



**Shriners Hospitals**  
for Children®

Shriners Hospitals for Children — Chicago  
2019 Community Health Needs  
Assessment

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## Shriners Hospitals for Children at a Glance

Shriners Hospitals for Children® is a health care system with locations in the U.S., Canada and Mexico. Our staff is dedicated to improving the lives of children by providing pediatric specialty care, conducting innovative research, and offering outstanding educational programs for medical professionals. Children up to age 18 with orthopaedic conditions, burns, spinal cord injuries, and cleft lip and palate are eligible for care, regardless of the families' ability to pay. Within these broad service lines, many types of care are provided. For example, some locations offer reconstructive plastic surgery, treatment for craniofacial abnormalities or care for sports injuries. Generally, care is provided until age 18, although, in some cases, it may be extended to age 21. All services are provided in a compassionate, family-centered environment. Our patients are our priority. We take the time to care, and to listen. At Shriners Hospitals for Children, every patient and family can expect respectful, compassionate, expert care.

**The mission of Shriners Hospitals for Children is to:**

**Provide the highest quality care to children with neuromusculoskeletal conditions, burn injuries and other special health care needs within a compassionate, family-centered and collaborative care environment.**

**Provide for the education of physicians and other health care professionals.**

**Conduct research to discover new knowledge that improves the quality of care and quality of life of children and families.**

**This mission is carried out without regard to race, color, creed, sex or sect, disability, national origin, or ability of a patient or family to pay.**

### *About Shriners Hospitals for Children — Chicago*

Shriners Hospitals for Children — Chicago is changing lives every day through innovative pediatric specialty care, research and outstanding medical education. The Chicago Shriners Hospital focuses on a wide range of pediatric orthopaedic conditions, including rare diseases and syndromes. This means that when you visit Shriners Hospitals for Children — Chicago for orthopaedic appointments, you might see your neighbors, but you might also meet families visiting from states such as Michigan or Ohio. We also provide expert rehabilitation/spinal cord injury and cleft lip and palate care. All services are provided in a family-centered environment, regardless of the families' ability to pay.

Shriners Hospitals for Children — Chicago is affiliated with University of Illinois Hospital & Health Sciences System. The partnership is a result of the Chicago Shriners Hospital's efforts to collaborate with leading academic medical centers to help reach

more children through leveraging the clinical expertise of each organization. Shriners Hospital has been a training site for UI Health's orthopaedic residents and other trainees.

Inside Shriners Hospitals for Children each day, patients and families say thank you to the Shriners – those men in the red fezzes. Our model for care was imagined and established by the Shriners, the fraternal organization for which the health care system is named. Determined to give all children access to specialized pediatric care, the Shriners opened their first hospital in 1922. Polio was reaching epidemic proportions and only families of means had ready access to doctors, leaving thousands of children at risk without health care.

Recognized as leading philanthropy, Shriners Hospitals for Children has evolved into an international health care system recognized for its devotion to transforming the lives of children through care and research. It is a destination of choice for parents whose children have orthopaedic problems, burns, spinal cord injuries, cleft lip and palate, and other complex medical needs.

## Purpose

A Community Health Needs Assessment (CHNA) is a report based on epidemiological, qualitative, and comparative methods that assess the health issues in a hospital organization's community and that community's access to services related to those issues.

The Patient Protection and Affordable Care Act (PPACA) enacted on March 23, 2010, requires not-for-profit hospital organizations to conduct a CHNA once every three taxable years that meets the requirements the Internal Revenue Code 501(r) set forth by the PPACA. The PPACA defines a hospital organization as an organization that operates a facility required by a state to be licensed, registered, or similarly recognized as a hospital; or, a hospital organization is any other organization that the Treasury's Office of the Assistant Secretary ("Secretary") determines has the provision of hospital care as its principal function or purpose constituting the basis for its exemption under section 501(c)(3).

This assessment is designed and intended to meet the IRS needs assessment requirement as it is currently understood and interpreted by Shriners Hospitals for Children leadership.

### *Shriners Hospitals for Children's Commitment to the Community*

Shriners Hospitals for Children — Chicago, a pediatric hospital located on Chicago's far west side, treats children from across the United States and from countries around the world. It is part of a larger system of Shriners Hospitals for Children, with its home office located in Tampa, Florida. Shriners Hospitals for Children — Chicago provides specialty care to pediatric patients regardless of the family's ability to pay. Several of the major conditions treated by SHC-Chicago include:

- Arthrogyrosis
- Brachial Plexus Injuries, Hand Injuries
- Cerebral Palsy
- Clubfoot
- Craniofacial Anomalies
- Hip Dysplasia
- Limb Deficiencies
- Osteogenesis Imperfecta
- Plastic Surgery
- Scoliosis

- Spina Bifida
- Spinal Cord Injury
- Stable Fractures

A number of sub-specialty services are also offered that come together to comprehensively treat and support our patients and families.

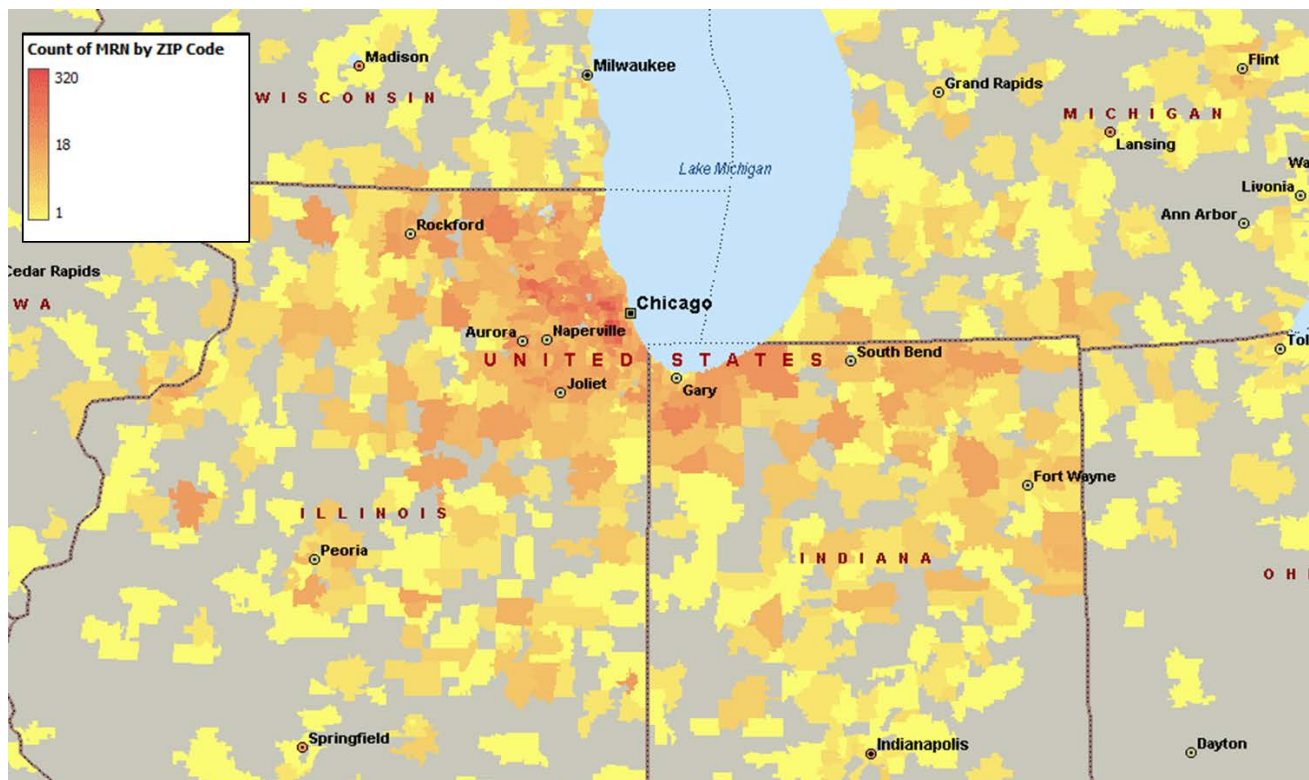
SHC — Chicago is a teaching hospital supporting the educational needs of medical; nursing; physical, occupational, and speech therapies; and radiology residents/students. Research is one of the cornerstones of SHC — Chicago's mission. Our in-house research teams include internationally renowned experts whose discoveries have changed treatment methodologies and improved the lives of countless children. Whether in the laboratory or in clinical environments, we are committed to the continual pursuit of knowledge that improves the delivery of clinical care.

Shriners Hospitals for Children — Chicago can meet the unmet health needs of our respective communities by virtue of the services that we already provide.

## Our Community

At SHC – Chicago, we serve our patients within a 60 licensed bed facility. Approximately 80 percent of our U.S. patients come from within a 128-mile radius of our facility. Below is a heat map of where our patients are located (Figure 1). The darker orange color on the map represents a larger patient population. Many of our patients live in the greater Chicago area, or within northern Illinois and Indiana. We also serve patients from the surrounding states: Wisconsin, Iowa, Michigan, and Ohio.

**Figure 1: Map of Unique Patient Distribution in 2017**

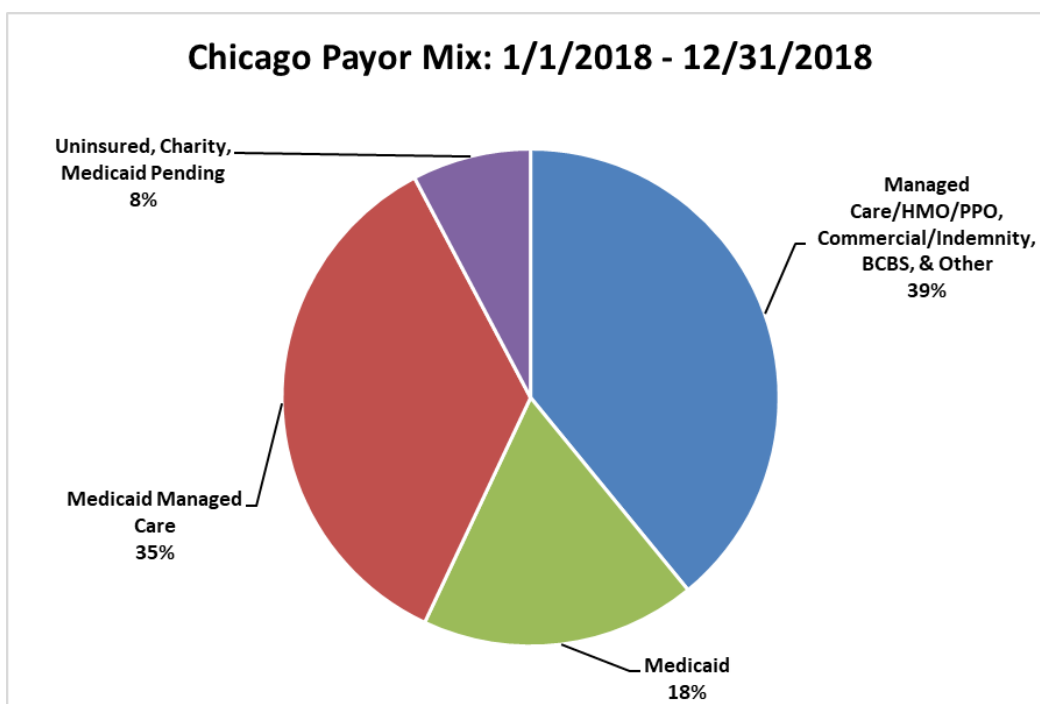


SHC – Chicago specializes in three pediatric service lines: orthopedics, cleft lip and palette, and pediatric rehabilitation/spinal cord injury. All of the patients we serve are under the age of 18 years old and have a condition or diagnosis within one of the above-mentioned service lines. Below is a chart (Figure 2) of the U.S. pediatric population in 2017 and an estimated pediatric population in the year 2022. Additionally, the chart describes the current and expected populations for each of the service lines we provide as well as additional conditions treated at SHC – Chicago. Understanding how the population we serve is projected to change and grow will be important for determining the needs in our community. The pediatric population in the nation, overall, is only expected to increase by 1%.

Pediatric Population			
Estimated Pediatric Population in 2022	74,885,819		
Estimated Pediatric Population in 2017	74,039,188		
Condition/Diagnosis	Incidence (I) or Prevalence (P)	Expected Population 2022	Population 2017
Spinal Cord Injury (P)	1.99 cases per 100,000 children (P)	1,490	1,473
Club Foot (I)	1 case per 1,000 live births (I)	74,886	74,039
Acute Burns (P)	15 cases per 10,000 U.S. residents <2 years (P)	112,329	111,059
Cleft Lip and Palate (I)	1 case per 500-550 live births (I)	136,156	134,617
Cerebral Palsy (I)	1.5 per 1,000 live births (I)	112,329	111,059
Scoliosis (I)	2-2.5 cases per 1,000 live births (I)	149,772	148,078
		<b>Overall 1% Increase in Ped. Population</b>	
Source: Shriners Hospitals for Children, U.S. Census Data 2017			
*Includes only the US pediatric population and is inclusive of all markets (not just those where Shriners Hospitals exist).			

**Figure 2: U.S. Pediatric Population for 2017 and Projected Pediatric Population for 2022 by Condition or Diagnosis.**

### Insurance/Payor Analysis



SHC-Chicago’s Payor Mix is indicative of what Shriners Hospitals for Children is noticing across the system. SHC- Chicago has seen a significant decrease in State Medicaid patients with a reciprocal increase of Managed Medicaid Patients. Commercial and uninsured patient has remained flat over the past 3 years.



## Process and Methods

### *Summary of Content*

A Community Health Needs Assessment Team, consisting of professionals representing administration, business development, and performance improvement was convened and met regularly from October 2018 through March 2019. This workgroup was responsible for establishing the health indicators that would be collected. Another task was to determine what type of service Shriners Hospitals for Children — Chicago could provide for the community, being a specialty hospital well known for caring for pediatric patients with orthopedic conditions. For the purposes of this assessment, the decision was made to continue to focus our efforts on scoliosis incidence and screening in the pediatric population. This was based on the success of the efforts made to educate clinicians and the general public on screening and early detection and treatment of scoliosis. The results of this assessment were shared and discussed with the medical staff, quality and safety council, and the local Board of Governors of SHC-Chicago to assure that the action plan was realistic and feasible.

### *Primary Data*

#### Community Survey of Practitioners

A brief written survey of the participants at the annual pediatric orthopaedic conference was conducted to determine how we, as a specialty hospital, could assist the pediatric community. Results of this survey are presented and discussed under Key Findings later in this report.

#### Community Survey of Parents/Caregivers

A primary survey to determine what parents felt were the most pressing health concerns in the community was conducted in April 2019 for 5 weeks. Out of the surveys that were received, the Community Health Needs Assessment Advisory Team calculated the highest ranked issues that resulted from completion of the survey. 35 surveys were distributed to parents/caregivers in the outpatient department and 12 responses were received. The results of this survey are presented and discussed under the Key Findings section of this report.

### *Prioritization of Community Health Needs*

Due to the results of both the Community Survey of Physicians and the Community Survey of Parents and Caregivers, the Community Health Needs Assessment Advisory team.

## Secondary Data

Existing data sources included data from publicly available resources, as well as data from IBM Market Expert. The publicly available resources contain data related to health outcomes, health behaviors, and social and economic factors. The data provided by IBM Market Expert includes information on pediatric demographics on the county, state, and national levels.

## Internal Data

Information on the number of patients treated as inpatients at Shriners Hospitals for Children — Chicago was obtained from the data repository in our electronic health record. This was used to compare our numbers to the state reporting database, IBM Market Expert.

## Literature Review

A literature review was conducted using the key words scoliosis, pediatric, and scoliosis screening. The resources obtained that focused on scoliosis screening were used. Studies both support and discourage routine screening for various reasons; one of these being over referral, which is sometimes due to competency of the screeners. In the state of Illinois, an amendment to the school code was passed in 2009, declaring scoliosis screening not mandatory in Illinois schools. Currently 26 states in the country mandate continued screening in schools. School screening programs for scoliosis remains the subject of considerable controversy. If early detection can save one child from continued spine deformity to the point that he/she would need surgery than it is well worth the time and effort.

A position statement on Screening for Idiopathic Scoliosis in Adolescents was published in 2008 by the American Academy of Orthopaedic Surgeons (AAOS), the Scoliosis Research Society (SRS), the Pediatric Orthopaedic Society of North America (POSNA), and the American Academy of Pediatrics (AAP) to provide an educational tool, recognizing the benefits of screening in early detection and treatment of the condition. Based on this information the team decided that we would focus our community efforts on education of health care professionals regarding scoliosis screening. The target age group of the screening would be school-aged children since this is the age group that would be most impacted by screening and early intervention. Although we are focusing on school-aged children, this will eventually have an impact for adults potentially affected by scoliosis since it is a progressive condition and will affect their overall health and well-being. Approximately one in 40, or seven million people, have scoliosis in the U.S. Another resource that was used was Healthy People 2020 to determine if any of the goals addressing child/adolescent health related to scoliosis screening as part of a prevention strategy. Promotion of health and access to health care resources for middle school/adolescent children are goals of Healthy People 2020.

# Key Findings

## Secondary Data

### Demographics

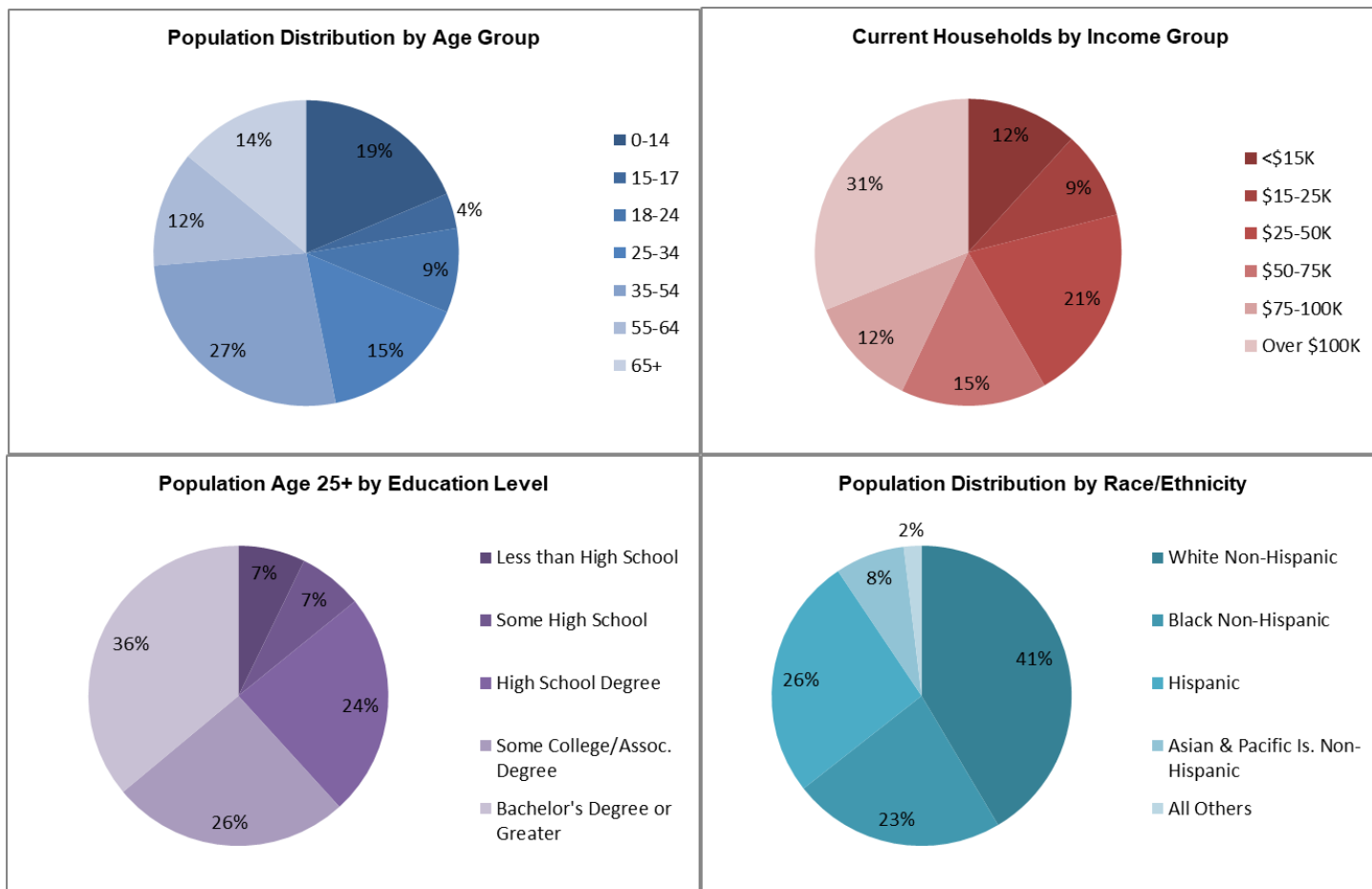
Current population demographics and changes in demographic composition over time play a determining role in the types of health and social services needed by communities.

Demographics Expert 2.7										
2018 Demographic Snapshot										
Area: Cook County, IL										
Level of Geography: ZIP Code										
DEMOGRAPHIC CHARACTERISTICS										
			Selected Area	USA				2018	2023	% Change
2010 Total Population			5,186,529	308,745,538		Total Male Population		2,515,381	2,516,135	0.0%
2018 Total Population			5,178,055	326,533,070		Total Female Population		2,662,674	2,653,737	-0.3%
2023 Total Population			5,169,872	337,947,861		Females, Child Bearing Age (15-44)		1,098,199	1,055,647	-3.9%
% Change 2018 - 2023			-0.2%	3.5%						
Average Household Income			\$92,764	\$86,278						
POPULATION DISTRIBUTION										
Age Distribution						HOUSEHOLD INCOME DISTRIBUTION				
Age Group	2018	% of Total	2023	% of Total	USA 2018 % of Total	2018 Household Income	HH Count	% of Total	USA % of Total	
0-14	966,069	18.7%	949,619	18.4%	18.7%	<\$15K	233,941	11.8%	10.9%	
15-17	193,186	3.7%	194,651	3.8%	3.9%	\$15-25K	184,582	9.3%	9.5%	
18-24	462,338	8.9%	443,977	8.6%	9.7%	\$25-50K	410,653	20.7%	22.1%	
25-34	806,587	15.6%	711,761	13.8%	13.4%	\$50-75K	305,862	15.4%	17.1%	
35-54	1,387,444	26.8%	1,414,865	27.4%	25.5%	\$75-100K	234,456	11.8%	12.3%	
55-64	633,829	12.2%	624,118	12.1%	12.9%	Over \$100K	618,563	31.1%	28.2%	
65+	728,602	14.1%	830,881	16.1%	15.9%					
<b>Total</b>	<b>5,178,055</b>	<b>100.0%</b>	<b>5,169,872</b>	<b>100.0%</b>	<b>100.0%</b>	<b>Total</b>	<b>1,988,057</b>	<b>100.0%</b>	<b>100.0%</b>	
EDUCATION LEVEL										
Education Level Distribution					RACE/ETHNICITY					
2018 Adult Education Level	Pop Age 25+	% of Total	USA % of Total		Race/Ethnicity	2018 Pop	% of Total	USA % of Total		
Less than High School	256,784	7.2%	5.6%		White Non-Hispanic	2,147,419	41.5%	60.4%		
Some High School	246,901	6.9%	7.4%		Black Non-Hispanic	1,187,359	22.9%	12.4%		
High School Degree	856,281	24.1%	27.6%		Hispanic	1,356,288	26.2%	18.2%		
Some College/Assoc. Degree	914,493	25.7%	29.1%		Asian & Pacific Is. Non-Hispanic	388,393	7.5%	5.8%		
Bachelor's Degree or Greater	1,282,003	36.0%	30.3%		All Others	98,596	1.9%	3.2%		
<b>Total</b>	<b>3,556,462</b>	<b>100.0%</b>	<b>100.0%</b>		<b>Total</b>	<b>5,178,055</b>	<b>100.0%</b>	<b>100.0%</b>		

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**Figure 3: Demographics Snapshot of the SHC – Cook County, Illinois**

Figure 3 presents demographic data for the SHC – Chicago market area. This information provides socioeconomic insights for our community. Distributions among factors such as household income, education level, and race and ethnicity may affect the patients we serve. This data shows that the average household income in the Cook County, Illinois is \$92,764, which is higher than the nation’s average of \$86,278. The pediatric population in Cook County, Illinois makes up 22.2% of the market area.



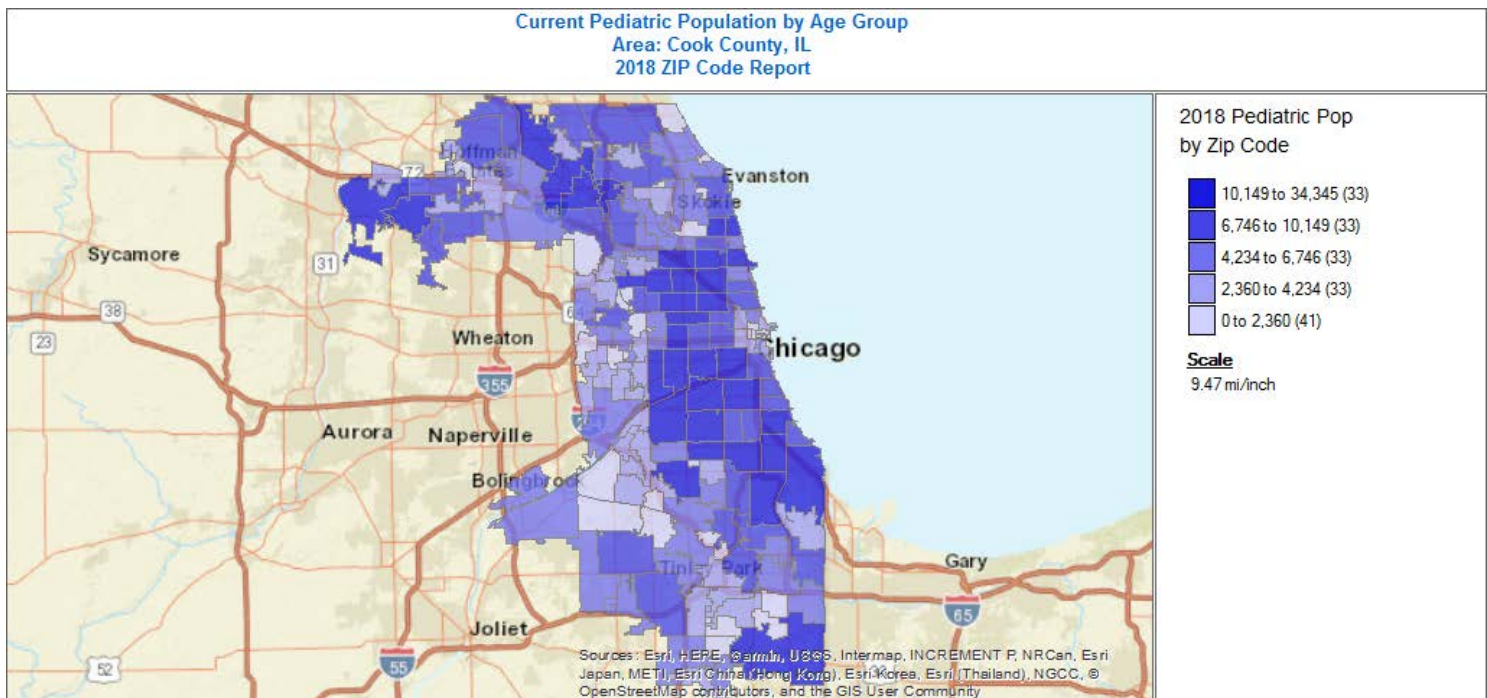
**Figure 4: Pie Charts of 2018 Demographic Snapshot Data for Cook County, IL.**

### Population under Age 18

The pediatric population in our community is relevant information because it is important to understand the proportion of youth in the community. As this population has unique health needs, children under the age of 18 should be considered separately from other age groups.

Report Area	2018 Total Population	2018 Pediatric Population Ages 0-17	Percent of Population
Cook County	5,178,055	1,159,255	22.4%
Illinois	12,768,392	2,883,036	22.6%
United States	326,533,070	73,810,478	23%

**Table 1: 2018 Pediatric Population**



**Figure 5: Map of the Pediatric Population in Cook County, Illinois.**

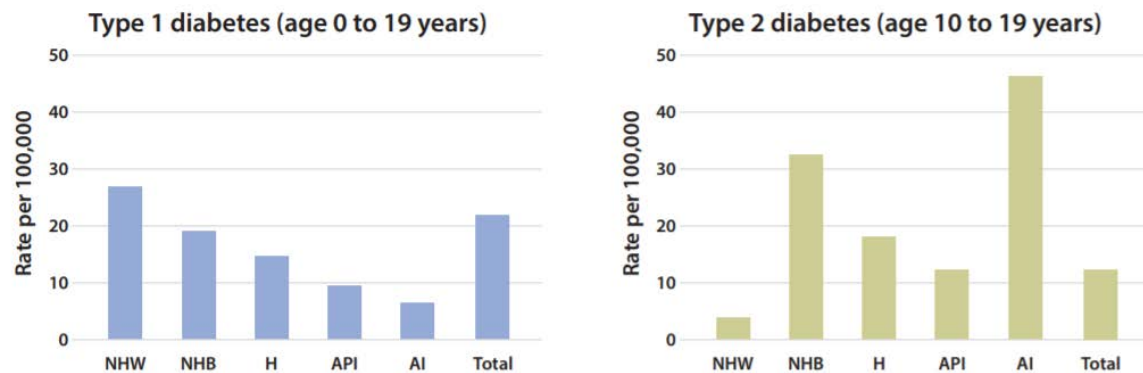
### Areas of Pediatric Unmet Need

Regardless of the circumstances, all children should have equal access to healthcare. However, due factors such as social determinates of health: i.e. poverty, food and housing insecurity, and language and geographic barriers, children’s healthcare needs are often left unmet. As a result, children’s health outcomes suffer. In order to face these needs, it is necessary to look beyond the doctor’s office and work collectively to identify areas of unmet need and proactively implement strategies to address them.

Over the last 15 years, the U.S. has seen unmet healthcare needs shift from acute care issues to chronic health conditions. It is estimated that 25% of children and adolescents in the United States are affected by chronic health conditions. Additionally, 7.5% of children have unmet healthcare needs. Among the top conditions includes Digestive Health (including diabetes and obesity), Autism and Developmental Disabilities, and Mental Health issues.

According to the Center for Disease Control & Prevention (CDC), digestive Health tops the list of health concerns. New reports indicate that a third of U.S. Children are overweight or obese. The extra weight increases the chance for heart disease, diabetes, stroke, osteoarthritis, and many cancers. As stated by the researchers in the National Diabetes Statistics Report (2017), the overall incidence of diabetes is now 1.93

cases per 1,000 with this number growing among children and adolescents every year. Additionally, diabetes remains the 7<sup>th</sup> leading cause of death in the United States. As indicated by the tables below, the rate of diabetes per 100,000 children varies significantly based on race and ethnicity and the type of diabetes.



NHW = non-Hispanic whites, NHB = non-Hispanic blacks, H = Hispanics, API = Asians/Pacific Islands, AI = American Indians.

Note: American Indian (AI) youth who participated in the SEARCH study are not representative of all AI youth in the United States. Thus, these rates cannot be generalized to all AI youth nationwide.

Even more prevalent is the growth of Autism. According to the CDC 1 in 59 children have been identified with autism spectrum disorder (ASD)\*. ASD is 4.5 times more prevalent in boys than girls. This has grown significantly from the year 2000 at 1 in 150 children. One of the issues with ASD is that it commonly co-occurs with other developmental, psychiatric, neurologic, chromosomal, and genetic diagnoses. The co-occurrence of one or more non-ASD developmental diagnoses is 83%. The co-occurrence of one or more psychiatric diagnoses is 10%. The cost per year to treat these children medically in the U.S. is between \$11.5 and \$60.9 billion dollars. On average, medical expenditures for children and adolescents with ASD were 4.1–6.2 times greater than for those without ASD. It should also be noted that in addition to medical costs, intensive behavioral interventions for children with ASD can cost anywhere from \$40,000 to \$60,000 per child per year.

It is estimated that 17.1 million children in the United States have had a psychiatric disorder (Child Mind Institute, 2015 Report). Half of all psychiatric illness occurs before the age of 14 and 75% by the age of 24.

**Age of onset of types of disorders in children**

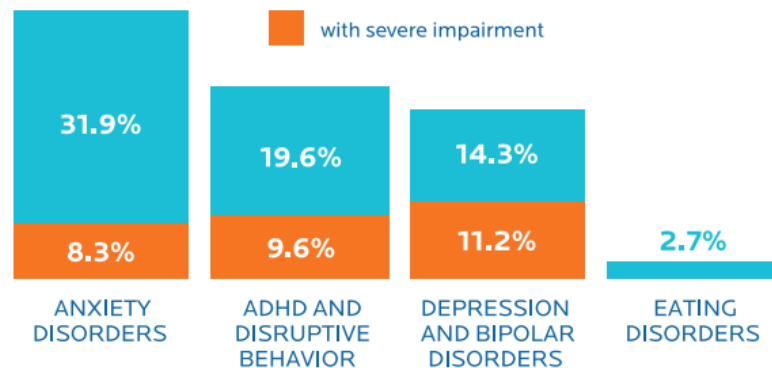


The CDC reports the following mental health statistics, collected from a variety of data sources. Between the years 2005-2011 children ages 3-17 years were identified as having diagnosis of:

- Attention-deficit/hyperactivity disorder (ADHD) (6.8%)
- Behavioral or conduct problems (3.5%)
- Anxiety (3.0%)
- Depression (2.1%)
- Autism spectrum disorder (1.1%)
- Tourette syndrome (0.2%) (among children aged 6–17 years)

Additionally, 4.2-4.7% of Adolescents aged 12-17 were identified as having an illicit drug or alcohol disorder.

**What are the most common psychiatric disorders in childhood?**



Furthermore, Based on the National Research Council and Institute of Medicine report (Preventing mental, emotional, and behavioral disorders among young people: progress and possibilities, 2009) that gathered findings from previous studies, it is estimated that 13 –20% of children living in the United States (up to 1 out of 5 children) experience a mental disorder in a given year. According to the Child Mind Institute, it is estimated that 40% of youth with diagnosable ADHD, 60% of youth with Depression, and 80% of youth with anxiety disorder are left untreated.

**The gap between the need and the number of kids receiving help:****49.5%**

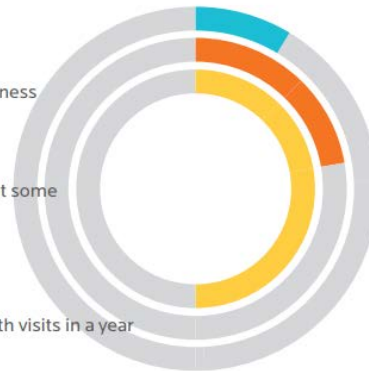
estimated to have a diagnosable mental illness

**22.2%**

have mental illness with severe impairment some time before they are 18

**7.4%**

of children in the US have any mental health visits in a year

**Sources\***

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## General Information on Scoliosis

Based on this review, the following information highlights the incidence and prevalence of scoliosis in the general population. Although it is usually diagnosed in the school aged years, undiagnosed curves that progress can cause pain and some disability in the adult population.

Recent data from the Scoliosis Research Society includes the following:

- Scoliosis is the most common deformity of the spine, affecting two to three percent of the U.S. population, or an estimated 7 million Americans.
- One quarter of children with spinal curves require medical attention.
- Scoliosis impacts infants, adolescents and adults, but the primary age of onset is between the ages of 10 and 15.
- Equal numbers of males and females have scoliosis, but females are eight times more likely to have a curve progress to a stage that requires treatment.
- 85 percent of scoliosis cases are idiopathic, meaning the cause is unknown.
- Scoliosis can run in families, and a child who has a relative with the condition should be checked regularly.
- Scoliosis is a condition that can impact quality of life by limiting activity, causing pain, and negatively impacting respiratory function and self-esteem.
- Early diagnosis is the key to keeping the condition from progressing and providing the best treatment.
- Frequency of scoliosis:
  - Scoliosis curves measuring at least 10° occur in 1.5% to 3.0% of the population
  - Curves exceeding 20° occur in 0.3% to 0.5% of the population
  - Curves exceeding 30° occur in 0.2% to 0.3% of the population
- Scoliosis is the most common deformity of the spine and early detection is key to keeping the condition from progressing and providing treatment.
- Fewer than half of the nation's states currently legislate school screening of scoliosis, and some states are considering discontinuing those screenings. That means it is imperative that all members of the community are aware of

the signs and symptoms of the condition. It's important to provide reminders throughout the year because early recognition of the condition will prevent needless suffering of children and their parents.

- The screening test for scoliosis is non-invasive, takes approximately 30 seconds, and could save a child you know years of pain in the future.
- New research and development for screening and non-operative interventions are providing opportunities for safer and more effective early diagnosis and patient care.

## Healthy People 2020

One of the goals of Healthy People 2020 is to document and track population-based measures of health and well-being for early and middle childhood populations over time in the United States. There is increasing recognition that early and middle childhood provides the physical, cognitive, and social- emotional foundation for lifelong health, learning, and wellbeing.

The keys to understanding early and middle childhood health are recognizing the important role these periods play in adult health and well-being and focusing on conditions and illnesses that can seriously limit children's abilities to learn, grow, play, and become healthy adults. Emerging issues in early and middle childhood include implementing and evaluating multidisciplinary public health interventions that address social determinants of health by:

- Fostering knowledgeable and nurturing families, parents, and caregivers.
- Creating supportive and safe environments in schools, communities, and homes.
- Increasing access to high-quality health care.

## Social Determinants of Health

Another goal of Healthy People 2020 is to create social and physical environments that promote good health for all. Health starts in our homes, schools, workplaces, neighborhoods, and communities.

Healthy People 2020 highlights the importance of addressing the social determinants of health by including "Create social and physical environments that promote good health for all" as one of the four overarching goals for the decade. The Social Determinants of Health topic area within Healthy People 2020 is designed to identify ways to create social and physical environments that promote good health for all. Five key areas of social determinants of health were developed by Healthy People 2020 which include: Economic Stability, Education, Social and Community Context, Neighborhood and Built

Environment and Health and Health Care. This focuses on Access to Health services—including clinical and preventive care and Access to Primary Care—including community-based health promotion and wellness programs.



### Primary Data

#### Primary Data Community Survey of Practitioners

A brief written survey of the participants in the annual pediatric orthopaedic conference was conducted to determine how we as a specialty hospital could assist the pediatric community. There were a total of 71 participants at the conference and 51 or 72% responded to this survey. Results are displayed below.

#### Average percentage of patients with pediatric orthopaedic conditions presented in a practice

Scoliosis	Fractures	Sports Injuries	Neurological Conditions
10%	20%	26%	13%

Overall evaluations of the program were very positive and there were several comments noting the strengths of the program being the information on orthopaedic conditions to assist general pediatricians to make more thorough evaluations and the expertise of the speakers. More importantly, several of the participants noted that they would change their practice by performing more vigilant scoliosis screening and at an earlier age.

## Primary Community Survey of Parents/Caregivers

A primary survey to determine what parents felt were the most pressing health concerns in the community was conducted in April 2019. Out of the surveys that were received the highest ranked issues were related to bullying, Internet safety/cyberbullying, stress, lack of exercise and neighborhood safety overall. Educational materials on these topics will be made available to patients and families. Please see results below for more detailed information.



### Shriners Hospitals for Children — Chicago Parent Health Concerns Survey

Dear Parent or Caregiver, Your feedback is very important to us! Your answers will help us understand health concerns for kids and teens living in the Chicago area. Please take a few moments to answer the following questions. Skip questions you prefer not to answer.

**Are the following health issues a problem for kids and teens in your community?  
Mark the box that best describes how you feel.**

	Big Problem	Medium Problem	Small Problem	Not a Problem
Access to fruits and vegetables		2	2	8
Allergies (including food allergies)		5	6	1
Asthma		4	6	2
Attention Deficit Hyperactivity Disorder (ADHD/ADD)		7	3	2
Autism		3	5	4
Bullying	5	4	3	
Kid abuse and neglect	1		8	3
Community unrest		4	6	2
Depression	1	4	7	
Diabetes		3	4	5
Eating disorders (like anorexia and bulimia)			7	5
Environmental pollution		1	8	3
Getting Health Insurance		3	5	4
HIV/AIDS			5	7
Substance abuse		6	4	2
Internet safety/cyberbullying	4	6	2	
Lack of exercise	2	7	2	1
Lead toxicity/poisoning			5	7
Measles	1	5	4	2
Motor vehicle accidents	1	2	8	1
Neighborhood safety (including assaults & homicides)	2	2	4	4
Obesity	1	7	4	
Overuse of antibiotics		2	4	6
Household poisons			4	8
Poverty		4	6	2
Racial/Ethnic Issues		3	6	3
Risks associated with immunization shots			6	6
Risks associated with not getting immunization shots			7	5
Safe Housing			4	8
School violence		2	6	3
Sexually transmitted infections other than HIV/AIDS			6	6
Smoking and tobacco use		3	7	1
Sport and play-related injuries	1	2	5	3
Stress	2	6	4	
Suicide	1	1	8	1
Teen pregnancy			6	6
Understanding Information from doctor		1	5	6
Other:				

## Prioritization of Community Health Needs

### Key Findings Prioritization Table

Access Variables	SHC-Chicago Community Need Identified	SHC-Chicago Strategic Plan	SHC-Chicago Resources Available	Community Impact (High - Low)
Bullying/Cyber-Bullying	Yes	No	Yes	High
Stress	Yes	No	Yes	Medium
Lack of Exercise/Obesity	Yes	No	Yes	High
Neighborhood Safety	Yes	No	Yes	Medium
Spinal Injuries	No	Yes	Yes	High
Pediatric Orthopaedics	No	Yes	Yes	High

Based on the results above, and given our mission and the resources we have available, SHC-Chicago has chosen to focus its 2019 CHNA Action Plan on the unmet need of scoliosis related to the following topics:

- Education of patients, families and healthcare providers
- Screening of school aged/adolescent children
- Early Detection and Treatment

SHC — Chicago recognizes that there are other identified unmet needs within the identified community population; however, due to the specialty nature of Shriners Hospitals for Children (its mission, vision and values), its staffing and available resources, SHC — Chicago is unable to care for these immediate needs. SHC-Chicago is integrally connected with many resources in the community to refer patients and families should patients require attritional assistance, including the resources listed in the following table.

<b>Community Resources</b>	
<i>Shriners Hospitals for Children</i>	<i>#Cut the Bull</i>  <a href="https://www.shrinershospitalsforchildren.org/shc/cutthebull">https://www.shrinershospitalsforchildren.org/shc/cutthebull</a>
<i>American Academy of Pediatrics</i>	<i>Several resources on a variety of pediatric health topics</i>  <a href="http://www.aap.org">www.aap.org</a>
<i>Scoliosis Research Society</i>	<i>Educational resources for patients and families</i>  <a href="http://www.srs.org">www.srs.org</a>
<i>Center for Disease Control</i>	<i>Many resources available related to all of the topics</i>  <a href="http://www.cdc.gov">www.cdc.gov</a>
<i>Department of Health and Human Services</i>	<i>Many resources available related to all of the topics</i>  <a href="http://www.hhs.gov">www.hhs.gov</a>
<i>PACER Center – Champions for Children with Disabilities</i>	<i>National Bullying Prevention Center</i>  <a href="http://www.pacer.org">www.pacer.org</a>
<i>Illinois Department of Public Health</i>	<i>Several resources on a variety of Children's/Adolescent health issues.</i>  <a href="http://www.dph.illinois.gov">www.dph.illinois.gov</a>
<i>Chicago Department of Public Health</i>	<i>Several resources of health related topics and programs.</i>  <a href="http://www.chicago.gov">www.chicago.gov</a>

## Action Plan

### 2016 Action Plan

**PRIORITY AREA:** Early detection and treatment of scoliosis to control curve progression

**GOAL:** Continue to educate the community about early detection and treatment of scoliosis, types of state of the art treatments available.

**PERFORMANCE MEASURES:**

**Is SHC — Chicago making a difference or a significant impact in our community?**

Short Term Indicators	Source	Frequency
Provide education/ connections to clinicians on the importance of early detection and treatment of scoliosis.	Physician Liaison Printed materials Mailers Screening posters	At all visits
Educate school nurses on early scoliosis detection.	Physician Liaison Printed materials Mailers	Quarterly
Provide community outreach to families on the type of conditions treated at Shriners Hospital by participation in local community events.	Public Relations Printed Materials Social Media	Monthly
Long Term Indicators	Source	Frequency
Provide formal education on methods for scoliosis treatment to licensed independent practitioners	Medical staff of the Chicago Hospital	Annually
Continue to identify pediatric patients through early screening and provide appropriate follow-up	Physician Liaison Printed Materials Screening Posters	Ongoing

**OBJECTIVE #1: Provide education to school nurses on scoliosis detection****ACTION PLAN**

<b>Program or Activity</b>	<b>Target Date</b>	<b>Resources Required</b>	<b>Anticipated Result</b>	<b>Program or Activity Impact</b>
School Nurse Education – Provided to local schools and as part of setting up a booth at national conferences	Quarterly	Professional Liaison	School RNs would be knowledgeable about basic detection techniques.	Over 1,000 Scoliosis screening posters In English and Spanish have been distributed and posted in all public schools in Cook County and several other counties and in states in the catchment area.

**OBJECTIVE #2: Provide education to physicians, advanced practice RNs and physician's assistants on screening, diagnosis of scoliosis and conditions requiring a referral for further evaluation.****ACTION PLAN**

<b>Program or Activity</b>	<b>Target Date</b>	<b>Resources Required</b>	<b>Anticipated Result</b>	<b>Program or Activity Impact</b>
Education of Local Pediatricians, PNP's, PAs	Spring 2018	Medical staff	Improved screening and early referral	Very positive comments, requested further information and future programs.
Established partnership with facilities providing community health services (Easter Seals, County Health Departments)	Ongoing	Physician Liaison, Medical Staff	Provide assessment and care to patients in need of our services	Several patients have been referred and received care at our facility.



**OBJECTIVE #3: Provide information to the community at large and support and treatment options to patients and families on scoliosis.**

**ACTION PLAN**

Program or Activity	Target Date	Resources Required	Anticipated Result	Program or Activity Impact
Various community events, school health fairs, local business visits.	Monthly	Community Relations Coordinator Backpack safety	Increased awareness of prevention strategies and resources available	
Social Media Presence	Monthly	Social media platforms updated	Develop support networks for patients and families	Parent support networks in place through social media.

**ALIGNMENT WITH LOCAL/STATE/ NATIONAL PRIORITIES**

Objective	Local Programs	Healthy People 2020	National Prevention Strategy
School Nurse Education	Professional liaison provided education to nurses at local schools and attended conferences in the catchment area to provide information on scoliosis screening and treatment. (Details on programs conducted available on request.)	Social Determinants of Health	Position Statement endorsed by AAP, SRS and AAOS.
LIP Education	Annual Pediatric Symposium		Position Statement endorsed by AAP, SRS and AAOS.
Community Outreach	Outreach to local business, schools and community events on backpack safety and scoliosis screening.	Social Determinants of Health	Position Statement endorsed by AAP, SRS and AAOS.

## 2016 Action Plan Results

### Past Efforts

- Educational materials on scoliosis screening were developed by SHC — C and distributed to Cook County public schools and schools in Dupage, Will, and Lake counties, as well as to several pediatricians and school nurses in the area (although scoliosis screening is no longer mandatory in Illinois schools, having this information available to medical and nursing professionals who care for children will give them the tools needed to perform this very important assessment that can lead to early detection and treatment of Scoliotic curves).
- An Injury Prevention poster related to Backpack Safety was created and distributed to schools in four county areas (See Figure 1)
- Annual educational seminars for local pediatricians are hosted by Shriners Hospitals for Children — Chicago and have been well received.
- A Scoliosis Screening Poster (in English and Spanish) was created as an educational tool for potential evaluators in schools/clinics (see Figure 2)
- These posters were distributed to school nurses in four county areas and also at various conferences to pediatricians, nurse practitioners and other health care providers.
- A document was created that outlines treatment of Infantile, Juvenile, and Adolescent Scoliosis (see Figures 4&5) and was distributed to pediatricians and clinicians in the catchment area.
- SHC — C patient referral cards were created and distributed in catchment areas.
- Connected through Facebook and Twitter with local and national scoliosis family and awareness groups. Information sharing and messages of support occur.
- An App was developed by Shriners Hospitals for Children to be used by potential patients and families for screen for scoliosis and how to obtain a referral. (Fig.3)
- Sharing patient success stories of how scoliosis diagnosis and proper treatment improved their everyday lives, on our hospital blog and website.
- Website redesigned to include more resources, links and education for the community.
- Share outcomes from research on patients with scoliosis and best practices in treatment.
- Article published in Chicago Special Parent Magazine highlighting the Lucky Cast Club and scoliosis care and diagnosis at Shriners Hospital for Children — Chicago.  
Established partnerships with Easter Seals, and several other community programs to offer assessment and care to patients in need of our services.

## Ongoing and Future Efforts

- Continue to conduct screening at community events (i.e.: health fairs, expos, community outreach events, etc.)
- Orthopaedic surgeons conduct clinics at University of Illinois Health System 3 Mondays per month.
- Additional pediatric orthopedic spine surgeon hired at SHC — Chicago to help treat more children with spine deformity in the community.
- Continue to offer opportunities for pediatric spine fellowships at the Chicago Hospital.
- Continue to host annual Lucky Cast Club summer picnic for patients, families and clinicians, focusing on patients who have infantile scoliosis and are receiving Mehta Cotrell casting.
- The EOS Imaging System was installed at the Chicago Hospital in the summer of 2016. The EOS Low Dose 2D/3D Imaging System Unique is a low dose orthopedic imaging system that allows for simultaneous bilateral long length images (full body or localized) in either a standing or seated position. It provides 3D imaging of the skeleton and automatically calculates a broad range of clinical parameters essential to diagnosis and surgical planning. 84% of EOS procedures were on patients with spine issues. (see Figure 6).
- Better classification of the areas of greatest need in the community through a refined process for identifying referral demands.
- Continue to host and present educational seminars for pediatricians and family physicians to better understand how to refer, diagnose and treat patients with scoliosis.

Shriners Hospitals for Children 2016 Community Health Needs Assessment and implementation was made widely available to the public on Shriners Hospitals for Children website at <https://www.shrinershospitalsforchildren.org/shc/chna>

In addition to posting the Community Health Needs Assessment, contact information including email were listed. No comments or questions were received.

## 2019 Action Plan and Performance Measures

The Community Health Needs Assessment team met to formulate an action plan that would meet the needs of the target community being realistic and attainable with the resources available at SHC — Chicago. In the last three years many efforts were made by the professional liaison and medical staff to educate the community about early detection and treatment of scoliosis, types of state of the art treatments available and how to make a referral to Shriners Hospital.

<b>PRIORITY AREA: Early detection and treatment of scoliosis to control curve progression</b>		
<b>GOAL:</b> Continue to educate the community about early detection and treatment of scoliosis, types of state of the art treatments available.		
<b>PERFORMANCE MEASURES:</b>		
Is SHC — Chicago making a difference or a significant impact in our community?		
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## Conclusion

Based on these findings enhanced health education for early detection and treatment of scoliosis is a priority which could improve outcomes and quality of life for those who have the condition. Greater partnership and collaboration between the hospital and community schools and health care providers is a definite need to continue to educate medical and nursing professionals on the methods and value of scoliosis screening.

*2019 Community Health Needs Assessment Report is Available Online or in Print*

The 2019 Community Health Needs Assessment is available at:

<https://www.shrinershospitalsforchildren.org/shc/chna>

Adopted by the Quality and Safety Council of Shriners Hospitals for Children – Chicago on 5/10/2019.


Special acknowledgements to the Shriners Hospitals for Children – Chicago Community Health Needs Assessment Advisory Team: Terri Aiello, Todd Medland, Annie Mislovic, Mark Niederpruem and Isabella Affrunti.

## Acknowledgements & References

- Illinois Department of Public Health (IDPH) <http://www.dph.illinois.gov/>
- The Scoliosis Research Society
- U.S. Preventive Services Task Force
- Healthy People 2020
- County Health Rankings and Roadmaps  
<http://www.countyhealthrankings.org/app/#!/illinois/2015/rankings>
- Centers for Disease Control and Prevention
- United States Census Bureau <http://www.census.gov/data/data-tools.html>
- IBM Market Expert
- American Academy of Orthopaedic Surgeons
- American Academy of Pediatrics
- Research reinforces call for early scoliosis detection, appropriate treatment.
- AAOS, AAP, POSNA and SRS revise scoliosis position statement  
[http://www.eurekalert.org/pub\\_releases/2016-01/aaoo-rrc011316.php](http://www.eurekalert.org/pub_releases/2016-01/aaoo-rrc011316.php)

# Exhibits

Exhibits Figure 1



## Facts About Backpacks

Used correctly, backpacks can be a good way to carry all the books, supplies and personal items needed for a typical school day. Backpacks are designed to distribute the weight of the load among some of the body's strongest muscles. However, backpacks that are too heavy or carried incorrectly can injure muscles or joints and contribute to back pain and other problems.

### The Proper Backpack is:

- No wider than the user's chest
- Worn no higher than the base of the neck
- Worn no lower than 2 to 4 inches below the waist
- Supported by a waist or a chest strap
- Made of lightweight material

### A Good Backpack has:

- A padded back
- Several compartments
- Side compression straps
- A waist or chest strap
- Reflectors
- Two wide, padded shoulder straps

## How to Use a Backpack

### To Wear it

- Facing the backpack, bend your knees, hold the backpack with both hands, and straighten your knees to lift it to waist height.
- Apply one shoulder strap at a time.
- Be sure to always use both shoulder straps.
- Snugly adjust it between your neck and the curve of your lower back using the shoulder straps (the closer the backpack is to your body, the less strain it will cause).

### To Load it

- Keep it light – pack only what is needed for the day.
- Place the heaviest objects so they will be closest to your back.
- Use compartments to distribute the weight and keep things from sliding.
- Hand-carry heavy books to avoid excessive weight in the backpack.
- Clean it out daily.

### Backpack Weight

If a backpack forces the wearer to lean forward, it's overloaded and some items should be removed. Carrying an overloaded backpack can cause discomfort and, over time, lead to back injuries and other problems.

If the backpack weighs more than 15 percent of the carrier's weight, it's too heavy. To determine the proper maximum weight for a backpack, multiply the user's body weight by 0.15. If a heavier load is unavoidable, consider using a backpack with wheels.

Carrying too much weight or wearing a backpack the wrong way can lead to:

- Muscle fatigue
- Poor posture
- Painful shoulders
- Back and neck pain
- Injuries from tripping and falling



Exhibits Figure 2

# Screening For Scoliosis

### What Is Scoliosis?

- Scoliosis is a complex curving of the spine that affects the alignment of the bones.
- It occurs most frequently from age ten through the early teen years.
- Three out of a thousand children need treatment for scoliosis.

### What Causes Scoliosis?

- Some cases of scoliosis are due to an underlying bone, muscle or nerve problem, but most are called "idiopathic," meaning that the cause is unknown.
- Scoliosis is not the result of carrying a backpack, poor posture, or a small difference in leg lengths.
- Scoliosis may be hereditary in some families.

### How Is Scoliosis Treated?

- Small curves in the growing child are treated with observation.
- Moderate curves in the growing child are usually treated with a brace. The brace is intended to prevent the curve from worsening during the growth years.
- Large or rapidly progressing curves, greater than 50 degrees, may be treated surgically.

### How To Do A Postural Screening

The child should be screened privately with the examiner standing several feet behind the child to obtain the best possible view of the back. The child should stand with feet together, knees straight and arms hanging loosely at the side with back toward the examiner.

- 1 Observe the standing child giving careful attention to any differences in:


  - Shoulder heights
  - Shoulder blade protrusion
  - The space between each arm and the body
  - Hip heights.
- 2 Observe the child bending forward so that the back is parallel to the floor and look for:


  - Asymmetry of the rib cage
  - Asymmetry of the muscles on either side of the lumbar spine
- 3 Observe the child from the side and look for:


  - Excessive roundness
  - Lordosis or sway back

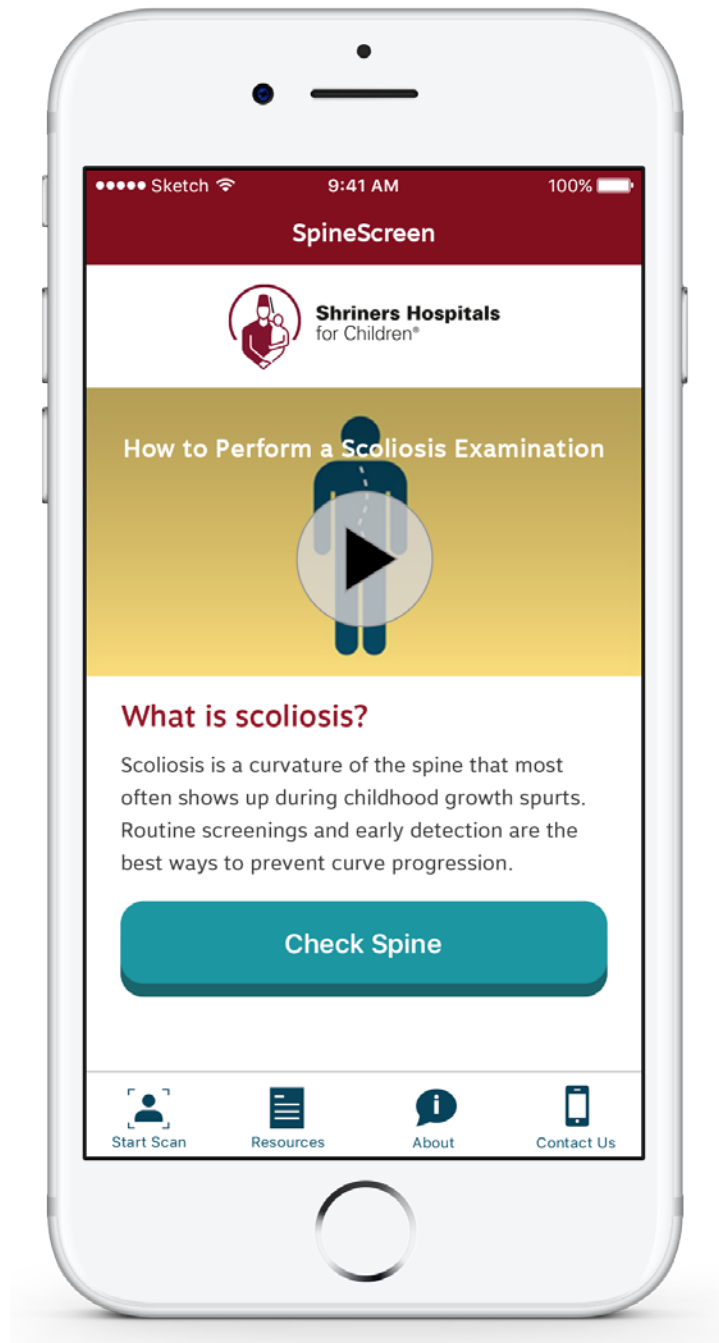
**Remember early diagnosis and a professional referral are key elements to a successful medical outcome.**

**Call 773.385-KIDS (5437) for a screening.**



**Shriners Hospitals for Children® Chicago**

Exhibits Figure 3



Exhibits Figure 4

**Spinal Deformity Treatments**

**Serial or Mehta-Cotrel Casting**

Doctors mold the infant or child with a corrective cast. In select patients, it is possible to obtain a significant spinal correction.




Infantile scoliosis
After treatment

**Growing Rods**

Scaled down versions of conventional spinal instrumentation used to control curvatures in growing children too young to undergo spinal fusion surgery.




Adolescent scoliosis
After treatment

**The MAGEC System**

A surgically implanted magnetic rod braces the spine through growth to minimize curve progression. The rod can be non-invasively distracted with a remote post surgery.




**The VEPTR System**

The Vertical Expandable Prosthetic Titanium Rib system uses titanium rods and expandable sleeves attached to the ribs, spine or pelvis to help treat congenital scoliosis.




VEPTR hardware is attached to ribs, spine or pelvis, depending on the patient's condition.

**Spinal Fusion**

A surgical procedure that involves fusing the vertebrae to straighten the spine, and the implantation of corrective rods which help align the shoulders and hips.




Posterior Spinal Fusion with instrumentation for definitive treatment of severe scoliosis.

**Schroth-Based BSPTS Method**

The non-surgical Barcelona Scoliosis Physical Therapy School method consists of exercises, stretching, and breathing and may be beneficial for select patients.




Done correctly, BSPTS exercises are painless and increase mobility and balance.

Exhibits Figure 5

**Scoliosis and Spinal Deformity**

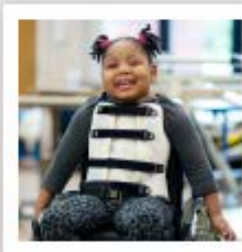
**Shriners Hospitals for Children — Chicago specializes in the treatment of infantile, juvenile and adolescent scoliosis.**

Defined as an abnormal lateral curvature of the spine, scoliosis is diagnosed when a curve exceeds 10 degrees, and is confirmed with X-rays taken from back to front.

When scoliosis is confirmed, a course of treatment is determined and discussed with the patient and family. While each case is unique, the objective remains the same: stop the progression of the curve, and attempt to correct it through non-surgical or surgical intervention.



Right: **Dr. Kim Hammerberg**, Chief of Spine Surgery; Assistant Professor, Department of Orthopaedic Surgery, Rush Medical College  
Center: **Dr. Purnendu Gupta**, Chief of Staff; Spine Surgeon; Clinical Professor, Orthopaedic Surgery, University of Illinois  
Left: **Dr. Michal Szczodry**, Spine Surgeon



**Clinical Indicators of Scoliosis**

- Shoulders are at different heights
- Head is not centered over pelvis
- One hip appears higher, or is more prominent
- Rib cage is uneven
- Entire body leans to one side

**Stages of treatment may include:**

1. Observation
2. Physical Therapy
3. Bracing
4. Casting
5. Traction
6. Surgery

**Treatment of Skeletally-Immature Adolescents**

Degree of Curve	Course of Action
< 10°	Observe patient over time
10 - 25°	Periodic X-rays
25 - 45°	Begin bracing of back
> 45°	Possible surgical intervention

Every year, the spine specialists at Shriners Hospital in Chicago perform over 120 spine surgeries and about 171 Mehta-Cotrel cast applications to improve the quality of life for children and adolescents with scoliosis. After treatment most patients resume participation in school, extracurricular, and community activities.

continued on back »

**Do You Know a Child We May Be Able to Help?** For a consultation, or to refer a patient, call: **773-385-KIDS (5437)**



[www.shrinerschicago.org](http://www.shrinerschicago.org)



**Shriners Hospitals for Children\***  
Chicago

Exhibits Figure 6

**EOS Imaging System**

**Ahead of the Curve:** *Advanced 3D Imaging of Bone Structures with Significantly Reduced Radiation Exposure*

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*Shriners Hospitals for Children — Chicago is proud to be the only pediatric hospital in Illinois to bring patients the new EOS® imaging technology.*

- **Radiation is reduced nine times compared to conventional radiography X-ray**, and up to 20 times less than a computed tomography (CT) scan.
- **Provides full scale imaging** of a patient's entire skeleton.
- The only **3D system capable of scanning patients in a weight-bearing standing or sitting position**, revealing natural posture and joint orientation.
- **Provides 100 clinical parameters** for pre-op and post-op surgical planning.
- **Critically important for patients with scoliosis** or long-bone deformities who can require more than 20 total imaging studies over the course of treatment.



EOS made possible by the generosity of our donors.



**Kim Hammerberg, M.D.**  
Chief of Spine Surgery

*"EOS provides more information, including 3-D reconstructions, in a safer format than conventional X-rays. The reduced radiation exposure is especially important for young children with scoliosis or our operative patients."*



*Shriners Hospitals for Children — Chicago provides specialized care to children with orthopaedic conditions, spinal cord injuries, and cleft lip and palate, regardless of the families' ability to pay. Generally, care is provided until age 18, although, in some cases, it may be extended to age 21. All care and services are provided in a family-centered environment.*

**Do You Know a Child That We Can Help?** For a consultation, or to refer a patient, call: **773-385-KIDS (5437)**





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