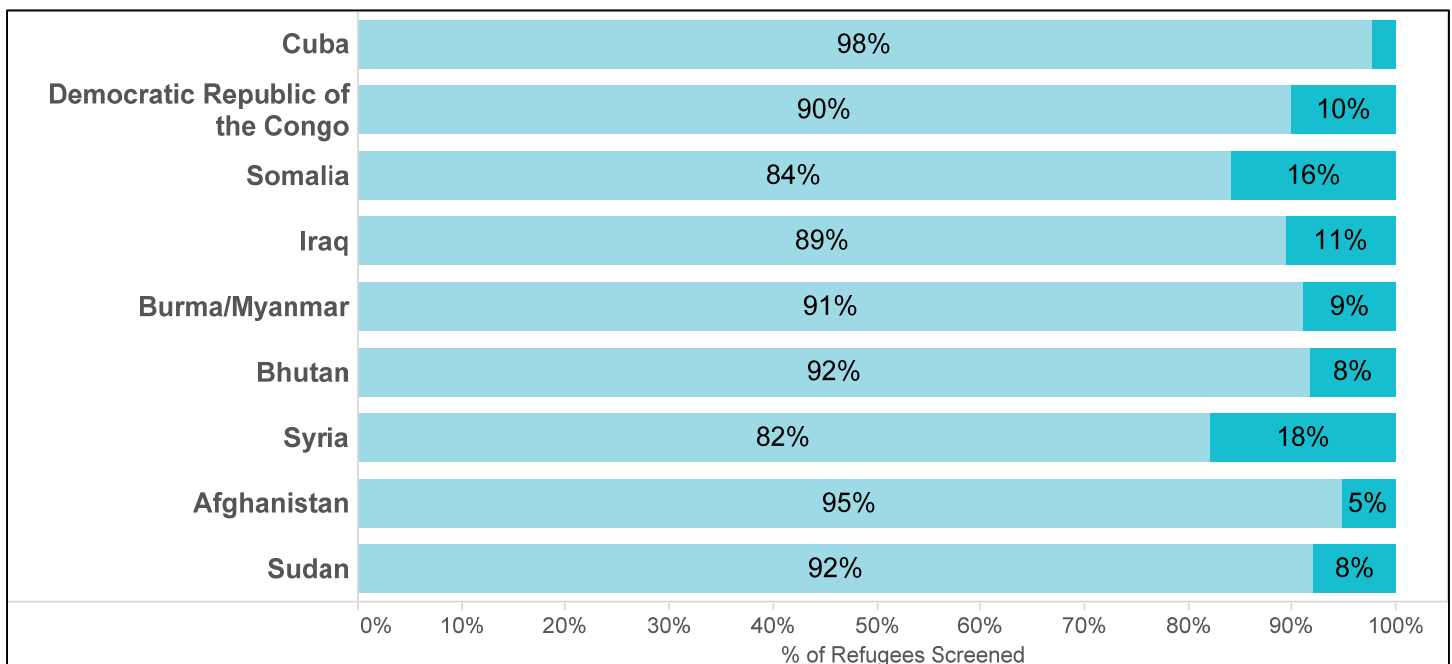
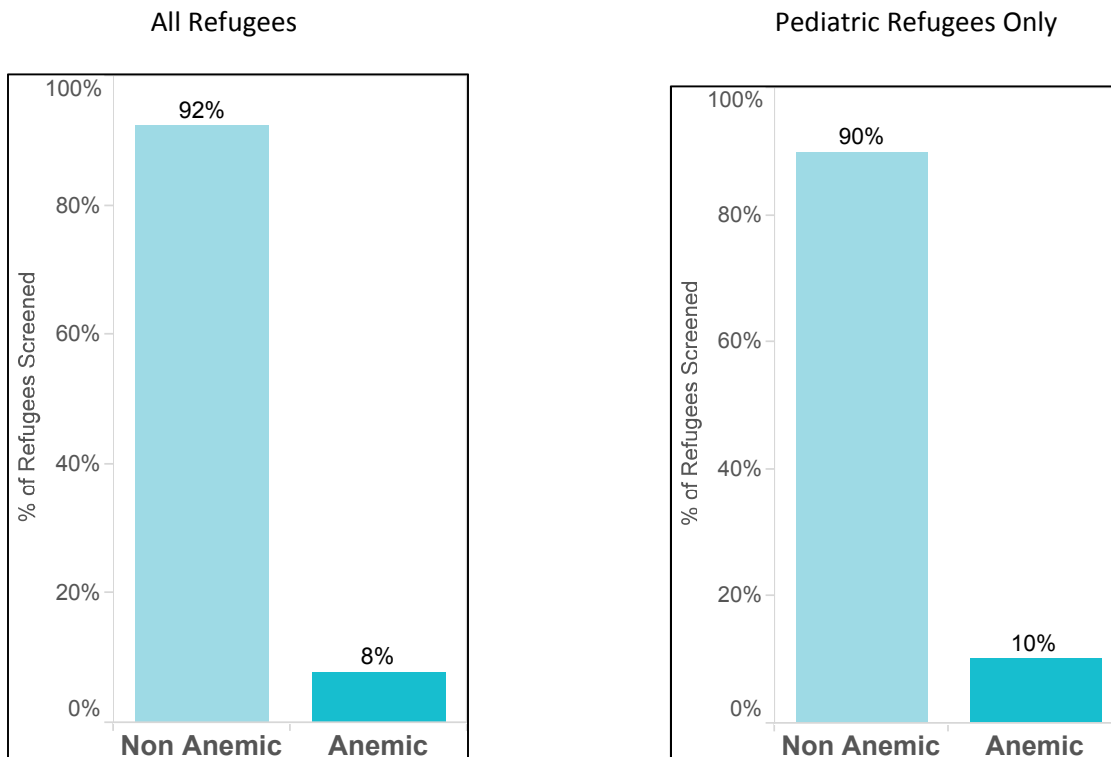
## Blood Lead Levels

Pediatric refugees and pregnant women have a blood lead level screening as part of the RHA. Overall, 9% of refugees screened had high lead level, as depicted in the first figure below. The second figure (bottom) shows patients with high blood lead levels by country of nationality. Burma/ Myanmar had the highest proportion of refugees with high lead levels (20%).



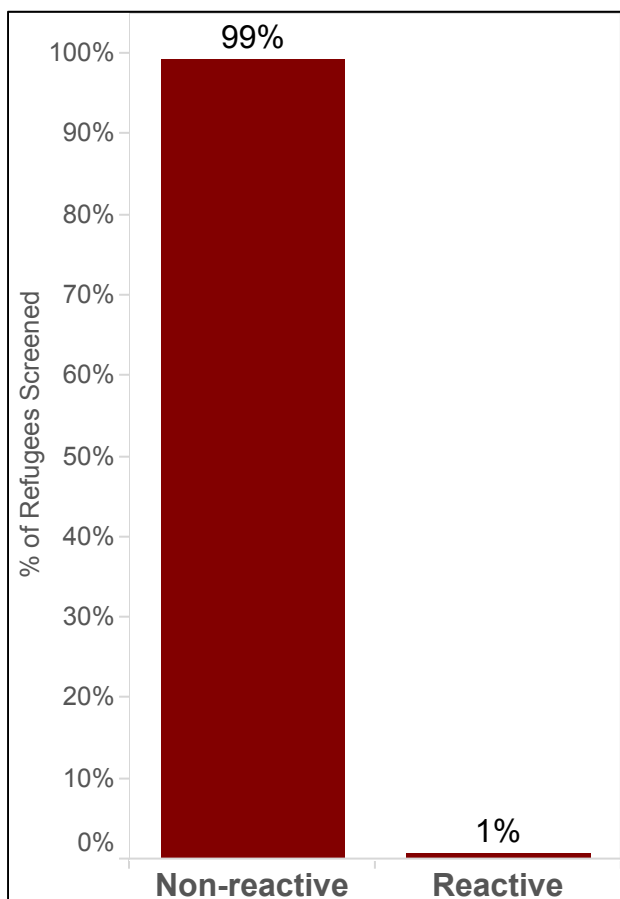
## Anemia

All refugees are screened for anemia during the health screening. Anemia is a condition associated with a reduced red blood cell count. According to the World Health Organization, diagnosis of anemia is based on age, gender and hemoglobin level. Overall, 8% of refugees screened were anemic as depicted in the first figure below (left). The second below (right) depicts anemia in pediatric refugees. The third figure (bottom) shows patients with anemia by country of nationality. Syria had the highest proportion of refugees with anemia (18%).



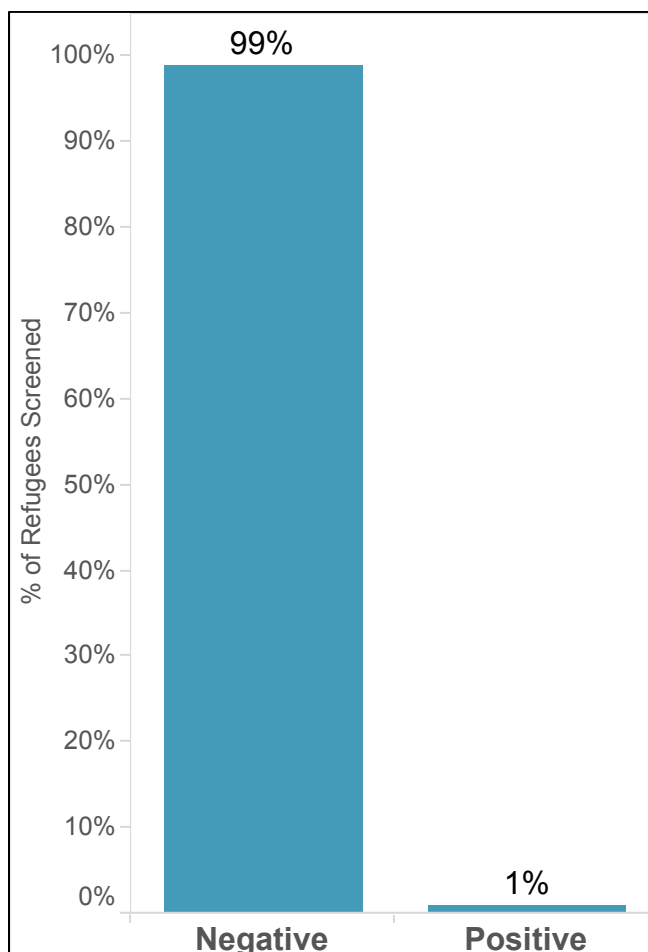
## HIV

All refugees are screened for HIV as part of the RHA. Overall, 1% of patients had a reactive HIV test and may be referred to an HIV clinic for follow up. DRC had the highest rate of HIV infection (3%)



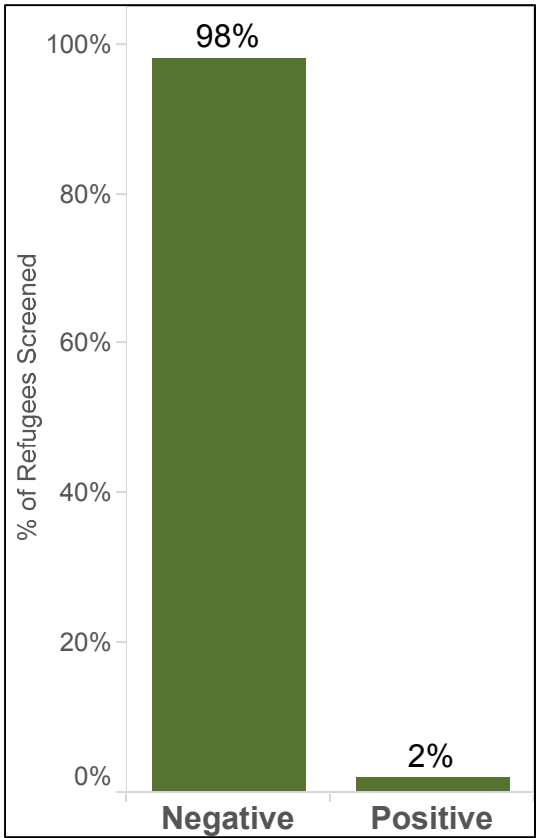
## Syphilis

All refugees 15 years and older are tested for syphilis. Refugees who test positive for syphilis are treated or referred to the public health STD clinic. Overall, 1% of refugees screened had a positive syphilis test.



# Hepatitis C

Refugees are tested for Hepatitis C as part of the RHA if he or she is considered at risk for infection. At risk refugees include those with a tattoo, history of blood transfusion or injection drug use, or history of surgery . Overall, 2% of those screened tested positive for Hepatitis C. Burma/Myanmar had the highest rate of Hepatitis C infection (5%).







**U<sup>of</sup> L** GLOBAL HEALTH  
CENTER  
Global Health is Local Health



For more information, contact:

University of Louisville Global Health Center  
Med Center One  
501 E. Broadway, Suite 140C  
Louisville, KY 40202  
<http://globalhealth.center/rhp/state.php>

Kentucky Office for Refugees  
2222 West Market Street  
Louisville, KY 40212  
<https://cclou.org/kor/>