EMERGENCY DEPARTMENT VISITS TO A SOUTHWESTERN CHILDREN'S
HOSPITAL, 2011-2014

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A dissertation submitted to the

Graduate School-Newark

Rutgers, The State University of New Jersey

In partial fulfillment of the requirements

For the degree of

Doctor of Philosophy

Graduate Program in Urban Systems

Written under the direction of

Jeffrey R Backstrand

And approved by

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Newark, New Jersey

May, 2017

ABSTRACT

EMERGENCY DEPARTMENT VISITS TO A SOUTHWESTERN CHILDREN'S
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Despite a nationwide increase in the number of pediatric patients visiting the

emergency department (ED) for nonurgent and mental health issues, there is a lack of

nationally comprehensive studies that examine the epidemiology of routine and mental

health related visits to the ED, and even less attention has been spent on specialty

populations such as pediatric patients. This study examined both the most common ED

presentations and the mental health visits to a particular children's hospital in the

Southwest. Descriptive epidemiology was used to describe ED use in terms of *person*,

specifically looking at age, gender, race/ethnicity and insurance status; *place,* by

geocoding the physical addresses of all visitors and *time,* by looking at visit history by

month and year. The study design was a retrospective chart review of all visits to the ED

between January 1, 2011 and December 31, 2014.

Overall, there were similarities in patterns of both nonurgent visits and mental health

visits. Visits for both increased steadily over the four-year study period and the increase

was the result of individuals making multiple visits in one year. Boys were more likely to

visit the ED than girls except during adolescence when more visits were made by girls. Twice as many patients visited the ED for these complaints in the winter months as compared to the summer months and both groups of patients lived within 20 miles of the hospital.

This research underscores the complexity of ED use for both nonurgent and mental health complaints. There is no single determining factor that drives use. However, constructing a demographic profile of who is most likely to visit the ED by age, gender, race/ethnicity and insurance status is a necessary first step. Educational tools and strategies to minimize overreliance on the ED will not be effective if we do not know or understand the target audience.

Acknowledgement

I'd like to sincerely thank my chair, Jeffrey Backstrand, for his countless hours of help

and support. A special thank you to Dr. Thomas for reading my dissertation so quickly

and providing constructive feedback. Thank you to Dr. Chase for all the additional work

you did to help me get to this point and thank you to Dr. Caldwell for sticking with me all

these years.

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Chapter 1

Introduction

Overview

Hospital emergency departments (EDs) around the country are facing a crisis. A growing number of patients who visit the ED do not require the specialized level of care provided by an ED. This overutilization leads to overcrowding, which in turn triggers a cascade of more serious consequences including impaired access to care due to ambulance diversion, reduced quality of care due to treatment delays and adverse patient outcomes such as morbidity/mortality.[1] Caught in the crosshairs of this crisis are disenfranchised children. Arizona is the only state in the country without a children's health insurance program (CHIP). Underinsured and uninsured children, left with no alternative, turn to the ED for care. Or, do they? Is a lack of insurance a prohibitive factor for patients to seek care for certain conditions? The purpose of this study was to identify ED use for both the most common ED presentations, termed "nonurgent," and for the mental health presentations to a particular children's hospital in the Southwest. Descriptive epidemiology was used to describe ED use in terms of *person,* specifically looking at age, gender, race/ethnicity and insurance status; *place,* by geocoding physical addresses of all visitors and plotting them on a map and, *time,* by looking at visit history by month and year. While a descriptive study does not determine cause and effect, it is helpful in revealing patterns and connections. Patterns that otherwise may go unnoticed.

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Background and Significance

Nonurgent Use

Scientific, technological, economic and societal changes have all served to transform the hospital emergency department (ED) from an inconsequential room at the back of the hospital to its current standing as the crux of the U.S. healthcare system. The ED provides a full range of medical services to ill and injured patients irrespective of the presenting complaint or ability to pay. In so doing, EDs have become the safety net for the most complicated public health problems. Despite hospital closings and reductions in services, visits to the ED have increased, continuing to grow at a rate of about 3.2 percent per year[2] to a total of 136.1 million visits in 2009.[3] With this increase in use came an increase in public expectations that convenient, effective medical care be rendered in a timely

manner. But, EDs instead became overcrowded, leading to concerns over compromised healthcare quality and patient safety. Much of the volume increase has been attributed to those patients presenting with nonurgent complaints.[4, 5] The National Hospital Ambulatory Medical Care Survey found that total ED visits classified as nonurgent increased from 10 percent in 1997 to 14 percent of visits in 2005.[5] Using the ED for a nonurgent condition as opposed to a physician's office or urgent care center, leads to excessive healthcare spending and unnecessary testing and treatment.[6] A 2010 study projected $4.4 billion in annual savings if nonurgent ED visits were cared for in clinics and urgent care centers during the hours these facilities are open.[6]

However, over the years, there have been dramatic changes in practice, both within and outside the hospital. ED providers who once admitted patients with concerning symptoms to the hospital for diagnostic workups, now complete these workups in the ED to justify the need for hospital admission.[7] This significantly adds to the complexity and cost of ED evaluations. Primary care physicians, once the "gatekeepers" of the hospital system, today deliver more preventive and chronic disease care and less acute care. With tight schedules, it is much safer and expedient for a private practice to direct an unscheduled patient with an urgent condition to the ED.[7] As a result, less than half of Americans see their primary care doctor for an acute health problem.[7] That leaves ED physicians, who represent four percent of U.S. physicians, to provide 28 percent of all acute care treatment and 11 percent of all the outpatient treatment, as well as, 50 percent of acute care management to Medicaid and Children's Health Insurance Program (CHIP) beneficiaries and over 66 percent of all acute care treatment to the uninsured.[2, 7] And, despite many studies demonstrating that providing high-quality primary care reduces ED

visits, the most common diagnoses for pediatric visits to the ED include fever, ear infections and viral infections, conditions that can all be easily managed by primary care providers.[8]

In fact, 25 percent of all ED visits are for children.[8] Several studies have detailed the inverse relationship between positive customer satisfaction reviews and clinical outcomes.[8] White patients tend to rate their ED experience as favorable, but receive decidedly worse care. In one study, White children, in comparison to Black and Hispanic children were over-admitted when not severely ill. This practice not only increases health care costs and creates iatrogenic risk for the admitted children but also for the unadmitted child because delay in hospitalization can result in inadequate treatment and greater demand for more intensive services at higher costs in the future.[9] Other studies found that White children, compared to Hispanic and Black children, received unnecessary computerized tomography (CT) scans of the head following a head injury[10] and found that White patients were more likely to receive unneeded antibiotics for asthma exacerbations when treated in the ED.[11] Additionally, treatment in the primary care setting as opposed to the ED has been shown to eliminate redundancy of testing, reduce medical errors and minimize fragmentation of services.[9]

Of course, EDs serve a crucial function for those seeking medical attention after regular business hours, weekends and holidays and for the underinsured. Children covered by public insurance such as Medicaid and CHIP are six times more likely than those with private insurance to be denied an appointment for specialty care and if they are lucky enough to find a provider, can wait up to three weeks longer for an appointment.[8] In order to circumvent this obstacle, providers admit to referring these children to the ED

in an effort to expedite receipt of specialty care.[8] Yet, while the uninsured and underinsured may be dependent on the ED for care, statistics show that between 1995 and 2008, privately insured people accounted for around 60 percent of the overall increase in ED use compared to nine percent of the increase attributed to the uninsured.[4]

The Association of American Medical Colleges estimates that the U.S. faces a shortage of more than 91,500 physicians by 2020- a number expected to exceed 130,600 by 2025.[12] Although America's medical schools are increasing their enrollment to meet this shortage, residency training programs are in shorter supply due largely to a Congressional cap on federally funded residency training programs imposed in 1997 as part of the Balanced Budget Act.[12] There are two main reasons access to primary care physicians is expected to worsen. First, the over-65 population will grow to 80 million by 2025.[12] The longevity of elders with complex health and social conditions is expected to further strain primary care resources. Second, the Patient Protection and Affordable Care Act (PPACA) is projected to provide 32 million more Americans with health insurance, increasing the demand for doctors, exacerbating the physician shortage which in turn will drive ever more people to use the ED for primary care services.[12] However, researchers argue that with the right team and right processes in place, healthcare organizations can serve more patients better with fewer physicians. A shift toward patient-centered medical homes and nurse-centered health centers requires major reallocation of staff duties and cultural changes among physicians and other clinicians but, properly implemented, these structural changes could cut the physician shortage in half by 2025.[13]

Mental Health

Mental illness is not only one of the five most common causes of morbidity, mortality and disability in childhood,[14] but the World Health Organization claims that four of the 10 most disabling diseases in the developed world are mental illnesses, with their initial onset commonly occurring in childhood.[15] In fact, mental health issues in children and adolescents now account for more morbidity and mortality than do physical diseases and disorders.[16] To put this in numeric terms, the Surgeon General's 1999 report claimed that mental illness afflicts one in four children.[17] That translates to 15 million children and adolescents in the United States living with a behavioral, psychological and/or emotional problem severe enough to cause some degree of functional impairment.[17] While this statistic may seem high, there is speculation that the true magnitude of the problem may be underestimated[18] and it has been projected that the prevalence will increase from the current rate of 10 to 25 percent of children and adolescents living with significant emotional and behavioral issues to 50 percent by 2020.[19] If those statistics aren't staggering enough, it has been estimated that 70-80 percent of children and adolescents with mental health issues do not receive any kind of treatment.[18, 20] This is not only damaging to the child's emotional and cognitive development: there is a societal cost. While the cost of treating those who do seek treatment is estimated at nearly $12 billion,[21] the cost of untreated mental health issues has been estimated to be as high as $150 billion annually.[22]

The main reason there are so many unidentified and untreated children and adolescents is that the United States is facing a shortage of child psychiatric specialists and inpatient and outpatient resources so severe the Surgeon General's report called it a "health crisis."[19] With few alternatives, families are forced to turn to the emergency

department (ED) for their child's mental health needs. Hospital EDs, however, are ill-equipped to effectively care for these patients.[23-25] A shortage of pediatric-trained mental health specialists, extended length of stays,[25] high recidivism patterns among mental health patients[26] and ED overcrowding[27] are just some of the contributing problems. Yet, rates for pediatric mental health concerns handled in an ED setting range from 3-5 percent [28, 29] up to 25 percent[30] of total pediatric visits. Despite the increasing number of children and adolescents accessing the ED, hospital admission rates remain stable.[31] This finding correlates with a previous six-year study that also analyzed rates of pediatric mental health visits to the ED and found an overall increase in visits but saw no change in the number of "emergent" -suicide attempts, self-injury or psychosis- cases.[32] ED visits for non-urgent mental health issues have not only become the largest contributors to the increase in pediatric emergency visits[32-35] but, as Sills and Bland (2002) discovered, increases in these visits are considered disproportionate to increases for other chronic diseases.[32] Those children who do require hospitalization often become "boarders" in the ED, waiting hours, and in extreme cases, days, for a bed on a psychiatric unit to become available.[25]

Researchers analyzing data from 279 million pediatric visits to EDs around the country found that mental health complaints rose a modest six-tenths of a percent from 1997-2007.[31] This small fraction, however, has big consequences as it represents hundreds of thousands of additional psychiatry-related ED visits every year.[31] Children and adolescents without health insurance or with public health insurance were the ones most likely to seek care in an emergency setting,[31] and as EDs are required by law to provide a medical screening examination to all patients presenting themselves for care,

they are faced with an unfunded mandate to safeguard this vulnerable population.[15, 24] This added cost puts an additional strain on the ED's already constrained resources. According to the national average, 74 percent of ED visits are compensated and 26 percent are uncompensated. Rotarius and colleagues (2002) found that this resulted in Boston hospitals providing $400 million in uncompensated care.[36]

Underinsured children accounted for as many as 54 percent of the psychiatric emergencies in 2007, up from 46 percent in 1999.[31] The uninsured are turning to the ED because they have no other place to go. No study illustrates this better than the 2011 audit study by Bisgaier & Rhodes.[37] This study investigated whether it was more difficult for children with private or public (Medicaid-CHIP) insurance to obtain medical specialty appointments and found that psychiatry offices in the study scheduled appointments for 51 percent of those callers posing with private insurance and 17 percent of callers posing with public insurance. Among the seven medical specialties surveyed, psychiatry had the worst access to care; not just for the publicly insured child but for all children.[37]

The uninsured, sadly, are not the only group with limited access to mental health care. Studies show that race matters. A child's race affects not only his/her access to care but the quality of care he/she receives.[20, 38] Minority children are one-third to one-half as likely to receive mental health care as White children and adolescents[20, 38] and when they do seek treatment, studies show that providers spend less time with them, are quicker to make a diagnosis and are less likely to discuss treatment options with them.[39]

Statement of the Problem

With the pediatric population accounting for more than 20 percent of total ED visits and over half of those visits being for nonurgent reasons,[40] policymakers have become concerned that this high use is contributing to soaring Medicaid costs,[41] resulting in overcrowding[42] and leading to a decrease in quality of care due to a lack of continuity with a single provider or group practice.

Additionally, it is estimated that between two and five percent of all pediatric ED visits are for psychiatric symptoms.[43] ED visits for mental health issues are increasing because of presentation of nonurgent diagnoses (patients presenting with anxiety, somatic and "other" complaints),[32] often secondary to referrals by school or mental health providers or due to a lack of available outpatient services.

Importance of the Study

This study was a retrospective chart review of pediatric patients visiting one tertiary pediatric ED between January 1, 2011 and December 31, 2014. Of specific interest is the frequency by which children and adolescents use the ED for medical and mental health complaints. Examining these patients contributed to a better understanding of why this particular ED is used for medical and mental health issues. The study had two foci:

1. The study examined the frequency by which patients use the ED for medical and mental health issues specifically in the context of *PERSON* (age, gender, race/ethnicity and insurance status of those using the ED), *PLACE* (neighborhood) and *TIME* (variation of ED use rates), and painted a comprehensive picture of the trends and

characteristics of the population using this particular pediatric ED. This information is crucial for the future development of predictive models of ED use and in planning optimal locations for outpatient services.

2. The study mapped the geographic pattern of use of the ED. All Arizona addresses were cleaned and entered in MapWindow GIS in order to help visualize patterns, trends and relationships of ED use for medical and mental health issues. The ability to map health data, identify and formulate hypotheses about spatial patterns and build models makes GIS a powerful tool.

General Areas of Inquiry

The general domains of inquiry for this study included frequency of visits, diagnoses, insurance status, admission rates and distance traveled. The analysis provided:

1. A general description of the 10 most frequent presentations to this particular pediatric ED

2. A demographic description of who visited the ED for these top 10 visit reasons and how often they came in a year

3. A look at how often patients were admitted for these top 10 visit reasons

4. A general description of mental health visits to this particular pediatric ED

5. A demographic description of who visited the ED for mental health reasons and how often they came in a year

6. A look at how often patients were admitted for mental health reasons

7. A visual description of distance traveled to this particular pediatric ED

   (a) By children and adolescents who presented with the most common presentations

   (b) By children and adolescents who presented with mental health issues

Chapter 2

Literature Review

"The immediate goal is to make sure there are more people on private insurance plans. I mean, people have access to health care in America. After all, you just go to an emergency room." (President George W. Bush, July 7, 2007)

Transformation of Medicine

Eighteenth and 19th century medicine drew from ancient philosophy, Christian theology, Enlightenment rationalism, and long-established folk practices.[44] In 1800, for physicians and the public alike, a healthy body was one with all of its elements "in balance." The humors or solids of the body could be thrown out of balance by the environment and an individual's moral environment could have as big an effect on health as could the physical environment. Americans in the 19th century did not understand diseases to be discreet biological entities, believing instead that they were spread by "miasma"- bad smells in the air. Disease was seen as a condition- the exact opposite of health- and like poverty, it was a moral problem. The cholera epidemic that struck New York in 1832 reinforced this belief. Many people saw the suffering as a divinely mandated punishment for sin since cholera struck those areas with the dirtiest and most immoral populations- the African American and Irish districts of the city.[45] Lack of medical knowledge made it difficult to combat disease and apathy toward the welfare of the poor retarded any political interest in sanitation reform.

During the 19th century, towns grew at a phenomenal rate. The Industrial Revolution lured people away from the countryside, concentrating them in large urban settlements. These industrial towns grew rapidly and haphazardly with almost no planning and as a

result they were overcrowded, dirty and a breeding ground for disease. As diseases began to attack rich and poor with equal ferocity, peoples' attitudes began to change. Disease came to be seen as a societal problem and hence, control and prevention were now seen as society's responsibility. Public health workers were among the first to address the negative consequences of urbanization and industrialization. The federal government played a very limited role in healthcare at this time, largely due to the very limited benefits that organized medicine could afford. Even well trained physicians had little to offer as diagnostic capabilities were primitive and treatments typically involved bleeding and drugs that induced vomiting and diarrhea, techniques which caused more harm than good. The onus, therefore, fell on local and state governments who began to take part in public health services by creating health boards and health departments. These health departments began to clean up cities with projects such as sewer construction, water purification and garbage collection. Cleaner cities produced healthier people and, although their understanding of disease was incomplete, their accomplishments were significant.

While the breadth of medical knowledge changed little prior to 1850, the economic interests of physicians was changing considerably. No longer was the medical profession to be composed of practitioners with varying levels of education, expertise and credibility. The American Medical Association (AMA), established in 1847, led the cry for strict medical educational requirements and licensure.[46] The AMA, which initially supported an expanded federal role in healthcare, came to view increased public health activities as a threat to the economic interests of physicians. Further, allopathic medicine was facing vigorous competition from eclectics, osteopaths, chiropractors, homeopaths,

naturopaths and Thompsonians who drove down the cost of medical care and drew away patients.[44] The AMA's Council on Medical Education (CME) was developed to restructure American medical education by standardizing medical school entrance requirements and by establishing an "ideal" nationally recognized medical curriculum that embraced "scientific medicine."[46] But, unable to affect change from within, the AMA's CME proposed to the Carnegie Foundation a study on medical education with the hope "to hasten the elimination of medical schools that failed to adopt the CME standards."[46]

That study became the Flexner Report that was published in 1910. The Report recommended adoption of the German model of medicine with scientifically based training, the strengthening of first-class medical schools and the elimination of a great majority of inferior schools. As Abraham Flexner put it, "if the sick are to reap the full benefit of recent progress in medicine, a more uniformly arduous and expensive medical education is demanded."[47] Recent advances in medicine included the introduction of antiseptic surgery, radiology, the discovery of microorganisms responsible for several major diseases and vaccinations to combat a few of those diseases. These scientific breakthroughs altered societal values placing a new reverence on the power of science and technology to cure all societal ills.[46]

Following the Flexner Report, the process of consolidation of medical education proceeded at a rapid pace as did mergers between schools. By 1915, the number of medical schools had decreased from 131 to 95 and by 1930 that number had dwindled to 31.[46] These reforms limited not only the number of medical school graduates leaving a disproportionate deficit in disadvantaged communities but the type of medical school

graduate as they kept disenfranchised groups (women, minorities, poor) from pursuing

careers in medicine. Most rural schools and all but two Black colleges were forced to

close, leaving the door for prospective doctors open mainly to wealthy White males, the

only sector able to afford the tuition for the six years of medical school now mandated

and regulated by the AMA and state governments.[44] This new system increased the

homogeneity of the medical profession as it transformed itself into a cohesive fraternity,

enjoying ever-increasing prestige and income.[44] By the 1940s the AMA had become a

powerful political force and a major player in shaping U.S. healthcare policy. The AMA

was particularly outspoken toward any proposal designed to extend the role of

government in healthcare, and, until recently, they have been extremely successful at

blocking any major reform efforts. The AMA wields influence, both financial and

political, that few other professional associations enjoy.[44]

History of the Emergency Department

   Hospitals began as charity-oriented organizations and at best, offered minimal care to

those unable to afford medical treatment at home or for those with no family support.

Many who checked in to those early community hospitals never checked out. Hospitals

today are a complex network of highly trained professionals and highly specialized

equipment. The nerve center of the healthcare system is the emergency room (ER).

Originally, the ER was just what its name implies: a room where those with life-

threatening maladies or injuries would go. ERs were typically located in a remote area of

the hospital and staffed by young, inexperienced general practitioners. Since its start in

the 1950s, the "ER" has matured into the "ED" (emergency department) and is now

staffed by specially trained emergency medicine specialists. The public too has changed

its perception of the ER. No longer is it only for the indigent and the gravely ill and injured, but it has become a place used by all, regardless of social class or severity of problem. And, everyone who walks through its doors expects the very best in medical technology and skill be made available to them.

As the ER began to change so too did discussions about who should be treated in it. There were those who felt no one should be turned away regardless of problem or condition and those who argued that opening the door to non-emergencies would divert from the original intent of the ER. Literature centered on "inappropriate" ER utilization dates back to a 1958 article.[27, 48] Although this prescient article saw the growing reliance by the public on the ER and accurately predicted that more ERs needed to be constructed, it never could have envisaged the 600 percent[6] increase that has since occurred.

It is apparent, then, that to the public, the ED is seen as a community medical center. After all it provides sophisticated diagnostics to anyone in need, any time of day and every day of the week with no appointment necessary. But, this was not always the case.

Prior to the 1950s, ERs, like all other private healthcare providers, had no legal obligation to render care and some denied care to the poor altogether. Arizona was in the vanguard of changing this discriminatory practice. In 1974, the Arizona Supreme Court, in *Guerrero v. Copper Queen Hospital*, ruled that all public and private hospitals were obligated to provide emergency care to everyone including "nonresident aliens."[49] The justices based their decision on the Hill-Burton Hospital Survey and Construction Act of 1946, a largely ineffective law which required hospitals, as a condition of receiving government funds for construction and modernization, to provide emergency services. Ten years later, *Thompson v. Sun City Community Hospital, Inc.* expanded on *Guerrero*.

Arizona hospitals must, it mandated, provide all "medically indicated" emergency care, but "financially ineligible patients" may be transferred "to another appropriate hospital when, in the judgment of the medical staff or the emergency physician, such transfer can be effected without subjecting the patient to an unreasonable risk of harm to his life or health."[49] By the mid-1980s studies began to expose the disturbing nation-wide problem of people, mainly the poor and uninsured, being transferred from private emergency rooms to public hospitals at alarming rates.[50, 51] Collectively, three studies conducted in major metropolitan areas, provided the lightening rod to substantiate patient dumping as a policy issue.

EMTALA

One of the earliest studies, conducted by Himmelstein, et al, in 1984, likened the practice of patient dumping to performing "social triage."[51] Not only did the authors find that 97percent of the patients in the six-month study period, were uninsured or were government-insured through Medicare or Medicaid[52] but they also revealed that race mattered. In Alameda County, CA, where 33percent of the population identified as "non-White," 45percent of all transfers were of minorities. Worse yet, 58percent of the high risk transfers were of minorities.[51] The next major study came out of Parkland Memorial Hospital, a public teaching hospital in Dallas, TX. Seventy-five percent of patients transferred to their ED had no health insurance[53] and when only patients transferred because of trauma were considered, a staggering 95percent were uninsured.[53] Cook County Hospital in Chicago was the site of the last influential study. After the number of transfers to that hospital increased sharply between 1980 and 1983, Schiff, et al, examined transfers over a six-week period. Ninety-five percent of the patients transferred

from private hospitals were either uninsured or government insured and 89 percent were either African American or Hispanic.[50]

The media quickly put faces to these statistics and as the public became more aware and more outraged by these healthcare inequities, politicians like Representative Fortney "Pete" Stark and Senator David Durenberger gave voice to the growing problem of patient dumping. In response, Congress passed the Emergency Medical Treatment and Active Labor Act (EMTALA) as a part of the Consolidated Omnibus Budget Reconciliation Act of 1986 (COBRA).[54] The Act obligates EDs to provide a medical screening to anyone who walks through its doors and imposes strict penalties for inappropriate patient transfers or denial of care. Penalties include fines up to $50,000 for doctor and hospital and the potential loss of the hospital's Medicare contract.[54]

EMTALA was enacted to ensure public access to emergency care but as a result, it placed considerable financial demands on hospitals. Vague by design and absent specific funding, EMTALA obligates hospital EDs to provide universal access to emergency care and firmly anchors the ED as the nation's safety net. As a result, the uninsured, faced with no alternative, turn to the ED not only for true emergencies, but also for routine medical care. This presented hospitals with the impractical challenge of accommodating an increase in uninsured patients seeking routine care at a time when healthcare costs were spiraling out of control. As a reaction to this unattainable task, hospitals began to either pass on that increased cost to insured patients[44] or opted for the permanent solution of closing their ED doors. Seven hundred hospitals closed their doors in the 1980s.[55]

Spiraling Health Care Costs

The United States government finances health benefits for certain special populations, including government employees, the elderly (age 65 or over), the disabled (read: "the worthy poor")[56] and the very poor. Medicare is a federally administered entitlement program providing health benefits to the elderly and disabled regardless of income. Funding comes primarily from the federal government and beneficiary co-payments and deductibles. Medicaid is a collection of state-administered programs providing health benefits to low-income residents, 70 percent of whom are women and children. Funding is by the federal government and the states.[57] The principal distinction between the two programs, Medicare is an entitlement program whereas Medicaid is a federal assistance program, is the mainspring of moral and political debate. Seniors are, generally speaking, a well-connected, vocal constituency who feel an "earned right" to Medicare, although they "have never paid enough in payroll taxes to earn their insurance coverage."[58] Conversely, Medicaid recipients lack a vocal advocacy group and, like welfare recipients, are often stigmatized and perceived as undeserving of the benefits afforded them.

The introduction of these two programs in 1965, decried by the AMA as socialized medicine,[59] has appreciably impacted the health care industry. Medicare and Medicaid accounted for slightly more than 6 million patient admissions to general medical and surgical hospitals and paid for $5 billion of their hospital charges in 1970.[60] By 1993 Medicare alone paid $76.3 billion in inpatient hospital charges making it, only two years later, the largest single insurer in the United States, covering 14 percent of the entire population.[52] Total Medicaid program costs had reached $117.9 billion by 1993.[53] Although the institutionalized and people with chronic illness and disability represent

only 30 percent of Medicaid recipients, they account for 70 percent of the expenditures making Medicaid the principal financier of nursing homes.[61]

Hospital costs increased more than 50 percent between 1980 and 1991.[55] "Health costs grew so much faster than the economy as a whole that the healthcare sector jumped from 9.3 percent to 13.6 percent of GDP."[58] The reason for this increase was multifaceted. By 1980, most full-time employees at large companies enjoyed generous health insurance through their employers and fee-for-service by physicians and third-party payment insurance plans was the norm. This encouraged people to seek more medical attention without significant out of pocket cost. Healthcare was virtually free at the point of access, setting off an explosion in healthcare costs. People began to demand not just an overabundance of services but also the highest quality and most technologically advanced medical care available.

Congress, recognizing that the current retrospective system of actual fee-for-service lacked incentives for hospitals and patients to control costs, instituted the Prospective Payment System (PPS) for Medicare recipients.[55] Under the PPS system, payment is based on the DRG (diagnostic-related groups) system developed by Yale researchers in the 1970s. Essentially, DRGs are a derivation of classifying the ICD-9-CM system into 23 major diagnostic categories and then further breaking those categories into 467 distinct groupings. All patients in the same DRG are expected to present with clinical responses which, on average, will result in approximately equal use of hospital resources. Because prices will be fixed at the beginning of the year, costs must be managed within the limits of available revenues.[62]

Hospitals now began to find themselves under intense pressure to lower costs. Fixing payments created an incentive for hospitals to shorten the patient's length of stay (LOS) in hospital. This not only meant that patients were discharged before making a full recovery but also that the bar was raised for what conditions required hospitalization. As a result, many patients who would have been hospitalized were now being seen on an outpatient basis. Between 1983 and 1991, hospital admissions declined by 13.3 percent while average hospital occupancy rates declined by 63.5 percent.[63] This change in reimbursement practice was in direct conflict with doctors who, until this point, had been paid for each day of service. Making rounds in hospital was no longer lucrative for the family doctor. Instead, the family doctor now found it necessary to see more patients in office to turn a profit, forcing the relinquishment of the decades old role of "gatekeeper" of the hospital system. A new field of medicine emerged from this shift in power, hospital medicine, and with that came a new brand of physician, the "hospitalist."[63] Hospital EDs now assumed the role as "gatekeeper," as they became the first point of access to the hospital system.[64]

Hospitals also found themselves competing, not only against one another, but against physician groups, clinics and other healthcare providers offering services on an outpatient basis at a lower cost.[55] Advances in technology allowed treatment, previously available only in hospitals, to be offered on an outpatient basis and, in a struggle to survive financially, large hospital groups acquired smaller hospitals and medium-sized hospitals merged with each other forming networks of healthcare systems. This was especially true from 1996-1997 when 300 hospitals per year were engaged in some form of merger or acquisition effort.[65]

Workers, for a time, remained unaware of how health insurance premiums were affecting their paycheck as economic prosperity allowed businesses to absorb the extra cost. But soon, large manufacturing companies, once the bedrock of the U.S. economy, faced with foreign competition to produce cheaper goods, began, in the 1980s, to close their doors. As employment in the manufacturing industry dwindled, employment in the service and retail industries flourished. This employment boon, however, fast became the reason that increasingly more people were finding themselves uninsured. The service and retail industries, in part because they were not unionized, did not typically provide health coverage, and with soaring costs they were not about to start. In a tight labor market, like that seen during World War II, linking health insurance to employment was a neat way to both entice new workers and foment loyalty. But, by the 1990s, with skyrocketing health insurance premiums, this ineluctable connection became the albatross around the neck of corporate America.

HMOs

Another transformation in the practice of medicine is managed healthcare. President Nixon introduced the term "health maintenance organization" in 1971 but the idea was already in practice, most successfully by Kaiser Permanente, the largest healthcare system in California.[58] The Health Maintenance Organization (HMO) Act was passed in 1973, despite strong opposition from the AMA who denounced it as socialized medicine.[58] In an effort to expand health coverage and control costs, the Act was a federal program designed to promote and encourage the development of HMOs. The Act authorized $375 million over five years for grants and loans as start-up funding for

HMOs and ensured access to the employer-based insurance market by requiring businesses with more than twenty-five employees to offer at least one HMO as an alternative to conventional insurance if one was available in the area.[66]

Facing rapidly escalating health insurance premiums, many employees felt they had little choice but to turn to managed care. Continued healthcare cost escalation and the re-emergence of health insurance reform as a major national issue helped the managed care industry to grow. Over the past decades, HMOs have assumed an important role in the healthcare system and the number of such organizations grew from 174 in 1976 to 651 in 1997.[67] The percentage of privately insured Americans who had a managed care contract leapt from 27 percent in 1988 to 93 percent in 2001.[67] Concomitantly, by 1998, approximately 94 percent of physicians had at least one managed care contract.[67] But, rather than help contain health care costs, managed healthcare has contributed to the skyrocketing cost of healthcare.[67]

Clinton Health Reform

Higher premiums led many workers to opt out of buying coverage even when it was made available to them. Others never even had the chance. In fact, the dissolution of job-based health coverage was the main reason that 40 million people found themselves without health coverage by the start of the 1990s.[68] The majority of the newly uninsured were hard working people, sometimes working several part-time jobs to make ends meet. But, just as low insurance premiums and a tight labor market once galvanized employers to offer decent coverage for their workers, now high insurance premiums and a competitive labor market dissuaded employers from providing coverage.

It is not surprising then that a 1991 Gallup poll revealed that 91 percent of the American people believed there was "a crisis in the health care system."[69] Healthcare ranked just below the economy as the most important governmental issue to be addressed by the time President Bill Clinton took office in 1992.[70] Riding this seeming tide of constituent support, Clinton proposed his plan for healthcare reform. But, while there was overwhelming agreement that there was a problem, there was no agreement as to how to remedy the problem. Polls revealed that when the Clinton team began work on revamping the healthcare system, they enjoyed a 71 percent approval rating.[71] However, interest groups began pumping millions of dollars into persuasive anti-healthcare reform advertisements and by April 1994, when that proposal evolved into the Health Security Act, that lead dropped to 41 percent.[71] Resistance came from several sources: the health insurance industry, corporations fearing tax increases, conservative members of Congress opposed to any increase in government involvement and voters apprehensive about a reduction in health coverage.[69, 72] It soon became clear that Americans supported reform as long as they didn't have to change a thing. When media reports suggested that reform might affect which doctor they could see or what hospital they could go to or that a modest tax increase might be required to help defray costs, surveys revealed that support plummeted. Most American's believed that ineptitude, greed and corruption were the main reasons health care costs were so high. Simply target those nefarious practices and the money saved could then be reinvested with no personal sacrifice or additional cost necessary.[71]

The defeat of Clinton's healthcare plan resigned liberal interest groups to pursuing a more gradual tack. As a result, the 1990s saw both Medicaid enrollment jump from 25

million to 43 million and bipartisan support develop for a federally mandated, state

administered program earmarked for children.[58] Created by the Balanced Budget Act,

Congress enacted the State Child Health Insurance Program (SCHIP) in 1997. This

program provided states with just over $40 billion over a 10-year period to provide health

insurance coverage for targeted low-income children under age 19 who are not Medicaid

eligible and who are in families with incomes below 200 percent of the federal poverty

line. Within broad federal guidelines, each State determines the design of its program,

eligibility groups, benefit packages, payment levels for coverage and administrative and

operating procedures. SCHIP provided a capped amount of funds to States on a matching

basis for Federal fiscal years 1998-2007.[72] The reauthorization and expansion of SCHIP

was passed and signed by Obama in 2009, after two vetoes by George W Bush.[72] Less

than 1 million children were enrolled in SCHIP in 1998. Today, more than 7 million

children are enrolled.[72]

Nonurgent Use

Hospital EDs are caught in the nexus of two problems: lack of access to primary care

for millions of people and spiraling healthcare costs. The 1980s saw the ED become a

catchment for those seeking nonurgent care in large part because they had no alternative

place to go.[53] Research in the late 1970s and 1980s largely zeroed in on nonurgent

problems from a cost containment perspective.[73] By the mid-1980s, policymakers and

managed care organizations had latched onto those figures and shifted the focus from

how to control charges to how to control patients' access to emergency services.[27, 73] The

General Accounting Office (now known as the Government Accountability Office)

published an oft cited report in 1993 targeting the uninsured as one group responsible for

the increasing number of patients in the ED, as well as, asserting that 43 percent of ED

patients presented with nonurgent conditions.[53] These two statistics served as a

springboard for discussions about "inappropriate" ED use that dominated the literature

for the next two decades. But, absent a consistent definition of "nonurgent,"

quantification became problematic.[73-75] Estimated rates of nonurgent ED visits range

from 20 percent to 80 percent.[76, 77] Researchers began to parse the semantics of terms

such as "inappropriate" and "nonurgent". The trouble that many authors pointed out is

that "nonurgent" is a subjective term and they challenged the term "inappropriate" as

stigmatizing and, simply put, inappropriate. The consensus now is that while

inappropriate visits may be nonurgent, not all nonurgent visits are inappropriate.[77]

Nonurgent ED visits are defined as those visits in which a delay of several hours would

not increase the likelihood of an adverse outcome.[6]

   There were nearly 130 million[78] visits to EDs across the United States in 2012, up from

90 million just a decade before.[79] It has been estimated that one-third of total ED visits

are for nonurgent problems.[40] In pediatrics, where 90 percent of children have private or

public insurance and most have a primary care practitioner, upwards of 82 percent of

pediatric ED visits are for nonurgent problems.[76, 80] Babies under 12 months old had the

highest visit rate at 88.5 visits per 100 infants.[81] Less than four percent of pediatric ED

visits nationally result in admissions although that number is higher for children's

hospitals where admission rates are estimated at 10-25 percent.[82] Explanation for ED use

is determinant on two criteria: a patient's symptoms upon presentation to the ED and a

patient's diagnosis upon discharge from the hospital. Policymakers have focused on the

latter, tagging diagnoses as evidence that many ED visits are unnecessary. But

researchers caution that nonurgent does not always mean unnecessary. Just because

pediatric patients are mostly insured and their conditions nonurgent, does not mean that a

hospital visit is inappropriate. Pediatric patients may present with symptoms that are

easily treatable, but with limited hours of operation and limited medical equipment at

their disposal, primary care physicians are often ill-equipped to diagnose and treat these

minor cases.[73]

Between 1994 and 2004, hospitals experienced an 18 percent increase in annual ED

visits while the number of hospitals with 24-hour EDs declined by 12 percent,[1, 83] leading

to a situation in which demand outpaced capacity. Overcrowding became a serious

problem as it resulted in longer wait times, ambulance diversion and possible

compromised care for all patients. The media portrayed EDs as "clogged with uninsured

patients seeking routine charity care,"[84] policymakers began pointing the finger at

Medicaid patients' heavy reliance on the ED as the problem[85] and studies linked the

increase in nonurgent use to the ever-present issue of overcrowding.[86, 87] One by one

those portrayals are being challenged.

Insurance, demographic, socioeconomic and health factors are all strong determinants

of an individuals' ED use, but some of the research findings run contrary to popular

belief. Cunningham found that communities with the highest levels of ED use did not

necessarily have the highest numbers of uninsured, low-income, racial/ethnic minority or

immigrant residents.[40] Communities with high ED use had a higher percentage of African

Americans than low-ED-use communities had, although low-ED-use communities had

much higher levels of Latinos and noncitizens compared to high-ED-use communities.[40]

A number of studies have found that the recent growth in ED use is driven by people with

private insurance, higher incomes and a private physician as their usual source of care.[40,] [88-90] ED visits by the privately insured increased by 24 percent between 1996-1997 and 2000-2001, as compared to a 10 percent increase for uninsured patients.[89] However, in public hospitals that see a disproportionately high number of uninsured patients, this increase in visits could contribute to overcrowding.[27]

ED visits have increased among the insured as well as the uninsured. Nonurgent use of the ED, therefore, is seen as evidence that primary health care services are not adequately accessible to the uninsured,[91] the underinsured[92] and, increasingly, the privately insured.[89] In an attempt to cut costs, some states have passed legislation to deny or limit Medicaid payment if the patient's diagnosis on discharge from the ED appears to reflect a "non-emergency" condition. While this may seem like a sound way to reduce healthcare spending, the literature suggests otherwise. A 2005 article found that, for children, enrollment in managed care was associated with a reduction in ED utilization.[57] Another study designed to promote the use of primary care facilities among Medicaid children and decrease ED utilization found that while ED utilization was significantly lowered, the diversion program offered no cost benefit.[41] Further, distinguishing accurately between urgent and nonurgent conditions can prove difficult for people. One study found 82 percent of nonurgent patients considered their condition to be urgent.[93] Attempting to discourage patients from using the ED on the likelihood that they will have nonemergency diagnoses risks sending away patients who require emergency care.

Hospitals have begun to look carefully at the gaps in the system that lead to overcrowding. The input, throughput and output model introduced by Asplin has been used extensively in the literature for categorizing the causes for, and potential measures

of, overcrowding.[94] Input factors include why more people are presenting to EDs,

throughput focuses on the actual operations of the ED and output factors include the

ability to transfer or discharge ED patients. Many studies, including a 2003 U.S.

Government Accountability Office report countering its own 1993 report, are asserting

that overcrowding is not a result of an increase in nonurgent patients but a problem with

output; it's due to delays of moving admitted patients to inpatient beds.[40, 78, 87, 94]

Still, providing nonurgent care in the ED is problematic for several reasons. Overhead

costs are much higher in the ED than they are in a clinic due to the expensive equipment,

the additional staff needed and because they are always open. Additionally, unlike the

clinic, there is no patient familiarity and therefore, no continuity of care. ED staff must

take a new medical history, perform a full examination and order new, often repeat,

laboratory tests with every visit. That said, however, there is debate in the literature as to

whether providing nonurgent care in the ED is cost-effective and there was a belief that

significant cost savings could be achieved by diverting nonurgent patients from the ED.[95]

To some extent, EDs welcome the revenue generated by nonurgent visit. A study by

researchers at the University of California calculated that by closing the ED, a hospital

would lose one-third of its inpatient admissions.[96] Inpatient admissions, they contend,

account for an estimated average profit of $1,220 per person.[97] And, even if these

nonurgent visits do not result in an admission, patients may require inpatient or other

"profitable" hospital services in the future.[40] Williams (1996) explained that many of the

costs in the ED are fixed.[95] He suggested that by looking at the "marginal" costs of

treatment of nonurgent care in an ED, the true cost of nonurgent care is actually

"relatively low," and potential savings from diverting patients to a private physician may

be much lower than commonly believed.[95] The marginal costs are the extra costs that would be incurred for an additional office visit. That is, the cost of opening a primary care or similar facility off hours. The results of this study indicate that ED costs are similar to those of an office visit.[95] It is also widely assumed that emergency care consumes a large portion of the health care dollar. However, in the United States, over 120 million people a year are treated in an ED accounting for only three percent of healthcare spending.[81] Limiting access to this care would not result in substantial cost savings.

Critics counter, that while Williams' assessment may be right, because ED care is fragmented and uncoordinated, it should not serve as a substitute for comprehensive primary care. Although using emergency facilities for primary care makes perfect sense to a patient with no alternative, patients and society pay more and get less when such care is rendered in the ED.

Universal Healthcare

The U.S. Constitution created a federal system in which authority is dispersed and divided between the federal and state governments. The controversy over whether power and authority should be centralized in the federal government or decentralized in state and local governments is an ongoing debate in American politics. Thus, despite the increased role of the federal government in the healthcare field starting in the 1960s, overall authority over health policy remains divided and shared among the federal, state and local governments.

It is impossible to discuss the topic of universal health coverage without getting entangled in a philosophical debate about whether healthcare is a right or a privilege.

Those who believe it to be a right argue that it should be made available to everyone regardless of age, race, sexual orientation or socio-economic status. And, as a right, the government would be obligated to fund it and ensure healthcare access to all as it would be inexcusable for any person to do without. On the other side of the aisle, opponents to universal health care argue that healthcare needs to be limited to a "negative" right. These persons viewed healthcare as the responsibility of the individual and see too many undeserving people on the government dole, which signifies a gross mismanagement of taxpayer dollars.

While most democratic nations have interpreted their constitutions as guaranteeing healthcare to their residents, the United States stands alone in its inability to recognize basic healthcare as a fundamental right. Only prison inmates are guaranteed a constitutional right to healthcare in this country. In *Harris v McRae*, 1980, the Supreme Court expressly held that U.S. citizens are not endowed with a fundamental right to healthcare and the government is in no way obligated to provide healthcare.[98] That said, however, piecemeal legislation, most notably, Medicaid and Medicare is moving toward universal healthcare for its enrollees. Ironically, EMTALA, originally designed to protect Medicare and Medicaid patients, was soon extended to all patients becoming the first piece of legislation to actually guarantee an affirmative right to treatment. The problem with EMTALA is that it is largely unfunded.

Basic health care is recognized as essential to human dignity under international human rights law, alongside shelter, food and education. Internationally, healthcare was first recognized as a right in the 1946 Constitution of the World Health Organization (WHO) whose preamble reads, "the enjoyment of the highest attainable standard of

health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition."[99] The Universal Declaration of Human Rights (UDHR), spearheaded by Eleanor Roosevelt, and generally supported by the United States, was adopted by the United Nations in 1948. Article 25 of the UDHR states, "everyone has a right to a standard of living adequate for the health and well-being of himself and of his family…and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control."[100] Again in the 1966 International Covenant on Economic, Social and Cultural Rights, the right to health was recognized as a basic human right.[99] The United States remains the sole industrialized democracy not to have ratified this Covenant in which Article 12 provides for the right of everyone to "the enjoyment of the highest attainable standard of physical and mental health."[101]

Interestingly, every presidential administration, Republican and Democratic, since 1912, has pushed for some type of healthcare reform. And, every major attempt at reform has summarily been met with strong opposition from labor unions or special interest groups representing powerful organizations, such as the AMA.[102] Franklin Delano Roosevelt wanted to add a health insurance provision to the Social Security Act of 1935 but fearing that opposition from the AMA would derail the legislation entirely, dropped the idea.[103] During the Truman administration, Senators Robert Wagner of New York and James Murray of Montana and Representative John Dingell of Michigan introduced a national health insurance bill, modeled on the same principle as Social Security in which employees and employers contribute to a common fund. Truman supported the proposal, but a conservative turn in Congress dashed any chance of reform. Truman revisited this

bill in 1948 after making national health insurance a central issue in his bid for reelection. But, fierce opposition arose, most notably, from southern congressional representatives and the AMA, who attacked the proposal as "socialized medicine."[103] A catchphrase that tapped into a collective fear in American politics that began in the New Deal era and continues on to the present.

In the 2008, World Health Organization's *World Health Report*, the argument was made that universal health coverage was necessary in order to promote health equity.[14] Of the thirty-four countries participating in the Organization for Economic Cooperation and Development (OECD), only Mexico, Turkey and the United States are without universal coverage. The *Report* goes on to describe the "technical challenge" of moving towards this goal by elaborating on three objectives referred to as the *breadth*, *depth* and *height* of coverage.[14] Universal health coverage is considered effective when protection is expanded to the uninsured (breadth), when the range of services covered is expanded (depth) and when payment is reduced at the time service is rendered the "height" of coverage is expanded.

Cost is an oft cited argument against healthcare reform. Opponents claim that providing health coverage for all Americans is simply too expensive and cannot be done. But, what many Americans fail to realize is that under our present system, the insured are carrying the cost of those 50 million uninsured citizens.[98] When the uninsured go to private hospitals, the cost of their health care simply gets added to the bills of privately insured patients which are then ultimately paid for by the insured patients and by their employers in the form of higher premiums and higher deductibles.[98] When the uninsured go to public hospitals, those costs are paid for by taxpayers through state and county

spending on indigent health care services.[98] Americans are adamant in their determination not to pay a formal tax for healthcare but seem to have no problem paying the same amount, if not more, in an indirect manner.

Working people account for a significant portion of the 50 million uninsured. In 2011, one in seven full-time employees was uninsured, representing over 15 percent of the U.S. full-time workforce.[85] Many of these workers found themselves ineligible for public benefits, but with household incomes less than 300 percent of the federal poverty line they are unable to afford their employer-sponsored insurance, if their employer even offers insurance. This is not a problem felt by only the lowest socioeconomic class, many middle-class families find themselves uninsured as well.[85] A staggering 32 percent of the U.S. uninsured population had a household income of $25,000-$49,000 in 2011.[85] This increase in uninsured among the middle-class is frequently due to the cost of health insurance escalating faster than salaries.[104]

Another 25-45 million Americans are covered by insurance so inadequate that a major medical event can spell financial ruin.[98] Medical expenses are contributing factors in over 62 percent of individual bankruptcy filings[105] and a quarter of all foreclosures filed in 2007 (before the world financial crisis) were the result of the inability to meet mortgage payments because of medical costs.[106] According to a study released by the Henry J Kaiser Family Foundation and the Chicago-based Health Research and Educational Trust, "the average annual premiums for employer-sponsored health insurance in 2012 was $5,615 for single coverage and $15,745 for family coverage."[107] The cost of employer-based health insurance nearly doubled in the last decade leaving many households with middle and lower incomes, little choice.[107]

Compared to the 23 countries that belong to the Organization for Economic

Cooperation and Development (OECD), the U.S. has the highest level of payments

directly from patients in the form of co-pays and deductibles.[107] Yet even with these

supposed cost controlling measures, health insurance rates have continued to rise in

America along with the number of uninsured. The high number of uninsured contributes

to escalating healthcare costs because those that are uninsured do not seek primary care

and utilize more expensive routes of care such as the ED when they become ill.[108, 109]

Recent studies indicate that about 33 percent of those without insurance had utilized the

services of the ED or had stayed as an inpatient between the years 2001 and 2005 in

comparison to about 15 percent of those with insurance.[108] Other studies show that it is

not just the uninsured using the ED as a point of entry for healthcare. Frequent users of

the ED also tend to be those covered by Medicaid and/or Medicare.[89] Medicaid requires

no co-pay or deductibles when a person presents to the ED and with declining provider

participation and limited access to primary and preventative care, Medicaid and Medicare

patients are compelled to rely on the ED for all their medical needs.[5]

As the uninsured population increases each year, so too does the amount of

uncompensated care provided. Uncompensated care is the total amount of healthcare

services, based on full established charges, provided to patients who are either unable or

unwilling to pay. Most of the financial burden of providing medical services to the

uninsured is borne by hospitals, for which no payment is received. A 2008 study found

that less than 50 percent of all hospital ED charges were reimbursed.[110] The amount of

uncompensated care provided is not evenly distributed across different types of hospitals.

Community hospitals remain the largest providers of uncompensated care in the United

States, although nonprofit hospitals are the most common type of hospital. Nationally, hospitals' uncompensated costs have jumped from 3.9 billion in 1980 to 41.1 billion in 2011.[111]

Every developed nation that approaches the economic level of the United States provides universal health care for all its citizens with much lower health expenditures. The U.S. has committed a higher share of its GDP to healthcare than most other nations since at least the 1970s.[107] Although there were several other countries with comparable levels in the 1970s and 1980s, the U.S. has far surpassed them with health expenditures now amounting to 18 percent of GDP, meaning we now spend nearly $1 out of every $5 on health care.[112] Putting that in individual terms, the U.S. spends $8,233 per year per person, a figure two-and-a-half times higher than most developed nations in the world.[112] Yet, despite paying twice as much, America lags behind the OECD countries in across the board health results, most notably ranking last out of 16 industrialized countries on a measure of deaths that might have been prevented with timely and effective care. Premature deaths are found to be 68 percent higher than in the best-performing countries.[113] Between 1960 and 2010 life expectancy at birth increased by almost nine years, lagging behind the OECD countries' average of over 11 years and far behind Japan's increase of over 15 years.[114] In 2010, the average American lifespan was 78.7 years, compared to the OECD average of 79.8 years.[114]

Not only does there appear to be little connection between how much a nation spends on health care and the general health of its people, there also seems to be no connection between how much a nation spends on healthcare and available services. The OECD average for practicing physicians per 1,000 people is 3.1, the U.S. has only 2.4

physicians.[114] The number of hospital beds in the U.S. also comes in lower than the

OECD average of 3.4 beds.[114] And, most telling, despite the amount of money spent on

healthcare, racial, ethnic and socioeconomic disparities remain pervasive. Literature

reviews find consistent, credible and robust evidence that health disparities based on race

and ethnicity are evident in both diagnostic procedures and therapeutic interventions.[115,

116] Over the decades, *Healthy People* has intensified their language on this goal from

2000's "reduce health disparities" to *2010*'s "eliminate health disparities" to *2020*'s

"achieve health equity."[117]

Unfortunately, past laws and health reform efforts have not eliminated health

disparities and they have not addressed the fundamental causes of rising healthcare costs.

Therefore, the underlying problems with our healthcare system continue to grow. A 2005

joint report of the National Academy of Engineering and the IOM describes the U.S.

healthcare sector as "an underperforming conglomerate of independent entities

(individual practitioners, small group practices, clinics, hospitals, pharmacies, community

health centers, et al) …"[118] America has reached a point where change is necessary in

order to reverse the trend of increasing costs with a less than optimal and equitable return

on public health. The wall the U.S. keeps running into, however, is how to care for its

citizens while balancing its political interests of individual choice, free market and

limited government.

The Patient Protection and Affordable Care Act

Both President Clinton and President Obama faced similar pressures: a liberal faction

that demanded universal health coverage and a similarly energized conservative faction

appalled by the idea of a "socialized" healthcare system. And, just as had happened with

previous reform efforts, "fear and facts would go to war with each other."[58] A reform effort that began with the hope of compromise soon devolved into a complete breakdown of bipartisanship.

Although the U.S. is still without universal healthcare, and healthcare is still not recognized legally as a right, recent legislation has been passed with the intent of developing affordable coverage in line with the breadth, depth and height guidelines described by the World Health Organization. The Patient Protection and Affordable Care Act (PPACA) was signed into law along with its amendment, the Health Care and Education Reconciliation Act, by President Obama on March 23, 2010. The PPACA is being rolled out in stages over an eight-year period and includes reforms such as prohibiting insurers from denying coverage for preexisting conditions, expanding Medicaid eligibility, subsidizing insurance premiums and providing incentives for businesses to provide health care benefits.[119] In order to achieve its goal of affordability, a deal had to be struck with insurance companies that were long opposed to such reform. The Congressional Budget Office estimates that by 2019, the PPACA will cover 32 million more people. In exchange for this increase in the insurance pool, insurance companies agreed to no longer deny, or impose higher rates on anyone with a preexisting condition. However, without a legislative mandate, people would purchase insurance only when they were sick and refuse to contribute when they were healthy. Hence, the individual mandate (a requirement by the U.S. government to either purchase health insurance or pay a fine), demanded by Republicans in the 1990s and viewed then as a conservative policy, became the source of vehement opposition a little more than a decade later by Republicans who threatened to overturn it.[58] True to their word, within

weeks of the bill's passage, Republican attorneys general in 26 states had filed a series of legal challenges to the legislation.[58]

The PPACA advocates for socioeconomic solidarity, believing the healthy should subsidize the sick.[58] This is the same model employed by other OECD countries. The current system in the U.S. is designed for the healthy to cover the unpredictably sick but it does not ask them to pay for the predictably and chronically ill. The PPACA changes the ballgame with its ban on discriminatory practices toward those with preexisting conditions. It also changes the current paradigm with its focus on prevention, encouraging participation in wellness programs and its provisions directed at reducing obesity and smoking.[58] The individual mandate is in place to keep healthy people from avoiding coverage. For those unable to afford coverage, the government will pay a certain proportion of their health insurance premiums. The government proposes to raise the revenue needed to cover this expense through a combination of new taxes, Medicare and Medicaid cuts and other financial provisions.[120]

No longer will states be allowed to determine who is eligible for Medicaid, the PPACA will extend Medicaid coverage to all those within 133 percent of the federal poverty level (FPL), including childless adults, and will provide subsidized coverage for those up to 400 percent of the FPL.[120] States will receive incentives and funding though to provide preventive care through Medicaid at community health centers. The PPACA also encourages states to create health insurance exchanges where uninsured adults or small businesses can buy insurance from a range of private insurers. Large businesses are not required to provide insurance for their employees, but they will have to pay penalties for those who receive subsidized health insurance from insurance exchanges.[58, 120]

To succeed, the PPACA needs to be able to contain costs. Patient-centered medical homes, accountable care organizations, bundled payments and programs to reduce readmissions and hospital-acquired conditions are all strategies that the PPACA will be requiring in an effort to control costs. Americans would like to see this cost containment occur without any reduction in quality or services. The PPACA will not achieve universal health coverage despite extending coverage to 32 million Americans but in theory, the more people who do have insurance and the better their access to primary and preventive care, the less burden imposed on the ED for nonurgent care. However, if the number of primary care providers does not increase to meet this growing demand, this influx of newly insured will be met with providers with already full practices or unwilling to accept Medicaid's low reimbursement rates. Therefore, the ED may remain the only option available to them. If Massachusetts' reform effort can serve as a harbinger of what to expect with the PPACA, there will be no substantial decrease in the number of persons seeking care in the ED for nonurgent care.[121] Some speculate that the PPACA will actually accelerate the problem of overcrowding.

Still, the PPACA is a landmark piece of social legislation with the potential to change the way healthcare is delivered. The compartmentalized approach to healthcare and notion of "professional autonomy" of the past, may be replaced with a more heterogeneous model of healthcare delivery dedicated to patient-centered care, expanded expertise and collective decision-making.[85] These three principles will oblige the healthcare industry to rethink how best to meet the health needs of its patients which, in turn, will motivate Americans to reevaluate how they receive care. The PPACA could

potentially unseat traditional hierarchies within the medical profession while forging new

professional alliances between formal health care workers and community supports.

Chapter 3

Literature Review

"No country can be strong whose people are poor and sick" (President Theodore Roosevelt, 1912)

Transformation of Mental Health

Attitudes toward people with mental illness are often a mixture of fear and sympathy. This emotional contradiction allows people to feel genuine concern for people with mental illness while simultaneously favoring actions that exclude them from society. In the late 19th and early 20th centuries, this exclusion was literal. The goal was to separate the mentally ill from society and, as a result, the construction of monolithic institutions for the insane began in earnest. These early institutions served a dual purpose: they provided society a respite from the chaos and upheaval imposed by the insane while providing the insane a respite or, asylum, from societal pressures and mores.[122] But, asylums were more than just mortar and brick, they were the embodiment of a new paradigm which shifted attention onto the external, social environment. The environment was believed, at this time, to both cause mental illness and provide the cure for it.[123] Thus, asylums were designed with the conviction that architecture could effect social change. Scenic views would prove cathartic for the insane and the physical appearance of the asylum, both inside and out, would exert an important moral influence. Asylums were originally viewed as restorative communities- they were places where the insane were provided opportunities for development outside the purview of society[124] and they became symbolic of an enlightened nation that humanely cared for its insane citizenry.[122]

This was the Progressive Era, a time characterized by a public zeal for social reform and social justice. This fervor arose in response to the economic and social problems left in the wake of rapid urbanization and industrialization introduced to America in the 19th century. Progressives believed their predecessors' use of punishment, incarceration and a uniform approach toward the mentally ill was primitive.[125] Conversely, they recognized the uniqueness of the individual and were committed to the more advanced goal of rehabilitation.[125] Asylums, like hospitals, were originally built as places of refuge for those unable to care for themselves and were in large part founded by religious charities. They were not medical institutions staffed by medical personnel.[126] In the early days, care for the insane did not require specific medical training and superintendents of asylums were no more than glorified administrators. But, doctors, finding it difficult to eke out a living and command respect in an age when bloodletting, blistering and noxious chemicals were the principal "cures" in their black bags, saw in asylums, an opportunity for prestige, power and a steady income.[43]

In 1844, thirteen superintendents met and formed the Association of Medical Superintendents of American Institutions for the Insane (AMSAII), thus making care for the insane the first medical specialty in the United States.[127] Doctors eager to establish their authority and proprietary stake in the treatment of the insane and legislators eager to find an inexpensive way to curb the number of deviants roaming their burgeoning city streets, worked in tandem to medicalize insanity. AMSAII members began to champion the need for new publicly funded asylums; they excluded non-medical superintendents of asylums, no matter how influential or respected, from participation in their organization and they began staffing superintendent vacancies with their assistants and protégés. All of

these strategies managed to successfully establish in the minds of legislators and the public that the only and best way to treat the insane was to remove them from society, in asylums overseen by medical doctors with specific training.[7]

    The Progressive Era, additionally, was marked by tremendous leaps in scientific knowledge and technological advancements. This fomented American confidence that the scientific method was the key to solving not only medical but also mental and moral problems.[125] Science either had all the answers or was on the verge of discovering them. A formidable foe at this time was syphilis- commonly called "the red plague."[128] It was so prevalent, that all physicians were aware of its myriad presentations and, as Sir William Osler, oft described as the "Father of Modern Medicine" famously said, "He who knows syphilis, knows medicine."[129] This was a disease that caused visible medical problems like "the pox," as well as, serious long-term health consequences like blindness, it caused mental problems like insanity and syphilis posed a serious threat to the family as people were convinced it was the result of an "inherent weakness of character" and lapses in moral turpitude.[129] But, science was making advancements. In 1906 the microbe that caused syphilis was identified and soon infusions of mercury which could prove fatal were abandoned for Ehrlich's arsenical magic bullet, salvarsan.[129] In 1913, bacteriologist Hideyo Noguchi, definitively proved that "general paresis of the insane" (dementia) was a late manifestation of syphilis. Realizing that paresis remained refractory to salvarsan while anecdotally noting that high fevers did seem to alleviate symptoms, Julius Wagner von Juaregg of Austria developed malariatherapy. So successful did malariatherapy seem to be in treating neurosyphilis that Wagner von Juaregg received the 1927 Nobel Peace Prize, becoming the first and only psychiatrist to ever do so.[129] If a menace like syphilis

could be identified and crippled, it was only a matter of time before other social ills and forms of psychoses met the same fate.

This new found belief in the epistemic and moral authority of science had a profound effect on the way children were viewed and treated, especially in the eyes of the law. Children and adolescents were now regarded as uniquely malleable individuals in need of molding before the rigidity of adulthood set in. This was especially true for those indigent, often immigrant children who seemed to so easily lapse into patterns of delinquency. So, rather than punish juvenile offenders, an effort was made to identify the cause of crime, individualize treatment and rehabilitate. Public fear for these children, as well as, fear of these children, prompted the establishment of child-guidance clinics to study and treat delinquency.[126] The question of how to care for these difficult young offenders prompted juvenile courts to seek professional expertise and psychiatrists, keen to define social uses for psychiatry beyond institutional care of the insane, summarily positioned themselves as that authority. Between 1899 and 1925, juvenile courts proliferated across the United States[5] and the ineradicable link between psychiatry and crime was forged.

These "child savers" saw themselves as the creators of a benign, non-punitive, therapeutic enterprise and felt government involvement was crucial to justly implement these reforms. The doctrine of parens patria meant the state could "act as a parent" and provided broad authority for the state to assume custody of the mentally ill and children deemed wayward and delinquent.[126] Because its goal of rehabilitation was considered in the best interest of the individual, the line between caring for these children and controlling them blurred. As a result, what took root was an unshakable paternalistic

system of social control. Youth did not have a voice nor were all youth treated equal. Reforms were couched in moralistic terms and poor children, minorities and girls were subjected to the harshest controls and cruelest treatments.[126] For both the mentally ill and the juvenile delinquent, experts determined the problem, the state determined how best to treat that individual and hospital superintendents and wardens asserted control over every aspect of institutional life. With little to gain from discharging them, indeterminate confinement/custody was not unusual. What began as a system presuming only the best intentions for the care and rehabilitation of each individual, soon devolved into an apathetic system with little need to respect the wishes or protect the rights of patients or prisoners.

End of Asylums

Asylums continued to play a key role in the early part of the twentieth century but by the 1940s, the combined effects of the Great Depression and World War II, rendered asylums underfunded, understaffed, overcrowded and in a state of physical decay. Budgetary constraints, a changing demographic and a shift in public policy, all helped reduce asylums from their restorative ideal to overcrowded warehouses.[130] However, their convenience and establishment allowed them to continue well past society's belief in their rehabilitative potential. Persons admitted to these state institutions were being treated ever more aggressively with insulin shock therapy, electroconvulsive therapy and lobotomy in desperate attempts to cure insanity.[130] Despite the effort, patients admitted to hospitals failed to recover and a need for long-term care arose. Additionally, the aged, those over 60 years of age, now constituted the single largest cohort. The combination of chronicity and age meant that most patients would live out the rest of their lives behind

asylum walls thus signaling a shift toward custodial care. This was a shift that psychiatrists, trained first as physicians, wanted no part, so much so, that by 1955 more than 80 percent of the 10,000 members of the American Psychiatric Association had left asylums to care for "healthier" patients in outpatient facilities and private practice.[122]

Asylums had been at the heart of public policy for nearly 150 years but a series of exposés revealing the deplorable conditions in these facilities fanned the flames of change and placed mental health on the political agenda. Interestingly, it was out of the crucible of war that a new treatment priority emerged. A large number of young physicians were recruited into psychiatry during World War II and were trained in a psychodynamic model that emphasized the importance of life experiences.[130] Military psychiatrists witnessed how the stress of combat affected one's mental state, they realized that psychiatric disorders were more debilitating and pervasive than once thought and they found that favorable outcomes could be achieved with early intervention in a non-institutionalized setting.[131] Psychiatrists took these lessons into the postwar era by advocating for community-based care.

In 1946 the National Mental Health Act was passed, which authorized the creation of the National Institute of Mental Health (NIMH). The Act supported research relating to the cause, diagnosis and treatment of psychiatric disorders and supported institutional grants to train mental health professionals.[127, 132] This landmark legislation marked the first significant federal legislation that specifically addressed the problems of the mentally ill. Then, only nine years later, the Mental Health Study Act passed through Congress, appropriating $1.25 million for the Joint Commission to conduct a nationwide study of the approaches to treating mental illness and to make recommendations for

improving care and treatment of the mentally ill.[132] The Commission was composed of

professional and lay organization representatives who specialized in mental health care

and treatment. The final report titled, "Action for Mental Health" (1961), recommended

that mental health services be developed on the local level.[132] This was an attempt to

reduce the size of state mental health hospitals, utilize local, general hospitals and create

community mental health clinics. A renewed hope was once again placed on medical

science to develop effective interventions to ameliorate mental illness. The days of

institutional care were over and championing an enlightened approach toward

mainstreaming individuals back into the community became the new public policy.

Deinstitutionalization

The policy of deinstitutionalization promoted improved access to psychiatric services

by reallocating resources from the centralized psychiatric hospitals to community-based

psychiatric services, located closer to people's homes.[131] The principle behind this

approach presumes that psychiatric hospitals are more expensive to resource and serve

fewer patients than community-based services. In addition, it is believed that people are

more likely to access services that are located in a convenient location. Its aim toward

stimulating local communities to accept responsibility for delivering psychiatric care to

their citizens, was incredibly successful at emptying the asylums. Between 1963 and

1980, the number of patients in state mental hospitals dropped by 70 percent.[133] Research

converges on three major social and political forces that contributed to

deinstitutionalization during the 1950s, 1960s and 1970s: technological advancements in

drug therapy for treatment of mental illness, economic incentives to shift care for the

mentally ill to community-based outpatient facilities, and changing societal attitudes

regarding mental illness.[122, 134]

Drug Therapy

A series of chance discoveries led to new treatment options for psychoses and had a profound effect on psychiatric practice. Psychotropic medication could now be used long-term to help mitigate symptoms, and, more importantly, could abate acute psychotic episodes, allowing treatment for mental illness to be offered on an outpatient basis. Institutionalized patients were no longer considered incurable or untreatable and hospital stays could now be measured in days rather than years.[130] The "tranquilizer" effect of Thorazine was discovered during research on anesthesia and it became the first effective antipsychotic medication.[135] Thorazaine did not provide a cure but it was immensely effective in controlling the most debilitating symptoms of psychosis, including delusions, hallucinations and agitation. By 1956, over two million patients had been prescribed Thorazine and at least 37 states were using it, or a similar antipsychotic medication, in their state mental hospitals.[134] Intractable mental illness suddenly became a manageable problem. This new therapeutic armamentarium began to shift public policy. Now that a pill was available, the mentally ill were upraised "to the status of patients in the eyes of many members of the public."[134] Mental illness was now viewed as a medical condition and new theories about a biological origin began to emerge. Moreover, pharmaceutical companies, seeing Smith Kline's success with Thorazine, hastened to develop new psychotropic medications.

Economic Incentives

In February 1963, President Kennedy addressed Congress and urged them to aid those in need of mental health services. Congress heeded this call and passed the Community Mental Health Centers (CMHC) Act that year, which called for the construction of 2000 centers.[127] The CMHC had the support of both the political right and left. The right wanted to close the mental hospitals to save money and the left thought it was "freeing" prisoners from inhumane conditions. The basic goals of the Act were to 1) make mental health services available and accessible to the local patient population when needed; 2) make the services comprehensive and include children, adults and the aged, through multiservice programs; 3) to ensure the programs were thoroughly coordinated so that continuity of care would be guaranteed to those seeking treatment; and, 4) emphasize prevention, as well as, diagnosis and treatment in the overall operation of the CMHC program. The Act authorized federal matching funds of $150,000,000 to be used over a three-year period by the states to construct comprehensive mental health centers.[136] In many ways, this sanction was an extension of the 1946 Hill Burton construction program, and was put into effect to assist local communities with building adequate mental health facilities. The shifting of funds from states to the federal government was a major effect of this legislation.[136]

Immediately following the passage of Medicaid in 1965, states began to take advantage of this initiative designed to provide assistance for a variety of disabled groups. Specialty psychiatric hospitals were excluded from Medicaid coverage but nursing homes were not. Thus, states began to transfer elderly patients from mental hospitals to nursing homes.[122] Nursing homes did not typically offer psychiatric care but money became the bottom line. States recognized a significant cost savings if psychiatric

inpatients were to be transferred there. As a result, during the 1960s, the nursing home population nearly doubled from 470,000 patients to 928,000 patients.[122, 135] Medicaid and Medicare became the largest supporters of the mentally ill, without ever being labeled mental health programs.[135] Other federal programs, such as Supplemental Security Income (SSI) and Social Security Disability Income (SSDI), further encouraged states to shift costs by discharging patients with severe and persistent mental illnesses from mental hospitals. Under SSI and SSDI, federal funds are provided as income support to people with mental disabilities living in the community.[122, 137]

By 1980, only 482 of the 2000 needed community mental health centers had received federal construction funds.[136] The CMHCs were intended as the capstone of a progressive new policy but they failed to meet this promise. Why? First, many state governments simply did not have the means to match the federal funds. And, second, the CMHCs were designed with a relatively healthy population in mind and did not account for the specific needs and sheer numbers of people with chronic and severe mental illness. Many of these people had no family, and with lack of coordinated services for those who remained hospitalized or were discharged into the community,[122, 127] integration back into the community became problematic, leaving many people to slip through the cracks. This new demographic of young adults with severe or chronic mental illness began to drift in and out of correctional institutions, psychiatric wards and emergency departments.[138]

Changing Attitudes

The civil rights movement of the 1960s and 1970s included a growing concern for the civil liberties of people with mental illness and for those who might be labeled as such. The zeitgeist of the era placed significant importance on individual freedom and human

rights. Institutionalization became an affront to these staunchly held cultural values. Spurred by outspoken writers such as Thomas Szasz, Thomas Scheff, Erving Goffman and Michel Foucault, psychiatry came under attack. These critics were highly denunciatory of both the social control elements imposed by the modern day mental health establishment, and of the use of the medical model to describe and treat "mental illness." They cast doubt on the moniker "mental illness," arguing that it was merely a cultural construct and the result of an arbitrary decision made by a person of power.[139] Psychiatric diagnoses were scrutinized as a form of social control; a means to classify and label people exhibiting socially undesirable behavior in order to justify confinement.[140] Labeling theory held that a diagnosis of mental illness was simply one possible response to behaviors that violated social expectations. It was the societal reaction to the behaviors, rather than any actual medical condition that was considered the determining factor. A patient, they contended, had little defense against capricious decisions made by someone acting in an official medical or legal capacity.[139, 140]

Prior to the 1960s, mental health law did not exist. That is not to say there wasn't the occasional malpractice lawsuit, but the states had broad authority regarding the conditions under which people with mental disorders were confined and treated. Civil commitment laws permitted the indefinite involuntary commitment of a person on the certification of a physician- not just psychiatrists, but any medical doctor- that the person had a mental disorder.[141] This act, it was argued, stripped away an individual's liberty without due process of law. Legal advocates sought reforms restricting involuntary psychiatric treatment and filed claims in federal court calling for judges to make civil commitment decisions rather than physicians. Attorneys turned to the Brown v. Board of

Education lawsuit filed in Topeka Kansas in 1954, which overturned the 1896 Plessy v Ferguson decision of "separate but equal," as their legal precedent. The Brown decision provided the spark necessary to galvanize the nascent civil rights movement into motion by firmly establishing the federal courts as the forum where groups sought redress for claims that their constitutional rights had been violated.[141] In order to argue that civil commitment was a deprivation of constitutionally protected liberty, advocates made three claims: 1) psychiatric diagnoses were so imprecise, they could not reasonably be used to take away a person's liberty; 2) people who were involuntarily hospitalized suffered great social stigma, as well as, collateral loss of basic civil rights; and, 3) confining people indefinitely to the often harrowing conditions found in mental hospitals, based only on an imprecise medical diagnosis, violated fundamental constitutional rights.[141]

The legal strategy for deinstitutionalization centered on the Due Process Clause of the Fourteenth Amendment and sought 1) to put procedural limitations on involuntary commitment and treatment; and 2) to guarantee treatment for people confined to state institutions. While both strategies, on the surface, appear to represent a tremendous civil rights victory, they did not go far enough.[131] The first argument kept new people out by making it exceedingly difficult to have someone committed. The trouble was that people were generally committed to these state facilities because there was no other effective option for treatment. The doctrine merely kept states from committing people to mental hospitals, it did not mandate that resources for obtaining alternative mental health services be made available.[134] The second argument was designed to bring conditions in state hospitals up to acceptable standards. Skeptics worried this legal tack would actually work against deinstitutionalization turning institutionalization into an individual right and

therefore a governmental duty, but, instead, it set an unattainable standard of care. Right

to treatment imposed such a financial burden on states that they found it more economical

to not only keep people out, but move those already committed back into the

community.[134] Again, with no safety net in place.

In institutions a single source supplies an individual's lodging, delivers benefits,

maintains order and provides treatment but in the community services need to be

coordinated. One source supplies an individual's lodging (a housing agency), another

delivers benefits (a welfare agency), a third maintains order (the criminal justice system)

and a fourth provides treatment (the mental health system). Lack of coordination is one

factor that led to the serious problems the nation has seen as a result of

deinstitutionalization. As Gerald Grob, a noted mental health historian concluded,

"Ironically, the mentally ill became the victims rather than the beneficiaries of policies

believed to have been designed for their benefit."[130]

Deinstitutionalization in Arizona

The "Territorial Insane Asylum at Phoenix, Arizona", the predecessor to the Arizona

State Hospital opened its doors early in January 1887 for 61 patients.[142] Census in the

Arizona State Hospital mirrored national trends. The population nearly doubled in a

decade with a patient population of nearly 2000 by the early 1950s.[135] In 1970, in step

with the national trend of deinstitutionalization the Arizona State Legislature passed

Senate Bill 1057.[142] This bill required that patients must be dangerous to themselves or

others in order to be confined to the state hospital. As a result, patients, many of whom

had been at the hospital for years, suddenly found themselves without support, and on the

streets of downtown Phoenix. Within a month of the bill's passage, close to 1700

patients had been discharged from the Arizona State Hospital without any plan for continuing care.[135]

In 1981, Arizona spent less than any other state or territory in the nation on mental health services.[143] Phoenix attorney, Charles "Chick" Arnold filed a class-action lawsuit (Arnold v Sarn) that year against the Arizona State Hospital and Maricopa County for failure to provide comprehensive community-based mental health services to persons with chronic mental illness.[135] Maricopa County includes Phoenix and makes up approximately 80 percent of the state population.[144] The case was won at both the trial and appellate levels and ordered the Arizona State Hospital to establish that all persons with serious mental illness be entitled to appropriate care and treatment involving continuum of care.[144] Despite the defendant's pleas of inadequate funds, they were mandated to fulfill their state-law obligations to provide a unified and cohesive system of community mental health care.[135] The Arnold opinion ended on a note of optimism and passion: "The moral test of government is how it treats those who are in the dawn of life, the children; those who are in the twilight of life, the aged; and those who are in the shadows of life, the sick, the needy and the handicapped"[135] but, unfortunately, that moral entreaty was not enough to fix the structural problems that plagued the state's mental health system. As a result, in the decades since the suit was filed, it has been the subject of numerous legal fights and reviews, at a cost of hundreds of thousands (millions, by some advocates' estimates) of dollars, as the state struggled to follow court orders and earlier compliance agreements. The lawsuit took over 30 years to be resolved.

On January 8, 2014, coinciding with the third anniversary of the high profile Tucson targeted shooting of Gabrielle Giffords, the state reached a settlement agreement ending

33 years of litigation. Under the agreement the State will provide enhanced and expanded services to about 21,000 mentally ill people in Maricopa County.[144]   Although the lawsuit was specific to Maricopa County, the State will also provide services to several thousand mentally ill people in Arizona's 14 other counties. The State has agreed to adopt national quality standards for treatment, and will conduct annual evaluations of the program's effectiveness. In addition to the new housing and jobs programs, crisis intervention and respite care services, family and peer support and life skills training will be provided for the mentally ill and their families. More specifically, the State is required to create up to 1500 additional supported housing units, 1250 supported employment placements, 13 ACT teams and 1500 peer support services.[144] Agencies providing these services must comply with the Substance Abuse and Mental Health Services Administration (SAMSHA) fidelity standards for each program model. Using trained and qualified reviewers, the State must conduct annual evaluations of all agencies providing these services, and take corrective actions to ensure compliance with these standards. In addition, the State must conduct annual independent reviews of a sample of class members to determine if their support needs are being met, as well as separate independent reviews of the capacity of the service system to meet the overall needs of persons with serious mental illness in the County.[144]

Judge Edward Bassett approved the landmark settlement agreement in Arnold v Sarn at a fairness hearing on February 27, 2014. If the State complies with its initial obligations, the case will be dismissed September 2014, pursuant to an order which allows the Courts to continue its jurisdiction and enforcement authority over the settlement on an indefinite basis.[144]

Transinstitutionalization

The push behind deinstitutionalization of the mentally ill was economic but the

rationalization was benevolence. The problem was that the tax dollars spent on

hospitalization did not follow the patient into the community. President Kennedy was

assassinated a month after the CMHC Act was signed into law and the Vietnam War was

escalating, and so, resources and attention were diverted elsewhere. Without pressure

from the executive branch, community resistance to placement of the CMHCs in their

"backyards" successfully thwarted progress.[138] And, despite this failure to build and fund

community-based centers, the foundational phase of the deinstitutionalization process,

the second phase of emptying the nation's asylums began in earnest. Although the moral

outrage against the confinement and treatment of mentally ill individuals in institutional

care was warranted, the implementation of deinstitutionalization failed to meet its

benevolent promise. As Dr. Robert Reich lamented in the American Journal of

Psychiatry in 1973, "The freedom to be sick, helpless and isolated, is not freedom. Our

present policy of discharging helpless people to a hostile community is immoral and

inhumane."[143] Once released on the streets, societal tolerance was put to the test. Empathy

and compassion for people with mental illness was quickly replaced by fear and anger.

The media helped stoke these emotions. Where, prior to deinstitutionalization, Academy

Award-winning films such as One Flew Over the Cuckoo's Nest (1975), adapted from

Ken Kesey's 1962 novel of the same name, served to promote the offenses suffered by

people with mental illness; after deinstitutionalization, the media turned to

sensationalized stories of people with mental illness committing offenses. Soon, persons

with mental illness were treated with apathy at best, and a punitive, retributive stance was again expected and accepted by mainstream America.[138]

The treatment of choice for these displaced persons fast became our nation's jails. Many researchers would argue that deinstitutionalization never took place, it simply morphed into transinstitutionalization- the transfer of patients from treatment facilities to "nursing homes and penal institutions."[145] In 1984, it was estimated that 50 percent of nursing homes were populated by people with a primary or secondary diagnosis of mental illness.[146] The 12 year period between 1980 and 1992, witnessed a 154 percent increase in the number of individuals with mental illness in jails.[138] Seemingly overnight, the police became the first responders to psychiatric emergencies.

In 1960, there were 535,000 public psychiatric beds nationwide. That number had been reduced to 43,318 by 2010.[147] In 1988 Arizona ranked 53 out of 50 states in per capita spending on mental health but had improved its ranking to 14th by 2010. However, despite this increase in spending, Arizona still ranked next to last in likelihood of having mentally ill individuals in hospitals.[148] The recommended number of beds is 50 per 100,000 people to provide the minimal amount of care for people in crisis. Arizona has 4.1 beds per 100,000 people.[147] The Treatment Advocacy Center found the odds of a seriously mentally ill person being held in an Arizona detention facility, compared to a psychiatric hospital were 9.3 to 1 compared to the national average of 3.2 to1.[135, 143]

In 1991, a class-action lawsuit was filed on behalf of poor children. J.K. v Eden sought adequate addiction and mental health services for 14,000 Medicaid-eligible children in Maricopa County.[149] The gravamen of this case was that Arizona had failed to provide the mental health treatment mandated by Medicaid's Early and Periodic

Screening, Diagnosis and Treatment (EPSDT) mandate. The plaintiffs introduced seven

separate reports by independent investigators who found 1) children did not have an

acceptable service plan in two-thirds of the cases reviewed; 2) 56 percent of the children

did not have an adequate assessment of their behavioral health needs; 3) delivery of

services was not timely of competent in 62 percent of the cases; and, 4) in half of the

cases where services were terminated or reduced there was no clinical justification in the

case records.[150] According to the reports, the system's performance failed every age

group but was the worst for children 14 years and older.[150] Ten years later, the State

agreed to a fundamental shift in the way it treats children and families. The agreement is

founded on a set of principles that stress treating children and families with respect and

promoting collaboration among agencies.

The Mental Health "System"

The organization, financing and provision of mental health services remains a

complex, confusing and fragmented mix of nonaligned public and private delivery

systems. Uncoordinated funding streams and differing eligibility requirements make

service delivery even more fragmented for children than for adults and is worse yet for

minority children.[151] Poor and minority youth, despite a higher need for services, often

receive lower quantity and quality of mental health services.[152-156] The Surgeon General

lamented in the first ever report on mental health published in 1999, "Even more than

other areas of health and medicine, the mental health field is plagued by disparities in the

availability of and access to its services. These disparities are viewed readily through the

lenses of racial and cultural diversity, age and gender."[17] Thirteen percent is the number

the National Center for Children in Poverty published in 2006.[157] Only 13 percent of

children from diverse racial and ethnic backgrounds receive mental health services.[156] Yet, even amongst the highest served group, Whites, only 24 percent of children have their mental health needs met.[38] Meta-analyses substantiate that denizens of cities are at higher risk for mood disorders, anxiety disorders and schizophrenia, yet two-thirds of children living in low-income, urban communities who are in need of mental health services, do not receive them.[158] More disturbing, those children most in need of services in terms of seriousness of mental illness or complexity of social situation, are the least likely to return for a second visit.[158, 159] Research has found that minority parents are less likely to report mental health problems and more reluctant to have their children receive and continue mental health services than are White parents.[160] Exacerbating the problem is that fewer pediatricians, family physicians and psychiatrists practice in inner-city and low-income areas, where most minority populations live.[154] But, even when minorities access care they are significantly undertreated compared to their White counterparts.[161, 162]

There are five main systems that work on behalf of, or to intervene in the lives of, children and adolescents: 1) the primary medical care sector (including primary physicians and emergency departments), 2) the specialty mental health sector (including mental health professionals and public and private facilities), 3) the education sector (including school-based services and counseling), 4) the child welfare sector and, 5) the juvenile justice sector.[163] However, these systems work independently of one another and given the distinct lines in state budgets for services, no financial incentive exists to encourage personnel and administrators to intervene early in a child's life, averting the probability that the problem will escalate and be more costly for that agency and society in the future. When quality community-based services are not available or accessible,

youth in need of mental health services are bounced around between the various agencies because no one knows what to do with them. More often than not, they end up hospitalized or remanded to the child welfare or juvenile justice systems at taxpayer expense. Lack of community-based treatment has led to a high rate of unwarranted institutionalization of children who have mild, correctable psychological disorders.[164] These five systems, as explained below, are all interconnected. With better coordination of services, better access to services and effective services for all children provided "upstream," the cost savings would accrue through fewer emergency room visits, fewer psychiatric hospitalizations, fewer disruptive crises in school, less need for child welfare intervention and lower recidivism.

Primary Medical Care Sector

Twenty percent of children have diagnosable mental health conditions.[25, 38, 165] As would be expected, the highest prevalence of psychopathology can be found in adolescents (15 percent) but a review of 52 studies revealed a staggering median estimated prevalence of psychopathology among preschoolers at eight percent.[166] One study of 3,860 preschoolers in a primary care pediatric setting found 8.3 percent of children had behavior problems and 21.4 percent showed evidence of an Axis I disorder (all psychological diagnostic categories except mental retardation and personality disorder).[166] And, childhood mental health conditions don't end in childhood with upwards of half of all lifetime cases of mental illnesses beginning by age 14.[167] In children diagnosed with attention deficit hyperactivity disorder (ADHD), one study found 60 percent of them continued to demonstrate mental health problems into adulthood.[168] Adolescent depression, as another example, often continues, unabated into adulthood.[169]

Regardless of age, mental health problems left untreated are associated with increased medical illness, greater medical health services use, and increased mortality.[43] There is evidence, for example, that depression predisposes an individual to developing myocardial infarctions, and conversely, myocardial infarctions increase the likelihood of depression.[169] Only mental illness can impose such profound consequences on a person's quality of life. Yet, only one in five children receives treatment.[165, 170] Most comorbid conditions require the coordinated and holistic treatment of both physical and mental health symptoms and research shows that collaboration between primary care physicians and mental health specialists is necessary if better outcomes are to be achieved.[171] Since nearly all children receive pediatric primary health care, this setting is well positioned to detect problems. But, primary care physicians are not fully trained to diagnose or treat mental health problems, mental health professionals are not trained to work in primary care settings and, perhaps most importantly, neither primary care nor mental health physicians are trained to work as a primary care team. As a result, services become fragmented and duplicitous and children's access to care is compromised.

To help confront this problem, the American Academy of Pediatrics developed the "medical home" as a model of primary care to improve health outcomes and coordinate services.[172] However, decades later, it is difficult to substantiate the benefits of the medical home to child, family or provider, because of concept measurement and sample size issues. Published studies that examine the presence of a medical home and its impact are limited. To date, most studies have been carried out with non-representative and relatively small samples that define the medical home concept in differing ways.[173-175] The main barriers, however, to integration of services are structural problems with

reimbursement of mental health treatment. Medicaid provides 55 percent of all public funding to care for children but only provides mental healthcare in the most desperate cases. Since states receive Medicaid funding in the form of block grants, they have the flexibility to determine who is eligible for coverage, how and to what extent the state will provide mental health services.[164] In many private and public insurance plans, behavioral health services are "carved out" from other health care expenditures. Mental health services generally require separate coding and billing procedures, prohibit mental health personnel from billing for services provided in a non-mental health setting, make pediatricians ineligible to bill for the mental health care services they provide in their office, and pay at levels below the cost of services provided.[176] While SCHIP has provided healthcare to over 2 million children who might otherwise go without care, it still provides less access to mental health care than to medical or surgical care. Even though states must provide mental health coverage under SCHIP, they can still charge higher premiums, deductibles and co-payments for such services than for medical or surgical benefits.[164] The Mental Health Parity and Addiction Equity Act of 2008, was designed to eliminate disparity between physical and mental health services but it failed to specifically address these financing and reimbursement challenges.

Studies show that patients are more likely to seek mental health treatment in primary care settings than in specialty mental health settings.[177] A 1989 study found that 40 percent of all primary care visits were for physical complaints and yet, after a year of study, only 10 to 15 percent were determined to have an organic diagnosis.[178] The 10 most common presenting symptoms were chest pain, fatigue, dizziness, headache, edema, back pain, dyspnea, insomnia, abdominal pain and numbness.[61] A 2006 study found that

around 75 percent of patients with depression sought medical attention for physical complaints.[179] A 2009 study found that patients who had a primary care physician (PCP) used the ED of an inner-city Level 1 pediatric and adult trauma center only for psychiatric reasons,[180] suggesting that PCPs refer their patients to the ED instead of addressing mental health issues in their office or referring out to a mental health specialist. Yet, for children, PCPs provide the majority of psychotropic prescriptions[167] and are often the sole providers of brief counseling and treatment of mental health conditions, especially among underserved, low-income, racial minority populations.[181] Families, in fact, state that they are more comfortable discussing mental health issues with their pediatrician. But pediatricians, in general, are not comfortable talking about mental health issues with patients, citing lack of training, competence, confidence and time as barriers to treating or referring children and adolescents.[182] A 2000 survey by the American Academy of Pediatrics found that while pediatricians felt it was their responsibility to identify children with a wide range of mental health or substance abuse disorders, about half felt it was not their responsibility to manage any disorder other than attention-deficit/hyperactivity (ADHD) disorder.[183]

The need for pediatricians to treat children with emotional and behavioral disorders will only continue to increase in the future. The Federal Bureau of Health Professions estimates that in order to maintain the current utilization rate of psychiatric care, the nation will need 12,624 child and adolescent psychiatrists in 2020; only 8,312 are anticipated to be in practice at that time.[184] Additionally, the number of accredited child and adolescent psychiatry residency programs continues to decrease from 130 in 1980 to 110 today.[185] Given that severe disorders are typically preceded by less severe conditions

that are not brought to clinical attention,[186] pediatricians have significant opportunity to identify behavioral health problems and intervene early in order to stave off worsening symptoms. Colocation of a mental health professional within the primary care setting, has been shown to reduce psychiatric hospitalizations,[172, 187] be particularly beneficial to people from ethnic minority groups who, in general, are less likely to use specialty mental health care[188] and helps reduce the overall cost of mental health care.[172, 187] Effective, efficient, patient-centered medical care is dependent on communication and coordination between health care professionals.

Specialty Mental Health Sector

Mental health problems collectively, are the most prevalent and costly of all children's health care needs.[189, 190] There are two types of mental health providers for children: those who can prescribe medication (psychiatrists, some psychiatric nurse practitioners and, increasingly, pediatricians) and those who can conduct psycho- and behavioral therapies (psychologists, social workers and counselors).[184] Child psychiatrists are the only professionals who can provide both types of services, putting them in great demand. In 1990, the Council on Graduate Medical Education estimated that the nation would need 30,000 child and adolescent psychiatrists to meet the demand in 2000. In 2000, there were only 6,300 child and adolescent psychiatrists.[184] In addition to this severe shortage of providers, they are inequitably distributed. Children living in poverty or rural areas are less likely to have access to child and adolescent psychiatrists.[191] This is especially concerning because those living in poverty are at greater risk for developing mental disorders and because the number of children living in poverty is increasing.[191]

Currently, 51 percent (801, 497) of children in Arizona live in low-income families. A rate higher than the national average of 45 percent.[157] In Arizona there are 12 child and adolescent psychiatrists per 100,000 youth compared to the national average of 16.5 per 100,000.[192] Additionally, because reimbursements for psychiatric services are lower than for other types of care, health care organizations that do offer psychiatric services frequently place obstacles in the way of accessing outpatient psychiatric care and limit the number of inpatient psychiatric beds they maintain.[193] As a result, demand for psychiatric services frequently outpaces supply, leaving the nation's EDs holding the safety net.

Clearly, there is an immense need for child psychiatrists, but psychiatry remains a medical outsider despite the abundance of scientific research on mental illness, and the efficacy of the treatments that exist for an array of mental disorders. As Lois Weithorn asserts, "More often than not...the mental health component is like a square peg trying to fit into a round hole within a health care system that tends not to be particularly hospitable to its presence."[194] The artificial division that exists between health and mental health is both curious and deleterious. Having a health care system that funds and treats medical and mental health problems as independent services, greatly impedes innovation in the development and implementation of targeted behavioral health programs in medical settings. And, studies show, the more targeted the behavioral health intervention is to the needs of patients with specific medical conditions, the greater the medical cost savings. Conversely, the more generic the behavioral health intervention, the less medical cost savings.[188] A lack of coordinated biomedical and psychosocial services leaves families with little alternative but to turn to emergency departments (EDs) to stabilize

their child's behaviors and emotions.[177] EDs are by far the most non-specialized and most expensive venue for the delivery of care for psychiatric crises. These children often require an array of social services and supports, as well as formal, organized coordination that hospital ED staff are ill-equipped to access or provide.

There is an upward trend in pediatric mental health ED visits nationwide. A six-year study found that pediatric mental health-related visits to hospital EDs increased by 102 percent.[23] Although the total number of visits has increased, there has not been an increase in the number of emergent diagnoses (suicidal or homicidal ideation) indicating that greater numbers of patients are utilizing the ED for primary mental health care.[195, 196] Studies show that parents seek care for their children in EDs to stabilize acute emergencies related to mental health problems,[177, 197, 198] to request guidance for at-home child management and to gain access to mental health resources.[199] Still, admission rates are reported to be higher for children, as high as 52 percent, who present to the ED for a mental health crisis as compared to those children presenting with a physical complaint.[28, 35, 177] Furthermore, the average length of stay in the ED for children presenting with mental health complaints is greater than five hours, significantly longer than adult psychiatric or pediatric medical visits.[195] A 2001 study found that three times more children (18.4percent) with mental health visits to the ED were admitted to the hospital compared to children (6.3percent) with non-mental health visits.[177] Hospital admission is more likely for repeat ED visits for emergency mental health care (compared to youth with a single visit).[28, 197] Patterns of recidivism appear to be high among psychiatric patients given a 2006 study which found that among children who frequently used the ED for mental health services, 50 percent of them were seen again within 2 months.[195] The

main reasons cited for these discrepancies in extended length of stay and hospitalizations are lack of pediatric mental health resources both in the hospital and in the community, as well as, the legal complexity and confusion associated with treating this population.[195] Comprehensive community mental health services for youth that rely on a multi-agency, multi-disciplinary approach have been found to cut public hospital admissions and lengths of stays.[200]

EDs certainly fill a crucial void by providing assessment, treatment and referrals for children in crisis but they do so without being monitored, regulated, accredited or overseen by any agency focused specifically on, or having expertise in, mental health issues. The licensing and certification agencies that do govern EDs provide incentives for quick, efficient assessment and disposition. A model that is unrealistic and inappropriate for proper care and treatment of children presenting with mental health needs. Additionally, the ED staff who make triage decisions, assess patients and provide treatment do so, generally speaking, with very little formal mental health training. A sense of tension can develop around the care of psychiatric patients because, while psychiatric presentations make up a small proportion of people seen in the ED, they require time and energy disproportionate to their numbers. They tend to disrupt the normal flow of the ED, can take much longer to assess and require more resources. ED staff often feel that they do not have the proper training. Over 75 percent of emergency medicine and pediatric emergency medicine residency programs report that they do not require, nor do they provide, formal training in mental health emergencies.[23] Studies of ED nurses, 90 percent in one study, consistently find that they most dislike caring for patients in need of psychiatric intervention.[201] Yet, the determinations these staff

members make at every critical stage further strains already scant ED and outpatient mental health resources and beds and have a profound impact on the lives of those children. And, again, while there is a tremendous increase in mental health visits to the ED, there are no guidelines for medical clearance of pediatric patients who present with psychiatric complaints, nor is there any standardization of evaluation instruments or ED psychiatric care.[195] Having a uniform measure for comparison and analysis of services across hospitals is imperative for proper identification and evaluation of "best practice" standards.

Education Sector

Prevalence rates of diagnosable mental disorders in children are as high as 36 percent [202, 203] and up to 50 percent of developmental problems in children are not identified until school entry.[155] The literature provides compelling evidence that strong positive associations exist between mental health and academic success and, conversely, that emotional and behavioral health problems pose significant barriers to learning[204] predicating that the social and emotional needs of students are just as important as their educational needs.[205] Educators have indicated that the unmet social and emotional needs of children can overwhelm school resources, making teaching difficult.[206] Nationwide, only a relatively small number of school children exhibit emotional and behavioral disturbance, but it is by far the most costly disorder for school districts and the most disruptive to the educational environment and outcomes of all students.[207] This has prompted policy statements from the federal government[17, 151] and from professional healthcare organizations[170, 208] to call for schools, especially those located in disadvantaged, underserved communities, to provide a wide range of preventative and

clinical mental health services. Moreover, these commissions underscore the importance of collaboration and partnership between schools and educators and community-based mental health services and providers.[19, 153, 170, 208]

This imperative has been challenging given that historically, education and mental health have been "categorically, fiscally, structurally and scientifically separate."[209] A 2006 study found that teachers who indicated they had taught students with mental health issues also indicated that they had minimal mental health training, less consultation with mental health professionals and were less confident in their ability to manage mental health problems in their classrooms.[210] Nonetheless the school system has become the de facto service provider for children's mental health issues. While only a small percentage of children in need of mental health services ever receive any form of intervention or treatment, of those who do, more than 70 percent receive these services in school.[89] The trouble lies in how schools deliver these mental health services and how effective they are on academic outcomes.[211] On one hand, the school provides an ideal setting: attendance is mandatory, schools are accessible and convenient for children and their families, there is often a variety of service providers including psychologists, social workers, crisis workers and counselors, and, they may prove less stigmatizing than typical mental health service venues. However, the systems of care in place within these settings are generally inadequate. The majority of school mental health programs rely on "pull out" services which tend to reach only a small number of children in need of services, are time and resource intensive, and impede interdisciplinary collaboration between mental health providers and educators.[212] Researchers and professionals generally agree that if schools had better coordination of services, students could be

identified and supported while still in elementary school, improving their chance of success as they advance. Students often give clues early on that they are in need of support but inadequate coordination of services, lack of staff training and limited resources can all contribute to these needs being largely unattended.[212] As a result, emotional and behavioral problems escalate until they can no longer be ignored. Early identification and treatment has the potential to decrease out-of-district placements and special education referrals and increase pro-social behavior and academic achievement resulting in tremendous cost savings.[204]

No doubt schools are playing an increasing role in the provision of mental health services, however, there remains a tremendous variation in the coordination of these services. A national survey of school mental health services in 2002-2003 found that one-third of schools reported exclusive use of school- or district-based staff for mental health service delivery.[213] Another quarter of schools reported exclusive use of outside providers for mental health services. The remaining schools reported a combination of school or district staff and outside providers.[213] Yet, regardless of affiliation, social workers, psychologists and counselors are far too often perceived as adjuncts and not vital to the academic mission of the school.[214] Studies reveal that mental health remains isolated from the mission and structure of schools.[215] Staup (1999) argued that the perceived divide between the nonacademic interests of mental health providers and the academic interests of educators has resulted, at best, in coordination of services when what is needed is integration of services- mental health staff and educators striving toward shared values, goals and strategies.[214] The literature is clear that teacher-student interactions are crucial to academic and social-emotional development.[215] Rones and Hoagwood (2000)

concluded that more positive outcomes resulted when mental health programs were delivered as an integral part of a school curriculum as opposed to as a separate, targeted lesson.[211] For that reason, many researchers are suggesting that teachers be the initiators of mental health interventions and that school social workers, psychologists and counselors act in a supportive role, consulting with teachers as colleagues and essential members of the mental health team.[214, 216]

Unfortunately, the impact of school mental health services on school performance is not fully understood. Studies of efficacy and effectiveness of prevention and intervention approaches coming from the mental health field have failed to include school-related outcome measures[209, 214] Outcome evaluations tend to emphasize the short term impact of services on individuals.[217] More concerning, Rones and Hoagwood (2000) claim that the majority of school-based mental health programs are not supported by research and are not systematically evaluated, which can compromise advocacy and policy enhancing efforts.[211, 218] Despite many guidelines and policies, there is no best-practice model for school-based mental health programs.[204] While the consensus is that effective programs need to include multiple modalities and rely on a variety of personnel to best serve all children in need,[214, 216, 219] current practices often do not align with this model.

Child Welfare Sector

At any given time, more than half a million children reside in foster care, and more than 800,000 children pass through the foster care system annually.[220] Children who are involved in the child welfare system are often those who have experienced the most severe forms of abuse, neglect and other maltreatment at the hands of those charged with caring for them. They are also more likely to experience high rates of poverty, be

exposed to pre/post natal drugs, alcohol and toxins, and parental substance abuse.[220]

Factor in placement instability and it is not surprising that these children have a higher

probability of mental health concerns, social skill deficits and other life stressors.[221] The

numbers are staggering with estimates as high as 87 percent of children in foster care

suffering with mental health and behavioral conditions.[222] Yet, a national survey of

children and adolescents in foster care found that "three out of four youth in child welfare

who met stringent criterion for need were not receiving mental health care within 12

months after a child abuse and neglect investigation."[223] Foster care placement is also

strongly associated with ED visits. The more placements a child in foster care

experiences, the more ED visits they make.[23] All this, despite the fact that the majority of

children in care are eligible for Medicaid and therefore are entitled to the Early and

Periodic Screening, Diagnostic and Treatment (EPSDT) services.[224] The U.S.

Government Accountability Office found that in 2007, only 58 percent of all Medicaid

children received at least one EPDST check-up for which they were eligible.[224] Early

detection and treatment can reduce the need for high-need, expensive services. In the

absence of sufficiently funded, accessible community-based clinics, problems escalate

and waiting lists grow for high-end, expensive services giving the false impression that

more high-end services are what is needed.[225]

The well-being of children served within the child welfare system requires access to

services most often delivered by outside agencies. The American Academy of Pediatrics

(AAP) reported in a 2002 policy statement that "many child welfare agencies lack

specific policies for children's physical and mental health services," further

characterizing the care that children in the welfare system receive as, "often

compromised by insufficient funding, poor planning, lack of access, prolonged waits for
community-based medical and mental health services, and lack of coordination of
services as well as poor communication among health and child welfare professionals."[226]
Delivering physical and mental health care to children in foster care is often disrupted by
changes in the child's placement, making interagency communication and collaboration
paramount. However, coordination between agencies is challenging. Child welfare
workers have heavy caseloads and the national turnover rate is reported to be as high as
40 percent annually, with their average tenure being less than two years.[227] Further
complications include different organizational priorities, difficulty tracking cases across
organizations and confusion over how services should be funded and who has jurisdiction
over the child.[228] This can lead to what Lyons (2004) referred to as "finger pointing"
between systems. More specifically, "different child-serving systems, based on funding
issues, regulations and expertise…[taking] the position that their particular system is not
responsible but that another system should be accountable for the care of the child."[225]
The collaboration that does exist is usually limited to screening and assessment.[227] Both
federal law and local practice reflect an "acute care" treat and release paradigm while all
the evidence sustains child maltreatment to be a chronic condition requiring long-term
support and services. In turn, children in foster care remain much more likely to be sent
to juvenile detention centers.[229]

Juvenile Justice Sector

Between 1912 and 2003, no comprehensive study had been conducted regarding youth
who were incarcerated unnecessarily while awaiting mental health treatment.[133] When
research was done and the results released in 2004, the results were contemptible. The

Government Accountability Office (GAO) found over 12,700 children, mostly adolescent boys, had been placed by their parents in the child welfare (3,700 placements) or juvenile justice systems (9,000 placements) so that they could receive mental health services.[230] The GAO acknowledged that this figure was actually low as "officials in 32 states, including the five states with the largest populations of children" did not respond to the survey.[230] Following up on this study, a six-month study determined that almost 15,000 detained children remained incarcerated, including children as young as seven, because they could not afford or access mental health treatment in their communities.[194, 229, 231] Sixty-six percent of juvenile detention centers admitted to housing mentally ill adolescents, often with no charges pending, because they had nowhere else to go.[133, 194, 231] This means that on any given night, there are close to 2,000 incarcerated youth waiting for community mental health services.[133]

Studies show that there is an increasing relationship between a lack of mental health care and the disproportionate presence of youth, especially minority youth, with mental disorders in the juvenile justice system.[231] Rather than receive treatment, many children are sent to juvenile detention centers that are ill-equipped to deal with their mental health issues.[231] An alarming number of Black and Latino youth are entering the juvenile justice system but Blacks are overrepresented at every stage- arrests, pre-adjudication, the judicial waiver process and the adjudication phase.[231] Between 1988 and 1997, the number of Black children detained increased by 52 percent, while the numbers of White children detained increased by 25 percent.[229] Black children only represent 16 percent of the 10-17 year old population yet account for 37 percent of youth in secure placement and 58 percent of youth committed to state adult prisons.[231] Seven of every 10 cases

involving White girls are dismissed, compared with three of every 10 cases involving minority girls.[232] Additionally, Black children are nine times more likely to have a parent behind bars than are their White counterparts.[229] One reason for minority overrepresentation in detention facilities is that communities of color lack sufficient mental health resources.[231] When they do receive services, Black adolescents tend to be diagnosed with more severe disorders, including disorders considered less amenable to treatment.[233] Police are known to conduct "mercy arrests" since it is easier to treat mentally ill individuals in the juvenile justice system than it is to find space for them in a community mental health facility.[231] Basically, "[p]arents of mentally ill youth can be left with essentially only three paths: 'Beat 'em up[,] [l]ock 'em up[,or] [g]ive 'em up.'"[231]

Child abuse and neglect appear to be stronger predictors of delinquent behavior in girls than in boys.[234] so it is not surprising that youth coming from the child welfare system into the juvenile justice system, are more likely to be female.[232] Although a significant number of youth in both systems have experienced trauma, maltreatment and family discord, a greater percentage of girls in the juvenile justice system have been physically and sexually abused.[231, 234] One study estimated 71 percent of the victims of child sexual abuse to be female,[235] while in another study, 70 percent of girls had reported being victims of either physical or sexual abuse.[233] This puts girls at high risk for mental health problems. In general, throughout adolescence, girls have higher rates of depression than boys and are more likely to attempt suicide but a few studies are showing that mild to moderate depression in girls may actually put them at even greater risk for antisocial and delinquent behavior than boys with depression.[233] Additionally, girls are disproportionately detained and adjudicated for status offenses and technical violations of

probation and confined for their own safety, not because they pose a safety risk to the community.[234] As a result, as one Oregon study showed, even though girls had fewer prior offenses, they spent an average of 131 days in detention compared to 72 days for boys.[234] Contact with the juvenile justice system only exacerbates mental health issues. Girls are often re-traumatized once incarcerated.[232] The characteristics of the detention environment namely, seclusion, staff insensitivity and loss of privacy, can add to the negative feelings and loss of control girls feel, resulting in suicide attempts and self-mutilation.[233] And, suicide rates in juvenile detention facilities are more than 4 times higher than for adolescents overall.[232]

Lack of coordinated services combined with lack of access and ineffective services for minority children contributes to a disproportionate number of them entering the juvenile justice and child welfare systems.[154, 236] A 2004 Congressional investigation found that the cost of incarcerating children who await community-based mental health services is exceedingly high- approximately $100 million annually,[237] while consistent evidence shows that community-based programs can reduce average days of juvenile detention by approximately 40 percent, and reduce recidivism by 80 percent.[238] The significant correlation between juvenile justice and mental illness should act as a bellwether. Only by states providing incentives to identify these youth at an earlier stage, intervene and provide meaningful and effective treatment can they avoid bearing the future social costs which include crime, homelessness, substance abuse and lost productivity. The price tag on these social costs already exceeds $113 billion per year in the United States[164] and will only increase as the rate of mental illness among children increases.

Patient Protection and Affordable Care Act

Even among the insured, 45 percent of youth with depression, anxiety or behavioral diagnoses do not receive treatment.[239] The very fact that the majority of children in need of mental health services, receive them at school, is attestation that mental health services are not at parity with medical services. The Patient Protection and Affordable Care Act (PPACA) holds the promise of eliminating the disparity in coverage between mental health services and other medical services by including behavioral health care as one of the top 10 essential health benefits. No longer are insurers allowed to deny coverage or charge higher premiums due to pre-existing conditions, including mental illnesses, rather, they are mandated to offer these services with the same co-pays and co-insurance as physical health services.[240, 241] Numerous payment reform efforts within Medicare, Medicaid and the private sector are designed to support primary care-based systems of care. The PPACA gave the secretary of Health and Human Services the authority to take to scale any innovation developed that measurably improved quality, reduced cost, or both.[242] Specifically for children, the PPACA provides funding for CHIP through 2015. CHIP guarantees that children receive many services not included in the essential health benefits packages of the exchanges, providing higher quality coverage than is likely to be available in many states.[242] For providers and health plans, motivation for participation in these reformed care systems was the promise of enhanced payment for improved performance through a model of shared savings.[242]

The PPACA includes a substantial expansion of insurance coverage for behavioral health services, which could replace out-of-pocket or direct government payment for these services.[243] This is especially important as studies find Americans to be significantly less willing to pay for mental health issues as compared to general medical

issues.[239, 244-246] Full implementation of the law will greatly expand the Medicaid population. For youth under the age of 19, an estimated 7.6 million youth will gain access to mental health benefits.[239] The entry of these previously uninsured or underinsured youth into the healthcare system through the PPACA mandated health exchanges, will result in increased demand for trained mental health professionals. This has the potential of putting additional strain on an already overstressed system. To address this concern, the PPACA seeks to transition the current primary care systems model to a patient-centered interdisciplinary team delivery model. The use of "medical homes" and "accountable care organizations" with their payment emphasis on the quality rather than quantity of services provided, are expected to better coordinate patient care, improve efficiency and decrease ED visits, but PCPs cannot be expected to provide mental health care without adequate training, infrastructure or assistance and so the PPACA invests in the expansion and training of the primary healthcare workforce to better integrate primary care and behavioral health. Where formerly a physician was responsible for a group of individual patients, now a care team will be responsible for coordinating a patient's overall healthcare needs.[242] The law is designed to incentivize physicians and other health and mental health professionals to work together to care for people across the continuum of care.

Integrating mental and physical health care makes good practical and policy sense. If properly trained and supported all involved are ideally positioned to identify children with mental health problems, to triage for emergencies, to initiate care and to prevent service gaps and patient dropout, ultimately improving clinical outcomes and reducing costs. The organizational changes will cast primary care doctors in the leading role of

coordinating specialized care and ensuring information is disseminated among all the various health professionals. Colocation of multiple services under one roof helps mitigate the stigma too often associated with the use of mental health services, as well as, provide an elegant solution to the problem of poor access by facilitating same-day appointments with multiple providers.

Through the PPACA the federal government has established concrete measures aimed at removing barriers to mental health care. The Supreme Court ruling on the PPACA, allowed states to opt out of the law's Medicaid expansion, leaving each state's decision to participate in the hands of state leaders.[247] Given the fiscal and political climate in many states, 24 states refused to respond to the incentives and regulations associated with the new initiatives. This refusal negates the progress that Congress has made to confront the problem that most vexes our healthcare system: fragmentation. Separating behavioral health care from primary health care harms the quality and integrity of service. The goal of the PPACA is to provide people with mental illness access to affordable mental health care free from discrimination. The PPACA offers many opportunities to promote change and overhaul our healthcare system. The transition toward a more integrated system of care, however, requires more than just bringing health and mental health professionals to the same table, it requires a change in culture both within the medical profession and society at large. The real and perceived barriers to communication among all healthcare professionals need to be addressed in a way that makes regular sharing of information possible. Eliminating the gap in funding streams between mental health and general health is a positive step toward challenging the specific beliefs that people have about mental illness and the value they place on treatment. The willingness of health and

mental health professionals to sit down at the table together is the linchpin to establishing

an effective mental health system.

Chapter 4

Methods

Understanding the population that accesses the emergency department (ED) for pediatric healthcare may provide administrators and legislators insight into developing strategies to reduce costs, decreasing ED overcrowding and improving accessibility to quality healthcare for all children.

Setting

Data for this study came from Phoenix Children's Hospital (PCH). The 56 bed ED has an additional four trauma resuscitation bays and an annual census of approximately 78,000 visits. PCH is an American College of Surgeons-verified Level 1 pediatric trauma center. The hospital was recognized in 2012 as a "Top Children's Hospital" as a result of its ranking in the Leapfrog Group survey, the gold standard for comparing hospitals' performance on national standards for safety, quality and efficiency.[248]

In addition, PCH has four urgent care centers serving the needs of children and their families. The Northwest Valley Urgent Care serves children in Glendale and is located 24.4 miles northwest of PCH. The East Valley Urgent Care serves children in Mesa, Tempe, Chandler and Gilbert and is located 24.5 miles southeast of PCH. The Southwest Valley Urgent Care serves children in Avondale and is located 17.7 miles west of PCH. The Scottsdale Urgent Care serves children in Scottsdale and is located 12.9 miles northeast of PCH. No data from the urgent care centers was used in this study.

The population for this study were all children under the age of 18 who visited the PCH ED between January 1, 2011 and December 31, 2014. The final data-set for analysis

included 270,238 visits to the ED made by 143,496 children. All visits to the ED were categorized and examined in order to construct a general profile of the characteristics of use (Chapter 6). From there, nonurgent (Chapter 7) and mental health (Chapter 8) visits were retrieved and detailed. These data were retrospective and an independent data manager prepared the de-identified data set.

Study Design

This study was a retrospective chart review of all visits to Phoenix Children's Hospital between January 1, 2011 and December 31, 2014 to describe ED use. From the total visits, two groups were created.

1. A frequency analysis was run to determine the ten most common presentations to this particular ED. All patients between the ages of 0 and 17 presenting with at least one of these ten presentations, comprised Group 1. The overall objective with this group was to describe use of the ED for the most common medical issues.

2. Data on all mental health visits were abstracted. Mental health diagnoses were defined as ICD-9 codes between 290.00-319.99 (see Appendix 1 for more detail). All patients between the ages of 0 and 17 with at least one of these diagnoses comprised Group 2. The overall objective with this group was to describe use of the ED for mental health issues.

Using the visit as the unit of analysis, the following questions were answered:

1. What are the ten most common medical diagnoses and what diagnoses do mental health patients present with?

2. What proportion of all visits does Group 1 represent and what proportion of all visits does Group 2 represent?

3. What was the distribution of visits per person for Group 1 and Group 2?

Research Questions

The purpose of this study was to identify ED use for both the most common ED presentations and the mental health presentations.

Epidemiology is defined as "the study of the distribution and determinants of disease frequency in human populations and the application of this study to control health problems."[247] Descriptive epidemiology examines the distribution of disease and analyzes patterns according to person, place and time characteristics.[247] In this study descriptive epidemiology was used to describe ED use in terms of person, place and time:

Person

Who uses the ED for routine medical and mental health issues? This study examined these patients by age, gender, race/ethnicity and insurance status. Using the individual as the unit of analysis, the following questions were answered:

1. In what ways do children in Group 1 differ from children in Group 2?

2. Does insurance status influence use of the ED?

3. Who are the "frequent fliers"?

(a) What are their demographic characteristics?

4. Is there any difference in use based on race/ethnicity?

Place

Where do these patients reside? This study used maps to visualize spatial patterning. Using the place (eg., census tract) as the unit of analysis, the following questions were answered:

1. Where are ED use rates particularly high?

2. What are the characteristics of place that predict use?

Time

How does ED use vary over time? This study examined use by day, season, month and year. Using the time unit (eg., month, year, etc) as the unit of analysis, the following questions were answered:

1. Have there been any changes in use rate from year to year?

2. Is there daily, monthly and seasonal variability in use?

3. Are there trends for certain problems and not others?

4. Are there changes in rates (if any) due to changes in a) demography and/or b) economic climate?

Measurements and Key Outcomes

Demographic characteristics included sex, race/ethnicity, age, address and insurance status. Self-reported race and ethnicity were categorized as Black, White, Hispanic, Native American, Asian and other. Age was grouped into five categories: younger than one year, one to four years, five to nine years, 10 to 13 years and 14 to 17 years (infancy, early childhood, school-aged, early adolescence and middle adolescence). When frequent ED visits were analyzed with patient age, sex, race/ethnicity and payer type, odds ratios (ORs) with associated 95% confidence intervals (CIs) and *P* values were reported. Along with patient-level data, the hospital and four urgent care center locations were added as a layer for analysis.

Diagnoses were coded according to the International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM). Some ICD-9 codes contained three digits, some four digits and others five digits. This researcher reviewed each ICD-9 code and, for uniformity and ease of comparison, assigned each ICD-9 code a 5-digit number. The ICD-9 codes were collapsed into 18 general categories.

Table 4.0. ICD-9 Description.

ICD-9	ICD-9 Description
001.00-139.00	Infectious and Parasitic Diseases
140.00-239.00	Neoplasms
240.00-279.00	Endocrine, Nutritional and Metabolic Diseases and Immunity Disorders
280.00-289.00	Diseases of Blood and Blood Forming Organs
290.00-319.00	Mental Disorders

ICD-9	ICD-9 Description
320.00-389.00	Diseases of the Nervous System and the Sense Organs
390.00-459.00	Diseases of the Circulatory System
460.00-519.00	Diseases of the Respiratory System
520.00-579.00	Diseases of the Digestive System
580.00-629.00	Diseases of the Genitourinary System
630.00-679.00	Complications of Pregnancy, Childbirth and the Puerperium
680.00-709.00	Diseases of the Skin and Subcutaneous Tissue
710.00-739.00	Diseases of the Musculoskeletal System and Connective Tissue
740.00-759.00	Congenital Anomalies
760.00-779.00	Certain Conditions Originating in the Perinatal Period
780.00-799.00	Symptoms, Signs and Ill-Defined Conditions
800.00-999.00	Injury and Poisoning
E and V codes	Supplementary Classification of Factors Influencing Health Status and Contact with Health Services

A frequency analysis was run to determine the top ten diagnoses for the study period.

The 10 most common visits reasons were termed "Nonurgent." Nonurgent is defined in

the literature as those visits in which a delay of several hours would not increase the

likelihood of an adverse outcome.[5] As the majority of patients diagnosed with one of

these ten conditions were discharged, the term nonurgent was ascribed. There is no way

given the quality of data, to determine the intent or severity of a visit. Nonurgent for the

purpose of this paper was simply a term of convenience to describe the top 10 diagnoses.

Table 4.1. Top 10 Diagnoses.

ICD-9 Code	Diagnosis	Total Diagnoses= 270,228	
		N (total)	Percent (%) of total diagnoses
465.90	Acute URI	16,195	6.0%
780.60	Fever	16,008	6.0%
382.90	Otitis Media	12,688	4.7%
493.92	Asthma with acute exacerbation	8,771	3.3%
787.03	Vomiting Alone	8,606	3.2%
558.90	Noninfectious Gastroenteritis	8,111	3.0%
466.19	Acute Bronchiolitis	7,027	2.6%
464.40	Croup	6,802	2.5%
564.00	Constipation	6,314	2.3%
599.00	UTI	5,001	1.9%
	Total (Top 10 Diagnoses)	95,523	35.4%

Further analysis was run to determine the top 10 diagnoses in each age category (< 1 year, 0-4 years, 5-9 years, 10-13 years and 14-17 years) as diagnoses do vary by age.

Psychiatric-disorder-related visits were identified based on records which were coded as 290-319. Diagnoses with primarily adult onset (codes 290, 301, 302, 306, 307 and 310) were not included. Also not included were diagnoses representing an intellectual or processing disorder, such as mental retardation (318.00-318.10), down's syndrome (758.00) or reading or speech disorders, (codes 315.09-315.39) and disorders that could either represent a psychiatric disturbance or a physical ailment such as sleep stage disturbance (307.47), excessive crying (780.95), altered consciousness (780.09) and dizziness and giddiness (780.40). Psychiatric diagnoses were further delineated into substance use disorders, including alcohol and drug use disorders (codes 291-292, 303-305); mood disorders, including depressive and bipolar disorders (codes 296 and 311); anxiety/adjustment disorders (codes 300, 308 and 309); psychotic disorders (codes 293-

295, 297-299); and conduct disorders including ADHD (codes 312-314 and V40.00, V61.20, V61.23, V62.40, V70.10, V71.02, V71.09). Visits for suicidal and homicidal ideation were based on encounters with circumstances codes (V-codes) V62.84-62.85 and V71.60.

Phoenix Children's Hospital had an 11-bed psychiatric inpatient unit during this study period. The data set provided for this study included admission to the ED, discharge from the ED and admission to the inpatient unit. This researcher worked under the assumption that transfer patients were counted as a "discharge." Therefore, it was impossible to know which patients were ultimately admitted and which patients were discharged home. However, a crude estimate was made. This researcher calculated length of stay (LOS) as discharge date from ED minus admission date to the ED. A LOS of greater than one day was used as an indication of admission.

In order to include community-level measures in the analysis, addresses were collected and linked to census tract level data from the 2010 Census. Each variable was represented spatially as a raster map layer. A raster is a GIS data type that consists of a matrix of identically sized square cells, each of which contains a measured or estimated value for a specific variable. A density raster for Group 1 and Group 2 independently was generated using the kernel density estimation technique, which calculates the number of point features per area within a specific search radius distance (neighborhood) of each raster cell. The output cell size and search radius distance is chosen by the analyst, and the final product is then represented as a smoothed contour map. Conceptually, a smoothly curved surface is fitted over each point. The surface value is highest at the location of the point and diminishes with increasing distance from the point, reaching 0 at

the search radius distance from the point. The volume under the surface equals the population field value for the point.

The functional unit of analysis was a rate raster, which represented Group 1 and Group 2 as a function of population for a given geographic location.

Data Management

Two distinct analytical tools, statistical analysis system (SAS) and geographic information systems (GIS), were used in this study.

Statistical Analyses

Statistical analysis system (SAS) software, version 8.2 (SAS Institute) was used to perform standard statistical analyses including calculation of means and standard deviations. Next, inferential statistical methods were used to examine the bivariate relationship between demographic characteristics.

Geographic Information Systems (GIS) software was used to geocode, or, in other words, to determine the latitude and longitude of the residential address of all patients in groups 1 and 2. To decrease the potential for selection bias from incomplete geocoding, all Arizona addresses were checked and cleaned by this researcher prior to entry into GIS. This means that all spelling mistakes were corrected and missing data such as ordinal direction (north, south, east, west) or descriptive direction (road, lane, street, avenue, etc) were inserted, to increase the overall match rate.

Once the addresses were geocoded, they were merged with other geocoded data obtained from the U.S. Census Bureau's Typologically Integrated, Geographically Encoded Reference (TIGER) files. TIGER is a format used by the U.S. Census Bureau. It does not provide demographic data but rather map data to describe land attributes such as roads, buildings, rivers and lakes as well as, areas such as counties, census tracts and census blocks.

Data Analysis

The addresses of all patients in Group 1 (those patients with one or more of the ten most common presentations) were paired with the address of the hospital used in the study as well as the four urgent care centers serviced by the hospital. The addresses for both groups 1 and 2 were geocoded (using GIS) and matched to census block group data (using SAS). The purpose was to identify how far these children travel for service and to calculate ED use rates. GIS has sophisticated mapping and spatial analysis capabilities, and was used to describe both Group 1 and Group 2 user populations.

Additionally, Phoenix Children's Hospital statistics of all children under 18 years of age and residing in Maricopa County were compared to Maricopa County statistics for all children under the age of 18. Risk ratios were calculated to determine the likelihood of visiting the ED by race/ethnicity. Using Census data, maps were created to show the number of foreign born who are of Central American (includes the countries south of Mexico but north of Colombia) and Mexican origin and their proximity to PCH, as well as, the percentage of people living in poverty by census tract within Maricopa County

and their proximity to PCH. Finally, American Community Survey 2009-2013 data were used to compare county statistics of insurance status against insurance status statistics for Maricopa County residents visiting the ED at PCH.

Mapping the socioeconomic and racial/ethnic make-up of the area immediately surrounding PCH, as well as, Maricopa County in general, helped this researcher construct a concept of place. Understanding that the characteristics of individuals and the idea of place may contribute to health variations

The institutional review boards at both the hospital of study and the researcher's university approved this study.

Chapter 5

Phoenix: Geography, Demographics and Health Care

Phoenix

Phoenix is a city with a distinctive, yet largely dismissed, Mexican heritage. The "official" history of Phoenix is dominated by the achievements of Anglo settlers, businessmen and entrepreneurs, conspicuously ignoring the contributions made by those of Mexican descent. In the 1800s, 50 percent of the population in Phoenix was Mexican and they were not only well accepted by the community, but played a strong role in the development of the city.[248] The completion of the railroad in the 1880s tipped this balance. As Anglos became the majority, discrimination took root and the Mexican influence waned.[248] The railroad also brought in wood and glass and other materials that allowed Phoenix to shed its "frontier-town appearance."[249] The architecture changed from the functional and inexpensive adobe homes to the impractical and grandiose Victorian-style homes that were common across the nation at the time. However, fires in 1885 and 1886 led to a ban on using wood in the city center and brick buildings began to sprout up. Rejection of Hispanic architecture like that found in Tucson and Santa Fe, intentionally made downtown Phoenix look "American."[249, 250]

Additionally, local lore mythologizes Phoenix as a city arising from "rugged individualism" and self-reliance. Modern politicians continue to decry government intervention, but Phoenix would not exist if it were not for massive federal projects. In fact, the reclamation of the Salt River is the largest-scale example of government social engineering and public ownership attempted in the United States.[249] In an effort to lure people away from the dirty industrial cities of the era, farmers were allotted a fixed

number of acres and their farms were mortgaged to pay for the dam.[250] Reclamation is what allowed Phoenix to eclipse Tucson and Prescott and rise to take its place as the capital of the territory and then, in 1912, of the state. Federally subsidized electricity brought air conditioning to the desert attracting more people to the area.[251] The automobile had a profound effect on the configuration of the city by encouraging low-density outward sprawl. In Phoenix, increased automobile dependence forced municipal officials to undertake extensive street paving programs. Government-built streets and highways and subsidized water and power all helped spur post-war suburban development and growth.[250] In the 20-year span between 1940 and 1960, Phoenix's population increased from just over 65,000 residents to nearly 440,000.[251] Phoenix was transformed from an economy based on agriculture, mining, ranching and tourism to become a major center for the high-tech consumer electronics industry, defense production and research and development. Phoenix, located in Maricopa County, is now the sixth largest city in the United States with a population exceeding one million inhabitants.[250, 251] Phoenix accounts for 38 percent of the population in Maricopa County and according to the 2010 Census, 28 percent of children under the age of 18 years in Maricopa County, reside in Phoenix.[253]

Maricopa County

Maricopa County is located in the Sonora Desert in the south-central part of Arizona (Map 5.0). Fourteen percent of individuals in 2000 identified as foreign-born, which is higher than the national average of 11 percent.[251]

Arizona Counties
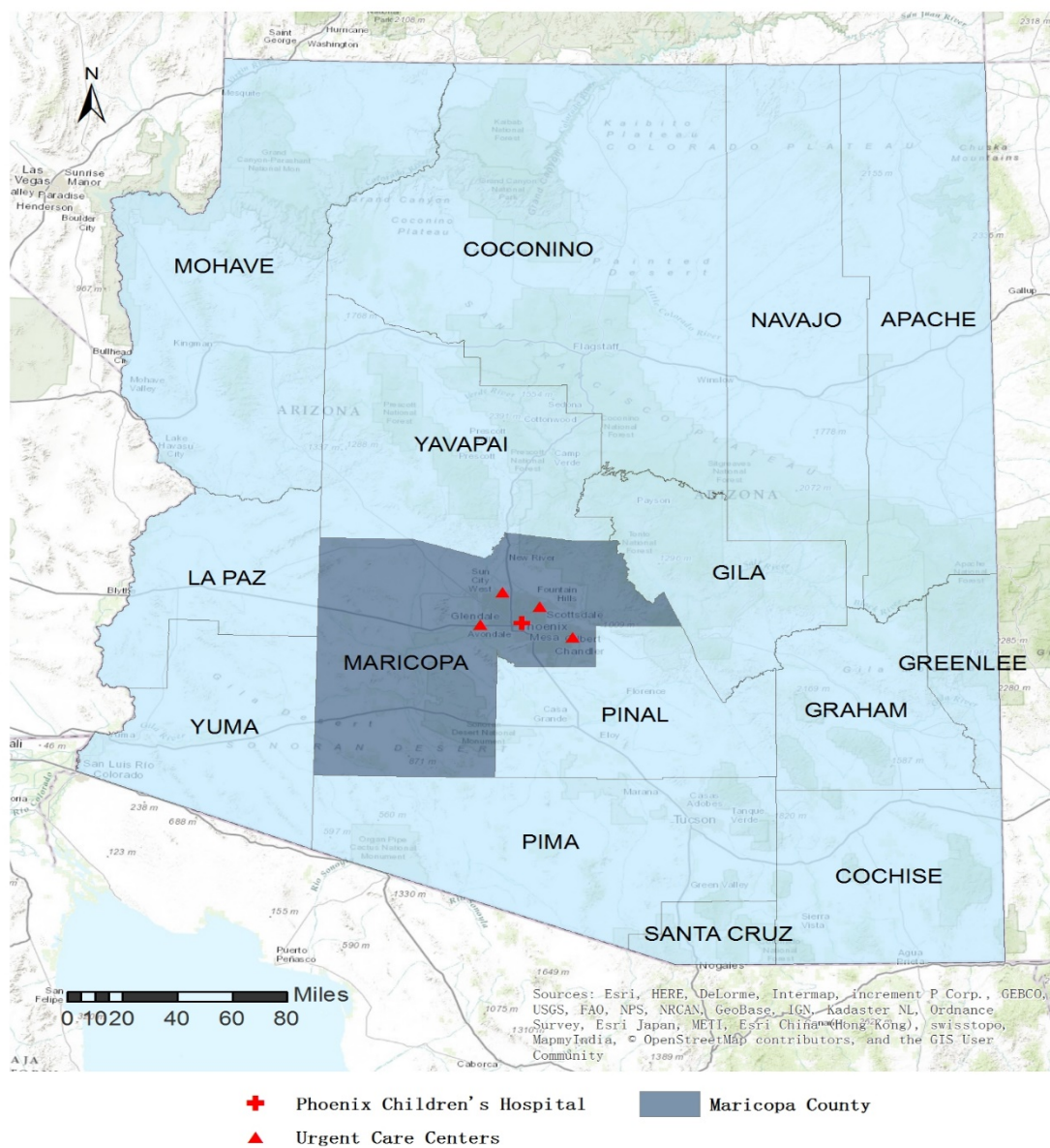
Map 5.0. Map of Arizona with Maricopa County.

Twenty-five cities and towns and five Indian reservations are located in the county

(Map 5.1).[252]
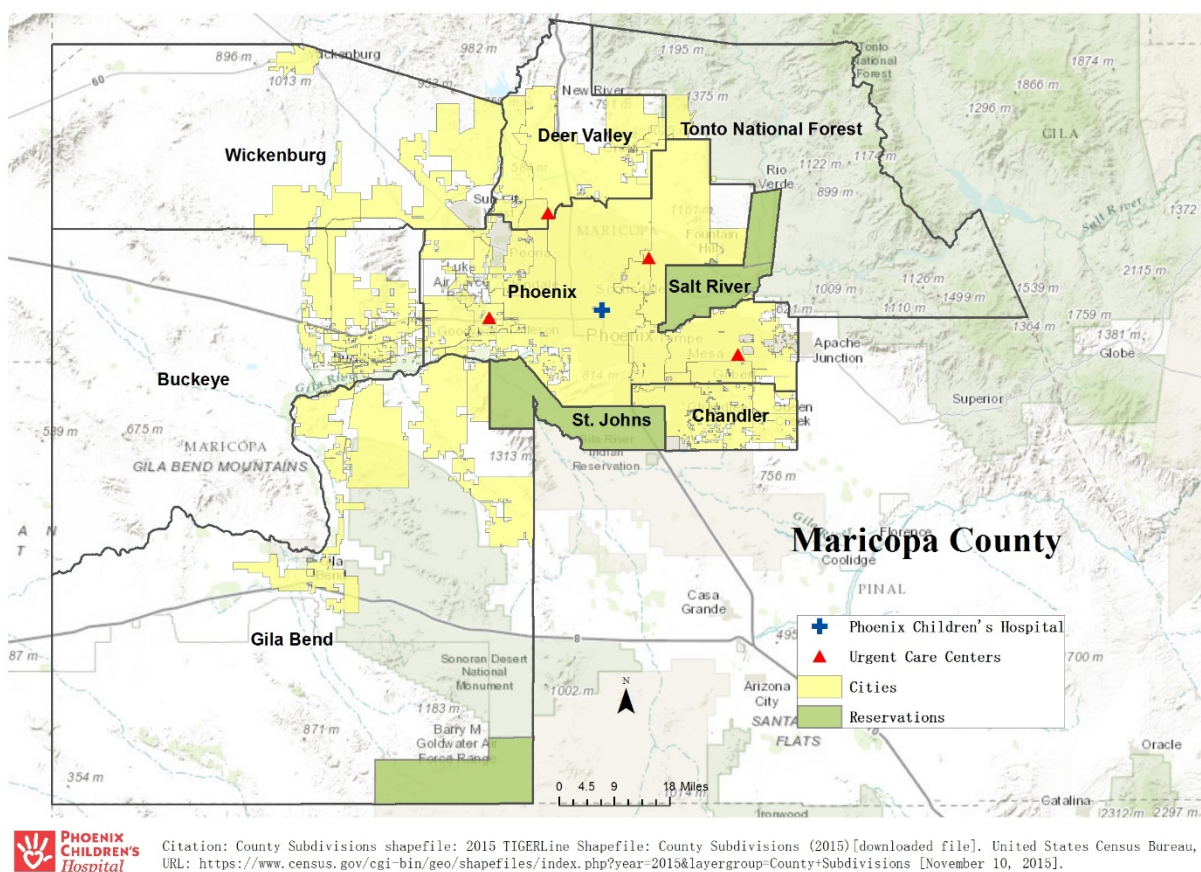
Map 5.1. Map of Maricopa County with major cities and Indian Reservations labeled.

Maricopa County is the most populous county in Arizona, with a population of around

four million and population density of 428 people per square mile.[253] Ninety-eight

percent of the county is urban and only two percent is rural and with over 120,000 acres

set aside, it boasts the nation's largest regional park system.[254] With a land area of 9,203

square miles, Maricopa County is the 14th largest county in the United States, larger in

area than seven states and with a population greater than 21 states.[252] From 1990 to 2000

it experienced a 45 percent increase in population.[251]

The Foreign-Born in Phoenix

The terms "foreign born" and "immigrant" are often used interchangeably and refer to persons who have settled in the United States, but were not born in this country. This population includes naturalized citizens, lawful permanent residents (green card holders), refugees and asylees, persons on certain temporary visas and the unauthorized. There are four primary categories of immigrants to the United States: legal immigrants, refugees, asylees and undocumented immigrants.[255] Legal immigrants are individuals who have been granted permission by the Immigration and Naturalization Service (INS) to enter the United States permanently or temporarily. A refugee is a person who is forced to flee his or her country because of persecution or war and is granted refugee status prior to entering the United States. An asylee is also someone who is fleeing his or her country because of persecution or war, but an asylee enters the United States without legal permission. Once an asylee is in the United States, he or she must apply for refugee status. If denied, then he or she will be deported. Undocumented immigrants do not have permission to be in the United States and can be deported if found. It has been estimated that one in five children in the United States have at least one foreign-born parent.[256]

Five years after statehood, Maricopa County, where Phoenix is nestled, experienced a "cotton boom," attracting Mexican labor from Mexico and across the Southwest.[257] In 1942 in response to war-induced labor shortages in the agricultural industry, the United States and Mexico entered into a treaty providing for the importation of an unlimited number of temporary workers, called Braceros. The Bracero program slowed immigration to the point that by the 1950s those of Mexican descent living in Phoenix

were primarily native-born.[258] But by the end of the 20th century, this began to change. With increased border vigilance in California and Texas, Arizona became the main corridor for undocumented immigrants to enter the country. Between 1980 and 2000, the Latino growth in metro Phoenix grew by 261 percent.[259] Maricopa County became the fastest growing county in the United States from 2005 to 2006, and Latinos were 55 percent of that growth.[257]

Slightly more than fourteen percent of Phoenix-area residents are foreign-born, yet they represent 30 percent of the individuals living in poverty. Arizona is one of ten states that has a majority-minority child population (i.e. the percentage of White children in the state is below 50 percent). The state also has the largest "racial generation gap" of the 50 states with 64 percent of adults identifying as White yet 58 percent of children identifying as non-White.[260]

Latinos may be the largest sub-population in Phoenix, but Asian immigrants are now the fastest growing.[261] The general complexion of these two immigrant groups is quite different. While the Latino population, generally speaking, tends to be less skilled and economically disadvantaged, the Asian population tends to be more highly skilled and economically secure.[261] Additionally, both Phoenix and Tucson have regional offices that help resettle refugees in the United States. As émigrés arrive in Phoenix, they are placed in Catholic Social Services and International Rescue Committee (IRC)-sponsored apartment complexes scattered in and around the northern section of the metropolitan area.[262]

The traditional view of settlement patterns held that differences in educational, occupational and income status led naturally to segregation by race.[263] This assumption

was the basis of the spatial assimilation model, which holds that families and individuals generally seek upward mobility by relocating to economically better off areas (ie, leave ethnic neighborhoods for areas with more Whites). For immigrants, settlement also includes acculturation and English language fluency.[263] When examining the geographic distribution of major ethnic groups, it is important to parse the difference between an ethnic enclave and an ethnic community. An ethnic enclave is a predominantly low-income area where immigrants have settled out of necessity, not by choice, whereas an ethnic community connotes an affluent area where immigrants choose to live.[264]

Historic immigration centers like New York City and Los Angeles are known for their ethnic enclaves, but you will not find a "Chinatown" or "Little Havana" in Phoenix due largely to the way the city is structured.[250] Phoenix lacks a city center and affordable housing is not confined to certain neighborhoods. The availability of affordable rental housing all over the Phoenix-metropolitan area ensures that recent immigrants do not concentrate in one area. Even refugees, the IRC contends, rarely stay in their initial housing for more than six months.[262]

These fundamental changes in settlement patterns compel immigrant communities to seek new ways to maintain transnational community ties. Ties that traditionally were strengthened by the interactions that occurred daily and effortlessly in high-density, urban ethnic enclaves.

Immigration Control and Access to Health Care

> *"Abominations such as apartheid do not start with an entire population suddenly becoming inhumane. They start here. They start with generalizing unwanted characteristics across the entire segment of a population. They start with trying to solve a problem by asserting superior force over a population. They start with stripping people of rights and dignity- such as the right to be presumed innocent until proven guilty- that you yourself enjoy. Not because it is right, but because you can. And because somehow, you think this is going to solve a problem."*
>
> > -Desmond Tutu, Nobel Peace Laureate and South African anti- apartheid activist, commenting shortly after Governor Jan Brewer signed Arizona's SB 1070 into law[265]

Arizona Senate Bill 1070, the "Support Our Law Enforcement and Safe Neighborhoods Act", passed April 28, 2010 and enacted July 29, 2010, is one of the toughest and most controversial immigration laws in the United States. The law's intent is to bolster a feeling of safety and solidarity among citizens by identifying, prosecuting and deporting undocumented immigrants. The law broadens the authority of state and local law enforcement to detain any individual unable to provide proof of citizenship upon request.[266] The law also allows any legal resident of Arizona to sue any county, city or state official for failure to enforce the immigration laws to the fullest extent possible.[266]

In February 2011, Senator Pearce, emboldened by his success with SB 1070, went on to introduce Senate Bill 1611. This bill contained a series of proposals targeted at the children of undocumented immigrants. The proposed omnibus immigration bill would require at least one parent to be a U.S citizen or legal permanent resident in order for a

child born in the United States to be considered a U.S. citizen.[265] Pearce and his Republican colleagues wanted to generate "a review of the Supreme Court's interpretation of the Fourteenth Amendment."[265] Additionally, SB 1611, included provisions that prevented undocumented students from accessing higher education, required proof of legal status to attend K-12 schools and required hospitals to inquire about the immigration status of their patients. SB 1611 did not pass, but the passage of SB 1070 opened the floodgates for copycat legislation. In the first six months of 2011, state legislators across the country introduced 1,592 bills and resolutions relating to immigrants and refugees, although most were not enacted.[267]

Although the specified targets of SB 1070 were undocumented immigrants, the long-arm of the bill extended to family, friends and neighbors of all immigration statuses given the conflation of immigrant status and Latino identity. This hot, anti-immigrant climate exacerbates both existing and perceived barriers to health care access.[268] Several studies indicate that children with a foreign-born parent have worse perceived health outcomes and are more likely to experience health access barriers as compared to children whose parents are U.S. born.[256] Instead of feeling safer, one case study in a predominantly Latino community in Northern Arizona found participants felt less safe in their communities after the passage of SB 1070, resulting in a reduction in health care utilization and outright cessation of care.[266, 267] Two key barriers for health care access are lack of medical insurance and not having a usual source of care.[267] Under federal law, illegal immigrants are prohibited from receiving public benefits, although they are allowed to receive emergency services, health care and other programs that have been identified as "necessary to protect life and safety." Excluding permanent residents and

undocumented immigrants from accessing health insurance leaves them dependent on emergency rooms for their care.[269]

For several years now, Arizona has required individuals to provide proof of citizenship in order to apply for welfare-related public assistance. But American citizens are not accustomed to providing such documentation, resulting in a loss or delay of coverage for large numbers of eligible citizens. Ironically, Latin American immigrants, who are often the target of such public policies, are much more likely to maintain current identity documents for their citizen children and, therefore, are more likely to benefit from this assistance. Touted as a cost containment strategy, the added processing time for citizen verification contributed to an increase in administrative costs. Recently, less than half of Arizona's KidsCare program applicants were processed on time, despite the state allocating an additional $10.4 million.[270] And, while it is prudent for government officials to be wary of fraud, there remains no substantive evidence that undocumented immigrants are perpetrating such crimes or are a significant cause of our nation's skyrocketing health care costs.[270]

Mental Health Care System in Phoenix

Due to the complex nature of mental health issues and tightly constrained budgets, rising health care costs and provision of care for the underinsured, uninsured and indigent, in 1991 Arizona began separating out mental health insurance benefits from the general insurance plan. This practice, known as "carve-outs," is a managed care technique intended to control expenditures while maintaining access to care.[271] Mental

health problems tend to be chronic and recurrent and do not adhere to a standardized treatment protocol. Patients are best served by receiving a variety of treatment modalities such as medication, therapy and vocational rehabilitation, necessitating the need for a network of collaborating and integrated agencies.[141] In order to achieve this goal, Arizona contracts with Regional Behavioral Health Authorities (RBHA). The RBHAs then subcontract to a network of service providers to deliver a wide range of behavioral health care services. The State of Arizona's Division of Behavioral Health Services oversees four RBHAs and five tribal RBHAs/contractors. Contracts for RBHAs are rebid every three to five years (Figure 5.0).[272]
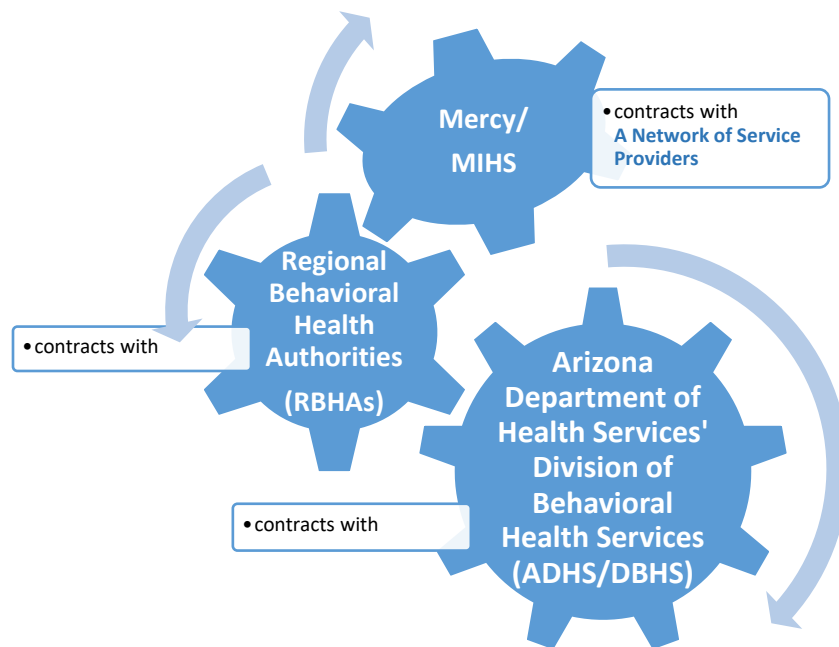
Figure 5.0. Mental Health System in Arizona.

The original system was run by the nonprofit organization, ComCare. But after numerous problems culminating in a declaration of bankruptcy, the state of Arizona awarded the publicly-funded behavior health contract that serves Maricopa County to the

national for-profit managed care company, ValueOptions (VO), based in Virginia.[273] The

rationale was that private sector management expertise was needed to bring stability to

the financially troubled system. After widespread dissatisfaction with the quality of care

provided by VO, Magellan Health Services, a for-profit company in Connecticut was

awarded a $1.5 billion contract in 2007, the largest mental-health care contract in

America.[274] However, imposing a for-profit managed care system on a nonprofit service

delivery system has inherent risks because the provision of mental health services is

dependent on cooperation and integration across varying types of agencies. A large

amount of funding comes from the state and federal governments, which is monitored

and controlled by a for-profit corporation and delivered by non-profit agencies. The risk

to clients occurs when these three entities have conflicting goals and values, making full

collaboration of services difficult to achieve. In 2013, despite several appeals, Magellan

lost its contract to the joint bid by Mercy Care Plan and Maricopa Integrated Health

Systems (Mercy/MIHS),[275] a contract worth three billion dollars. Mercy/MIHS is a

locally owned and operated not-for-profit company and became Maricopa County's new

RBHA on April 1, 2014. This new pact is the state's first integrated health program that

aims to blend physical and mental-health care (Figure 5.1).

The State	Mercy/MIHS	Provider Options	Clinics
ADHS/ DBHS serves as the single state authority to provide coordination, planning, administration, regulation and monitoring of all facets of the state public behavioral system. They contract with RBHAs	Mercy/MIHS is Maricopa County's RBHA. The non-profit company provides oversight over clinics and other administrative functions	Whole Health Clinic Patient-centered medical homes (PCMHs) Patient-centered health care homes (PCHCHs) Virtual Health Homes Or, stay with current provider	Mercy/MIHS proposed to have the following by day 1: **8** Serious Mental Illness Clinics with co-location (with goal to become fully integrated with shared medical records by end of year 1) **3** PCHCHs **13** PCMHs

Figure 5.1. Maricopa County's RBHA and their integrated health program proposal.

There is no single solution that will ease the negative effects incurred by state budget cuts to the mental health system. Even though funds for children's services have not been dramatically reduced in Arizona, gaps in one service area can exacerbate problems in other service areas. For example, the lack of mental health services for a parent struggling with mental illness can have a profound effect on his/her child. Additionally, problems with low Medicaid reimbursement for outpatient providers, reduces the availability of outpatient services for all children and increases the need for more intensive inpatient treatment, as well as, increased utilization of the criminal justice system for the management of some undertreated individuals.

However, eliminating the disparity in coverage between mental health services and other medical services is an important first step. Patient-centered medical homes and

patient-centered health care homes with payment emphasis on the quality rather than the quantity of service provided holds the promise of improving communication and coordination between healthcare professionals thus improving patient care and satisfaction.

Chapter 6

Phoenix Children's Hospital

Phoenix Children's Hospital (PCH)

There are 112 hospitals in Arizona, 55 of which are in the Phoenix metropolitan area. Only two hospitals in the state specialize in pediatrics: Cardon Children's Medical Center located in Mesa, and Phoenix Children's Hospital in Phoenix. PCH is an independent health care service provider, and a private nonprofit hospital.

The first hospital in Phoenix was Good Samaritan Hospital. Originally opened in 1911 in an apartment house on Third Avenue south of Van Buren Street, it provided the city with 15 hospital beds. In 1923 "Good Sam" found its permanent home on Tenth Street and McDowell Road. In 1978, Phoenix had become the ninth largest metropolitan area in the country and talk of establishing a hospital for children began in earnest.[276] By 1983, this vision had become a reality and in an effort to save money and consolidate resources, Phoenix Children's Hospital opened as an independent hospital on the Good Samaritan Hospital campus. This arrangement continued for nearly 20 years until, faced with a booming pediatric population, Phoenix Children's Hospital seized on an opportunity for growth and moved two miles away to its current 20-acre campus on Thomas Road to become the only free-standing pediatric hospital in Arizona and one of the 10 largest hospitals of its kind in the United States.[276]

On June 1, 2011, Phoenix Children's Hospital opened its tower which expanded capacity from five stories to 11-stories.[277] However, this expansion project did not include any immediate changes to the location, size or structure of the emergency department. As the only ACS-verified Level 1 Pediatric Trauma Center in Arizona, Phoenix Children's Hospital treated 2,380 children in 2013 and the emergency department treats over 78,000 children a year.[278] As a result, the need for expanded space is evident and a plan to build a new Emergency Department and Trauma Center has begun. Meanwhile, to accommodate this growth, the emergency department has patch-worked space and now has a 56 bed capacity, including four additional trauma resuscitation bays.

Phoenix Children's Hospital has 385 licensed beds and boasts over 70 areas of expertise in pediatric medicine. In addition, there are six Centers of Excellence: Barrow Neurological Institute, Center for Cancer and Blood Disorders, Children's Heart Center, Center for Pediatric Orthopedics, a NICU and a Level One Pediatric Trauma Center. Additionally, the hospital operates satellite centers in the East Valley, Scottsdale, the Northwest Valley, Southwest Valley, Yuma, Tucson and Flagstaff.

Phoenix Children's Hospital is the only pediatric level 1 trauma center in Arizona and as Map 6.0 shows, patients are transported or referred to the ED from all over the state. The data presented in the map were the 270,228 total visits to PCH between 2011 and 2014.

Total Visits: Arizona
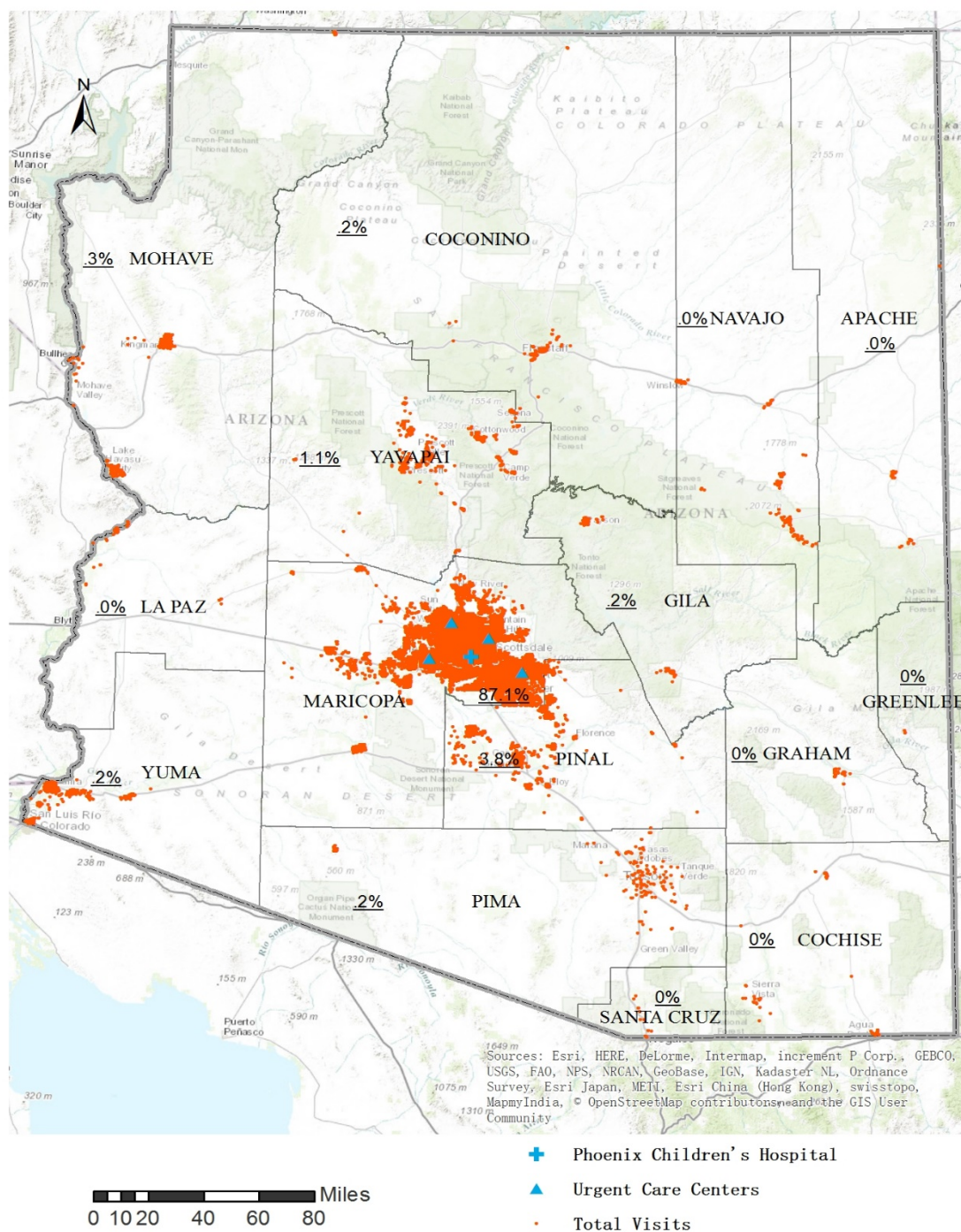
Map 6.0. Map of Arizona showing all visits to the ED.

The majority of patients, 87.1 percent reside in Maricopa County but as Map 6.1 shows, 1.1 percent came from Yavapai County (directly north of Maricopa County) where Prescott sits, 0.2 percent came from Yuma County (southwest corner of the state), the second largest cluster, 3.8 percent, came from Pinal County (central Arizona) which includes the Ak-Chin Indian reservation, and part of the Tohono O'odham Nation, the Gila River Indian Community and the San Carlos Apache Indian Reservation and 0.2 percent came from Pima County (directly south of Pinal County) and the Tucson area.

Demographic Characteristics of Phoenix Children's Hospital Users

Demographics by Race/Ethnicity

To better understand the patterns of ED use, the demographic characteristics of all individuals from Arizona were analyzed. There was a total of 143,500[1] individual children under the age of 18 who visited the ED during the study period. More than half of these individuals (55.8 percent) self-identified as Hispanic. Thirty percent of visits were made by Whites (29.8 percent), 8.4 percent were made by Blacks, 3.1 percent were made by Native Americans and 1.1 percent were made by Asians (Figure 6.0).

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[1] There were 4 cases where an individual was a duplicate. Those diagnoses were eliminated bringing the total individual children to 143,496.
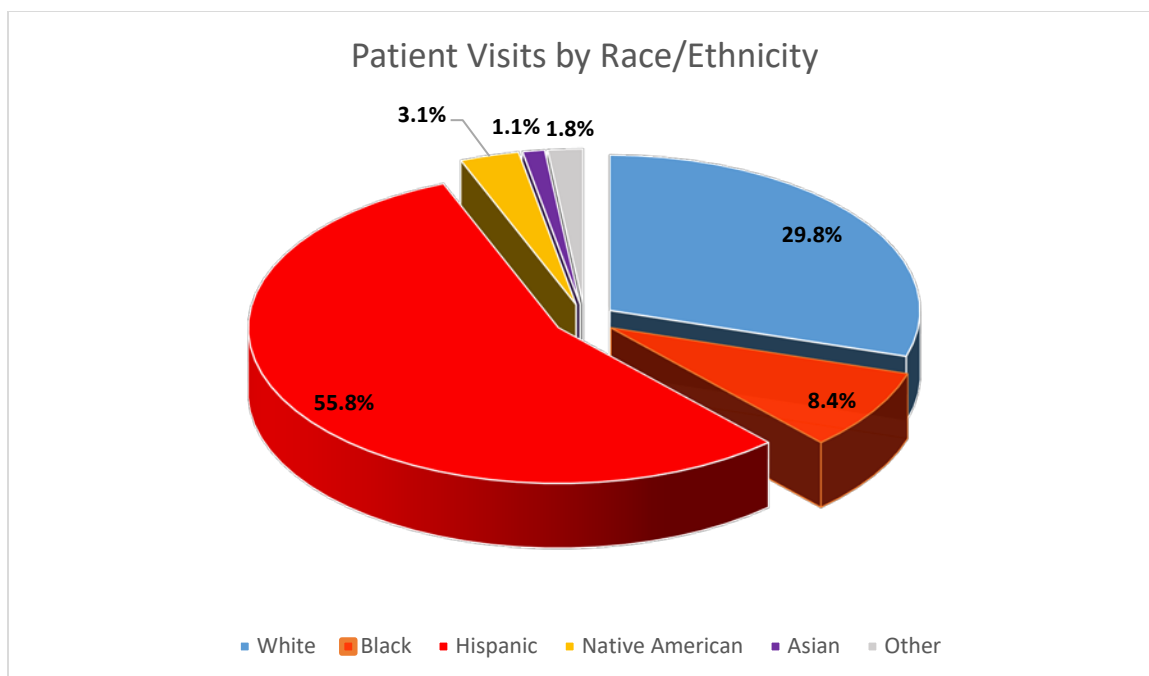
Figure 6.0. Percent of patients visiting the ED for entire study by race/ethnicity.

The researcher examined the frequency of visits per year. The majority of patients (73 percent- 80 percent), regardless of race/ethnicity, made one visit in a year. Thirteen percent to 17 percent made two visits. Four percent to six percent made 3 visits. One percent to two percent made four visits and two percent to three percent made five or more visits.

Figure 6.1 shows no significant change in visits per year based on race/ethnicity. Roughly the same percentage of Whites, Blacks, Hispanics, Native Americans and Asians visited the hospital over the 4-year study period.
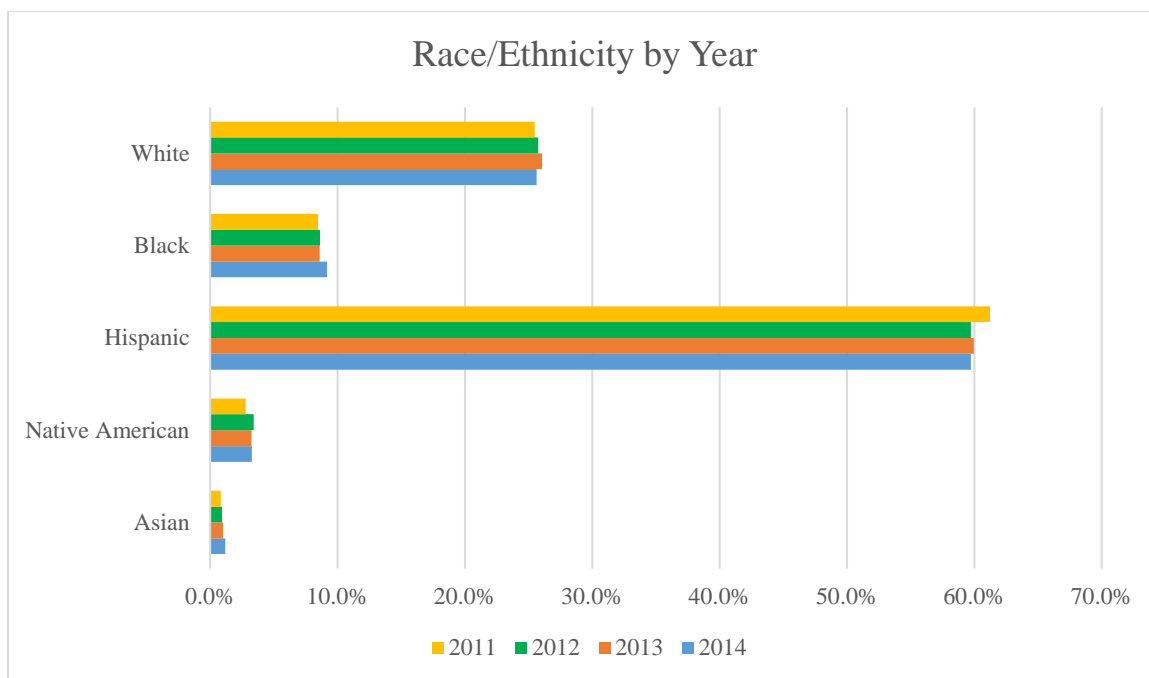
Figure 6.1. Percent of total visits by year and by race/ethnicity.

As Hispanics represent the vast majority of individuals who visited the ED between 2011 and 2014, it is well-reasoned that Hispanics would also be the most frequent visitors, accounting for the majority of five or more visits (61.3 percent) (Figure 6.2).
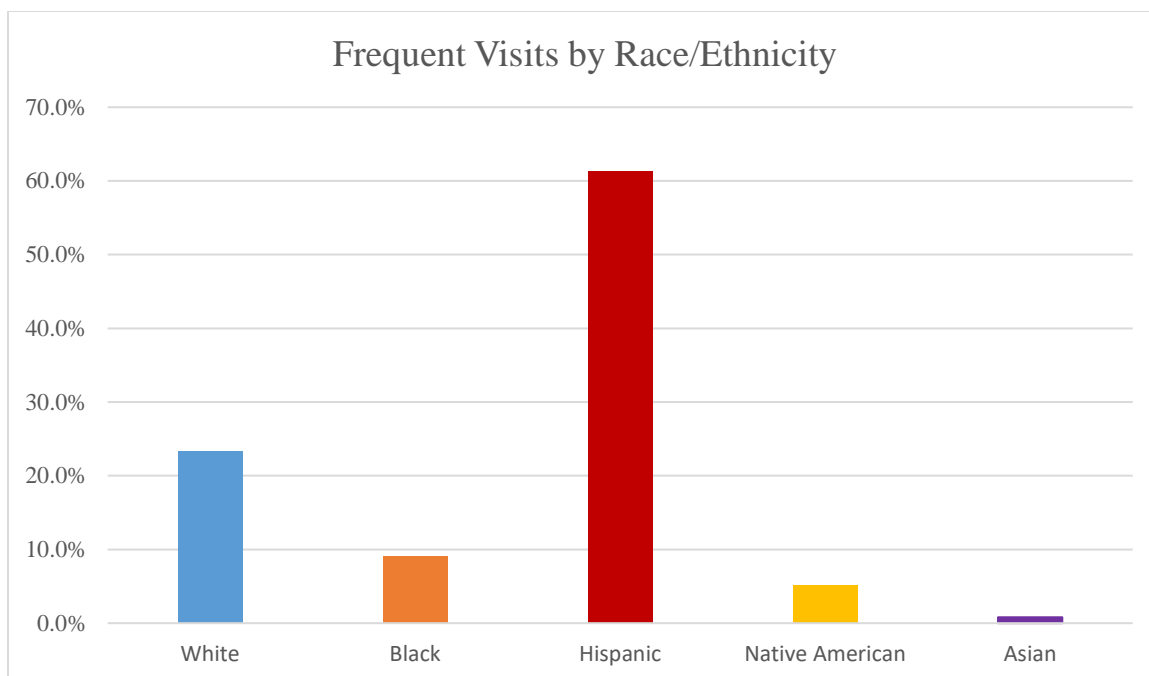
Figure 6.2. The percent of all individuals making 5 or more visits who are White, Black, Hispanic, Native American and Asian.

However, when the researcher looked at the percent of Whites, Blacks, Hispanics, Native Americans and Asians who made frequent visits (5 or more in one year), Native Americans had the highest rate of frequent visits to the ED (Figure 6.3). The odds were 1.7 times greater for Native Americans to make frequent visits to the ED compared to Hispanics (OR=1.7, CI=1.5-2.0, p<.0001). While the reasons why Native Americans were the most frequent users of the ED was beyond the scope of this paper some possibilities include long clinic wait times, no primary care provider, a preference for ED care and insurance status.
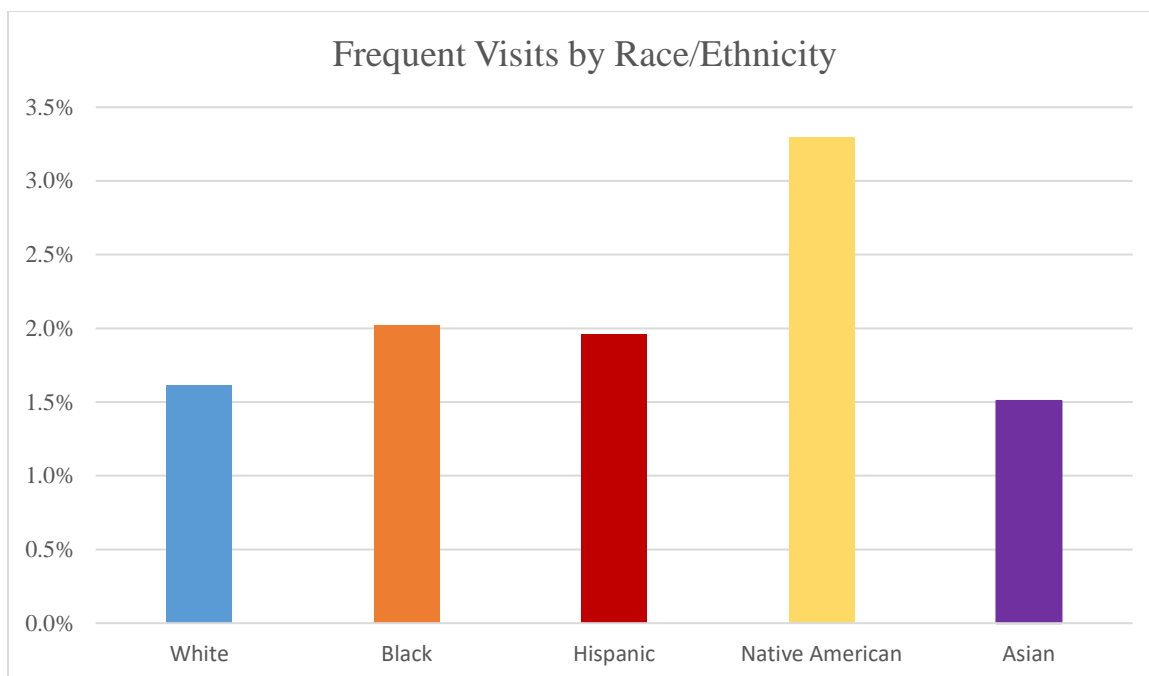
Figure 6.3. Of all Whites, Blacks, Hispanics, Native Americans and Asians who visited the ED, the percent who made 5 or more visits.

Patients bring with them their own beliefs and behaviors regarding health and well-being and, as the 2010 U.S. Census confirmed, the complexion of Arizona is changing due to a growing minority population and a significant influx of immigrants. Understanding the varied perspectives and values of individuals is imperative as failure to take sociocultural factors into account may lead to stereotyping and biased or discriminatory treatment of patients based on race, socioeconomic status or language proficiency.

Demographics by Age

National statistics show that infants comprise a disproportionately large proportion (13 percent) of all pediatric ED visits.[83] At Phoenix Children's Hospital, 20 percent of all

visits were by children under the age of one year. Overall, the youngest children displayed the highest rate of ED visits (Figure 6.4), forming an inverse relationship between age and visits. As age increased, visits decreased.
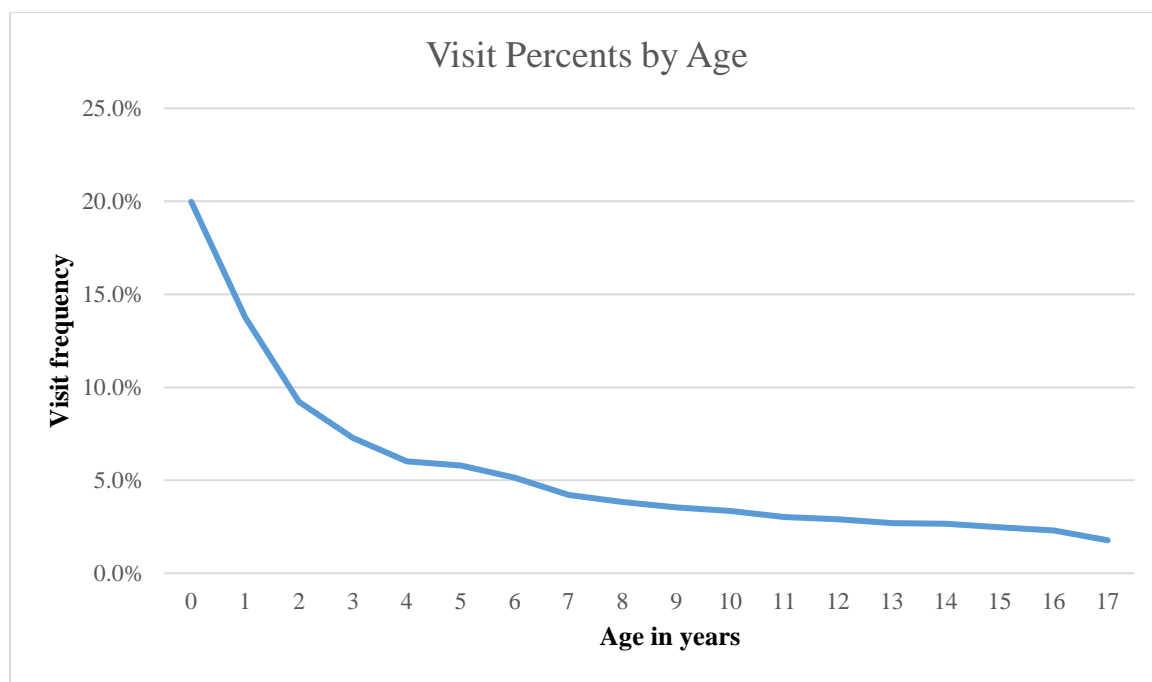
Figure 6.4. Percent of total ED visits by individual age for entire study.

In fact, as Figure 6.5 shows, infants were 2.5 times more likely to visit the ED than a 5-year-old, nearly 4 times more likely to visit the ED than a 10-year-old and more than 6 times more likely to visit the ED than a 17-year-old. Fifty percent of visitors were children under the age of five years, with children under one year of age making up 15.3 percent of individuals visiting the ED.
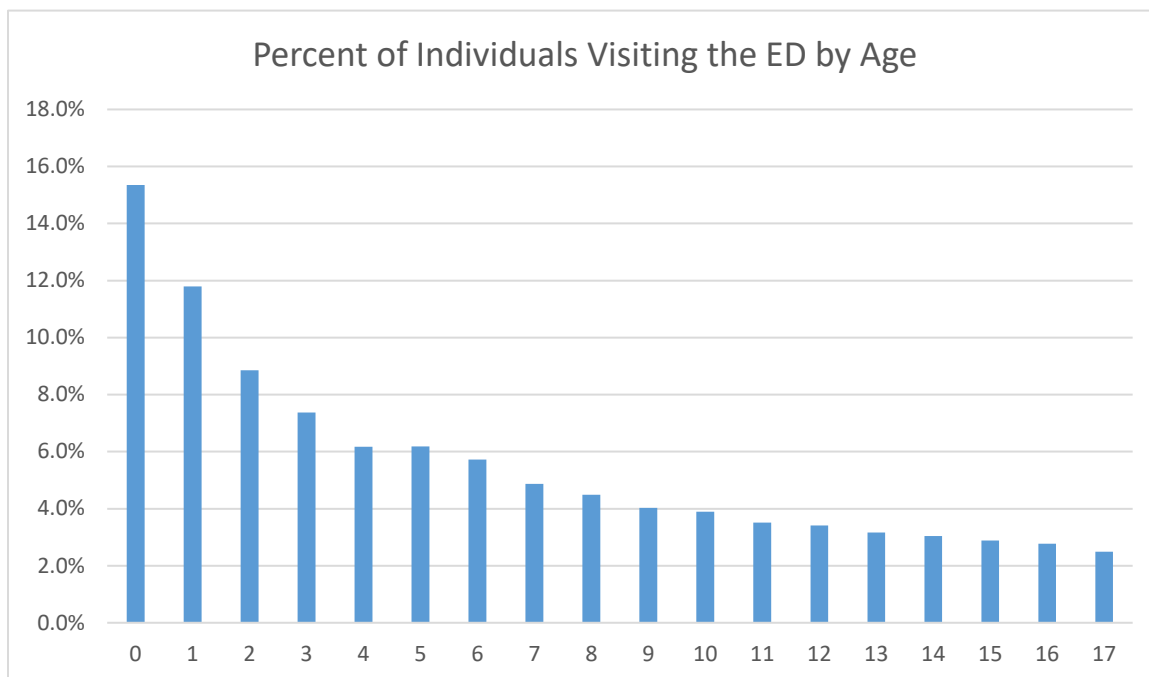
Figure 6.5. Percent of individuals visiting the ED by age between 2011 and 2014.

When looking at frequent visitors, those making five or more visits in one year, increasing frequency of ED use was again associated with age. Sixty-nine percent of frequent visits to the ED were made by children under the age of five. But, whereas infants had the highest number of overall visits, amongst frequent visitors, one-year-olds made the most visits. Figure 6.6 shows, the odds were 2.5 times greater for a one-year-old to be a frequent visitor to the ED than it was for an infant (OR=2.5, 95 % CI=2.2 to 2.7, p<.0001).
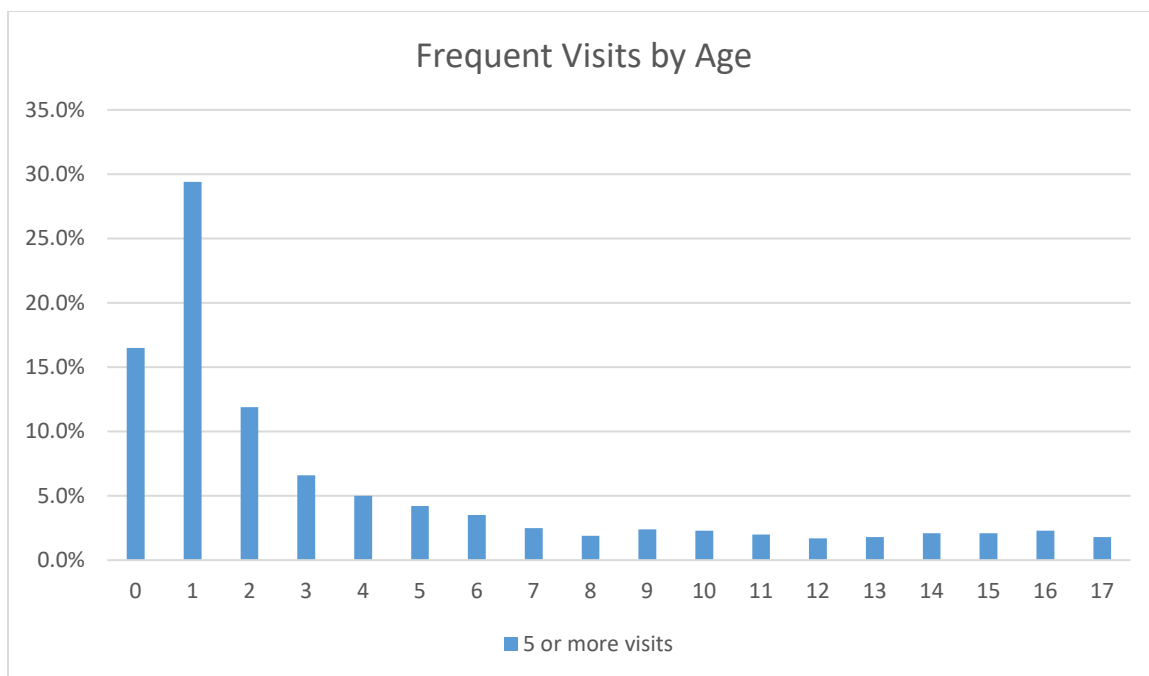
Figure 6.6. Out of all frequent visits (5 or more visits), percent made by each age 0-17 years.

In 2006 the Institute of Medicine (IOM) published a report on emergency care of children, noting that "children are not just small adults."[78] Pediatric patients present special challenges to providers not only because their medical needs differ from adults, but because of the variability within pediatrics. Age dictates the motive and urgency (perceived or real) for bringing a child to the ED. A parent's rationale for bringing in a nine-month-old is different than the reason for bringing in a nine-year-old. Chapter 7 will examine in more depth the top ten diagnoses in each age category.

Demographics by Gender, Age and Race/Ethnicity

This section looks for differences in use patterns based on gender, age and race/ethnicity.

Overall, there were more visits by male (53.3 percent) than female (46.8 percent)

patients[2]. However, during adolescence (ages 14-17) more females were seen than males

(53.5 percent vs 46.5 percent) (Figure 6.7).

Visit Percent by Gender and Age Category

	<1 year old	1-4 years	5-9 years	10-13 years	14-17 years
■ Male	55.7%	54.9%	54.3%	53.2%	44.1%
■ Female	44.3%	45.1%	45.7%	46.8%	55.9%

■ Male   ■ Female
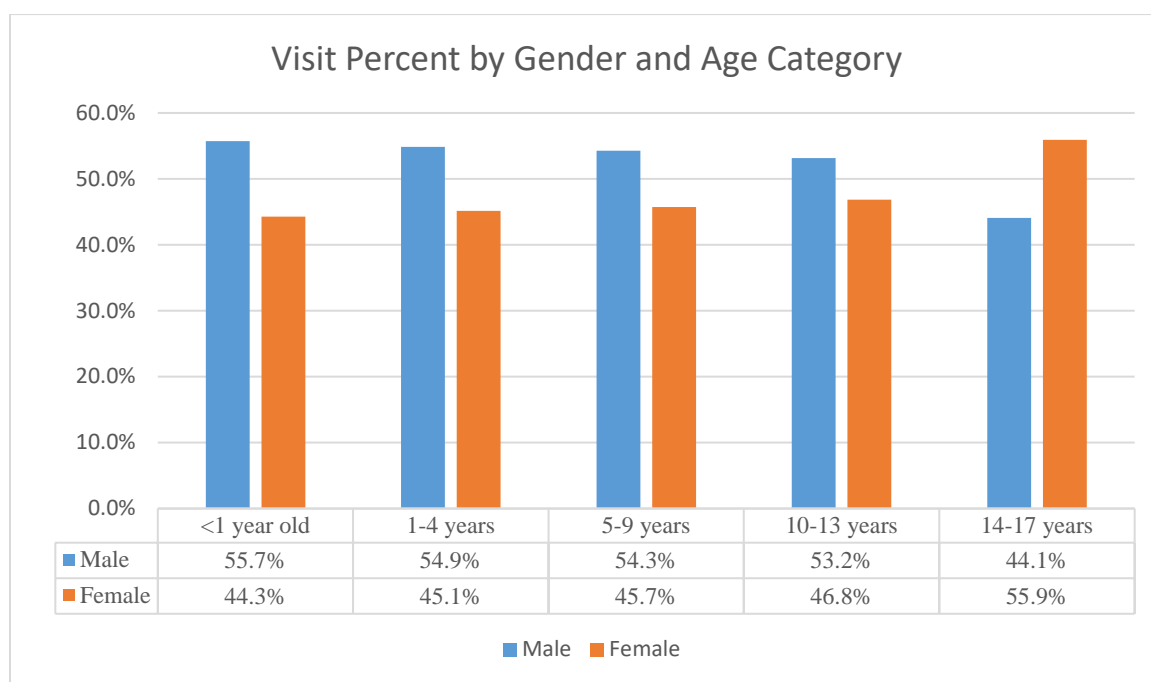
Figure 6.7. Out of all visits to the ED, the percent of males and females in each age category[3] who came between 2011 and 2014.

As Figure 6.8 shows boys, on average, made 20.5 percent more visits than girls until

age 12, when that gap narrowed to 11.0 percent. By age 13, the trend reversed as a

fraction more girls (50.1 percent) visited than boys (49.9 percent) and then the gap

progressively widened. At age 14, 11.4 percent more girls were seen than boys, by age

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[2] Gender specific data was missing on 520 individuals.
[3] In the <1 year-olds there were 517 missing, in the 1-4 year category there was 1 missing, in the 5-9 year category there was 1 missing and in the 14-17 year category there was 1 missing

15 that number rose to 27.8 percent and by age 17, 43.3 percent more girls than boys visited the ED.

Visit Percent by Gender and Age
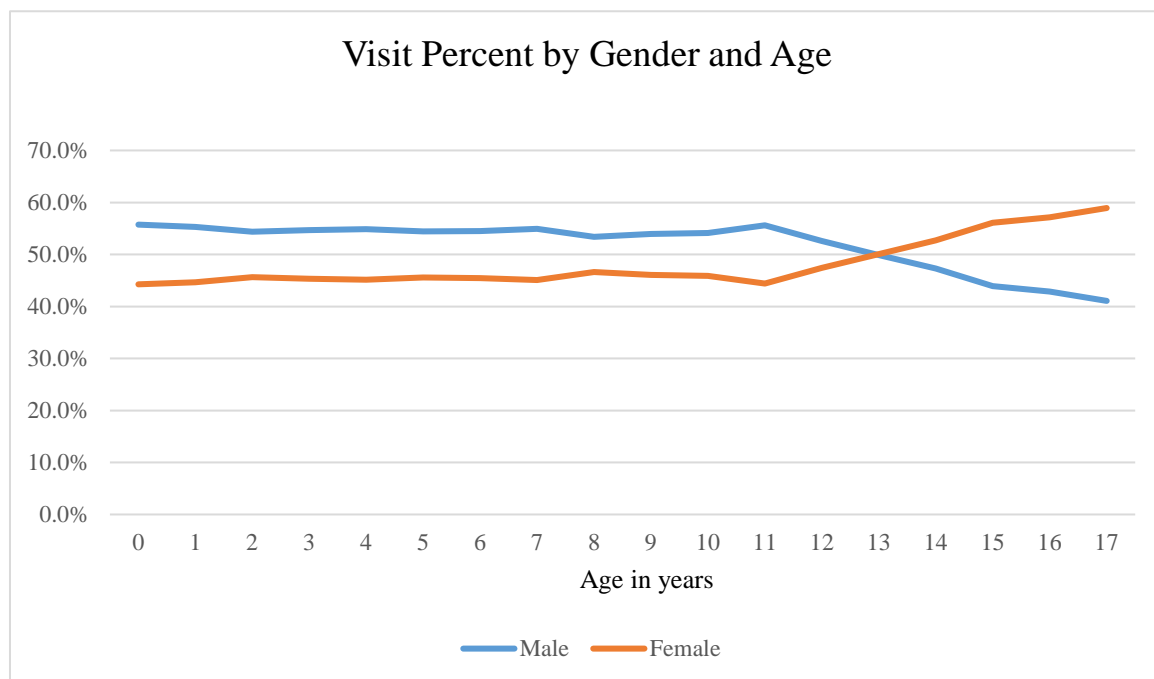
Figure 6.8. Percent of total ED visits by gender and individual age for entire study.

Table 6.0 examines these individuals by race/ethnicity, gender and age category. Males are seen more frequently than females in every age category except the 14-17-year category when females surpassed males in visits. This pattern is seen across all race/ethnicities except the Asian cohort.

Table 6.0. Patients at Phoenix Children's Hospital by Gender, Race/Ethnicity and Age Category January 1, 2011- December 31, 2014.

	<1 year		1-4 years		5-9 years		10-13 years		14-17 years	
	N	%	N	%	N	%	N	%	N	%
White										
Male	3,471	54.7%	7,524	54.1%	5,377	54.6%	3,689	55.3%	2,781	46.6%
Female	2,873	45.3%	6,374	45.9%	4,477	45.4%	2,986	44.7%	3,182	53.4%
Black										
Male	1,052	55.3%	2,411	54.8%	1,602	55.5%	857	53.9%	621	48.2%
Female	849	44.7%	1,986	45.2%	1,286	44.5%	733	46.1%	668	51.8%
Hispanic										
Male	6,365	54.1%	14,879	53.6%	11,527	53.4%	5,932	54.9%	3,694	45.9%
Female	5.398	45.9%	12,903	46.4%	10,074	46.6%	4,873	45.1%	4,359	54.1%
Native American Male										
Female	420	52.0%	884	56.1%	555	53.2%	294	50.6%	194	47.7%
	387	48.0%	692	43.9%	488	46.8%	287	49.4%	213	52.3%
Asian										
Male	150	58.1%	348	52.9%	217	53.2%	103	60.6%	78	50.7%
Female	108	41.9%	310	47.1%	191	46.8%	67	39.4%	76	49.4%
Other										
Male	247	57.3%	373	49.7%	261	52.4%	132	56.4%	92	47.7%
Female	183	42.4%	378	50.3%	237	47.5%	102	43.6%	101	52.3%
Total										
Male	11,705	54.4%	26,419	53.9%	19,539	53.8%	11,007	54.9%	7,460	46.4%
Female	9,798	45.6%	22,643	46.1%	16,753	46.2%	9,048	45.1%	8,599	53.6%

The same trend is seen when examining frequent visits, five or more visits in one year, by patients. Overall, more males made frequent visits than did females (55.6 percent vs 44.4 percent). The odds were 1.1 times greater for males to make frequent visits than for females (OR=1.1, 95% CI=1.0 to 1.2, p=0.02). However, when frequent visits were analyzed by age category (Figure 6.9), more females were seen in the older age categories (10-13 years and 14-17 years). In fact, by middle adolescence (ages 14-17 years), girls made frequent visits 1.5 times more often than boys.

Frequent Visits by Gender and Age Category

	<1 year	1-4 years	5-9 years	10-13 years	14-17 years
Male	58.3%	57.7%	57.0%	49.1%	40.1%
Female	41.7%	42.3%	43.0%	50.9%	59.9%
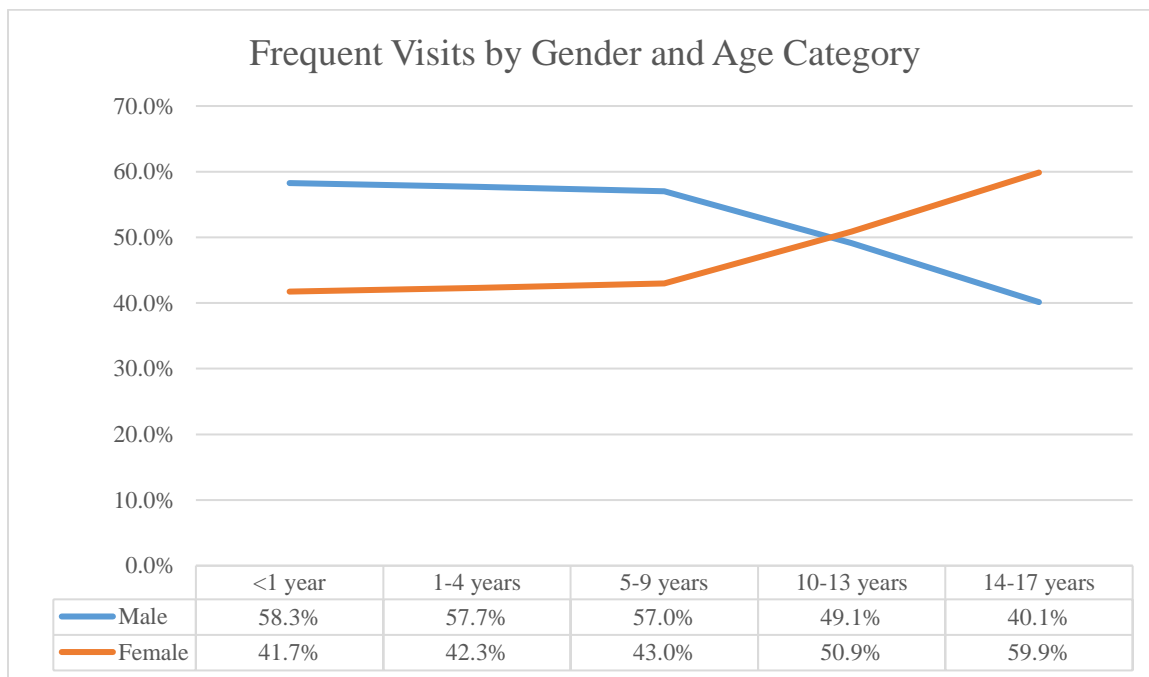
Figure 6.9. Percent of visits each year that were frequent visits (5 or more visits in one year) by age category.

The higher overall percentage of male visits as compared to female visits is seen in national statistics (52.8 percent vs 47.2 percent)[281] and although adolescent males have as many health issues and concerns as adolescent females, it is curious that their visits decrease so dramatically in adolescence. One article reported that upwards of 85 percent of patients seen in the adolescent clinic at the Montreal Children's Hospital were female.[282] Gender role perceptions may be one explanation for this disparity. Adolescent boys are less inclined than girls to discuss issues involving mental health, relationships or

sexuality, perhaps due to a misplaced standard of appropriate male behavior,[282] while girls may perceive adolescent clinics as a safe place to discuss matters that may be difficult to discuss with parents. Therefore, boys tend to utilize care for specific problems like acute infections, dermatological problems and sports-related injuries.[282] This downward trend in visits by adolescent boys is not lost on providers who are now challenged to use new methods and innovative programs to target the specific health needs of adolescent boys.

Demographics by Insurance Status

Forty-nine percent of all uninsured children reside in just six states.[280, 283] Arizona is one of those states, with an uninsured rate for children 0-18 years of age at 14.8 percent, higher than the national average which is around nine percent.[283] The rate of uninsured children at Phoenix Children's Hospital is 6.7 percent, lower than both the state and national averages.

According to national and state statistics presented in Table 6.3, children 13-18 years of age are the most likely to be uninsured at a rate of 11.4 percent and 18.4 percent respectively.[284] Using slightly different age groupings (both state and national statistics include 18-year-olds, whereas this study excluded 18-year-olds), this age bracket (13-17 year-olds) was found to have the lowest rate of uninsured visits to Phoenix Children's Hospital (6.3 percent). The highest rate of uninsured visits, 6.9 percent, were made by six to 12-year-olds.

National, state and hospital data all show slightly more males visit the ED than females, but whereas at the national and state level the rate of uninsurance is slightly higher amongst

males, at Phoenix Children's Hospital, the rate of uninsurance is slightly higher amongst females (Table 6.3).

When reviewing national statistics, Hispanic children are disproportionately represented amongst uninsured children. Forty percent of the nation's uninsured children are Hispanic, despite being 24 percent of the child population.[280] In Arizona, Hispanic children make up 38.5 percent of the child population,[280] yet account for 65.2 percent of all uninsured patients (n=18,119) visiting Phoenix Children's Hospital. While Hispanics, as a group, do have the highest rate of uninsurance at Phoenix Children's Hospital, 7.3 percent is well below the national average of 17.5 percent and the state average of 20.1 percent. Additionally, Native Americans have an uninsurance rate of 5.0, well below the national average of 23.4 percent and the state average of 32.4 percent (Table 6.1).

Table 6.1. Number and Percentage of Uninsured Children in Arizona, 2008 compared to national statistics[284] and children at Phoenix Children's Hospital 2011-2014.

Characteristic	United States (0-18 years of age)		Arizona (0-18 years of age)		Phoenix Children's Hospital (0-17 years of age)	
	Uninsured		Uninsured		Uninsured	
Total	7,262,000	9.3%	268,000	14.8%	18,119	6.7%
Child Characteristics	#	%	#	%	#	%
Age						
0-5	1,854,000	7.5%	76,000	12.3%	11,259	6.7%
6-12	2,484,000	8.9%	93,000	14.3%	4,820	6.9%
13-18	2,924,000	11.4%	98,000	18.4%	2,040	6.3%

Gender						
Male	3,732,000	9.3%	139,000	15.0%	9,616	6.6%
Female	3,530,000	9.2%	129,000	14.7%	8,460	6.8%
Race/Ethnicity						
White	2,751,000	6.2%	68,000	8.8%	3,477	5.0%
Black	963,000	8.8%	7,000	9.2%	1,656	7.0%
Hispanic	2,931,000	17.5%	156,000	20.1%	11,807	7.3%
Native American	137,000	23.4%	30,000	32.4%	422	5.0%
Asian	287,000	9.0%	2,000	5.5%	100	3.7%

Analyzing the data collected at Phoenix Children's Hospital by insurance status,

AHCCCS (Arizona Health Care Cost Containment System, Arizona's Medicaid agency)

was the most common type of insurance in every age category. The highest rate of private

insurance was held by those aged 14-17 years. The age category with the highest rate of

uninsured individuals was the one to four-year-old bracket (Figure 6.10).

Age Category by Insurance Status
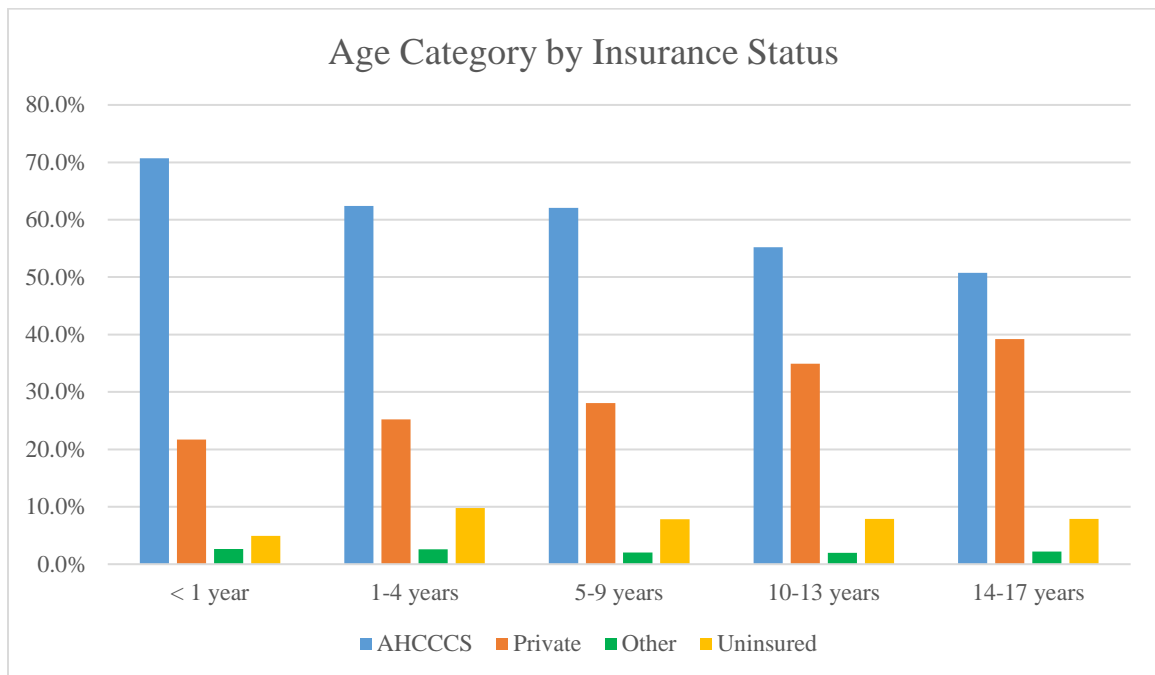
Figure 6.10. Percent of <1 year-olds, 1-4 year-olds, 5-9 year-olds, 10-13 year-olds and 14-17 year-olds who are on AHCCCS, have private insurance, are uninsured or have another type of insurance.

AHCCCS enrollment remained slightly above 70 percent for all children under one year of age and uninsurance was at 4.9 percent (Figure 6.11). By one year of age, however, the percent of uninsured children increased to 12.0 percent and AHCCCS enrollment dropped to 61.3 percent.
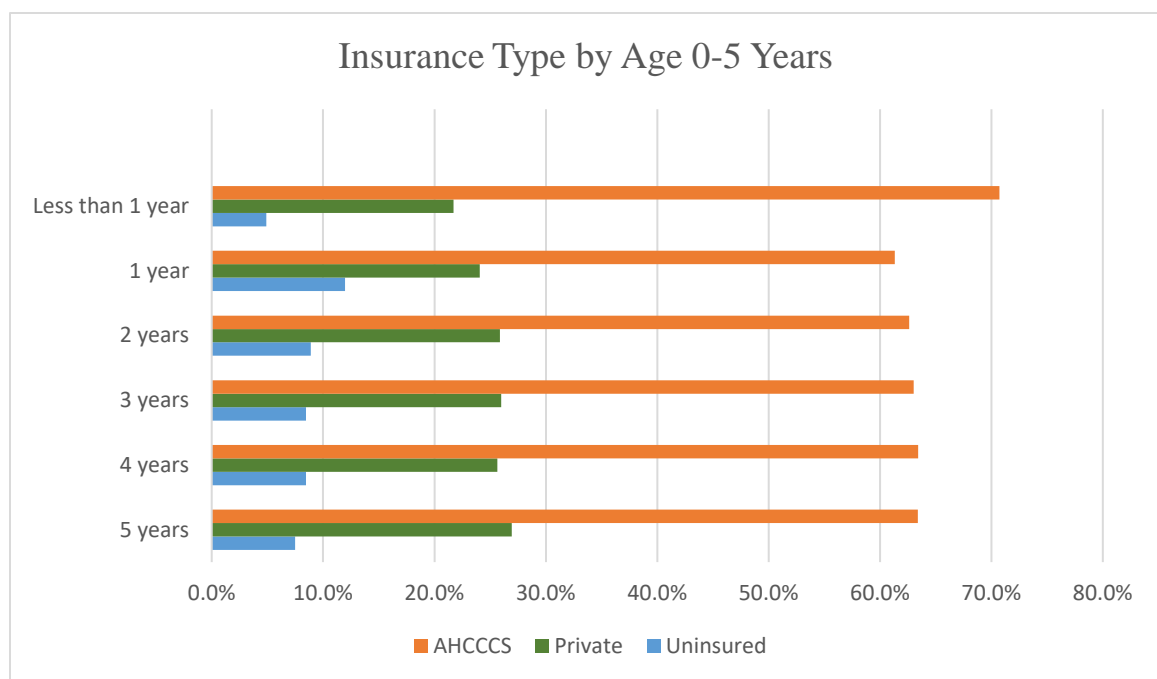
Figure 6.11. All children under the age of 6 years visiting the ED by insurance type.

From the data provided it is impossible to determine exactly why one-year-olds have the highest rate of uninsurance. One possibility is that children under one year of age were born in Arizona and the AHCCCS enrollment process for the newborn was started before birth. However, as AHCCCS eligibility must be reviewed each year, new parents may have been unaware of the need to reapply for benefits. Additionally, the application may have been "pending" on the visit date to the ED. This researcher categorized

"AHCCCS pending" as "uninsured" and had no way of calculating what percent of those patients were ultimately covered by AHCCCS. The high rate of uninsured in the age one category may simply be attributed to these children not being established with AHCCCS at the time of their visit and they may not be truly uninsured.

In the six to 11-year age category, AHCCCS enrollment remained above 60 percent until age 10 when it dropped below 60 percent (Figure 6.12). The percent of uninsured children in this age category was between 7.1 percent and 8.4 percent. Private insurance increased above 30 percent at age 10.
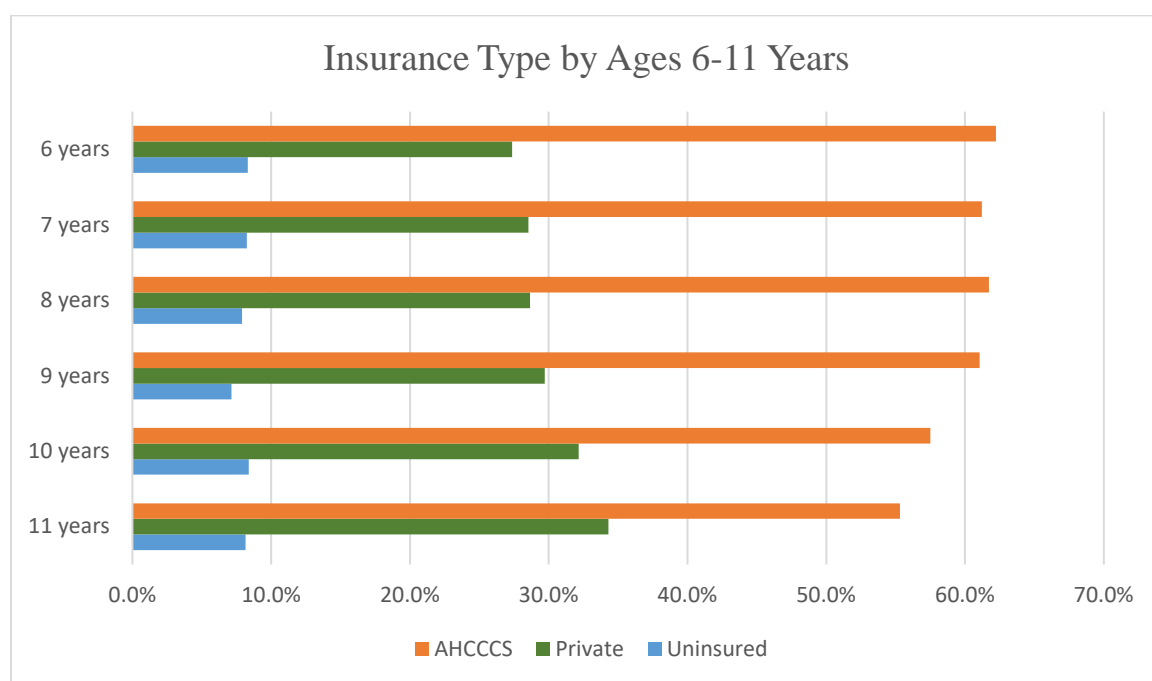
Figure 6.12. All children aged 6-11 years of age visiting the ED by insurance type.

In the 12-17-year age range, AHCCCS enrollment ranged from 49.9 percent to 54.3 percent (Figure 6.13). The percent of uninsured children ranged from 7.1 percent to 8.2

percent and those with private insurance increased to 40.0 percent in 15-year-olds. This increase in private insurance falls in line with 2010 Census data that found that 60 percent of children aged 10 to 18 were covered by private insurance.[283]
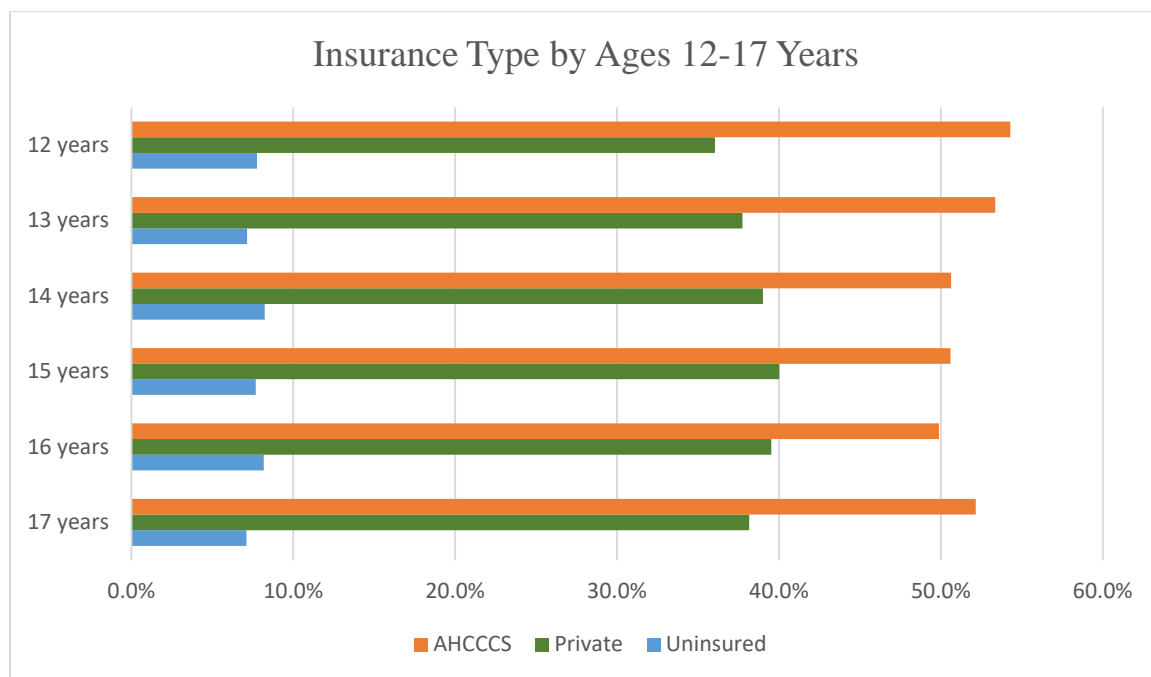
Figure 6.13. All children aged 12-17 years visiting the ED by insurance type.

The greatest percentage of individuals on AHCCCS or uninsured were Hispanic, while the greatest percentage of individuals with private insurance were White and the greatest percentage of individuals with insurance other than AHCCCS or private were Black (Figure 6.14).
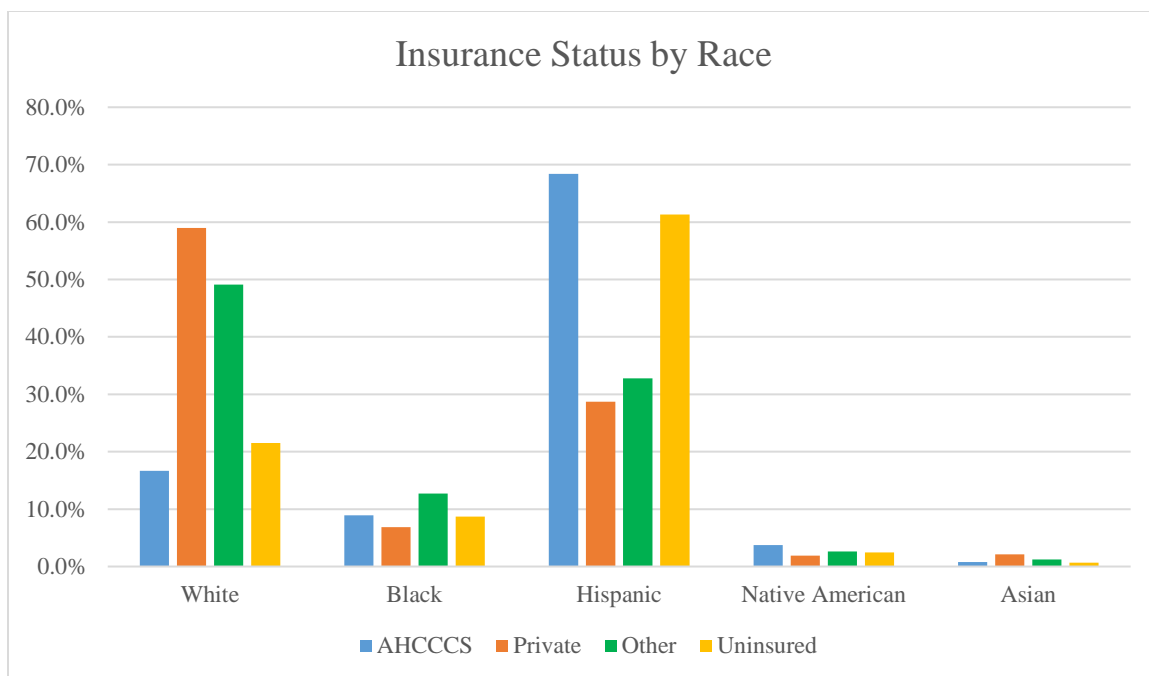
Figure 6.14. Of all those individuals on AHCCCS, privately insured, with another type of insurance or uninsured, the percent who are White, Black, Hispanic, Native American and Asian.

Figure 6.15 looks at individuals and shows most Whites (56.1 percent) and Asians (52 percent) had private insurance while most Hispanics (75.2 percent), Native Americans (73.9 percent) and Blacks (65.0 percent) had AHCCCS.
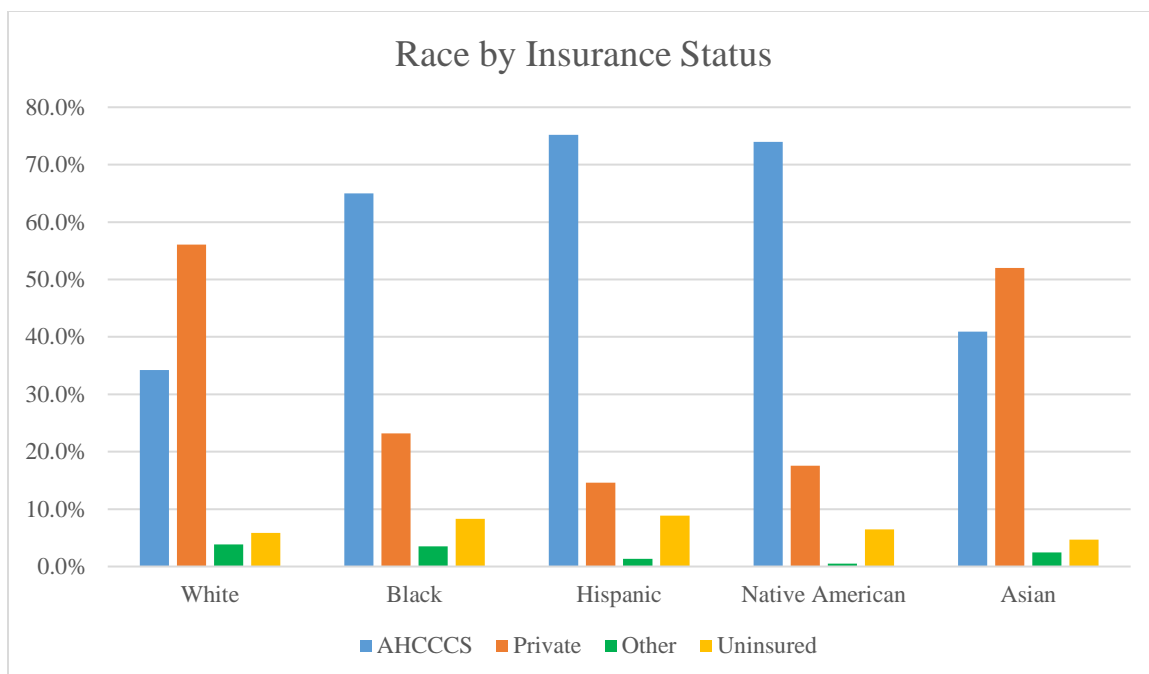
Figure 6.15. Percent of all Whites, all Blacks, all Hispanics, all Native Americans and all Asians who are on AHCCCS, have private insurance, are uninsured or have another type of insurance.

A study conducted by the Henry J Kaiser Family Foundation found that children with Medicaid coverage were more likely to have at least one ED visit in a year as compared with the uninsured and those with private coverage, even when health and socio-demographic differences between the groups were controlled.[283] Children with Medicaid were also significantly more likely to have multiple visits to the ED.[283] The findings in this study follow these national trends. Figure 6.16 looked at total visits and shows that AHCCCS, the State's Medicaid program, was the most frequent expected source of payment for 68.1 percent of all ED visits.
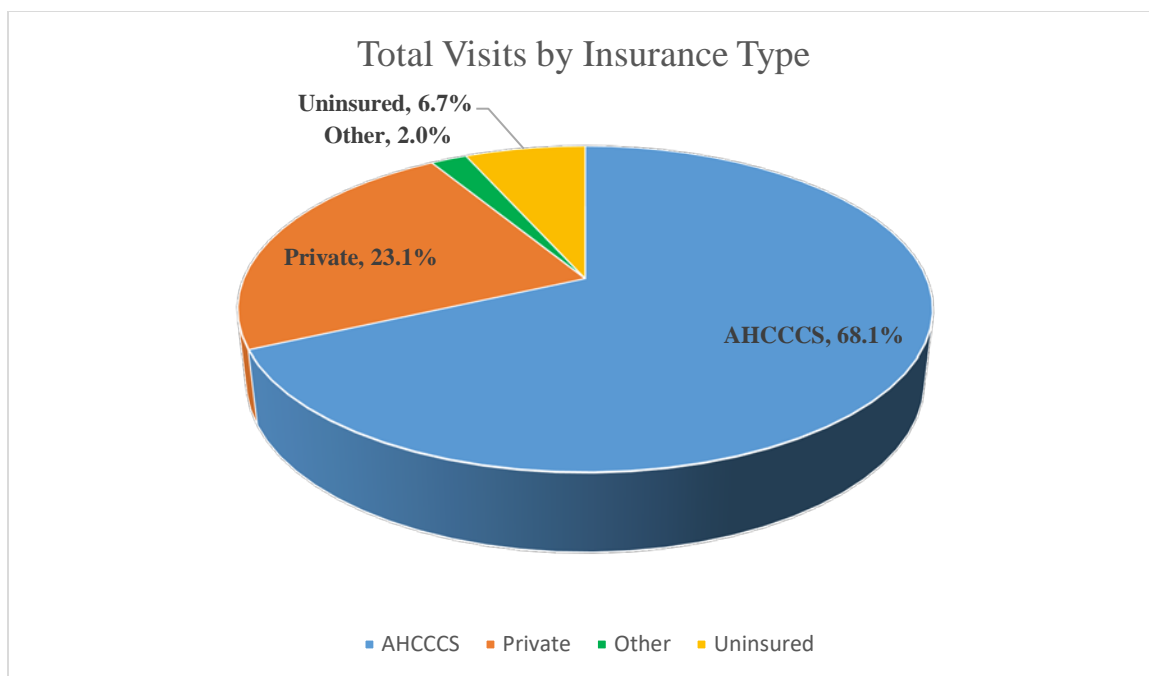
Figure 6.16. The percent of all visits expected to be covered by AHCCCS, private insurance or another type of insurance and those uninsured.

Figure 6.17 looks at individuals and finds that 64 percent of all PCH visitors (64.3 percent) to the ED per year were covered by AHCCCS and 79.4 percent of all frequent visitors were covered by AHCCCS.
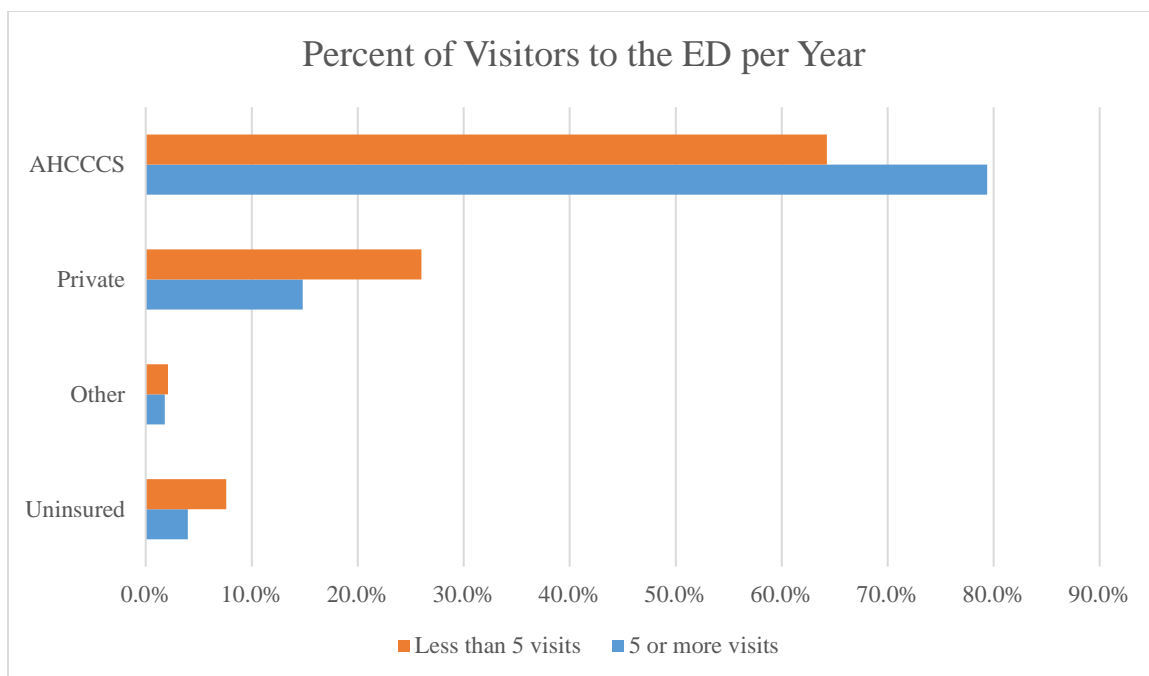
Figure 6.17. Percent of visitors to the ED per year with less than 5 visits as compared to percent of visitors to the ED per year with 5 or more visits by insurance status.

Four percent of all frequent visitors were uninsured. However, uninsured children did not have a higher rate of frequent visits. When looking just at those patients who were uninsured, less than one percent of them were frequent visitors. Ninety-nine percent of uninsured individuals visited the ED less than five times in one year. This finding may be because most at-risk pediatric patients are eligible for insurance programs like AHCCCS and/or because the ED is too costly for repeat visits by self-pay patients.

Maricopa County

Approximately 1,007,861 children 0-17 years of age lived in Maricopa County according to the 2010 Census and 38.5 percent were Hispanic, 33.0 percent were Native American, 30.4 percent were Black, 24.2 percent were Asian and 22.9 percent of the children were White. Maps 6.1 and 6.2 look at Maricopa County by census tract and show the number of foreign born who are of Central American (includes the countries south of Mexico but north of Colombia) and Mexican origin. The red dot in Map 6.1 and blue dot in Map 6.2 represent Phoenix Children's Hospital.
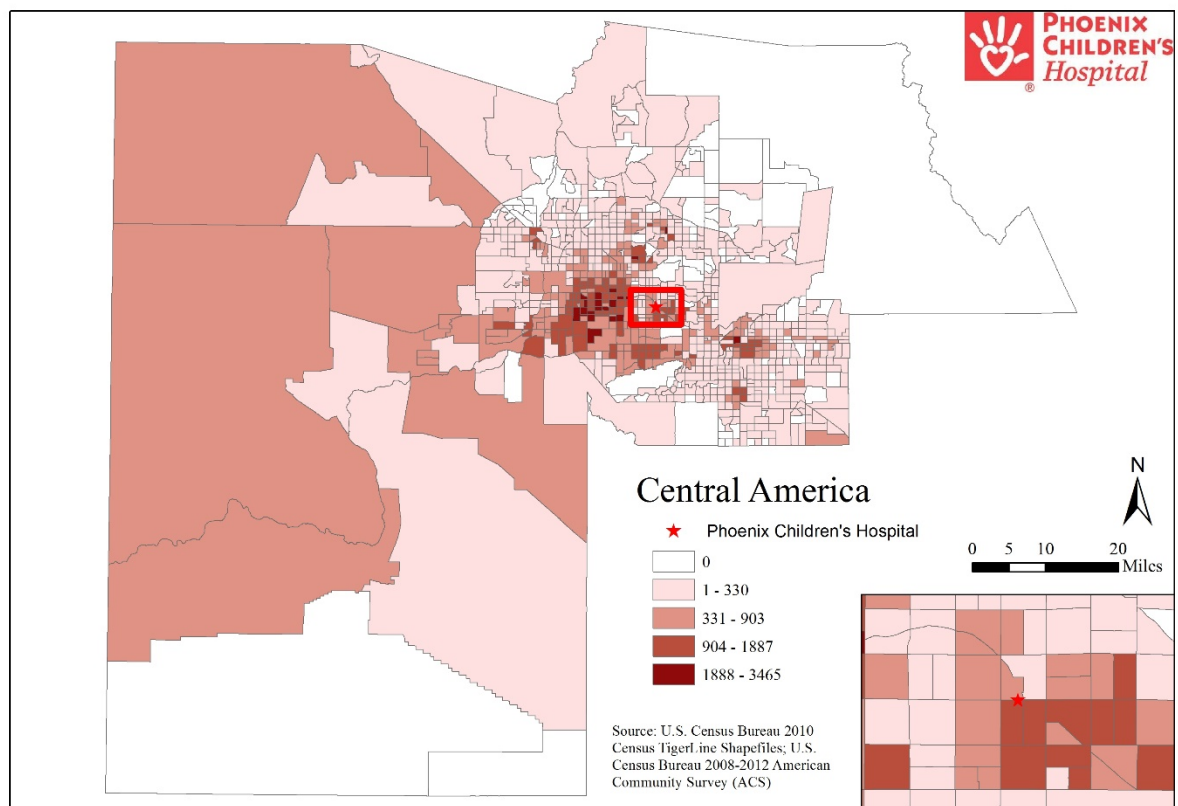
Map 6.1. Foreign born population from Central America by census tracts within Maricopa County.
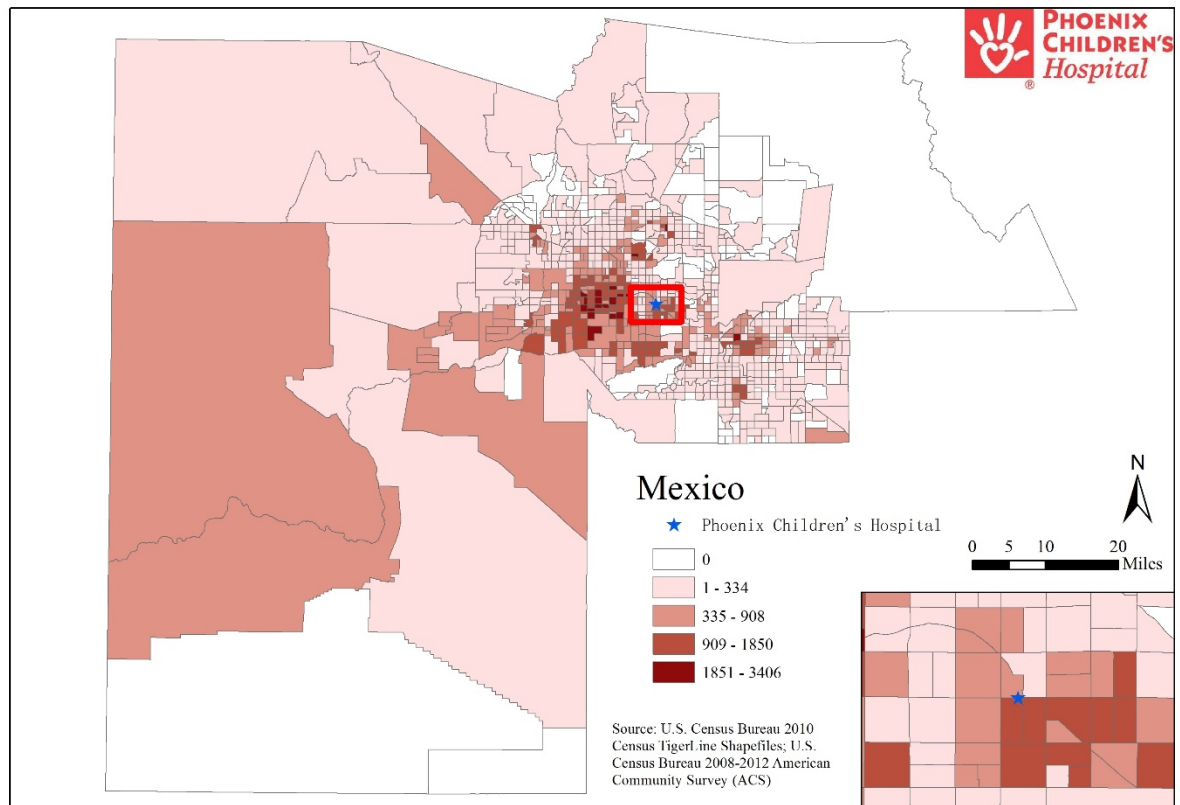
Map 6.2. Foreign born population from Mexico by census tracts within Maricopa County.

As the maps show, the census tracts immediately surrounding Phoenix Children's Hospital have a strong Hispanic presence.

Table 6.2 compares Phoenix Children's Hospital statistics to Maricopa County statistics for all children under the age of 18 years. Looking only at the children visiting the ED who reside in Maricopa County, 53.8 percent were Hispanic, 2.0 percent were Native American, 8.1 percent were Black, 1.2 percent were Asian and 26.5 percent of the children were White. Therefore, Blacks and Hispanics are three times more likely and Native Americans are nearly two times more likely to use the ED than Whites in

proportion to the Maricopa County population. Asians are less likely to use the ED than

Whites.

Table 6.2. Maricopa County demographics by race/ethnicity and age category compared to Phoenix Children's Hospital demographics by race/ethnicity and age category.

Characteristic	Maricopa County		Phoenix Children's Hospital (Maricopa County only)		Rate (%)	Risk Ratio
	#	%	#	%		
White	639,058	53.7%	37,965	26.5%	5.9%	1.0
Black	57,849	4.8%	11,610	8.1%	20.1%	3.4
Hispanic	434,592	36.5%	77,211	53.8%	17.8%	3.0
Native American	25,872	2.2%	2,895	2.0%	11.2%	1.9
Asian	32,026	2.7%	1,546	1.2%	4.8%	0.8

People living in poverty are not evenly distributed across geographic areas but instead

they generally cluster in certain neighborhoods. Map 6.3 is divided into poverty rate

levels. Category I includes census tracts with poverty rates less than 13.8 percent.

Category II includes those with poverty rates of 13.8 percent to 19.9 percent. Category III

includes those with poverty rates of 20.0 percent to 39.9 percent, and Category IV

includes those tracts with poverty rates of 40.0 percent or more. Like previous census

publications, census tracts with poverty rates of 20 percent or more (categories III and

IV) are referred to as "poverty areas."[285]
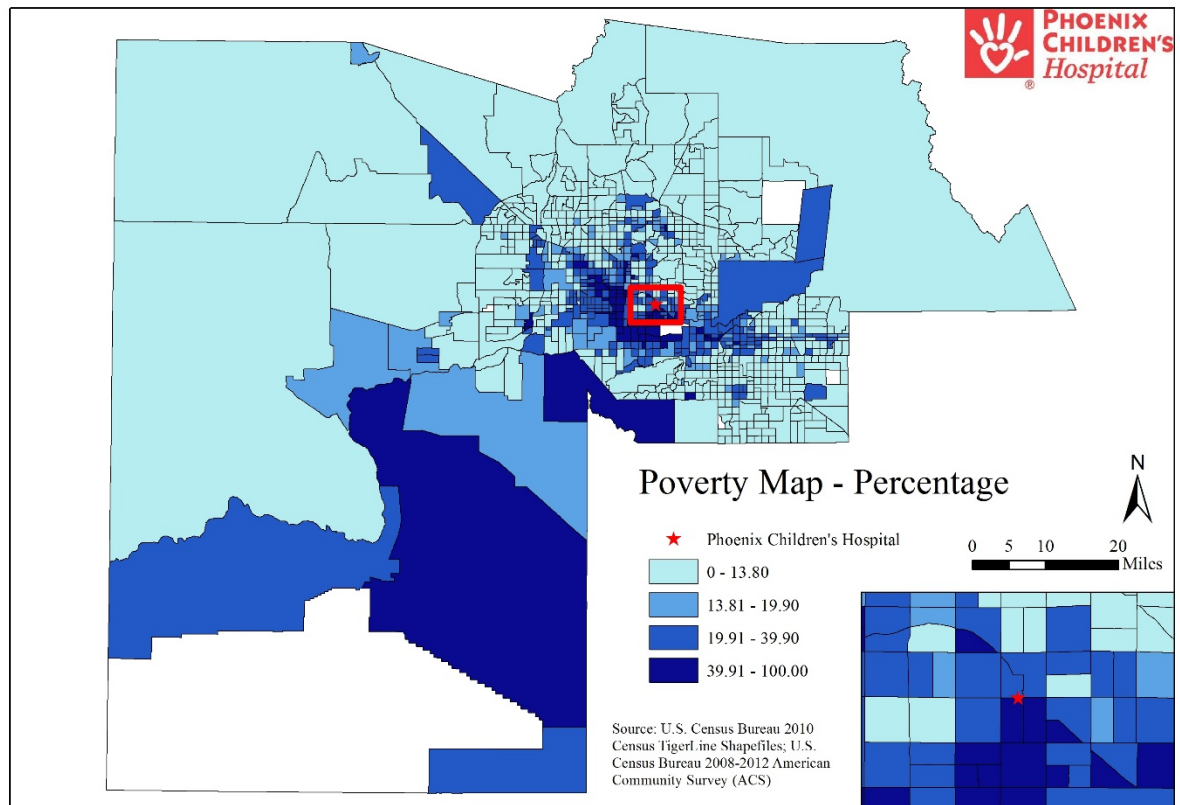
Map 6.3. Percentage of people living in poverty by census tract within Maricopa County.

The census tracts immediately surrounding Phoenix Children's Hospital, as the inset to Map 6.3 indicate, are all poverty areas. Identifying these poverty areas is important because studies have shown that living in areas of extreme poverty can have profound effects on health and access to care. Health insurance status can affect a child's access to primary care. Poor access to primary care due to underinsurance or uninsurance not only denies a child access to comprehensive and coordinated health care, but shifts the responsibility of caring for that child to the ED.

Ninety-four percent of all visits to Phoenix Children's Hospital were by Maricopa County residents. Figure 6.1 compares county statistics against all visits to the ED by

Maricopa County residents. At Phoenix Children's Hospital, 93.3 percent of all visits by Maricopa County residents were covered by some form of insurance. Sixty-nine percent of all visits by Maricopa County residents were covered by AHCCCS, 22.5 percent had private insurance and 6.7 percent of individuals were uninsured.

According to the American Community Survey 2009-2013, 88 percent of children under the age of 17 in Maricopa County had health insurance. Fifty-seven percent of children under the age of 17 in Maricopa County had private health insurance, 34 percent were covered by public insurance and 12 percent were uninsured (Figure 6.18).
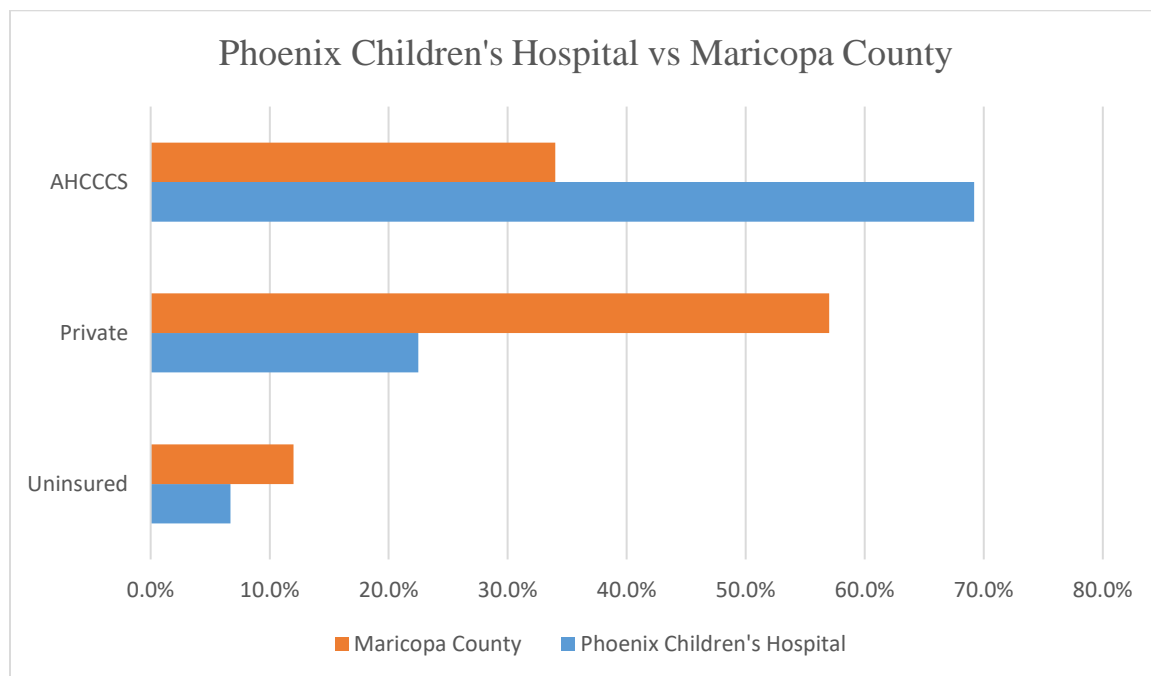
Figure 6.18. Percent of individuals with AHCCCS, private insurance or uninsured as compared to American Community Survey 2009-2013 statistics for insurance coverage in Maricopa County.

A 2010 study set at Maricopa Medical Center found 77 percent of children had health insurance, but that 86.4 percent of foreign born children were uninsured.[279] It was not possible to identify foreign born children in this study, but given Maricopa Medical Center's findings and the hospital's proximity to the United States-Mexico border, it is reasonable to assume that a segment of patients at Phoenix Children's Hospital belong to low income urban Mexican-American immigrant families who do not qualify for public health insurance due to their immigration status.[152, 279] This study found that 7.2 percent of all visits by Hispanic children were not covered by insurance. In an effort to mitigate some of the costs incurred from this uncompensated care, Maricopa Medical Center instituted an ED based program for actively recruiting Medicaid or SCHIP eligible patients during their ED encounters.[280] Phoenix Children's Hospital implemented a similar program and Figure 6.2 shows the importance of such a program in increasing insurance coverage. Arizona Health Care Cost Containment System (AHCCCS, the State's Medicaid program), coverage more than doubled between 2011 and 2014 while private insurance dropped 6.1 percent and uninsurance dropped close to one percent (Figure 6.19).
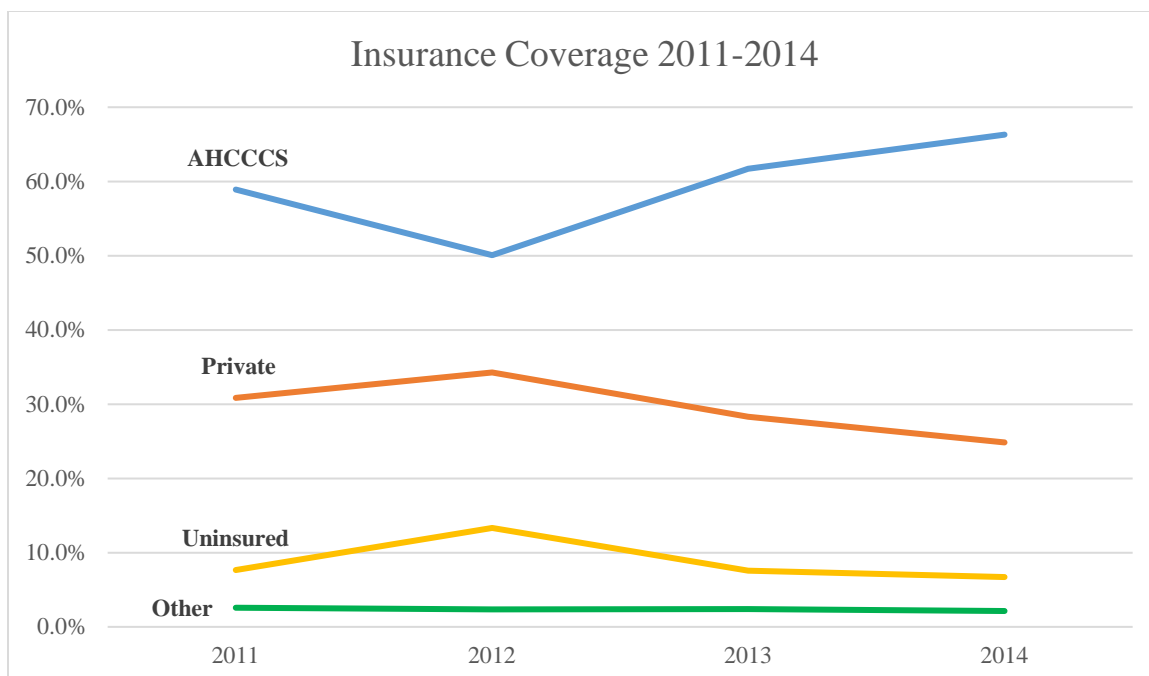
Figure 6.19. Insurance by type of coverage: Arizona Health Care Cost Containment System (AHCCCS), Private, Uninsured and Other from 2011-2014 at PCH (individuals n=143,496).

Time

Authors Crane and Noon argue that ED visits are predictable across seasons with a 10-20 percent increase in volume occurring between January and March.[286] As many other researchers have shown, there is a positive correlation between volume and wait times. EDs across the country are working hard to decrease their wait times and Phoenix Children's Hospital is no different. Overcrowding is the single most important factor affecting ED performance.[2, 4, 26, 88, 93, 172, 192, 286, 287] Decreasing delays translates into increased patient satisfaction.[287] Additionally, as the gateway to admissions, an ED has to function smoothly.[63] Good ED flow is critical to a successful inpatient program. ED flow can be improved by understanding temporal trends.

At Phoenix Children's Hospital, on average, 1.6 times more total visits are made in January than in July. This represents more than 2,600 visits in January as compared to July, stretching resources and staff (Figure 6.20).
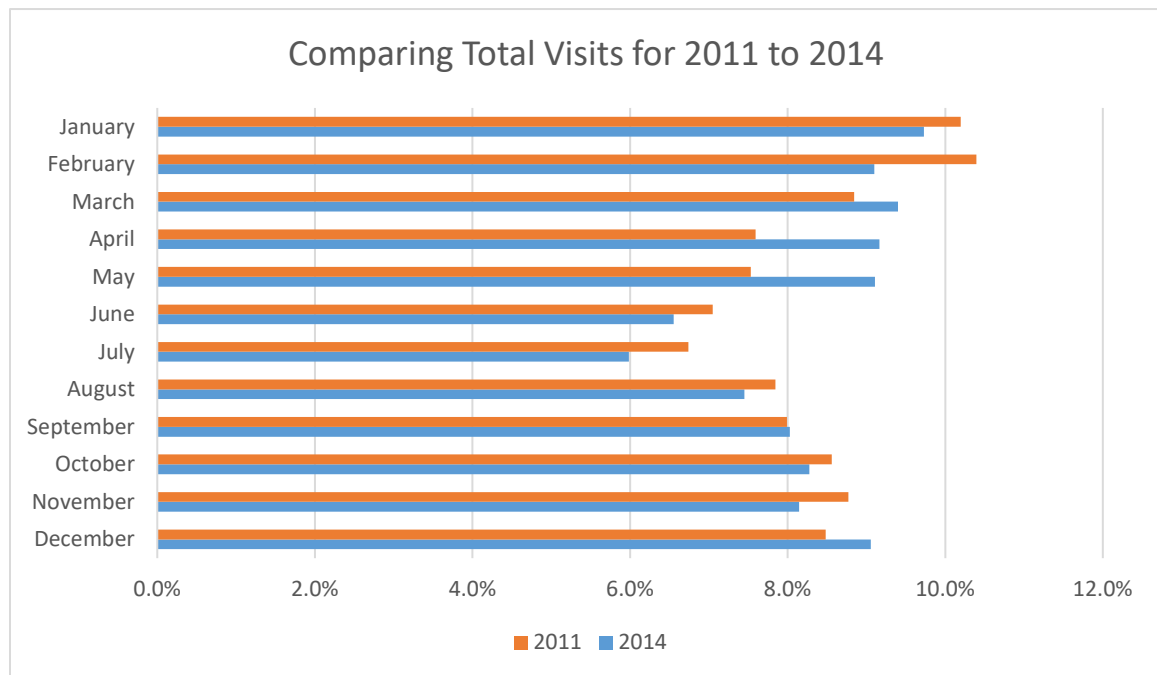
Figure 6.20. All visits to the ED in 2011 compared to 2014, by month.

Typically, ED visit volumes are higher in winter and summer.[286] However, there is a disproportionately higher admission rate in the winter due to the fact that most of these ED visits are medical problems, whereas during the summer there are more injuries and accidents that do not result in hospital admission.[286] At PCH, overall visits to the ED were lowest in the spring, April, May and June, and admission rates remained steady year round hovering around six to seven percent of all visits per month (Figure 6.21).

Admissions and Discharges by Season
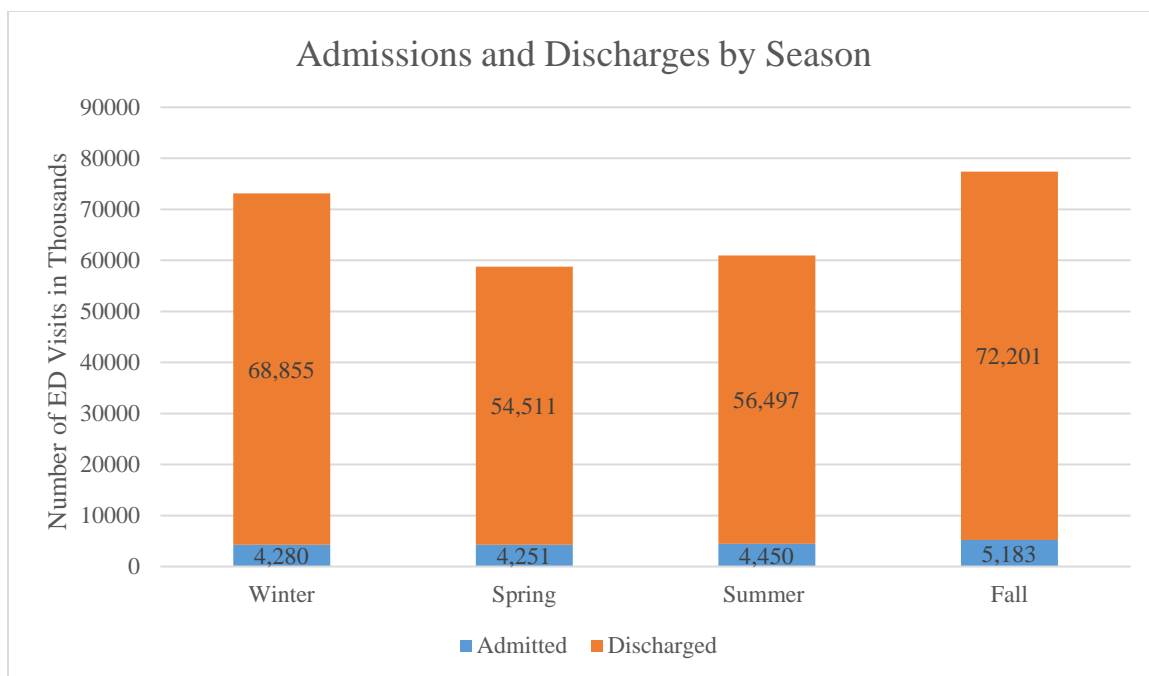
Figure 6.21. Number of visits to PCH and admission status (discharged or admitted) by season. **Note:** Winter is January-March, spring is April-June, summer is July-September and fall is October-December.

During times of low volume, it is easy for the hospital to absorb a six to seven percent admission rate. However, when volume peaks in the winter months, a six to seven percent admission rate can easily equate to an additional one thousand children in need of placement. This surge can pose significant obstacles to flow and result in longer wait times for patients. Understanding the temporal ebb and flow unique to PCH is essential to facilitating quick and timely assessment of the patient, not only improving quality of care but also greatly improving patient satisfaction.

Conclusion

The purpose of Chapter 6 was to provide an overview of the study site, Phoenix Children's Hospital (PCH). This chapter lays a foundation for understanding the

characteristics particular to PCH. First, the reader is oriented to the history of PCH and the role the hospital plays not only in Phoenix but in Arizona. The rapid expansion of the hospital not only illustrates the growing demand by the community for its services, but also illustrates the challenges the hospital has faced to meet this demand.

The data presented in this chapter are from total visits (n=270,228) and total individuals (n=143,496) to the ED during the study period (January 1, 2011- December 31, 2014). This study examined who came to the ED by age: 50.0 percent of visits were made by children under the age of five years; by gender: 20.5 percent more males visited the ED than females until adolescence when 26.9 percent more females visited the ED than males; by race/ethnicity: 55.8 percent of individuals self-identified as Hispanic; and by insurance status: 68.1 percent of all ED visits were covered by AHCCCS. Additionally, temporal data showed that the increase in visits during the winter months meant that nearly 3,000 more patients were seen in January compared to July. Understanding who the patients are, their unique needs both physical and cultural, and their patterns of use is paramount to quality improvement and efficiency of service.

Chapter 7

Nonurgent Visits

Introduction

The purpose of this chapter is to examine the top visit reasons to the ED, as well as, to understand who is making these visits. The following sections provide the definition of nonurgent used for this paper, explain the diagnoses based using ICD-9 codes and categories, examine hospital admission data for nonurgent reasons and provide a demographic description of the 50,235 individuals who visited the ED for nonurgent reasons between January 1, 2011and December 31, 2014.

Nonurgent Visits: Definition, Diagnoses & Limitations

Introduction

Nonurgent visits are considered to be those conditions that can be easily managed by a primary care physician. These visits have been attributed to decreased ED efficiency due to over utilization of limited resources, leading to longer wait times for all patients, including those with emergent needs.[39] Therefore, nonurgent visits are a major concern for many hospitals, and many EDs, including Phoenix Children's Hospital, have expanded capacity to meet this increased demand.

There is, however, no consistent definition of nonurgent use and, therefore estimated rates of nonurgent ED visits range from 20 percent to 80 percent.[75-76]   For the purpose of this retrospective study, nonurgent use was defined by first calculating the top 10

diagnoses in each age group (less than 1 year, 1-4 years, 5-9 years, 10-13 years and 14-17 years) and then calculating the percentage of times that persons with these diagnoses were admitted. As the admission rate for all children with these top 10 diagnoses was one percent of all visits, the term "nonurgent" was ascribed. However, this researcher wishes to emphasize that labeling these diagnoses as "nonurgent" does not imply that she deems the visits to be inappropriate. There is no way given the quality of data, to determine the intent or severity of a visit. Nonurgent in this case was used as a term of convenience to describe the top 10 diagnoses.

ICD-9 Categories

There were a total of 3,709 unique ICD-9 codes/diagnoses. The codes are the principal diagnosis and describe the clinical reason for a patient's treatment. The ICD-9 codes were placed in one of 18 categories (Table 7.0). Sixty percent of all visits fell into three of 18 general categories, as highlighted in the table below.

Table 7.0. The 18 ICD-9 categories.

ICD-9	ICD-9 Description
001.00-139.00	Infectious and Parasitic Diseases
140.00-239.00	Neoplasms
240.00-279.00	Endocrine, Nutritional and Metabolic Diseases and Immunity Disorders
280.00-289.00	Diseases of Blood and Blood Forming Organs
290.00-319.00	Mental Disorders

320.00-389.00	Diseases of the Nervous System and the Sense Organs
390.00-459.00	Diseases of the Circulatory System
460.00-519.00	Diseases of the Respiratory System
520.00-579.00	Diseases of the Digestive System
580.00-629.00	Diseases of the Genitourinary System
630.00-679.00	Complications of Pregnancy, Childbirth and the Puerperium
680.00-709.00	Diseases of the Skin and Subcutaneous Tissue
710.00-739.00	Diseases of the Musculoskeletal System and Connective Tissue
740.00-759.00	Congenital Anomalies
760.00-779.00	Certain Conditions Originating in the Perinatal Period
780.00-799.00	Symptoms, Signs and Ill-Defined Conditions
800.00-999.00	Injury and Poisoning
E and V codes	Supplementary Classification of Factors Influencing Health Status and Contact with Health Services

"Symptoms, Signs and Ill-Defined Conditions" accounted for 21.5 percent of all visits. This category included fever, vomiting and headache. "Diseases of the Respiratory System" accounted for 20.2 percent of all visits and included acute URI, asthma and bronchiolitis. Eighteen percent of all visits fell under the category "Injury and Poisoning." Head injuries were the main reason for patient visits in this category. Figure 7.0 shows the percent of all visit codes, in descending order, that fall into each of the 18 diagnoses categories.
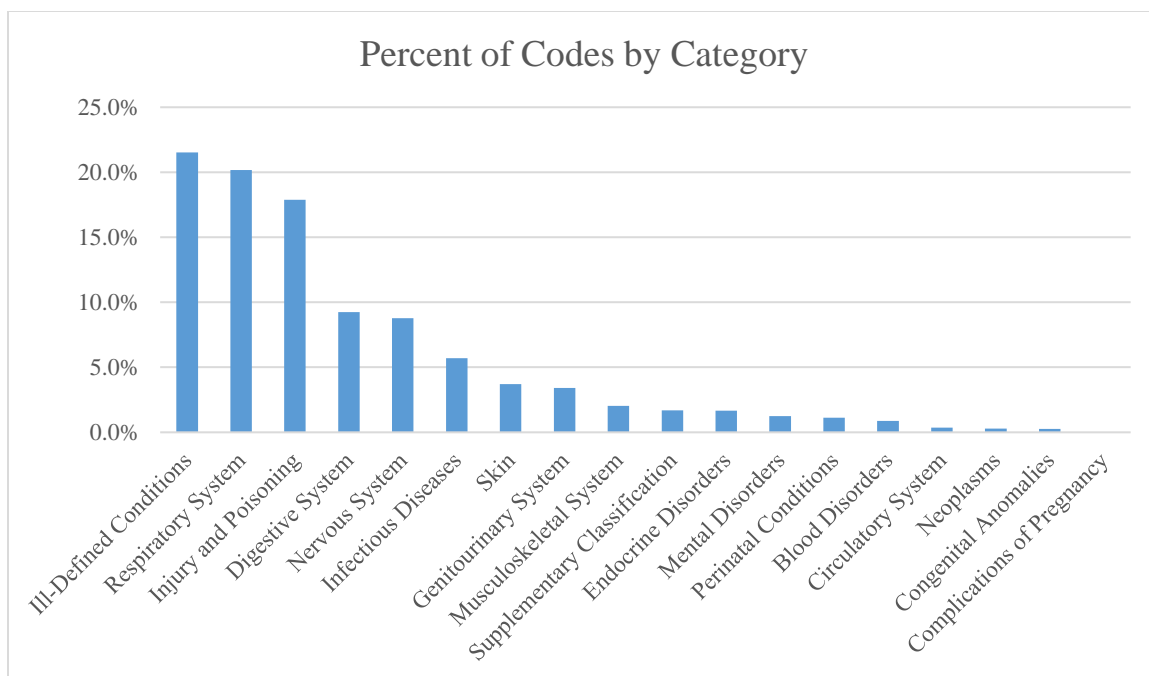
Figure 7.0. The percent of all visit codes in descending order by diagnosis category.

Of the 3,709 individual ICD-9 codes/diagnoses, 24 ICD-9 codes/diagnoses accounted for 50.6 percent of all visits. Table 7.1 lists the top 24 diagnoses.

Table 7.1. Top 24 diagnoses for study period.

ICD-9 Code	Diagnosis	Total Diagnoses= 270,228	
		N (total)	Percent (%) of total diagnoses
465.90	Acute URI	16,195	6.0%
780.60	Fever	16,195	6.0%
382.90	Otitis Media	16,008	6.0%
493.92	Asthma with acute exacerbation	12,688	4.7%
787.03	Vomiting Alone	8,771	3.3%
558.90	Noninfectious Gastroenteritis	8,606	3.2%
466.19	Acute Bronchiolitis	8,111	3.0%
464.40	Croup	7,027	2.6%
564.00	Constipation	6,802	2.5%
599.00	UTI	6,314	2.3%
079.99	Viral Infection	4,628	1.7%
034.00	Strep Sore Throat	4,279	1.6%
959.01	Head Injury	3,850	1.4%
486.00	Pneumonia	3,469	1.3%
784.00	Headache	3,409	1.3%
789.00	Abdominal Pain Unspecified Site	3,332	1.2%
786.20	Cough	2,769	1.0%
920.00	Contusion of face/scalp/neck	2,626	1.0%
276.51	Dehydration	2,543	0.9%
787.91	Diarrhea	2,401	0.9%
466.11	Acute Bronchiolitis d/t RSV	2,104	0.8%
493.90	Asthma NOS	2,088	0.8%
372.30	Conjunctivitis	1,957	0.7%
462.00	Acute Pharyngitis	1,845	0.7%
	Total (Top 24 Diagnoses)	136,823	50.6%

When 50.6 percent of all visits to the ED are for conditions that could easily be managed in a pediatrician's office, the question of interest becomes, *Why do parents utilize the ED for routine medical care?* Is it due to poor access to primary care, lack of education regarding alternative settings, self-perceived severity of the problem?

Understanding the hospital-specific *why* in the equation is an important topic for future research. In order to reduce nonurgent visits to the ED, the targeted intervention must address the needs and concerns of the PCH population it is entrusted to serve.

Top 10 Nonurgent Diagnoses

This study found that 35.4% of all visits to the ED were for 10 different nonurgent diagnoses. Table 7.1 shows that acute upper respiratory infections (URIs) were the main reason for patient visits (6.0 percent), followed closely by fever (6.0 percent). Ear infections (otitis media) accounted for 4.7 percent of visits while asthma and vomiting made up 3.2 percent of visits. Noninfectious gastroenteritis (3.0 percent), acute bronchiolitis (2.6 percent), croup (2.5 percent), constipation (2.3 percent) and urinary tract infections (UTIs) (1.9 percent) rounded out the top ten visit reasons.

At Phoenix Children's Hospital, the total percent of individuals visiting the ED for one of the top 10 nonurgent reasons in 2014 was 7.1 percent more than the percent of visits made in 2011. While the total percent of individuals visiting the ED for all other visit types in 2014 had decreased 4.0 percent since 2011 (Figure 7.1).
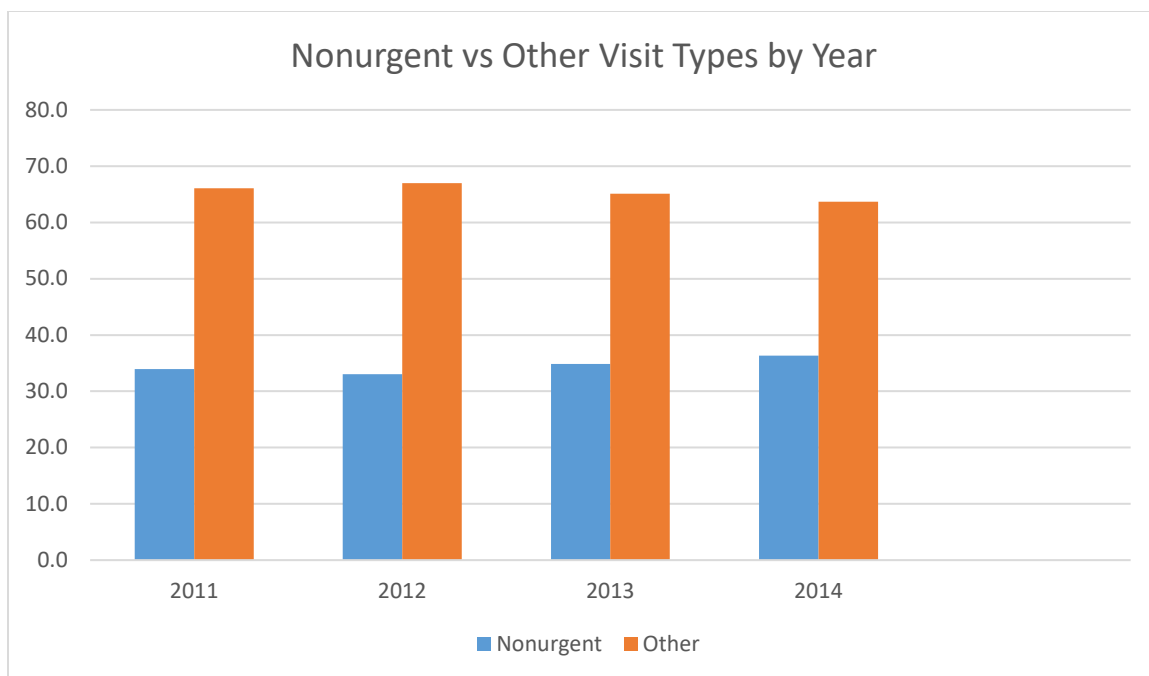
Figure 7.1. Individual (n=143,496) nonurgent visits (top 10 visit reasons) compared to all other visit types by year.

As mentioned above, labeling these conditions "nonurgent" is a bit misleading, as the parent's/patient's perception of symptoms is unknown when looking at a diagnosis. Additionally, some conditions, like croup, become most noticeable in the middle of the night and although less than one percent (0.1 percent) of all visits for croup are admitted, patients with croup often require immediate medical attention. But, as only 1.1 percent of all visits for one of these 10 different diagnoses resulted in admission, the term "nonurgent" was used here.

Limitations

This researcher was only provided the primary diagnosis for this study. This posed some challenges in interpretation. Having only one diagnosis afforded a limited view of the patient visit. For example, a primary diagnosis of fever with a secondary diagnosis of viral infection paints a much different picture of the patient than does a primary diagnosis of fever with a secondary diagnosis of sickle cell anemia. Fever in an otherwise healthy child is a normal process, however, a fever in a child with a chronic condition like sickle cell anemia can be life threatening.

Additionally, the selection of a primary diagnosis varies by provider. One provider may select "fever" as a primary diagnosis when a patient being treated for an ear infection returns to the ED after a day of antibiotics complaining of fever when another provider would code this as "otitis media." More importantly it may miss co-morbidities pertinent to this study. A patient with a primary diagnosis of abdominal pain but secondary diagnosis of depression inadvertently excludes relevant patients from this study.

Hospital Admissions

It is important to be mindful that some studies have found that, upon further evaluation, as many as three to five percent of patients triaged as "nonurgent" required immediate hospitalization.[288] This study found that 1.9 percent of patients presenting to the PCH ED with one of the top 24 diagnoses were admitted. Table 7.2 is a side by side comparison of total diagnoses and admissions for the top 24 diagnoses.

Table 7.2. Comparison of Total Diagnoses and Total Admissions.

ICD-9 Code	Diagnosis	Total Diagnoses		Total Admissions	
		N (total)	Percent (%) of total diagnoses	N (total)	Percent (%) of total diagnoses
465.90	Acute URI	16,195	6.0%	205	0.1
780.60	Fever	16,195	6.0%	280	0.1
382.90	Otitis Media	16,008	6.0%	32	0.0
493.92	Asthma with acute exacerbation	12,688	4.7%	862	0.3
787.03	Vomiting Alone	8,771	3.3%	120	0.0
558.90	Noninfectious Gastroenteritis	8,606	3.2%	189	0.1
466.19	Acute Bronchiolitis	8,111	3.0%	513	0.2
464.40	Croup	7,027	2.6%	347	0.1
564.00	Constipation	6,802	2.5%	343	0.1
599.00	UTI	6,314	2.3%	136	0.1
079.99	Viral Infection	4,628	1.7%	39	0.0
034.00	Strep Sore Throat	4,279	1.6%	31	0.0
959.01	Head Injury	3,850	1.4%	18	0.0
486.00	Pneumonia	3,469	1.3%	289	0.1
784.00	Headache	3,409	1.3%	124	0.1
789.00	Abdominal Pain Unspecified Site	3,332	1.2%	42	0.0
786.20	Cough	2,769	1.0%	25	0.0
920.00	Contusion of face/scalp/neck	2,626	1.0%	38	0.0
276.51	Dehydration	2,543	0.9%	785	0.3
787.91	Diarrhea	2,401	0.9%	24	0.0
466.11	Acute Bronchiolitis d/t RSV	2,104	0.8%	646	0.2
493.90	Asthma NOS	2,088	0.8%	22	0.0
372.30	Conjunctivitis	1,957	0.7%	2	0.0
462.00	Acute Pharyngitis	1,845	0.7%	16	0.0
	Total (Top 24 Diagnoses/Admissions)	136,823	50.6%	5,128	1.9%

Among the top 24 diagnoses, asthma was the main reason for admission (0.3 percent),

followed by dehydration (0.3 percent) and acute bronchiolitis due to RSV (0.2 percent).

Table 7.3 looks at all admission diagnoses and lists the top three diagnoses in each age group.

Table 7.3. Top 3 admission reasons by age category.

ICD-9 Code	Diagnosis	Admissions (Total Individuals)	
		N (total)	Percent (%) of diagnoses for age category
<1 year			
466.11	Acute Bronchiolitis d/t RSV	260	13.7%
466.19	Acute Bronchiolitis	148	7.8%
276.51	Dehydration	90	4.8%
1-4 years			
493.92	Asthma with acute exacerbation	186	7.1%
276.51	Dehydration	174	6.6%
464.00	Croup	155	5.9%
5-9 years			
540.90	Acute Appendicitis	334	13.7%
812.41	Supracondylar Fracture	208	8.5%
493.92	Asthma with acute exacerbation	148	6.1%
10-13 years			
540.90	Acute Appendicitis	340	19.2%
493.92	Asthma with acute exacerbation	55	3.1%
564.00	Acute Appendicitis w/ peritonitis	41	2.3%
14-17 years			
540.90	Acute Appendicitis	195	11.5%
276.51	Dehydration	39	2.3%
564.00	Constipation	34	2.0%

There were a total of 10,416 admissions for the study period. The majority of admissions were for children ages one to four years (25.2 percent). Twenty-three percent (23.4 percent) of admissions were for children five to nine, 18.2 percent of admissions

were for infants, 17.0 percent of admissions were for children 10 to 13 and 16.2 percent of admissions were for adolescents aged 14 to 17 years.

Respiratory issues were the main reasons for admission for children under the age of five. Acute appendicitis was the most common admission diagnosis for all children five years and older. The highest percent of children (21.5 percent) admitted for appendicitis were between the ages of 10 and 13. Asthma, the second most common admission diagnosis for 10 to 13 year-olds, made up only three percent of all admissions.

According to a study utilizing a multi-State health data system in which Arizona was a participant, asthma was found to be the most common reason for hospitalization for children three to 12 years of age and appendicitis was the second most common reason for hospitalization for children six to 17 years of age.[289] The lower admission rates for asthma seen at PCH could be due to the Breathmobile, which began service in 2000 and now provides preventive outreach to 19 schools in South Phoenix, where children are most likely to be uninsured.[278] Bringing free education and treatment directly to those children most in need is one important strategy to reduce ED visits and lower healthcare costs.

Characteristics of Visitors (Nonurgent visits compared to all other visits)

To gain insight into current trends in ED utilization over the study period, Table 7.4 compares nonurgent visits with all other visits by year/ season, by age, by gender, by race and by insurance status. The purpose of this section was to determine whether there was any variation in use pattern between nonurgent visits and all other visits.

Principal Variables

Table 7.4. A comparison of nonurgent visits to all other visits during the study period.

Principal Variable	N (total individuals with top ten diagnoses) (N=50,235)	Percent (%) of total individuals (N=143,496)	N (total individuals with all other visits) (N=93,261)	Percent (%) of total individuals (N=143,496)
Year				
2011	10,080	7.0%	19,625	13.7%
2012	6,620	4.6%	13,424	9.4%
2013	13,324	9.3%	24,871	17.3%
2014	20,188	14.1%	35,363	24.6%
Season				
Winter	12,803	8.9%	22,984	16.0%
Spring	9,168	6.4%	21,755	15.2%
Summer	7,487	5.2%	25,206	17.6%
Fall	14,798	10.3%	29,295	20.4%
Patient age				
<1 year	11,121	7.8%	10,902	7.6%
1-4 years	19,969	13.9%	29,096	20.3%
5-9 years	11,632	8.1%	24,661	17.2%
10-13 years	4,400	3.1%	15,655	10.9%
14-17 years	3,203	2.2%	12,857	9.0%
Patient gender				
Female	21,291	14.8%	45,550	31.7%
Male	24,007	16.7%	52,123	36.3%
Patient race/ethnicity				
White	10,480	7.3%	32,255	22.5%
Black	4,161	2.9%	7,904	5.5%

Hispanic	27,774	19.4%	52,233	36.4%
Native American	1,207	0.8%	3,207	2.2%
Asian	523	0.4%	4,413	3.1%
Patient insurance status				
AHCCCS	30,201	21.0%	87,944	61.3%
Private	10,040	7.0%	40,654	28.3%
Other	1,045	0.7%	3,329	2.3%
Uninsured	3,838	2.7%	11,569	8.1%

Year

As seen in the table above, nonurgent visits have been increasing at a steeper rate than

are other types of visits. There was a 32.9 percent increase in nonurgent visits between

2011 and 2013 and another 51.6 percent increase between 2013 and 2014. For other visit

types, there was a 26.3 percent increase between 2011 and 2013 and a 42.2 percent

increase between 2013 and 2014. This finding was expected given the literature

pertaining to nonurgent visits to the ED.[290-291] And, according to the literature, the number

of nonurgent visits will only continue to increase.[290-291]
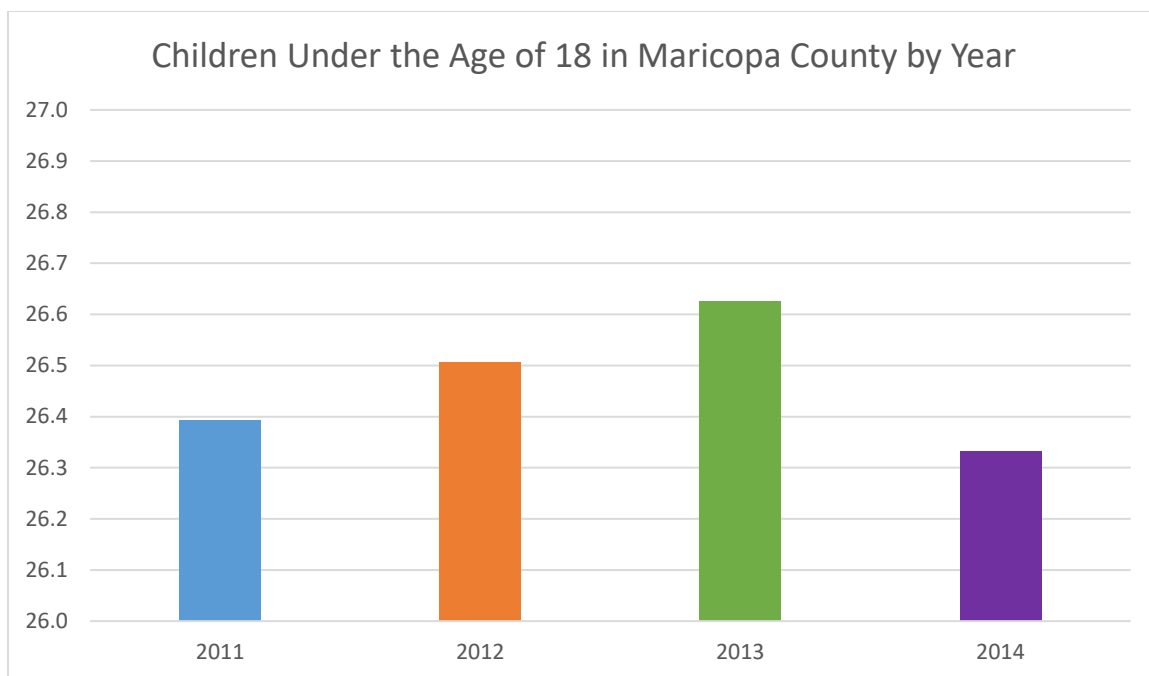
Figure 7.2. The percent of all children under the age of 18 in Maricopa County (American Community Survey Data).

Looking at county data, the percent of children under the age of 18 living in Maricopa County remained fairly steady over the four-year study period. Figure 7.2 shows the under 18 population increased 0.4 percent between 2011 and 2012, increased another 0.4 percent between 2012 and 2013 and then decreased 1.1 percent between 2013 and 2014. Informally comparing this census data to ED use rates at Phoenix Children's Hospital by year, it was clear that a population surge was not responsible for the 101.4 percent increase in nonurgent visits between 2011 and 2014. Understanding the factors contributing to the increasing use of the ED for nonurgent problems is an important topic for future research.

Season

The busiest time in the ED for all visit types was the fall (October-December). There was a 49.5 percent decrease in nonurgent visits between the fall and summer (July-September) while visits for all other reasons remained fairly steady over the seasons.

Figure 7.3 looks at the percent of visits each month over the study period for the top ten nonurgent reasons. February (37.9 percent), December (37.4 percent) and January (35.8 percent) were the busiest months. From February the numbers decrease steadily to the lowest point in July (21.6 percent) and then steadily rise again to peak in December.
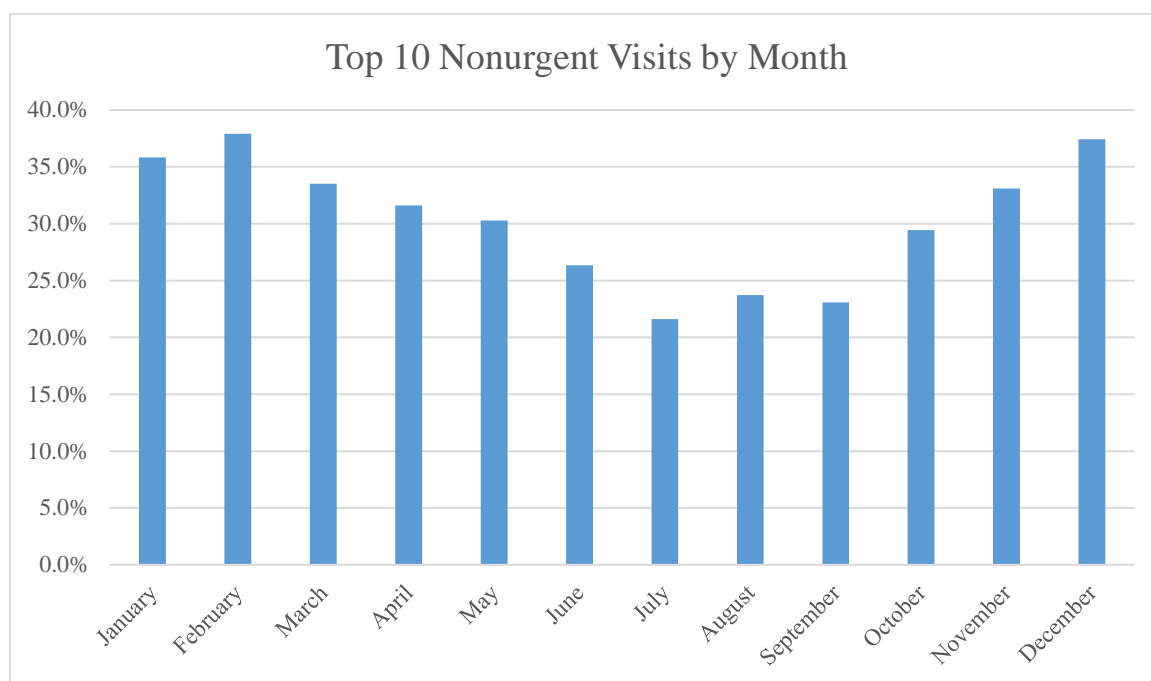
Figure 7.3. Percent of visits each month over the study period for the top 10 diagnoses.

This fluctuation in nonurgent visits correlates with the school year. School brings children together and germs are easily spread due to children's tendency to not cover

their mouth when coughing and sneezing. Physiologically, children's upper airways are not fully developed allowing for more bacterial and viral infections to occur. For these reasons it was not surprising to see an increase in fever, upper respiratory infections, ear infections and vomiting during the school year.

Age

As Table 7.5 shows, out of all individuals visiting the ED during the study period, children aged one to four years had the highest percent of visits for both nonurgent and other visit reasons. However, when analyzing these numbers by age category, the highest percent of nonurgent visits were made by children under one year of age. Children under the age of one came equally for both nonurgent (50.5 percent) reasons and all other (49.5 percent) visit reasons. One to four year-olds came 40.7 percent of the time for nonurgent reasons and 59.3 percent of the time for all other visit reasons. Twenty-two percent of all visits for 10 to 13-year-olds were for nonurgent reasons compared to 78.1 percent of visits for all other reasons. Adolescents, 14 to 17-year-olds, were the least likely to come for nonurgent reasons (19.9 percent) with 80.1 percent of their visit reasons being for all other visit reasons.
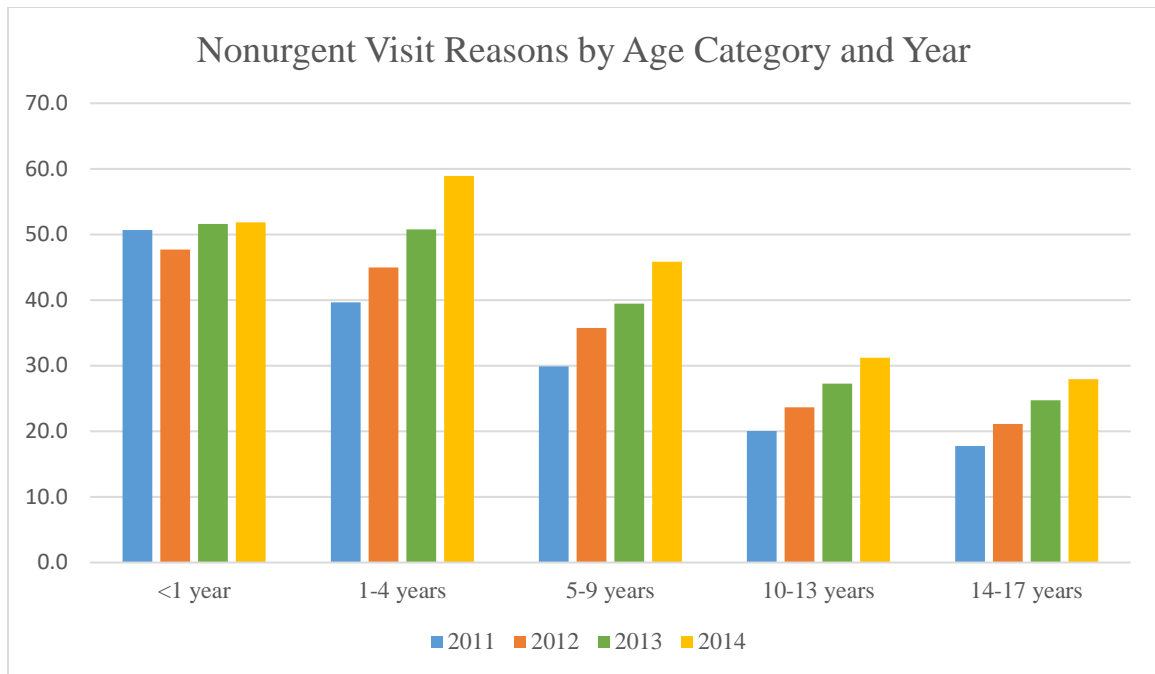
Figure 7.4. Age distribution of ED visits for 2011, 2012, 2013 and 2014.

Figure 7.4 shows that across all years of the study period visits by children under one stayed relatively the same. Visits for one to four-year-olds increased 28 percent between 2011 and 2013 and 15.9 percent between 2013 and 2014. Visits for five to nine-year-olds increased 32.1 percent between 2011 and 2013 and 15.9 percent between 2013 and 2014. Visits for 10 to 13-year-olds increased 35.8 percent between 2011 and 2013 and 14.3 percent between 2013 and 2014. And, visits for 14 to 17-year-olds increased 38.8 percent between 2011 and 2013 and 13.4 percent between 2013 and 2014. From the start of the study in 2011 to the end of the study in 2014, there was a 57.3 percent increase in the number of visits made by adolescents, aged 14 to 17 years. This upward trend in ED use may be suggestive of adolescents' reluctance to utilize primary care services, a lack of services targeted toward adolescents, a lack of access to care, underinsurance or no

insurance by adolescents. That visits for children under one remained stable is not surprising. Whether ED utilization by this age group is due to a higher incidence of serious illness in this population or a greater propensity to bring a baby in for evaluation and treatment for mild illness, the vulnerability of children during their first year of life will continue to be a motivating factor for use.

Gender

Males visited the ED more than females and this held true for nonurgent visits as well. For nonurgent reasons, 12.8 percent more males came than females and for all other visit reasons, 14.5 percent more males than females came.

Race/Ethnicity

Looking at a side by side comparison by race/ethnicity, Hispanics made the most visits overall to the ED for both nonurgent and all other visit reasons. Whites had 55 percent lower odds of visiting the ED for one of the top 10 diagnoses than did Hispanics (OR=0.45, 95% CI=0.43 to 0.47 p<.0001), Asians had 44 percent lower odds (OR=0.56, 95% CI=0.47 to 0.66, p=0.0004), Native Americans had 38 percent lower odds (OR=0.62, 95% CI=0.56 to 0.68, p<.0001), and Blacks had 9 percent lower odds (OR=0.91 95% CI=0.86 to 0.96, p<.0001). Recognizing that Hispanics and Blacks utilize the ED for nonurgent reasons more often than do Whites and Asians is suggestive of a need to address access to care and other structural barriers that contribute to health disparities among low-income minorities. Population-based studies of ED use should be conducted to further evaluate whether racial/ethnic differences specific to PCH exist that are not explained by differences in demographics, socioeconomic status or access to care.

Insurance Status

Looking at the insurance status of those individuals visiting the ED, 25.6 percent of all patients who had AHCCCS came for nonurgent reasons, 24.9 percent of all uninsured patients came for nonurgent reasons, 23.9 percent of those with insurance other than AHCCCS or private came for nonurgent reasons, and 19.8 percent of those with private insurance came for nonurgent reasons. Conversely, when the top ten nonurgent visits were removed, of all patients who had private insurance, 80.2 percent came for issues other than one of the top ten diagnoses.
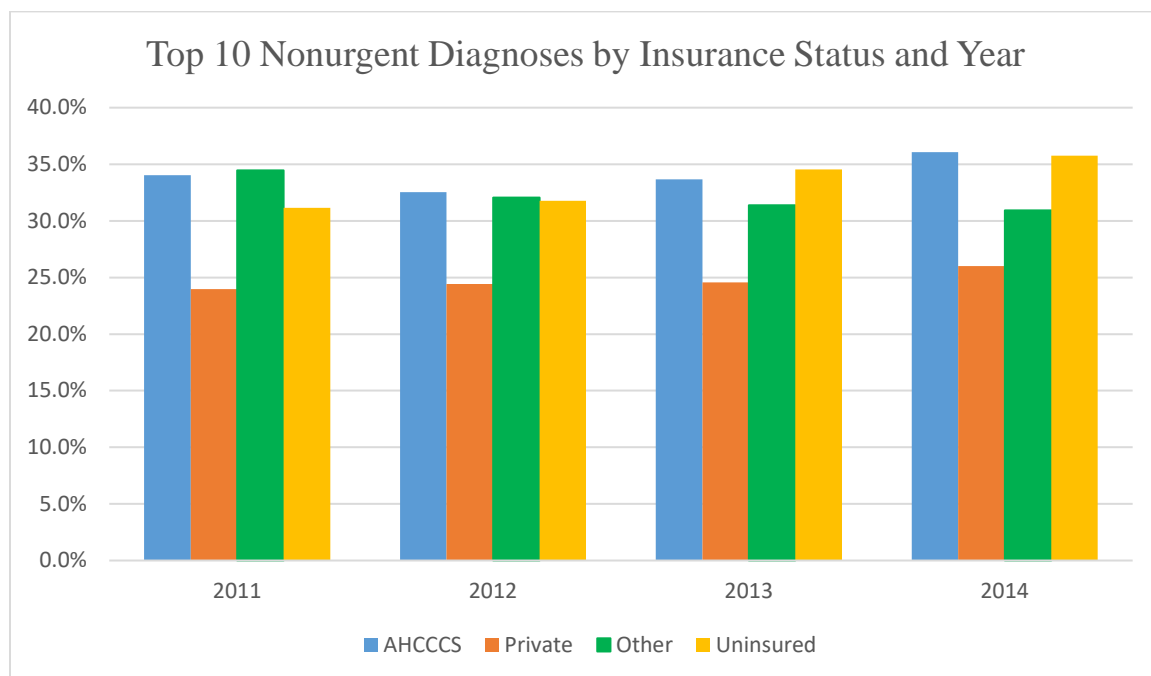
Figure 7.5. Number of top 10 nonurgent diagnoses covered by AHCCCS, private insurance, other insurance and no insurance each year (2011-2014) divided by total number of diagnoses covered by AHCCCS, private insurance, other insurance and no insurance each year (2011-2014).

Figure 7.5 shows there was a less than one percent decrease in AHCCCS coverage for nonurgent visits between 2011 and 2013, but then a sharp 7.1 percent increase occurred between 2013 and 2014. Private insurance coverage for nonurgent visits remained fairly steady between 2011 and 2013, with a modest 2.5 percent increase, but between 2013 and 2014 a 5.7 percent increase occurred. Persons with insurance other than AHCCCS or private, decreased over the study period for nonurgent visits. Between 2011 and 2013 there was a 9.0 percent decrease and a 1.6 percent decrease between 2013 and 2014. The most significant increase was in the percent of uninsured patients presenting with nonurgent complaints. A 14.7 percent increase was seen between 2011 and 2014. There was a 10.6 percent increase between 2011 and 2013 and an additional 3.8 percent increase between 2013 and 2014.

The findings in this study are similar to the findings found in a 2004 study that evaluated pediatric care and ED utilization in Yuma, Arizona and concluded that uninsured children were much more likely to utilize the ED.[292] The 2004 study implied that simply improving insurance coverage could eliminate the importance of ethnicity as a determinant of ED utilization.

Age and Nonurgent Visits

Children are not a homogenous group. A great deal of variability exists physiologically, anatomically, cognitively, socially and emotionally from birth through childhood and the adolescent years. These differences impact the way illness presents itself and differences between the top visit reasons in this study did vary from infancy

through adolescence. For example, as seen in Table 7.5, upper respiratory infections, the

number one reason that children under the age of one are brought to the ED drops to the

number two reason in one to four-year-olds, the number three reason in five to nine-year-

olds and the number six reason in 10 to 13-year-olds. Although adolescents do get upper

respiratory infections, it no longer remains a top ten reason to come to the ED for 14 to

17-year-olds.

Table 7.5. All visits with top ten diagnoses by age category[4]

ICD-9 Code	Diagnosis	Total Diagnoses= 270,228	
		N (total)	Percent (%) of total diagnoses for age category
	<1 year	**Total Diagnoses=53,985**	
465.90	URI	5,955	11.0%
466.19	Acute Bronchiolitis	5,625	10.4%
780.60	Fever	5,130	9.5%
382.90	Otitis Media	2,833	5.2%
787.03	Vomiting Alone	1,969	3.6%
558.90	Noninfectious Gastroenteritis	1,715	3.2%
466.11	Acute Bronchiolitis d/t RSV	1,712	3.2%
464.40	Croup	1,485	2.8%
599.00	UTI	1,125	2.1%
564.00	Constipation	993	1.8%
	Total (Top 10 Diagnoses <1 year)	28,542	52.9%
	1-4 years	**Total Diagnoses=98,070**	
780.60	Fever	7,731	7.9%
465.90	URI	7,067	7.2%
382.90	Otitis Media	6,983	7.1%
464.40	Croup	4,507	4.6%
787.03	Vomiting Alone	4,008	4.1%
558.90	Noninfectious Gastroenteritis	3,762	3.8%

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[4] Missing 10 in age category

493.92	Asthma w/ acute exacerbation	3,445	3.5%
079.99	Viral Infection	1,957	2.0%
959.01	Head injury	1,744	1.8%
564.00	Constipation	1,739	1.8%
	Total (Top 10 Diagnoses 1-4-year-olds)	42,943	43.8%
	5-9 years	**Total Diagnoses=60,864**	
493.92	Asthma w/ acute exacerbation	3,373	5.5%
780.60	Fever	2,453	4.0%
465.90	URI	2,311	3.8%
382.90	Otitis Media	2,283	3.8%
034.00	Strep Sore Throat	2,201	3.6%
564.00	Constipation	1,981	3.3%
787.03	Vomiting Alone	1,853	3.0%
558.90	Noninfectious Gastroenteritis	1,645	2.7%
599.00	UTI	1,509	2.5%
789.00	Abdominal Pain Unspecified	1,298	2.1%
	Total (Top 10 Diagnoses 5-9-year-olds)	20,907	34.4%
	10-13 years	**Total Diagnoses=32,401**	
493.92	Asthma w/ acute exacerbation	1,262	3.9%
784.00	Headache	1,043	3.2%
564.00	Constipation	1,037	3.2%
034.00	Strep Sore Throat	688	2.1%
789.00	Abdominal Pain Unspecified	678	2.1%
558.90	URI	637	2.0%
465.90	Acute Upper Respiratory Infection	592	1.8%
540.90	Acute Appendicitis	524	1.6%
780.60	Fever	482	1.5%
787.03	Vomiting Alone	481	1.5%
	Total (Top 10 Diagnoses 10-13-year-olds)	7,424	22.9%
	14-17 years	**Total Diagnoses=24,908**	
784.00	Headache	992	4.0%
346.90	Migraine	656	2.6%
564.00	Constipation	564	2.3%
789.00	Abdominal Pain Unspecified	483	1.9%
493.92	Asthma w/ acute exacerbation	465	1.9%
786.50	Chest Pain	449	1.8%
780.20	Syncope and Collapse	447	1.8%
599.00	UTI	400	1.6%

789.09	Abdominal Pain other Specified Site	369	1.5%
558.90	Noninfectious Gastroenteritis	352	1.4%
	Total (Top 10 Diagnoses 14-17-year-olds)	5,177	20.8%

Figure 7.6 shows the percent of individuals who came to the ED for nonurgent reasons by age.
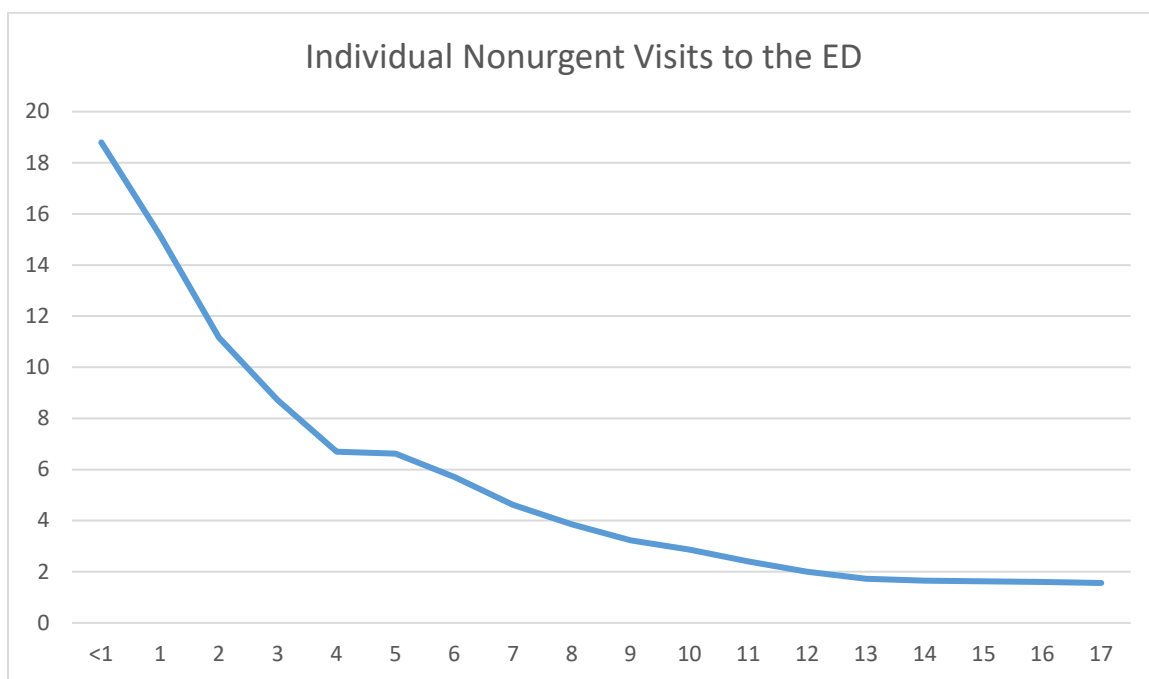
Figure 7.6. Percent of individuals visiting the ED for nonurgent reasons by age.

Infants and toddlers had 3.3 times greater odds of coming to the ED than did 14 to 17-year-olds for nonurgent reasons (infants: OR=3.3, 95% CI= 3.2 to 3.5, p<.0001 and early childhood: OR=3.3, 95% CI=3.2 to 3.4, p<.0001). It is not surprising that infants and toddlers had high rates of visits for general symptoms like fever, vomiting and cough and congestion. Symptoms such as these are frightening especially for first time parents and

especially in the middle of the night. Additionally, in these ages, it is not always clear if a symptom is due to a common malady or the first sign of a more serious condition. Some conditions are not obvious and are diagnosed only after a pattern of illness has been established. Additionally, infants and toddlers are more prone to accidents due to their new found mobility.

As stated in Chapter 6, age determines the motive and urgency (perceived and real) for bringing a child to the ED. For this reason, it was important to first look at how age relates to nonurgent visits. Grouping children according to age provided a quick way to view these patterns and determine the healthcare needs specific to infancy (<1 year), early childhood (1 to 4 years), school-aged children (5-9 year), early adolescence (10-13 years), and middle adolescence (14 to 17 years). This study found that in children under one year of age, respiratory infections (URI, Bronchiolitis, Bronchiolitis d/t RSV and croup, accounted for the majority of visits (27.3 percent). In early childhood, the age when many children are in daycare, infectious processes, (ie: fever,URI, ear infections) were the main visit reason. Asthma was highest in children five to 13 years of age, while adolescents came mainly due to pain (headache, chest pain and abdominal pain).

Interestingly, a study on the effectiveness of the PCH Breathmobile reported a 70 percent reduction in ED visits for their participants. [278] So, while asthma remained the top visit reason at 5.0 percent for children aged five to 13 years, it is possible that this number would have been much higher if not for proactive outreach projects such as the Breathmobile.

Figures 7.7-7.9 show nonurgent visits by age, gender and race/ethnicity. Figure 7.7 shows the percent of all nonurgent visits made to the ED by gender and age. There was

no significant difference between the number of boys versus girls visiting the ED for one of the top 10 diagnoses (OR=1.0, 95% CI= 0.98 to 1.0, p<.0001) until age was considered. More boys than girls visited the ED until age 13 years. By age 17 years, there was an 81.7 percent increase in girls visiting the ED for nonurgent visits compared to boys.
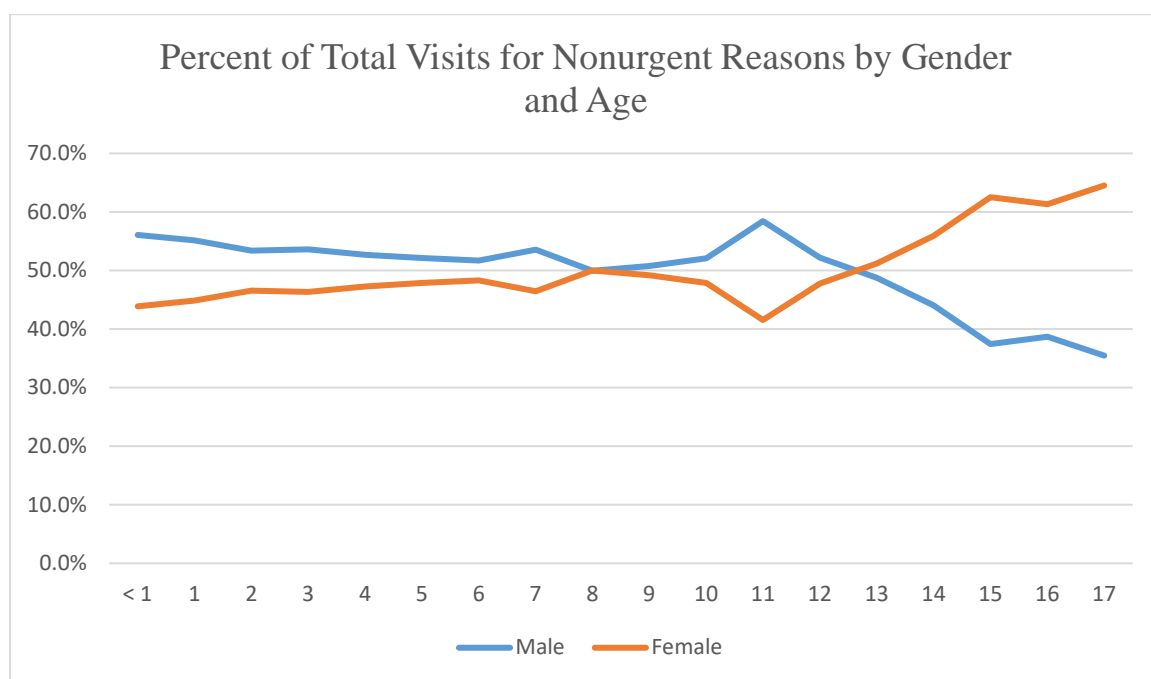
Figure 7.7. Out of all visits made for nonurgent reasons by age, the percent who were male and female.

Figure 7.8 shows the percent of individuals using the ED for nonurgent reasons by race/ethnicity. With the exception of Asians, children under the age of one used the ED the most for nonurgent reasons among all races/ethnicities. Amongst Asians, one-year-olds made the most visits for nonurgent reasons. Amongst adolescents aged 14 to 17 years old, Whites made the most visits for nonurgent reasons.
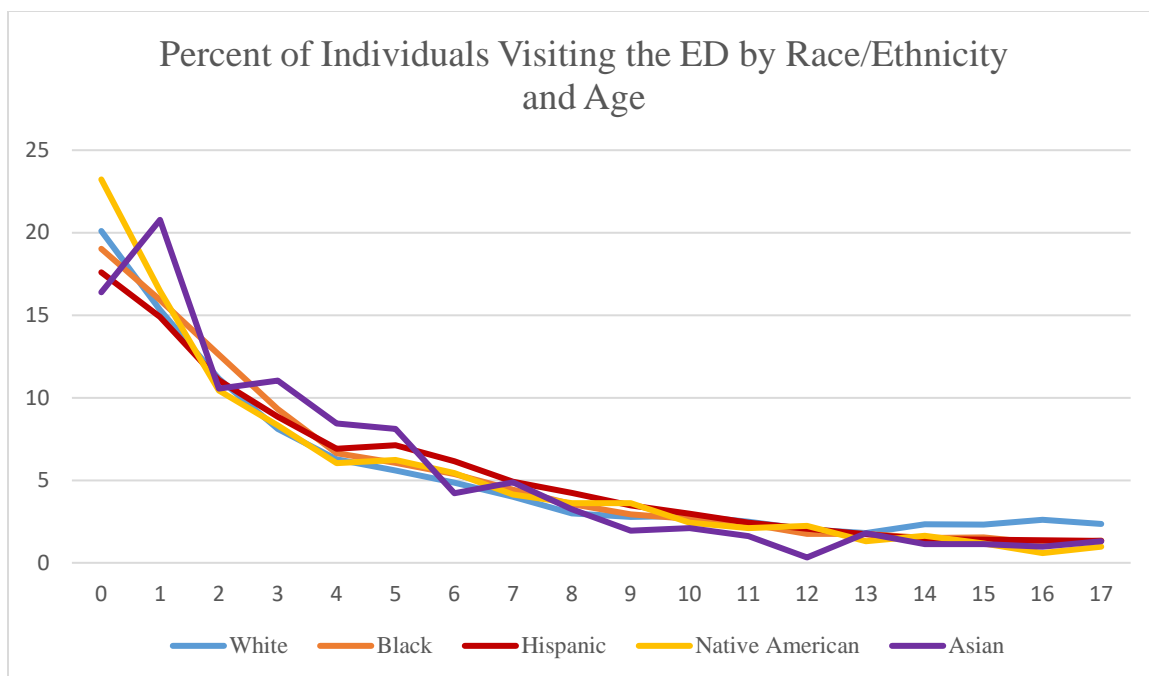
Figure 7.8. Percent of individuals visiting the ED for nonurgent reasons by race/ethnicity and age.

When collapsed into age categories, Figure 7.9 shows that across all races/ethnicities, the highest use was by one to four-year-olds: 40.9 percent of all Whites, 44.5 percent of all Blacks, 41.7 percent of all Hispanics, 41.3 percent of all Native Americans and 50.8 percent of all Asians. The lowest use was by 14 to 17-year-olds: 5.6 percent of all Blacks, 5.6 percent of all Hispanics, 4.4 percent of all Native Americans and 4.5 percent of all Asians. Whites were the only group in which use by 14 to 17 year-olds (9.6 percent) exceeded use by 10 to 13-year-olds (9.2 percent).
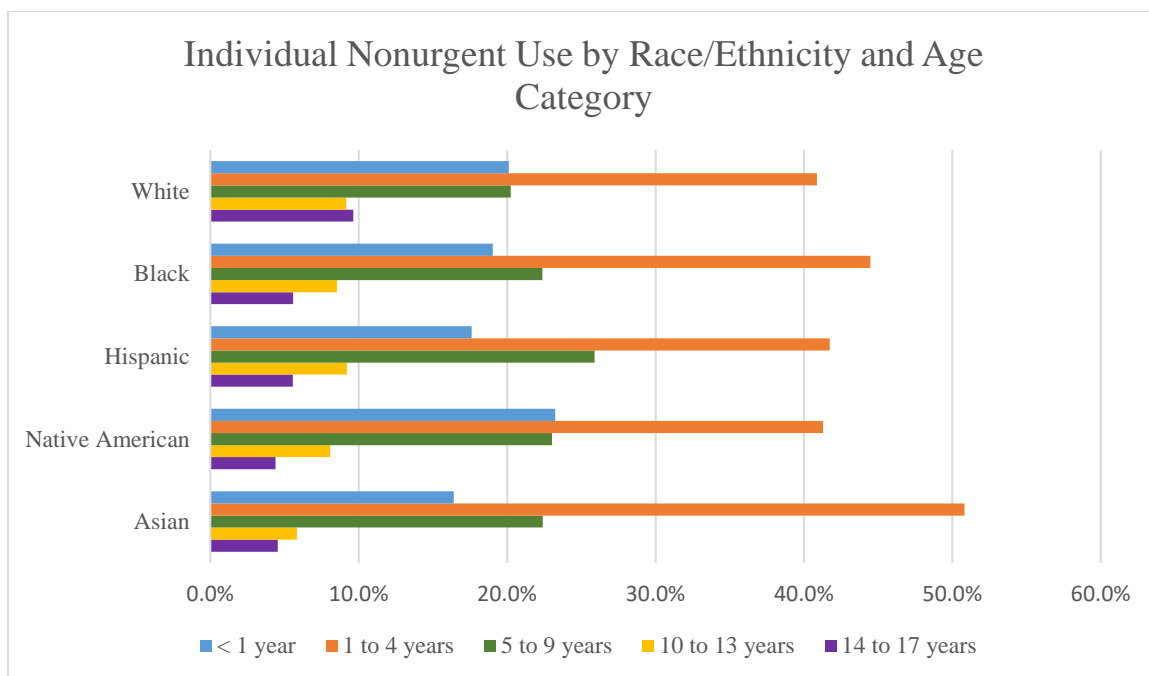
Figure 7.9. Percent of individuals visiting the ED for nonurgent reasons by race/ethnicity and age category.

While one to four-year-olds made the most visits to the ED across all races/ethnicities, Figures 7.10-7.14 below examined whether there was any difference among race/ethnicities for the reason that a parent brought his/her child to the ED.

Examination of Top 10 Diagnoses

Table 7.6 shows that in every race category, upper respiratory infections and fever were one of the top three diagnoses.

Table 7.6.. Top ten visit reasons by race/ethnicity[5]

ICD-9 Code	Diagnosis	Total Diagnoses= 143,496	
		N (total) 44,108	Percent (%) of total diagnoses for race/ethnicity
White		**Total= 42,735**	
780.60	Fever	1,820	4.3%
465.90	Acute Upper Respiratory Infection	1,323	3.1%
787.03	Vomiting Alone	1,134	2.7%
382.90	Otitis Media	1,064	2.5%
464.40	Croup	971	2.3%
564.00	Constipation	933	2.2%
558.90	Noninfectious Gastroenteritis	916	2.1%
493.92	Asthma with acute exacerbation	879	2.1%
959.01	Head injury	805	1.9%
784.00	Headache	635	1.5%
	Total Top 10 Nonurgent Visits	10,480	24.5%
Black		**Total= 12,066**	
465.90	Acute Upper Respiratory Infection	858	7.1%
493.92	Asthma with acute exacerbation	650	5.4%
780.60	Fever	557	4.6%
382.90	Otitis Media	501	4.2%
787.03	Vomiting Alone	314	2.6%
558.90	Noninfectious Gastroenteritis	289	2.4%
466.19	Acute Bronchiolitis	277	2.3%
564.00	Constipation	273	2.3%
464.40	Croup	224	1.9%
034.00	Strep Sore Throat	218	1.8%
	Total Top 10 Nonurgent Visits	4,161	34.5%
Hispanic		**Total= 80,010**	
780.60	Fever	4,683	5.9%
465.90	Acute Upper Respiratory Infection	4,602	5.8%
382.90	Otitis Media	3,833	4.8%
558.90	Noninfectious Gastroenteritis	2,670	3.3%
787.03	Vomiting Alone	2,564	3.2%
493.92	Asthma with exacerbation	2,154	2.7%
564.00	Constipation	2,003	2.5%

[5] 1,802 patients fell in the "unknown" category and 825 were in the "other" category

464.40	Croup	1,971	2.5%
599.00	Urinary Tract Infection	1,737	2.2%
034.00	Strep Sore Throat	1,557	1.9%
	Total Top 10 Nonurgent Visits	27,774	34.7%
Native American		**Total= 4,414**	
465.90	Acute Upper Respiratory Infection	216	4.9%
780.60	Fever	165	3.7%
466.19	Acute Bronchiolitis	137	3.1%
382.90	Otitis Media	133	3.0%
493.92	Asthma with acute exacerbation	127	2.9%
486.00	Pneumonia	106	2.4%
558.90	Noninfectious Gastroenteritis	87	2.0%
466.11	Acute Bronchiolitis d/t RSV	81	1.8%
959.01	Head injury	78	1.8%
464.40	Croup	77	1.7%
	Total Top 10 Nonurgent Visits	1,207	27.3%
Asian		**Total= 1,648**	
780.60	Fever	104	6.3%
466.19	Acute Upper Respiratory Infection	79	4.8%
382.90	Otitis Media	61	3.7%
558.90	Noninfectious Gastroenteritis	58	3.5%
787.03	Vomiting Alone	49	3.0%
493.92	Asthma with acute exacerbation	37	2.2%
486.00	Pneumonia	37	2.2%
464.40	Croup	37	2.2%
079.99	Viral Infection	31	1.9%
564.00	Constipation	30	1.8%
	Total Top 10 Nonurgent Visits	523	31.7%

However, when the top ten visit reasons were examined more closely by race/ethnicity

a few distinctions emerged. As Figure 7.10 clearly shows, the majority (61.6 percent) of

visits by Native Americans were for respiratory symptoms (URI, Bronchiolitis,

Bronchiolitis d/t RSV, Pneumonia, Asthma and Croup), yet only two percent were

admitted to the hospital for this.
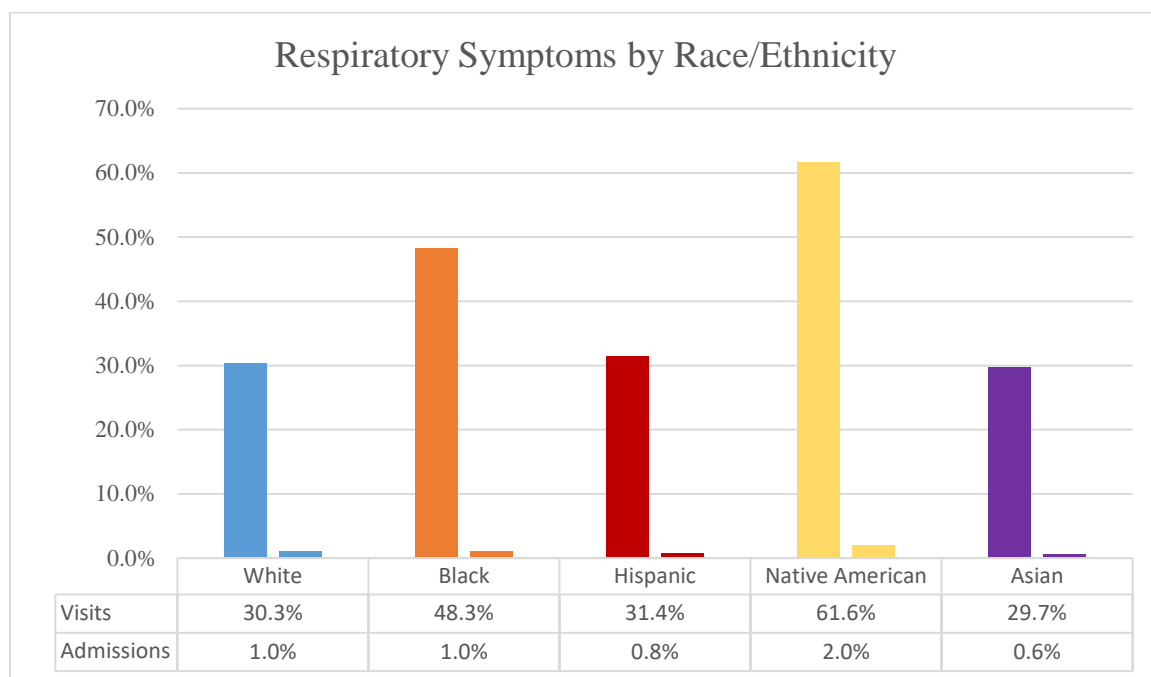
Figure 7.10. Percent of Whites, Blacks, Hispanics, Native Americans and Asians who presented with respiratory symptoms (URI, Asthma, Bronchiolitis, Bronchiolitis d/t RSV, Pneumonia and Croup) and were admitted.

Asthma was most pronounced among Black children (15.6 percent) and croup was

most pronounced among Whites (9.3 percent), but less than one percent of Blacks were

admitted for asthma (0.6 percent) and less than one percent of Whites were admitted for

croup (0.2 percent) (Figures 7.11 & 7.12).

Asthma by Race/Ethnicity

	White	Black	Hispanic	Native American	Asian
Visits	8.4%	15.6%	7.8%	10.8%	7.2%
Admissions	0.3%	0.6%	0.3%	0.5%	0.2%

Figure 7.11. Percent of Whites, Blacks, Hispanics, Native Americans and Asians who presented with asthma and were admitted.

Croup by Race/Ethnicity

	White	Black	Hispanic	Native American	Asian
Visits	9.3%	5.4%	7.1%	6.5%	7.2%
Admissions	0.2%	0.1%	0.1%	0.2%	0.2%
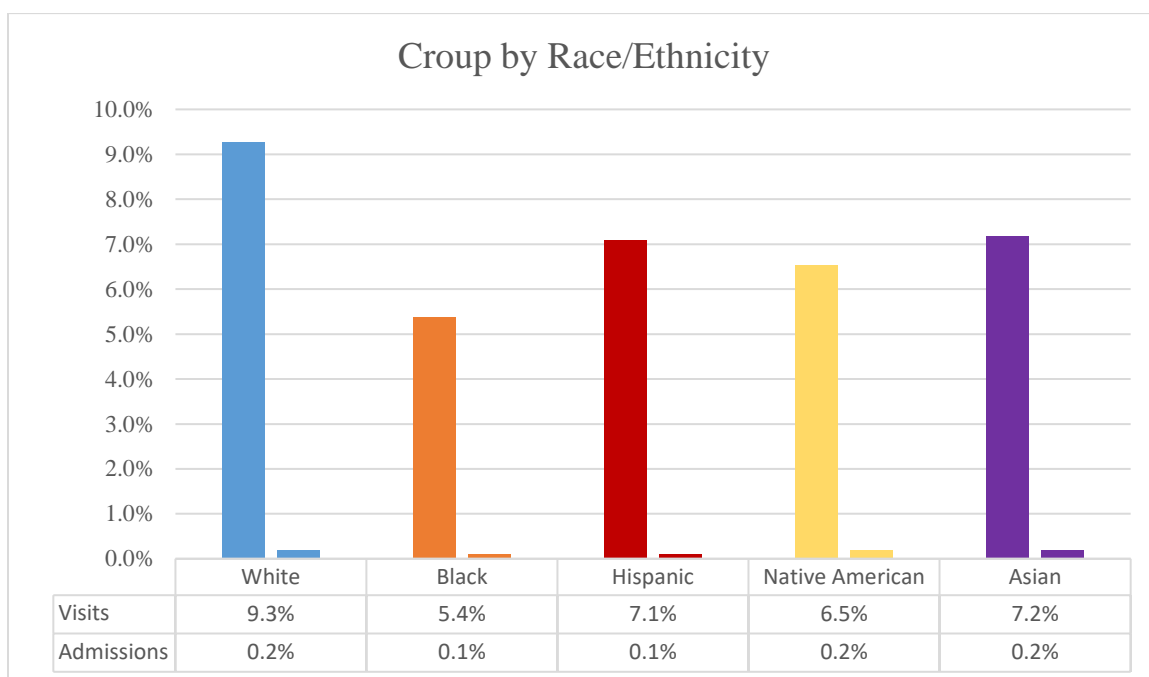
Figure 7.12. Percent of Whites, Blacks, Hispanics, Native Americans and Asians who presented with croup and were admitted.

Asians were most likely to present with fever (20.2 percent) and gastroenteritis (11.3 percent) but less than one percent of this cohort were admitted with this diagnosis (Figures 7.13 & 7.14).

Fever by Race/Ethnicity

	White	Black	Hispanic	Native American	Asian
Visits	17.4%	13.4%	16.9%	14.0%	20.2%
Admissions	0.1%	0.1%	0.1%	0.1%	0.2%

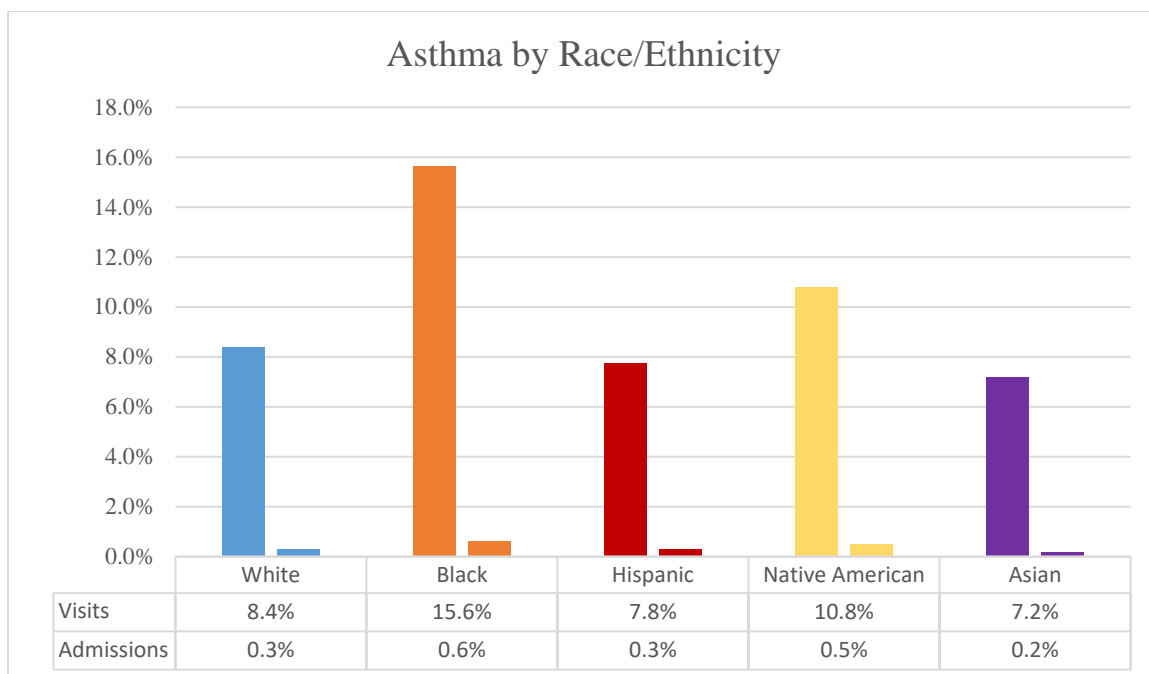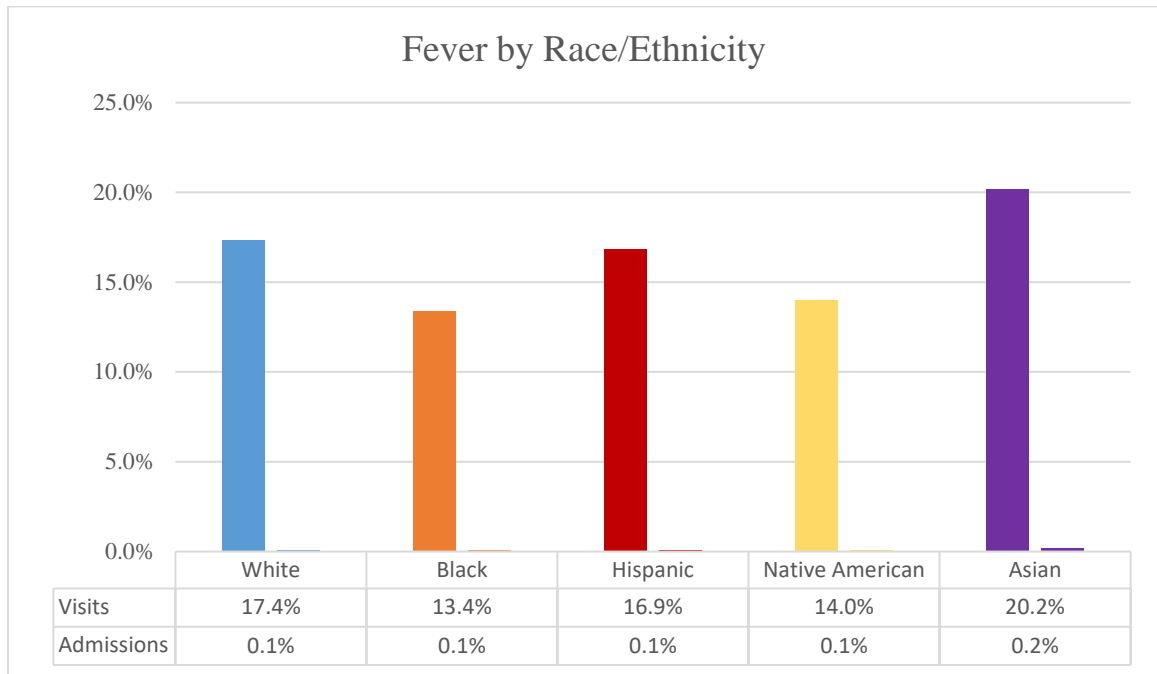**Figure 7.13.** Percent of Whites, Blacks, Hispanics, Native Americans and Asians who presented with fever.
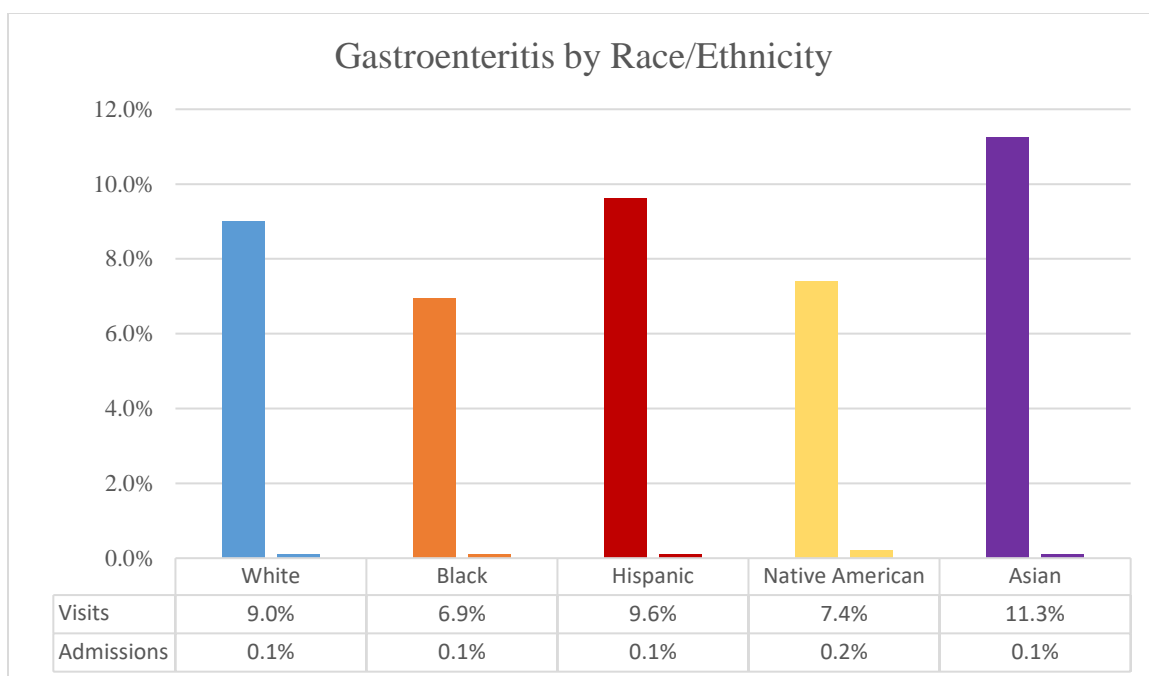
Figure 7.14. Percent of Whites, Blacks, Hispanics, Native Americans and Asians who presented with gastroenteritis.

Understanding cultural differences in ED use for nonurgent visits is an important topic. Is the difference in visit reasons among different ethnic groups due solely to a difference in prevalence of disease? Or, are differences in perceptions of health, disease management, education, and/or lack of access to primary care also determining factors? Does the PCH Breathmobile, for example, need to extend its reach into other communities where asthma is now most prevalent? Understanding any underlying cultural factors is necessary if reduction in ED visits for nonurgent needs is the objective. Cultural differences affect a parent's attitude about medical care and affects their ability to understand, manage and cope with their child's illness. Along with other determinants of health and disease, culture helps to define how patients view health and illness.

Frequent Visitors

There is no consensus in the literature as to what constitutes a frequent visit to the ED. Previous studies have varied from two visits to as many as 12 visits per year, but the most common definition tends to be four or more visits in one year. [292-293] For this study, five or more visits in one year was chosen as the definition for frequent user. It was beyond the scope of the data provided to determine if a particular child used the ED "too much" for nonurgent reasons. However, it may prove beneficial to hospitals to track frequent users and assess the reasons that they use the ED at a high frequency.

At Phoenix Children's Hospital the number of individuals visiting one time and presenting with one of the top ten nonurgent diagnoses decreased by 4.3 percent between 2011 and 2013, and then decreased 12.0 percent between 2013 and 2014. For patients making two to four visits per year between 2011 and 2013, there was an 18.9 percent increase in visits and an additional 38.5 percent increase in visits between 2013 and 2014. The most substantial increase in nonurgent visits was seen in those individuals visiting the ED five or more times in one year. A 28.6 percent increase was seen from 2011 to 2013 and a 200 percent increase occurred between 2013 and 2014 (Figure 7.15). The increase in patients visiting the ED multiple times in one year suggests that parents may be using the ED as a primary care office.

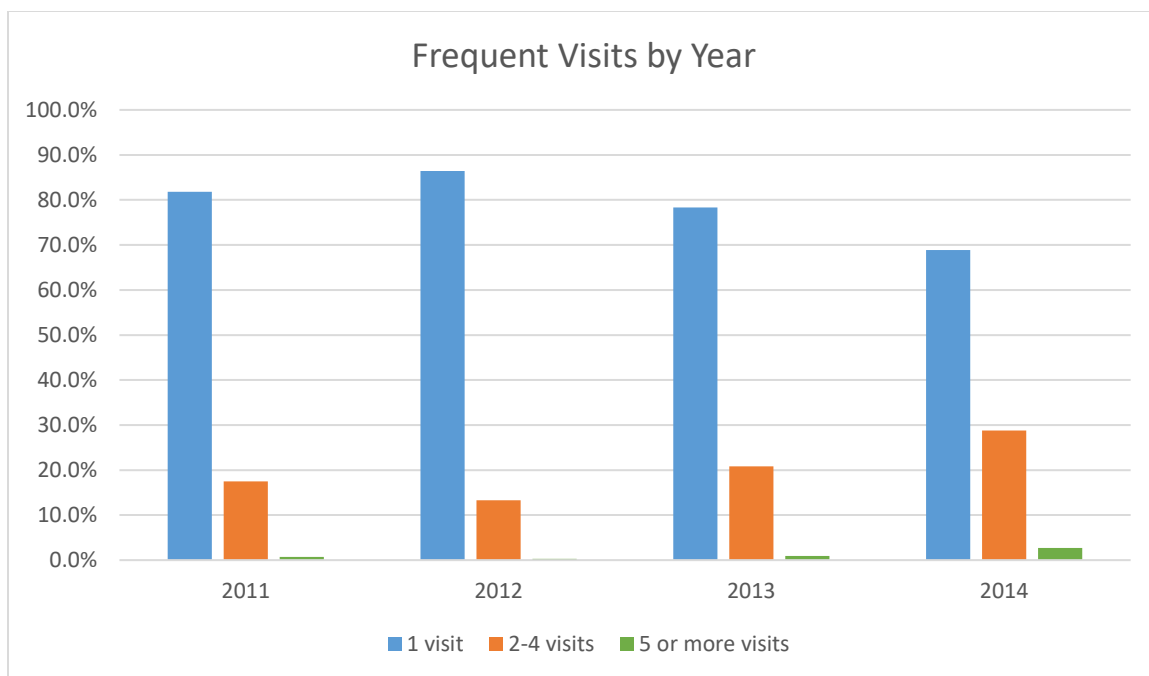**Figure 7.15.** The percent of all nonurgent visits made by individuals making one visit, two to four visits and five or more visit in one year.

Table 7.7 shows the top three diagnoses for frequent visitors by age category. The top three visit reasons are all nonurgent diagnoses. However, determining whether these ED visits could have been safely redirected to an outpatient setting was beyond the scope of this retrospective study.

Table 7.7. Total Top 3 diagnoses for patients with 5 or more visits by age category

ICD-9 Code	Diagnosis	Total Individuals/Diagnoses per year= 190,777	
		N (total)	Percent (%) of total Frequent Visits
<1 year			
465.90	URI	70	11.8%
780.60	Fever	59	10.0%
466.19	Acute Bronchiolitis	49	8.3%
1-4 years			
465.90	URI	161	8.5%
780.60	Fever	139	7.3%
382.90	Otitis Media	139	7.3%
5-9 years			
493.92	Asthma with exacerbation	38	7.3%
465.90	URI	24	4.6%
780.60	Fever	22	4.2%
10-13 years			
493.92	Asthma with exacerbation	16	5.7%
564.00	Constipation	12	4.3%
784.00	Headache	9	3.2%
14-17 years			
346.90	Migraine	13	4.4%
784.00	Headache	13	4.4%
564.00	Constipation	8	2.7%

The literature has not identified a discrete reason why parents and caregivers access the ED for nonurgent reasons. Studies show that parents have a tendency to overestimate the severity of their child's condition, while other studies find respondents unable to distinguish between a visit to the ED and visit to their PCP, citing both as equally appropriate sources of care for minor problems.[79] For these reasons it was expected that patients would not travel great distances to receive treatment for nonurgent complaints. It

might make sense that parents and caregivers would seek treatment at the closest facility.

Map 7.0 shows that the majority of visits were less than 20 miles from the hospital.
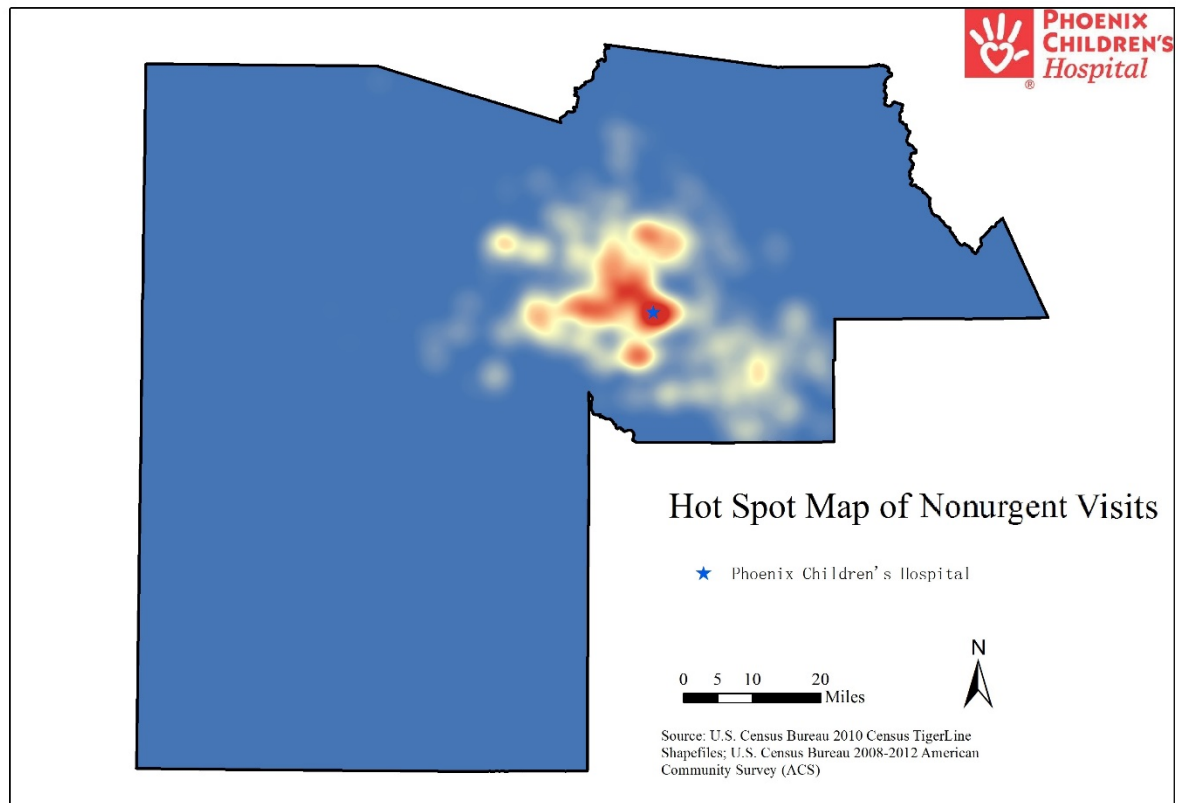
Map 7.0. Nonurgent Visit heat map.

Map 7.1 shows that all individuals who visited the ED five or more times in a year,

lived in Maricopa County. There are nine subdivisions in Maricopa County. These

include the Buckeye Division, Chandler Division, Deer Valley Division, Gila Bend

Division, Phoenix Division, St Johns Division, Salt River Division, Tonto National

Forest Division and Wickenburg Division. Phoenix Children's Hospital is located in the

Phoenix Division and 97.5 percent of all frequent nonurgent visits were by individuals

residing in this census county division. In fact, 70 percent of patients who made frequent visits to the ED lived within eight miles of the hospital. One percent of individuals resided in Deer Valley Division and less than one percent resided in the Chandler and Buckeye Divisions.
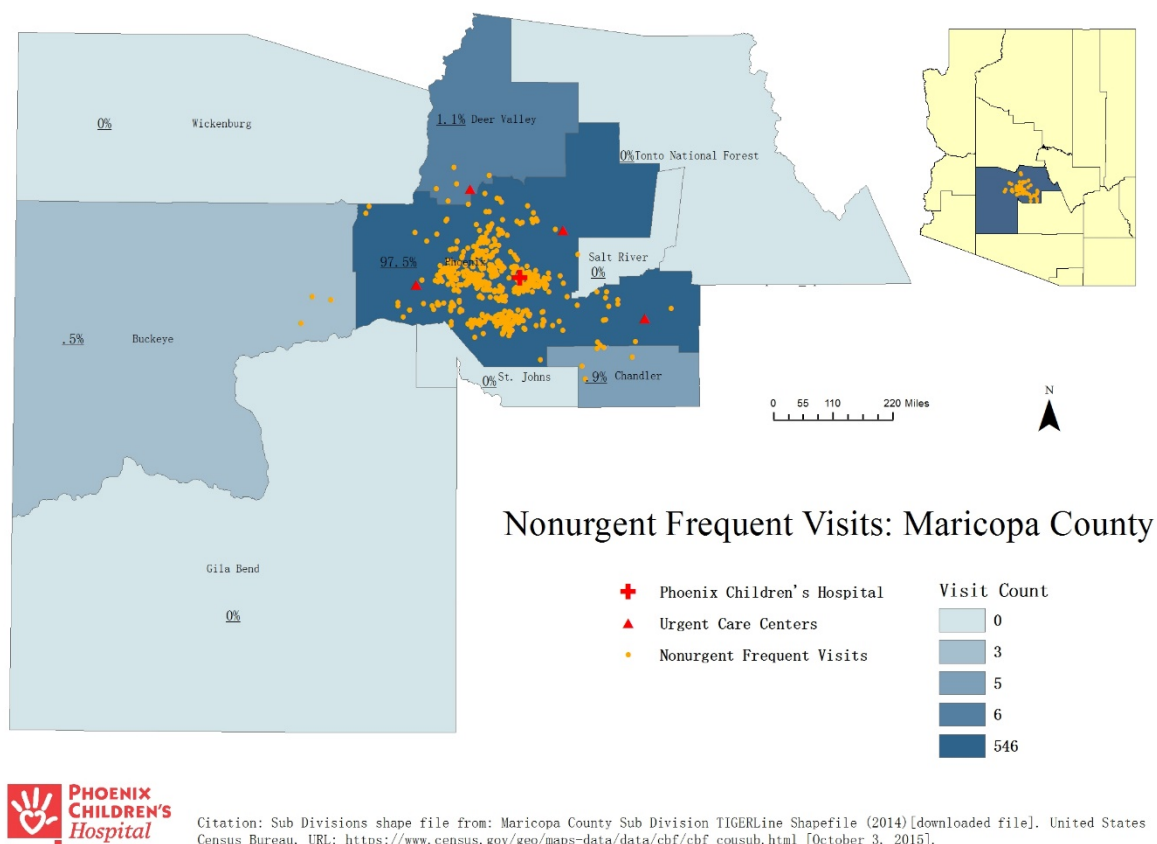
Map 7.1. Those individuals making 5 or more visits to the ED for nonurgent reasons.

Conclusion

The maps establish that patients who visit the ED at Phoenix Children's Hospital one or more times for nonurgent reasons do not travel great distances to do so. In order to

develop effective interventions to minimize the use of the ED for nonurgent reasons, it is important to recognize that 24 codes/diagnoses out of nearly 4,000 individual ICD-9 codes/diagnoses limns the majority of visits. Fewer than two percent of all patients presenting with at least one of these 24 codes/complaints were admitted. This suggests that many of the visits to the ED were for less severe cases. This finding is valuable for hospital administrators as they determine how best to utilize their resources. A large volume of "nonurgent" users compels the hospital to design strategies to improve the overall flow of low acuity patients through the ED. PCH invested in more midlevel providers to staff areas newly opened to accommodate those patients who typically have a faster turn-around. Additionally, by anticipating a 50 percent decrease in visits for these nonurgent problems in the summer, PCH began offering seasonal contracts to nurses. A fundamental understanding of the problem is crucial before considering how best to improve health care delivery and reduce costs.

The demographic profile of who visited the ED over a four-year period revealed no spike in visits by children under the age of one despite having made the most visits to the ED. The vulnerability of infants explains this expected finding. However, the increase in visits across all ages past infancy may point to a systemic problem that, left unchecked, will lead to even longer wait times and decreased quality of care. This chapter underscores the complexity of ED use for nonurgent conditions. There is no single determining factor that drives use. Understanding the needs specific to PCH, however, is the best place to start.

Chapter 8

Mental Health Visits

Introduction

The purpose of this chapter is to examine mental health visits to the ED. The
following sections describe the mental health categories and how they vary by age and
race/ethnicity, provide an overview of mental health visits to Phoenix Children's
Hospital. The chapter provides a demographic description of the 2,577 individuals who
made mental health visits to the ED between January 1, 2011and December 31, 2014,
describe hospital admission data for mental health conditions, and use thematic maps to
identify the population utilizing the ED for mental health visits. Understanding who these
patients are, their patterns of use and how far they travel to obtain mental health services,
is important as hospitals grow and expand.

Mental Health Categories

Over the study period there were a total of 3,196 primary diagnoses for a mental health
problem. For this project, the researcher eliminated for analysis those diagnoses with a
primary adult onset, those representing intellectual or processing disabilities (ie: mental
retardation, Down's Syndrome, reading or speech disorders) and those representing
symptoms indicative of either a mental disorder or a physical disorder (ie: excessive
crying, sleep stage disorder, dizziness and giddiness, altered consciousness). The mental
health diagnoses were then collapsed into six major categories based on the ICD-9 codes

and a total of 2,577 diagnoses were analyzed. The major categories were Substance Use

Disorders, including alcohol and drug use disorders; Mood Disorders, including

depressive and bipolar disorders; Anxiety/Adjustment Disorders; Psychotic Disorders;

Conduct Disorders, including ADHD; and, Suicidal and Homicidal Ideation (Table 8.0).

Table 8.0. The six major mental health categories and their corresponding ICD-9 codes.

DIAGNOSTIC CATEGORY	ICD-9 CODE
SUBSTANCE USE DISORDERS	291.00-292.99, 303.00-305.99
MOOD DISORDERS	296.00-296.19, 296.20-296.39, 296.40-296.81, 296.82, 296.89-296.99, 311.00-311.99
ANXIETY/ADJUSTMENT DISORDERS	300.00-300.39, 308.00-309.99
PSYCHOTIC DISORDERS	293.00-295.99, 297.00-299.99
CONDUCT DISORDERS	312.00-314.99, V40.00, V61.20, V61.23, V62.40, V70.10, V71.02, V71.09
SUICIDAL/HOMICIDAL IDEATION	V62.84, V62.85, V71.60

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Figure 8.0 shows the percent of mental health visits by the six major categories.

Mental Health Visits by Category
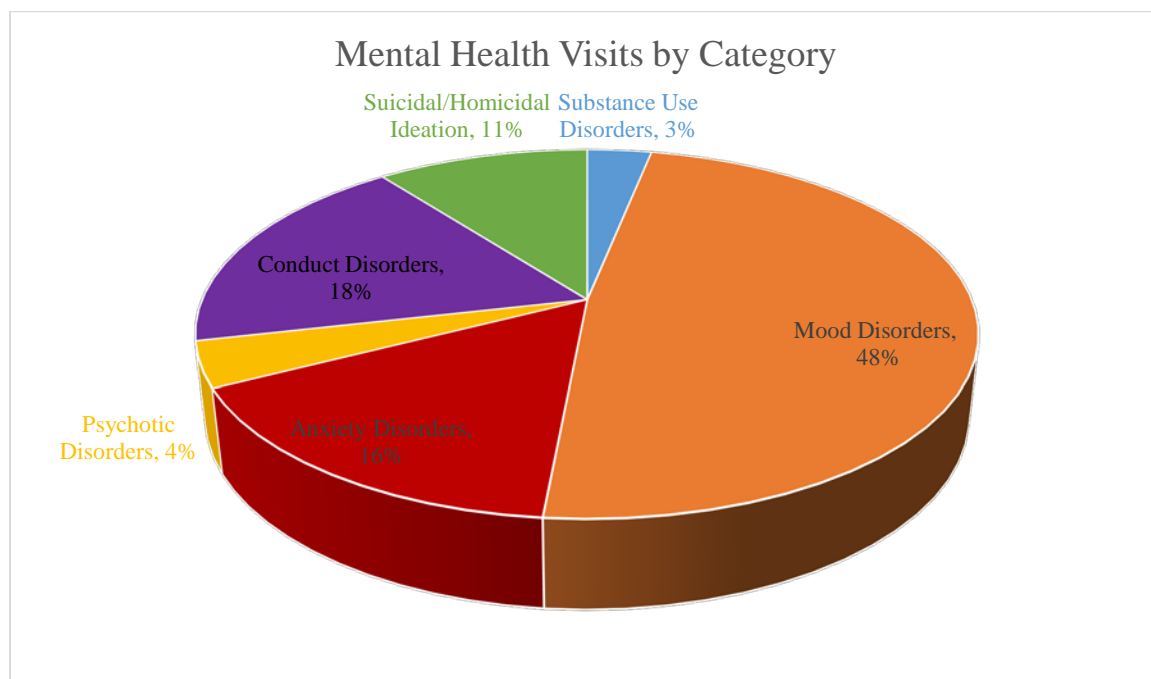
Figure 8.0. Percent of mental health visits by category.

Overall, Mood Disorders were the most common complaint (48.3 percent), followed by Conduct Disorders (18.1 percent), Anxiety Disorders (16.0 percent), Suicidal/Homicidal Ideation (10.5 percent), Psychotic Disorders (4.0 percent) and Substance Use Disorders (3.2 percent). This finding differs from other studies that consistently find conduct disorder to be the most common childhood diagnosis.[294] However, this difference might be due to ED clinician comfort working with patients who present with a mental health complaint. Qualitative studies consistently find a lack of provider confidence managing these patients.[181, 200, 295, 296] Additionally, ED physicians are charged with making rapid decisions about patients with whom they have no history and with whom they only glimpse through a small window of focus and time. For these

reasons, ED physicians are often reluctant to ascribe a psychiatric diagnosis to patients, and "mood disorder" can become a blanket diagnosis for all children who are not suicidal or physically aggressive. Therefore, it is not surprising that mood disorder was the most common ED diagnosis in this study.
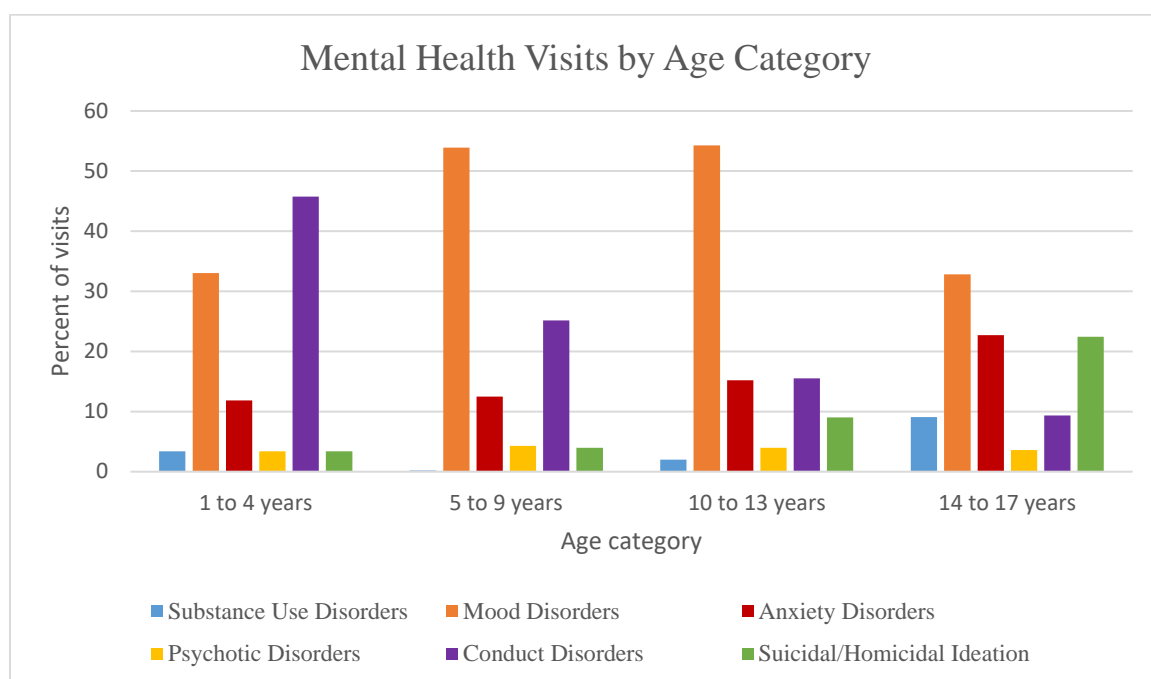
Figure 8.1. Mental Health Visits by age category.

   Looking at mental health visits by age category it is clear that conduct disorder was the most common diagnosis for one to four-year-olds and the second most common diagnosis for five to 13-year-olds (Figure 8.1). Studies have shown that the prevalence of conduct disorder increases until the age of 15 years and then stabilizes in boys and decreases in girls.[297] Conduct disorder, however, is rarely a sole diagnosis. The literature finds conduct disorder co-occurring with a diversity of co-morbid conditions, including ODD (oppositional defiant disorder), ADHD (attention deficit hyperactivity disorder), depression, anxiety and substance use. [297-298] While adolescents may also test limits, argue

with adults and break rules, such behaviors are generally accepted as developmentally appropriate and consequently conduct disorder no longer remains listed as the primary diagnosis. Therefore, as expected, the diagnosis of conduct disorder, in this study, dropped in the 14 to 17-year age category. In late adolescence, mood disorder was the most common diagnosis at 33 percent, anxiety disorder was the second most common diagnosis at 23 percent and suicidal/homicidal ideation was at 22 percent. All diagnoses in this age category reflect the increase in female visits.
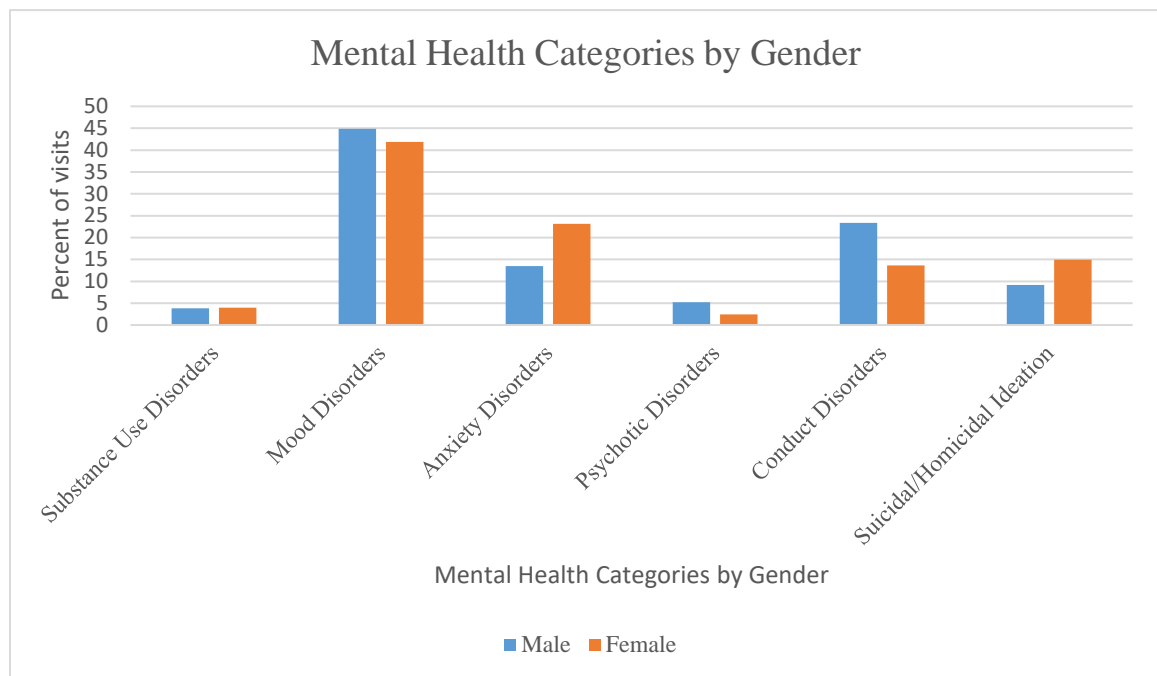

Figure 8.2. The percent of individuals with a mental health diagnosis in each category by gender.

Figure 8.2 shows the percent of individuals with a mental health diagnosis in each category by gender. Boys were diagnosed with psychotic disorders 2.6 times more

frequently and conduct disorders 2.1 times more frequently than girls. That boys are frequently diagnosed with conduct disorder is consistent with research conducted on gender stereotypes.[299] Boys are more inclined to display physically aggressive acts such as hitting, pushing and destroying things.[300=301]

Girls were more frequently diagnosed with anxiety disorders (1.4 times more frequently) and suicidal/homicidal ideation (1.3 times more frequently) than were boys. Brain scans reveal differences in the way girls and boys process emotional stimuli and it has been postulated that this difference may make adolescent girls more susceptible to depression and anxiety.[302]

When examining each of the six psychiatric diagnoses by race/ethnicity, mood disorder was highest among all races/ethnicities, ranging from 48.0 percent of all mental health visits made by Whites to 34 percent of all visits made by Native Americans. Native Americans had the highest incidence of substance use (17 percent), Hispanics had the highest incidence of anxiety disorders (27 percent), Asians had the highest incidence of psychotic disorders (10 percent) and Blacks had the highest incidence of conduct disorder (28 percent). Suicidal/homicidal ideation ranged from 13 percent in Hispanics to seven percent in Asians (Figure 8.3).
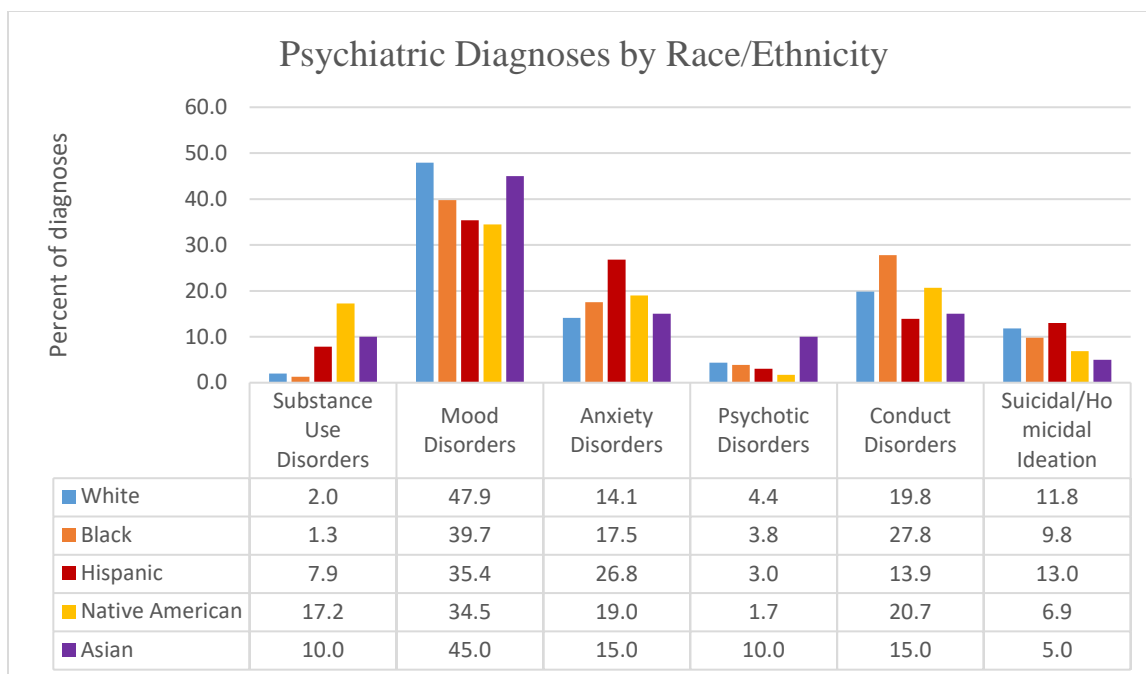
Psychiatric Diagnoses by Race/Ethnicity

	Substance Use Disorders	Mood Disorders	Anxiety Disorders	Psychotic Disorders	Conduct Disorders	Suicidal/Homicidal Ideation
■ White	2.0	47.9	14.1	4.4	19.8	11.8
■ Black	1.3	39.7	17.5	3.8	27.8	9.8
■ Hispanic	7.9	35.4	26.8	3.0	13.9	13.0
■ Native American	17.2	34.5	19.0	1.7	20.7	6.9
■ Asian	10.0	45.0	15.0	10.0	15.0	5.0

Figure 8.3. Of all Whites, Blacks, Hispanics, Native Americans and Asians, the percent diagnosed with each of the 6 psychiatric diagnoses.

Looking closer at conduct disorder by race/ethnicity, among Black children there were few differences between boys (55 percent) diagnosed and girls (45 percent) diagnosed. The gap becomes wider among White children with whom 72 percent of boys and 28 percent of girls were diagnosed with conduct disorder. Mood disorder was the most common diagnosis for every ethnicity/race and gender except Native American males for whom conduct disorder was the most common diagnosis (Figure 8.4). These findings raise many questions about racial/ethnic disparities in the identification of children with conduct disorder. Are these racial/ethnic differences due to a lack of access to health care, reflective of the lens that a clinician and/or family member interprets symptoms, a general prejudice held by clinicians, or reflective of a clinicians' expectation of the probability of conduct disorder occurring in children of certain ethnicities? Due to the

inherent limitations of a retrospective study, these findings raise more questions than they

answer.
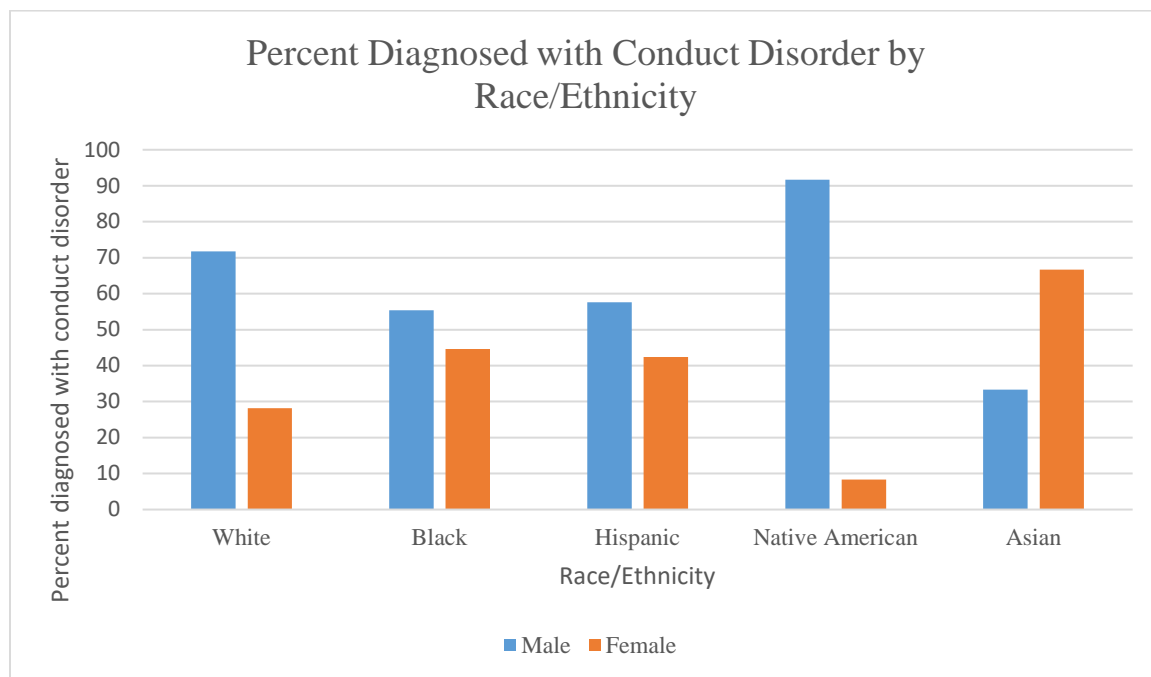
Figure 8.4. Conduct disorder by race/ethnicity and gender.

Mental Health Visits to Phoenix Children's Hospital

Overview

   During the study period, January 1, 2011 through December 31, 2014, 143,496

individuals came through the emergency room doors. Close to two percent of those

patients (n=2,577) came with a mental health complaint for a total of 3,196 visits.

However, when a query was run excluding all children under the age of five, mental

health diagnoses accounted for 3.5 percent of all ED diagnoses.

   Mental health visits have been rising. Between 2011 and 2013 there was a 44.7

percent increase and another 21.9 percent increase between 2013 and 2014 of mental

health visits. Overall, this 76.3 percent increase meant that 423 more patients were seen

in 2014 as were seen in 2011. (Figure 8.5).
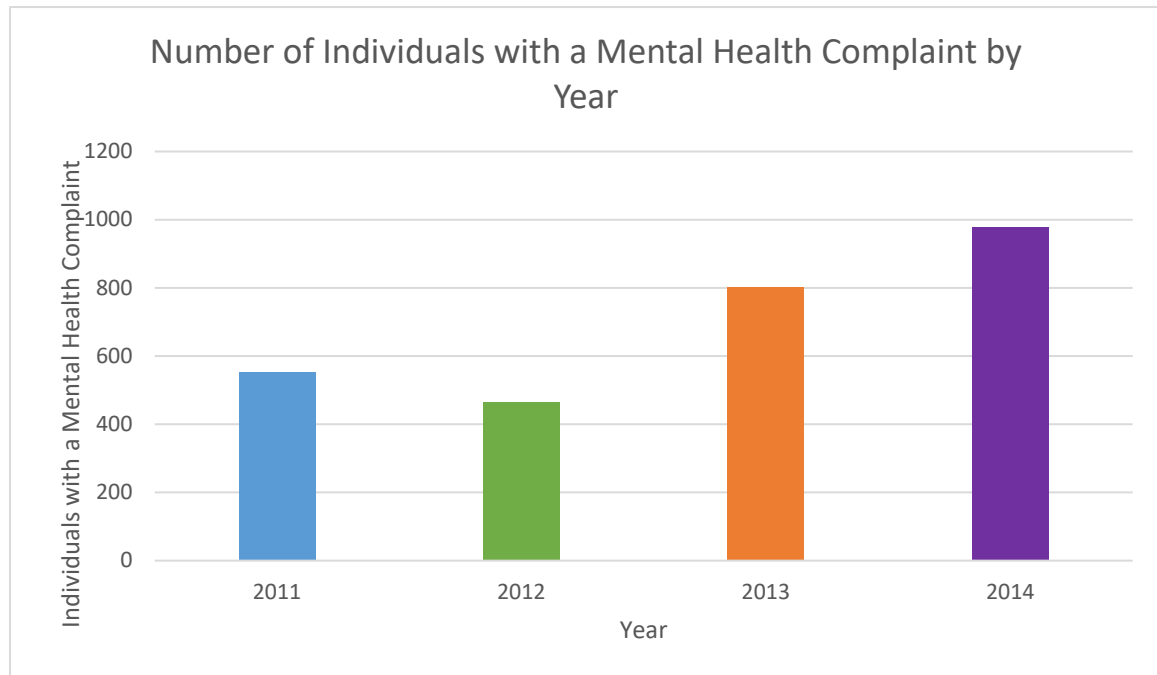
Figure 8.5. Number of individuals with a mental health complaint by year.

Eleven percent of all patients presenting with a mental health condition visited the ED

more than one time during the study period (n=308), and nearly two and half percent of

individuals came three or more times during the study period (n=68). Figure 8.6 shows

the rates for those making one visit, two visits and three or more visits remained constant

between 2011 and 2014. The percent of patients making one visit per year dropped one

percent from 88.8 percent in 2011 to 87.8 percent in 2014. The percent of patients

making two visits in one year increased 10.6 percent from 8.5 percent in 2011 to 9.4

percent in 2014 and those patients making three or more visits remained fairly steady from 2.7 percent in 2011 to 2.8 percent in 2014. One person in both 2013 and 2014 made six visits.
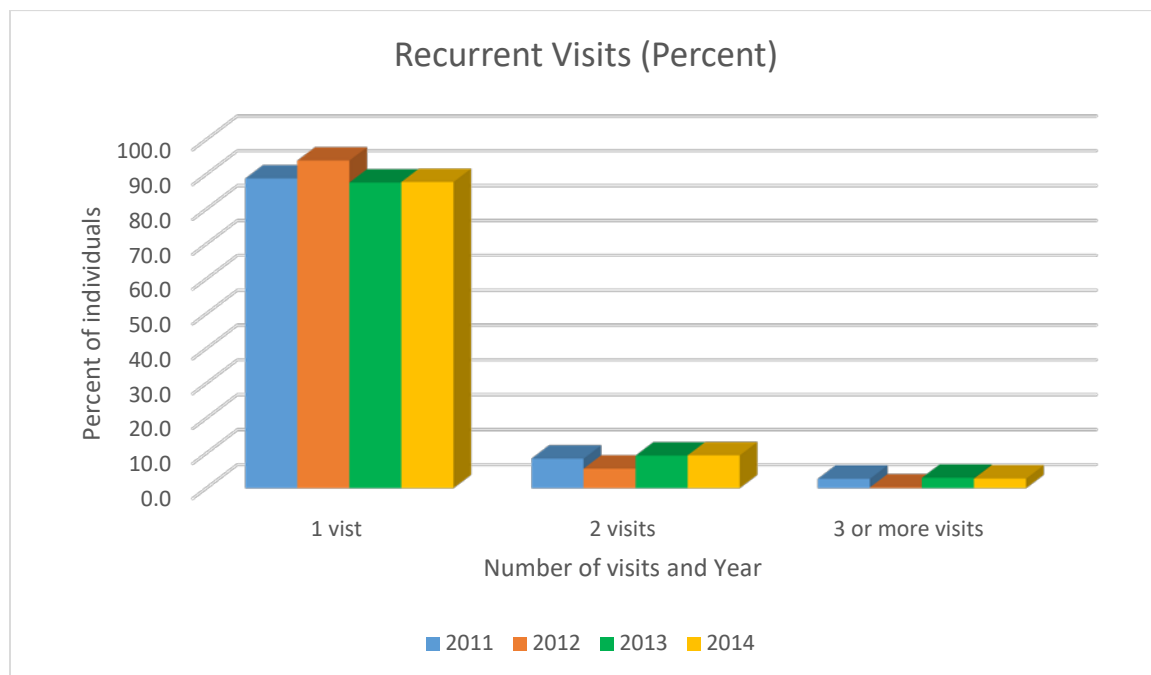
Figure 8.6. Percent of patients who made 1 visit, 2 visits and 3 or more visits during the study period.

Characteristics of Mental Health Visitors

To better develop a demographic profile of who made mental health visits to the ED, Table 8.1 looks at the percent of mental health diagnoses by age category, gender, race/ethnicity and insurance status. Further, this section examines gender-specific differences. Gender is a critical determinant of mental health. Gender is a social construct and children learn acceptable and unacceptable behaviors for their sex by observing other people. These gender roles become an internal guide for behavior early in childhood and

for how one copes with stress, how one interacts with others and how one perceives himself or herself. These are all examples of factors that can positively or negatively influence mental health. Although the research finds that overall one sex is not more or less susceptible to developing a mental disorder, gender differences in prevalence of mental disorders do vary across age groups, cultures and socioeconomic status.[34]

Table 8.1. The percent of mental health diagnoses within age category, gender, race/ethnicity and insurance status.

Age Category				
	1-4	**5-9**	**10-13**	**14-17**
Total mental health diagnoses	98	689	1,082	697
Total diagnoses by age category	49,065	36,293	20,055	16,060
Percent (%) of mental health diagnoses by age category	0.2%	1.9%	5.4%	4.3%
Gender				
		Female	**Male**	
Total mental health diagnoses		1,167	1,403	
Total diagnoses by gender		66,841	76,130	
Percent (%) of mental health diagnoses by gender		1.7%	1.8%	
Race/Ethnicity				
	White	**Black**	**Hispanic**	**Native American**	**Asian**
Total mental health diagnoses	1,575	234	661	58	20
Total diagnoses by race/ethnicity	42,735	12,066	80,010	4,414	1,648

Percent (%) of mental health diagnoses by race/ethnicity	3.7%	1.9%	0.8%	1.3%	1.2%

Insurance Status				
	AHCCCS	**Private**	**Other**	**Uninsured**
Total mental health diagnoses	1,104	1,266	93	106
Total diagnoses by insurance status	87,944	40,654	3,329	11,569
Percent (%) of mental health diagnoses by insurance status	1.3%	3.1%	2.8%	0.9%

Age and Gender

As seen in Table 8.1, parents do bring children under five years of age to the ED with a chief complaint of a mental health condition. However, because children under five only possess a few set behavioral responses to various stresses, are curious and energetic, are highly dependent on their parents/caregivers and are quickly developing and maturing, it is impossible in a retrospective chart review to understand if the 0.2 percent of one to four-year-olds truly have a mental disorder. That said however, there is mounting evidence that mental disorders identified in school-age children are also quite prevalent in preschool children.[303]

Table 8.1 shows that 1.9 percent of all diagnoses for children five to nine, 5.4 percent of all diagnoses for children 10 to 13 and 4.3 percent of all diagnoses for children 14 to 17 were mental health diagnoses. Table 8.2 looks closer at the interplay between age and gender.

Table 8.2. The percent of all individuals with a mental health diagnosis by age category and gender.

Characteristic	Total		Male		Female	
	N	%	N	%	N	%
All Mental Health Visits	2,570	100%	1,403	54.6%	1,167	45.4%
Age Category						
1-4	98	3.8%	60	61.2%	38	38.8%
5-9	689	26.9%	471	68.4%	218	31.6%
10-13	1,082	42.6%	595	55.0%	487	45.0%
14-17	697	27.2%	274	39.3%	423	60.7%

Overall, more boys were seen for mental health conditions (54.6 percent) than girls (45.4 percent). In the younger age categories, 1-4, 5-9 and 10-13, boys made more mental health visits. More specifically, Figure 8.7 below shows the percent of all children in each age category (1-4, 5-9, 10-13 and 14-17) with a mental health visit who were male and female. Sixty-one percent of mental health visits for children under five were for boys and 38.8 percent were for girls. Sixty-eight percent of boys aged five to nine made mental health visits as compared to 31.6 percent of girls. Fifty-five percent of boys aged 10 to 13 made mental health visits as compared to 45.0 percent of girls. However, in the oldest age category, children 14 to 17, girls made the most mental health visits. Sixty-one percent of mental health visits were by girls as compared to 39.3 percent of visits made by boys. This is consistent with national trends that find that adolescent girls are seen more for mental health complaints than are boys.[34] It may be inaccurate, however, to assume that girls suffer more from mental illness during adolescence, this result may suggest, instead, that adolescent boys are undertreated.
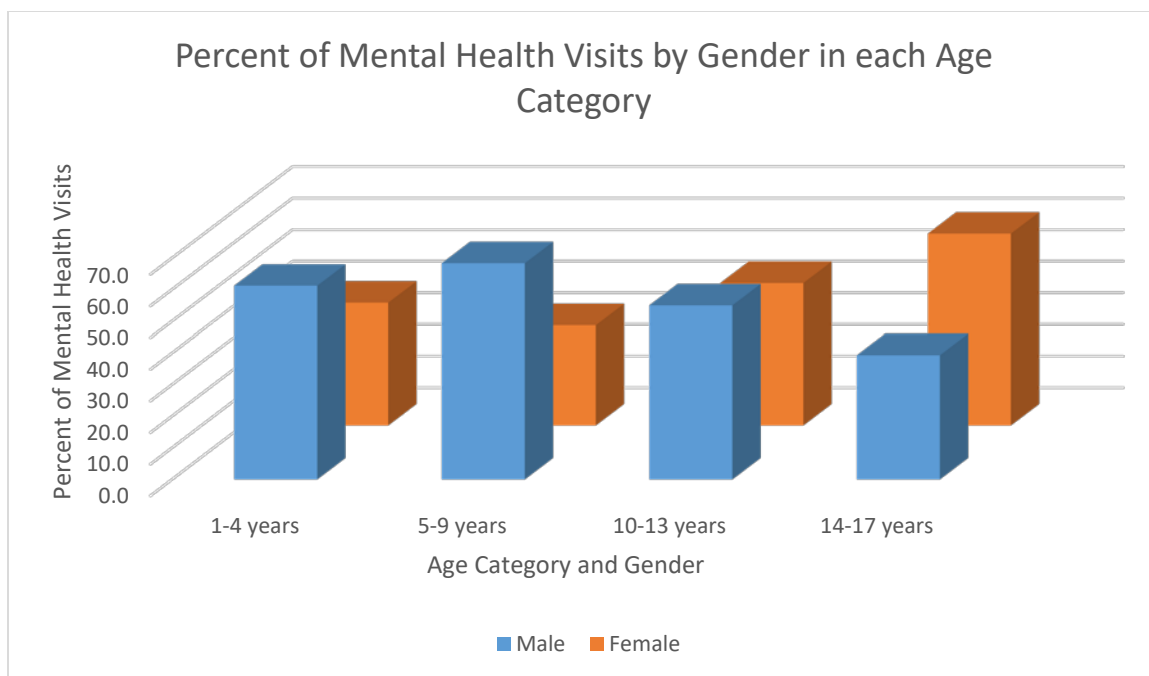
Figure 8.7. Out of all children aged 1-4, 5-9, 10-13 and 14-17 with a mental health complaint, percent in each category who are male and percent who are female.

Race/Ethnicity and Gender

Table 8.1 shows that the majority of patients who presented to the ED with a mental health condition were White. However, while Whites made the most total visits, the highest proportion of mental health visits were made by Asians. Figure 8.8 shows the percentage of all individual visits by race/ethnicity that were mental health visits. Overall, Whites made up 29.8 percent of all individual visits and 3.7 percent of visits by Whites were mental health visits. Blacks made up 8.4 percent of all individual visits and 1.9 percent of visits by Blacks were mental health visits. Hispanics, made up 55.8 percent of all individual visits, and only 0.8 percent of visits by Hispanics were mental health visits. Native Americans made up 3.1 percent of all individual visits and 1.3 percent of visits by

Native Americans were mental health visits and Asians made up 1.1 percent of all

individual visits and 1.2 percent of visits by Asians were mental health visits.
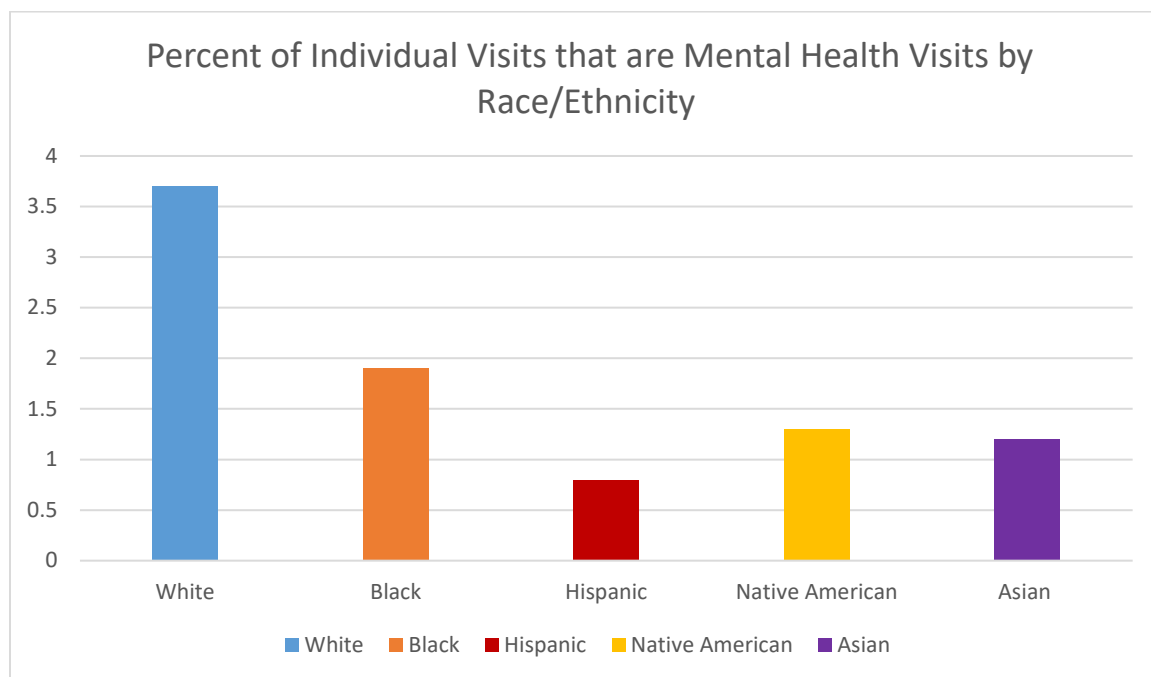
Figure 8.8. The percent of all individual visits that are mental health visits by race/ethnicity.

Table 8.3 shows the distribution of visits by race/ethnicity and gender. Amongst,

Whites, Blacks and Native Americans, boys made more mental health visits than girls.

Fifty-seven percent of Whites were boys and 43.2 percent were girls. Fifty-six percent of

Blacks were boys and 43.6 percent were girls and 56.8 percent of Native Americans were

boys and 43.1 percent were girls. Among Hispanics however, 51.0 percent of girls and

49.0 percent of boys made a mental health visit and among Asians, 55.0 percent of girls

and 45.0 percent of boys made a mental health visit. Why a higher percentage of

Hispanic and Asian girls are seen for mental health visits and a higher percentage of

White, Black and Native American boys are seen for mental health visits is less likely to

be caused by underlying biological differences so much as by factors that co-vary with race, such as income, education or environment.

Table 8.3. Distribution of mental health visits by race/ethnicity and gender.

Characteristic	Total		Male		Female	
	N	%	N	%	N	%
All Visits	2,570	100%	1,403	54.6%	1,167	45.4%
Race/Ethnicity						
White	1,575	61.4%	895	56.8%	680	43.2%
Black	234	9.1%	132	56.4%	102	43.6%
Hispanic	661	25.7%	324	49.0%	337	51.0%
Native American	58	2.3%	33	56.9%	25	43.1%
Asian	20	0.8%	9	45.0%	11	55.0%

Insurance Status and Gender

Table 8.1 shows the surprising finding that the majority of patients who made a mental health visit had private insurance (3.1 percent) or insurance other than private insurance or AHCCCS (2.8 percent). This is surprising because studies consistently find that children in low-income families, those most likely to have AHCCCS, have the highest need for psychiatric services. [176,179,182] However, as Chapter 6 reported, the greatest percentage of individuals with private insurance were White and Asian and the highest percentage of individuals with insurance other than AHCCCS were Blacks. This finding does beg the question: *to what extent does insurance status affect access to mental health services?* Although it was beyond the scope of this paper, it would be important to know if private insurance is the key to access mental health service and, if so, whether that key affords access to better services.

Table 8.4 looks at the distribution of mental health visits by insurance status and gender. The biggest percent difference between male and female was seen among children on AHCCCS. Of all individuals with AHCCCS who made a mental health visit, 32.0 percent more boys had AHCCCS than girls. Additionally, 55.7 percent of all uninsured children who made a mental health visit were girls. One explanation for the high rate of uninsurance was Arizona's decision to cancel its Children's Health Insurance, or CHIP program.[104] This cut equally affected boys and girls but as more girls aged 14 to 17 made mental health visits, it is not unreasonable that uninsurance rates would be higher for girls.

Table 8.4. Distribution of mental health visits by insurance status and gender.

Characteristic	Total		Male		Female	
	N	%	N	%	N	%
All Visits	2,570	100%	1,403	54.6%	1,167	45.4%
Insurance Status						
AHCCCS	1,104	42.9%	628	56.9%	476	43.1%
Private	1,266	49.2%	682	53.9%	584	46.1%
Other	93	3.6%	48	51.6%	45	48.4%
Uninsured	106	4.1%	47	44.3%	59	55.7%

Admissions

As described in the methods chapter, the data set provided for this study included admission to the ED, discharge from the ED and admission to the inpatient unit. Due to high demand, failure to meet inpatient criteria at PCH and limited resources, the transfer of a patient to an outside facility was often necessary. This researcher worked under the assumption that transfer patients were counted as a "discharge." Therefore, it was

impossible to know which patients were ultimately admitted and which patients were discharged home. However, a crude estimate was made. This researcher calculated length of stay (LOS) as discharge date from ED minus admission date to the ED. A LOS of greater than one day was used as an indication of admission and 1,290 individuals met this criterion. By this crude measure, 50 percent of mental health patients were admitted. Additionally, since 99 patients were admitted to the inpatient unit, 1,191 patients were "discharged" (1290 minus 99) during the study period. This amounted to 92 percent of patients requiring psychiatric admission being transferred out. However, it is likely that not all children with a LOS of one day were discharged home, some may have been admitted the same day. It is also likely that not all children with a LOS of two days were admitted, some may have come prior to midnight and were discharged home after midnight. Additionally, there may have been some other unique circumstances that influenced the final tally, but are impossible to determine from a retrospective chart review.

Gender/Age

Contrary to a 2009 epidemiological study of 24 participating Pediatric Emergency Care Applied Research Network hospitals, which found girls more likely to be admitted or transferred for psychiatric-related visits,[34] more boys in this study were admitted for mental health issues than were girls (57.5 percent vs. 42.5 percent) (Figure 8.9). Boys were admitted 1.4 times more than girls.
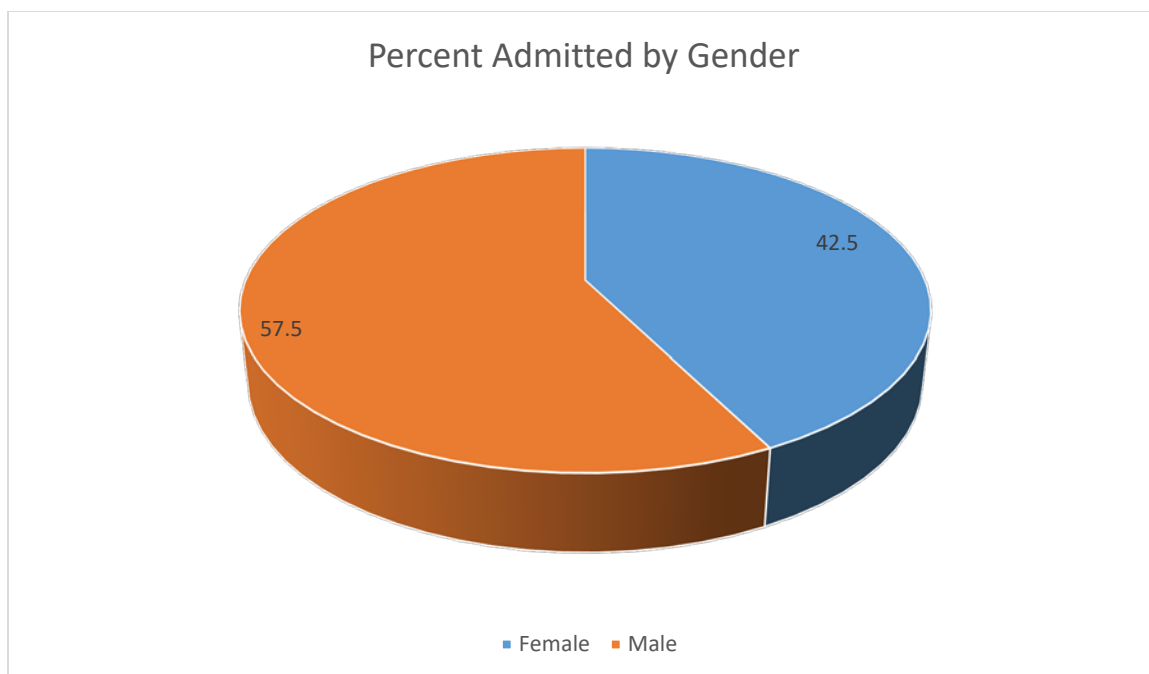
Figure 8.9. The percent of individuals: females and males admitted.

Given that the most common ED diagnosis was mood disorder, it is not surprising that close to 60 percent of admission diagnoses for both girls and boys (58.1 percent) were for mood disorders. Boys and girls were admitted about equally for substance abuse. Boys were admitted 3.2 times more often for psychotic disorders and 2.0 times more for conduct disorders than girls. Girls were admitted 1.4 times more for suicidal/homicidal ideation and 1.5 times more for anxiety disorders than were boys (Figure 8.10).
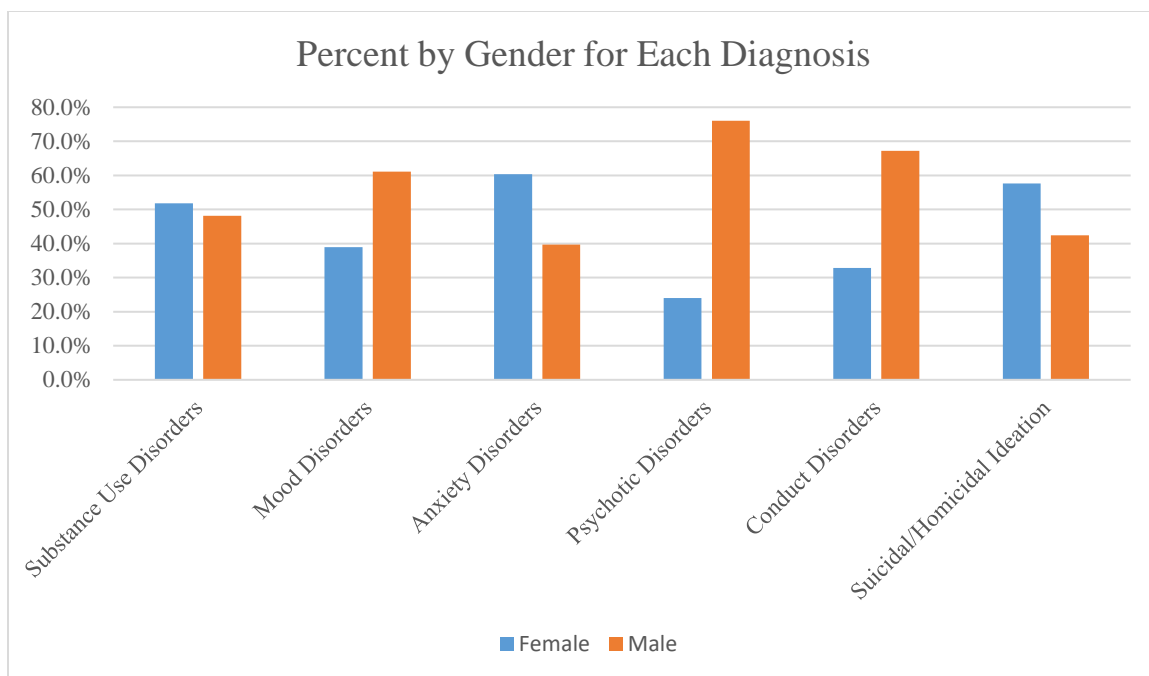
Figure 8.10. Percent of all females and males admitted by diagnosis.

Figure 8.11 examines admission diagnoses by age. Mood disorder was the most common admission diagnosis in all age categories. Conduct disorder was the second most common admission diagnosis for those children aged five to nine, anxiety disorder was the second most common admission diagnosis for children aged 10 to 13 and suicidal/homicidal ideation was the second most common admission diagnosis for adolescents aged 14 to 17 years of age.

Figure 8.11. Percent of all mental health admissions by age category. [6]

Race/Ethnicity

Figure 8.12 shows the percent of admissions for mental health issues out of all mental

health visits to the ED by race/ethnicity.

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[6] 11 missing in this category
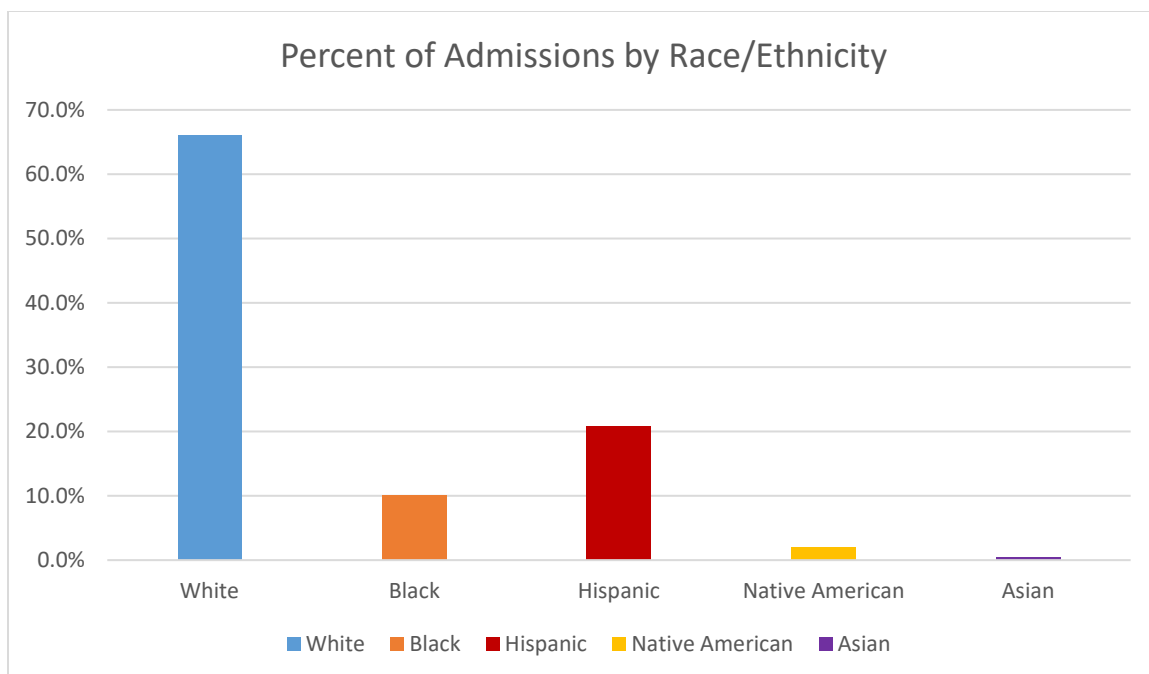
Figure 8.12. The percent of admissions for mental health issues out of all mental health visits to the ED by race/ethnicity.

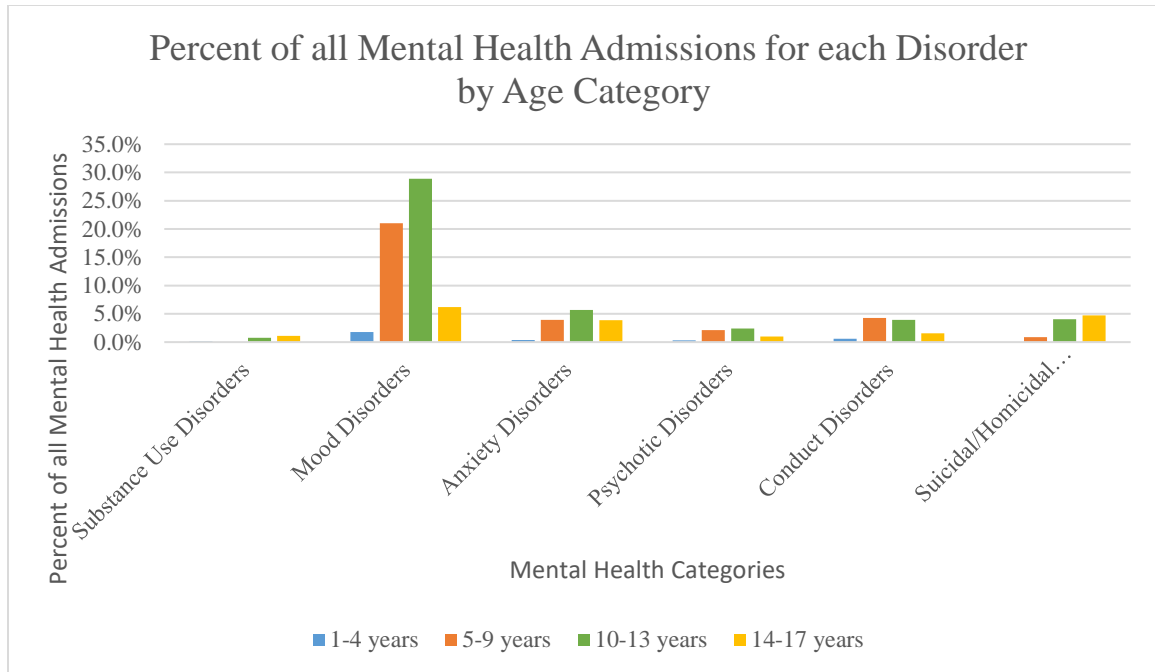Only 6 people of Asian descent were admitted during the study period. The majority of patients admitted with a mental health condition were White (66 percent). Comparatively, 10.1 percent of admissions were by Blacks, 20.8 percent of admissions were by Hispanics, 2.0 percent of admissions were by Native Americans and 0.5 percent of admissions were by Asians.

Figure 8.13 examines the number of admissions for each mental health diagnosis by race/ethnicity. Whites had the highest admission rates in every psychiatric category except substance abuse. Hispanics were admitted 1.3 times more frequently for substance abuse than were Whites. The literature finds a high prevalence of comorbidity between substance abuse and other mental illness[304] and national estimates indicate that Hispanic adolescents are more likely than White adolescents to report depression and anxiety and to consider and attempt suicide.[305] As Hispanic youth are expected to make up nearly

one-third of those under 19 years of age by 2050,[306] it would be surprising if an increase in mental health admissions for Hispanics at Phoenix Children's Hospital is not seen in the future.
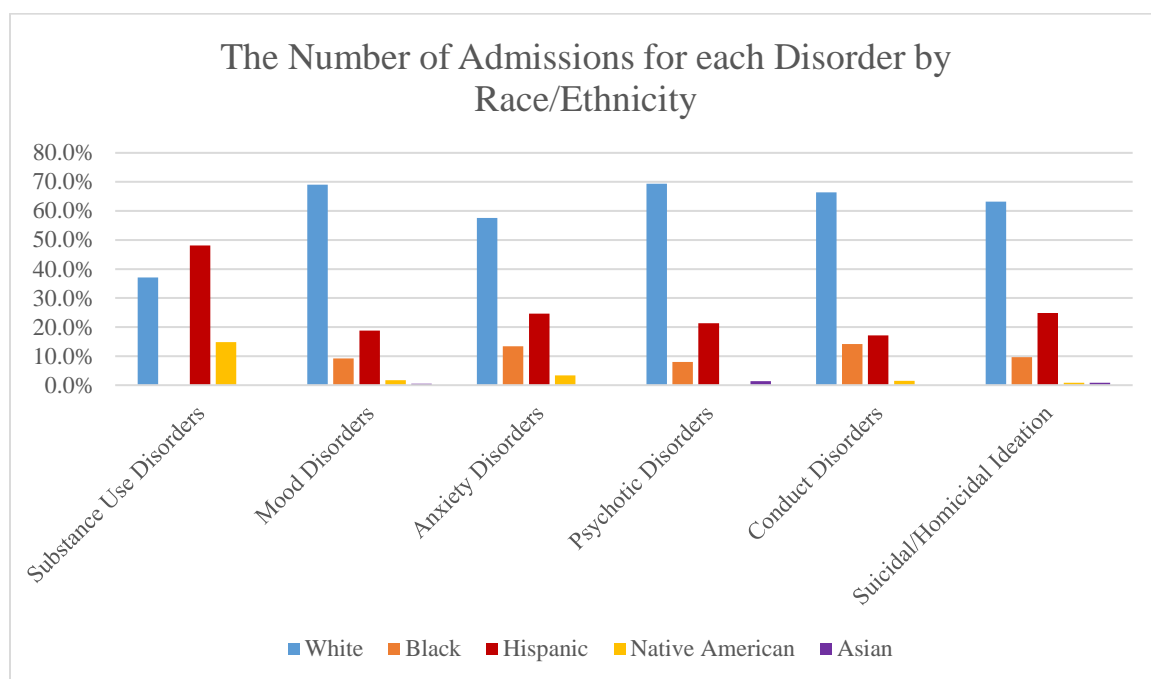
Figure 8.13. The number of admissions for each mental health diagnosis by race/ethnicity.

Figure 8.13 also shows that for Black children, conduct disorder was the most common admitting diagnosis (14.2 percent). Cultural differences in parental perceptions and expectations of children's behaviors can affect prevalence rates for conduct disorder. For example, parents in Asian cultures may do more at an earlier age to curb externalizing behavior and reward internalizing behavior.[307]

Significant diagnostic disparities have been documented both in access and quality of care in children's mental health, largely with African American and Latino children.[19,154]

Studies show that minority children are one-third to one-half as likely to receive mental health care as White children and adolescents[19,37] and when they do seek treatment, studies show that providers spend less time with them, are quicker to make a diagnosis and are less likely to discuss treatment options with them.[38] That said, prevalence rates for conduct disorder are generally comparable across ethnic and racial populations;[298] however, this diagnosis can have a more profound effect on minority children. Youth are often referred to the juvenile justice system if they display aggressive or disruptive behavior and a disproportionate 50 to 70 percent of those currently in the juvenile justice system are minority youth, principally Blacks, Latinos and American Indians.[19]

Insurance Status

Figure 8.14 shows that most patients admitted to the ED were covered by private insurance (50.2 percent). Forty-three percent were covered by AHCCCS and 4.3 percent had some other type of insurance and 2.5 percent were uninsured at the time of admission.
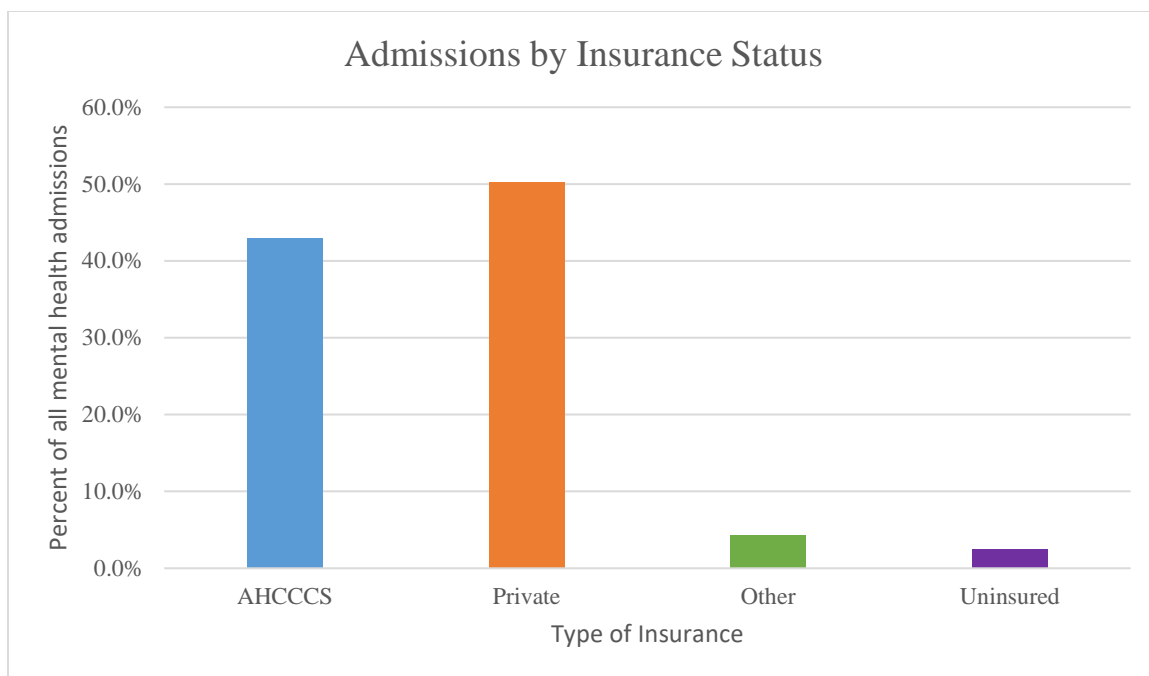
Figure 8.14. Percent of all mental health admissions by insurance status.

This was a highly surprising finding given that Arizona consistently ranks at the top

for the prevalence of mental illness and the bottom for access to care. According to a

report using national survey data, forty-three percent of Arizona youth reported that they

did not receive needed mental health services with an uninsurance rate for emotional and

behavioral disorders of 17 percent, one of the highest rates of uninsurance for youth in

the country.[308] But as the maps below show, the majority of patients who visited the ED

multiple times for mental health reasons came from middle income to high income

households (Map 8.2, and Map 8.3).

Place of Residence

Map 8.0 shows where individuals presenting to Phoenix Children's Hospital with a mental health complaint resided during the study period.

Individual Mental Health Visits
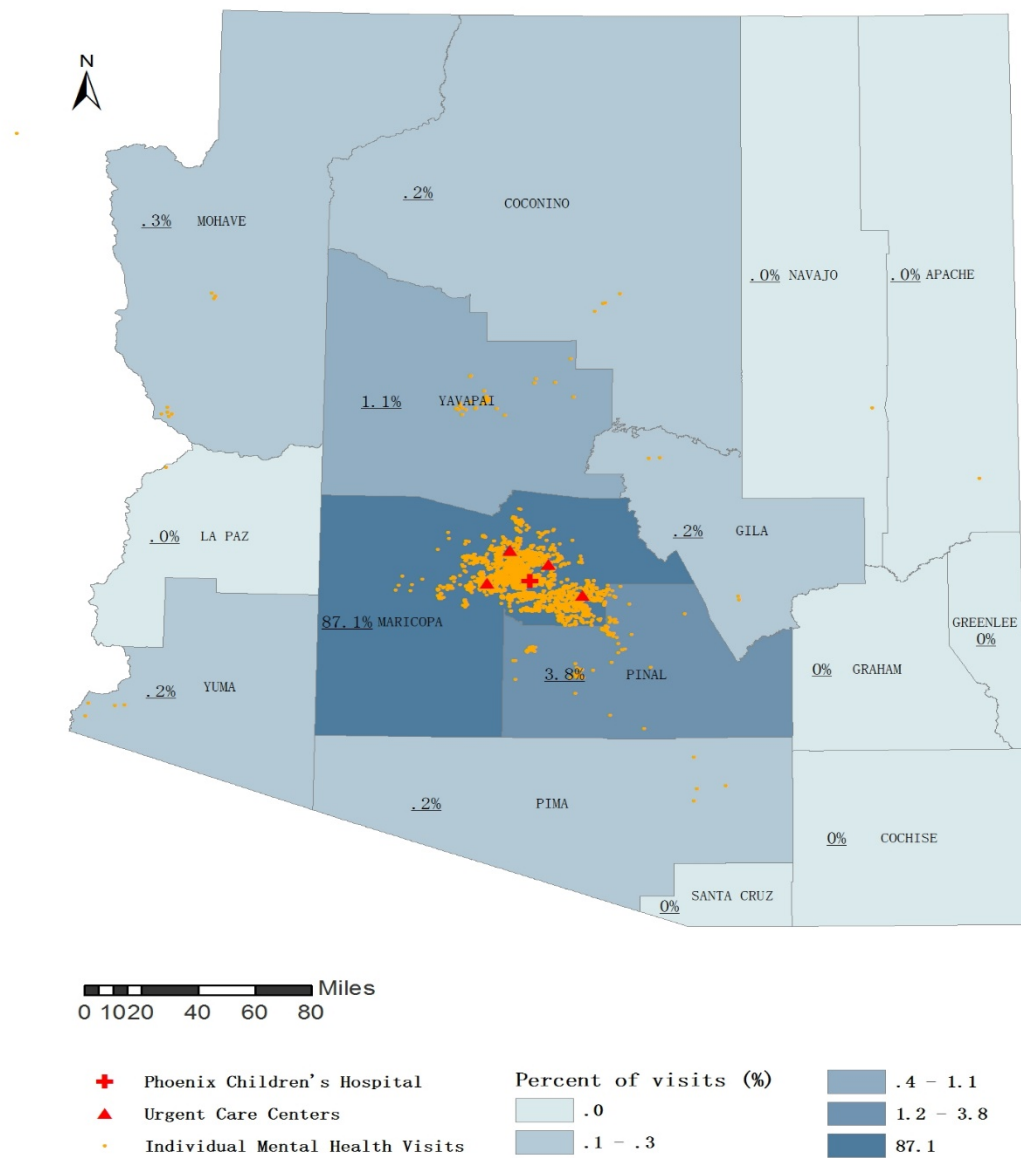
Map 8.0. All individuals with a primary address in Arizona presenting to Phoenix Children's Hospital with a mental health complaint.

Eighty-seven percent of all individuals who presented with a mental health complaint were from Maricopa County. Pinal County, which contains the Ak-Chin Indian Community and parts of the Tohono O'odham Nation, the Gila River Indian Community and the San Carlos Indian Reservation, made up 3.8 percent of mental health visits and 1.1 percent came from Yavapai County, which is where Prescott is located.

A lack of psychiatric specialists and inpatient and outpatient facilities and an increase in referrals from schools, primary care physicians and mental health therapists might suggest that the residence of patients seeking mental health care in the ED would be scattered throughout the county, with no discernible pattern. However, Map 8.1 shows that most patients resided in the Maricopa County Subdivision of Phoenix and, on average, patients travelled 16 miles to get to the hospital, with 70 percent of patients living within 26 miles of the hospital.
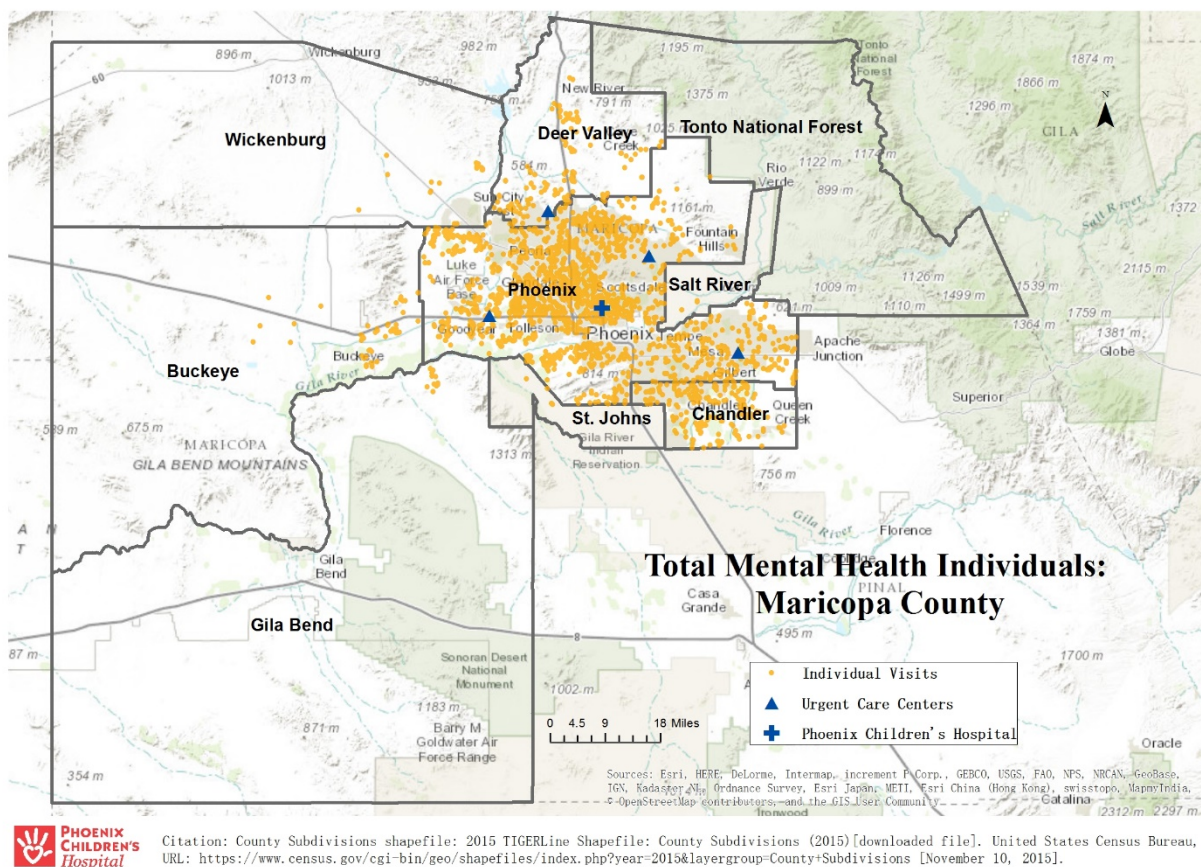
Map 8.1. All individuals residing in Maricopa County who present to Phoenix Children's Hospital with a mental health complaint by census tract. Yellow dots represent individual visits.

While Maps 8.0 and 8.1 shows individual mental health visits to the ED, Maps 8.2 and

8.3 show the frequency of mental health visits. Map 8.2 shows those individuals who

make three or more mental health visits to the ED by census tract. Most patients who

made frequent mental health visits also resided in the Maricopa County Subdivision of

Phoenix. The census tracts in the Deer Valley Division, Buckeye Division and Chandler

Division are physically much larger than the census tracts in central Phoenix, but the

density was highest in the Subdivision of Phoenix.
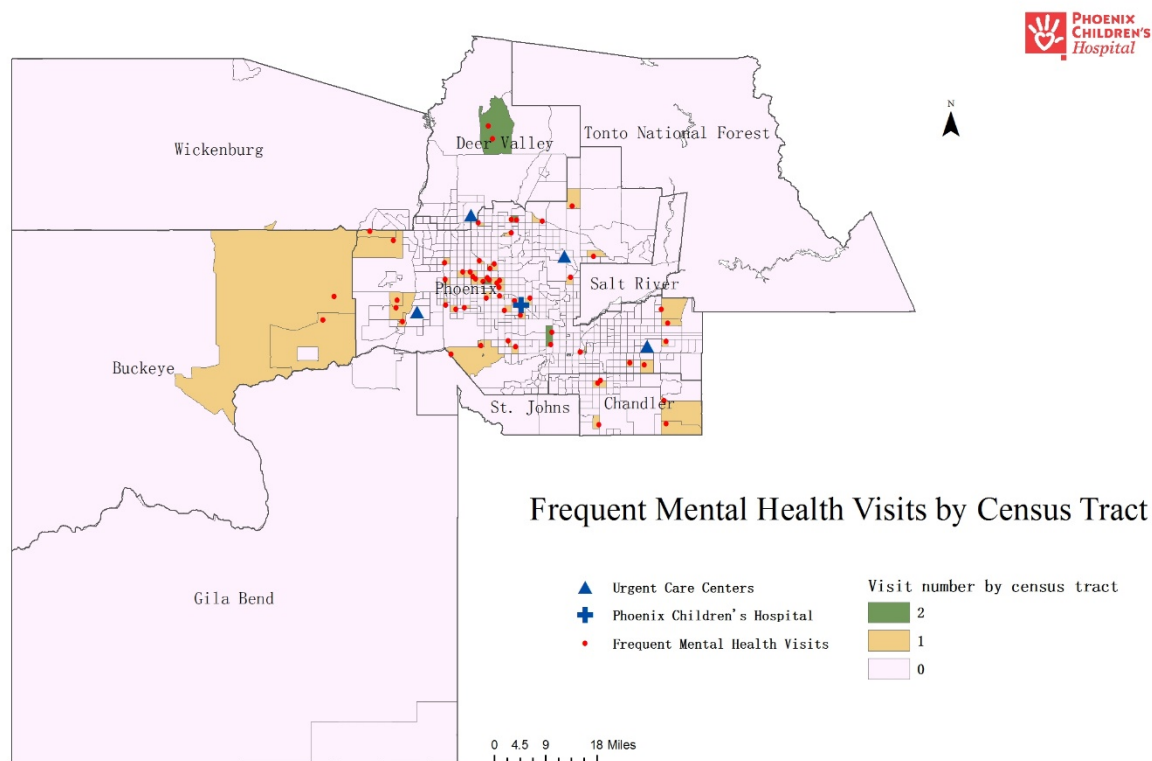
Map 8.2. Frequent mental health visits by census tract in Maricopa County.

When frequent mental health visits (three or more visits in one year) by Maricopa

County residents were examined, Map 8.3 shows only four of the nine subdivisions in

Maricopa County were represented. The majority, 76.9 percent of individuals, lived in the

Phoenix Division, 7.7 percent lived in the Chandler Division, 4.6 percent lived in the

Buckeye Division and 3.1 percent lived in the Deer Valley Division. The Buckeye

Division, Chandler Division and Deer Valley Division represent areas where the average

household income ranges from $70,104 to $107,401.[253]
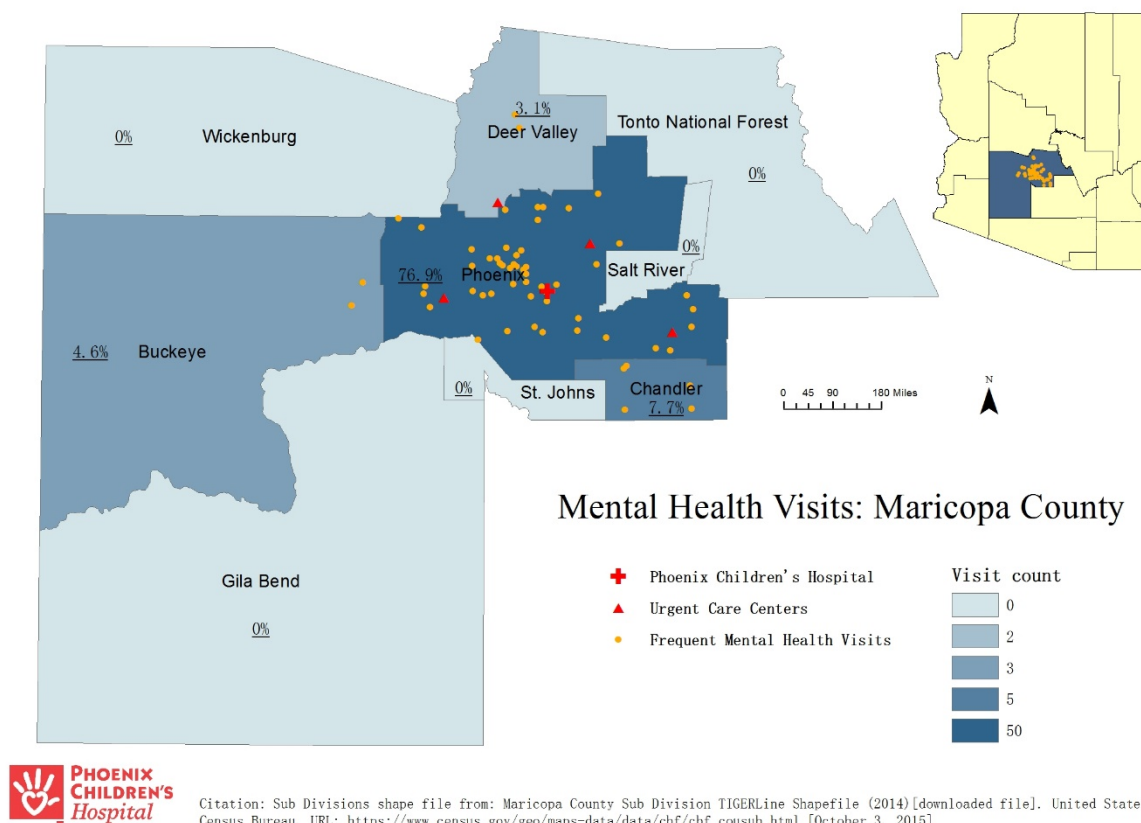
Map 8.3. Frequent mental health visits by subdivision in Maricopa County. Yellow dots represent those individuals making three or more visits in one year.

As the maps indicate, people do travel to the ED to obtain mental health services

and as the previous section discussed, half of all patients admitted to the hospital with a

mental health condition had private insurance. Understanding why insured patients use

the ED at Phoenix Children's Hospital for mental health services is an important topic for

future research.

Temporal Patterns: Month and Year

Figures 8.15 and 8.16 look for patterns of mental health use by time of year.

Understanding when patients are most likely to visit the ED with mental health

complaints can help a hospital prepare staff and resources to accommodate an increase in

need.
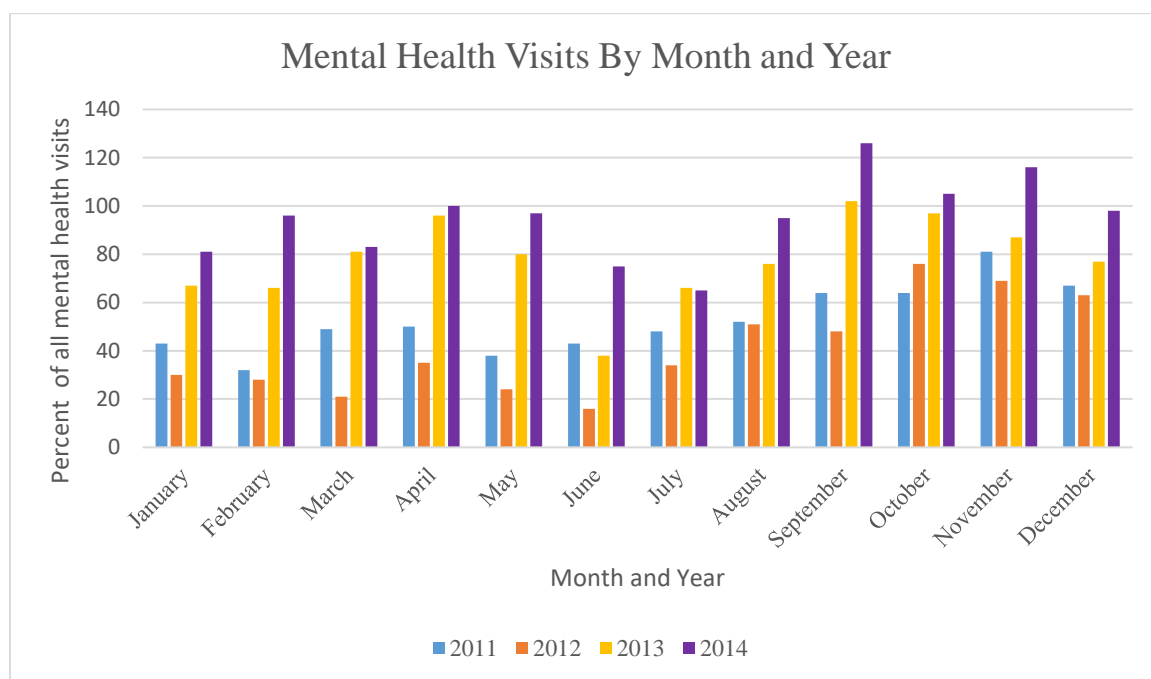
Figure 8.15. Percent of all mental health visits by month and year.

Figure 8.15 shows all mental health visits in 2011, 2012, 2013 and 2014 and the

percent of individuals who came each month. There was a consistent drop in mental

health visits in June and July. Overall, November was the busiest month for mental health complaints and June was the least busy. Eleven percent of all mental health visits were made in November as compared to 5.4 percent of all mental health visits being made in June.

The variability in ED mental health visits by month correlates with the school year for much of Arizona. There are more than 600 schools in Maricopa County, and while some schools do follow a year-round calendar, most start the school year in August and end in late May or early June.[309]

Figure 8.16 shows all mental health diagnoses over the study period by month. An interesting spike in psychosis (18.1 percent) was seen in November, at the same time a sharp decline in substance use was seen (7.9 percent). This finding highlights another limitation of only being provided with the primary diagnosis. There is clear evidence in the literature that psychotic features can result from the use and abuse of a substance.[310] Additionally, substance abuse disorders commonly occur co-morbidly in patients with psychotic disorders.[310] The provision of only one diagnosis produces an unclear picture of exactly why patients are brought to the ED for mental health reasons, clouding understanding of the relationship between co-occurring diseases and their consequences for health service providers.
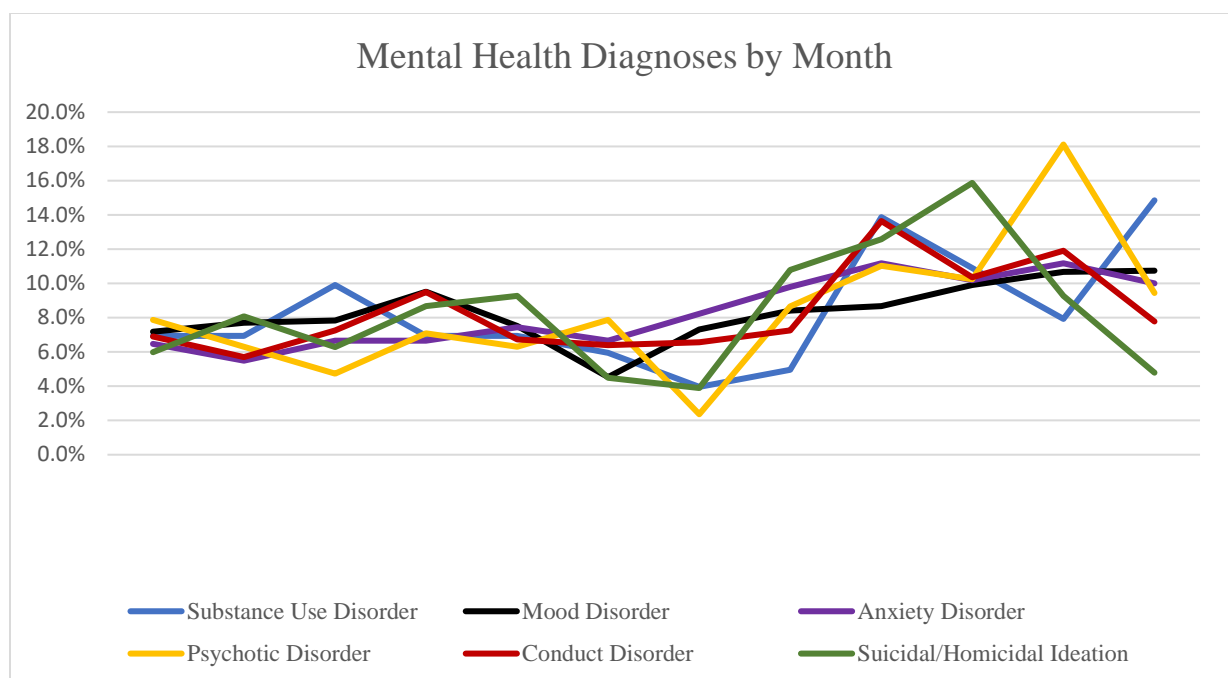
Figure 8.16. Frequency of total mental health diagnoses by month.

September is the month when visits to the ED begin to increase and a rise in all mental health diagnoses can be seen in Figure 8.15. September signals the beginning of the school year when students begin to feel the stress of conforming to school rules, schedules and academic requirements, as well as, pressure and intimidation from peers. School bullying statistics in the United States estimate that approximately one in four children are bullied on a regular basis.[311] Another possibility for the increase in ED visits is that the beginning of the school year brings with it contact with school counselors and other professionals, who can make referrals or recommendations to obtain mental health services. Interestingly, of all children presenting with a mental health complaint in September, the highest percent (23.2) of them are diagnosed with conduct disorder. Finally, the holidays can be stressful and of all children presenting with a mental disorder in December, 54.4 percent of them are diagnosed with a mood disorder. All these

stressors wane in June, when school lets out for the summer. Although causality cannot be established, there is the possibility that there is a link between the increase in mental health visits and the start and end of the school year.

The temporal patterns of use for patients with mental health complaints visiting the ED at Phoenix Children's Hospital are the same nationwide.[312] It is important for hospital administrators to not only anticipate an increase in mental health visits in September, for example, but to also anticipate an increase to the previous year's visit total. In this study there were twice as many patients seen in September 2014 as seen in September 2011. As this increase also correlates with the time of year when the hospital typically begins to experience a sharp increase in all visit types; understanding this data is imperative for planning and putting into place action plans aimed to improve throughput for all patients. The development and implementation of a plan conveys to staff, patients and families that the hospital is committed to providing an efficient, effective and safe environment for all patients.

Conclusion

The 76.3 percent increase in mental health visits that PCH experienced between 2011 and 2014 is consistent with the literature, which describes a dramatic increase in emergency room visits for mental disorders since 2006.[312] However, epidemiological reviews using standardized psychiatric instruments do not find an increase in prevalence of children and adolescents with psychiatric disorders during this time frame.[312] This suggests that families are turning to the ED more and more for mental health care

because they are left with no alternative. Who made use of this safety net is of special interest. This study found that the majority of individuals who made mental health visits to the ED were White and had private insurance. This finding, coupled with national survey data ranking Arizona as one of the least effective states at addressing issues related to mental health,[157] suggests that minorities and those children without insurance may be severely undertreated or untreated.

It is clear from this study that the majority of patients live in close proximity to the hospital and an increase in visits occurs during the traditional school year with the winter months experiencing the highest volume. Understanding all these patterns of use is important as the number of children and adolescents presenting to the ED continues to increase. The hospital will need to identify novel ways to meet the acute needs of this population.

Chapter 9

Discussion

Despite a nationwide increase in the number of pediatric patients visiting the ED for nonurgent and mental health issues[195,226], there is a lack of comprehensive studies examining the epidemiology of routine and mental health related visits to the ED and even less attention spent on specialty populations such as pediatric patients. Between 1994 and 2004 overall hospital use rates increased 18 percent, leading to overcrowding across the nation. At Phoenix Children's Hospital, ED use rates for nonurgent problems increased five percent from 2011 to 2014 compared to visits for all other reasons. This researcher was not provided length of stay, so was not able to establish the contribution of longer wait times due to this increase, but a five percent increase represented an additional 13,500 people over the study period. It is fair to say that if staffing levels and number of beds remained the same, this growth could easily put a strain on existing resources resulting in longer wait times.

This study examined nonurgent and mental health visits to Phoenix Children's Hospital by *person,* specifically looking at age, gender, race/ethnicity and insurance status; *place,* by geocoding physical addresses of all visitors and plotting them on a map and, *time,* by looking at visit history by month and year.

The timing of this study is of particular importance because, under the Patient Protection and Affordable Care Act (PPACA), hospitals are now required to perform a community needs assessment every three years. The insight gained from this research can

be used by the hospital to identify gaps and devise new strategies to better serve the

specific needs of its community.

Nonurgent Visits

More than 50 years ago, the first concerns about "inappropriate" emergency use were

raised. Discussions centered on who should be treated in the ED.[27, 48] Some argued that

everyone should be treated regardless of condition, while others argued that treating

everyone would distract from the ED's ability to provide emergency care. No longer

relegated to the back of the hospital, the ED is now the heart of the healthcare system,

providing sophisticated care to anyone in need, anytime 24 hours a day, seven days a

week. This type of universal care is costly and while obligated by law to provide it, no

reliable funding source exists.[54] Hospitals are caught between patients with no access to

primary care and skyrocketing healthcare costs.[53] By the 1990s, fingers pointed at the

uninsured and those with nonurgent conditions as the cause of long wait times and

increasing costs and discussion, once again, focused on "inappropriate" ED use.[53]

There is, however, no consistent definition of nonurgent use and, therefore estimated

rates of nonurgent ED visits range from 20 percent to 80 percennt.[75-76]   For the purpose

of this retrospective study, nonurgent use was defined by first calculating the top 10

diagnoses in each age group (less than 1 year, 1-4 years, 5-9 years, 10-13 years and 14-17

years) and then calculating the percentage of times persons with these diagnoses were

admitted. As the admission rate for all children with these top 10 diagnoses was one

percent of all visits, the term "nonurgent" was ascribed to these. However, this researcher

wishes to emphasize that labeling these diagnoses as "nonurgent" does not imply that she

deems the visits to be inappropriate. There is no way in a retrospective study to determine intent or severity of a visit.

Experts estimate that one-third of all ED visits are for nonurgent complaints.[41] Phoenix Children's Hospital was right in line with this estimate with 35.4 percent of all visits termed as nonurgent. These problems included acute upper respiratory infections (6.0 percent), fever (6.0 percent) ear infections (4.7 percent), asthma (3.2 percent), vomiting (3.2 percent), noninfectious gastroenteritis (3.0 percent), acute bronchiolitis (2.6 percent), croup (2.5 percent), constipation (2.3 percent) and urinary tract infections (1.9 percent).

Children under the age of one made up half of all visits to the ED for nonurgent reasons and were 12 times more likely to visit for a nonurgent reason than were adolescents (14 to 17 years old). One to four-year-olds averaged 40.3 percent, five to nine-year-olds average 31.7 percent of all visits, 10 to 13-year-olds averaged 21.7 percent and 14 to 17-year-olds averaged 19.4 percent of visits for nonurgent reasons.

When collapsed into age categories (<1 year, 1-4, 5-9, 10-13 and 14-17 years), children one to four years of age came the most for nonurgent reasons and adolescents aged 14 to 17 years came the least often, except amongst Whites, where 10 to 13-year-olds came the least. While visits for children under the age of one remained the same over the study period, there was a steady increase in visits in each of the other age categories. Visits by one to four-year-olds increased 19 percent, five to nine-year-olds increased 16 percent, 10 to 13-year-olds increased 11 percent and 14 to 17-year-olds increased 10 percent.

Infants came mainly for infectious processes like upper respiratory infections, bronchiolitis and fever, and adolescents (14 to 17-year-olds) came mainly for pain such as headaches, chest pain and abdominal pain. Upper respiratory infections were among the top two diagnoses for every race/ethnicity. Sixty-two percent of visits for nonurgent reasons by Native Americans were for respiratory illnesses (URI, Bronchiolitis, Bronchiolitis d/t RSV, Pneumonia, Asthma and Croup), which is more than double the percentage of Whites who came for these reasons. The highest number of diagnoses and admissions for asthma were among Blacks (15.6 percent, 0.6 percent) and the highest number of diagnoses for croup were among Whites (9.3 percent). Admission rates for croup were the same for Whites, Native Americans and Asians. Asians came most frequently for fever (20.2 percent) and gastroenteritis, but less than one percent of all admissions were for one of these maladies.

In every age category, 2014 saw the highest number of patients. When comparing children residing in Maricopa County under the age of 18 who visited Phoenix Children's Hospital with Maricopa County statistics taken from the American Community Survey (1-Year Estimates), Black children under the age of five and aged five to nine were 3.7 times more likely than White children to use the ED for nonurgent reasons. Black children aged 10 to 14-years were 2.8 times more likely and those aged 15 to 17-years were 2.4 times more likely than White children to use the ED for nonurgent reasons.

Hospital Admissions

There was a total of 10,416 hospital admissions during the study period. The majority of admissions were for children under five and respiratory issues were the main reason these children were admitted. Asthma, the second most common admitting diagnosis, accounted for three percent of all admissions for five to 17 year-olds. Out of all admissions for one of the top 10 nonurgent visit reasons, 44.5 percent of those admitted for asthma were uninsured. Out of all admissions for patients without insurance, 16.5 percent were admitted for one of the top 10 nonurgent reasons.

Boys were admitted more than girls. Around 1,100 more boys were admitted to the hospital over the study period compared to girls. Boys were admitted for appendicitis 1.5 times more often than girls and admitted twice as often for asthma. Twenty-two percent of all hospital admissions were for appendicitis. Across every race/ethnicity, this was the most common single diagnosis. One percent of all admissions for Native Americans was for appendicitis.

Most individuals who presented with one of the top 10 visit reasons had AHCCCS (Arizona Health Care Cost Containment System, Arizona's Medicaid agency), but 8.5 percent of these individuals were uninsured. The visit reasons that brought in the highest rate of uninsured children were cough (10.9 percent), otitis media (10 percent) and strep sore throat (10 percent). National studies found that ED visits by the privately insured had increased as well as visits by the uninsured. Between 2011 and 2014 there was a 10 percent increase in AHCCCS coverage and a 4.6 percent increase in uninsurance for those individuals visiting Phoenix Children's Hospital presenting with one of the top 10

nonurgent visit reasons. However, when compared to Maricopa County statistics, these patients were no more likely to be uninsured.

While the number of one time visitors for nonurgent visit reasons decreased by 12 percent, the number of frequent visitors, those coming five or more times in one year, increased by two percent during the study period. Those children under one year of age who came multiple times mostly came for upper respiratory infections, fever and acute bronchiolitis. For children one to four years of age who came multiple times, the majority came for upper respiratory infections, fever, otitis media and croup. For those children aged five to nine who came more than five times, the majority came for asthma, upper respiratory infections and fever. For those children 10 to 13 years of age, asthma, constipation and headache were the main reasons for multiple visits and for those adolescents 14 to 17 years of age, migraine, headache and constipation were the top three visit reasons for five or more visits.

The busiest months in the ED were during the school year, February (37.9 percent), December (37.4 percent) and January (35.8 percent) and the lowest point was during July (21.6 percent).

Mental Health

Seventy years ago major legislation designed to fund training of mental health professionals and encourage research was passed.[127, 132] Ten years later Thorazine was in wide use and promised to be the first drug to cure psychosis.[134] The belief that mental illness could be cured with a pill set off a race amongst pharmaceutical companies to be

the first to discover the next wonder drug and pharmacotherapy soon became the primary treatment in psychiatry.[134]

While major breakthroughs have occurred over the years in the development of safe and effective pharmacological agents to treat all forms of mental illness, the way we respond to children and adolescents with mental illness has not improved. The American Academy of Pediatrics issued a technical report in 2011 that addressed five major barriers to providing quality pediatric mental health care in emergency settings.[23] These included, 1) a lack of research into how best to identify and treat children with behavioral and emotional issues in the ED, 2) a lack of education and training among ED staff, 3) a lack of privacy within the ED to assess and manage psychiatric patients, 4) a lack of inpatient pediatric psychiatric beds and, 5) a lack of outpatient mental health services for discharged patients. These five problems force EDs to hold psychiatric patients or admit them to a medical unit with negative repercussions for both the hospital and the patient. The hospital is typically not reimbursed for these admissions and an Institute of Medicine report on emergency care found ED care for mental illness, overall, to be substandard.[78, 299] The emergency department may extend out a safety net for children in psychiatric crisis but it does not have a reliable track record of catching them.

National statistics show that at least 20 percent of children have a diagnosable mental health condition but only one in five receives treatment. Statistics at Phoenix Children's Hospital show that two percent of all visits to the ED were for mental health conditions, with 11 percent of those patients making more than one visit during the study period. While overall, boys (54.6 percent) were more likely to visit the ED with a mental health

complaint than girls (45.4 percent), during adolescence, ages 14 to 17, 21 percent more visits were made by girls.

   Mood disorder was the most common diagnosis for both boys (45 percent) and girls (42 percent). Boys were diagnosed more with conduct disorder (23 percent) than girls (14 percent) and psychotic disorders (5 percent vs 2 percent) and girls were diagnosed more with anxiety disorder (23 percent) than boys (14 percent) and suicidal/homicidal ideation (15 percent vs 9 percent). Four percent of all psychiatric visits for both boys and girls were for substance use disorders.

   Amongst those children aged five to nine, mood disorder accounted for 54 percent of all psychiatric diagnoses. Conduct disorder was the second most common diagnosis and boys and girls were equally given this diagnosis (29.9 percent vs 28.4 percent). Anxiety disorder was the third most common diagnosis and boys and girls again, received this diagnosis about the same (47.1 percent vs 42.2 percent). Amongst 10 to 13-year-olds, mood disorder was still at 54 percent, conduct disorder was still the second most common diagnosis and anxiety disorder was still the third most common diagnosis. However, at this age, gender differences regarding diagnosis begin to show. Twenty-two percent of boys were given conduct disorder as a diagnosis compared to only 9.4 percent of girls and girls received anxiety disorder as a diagnosis 22.4 percent of the time compared to 12.3 percent for boys. By 14 to 17 years of age, there was another shift as more girls (60.7 percent) visit the ED compared to boys (39.3 percent). Mood disorder, although still the most common diagnosis, only represented 33 percent of all psychiatric diagnoses. Anxiety disorder was still the second most common diagnosis and more girls than boys are given this diagnosis (31.9 percent vs 19.7 percent). Taking the number three slot in

this age category was suicidal/homicidal ideation and 24.8 percent of girls present with this compared to only 8.6 percent of boys.

National studies also show that only 13.0 percent of minority children receive mental health treatment[156] and although Whites are the most likely to receive mental health treatment, only 24.0 percent actually do.[39] This study found that 61.4 percent of all mental health visits were made by Whites compared to 9.1 percent of visits by Blacks, 25.7 percent of visits by Hispanics, 2.3 percent of visits by Native Americans and 0.8 percent of visits by Asians. Why do White children visit the ED more than minority children for mental health issues? The magnitude of this discrepancy raises concerns about access to mental health services for all youth. Are mental health services being underprovided to minority children or are mental health services being overprovided to White children? And, what if any, are the ramifications and potential implications of under/over utilization of services to the social and emotional development of these children?

Furthermore, do minority children have more problems accessing care due to cultural barriers, language barriers or financial barriers? Is insurance type the most important factor in determining whether or not a child receives mental health services? The results in this study suggest that further investigation to answer this question is important. First, the majority of patients who presented to the ED at Phoenix Children's Hospital with a mental health complaint were covered by private insurance; and second, uninsurance rates for mental health services were relatively low. For all mental health visits, uninsurance was at 3.6 percent compared to 6.7 percent of all visits to the ED. The ED

may be the only available option for uninsured children, so why are uninsurance rates not highest among this specialty population?

The PPACA is expected to lower uninsurance rates by raising Medicaid and CHIP coverage among eligible children, but the majority of this study was conducted before the effects of that legislation could be felt. Given this anticipated shift in coverage, however, it will be important to monitor changes in access to care.

While it may seem inconsequential that only two percent of all visits to Phoenix Children's ED were for psychiatric complaints, the impact was significant. Pediatric patients with mental health diagnoses are a resource-intense group. These children spent an inordinate amount of time in the ED awaiting evaluation, disposition and placement, decreasing the number of available beds when the ED reached capacity and necessitating essential staff provide one to one care.

Limitations

Data were collected by retrospective chart review and there are inherent limitations with retrospective data collection. This study relied highly on subjective diagnostic coding for analysis. As with any study using retrospective data, there lies the potential for misclassification or missing data. It is clear that there was a problem with the 2012 data that were provided. According to the data provided there was a 15 percent decrease in individuals visiting the ED between 2011 and 2012 despite a steady increase in overall patient visits in subsequent years. Between 2011 and 2013 there was a 13 percent increase in the number of individuals visiting the ED and a 20 percent increase between

2011 and 2014. One would expect 2012 to be, if not similar to 2011, at least trending upward. A pattern emerged between 2011, 2013 and 2014 that was not present with 2012. The fact that the results were so different in every category, casts doubt on its validity.

The hospital went live with electronic record keeping in April of 2010. It is possible that a change was implemented in 2012 that changed the way certain data were collected and coded, or it is possible that the statistician providing the data erroneously queried 2012. It was impossible to ascertain where the problem originated but the persistent inconsistencies left this researcher cautious about the 2012 results.

In addition, this study relied solely on ED-generated diagnoses and this researcher was only provided with one diagnosis per patient. Different providers have different methods of selecting the primary diagnosis and this provider variability can skew the results. Relying on primary diagnoses may have higher specificity at the expense of sensitivity in defining certain cases. The primary diagnosis is most likely to capture acute exacerbations- those issues currently being treated during the visit and neglect co-morbidities that affect, but may be remote to the presenting acute illness.[314] For example, the primary diagnosis may be laceration but the underlying cause may be a mood disorder. For this reason, charts may have been unwittingly excluded from this study that would have been pertinent to providing a more comprehensive portrait of visits to the ED for nonurgent and mental health needs.

Additionally, nonurgent and mental health visits were determined by using ICD-9 codes. However, there is no way to accurately determine severity based on an ICD-9 code. A diagnosis of fever could be given to a well-appearing 10-year-old with a one-day history or to an ill-appearing two-month-old after a negative septic work-up. A diagnosis

of suicidal ideation could be given to an eight-year-old who expressed to a teacher, "I want to die" after receiving a failing grade on an exam or to a 16-year-old with an explicit plan and inability to contract for safety.

This study was conducted in a single institution, which limited its comparability to other settings or regions. Furthermore, the study design did not allow any conclusions to be drawn about the appropriateness of ED use. Further studies should be performed in this, and other pediatric EDs, to determine best practice guidelines for nonurgent and mental health patients.

Further Research: Nonurgent

The literature suggests that children are brought to the ED for nonurgent and preventable conditions, in part, because of a lack of available primary care.[13] A number of children are referred to the ED by their primary care physician or their doctor was consulted before seeking care in the ED, suggesting that demand for care simply exceeds the ability to provide that care.[74] Overburdened pediatricians and a lack of primary health care services may result in unnecessary reliance on emergency departments. Helping patients establish "medical homes" that provide preventive and primary care for both acute and chronic conditions is one strategy to help avoid the need for emergency care.[85]

In fact, it may be prudent to rethink the whole paradigm of how hospitals are organized for expediency and improved patient care. For example, instead of starting with the emergency department as the initial point of contact for the hospital, patients could first visit a "Triage Center," staffed by experienced nurses. From this center,

patients could be directed to the most appropriate setting within the hospital. Low acuity

patients could be sent to an urgent care center located within the hospital while patients

requiring a higher level of care can be treated in the ED. Additionally, patients requiring

specialty services like mental health and oncology could be sent directly to their specialty

areas where they can be cared for by trained professionals in a safe, structured

environment. This type of change would improve patient care, reduce wait times in the

ED and alleviate the strain on an overtaxed department.

Researchers and stakeholders must work to develop an accurate, consistent

definition of what "nonurgent" means. This will allow for more generalizable

investigations and population-level assessments to estimate prevalence, determine the

impact nonurgent visits have on pediatric EDs and identify the underlying barriers to care

in alternative settings. Until a clear definition is universally accepted and used, it is

debatable whether nonurgent visits lead to ED overcrowding, whether insufficient

continuity of care leads to worse health outcomes or whether there is an increased cost to

hospitals treating these patients.

One approach that hospitals can independently take to identify the root causes of

nonurgent use specific to their facility is to conduct formal or informal surveys. Phoenix

Children's Hospital, for example, has two designated "fast-track" areas. These are

separate areas within the hospital that were established for patients with less serious

conditions who can be treated quickly and then discharged. The hospital could target

parents in these areas to understand why he/she elected to come to the ED. If level of care

is not the issue for parents, the most important question the hospital needs answered is

why did the parent with a self-identified nonurgent problem choose the ED rather than

care for the child at home or seek care at a doctor's office or urgent care center?
Understanding the issues and challenges specific to the population the hospital serves
allows for targeted interventions to meet their needs and concerns. Additionally, PCH has
four urgent care sites. Comparing responses from parents visiting the urgent care sites to
the hospital fast-track would also be interesting. Is self-perceived severity similar
between those parents using the urgent care sites and those parents using the hospital fast-
track? Understanding the answer to that question would allow for more focused patient
education.

On-going research is necessary to determine the effect of current ED practices on
patient and family outcomes, to help devise targeted strategies and test interventions, to
improve throughput strategies, and to develop a multifaceted approach to solve problems.
Studies analyzing nonurgent pediatric visits to the ED are important in order to achieve
better and more efficient standards and practices of care. Nurses should be encouraged to
conduct such studies. Nurses are well positioned to interview parents and gather
information that can lead to better and more efficient care. This should not be something
nurses are required to do in addition to their regular duties, but for those interested and
committed, a designated day set aside for research would be recommended. Inter-
professional collaboration should also be encouraged to bring different perspectives to
the research process and to move quality improvement initiatives forward.

Further Research: Mental Health

Collectively, mental health needs are the most prevalent and the costliest of all

children's health care needs.[190, 191] The significant increase in mental health-related visits

to EDs across the nation is indicative of a much larger problem: a lack of community-

based services and supports.[226] Given the number of untreated children in need of mental

health services, further research is needed to identify factors and barriers that affect

service use and to describe and measure the patient and family experience of burden,

need for, access to and satisfaction with care. Additionally, an evidence-based approach

to evaluate the impact of community mental health programs on other systems, including

the juvenile justice system, foster care system and schools, is important.

Due to the lack of community resources, many families are left with no alternative but

to turn to the ED for care. More often than not, the best a hospital ED can do is cast out a

poorly equipped and fragmented net. Numerous barriers to comprehensive care have been

identified in hospital EDs, including long wait times, inferior quality of treatment

practices, inadequately trained staff and lack of appropriate referral sites. Outreach

projects for targeted youth is an important way to improve care and reduce ED visits.

This study suggests that minority children in Arizona may be severely undertreated if not

completely untreated. Phoenix Children's Hospital already has a mobile asthma clinic

that travels among inner-city schools and a mobile clinic that targets homeless youth,

perhaps the next area of focus should be on mental health, improving relationships with

outside providers to ensure better coordination of services. Ensuring that patients are

connected with the right services and receive the appropriate treatment can reduce

admissions and recidivism of mental health patients. Within the hospital, having a

separate area where a patient could meet with a mental health professional before being treated by an ED physician would reduce the patient's length of stay in the ED. This will lead to better quality of care, as well as, reduced treatment costs.

If admission is advised and no inpatient beds are readily available, patients should be evaluated daily by mental health professionals. Talk therapy should be initiated on day one. A child needs to be made to felt that s/he is cared for and that his/her needs are important. To be left to languish in a small room day in and day out with no attempt at therapy and no treatment plan other than "transfer" is nothing short of cruel. We need to stop punishing children for presenting to the ED with a mental health complaint. We don't roll our eyes when a child comes in with a broken arm and say, "it's your fault for playing on the monkey bars," we don't deny him medication, refuse him access to any type of mental stimulation other than television, tell him to be quiet, ignore him if he behaves and immediately threaten him with physical and chemical restraints if he acts out, but that is often how many children suffering with a mental disorder are treated. A cultural shift needs to occur among ED professionals. Mental disorders need to be viewed as an illness, not as an affront to ED staff. All children entrusted to our care should be treated with the same level of respect. Education of staff is paramount. But education needs to go beyond just talking about de-escalation techniques and the proper use of restraints. Education needs to work toward eliminating judgement and blame from our approach to care and start including empathy. Prospective studies focused on how best to serve children and adolescents experiencing a mental health crisis in the ED must result in evidence-based clinical practice guidelines. Without guidelines, what is appropriate

and effective care remains subjective and varied. It also means there is no metric by which hospitals can measure their performance and show improvement.

Pediatricians should not be expected to initiate, monitor and guide treatment of children with complex mental health issues without collaboration with specialized child psychiatry resources. Again, helping patients establish "medical homes" that provide consultation services by a multidisciplinary team is one strategy to help avoid the need for emergency care. With the nation-wide shortage of child psychiatrists hampering attainment of this ideal, research should focus on the cost-effectiveness and efficacy of utilizing innovative solutions like the use of mid-level practitioners, telepsychiatry or phone consultation.

Finally, as ED overcrowding is a pervasive problem, future research should identify factors related to increasing utilization to help eliminat inappropriate use of the ED for pediatric mental health problems. It is also worthwhile to assess whether modifications are needed to the current triage system for mental health patients. To effectively evaluate an individual's need for service, clinicians need a systematic screening tool and best-practice guidelines to follow. Treating children and adolescents with mental health issues requires proactive preventive care in the community and expert evaluation and treatment planning in the ED. Coordination of services is the key to optimizing treatment and providing more efficient and effective mental health care for all children and adolescents.

Conclusion

The Patient Protection and Affordable Care Act (PPACA) is expected to have considerable effects on the way health care is designed and delivered. [120] The most measurable effect of the PPACA is the availability of health insurance to millions more Americans. [12] This surge in insured patients will most likely lead to a surge in demand for ED care. Hospitals will need to be ready with strategies to help reduce ED crowding.

The PPACA provides a platform for exploring new approaches to health care delivery to contain costs. [74] The long-term goal of the PPACA is to move hospitals away from the current, costly model of disease treatment, and toward a more cost-efficient model of disease prevention. [85,120] Part of this efficiency will be gained through expanded access to patient-centered medical homes, which provide more integrated care and more timely access to providers. The current hope is that hospitals will play a key role in providing coordinated care by reaching out to the community and by facilitating better communication and relationships among providers. Conducting a Community Health Needs Assessment (CHNA) is another strategy used to help improve health outcomes. The CHNA must be done by a hospital every three years and must describe the community served, identify existing health care resources and prioritize community health needs. Hospitals must also develop an implementation strategy to meet the needs identified through the CHNA. [120]

Reliance on the ED for nonurgent and mental health concerns will not be reduced immediately. The findings of this study may be helpful in developing more efficient strategies to better serve children with nonurgent and mental health needs in a pediatric ED setting. Interventions to ease the burden on the ED by nonurgent and mental health visits will require a combined effort of policy reforms, community partnerships,

interdisciplinary support and strong leadership. No singular solution exists and the form will depend on whether a facility is urban or rural, has partnerships with other hospitals and/or outpatient clinics, has the capacity to grow both in terms of physical space and personnel and has the leadership in place to be innovative and outcome-driven. A need exists to identify best practices to address the strain that ED's face from nonurgent and mental health visits and work toward a resolution that ensures high-quality, efficient and reliable care for all patients.

By constructing this profile of who visited the ED for these conditions by age, gender, race/ethnicity, insurance status and neighborhood, this study may help Phoenix Children's Hospital prepare in-house and community-based services to better accommodate all patients.

REFERENCES

1. Sklar DP, Handel DA, Hoekstra J, Baren JM, Zink B, Hedges JR. The future of emergency medicine: An evolutionary perspective. *Academic Medicine.* 2010;85(3):490-495.

2. Hing E, Bhuiya F. Wait time for treatment in hosptial emergency departments: 2009. *NCHS Data Brief. No 102* 2012. Accessed May 20, 2013.

3. Cunningham P. Nonurgent use of hospital emergency departments. *Senate Testimony May 11, 2011. [Presentation transcript].* 2011; www.hschange.org. Accessed January 2, 2013.

4. Felland L, Hurley RE, Kemper NM. Safety net hospital emergency departments: Creating safety valves for non-urgent care. *Issue Brief No 120: Findings from HSC*: Health System Change; 2008.

5. Uscher-Pines L, Kellerman A, Gillen E, Mehrotra A. Emergency department visits for nonurgent conditions: Systematic literature review. *The American Journal of Managed Care.* 2013;19(1):47-59.

6. Kellerman A, Hsia R, Yeh C, Morganti K. Emergency care: Then, now and next. *Health Affairs.* 2013;32(12):2069-2074.

7. Chamberlain JM, Krug S, Shaw KN. Emergency care for children in the United States. *Health Affairs.* 2013;32(12):2109-2115.

8. Chamberlain JM, Joseph JG, Patel KM, Pollack MM. Differences in severity-adjusted pediatric hospitalization rates are associated with race/ethnicity. *Pediatrics.* 2007;119(6):e1319-1324.

9. Natale JE, Joseph JG, Rogers AJ, et al. Cranial computed tomography use among children with minor blunt head trauma: Association with race/ethnicity. *Archives of Pediatric and Adolescent Medicine.* 2012;166(8):732-737.

10. Vanderweil SG, Tsai C-L, Pelletier AJ, et al. Inappropriate use of anitbiotics for acute asthma in United States emergency departments. *Academic Emergency Medicine.* 2008;15(8):736-743.

11. AAMC Center for Workforce Studies. *Physician shortages to worsen without increases in residency training*. 2010; www.aamc.org. Accessed May 21, 2013.

12. Auerbach DI, Chen PG, Friedberg MW, et al. New approaches for delivering primary care could reduce predicted physician shortage. *RAND Health.* 2013:1-4.

13. World Health Organization. The World Health Report 2001- Mental Health: New Understanding, New Hope. Geneva, Switzerland: World Health Organization, 2001: World Health Organization; 2001.

14. Grupp-Phelan J, Harman JS, Kelleher KJ. Trends in mental health and chronic condition visits by children presenting for care at U.S. emergency departments. *Public Health Reports.* 2007;122:55-61.

15. Melnyk B, Brown H, Jones D. Improving the mental/psychosocial health of US chidlren and adolescents: outcomes and implementation strategies from the national KySS summit. *Journal of Pediatric Health.* 2003;17(6):S1-S24.

16. US Department of Health and Human Services. *Mental health: A report of the Surgeon General- Executive summary*. Rockville, MD: US Department of Health and Human Services, Substance Abuse and Mental Health Services, National Institute of Health, National Institute of Mental Health; 1999.

17. Melnyk B, Moldenhauser Z, Veenema T, McMurtie M, Gullo S, O'Leary E. The KySS (Keep your children/ yourself Safe and Secure) campaign: a national effort to decrease psychosocial morbidities in children and adolescents. *Journal of Pediatric Health.* 2001;15:31A-34A.

18. US Department of Health and Human Services, Surgeon General. (2001). Report of the Surgeon General's Conference on Children's Mental Health: A National Action Agenda.

19. Alegria M, Canino G, Rios R, et al. Inequalities in use of specialty mental health services among Latinos, African Americans, and Non-Latino Whites. *Psychiatric Services.* 2002;53(12):1547-1555.

20. RAND. Research highlight: Mental health care for youth. *RAND Health.* 2001:1-4.

21. Information about mental health and mental illness. 2012; www.kingcounty.gov. Accessed August 12, 2012.

22. Cooper JL, Masi R. Child and youth emergency mental health care: A national problem. *National Center for Children in Poverty.* 2007. http://www.nccp.org/publications/pdf/text_750.pdf.

23. Dolan MA, Fein J, A Pediatric and adolescent mental health emergencies in the emergency medical services system. *Pediatrics.* 2011;127(5):e1356-e1366.

24. Case SD, Case B, G, Olfson M, Linakis J, Laska E, M Length of stay of pediatric mental health emergency department visits in the United States. *Journal of the American Academy of Child and Adolescent Psychiatry.* 2011;50(11):1110-1119.

25. Santiago LI, Tunik MG, Foltin GL, Mojica MA. Children requiring psychiatric consultation in the pediatric emergency department. *Pediatric Emergency Care.* 2006;22(2):85-89.

26. American Academy of Pediatrics CoPEM. Overcrowding crisis in our nation's emergency departments: is our safety net unraveling? *Pediatrics.* 2004;114(3):878-888.

27. Christodulu KV, Lichenstein R, Weist M. Psychiatric emergencies in children. *Pediatric Emergency Care.* 2002;18(4):268-270.

28. Guinto-Ocampo H, Molczan K, Selbst S. Child and adolescent psychiatric emergencies presenting to pediatric emergency departments [abstract]. *Pediatric Academic Societies.* 2006;59:112.

29. Shah MV, Amato CS, John AR. Emergency department trends for pediatric and pediatric psychiatric visits. *Pediatric Emergency Care.* 2006;22:685-686.

30. Hing E, Hall M, Ashman J, Xu J. *National hospital ambulatory medical care survey: 2007 outpatient department summary*2010.

31. Sills MR, Bland SD. Summary statistics for pediatric psychiatric visits to US emergency departments, 1993-1999. *Pediatrics.* 2002;110(4):e40.

32. Edelsohn GA. Urgency counts: the why behind pediatric psychiatric emergency visits. *Clinical Pediatric Medicine.* 2004;5:146-153.

33. Frosch E, dosReis S, Maloney K. Connections to outpatient mental health care of youths with repeat emergency department visits for psychiatric crises. *Psychiatric Services.* 2011;62(6):646-649.

34. Mahajan P, Thomas R, Rosenberg DR. Evaluation of a child guidance model for visits for mental disorders to an inner-city pediatric emergency department. *Pediatric Emergency Care.* 2007;23:212-217.

35. Rotarius T, Trujillo A, Unruh L. Uncompensated care and emergency department utilization: a local study having national impacts. *Health Care Management.* 2002;21(1):1-38.

36. Bisgaier J, Rhodes K. Auditing access to specialty care for children with public insurance. *The New England Journal of Medicine.* 2011;364:2324-2333.

37. Katoaka S, Zhang L, Wells K. Unmet need for mental health care among U.S. children: variation by ethnicity and insurance status. *American Journal of Psychiatry.* 2002;159(9):1548-1555.

38. Richardson LD. Seeking and obtaining mental health services: what do parents expect? *Archives of Psychiatric Nursing.* 2001;15(5):223-231.

39.   Cunningham PJ. What accounts for differences in the use of hospital emergency departments across U.S. communities. *Health Affairs.* 2006;25:w324-w336.

40.   Wang C, Villar ME, Mulligan DA, Hansen T. Cost and utilization analysis of a pediatric emergency diversion project. *Pediatrics.* 2005;116(5):1075-1079.

41.   Merrill CT, Owens PL, Stocks C. Pediatric emergency department visits in community hospitals from selected states, 2005. *Statistical Brief #52* 2005; www.hcup-us.ahrq.gov. Accessed August 28, 2013.

42.   Carlisle CE, Mamdani M, Schachar R, To T. Aftercare, emergency department visits, and readmission in adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry.* 2012;51(3):283-293.

43.   Starr P. *The social transformation of American medicine: The rising of a sovereign profession and the making of a vast industry*. New York: Basic Books; 1982.

44.   Rosenberg CE. *The Cholera Years: The United States in 1832, 1849 and 1866*. Chicago, IL: The University of Chicago Press; 1962, 1987.

45.   Beck AH. The Flexner report and the standardization of American medical education. *JAMA.* 2004;291(17):2139-2140.

46.   Flexner A. *Medical education in the United States and Canada*. New York, NY: Carnegie Foundation for the Advancement of Teaching; 1910.

47.   Grumbach K, Keane D, Bindman A. Primary care and public emergency department overcrowding. *American Journal of Public Health.* 1993;83(3):372-378.

48.   Olson EJ. No room at the inn: A snapshot of an American emergency room. *Stanford Law Review.* 1993-1994;46:449-502.

49.   Schiff RL, Ansell DA, Schlosser JE, Idris A, Morrison A. Transfers to a public hospital. *The New England Journal of Medicine.* 1986;314(9):552-557.

50.   Himmelstein D, Woolhandler S, Harnly M, et al. Patient transfers: Medical Practice as Social Triage. *American Journal of Public Health.* 1984;74(5):494-497.

51.   Reed WG, Cawley KA, Anderson RJ. The effect of a public hospital's transfer policy on patient care. *The New England Journal of Medicine.* 1986;315(22):1428-1432.

52.   *Emergency departments: Unevenly affected by growth and change in patient use.* Washington, DC: US General Accounting Office;1993.

53. Lee TM. An EMTALA primer: The impact of changes in the emergency medicine landscape on EMTALA compliance and enforcement. *Annals of Health Law.* 2004;13(1):145-178.

54. Choslovsky J. Agency review of health care industry mergers: Proper procedure or unncessary burden? *The Administrative Law Journal.* 1996;10:291-299.

55. Flint SS. Health coverage for America: Signed, sealed and delivered by the 2012 election. *Health & Social Work.* 2013;38(1):3-5.

56. Dombkowski K, Stanley R, Clark S. Influence of Medicaid managed care enrollment on emergency department utilization by children. *Archives of Pediatric and Adolescent Medicine.* 2004;158(1):17-21.

57. Starr P. *Remedy and reaction: The peculiar American struggle over health care reform.* New Haven & London: Yale University Press; 2011.

58. Rushefsky ME, Pantel K. *Politics, power and policy making: The case of health care reform in the 1990s.* Armonk, New York: M.E. Sharpe, Inc; 1998.

59. *General medical and surgical hospitals.* Chicago, IL: Highbeam Business;2013.

60. Kongstvedt PR. *Essentials of managed health care.* Burlington, MA: Jones & Bartlett Learning; 2013.

61. Horn SD, Sharkey PD, Ferris Chambers A, Horn RA. Severity of illness within DRGs: Impact on prospective payment. *American Journal of Public Health.* 1985;75(10):1195-1199.

62. Wachter RM, Goldman L. The emerging role of 'hospitalists' in the American health care system. *New England Journal of Medicine.* 1996;334(7):514-517.

63. Bodenheimer T, Lo B, Casalino L. Primary care physicians sould be coordinators, not gatekeepers. *JAMA.* 1999;281(21):2045-2049.

64. Cuellar AE, Gertler PJ. Trends in hospital consolidation: The formation of local systems. *Health Affairs.* 2003;22(6):77-87.

65. Uyehara E, Thomas M. *Health maintenance organization and the HMO Act of 1973.* Santa Monica: The Rand Corporation;1975.

66. Gabel J. Ten ways HMOs have changed during the 1990s. *Health Affairs.* 1997;16(3):134-145.

67. Kelton S. *An introduction to the health care crisis in America: How did we get here?*: Center for Full Employment and Price Stability: CFEPS;2007.

68. Yankelovich D. The debate that wasn't: The public and the Clinton plan. *Health Affairs.* 1995;14(1):7-23.

69. Harris Poll (Storrs: Roper Center for Public Opinion Research, 22 January 1993).

70. Blendon RJ, Brodie M, John B. What happened to Americans' support for the Clinton health plan? *Health Affairs.* 1995;14(2):7-23.

71. Skocpol T. The rise and resounding demise of the Clinton plan. *Health Affairs.* 1995;14(1):66-85.

72. Richardson LD, Hwang U. Access to care: A review of the emergency medicine literature. *Academic Emergency Medicine.* 2001;8(11):1030-1036.

73. Bernstein SL. ED care: Available, competent, affordable. *Academic Emergency Medicine.*21(1):73-75.

74. Afialo J, Marinovich A, Colacone A, Leger R, Unger B, Giguere C. Nonurgent emergency department patient characteristics and barriers to primary care. *Academic Emergency Medicine.* 2004;11(12):1302-1310.

75. Salami O, Salvador J, Vega R. Reasons for nonurgent pediatric emergency department visits: Perceptions of health care providers and caregivers. *Pedatric Emergency Care.* 2012;28(1):43-46.

76. Mistry R, Brousseau D, Alessandrini E. Urgency classification methods for emergency department visits: Do they measure up? *Pediatric Emergency Care.* 2008;24(12):870-874.

77. Emergency department visits. *Centers for Disease Control and Prevention FastStats.* 2012. www.cdc.gov/nchs/fastats/ervisits.htm. Accessed May 28, 2013.

78. *IOM Report: The future of emergency care in the United States health system*: Institute of Medicine;2006.

79. Kubicek K, Liu D, Beaudin C, et al. A profile of nonurgent emergency department use in an urban pediatric hospital. *Pediatric Emergency Care.* 2012;28(10):977-984.

80. CDC: Two-thirds of emergency visits occur during non-business hours; percentage of non-urgent emergency patients drops to less than 8 percent. *American College of Emergency Physicians* http://newsroom.acep.org. Accessed August 13, 2013.

81. Fieldston ES, Alpern ER, Nadel FM, Shea JA, Alessandrini E. A qualitative assessment of reasons for nonurgent visits to the emergency department. *Pediatric Emergency Care.* 2012;28(3):220-225.

82. Middleton KR, Burt CW. Availability of pediatric services and equipment in emergency departments: United States, 2002-2003. *Advance Data.* 2006;367:1-6.

83. McCaig LF, Nawar EW. National hospital ambulatory medical care survey: 2004 emergency department summary. *Advance Data. From Vital and Health Statistics. Number 372*: U.S. Department of Health and Human Services. Centers for Disease Control and Prevention; 2006.

84. Emergency room delays. *The New York Times.* January 19, 2008;A18.

85. Todd SR, Sommers BD. Overview of the uninsured in the United States: A summary of the 2012 current population survey report. *ASPE Issue Brief* 2012; http://aspe.hhs.gov. Accessed July 14, 2013.

86. Gallagher E, Lynn S. The etiology of medical gridlock: Causes of emergency department overcrowding in New York City. *Journal of Emergency Medicine.* 1990;8(6):785-790.

87. *Hospital emergency departments: Crowded conditions vary among hospitals and communities.* Washington, D.C.: U.S. Government Accountability Office; 2003.

88. Goodell S, DeLia D, Cantor J. *Emergency department utilization and capacity*: Robert Wood Johnson Foundation;2009.

89. Cunningham PJ, May J. *Insured Americans drive surge in emergency department visits*: Issue Brief No 70;2003.

90. Sommers AS, Boukus ER, Carrier E. Dispelling the myths about emergency department use: Majority of Medicaid visits are for urgent or more serious symptoms. *Research Brief No.23.* 2012.

91. Hadley J, Holahan J. How much medical care do the uninsured use, and who pays for it? *Health Affairs Web Exclusives.* 2003:W3-66-81.

92. Northington WE, Brice JH, Zhou B. Use of an emergency department by nonurgent patients. *American Journal of Emergency Medicine.* 2005;23(2):131-137.

93. Gill JM, Riley AW. Nonurgent use of hospital emergency departments: Urgency from the patient's perspective. *Journal of Family Practice.* 1996;42(5):491-496.

94. Hoot N, Aronsky D. Systematic review of emergency department crowding: Causes, effects and solutions. *Annals of Emergency Medicine.* 2008;52(2):126-136.

95. Williams RM. The costs of visits to emergency departments. *The New England Journal of Medicine.* 1996;334(10):642-646.

96. Bamezai A, Melnick G. Marginal cost of emergency department outpatient visits: An update using California data. *Medical Care.* 2006;44(9):835-841.

97. Melnick G, Bemezai A, Green L, Nawathe A. *California emergency departments: Do they contribute to hospital profitability.* Oakland, California: California HealthCare Foundation; July 2003.

98. Roche J. Health care in America: Why we need universal health care and why we need it now. *St Thomas Law Review.* 2001;13(4):1013-1050.

99. WHO. The right to health: Fact sheet no. 31. *Office of the United Nations High Commissioner for Human Rights* 2008; http://www.ohchr.org. Accessed July 14, 2013.

100. Park AI. Human rights and basic needs: Using international human rights to inform constitutional interpretation. *UCLA Law Reivew.* 1986;34:1195-1264.

101. OHCHR. International covenant on economic, social and cultural rights. *United Nations Human Rights Office of the High Commissioner for Human Rights* 1996-2013; http://www.ohchr.org. Accessed July 14, 2013.

102. Hoffman B. Tell me again. Why is there no national health insurance in the United States. *Journal of Health Politics, Policy & Law.* 2006;31(4):839-848.

103. Glennester H, Lieberman RC. Hidden convergence: Toward a historical comparison of U.S. and U.K. health policy. *Journal of Health Politics, Policy & Law.* 2011;36(1):5-31.

104. Kaiser Commission on Medicaid and the uninsured: The Arizona KidsCare CHIP enrollment freeze: How has it impacted enrollment and families? September 2011; http://kaiserfamilyfoundation.files.wordpress.com. Accessed April 7, 2014.

105. National Patient Advocate Foundation. Issue Brief: Medical debt, medical bankruptcy and the impact on patients. September 2012; www.npaf.org.

106. Garrett L, Chowdhury AM, Pablos-Mendez A. All for universal health coverage. *Lancet.* 2009;374(9697):1294-1299.

107. The Henry J Kaiser Family Foundation. Snapshots: Health care spending in the United States & selected OECD countries. 2011; http://kff.org. Accessed July 27, 2013.

108. Beckford M. Fewer boundaries between employers and employees emerge on the coattails of health care reform. *The Open Ethics Journal.* 2013;7:9-10.

109. Pitts SR, Carrier E, Rich Ec, Kellerman A. Where Americans get acute care: Increasing, it's not their doctor's office. *Health Affairs.* 2010;29(9):1620-1629.

110. Hsia R. Decreasing reimbursements for outpatient emergency department visits across payer groups 1996 to 2004. *Annals of Emergency Medicine.* 2008;51(3):265-274, e261-265.

111. Daly R. Shifting burdens. *Modern Healthcare.* 2013;43(24):30-31.

112. Shi L, Singh DA. *Delivering health care in America: A systems approach.* Sudbury: Jones and Bartlett Publishers, Inc; 2008.

113. Why not the best? Results from the national scorecard on U.S. health system performance, 2011. *The Commonwealth Fund Commission on a High Performance Health System* October 2011; www.commonwealthfund.org. Accessed July 27, 2013.

114. Kane J. Health costs: How the U.S. compares to other countries. *PBS Newshour* October 22, 2012; www.pbs.org. Accessed July 27, 2013.

115. Agency for Healthcare Research and Quality. *The national healthcare disparities report.* 2011; www.ahrq.gov. Accessed July 28, 2013.

116. Unequal treatment: Confronting racial and ethnic disparities in health care. In: Smedley BD, Stith AY, Nelson AR, eds: Washington, DC: Institute of Medicine; 2002.

117. US Department of Health and Human Services. *Healthy People 2020.* 2010; www.healthypeople.gov. Accessed July 28, 2013.

118. Reid PP, Compton WD, Grossman JH. *Building a better delivery system: A new engineering/health care partnership.* Washington, DC: National Academies Press; 2005.

119. The ethics of health care reform: Issues in emergency medicine- an information paper. *American College of Emergency Physicians* http://www.acep.org. Accessed August 19, 2013.

120. Lee M. Trends in the law: The patient protection and affordable care act. *Yale Journal of Health Policy, Law and Ethics.* 2011;11(1):1-8.

121. Myths and facts about emergency care. *American College of Emergency Physicians* http://www.acep.org. Accessed August 19, 2013.

122. Grob GN. Mental health policies in America: Myths and realities. *Health Affairs.* 1992;11(3):7-22.

123. Yanni C. *The architecture of madness: Insane asylums in the United States.* Minneapolis: University of Minnesota Press; 2007.

124. *Textbook of Hospital Psychiatry*. Arlington, VA: American Psychiatric Publishing; 2009. Sharfstein SS, Dickerson FB, Oldham JM, eds.

125. La Fond JQ, Durham ML. *Back to the asylum: The future of mental health law and policy in the United States*. New York: Oxford University; 1992.

126. Blomberg TG, Lucken K. *American penology: A history of control*. New Brunswick: Transaction Publishers; 2010.

127. Roberts AR, Kurtz LF. Historical perspectives on the care and treatment of the mentally ill. *Journal of Sociology and Social Welfare*. 1987;14(4):75-94.

128. Engs RC. *The Progressive Era's health reform movement: A historical dictionary*. Westport: Praeger Publishers; 2003.

129. Parascandola J. *Sex, sin and science: A history of syphilis in America*. Westport: Praeger Publishers; 2008.

130. Grob GN. *The mad among us: A history of the care of America's mentally ill*. New York: The Free Press; 1994.

131. Bagenstos SR. Past and future of deinstitutionalization litigation. *Cardozo Law Review*. 2012;34(1):1-52.

132. Grob GN. Creation of the National Institute of Mental Health. *Public Health Reports*. 1996;111:378-381.

133. Sublet C. Has the cold mercy of custodial institutionalization been supplanted by the cold merciless steel of the jailhouse. *Kansas Journal of Law and Public Policy*. 2005;15(1):159-190.

134. Harcourt BE. Reducing mass incarceration: Lessons from the deinstitutionalization of mental hospitals in the 1960s. *Ohio State Journal of Criminal Law*. 2011;9(1):53-88.

135. Feng S. Madness and mayhem: Reforming the mental health care system in Arizona. *Arizona Law Review*. 2012;54(2):541-566.

136. Rochefort DA. Origins of the "Third psychiatric revolution": the Community Mental Health Centers Act of 1963. *Journal of Health Politics, Policy & Law*. 1984;9(1):1-30.

137. Eisenberg L, Guttmacher LB. Were we all asleep at the switch? A personal reminiscence of psychiatry from 1940 to 2010. *Acta Psychiatrica Scandinavica*. 2010;122(2):89-102.

138. Slate RN, Buffington-Vollum JK, Johnson WW. *The criminalization of mental illness: Crisis and opportunity for the justice system*. Durham, North Carolina: Carolina Academic Press; 2013.

139. Poulsen B. Revisiting the myth of mental illness: Some thoughts on Thomas Szaz. *Reality Play.* 2012.

140. Chow W, Priebe S. Understanding psychiatric institutionalization: A conceptual review. *BMC Psychiatry.* 2013;13:169-183.

141. Lubotsky Levin B, Hennessy KD, Petrila J, eds. *Mental health services: A public health perspective*. New York: Oxford University Press; 2010.

142. Arizona State Hospital Timeline. 2009-2014; http://www.azdhs.gov/azsh/history.htm. Accessed March 19, 2014.

143. Rubin P, Silverman A. Jan Brewer's response to Jared Loughner? Slash services from an already beleagured mental health system. 2010; http://www.phoenixnewtimes.com/. Accessed March 22, 2014.

144. Landmark settlement agreement approved in longstanding class action case, *Arnold v Sarn*. 2014; www.centerforpublicrep.org. Accessed March 22, 2014.

145. Borus J. Sounding board. Deinstiutionalization of the chronically mentally ill. *New England Journal of Medicine.* 1981;305(6):339-342.

146. Slovenko R. The transinstitutionalization of the mentally ill. *Ohio Northern University Law Review.* 2003;29(3):641-660.

147. Sanchez R, Arce R. Mental health advocates: Shortage of beds could mean more violence. 2013; www.cnn.com.

148. Torrey EF. More mentally ill persons are in jails and prisons than hospitals: A survey of the States. 2010; http://www.treatmentadvocacycenter.org. Accessed March 22, 2014.

149. Independent review criticizes Arizona over level of children's services. *Alcoholism and Drug Abuse Weekly.* 2000;12(30).

150. National Center for Youth Law: Using the law to improve the lives of poor children. JK v. Eden. 2010; www.youthlaw.org. Accessed April 7, 2014.

151. President's New Freedom Commission on Mental Health. *Achieving the promise: Transforming mental health care in America.* Final Report. Rockville, MD: US Department of Health and Human Services; 2003.

152. US Census Bureau. Characteristics of people by language spoken at home. American community survey; Fact Finder. http://factfinder.census.gov. Accessed April 8, 2014.

153. M MM, Pennington J, Lynn CJ, McCadam K. Understanding urban child mental health service use: Two studies of child, family and environmental correlates. *The Journal of Behavioral Health Services and Research.* 2001;28(4):475-483.

154. Pumariega AJ, Rothe E. Cultural considerations in child and adolescent psychiatric emergencies and crises. *Child and Adolescent Psychiatric Clinics of North America.* 2003;12(4):723-744.

155. Kuo AA, Etzel RA, Chilton LA, Watson C, Gorski PA. Primary care pediatrics and public health: Meeting the needs of today's children. *American Journal of Public Health.* 2012;102(12):e17-e23.

156. Holm-Hansen C. *Racial and ethnic disparities in children's mental health.* Saint Paul: Wilder Research;2006.

157. National Center for Children in Poverty. *Arizona: Demographics of low-income children.* 2014; www.nccp.org. Accessed May 4, 2014.

158. Anakwenze U, Zuberi D. Mental health and poverty in the inner city. *Health & Social Work.* 2013;38(3):147-157.

159. Harrison ME, McKay MM, Bannon WM. Inner-city child mental health service use: The real question is why youth and families do not use services. *Community Mental Health Journal.* 2004;40(2):119-131.

160. Roberts RE, Alegria M, Roberts CR, Chen IG. Mental health problems of adolescents as reported by their caregivers: A comparison of European, African and Latino Americans. *Journal of Behavioral Health Services & Research.* 2005;32(1):1-13.

161. Hough RL, Hazen AL, Soriano FI, Wood P, McCabe K, Yeh M. Mental health services for Latino adolescents with psychiatric disorders. *Psychiatric Services.* 2002;53(12):1556-1562.

162. Yeh M, McCabe K, Hough RL, Dupuis D, Hazen AL. Racial/ethnic differences in parental endorsement of barriers to mental health services for youth. *Mental Health Services Research.* 2003;5(2):65-77.

163. Boison E. Mental health parity for children and adolescents: How discrimination and ERISA have kept American youth from getting the treatment they need [comments]. *American University Journal of Gender, Social Policy & the Law.* 2005;13(1):187-218.

164. Pidano AE, Honigfeld L, Bar-Halpern M, Vivian JE. Pediatric primary care providers' relationships with mental heath care providers: Survey results. *Child and Youth Care Forum.* 2014;43:135-150.

165. Lavigne JV, Gibbons RD, Christoffel KK, et al. Prevalence rates and correlates of psychiatric disorders among preschool children. *Journal of the American Academy of Child and Adolescent Psychiatry.* 1996;35(2):204-214.

166. American Academy of Child and Adolescent Psychiatry. *When to seek referral or cosultation with a child adolescent psychiatrist.* www.aacap.org. Accessed May 4, 2014.

167. Ingram S, Hechman L, Morgenstern G. Outcome issues in ADHD: Adolescent and adult long-term outcome. *Mental Retardation and Developmental Disabilities Research Reviews.* 1999;5(3):243-250.

168. Primary health care now more than ever. *World Health Report* 2008; http://www.who.int. Accessed July 14, 2013.

169. American Academy of Child and Adoescent Psychiatry. Practice parameter for psychiatric consultation to schools. *Journal of the American Academy of Child and Adolescent Psychiatry.* 2005;44(10):1068-1084.

170. Felker BL, Chaney E, Rubenstein LV, et al. Developing effective collaboration between primary care and mental health providers. *The Primary Care Companion to the Journal of Clinical Psychiatry.* 2006;8(1):12-16.

171. A guide to building collaborative mental health care partnerships in pediatric primary care. *American Academy of Child and Adolescent Psychiatry* 2010; www.aacap.org. Accessed April 24, 2014.

172. Brousseau D, Dansereau LM, Linakis J, Leddy T, Vivier PM. Pediatric emergency department utilization within a statewide medicaid managed care system. *Academic Emergency Medicine.* 2002;9(4):296-299.

173. Damiano PC, Momany ET, Tyler MC, Penzier AJ, Lobas JG. Cost of outpatient medical care for children and youth with special health care needs: Investigating the impact of the medical home. *Pediatrics* 2006;118(4):e1187-1194.

174. Bethell CD, Read D, Brockwood K. Using existing population-based data sets to measure the American Academy of Pediatrics definition of medical home for all children and children with special health care needs. *Pedatrics.* 2004;113(Supplement 4):1529-1537.

175. Croghan TW, Brown JD. *Integrating mental health treatment into the patient centered medical home. Agency for Healthcare Quality and Research.* Rockville, MD June 2010.

176. Grupp-Phelan J, Mahajan P, Foltin GL, et al. Referral and resource use patterns for psychiatric-related visits to pediatric emergency departments. *Pediatric Emergency Care.* 2009;25(4):217-220.

177. Kroenke K, Mangelsdorff AD. Common symptoms in ambulatory care: Incidence, evaluation, therapy and outcome. *American Journal of Medicine.* 1989;86(3):262-266.

178. Unutzer J, Schoenbaum MS, Druss BG, Katon W. Transforming mental healthcare at the interface with general medicine: Report of the President's New Freedom Commission on Mental Health. *Psychiatric Services.* 2006;57:37-47.

179. Downey LA, Zun L, S, Jones Gonzales S. Utilization of emergency department by psychiatric patients. *Primary Psychiatry* 2009;16(4):60-64.

180. Hooper LM. Mental health services in primary care: Implications for clinical mental health counselors and other mental health providers. *Mental Health Counseling.* 2014;36(2):95-98.

181. Kutner L, Olson CK, Schlozman S, Goldstein M, Warner D, Beresin EV. Training pediatric residents and pediatricians about adolescent mental health problems: A proof-of-concept pilot for a proposed national curriculum. *Academic Psychiatry.* 2008;32(5):429-437.

182. Meschan Foy J, McInerney TK, Wegner SE, et al. American Academy of Child and Adolescent Psychiatry. Improving mental health services in primary care: Reducing administrative and financial barriers to access and collaboration. www.aacap.org. Accessed May 4, 2014.

183. Koppelman J. The provider system for children's mental health: Workforce capacity and effective treatment. Washington, DC: George Washington University. 2004.

184. Council of Pediatric Subspecialties. *Where do I find out about available programs?* 2014; www.pedssubs.org. Accessed May 4, 2014.

185. Kessler RC, Amminger GP, Aguilar-Gaxiola S, Alonso J, Lee S, Ustun TB. Age of onset of mental disorders: A review of recent literature. *Current Opinion in Psychiatry.* 2007;20(4):359-364.

186. Sturm R. How expensive is unlimited mental health coverage under managed care? *JAMA.* 1997;278(18):1533-1537.

187. Blount A, Schoenbaum MS, Kathol R, et al. The economics of behavioral health services in medical settings: A summary of the evidence. *Professional Psychology: Research and Practice.* 2007;38(3):290-297.

188. Roemer M. Health care expenditures for the five most common children's conditions, 2008: Estimates for U.S. civilian noninstitutionalized children, ages 0-17. In: #349 SB, ed. Rockville, MD: Agency for Healthcare Research and Quality; 2011.

189. Keller D, Sarvet B. Is there a psychiatrist in the house? Integrating child psychiatry into the pediatric medical home. *Journal of the American Academy of Child and Adolescent Psychiatry.* 2013;52(3-5).

190. Thomas CR, Holzer CE. The continuing shortage of child and adolescent psychiatrists. *Journal of the American Academy of Child and Adolescent Psychiatry.* 2006;45(9):1-9.

191. ASU DPC News- Online child-family mental health program. 2014; www-afs.secure-endpoints.com. Accessed May 4, 2014.

192. Chang G, Weiss A, Orav EJ, et al. Hospital variability in emergency department length of stay for adult patients receiving psychiatric consultation: A prospective study. *Annals of Emergency Medicine.* 2011;58(2):127-136.

193. Weithorn LA. Envisioning second-order change in America's responses to troubled and troublesome youth. *Hofstra Law Review.* 2005;33(4):1305-1506.

194. Field Brown J, Schubert CM. An examination of emergency department pediatric psychiatric services. *The Journal of Behavioral Health Services and Research.* 2010;37(4):412-426.

195. Callahan Soto E, Frederickson AM, Trivedi H, et al. Frequency and correlates of inappropriate pediatric psychiatric emergency room visits. *Journal of Clinical Psychiatry.* 2009;70(8):1164-1177.

196. Newton AS, Samina A, Johnson DW, et al. Who comes back? Characteristics and predictors of return to emergency department services for pediatric mental health care. *Academy of Emergency Medicine.* 2010;17(2):177-186.

197. Reder S, Quan L. Emergency mental health care for adolescents in Washington State. *Pediatric Emergency Care.* 2004;20:742-748.

198. Cloutier P, Martin J, Kennedy A, Nixon M, Muehlenkamp J. Characteristics and co-occurrence of adolescent nonsuicidal self-injury and suicidal behaviors in pediatric emergency crisis services. *Journal of Youth and Adolescence.* 2010;39(3):259-269.

199. Coalition for Fairness in Mental Illness Coverage. *Mental illness parity: Costs of parity coverage of mental illness.* . 1998.

200. Heslop L, Elsom S, Parker N. Improving continuity of care across psychiatric and emergency services: combining patient data within a participatory action research framework. *Journal of Advanced Nursing.* 2000;31(1):135-143.

201. Costello EJ, Mustillo S, Erkanli A, Keeler G, Angold A. Prevalence and development of psychiatric disorders in childhood and adolescence *Archives of General Psychiatry.* 2003;60(8):837-844.

202. Williams JH, Horvath VE, Wei H-s, Van Dorn RA, Jonson-Reid M. Teachers' perspectives of children's mental health service needs in urban elementary schools. *Children and Schools.* 2007;29(2):95-107.

203. Paternite CE. School-based mental health programs and services: Overview and introduction to the special issue. *Journal of Abnormal Child Psychology.* 2005;33(6):657-663.

204. Vander Stoep A, Weiss NS, Cheney D, Cohen P. What proportion of failure to complete secondary school in the US population is attributable to adolescent psychiatric disorder? *The Journal of Behavioral Health Services and Research.* 2003;30(119-124).

205. Atkins MS, Hoagwood K, Kutash K, Seidman E. Toward the integration of education and mental health in schools. *Administration and Policy in Mental Health and Mental Health Services Research.* 2010;37(1-2):40-47.

206. Eber L, Sugai G, Smith CR, Scott TM. Wraparound and positive behavioral interventions and supports in the schools. *Journal of Emotional and Behavioral Disorders.* 2002(10):3.

207. American Academy of Pediatrics. Policy statement, school-based mental health services. *Pedatrics.* 2005;113(6):1839-1845.

208. Hoagwood KE, Olin SS, Kerker BD, Kratochwill TR, Crowe M, Saka N. Empirically based school interventions trageted at academic and mental health functioning. *Journal of Emotional and Behavioral Disorders.* 2007;15(2):66-92.

209. Walter HG, Gouze K, Lim KG. Teachers' beliefs about mental health needs in inner city elementary schools. *Journal of the American Academy of Child and Adolescent Psychiatry.* 2006;45(1):61-68.

210. Rones M, Hoagwood K. School-based mental health services: A research review. *Clinical Child and Family Psychology Review.* 2000;3(4):223-241.

211. Baker JA, Kamphaus RW, Horne A, Winsor AP. Evidence for population-based perspectives on children's behavioral adjustment and needs for service delivery in schools. *School Psychology Review.* 2006;35(1):31-46.

212. Foster S, Rollefson M, Doksum T, Noonan D, Robinson G, Teich J. (2005). *School mental health services in the United States 2002-2003*. Rockville, MD: Center for Mental Health Services, Substance Abuse and Mental Health Services Administration.

213. Paternite CE, Johnston TC. Rationale and strategies for central involvement of educators in effective school-based mental health programs. *Journal of Youth and Adolescence.* 2005;34(1):41-49.

214. Cappella E, Jackson DR, Bilal C, Hamre BK, Soule C. Bridging mental health and education in urban elementary schools: Participatory research to inform intervention development. *School Psychology Review.* 2011;40(4):486-508.

215. Cosner Berzin S, McManama O'Brien KH, Frey A, Kelly MS, Alvarez ME, Shaffer GL. Meeting the social and behavioral health needs of students: Rethinking the relationship between teachers and school social workers. *Journal of School Health.* 2011;81(8):493-501.

216. Nabors LA, Weist M, Reynolds MW. Overcoming challenges in outcome evaluations of school mental health programs. *Journal of School Health.* 2000;70(5):206-209.

217. Weist M. Fulfilling the promise of school-based mental health: Moving toward a public mental health promotion approach. *Journal of Abnormal Child Psychology.* 2005;33(6):735-741.

218. Hoagwood KE, Johnson J. School psychology: A public health framework I. From evidence-based practices to evidence-based policies. *Journal of School Psychology.* 2003;41:3-21.

219. Christian CW, Schwarz DF. Child maltreatment and the transition to adult-based medical and mental health care. *Pedatrics.* 2011;127(1):139-145.

220. Taussig HN, Culhane SE. Emotional maltreatment and psychosocial functioning in preadolescent youth placed in out-of-home care. *Journal of Aggression, Maltreatment and Trauma.* 2010;19(1):52-74.

221. Leslie LK, Gordon JN, Meneken L, Premji K, Michelmore KL, Ganger W. The physical, developmental and mental health needs of young children in child welfare by initial placement type. *Journal of Developmental and Behavioral Pediatrics.* 2005;26(3):177-185.

222. Landsverk JA, Burns BJ, Stambaugh LF, Rolls Reutz JA. Mental health care for children and adolescents in foster care: Review of research literature. 2006; www.casey.org. Accessed May 16, 2014.

223. U.S. Government Accountability Office. *Medicaid preventive services: Concerted efforts needed to ensure beneficiaries receive services*. 2009; www.gao.gov. Accessed May 16, 2014.

224. Lyons JS, Rogers L. The U.S. child welfare sytem: A de facto public behavioral health care system. *Journal of the American Academy of Child and Adolescent Psychiatry*.43(8):971-973.

225. American Academy of Pedatrics. Committee on Early Childhood, Adoption and Dependent Care. Health care of young children in foster care. *Pedatrics.* 2002;109(3):536-541.

226. Camp RA. Mistreated epidemic: State and federal failure to adequately regulate psychotropic medications prescribed to children in foster care. *Temple Law Review.* 2011;83(2):369-404.

227. Chuang E, Wells R. The role of inter-agency collaboration in facilitating receipt of behavioral health services for youth involved with child welfare and juvenile justice. *Children and Youth Services Review.* 2010;32:1814-1822.

228. Keys JM. When they need us most: The unaddressed crisis of mentally ill African American children in the juvenile justice system. *DePaul Journal of Social Justice.* 2009;2(2):289-319.

229. GAO: Report to Congressional Requesters. Child welfare and juvenile justice: Federal agencies could play a stronger role in helping states reduce the number of children placed solely to obtain mental health services. April 2003; www.gao.gov/assets/240/237936.pdf. Accessed April 7, 2014.

230. Hicks S. Behind prison walls: The failing treatment choice for mentally ill minority youth. *Hofstra Law Review.* 2011;39(4):979-1010.

231. Lennon-Dearing R, Whitted KS, Delavega E. Child welfare and juvenile justice: Examining the unique mental health needs of girls. *Journal of Family Social Work.* 2013;16(2):131-147.

232. National Mental Health Association. Mental health treatment for youth in the juvenile justice system: A compendium of promising practices. 2004; www.nttac.org. Accessed May 16, 2014.

233. Quraishi F. Enhancing mental health advocacy for girls in the juvenile justice system. *Youth Law News.* 2012;31(4).

234. Finkelhor D, Baron L. Risk factors for child sexual abuse. *Journal of Interpersonal Violence.* 1986;1(1):43-71.

235. Teplin L, Abram K, McClelland G, Dulcan M, Mericle A. Psychiatric disorders in youth in juvenile detention. *Archives of General Psychiatry.* 2002;59(12):1133-1143.

236. United States House of Representatives Committee on Government Reform-Minority Staff Special Investigations Division. Incarceration of youth who are waiting for community mental health services in the United States. 2004; www.hsgac.senate.gov. Accessed May 16, 2014.

237. Legislator policy brief. School mental health services. 2007; www.healthystates.csg.org. Accessed May 16, 2014.

238. Pearlman SA. The patient protection and affordable care act: Impact on mental health services demand and provider availability. *Journal of the American Psychiatric Nurses Association.* 2013;19(6):327-334.

239. Boerner H. Mental health parity: Where it has been and where it's going. *Physician Executive.* 2014;40(2):74-76.

240. Tovino S. All illnesses are not created equal: Reforming federal mental health insurance law. *Harvard Journal on Legislation.* 2012;49.

241. Keller D, Chamberlain LJ. Children and the patient protection and affordable care act: Opportunities and challenges in an evolving system. *Academic Pediatrics.* 2014;14(3):225-233.

242. Fadipe O. Affordable mental health care in the post healthcare reform era [notes]. *Wayne Law Review.* 2011;57(2):575-598.

243. Smith DM, Damschroder LJ, Scott YH, Ubel PA. What's it worth? Public willingness to pay to avoid mental illness compared with general medical illnesses. *Psychiatric Services.* 2012;63(4):319-324.

244. Ziller EC, Anderson NJ, Coburn AF. Access to rural mental health services: Service use and out-of-pocket costs. *Journal of Rural Health.* 2010;26(3):214-224.

245. Zuvekas SH, Selden TM. Mental health and family out-of-pocket expenditure burdens. *Medical Care Research and Review.* 2010;67(2):194-212.

246. The Advisory Board Company. Where the states stand on Medicaid expansion: 26 states, D.C. expanding Medicaid. 2014; www.advisory.com. Accessed May 23, 2014.

247. Aschengrau A, Seage III GR. *Essentials of epidemiology in public health.* Third Edition ed. Burlington, MA: Jones & Bartlett Learning, LLC; 2014.

248. Phoenix's Mexican heritage. *PBS Eight: Arizona Stories* 2012; www.azpbs.org. Accessed May17, 2013.

249. VanderMeer P. *Desert visions and the making of Phoenix, 1860-2009*. Albuquerque: University of New Mexico Press; 2010.

250. Foster DW. *Glimpses of Phoenix: The desert metropolis in written and visual media*. Jefferson, North Carolina: McFarland & Company, inc; 2013.

251. Rex TR. *Development of metropolitan Phoenix: Historical, current and future trends.* Prepared for the Morrison Institue for Public Policy as part of the Brookings Growth Case Study: Arizona State University;2000.

252. Maricopa County Open Books. Maricopa county profile. www.maricopa.gov.

253. United States Census Bureau. State and county quick facts. http://quickfacts.census.gov.

254. Maricopa County, Arizona (AZ). www.city-data.com.

255. Grieco E. Defining "foreign born" and "foreigner" in international migration statisitcs. *Migration Policy Institute* 2002; www.migrationpolicy.org.

256. Weathers AC, Novak SP, Sastry N, Norton EC. Parental nativity affects children's health and access to care. *Journal of Immigrant Minority Health.* 2008;10:155-165.

257. Arreola DD. Placemaking and Latino urbanism in a Phoenix Mexican immigrant community. *Journal of Urbanism.* 2012;5(2-3):157-170.

258. Arreola DD. *Hispanic spaces. Latino places: Community and cultural diversity in contemporary America*. Austin: University of Texas Press; 2004.

259. Center on Urban & Metropolitan Policy and the Pew Hispanic Center. Latino growth in metropolitan America: Changing patterns, new locations. *The Brookings Institute Survey Series.* 2002:1-17.

260. Frey WH. America's diverse future: Initial glimpses at the U.S. child population from the 2010 census. *State of Metropolitan America* 2011; www.brookings,edu.

261. Gonzalez D. Arizona's Asian population now fastest-growing in state. 2011; www.azcentral.com. Accessed June 2, 2014.

262. Skop E, Menjivar C. Phoenix: The newest Latino immigrant gateway? *Association of Pacific Coast Geographers Yearbook.* 2001;63:63-76.

263. Zubrinsky Charles C. The dynamics of racial residential segregation *Annual Review of Sociology.* 2003;29:167-207.

264. Pamuk A. Geography of immigrant clusters in global cities: A case study of San Francisco, 2000. *International Journal of Urban and Regional Research.* 2004;28(2):287-307.

265. Nill AC. Arizona S.B. 1070: Demonization, dehumanization and disenfranchisement. *Harvard Latino Law Review.* 2011;14:35-66.

266. Toomey RB, Umana-Taylor A, Williams DR, Harvey-Mendoza E, Jahromi LB, Updegraff KA. Impact of Arizona's SB 1070 immigration law on utilization of health care and public assistance among Mexican-origin adolescent mothers and their mother figures. *American Journal of Public Health.* 2014;104(S1):S28-S34.

267. Hardy LJ, Getrich CM, Quezada JC, Guay A, Michalowski RJ, Henley E. A call of further research on the impact of state-level immigration policies on public health. *American Journal of Public Health.* 2012;102(7):1250-1254.

268. Cleaveland C, Ihara ES. "They treat us like pests:" Undocumented immigrant experiences obtaining health care in the wake of a "crackdown" ordinance. *Journal of Human Behavior in the Social Environment.* 2012;22(7):771-788.

269. Lopez-Cevallos D. Are Latino immigrants a burden to safety net services in nontraditional immigrant states? Lessons from Oregon. *American Journal of Public Health.* 2014;104(5):781-786.

270. Bhuyan R. Reconstructing citizenship in a global economy: How restricting immigrants from welfare undermines social rights for U.S. citizens. *Journal of Sociology and Social Welfare.* 2010;37(2):63-85.

271. Shafer MS, Hart B. Public behavioral health care in Arizona: Preparing for the storm. 2010; https://cabhp.asu.edu. Accessed March 22, 2o14.

272. Arizona Department of Health Services Division of Behavioral Health Services. An introduction to Arizona's public health system. 2013; www.azdhs.gov.

273. Milward HB, Provan K, Fish A. Governance and collaboration: An evolutionary study of two mental health networks. *State of Agents Conference.* Madison, Wisconsin 2008.

274. Newton C. County's mental health system failing. *The Arizona Republic* 2009; www.azcentral.com. Accessed June 1, 2013.

275. Sunnucks M. Magellan loses appeal of $1B Phoenix-area mental health contract. *Phoenix Business Journal* 2013; www.bizjournals.com. Accessed June 10, 2014.

276. History of Phoenix Children's Hospital. www.phoenixchildrens.org. Accessed May 1, 2015.

277. Phoenix Children's Hospital officially opens new 11-story patient tower today, June 1. *Business Wire* 2011; www.businesswire.com. Accessed May 1, 2015.

278. Phoenix Children's Hospital Fast Facts. www.phoenixchildrens.org. Accessed May 1, 2015.

279. Ferayorni A, Sinha M, McDonald FW. Health issues among foreign born uninsured children visiting an inner city pediatric emergency department. *Journal of Immigrant Minority Health.* 2011;13(3):434-444.

280. Alker J, Mancini T, Heberlein M. Uninsured children 2009-2011: Charting the nation's progress. 2012; http://ccf.georgetown.edu. Accessed April 16, 2015.

281. Wier L, Yu H, Owens PL, Washington R. *Overview of Children in the Emergency Department, 2010*: Agency for Healthcare Research and Quality;2013.

282. Westwood M. Adolescent male health. *Paediatrics and Child Health.* 2008;13(1):31-36.

283. The Henry J Kaiser Family Foundation. The impact of the Children's Health Insurance Program (CHIP): What does the research tell us? 2014; www.kff.org. Accessed April 16, 2015.

284. Lynch V, Phong S, Kenney G, Macri J. Uninsured children: Who are they and where do they live? New national state estimates from the 2008 American Community Survey. *Robert Wood Johnson Foundation Urban Institute* 2010; www.rwjf.org. Accessed May 20, 2015.

285. Crane J, Noon C. *The definitive guide to emergency department operational improvement: Employing lean principles with current ED best practices to create the "no wait" department*. Boca Raton, FL: CRC Press; 2011.

286. McCabe J. Emergency department overcrowding: A national crisis. *Academic Medicine.* 2001;76(7):672-674.

287. Brousseau D, Nimmer M, Yunk N, Nattinger A, Greer A. Nonurgent emergency-department care: Analysis of parent and primary physician perspectives. *Pediatrics* 2011;127:e375-e381.

288. Young GP, Wagner MB, Kellerman AL, Ellis J, Bouley D. Ambulatory visits to hospital emergency departments. Patterns and reasons for use. 24 hours in the ED Study Group. *JAMA*. 1996;276(6):460-465.

289. Care of children and adolescents in U.S. hospitals. 2003; www.ahrq.org. Accessed July 20, 2015.

290. Ben-Isaac E, Schrager S, Keefer M, Chen AY. National profile of nonemergent pediatric emergency department visits. *Pediatrics.* 2010;125(3):454-459.

291. Dutra D, Rosenblum RK. Non-urgent pediatric emergency department utilization-A case review. *Clinical Nursing Studies.* 2014;2(3):45-51.

292. Johnson WG, Rimsza ME. The effects of access to pediatric care and insurance coverage on emergency department utilization. *Pediatrics* 2004;113(3):483-487.

293. Pines JM, Asplin BR, Kaji AH, et al. Frequent users of emergency department services: Gaps in knowledge and a proposed research agenda. *Academic Emergency Medicine.* 2011;18(6):e64-e69.

294. McGorry PD, Purcell R, Goldstone S, Amminger GP. Age of onset and timing of treatment for mental and substance use disorders: Implications for preventive intervention strategies and models of care. *Current Opinion in Psychiatry.* 2011;24(4):301-306.

295. Weiland TJ, Mackinlay C, Hill N, Gerdtz MF, Jelinek GA. Optimal management of mental health patients in Australian emergency departments: Barriers and solutions. *Emergency Medicine Australasia.* 2011;23(6):677-688.

296. Sivakumar S, Weiland TJ, Gerdtz MF, Knott J, Jelinek GA. Mental health-related learning needs of clinicians working in Australian emergency departments: A national survey of self-reported confidence and knowledge. *Emergency Medicine Australasia.* 2011;23(6):697-711.

297. Disney ER, Elkins IJ, McGue M, Iacono WG. Effects of ADHD, conduct disorder, and gender on substance use and abuse in adolescence. *American Journal of Psychiatry.* 1999;156(10):1515-1521.

298. Centre ICE. Conduct disorder in children and adolescents. 2005.

299. Eagly AH, Steffen VJ. Gender and aggressive behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin.* 1986;100:309-330.

300. Bierman K, Bruschi C, Domitrovich C, Fang G, Miller-Johnson S. Early disruptive behaviors associated with emerging antisocial behavior among girls. In: Putallaz M, Bierman K, eds. *Aggression, antisocial behavior and violence among girls*. New York: The Guilford Press; 2004:137-161.

301. Webster-Stratton C. Does gender make a difference? *Journal of Consulting and Clinical Psychology.* 1996;64(3):540-551.

302. Steingard RJ. Mood disorders and teenage girls: Why they are more vulnerable than boys, and what signs and symptoms to look for. *Child Mind Institute* 2014; www.childmind.org. Accessed September 20, 2015.

303. Afifi M. Gender differences in mental health. *Singapore Medical Journal.* 2007;48(5):385-391.

304. Druss BG, Walker ER. *Mental disorders and medical comorbidity*: Emory University;2011.

305. Centers for Disease Control and Prevention: Youth Risk Behavior Survelillance-United States, 2007. 2008. http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5704a1.htm.

306. *Mental health: Culture, race and ethnicity: A supplement to mental health: A report to the surgeon general*2001.

307. Canino G, Polanczyk G, Bauermeister JJ, Rohde LA, Frick PJ. Does the prevalence of CD and ODD vary across cultures? *Social Psychiatry and Psychiatric Epidemiology.* 2010;45(7):695-704.

308. Nguyen T. *Parity or disparity: The state of mental health in America*2015.

309. Arizona Department of Education. *School district web sites*. www.azed.gov.

310. Barkus E. The link between psychotic disorders and substance use. *Psychiatric Times* 2007; www.psychiatrictimes.com. Accessed November 13, 2015.

311. School bullying statistics. www.bullyingstatistics.org.

312. Newton AS, Rathee S, Grewal S, Dow N, Rosychuk RJ. Children's mental health visits to the emergency department: Factors affecting wait times and length of stay. *Emergency Medicine International.* 2014;2014:897904.doi10.1155/2014/897904.

313. Berry A, Brousseau D, Brotanek J, Tomany-Korman S, Flores G. Why do parents bring children to the emergency department for nonurgent conditions? A qualitative study. *Ambulatory Pediatrics.* 2008;8:360-367.

314. Doobinin K, Heidt-Davis P, Gross T, Issacman D. Nonurgent pediatric emergency department visits: Care-seeking behavior and parental knowledge of insurance. *Pediatric Emergency Care.* 2003;19(1):10-14.

Appendix 1

ICD-9 codes corresponding to mental health diagnostic categories

DIAGNOSTIC CATEGORY	ICD-9 CODE
ADJUSTMENT DISORDERS	309.00-309.09, 309.20-309.99
ANXIETY DISORDERS	300.00-300.39, 307.20-307.23
BIPOLAR DISORDER	296.00-296.19, 296.40-296.81, 296.89-296.99
DEPRESSIVE DISORDERS	296.20-296.39, 296.82, 300.40-300.59 301.10, 309.10-309.19, 311.00-311.99
HYPERACTIVITY	314.00-314.99
OTHER MENTAL HEALTH DISORDERS	290.00-290.99, 293.00-294.99, 300.60-301.09, 301.11-302.99, 306.00-307.19, 307.30-307.99, 310.00-310.99, 312.00-312.99, 313.30-313.99, 315.00-319.99
PSYCHOSIS	295.00-295.99, 297.00-299.99
SUBSTANCE USE	291.00-292.99, 303.00-305.99