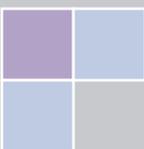


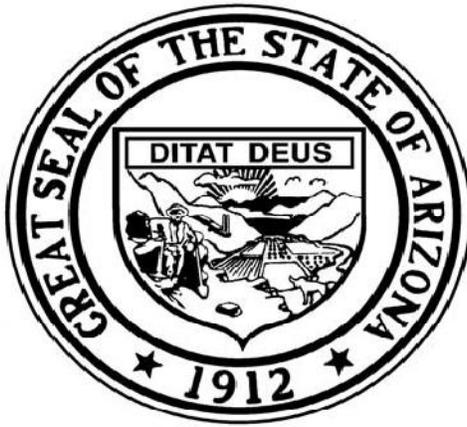
2010



Arizona Title V MCH Needs Assessment

The Title V MCH needs assessment is a critical element and a requirement of the Title V Maternal and Child Health (MCH) Block Grant. Title V Block Grant is a partnership with State Maternal and Child Health and Children with Special Health Care Needs (CSHCN) programs. The needs assessment document provides an overview of the needs of the MCH and CSHCN populations, and Arizona's capacity to address them.





Leadership for a Healthy Arizona

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1. INTRODUCTION: THE NEEDS ASSESSMENT PROCESS

Title V of the Social Security Act of 1935 is a federal program that focuses on improving the health of all mothers and children. The Maternal and Child Health (MCH) Services Block Grant was created in 1981, consolidating several former categorical child health programs into a single program of formula grants to states. The block grant serves three populations: women and infants, children, and children with special health care needs (CSHCN). Each year, states apply for the block grant in an application that includes a plan for meeting needs identified through a statewide needs assessment, and a description of how the funds allotted to the state will be used.

Every five years, state Title V MCH agencies are required to conduct comprehensive needs assessments to identify state MCH needs and prioritize them for strategic planning. While needs assessment is always part of an ongoing planning cycle, the five-year needs assessment is an opportunity to formally examine trends and issues, review progress, and set priorities for the next five years. The statewide needs assessment identifies the need for:

- preventive and primary care services for pregnant women, women of reproductive age, and infants up to age one year;
- preventive and primary care services for children; and
- family-centered, community-based services for CSHCN and their families.

The five-year needs assessment may be seen as a point in an ongoing planning cycle, which begins with assessing problems, needs, assets and strengths. (See Appendix A) From these, priorities are established, strategies are developed, and resources and funds are allocated to implement strategies. Indicators in the form of state performance measures are developed to evaluate activities and monitor performance.

Needs assessments are data driven, but resource allocation depends upon policy-making and program development. Collaborating with partners is critical, as success depends upon leveraging each others resources, especially during difficult economic times. Consequently, the needs assessment process involved stakeholders in reaching the goal of setting priorities that the community and the MCH agency jointly identified as important and are within their capability to address. The result of this process is a plan for directing limited resources to those priorities that are seen as most important, and a plan to measure progress in addressing them.

This document will explain the needs assessment process, including collaboration with partners; describe resources and needs; and identify priorities for the upcoming five years. It will be used to focus attention on priorities, and serve as a resource to partners, helping to continue the dialogue and identify opportunities to work together.

1. INTRODUCTION: THE NEEDS ASSESSMENT PROCESS

ROLES AND RESPONSIBILITIES OF THE LEADERSHIP TEAM

The needs assessment process was led by the chief of Women and Children's Health, and the chief of Children with Special Health Care Needs. They were responsible for overseeing the needs assessment process, ensuring that key stakeholders were identified for participation, and leading discussion with community partners. The ultimate responsibility for this document is theirs, but they depended heavily upon the work of the rest of the needs assessment leadership team, who were each responsible for gathering and analyzing appropriate data, presenting it to community partners, recording input from community partners, and drafting text for this document. The team included the chiefs for assessment and evaluation in both Women and Children's Health and CSHCN, and the research managers in each of those offices. Three members of the team have masters degrees in epidemiology, and one holds a doctorate in sociology.

METHODOLOGY

Needs assessment is an ongoing process, which is part of an overall strategy to align programmatic activity with goals and priorities, and to identify barriers to progress and promising practices. The block grant provides an opportunity each year to assess performance on performance measures and health status indicators. National performance measures allow a comparative look at how Arizona ranks in relationship to the rest of the nation, and state performance measures give feedback on Arizona's specific priorities. In addition, program data are constantly analyzed for opportunities to intervene, and these data are shared with community partners.

There are five systematic ways that are used to identify needs and resources. Any of the following could lead to an issue emerging for discussion with community partners:

1. A trend in Arizona that is moving in an desirable or undesirable direction,
2. Arizona compares favorably or unfavorably to the nation on a measure,
3. Disparity among subgroups of the population (e.g. racial/ethnic groups, geographic location, age group),
4. Arizona performance against a defined standard or target, and
5. Partner/stakeholder input.

Quantitative analysis gives important information in terms of measuring progress, as well as objective data on what factors are associated with success vs. failures. An understanding of these factors must be taken into account in setting goals for performance measures. For example, having an adequate income and health insurance are often associated with success on performance measures. Consequently, it is important to take into account the likely impact of increasing unemployment and loss of health insurance in setting a goal for a measure. Given the context of an

1. INTRODUCTION: THE NEEDS ASSESSMENT PROCESS

economic recession, long-term goals to maintain current levels of performance could be aggressive for some performance measures.

The identification of needs and resources and especially the setting of priorities, also rely heavily on qualitative methods, which are important in discovering what it is that people care about, and to give meaning to the quantitative analysis. Qualitative input allows the discovery of an emerging issue in a way that may direct the quantitative analysis, as well as gives social context to quantitative findings. For this reason, the needs assessment process is a purposeful interplay of both methods that involves sharing data with partners, and involving them in its interpretation.

The needs assessment process included emphasis on social determinants and health inequities. As defined by the World Health Organization (WHO), social determinants of health are the conditions in which people are born, grow, live, work and age, including the health system. The indicators utilized in the needs assessment are broadly categorized as indicators specific to social determinants within the health of women and children as well as CSHCN.

Several avenues were pursued to share the needs assessment process with community partners, which included formal public input sessions that were structured to present information on health trends and issues, and gather input on community concerns, priorities, and preferred strategies. Invitations were extended widely through other state agencies and community groups. A variety of means were used to disseminate invitations, including emails, website announcements, newsletters, and phone invitations.

In addition to inviting people to input sessions, these communications were also used to direct interested people to website information, which broke down information into smaller topical pieces, which described the needs assessment process and provided information on performance and outcomes measures. Public input came in the form of face-to-face meetings, emails, and phone calls, as well as through comment sheets, which were distributed at meetings and were either collected at the end of the session, or were sent in at a later date. (See Appendix B) The final needs assessment document will remain on the ADHS website to invite further discussion with partners.

In identifying priorities, public-input participants were asked to consider the size and seriousness of problems, as well as the availability and effectiveness of interventions and resources to carry them out. The top priorities presented at the end of this document reflect those needs that participants believed were most important in terms of size and seriousness, and which the Title V maternal-child health program has the capacity to influence. Please see the following chapter, Partnership Building and Collaboration Efforts, for more information on collaboration with partners and how they are involved continuously in the needs assessment process.

The two major strengths of the needs assessment process are that it was both comprehensive and responsive to community concerns. Meetings were well attended,

1. INTRODUCTION: THE NEEDS ASSESSMENT PROCESS

involving stakeholders from families and health care providers, agency representatives, and members of the nonprofit community. Insights were gained through sharing data and discussion of barriers and opportunities with community partners. Perhaps the most challenging aspect of the process this year was that much of the data that was collected was becoming quickly out of date, as budget cuts were reducing the state's capacity to address needs in ways that will only become objectively measurable in the years to come.

DATA SOURCES

VITAL STATISTICS

Arizona Health Status and Vital Statistics is compiled every year by the Arizona Department of Health Services Bureau of Health Statistics. This document contains birth and death statistics, reported diseases, and data on birth outcomes, such as complications in labor and delivery, preterm delivery rates and low birth weight rates, as well as information on certain maternal risk factors and prenatal care. Statistics are presented for various maternal risk factors and prenatal care, and are stratified by race and ethnicity, county of residence, insurance status, and other pertinent groupings.

HOSPITAL INPATIENT AND OUTPATIENT EMERGENCY DATABASE

All licensed hospitals in Arizona, with the exception of federal hospitals (military and Indian Health Services) and psychiatric hospitals, are required to submit inpatient hospital and outpatient emergency room discharge data to the Arizona Department of Health Services (ADHS) twice a year. The Hospital and Emergency Room Discharge Databases are rich sources of data, containing both medical and financial data, and data concerning external causes of injury. Since 2004, the improved quality of the discharge databases has strengthened the validity of data analyses derived from these sources.

THE NATIONAL SURVEY OF CHILDREN'S HEALTH (NSCH)

The National Survey of Children's Health (NSCH) is a module of the State and Local Area Integrated Telephone Survey (SLAITS), conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC). This survey was designed to produce national and state-specific prevalence estimates for a variety of physical, emotional, and behavioral health indicators and measures of children's experiences with the health care system, parents' health status, stress and coping behaviors, family activities, and perceptions of neighborhoods. The NSCH was conducted in 2003 and 2007. Source: Child and Adolescent Health Measurement Initiative. *National Survey of Children's Health*, Data Resource Center for Child and Adolescent Health website, www.nschdata.org

NATIONAL SURVEY OF CHILDREN WITH SPECIAL HEALTH CARE NEEDS (NS-CSHCN)

The National Survey of Children with Special Health Care Needs (NS-CSHCN) is conducted as a module of the SLAITS. The NS-CSHCN was designed to produce national and state-specific prevalence estimates of children/youths with special health

1. INTRODUCTION: THE NEEDS ASSESSMENT PROCESS

care needs (C/YSHCN), to describe the types of services they need and use, assess aspects of the systems of care, and provide health care coverage estimates. The NS-CSHCN was conducted in 2001 and 2005/2006. Source: Child and Adolescent Health Measurement Initiative, *National Survey of Children with Special Health Care Needs*, Data Resource Center for Child and Adolescent Health website, www.cshcndata.org

YOUTH RISK BEHAVIOR SURVEILLANCE SYSTEM (YRBSS)

The Youth Risk Behavior Surveillance System is a surveillance system established by the CDC to monitor the prevalence of youth behaviors that most influence health. The YRBS focuses on priority health-risk behaviors among high school aged youth that result in the most significant mortality, morbidity, disability, and social problems during both youth and adulthood. American Indian youth are underrepresented in the YRBS because of limited participation by tribal schools outside the Arizona Department of Education system.

BEHAVIORAL RISK FACTOR SURVEILLANCE SYSTEM (BRFSS)

The Behavioral Risk Factor Surveillance System is comprised of survey data from all 50 states and the District of Columbia, with assistance from the CDC. The system consists of telephone surveys based on random-digit-dialing methods, which are used to select a representative sample of residents aged 18 years and older. The BRFSS questionnaire consists primarily of questions about personal behaviors that increase risk for one or more of the ten leading causes of death in the United States. Relative to their population in Arizona, non-White or Hispanic women of reproductive age are underrepresented in the BRFSS survey. Therefore, stratification of results by race or ethnicity for this cohort is not always possible.

CHILD FATALITY REVIEW

The Arizona Child Fatality Review Program is charged with reviewing all deaths of children under the age of 18 each year to determine whether the death was preventable. Cross-disciplinary review teams review documents related to the circumstances of each child's death, determine ultimate cause and manner of death, and make assessments of the preventability of child mortality. Teams have been able to complete reviews on 100 percent of child deaths in Arizona for the past four years.

HEALTH SYSTEMS DEVELOPMENT DATABASE

The ADHS Bureau of Health Systems Development maintains a database based on primary care areas. This database contains information on population size, geographic area, demographics, and on primary and specialty health care providers. Analysis of these data allows an evaluation of underserved areas and provides a picture of resource distribution among the population.

BWCH SURVEY OF PARTNERS

The Bureau of Women's and Children's Health conducted a survey of key partner agencies that serve women and children to assess partners' perceptions of priorities, critical health issues, service gaps, and workforce development issues. The 64 organizations responding to the survey included county health departments, community

1. INTRODUCTION: THE NEEDS ASSESSMENT PROCESS

health centers, Indian Health Services and tribal health departments, and non-profit agencies. The survey was one of several methods used to gather input on community perception of needs and assets. (See Appendix D for summary of findings)

BWCH COMMUNITY SURVEY OF WOMEN'S AND CHILDREN'S HEALTH

The ADHS Bureau of Women's and Children's Health distributed and analyzed the results of a web-based survey of lay-health workers and community members throughout Arizona in 2010. Participants (n=878) were asked about the health and behavior needs of women and children living in their communities, and about the ability of their communities to meet these needs. The survey was a convenience sample of people notified about the survey by ADHS staff and partners; therefore is not representative or generalizable to all of Arizona. It included participation from all counties in Arizona. (See Appendix C for summary of findings)

ARIZONA YOUTH SURVEY (AYS)

Arizona Revised Statute §41-2416 requires the Arizona Criminal Justice Commission to conduct a statewide survey that is designed to measure the prevalence and frequency of substance abuse by youth, as well as their attitudes toward substance abuse. The Arizona Criminal Justice Commission has been conducting the youth survey for 17 years on a biennial basis. The Arizona Youth Survey (AYS) is administered to a statewide sample of 8th, 10th, and 12th grade students attending public and charter, middle and high schools throughout Arizona. It has a larger sample size than the YRBS and includes more detailed indicators about youth substance abuse and anti-social behavior. This allows for subgroup analysis by geography and race/ethnicity. The AYS does not include indicators about common health risk factors (i.e. obesity) and outcomes (i.e. asthma) that are part of the YRBS.

CYSHCN PROVIDER AND FAMILY SURVEYS

OCSHCN constructed a survey for families and providers that mirrored the questions contained in tools developed by Family Voices. Both questionnaires asked about how families and providers work together to make health care decisions and manage health care, identify community-based services, and address beliefs and practices, family support, and transition to adulthood. Both families and providers were also asked about how often health insurance failed to cover needed services. The surveys were conducted through Survey Monkey and posted on OCSHCN's website. Both surveys had small sample sizes and were therefore, not representative samples.

CHILDREN'S REHABILITATIVE SERVICES, FAMILY CENTERED SURVEYS

OCSHCN surveyed a representative sample of families enrolled in Children's Rehabilitative Services (CRS) by telephone to assess their satisfaction with services and to measure the degree to which families perceive the services to be family-centered. The annual surveys have been conducted since 2006 with the inclusion of the same questions which allow for comparison over time.

1. INTRODUCTION: THE NEEDS ASSESSMENT PROCESS

CYSHCN INTEGRATED SERVICES GRANT

The Integrated Services Grant for Children and Youth with Special Health Care Needs (ISG) was a four year grant from 2005 through 2009 whose purpose was to enhance service delivery systems for C/YSHCN and their families. Task Force and committee members consisted of state agency officials, community partners, youth, and family members. The Task Force and subcommittees met to discuss education and training, parent-led community action councils, youth advisory councils, cultural competency, interagency community development, quality improvement, and the Children's Rehabilitative Services Program. At the conclusion of the grant, the Task Force developed a report that included recommendations to agencies on how to improve delivery systems and made recommendations around systems of care regarding adolescent health, young adult transition, health benefits and cultural competency.

CYSHCN KEY INFORMANT INTERVIEWS

A series of open-ended in-depth interviews were conducted with 66 key informants from September 2008 through March 2009 by the same consultant that had facilitated the ISG Task Force meetings. Informants were identified who had knowledge of the service delivery system and its gaps. Participants were often agency leaders, identified in each of the following categories: those with a comprehensive view of the overall state system of care, knowledge of specific conditions or special services (such as nutrition or telemedicine), and physicians working with C/YSHCN. Interviews took between 30 and 45 minutes, during which participants were asked about strengths and challenges of the service delivery system, as well as strengths and challenges of children, youth, and families. Questions also focused on known interventions, organizations that address challenges, and whether challenges were being adequately addressed. Informants were asked about the role of OCSHCN and about opportunities for developing partnerships to enhance services and opportunities for children, youth, and families. Finally, participants were asked for their suggestions for improvement.

2. PARTNERSHIP BUILDING AND COLLABORATION EFFORTS

COLLABORATION WITH PARTNERS

The Arizona Department of Health Services (ADHS) Maternal and Child Health Program, consisting of the Bureau of Women and Children's Health (BWCH) and the Office for Children with Special Health Care Needs (OCSHCN), has many partnerships with a variety of public, private, and government agencies. Partnerships are built and enhanced through multiple formal and informal methods. A summary of key collaborations follow, and is not intended to cover the full spectrum of partnerships occurring.

Maternal and Child Health staff and leadership participate on committees or groups of many partner agencies, including March of Dimes, Arizona Family Planning Council, Arizona Coalition Against Domestic Violence, South Phoenix Healthy Start, the Early Childhood Development and Health Board (First Things First), Arizona Perinatal Trust, School Based Health Care Council, and Children's Action Alliance. Staff participate on committees or workgroups and collaborate on projects with many child-serving community organizations including, Raising Special Kids, Arizona's Family to Family Health Information Center, Special Olympics Arizona, United Cerebral Palsy of Central Arizona, Arizona Chapter of Academy of Pediatrics, and Ronald McDonald House among others.

Participation in coalitions, networks, and associations has been a critical strategy in partnership development. Staff actively participates in groups such as the Arizona Public Health Association, Arizona Rural Women's Health Network, Arizona Asthma Coalition, Taskforce on Alcohol and Drug-Exposed Infants, Arizona School Nurse Consortium, Rocky Mountain Public Health Education Consortium, the Arizona Association of Community Health Centers, the Arizona Developmental Disabilities Network (consisting of the Institute for Human Development University Center of Excellence for Developmental Disabilities (UCEDD), Sonoran UCEDD, Arizona Developmental Disabilities Planning Council, Arizona Center for Disability Law, local oral health coalitions, and the Arizona chapters of the Dental Association and Dental Hygiene Association.

ADHS also leads collaborative efforts to address specific public health issues. For example, ADHS coordinates an Injury Prevention Advisory Council that works on development and implementation of the state injury prevention plan. ADHS also coordinates the Pediatric Advisory Committee for Emergency Services, which helps facilitate accomplishment of performance objectives of the HRSA Emergency Medical Services for Children Program. The Unexplained Infant Death Council and State Child Fatality Review Teams address deaths of children and strategize around areas of preventability. The Office of Oral Health has established regional oral health workgroups to facilitate strategic planning for the state oral health workforce plan.

Staff works with University of Arizona to develop services for children with neuro-developmental and related disabilities. In addition, ADHS has multiple partnerships in

2. PARTNERSHIP BUILDING AND COLLABORATION EFFORTS

place with higher institutes of learning that provide education for the health professions. For example, staff participates on advisory boards, provide technical assistance and consultation on public health curricula, and mentor students.

Most ADHS maternal child health programs contract with local organizations to carry out the mission of the programs. These organizations are primarily county health departments, non-profit human services agencies, and community health centers. Programs coordinate regular contractor meetings to provide educational opportunities, technical assistance, and opportunities for networking.

Collaboration with other state agencies occurs on a regular basis. The Governor's Office for Children, Youth, and Families facilitates monthly meetings of the State Agency Coordination Team, which is comprised of all state agencies providing any kind of services related to domestic violence and sexual violence. The State Interagency Coordinating Council for Infants and Toddlers, which includes Department of Economic Security(DES)/Arizona Early Intervention Program (AzEIP), Arizona Health Care Cost Containment System (AHCCCS), Division of Developmental Disabilities (DDD), Arizona Schools for the Deaf and Blind, families of young children and ADHS, meets regularly to advise and assist with the development and implementation of the statewide system of early intervention services. Maternal and child health staff also participate in meetings of Governor's commissions or councils, such as the Council on Spinal and Head Injuries, the Arizona Traumatic Brain Injury Project, Council on Aging, and the Commission to Prevent Violence Against Women.

BWCH and OCSHCN collaborate with the Division of Behavioral Health Services (BHS) on the Arizona Children's Executive Committee which includes partners from Department of Economic Security, Department of Juvenile Corrections, Department of Education and the Administration of the Courts to ensure that behavioral health services are being provided to children and families. Staff collaborate on the Building Partnerships for Quality Care contract that funds two community organizations to involve family and youth partners in agency decision-making.

ADHS works particularly closely with the state's Medicaid agency, AHCCCS, participating in many AHCCCS Health Plan meetings. Health Start, Community Nursing, and Hotline staff all facilitate families enrollment in both Medicaid and SCHIP programs. OCSHCN staff assists families in understanding eligibility requirements and help with application processes for various programs that serve CSHCN. Baby Arizona is a program to help pregnant women begin prenatal care while waiting for AHCCCS eligibility. Baby Arizona providers help women apply for AHCCCS and pre-enroll them into a health plan, and women begin prenatal care at no cost while their eligibility is processed. If a woman is determined to be ineligible for AHCCCS, she and her Baby Arizona doctor work out a reasonable payment plan and continue care.

ADHS works with the Social Security Administration to review Social Security Income applications, and informing families of potential services. Interagency Services Agreements are in place with AHCCCS to operate the Baby Arizona Hotline, and the

2. PARTNERSHIP BUILDING AND COLLABORATION EFFORTS

Children's Rehabilitative Services Program as a carve out for Medicaid-eligible children with special health care needs. BWCH and OCSHCN staff work closely with Newborn Screening, Genetics Services Advisory Committee, the Arizona Chapter of the AAP, Community Health Centers, Community Health Nurses, and AzEIP to identify resources to ensure that children and youth receive Early and Periodic Diagnosis and Treatment (EPSDT) services for children and youth.

The Arizona Community of Practice on Transition (AzCoPT) offers additional opportunities for cooperation among Department of Education (ADE), Vocational Rehabilitation, Southwest Institute for Families and Children with Special Health Care Needs, DDD, BHS, and young adults. This partnership of stakeholders promotes collaboration and coordination for transition planning, professional development and youth involvement. At the annual ADE Transition conference, partners will co-present "Partnering for Transition," describing the role of each agency in coordinating transition for young adults with disabilities and special health care needs. This presentation will be available online to Vocational Rehabilitation, Behavioral Health, and DDD case managers, as well as special educators, reinforcing collaboration across agencies, inclusive of health care, for successful transition. ADHS also works with DES Family Assistance Administration which provides families with nutrition assistance, cash assistance, emergency food assistance and applications for AHCCCS health insurance. The agencies strategize ways to include the nutritional needs of CSHCN in FAA policy and programs allowing for better planning and access to resources to meet the needs of all children and families who require nutrition assistance.

ADHS staff participates in a monthly Genetics Services Advisory Committee with the Arizona Schools for the Deaf and Blind, EAR Foundation of Arizona, and pediatric genetics services providers to discuss emerging practice around newborn screening, diagnosis and provision of care to children with heritable disorders. Additionally, ADHS staff takes part in Mountain States Genetics Regional Collaborative Centers (MSRGCC) annual meeting which includes professionals and consumers from Texas, New Mexico, Arizona, Utah, Colorado, Wyoming, Nevada and Montana. Staff participate in the Arizona Telemedicine Council to explore innovative ways to expand the reach of health care providers to underserved areas of the state.

Within ADHS, there is substantial collaboration among program areas. Children with Special Health Care Needs and Women's and Children's Health work in tandem to assess needs of the maternal and child health population, provide a Children's Information Center hotline, and provide community nursing visits to infants through the High Risk Perinatal Program. Both offices work closely with Newborn Screening, participating in the monthly Newborn Screening Partners Meetings that include the Early Hearing Detection Coordinator, Arizona Chapter of the Academy of Pediatrics representative for hearing and pediatric sub-specialists in genetics, endocrinology and pulmonology. BWCH and OCSHCN collaborate with Bureau of Nutrition and Physical Activity to coordinate services on an ongoing basis, and have worked with child care licensure to develop new rules for licensed centers as well as educational materials and videos for childcare providers.

2. PARTNERSHIP BUILDING AND COLLABORATION EFFORTS

ADHS has internal workgroups for early childhood, as well as injury prevention made up of staff from throughout the department. Leadership from all of the public health bureaus (primary care, nutrition/physical activity/WIC, tobacco/chronic disease, women & children's health, disease control, EMS, emergency preparedness, health statistics) meets regularly to enhance integration of programs. WIC and OCSHCN have worked together to provide metabolic formula for children 0 - 5 years, who have certain disorders and no insurance coverage.

Methods for partnering with tribal and Native American organizations are also in place. ADHS leadership has quarterly meetings with the Indian Health Services directors located in Arizona. Maternal and child health program have agreements in place with Indian Health Services for sharing of injury data as well as delivery of oral health services. ADHS also has in place a tribal consultation policy that was utilized as part of the public input process for this year's Title V needs assessment and application when a special session was held specific to the Native American population. The ADHS teen pregnancy prevention program has an intergovernmental agreement in place with the Navajo Nation and a contract with the Inter-Tribal Council of Arizona. ADHS staff participates in planning the annual Native American Disability Summit.

PUBLIC AND FAMILY MEMBERS' INVOLVEMENT IN NEEDS ASSESSMENT PROCESS

Several avenues were pursued to seek input from stakeholders, both to help identify and understand emerging issues and to help set priorities. Information was posted to the Women & Children's Health and the CSHCN websites, and other forms of electronic communications such as emails and newsletters were used to disseminate information about the needs assessment process, issues, and findings, and to seek input. Surveys were also used to solicit input from stakeholders, community partners, and the public. Program managers and staff who directly work with the public, contractors, and community also brought their perspectives to the needs assessment process.

Formal public input sessions were held around the state in Tucson, Flagstaff, Phoenix, and Mesa. In addition, presentations were made to the Arizona Medical Association Maternal Child Health Committee, the March of Dimes, AHCCCS Health Plan maternal child-health coordinators, and local public health officers. Community partners helped to extend invitations to interested families, and two special sessions were held, one focusing on CSHCN, and one focusing on American Indians. Each session was structured to present information on health trends and issues, and gather input on community concerns, priorities, and preferred strategies.

During the public input sessions, information was presented on health issues and trends in Arizona before attendees participated in facilitated group discussion about concerns in their communities, priorities, and strategies. In identifying priorities, public-input participants were asked to consider the size and seriousness of problems, as well as

2. PARTNERSHIP BUILDING AND COLLABORATION EFFORTS

the availability and effectiveness of interventions and resources to carry them out. In addition to the facilitated group discussion, comment sheets were made available for later review. The top priorities presented at the end of this document reflect those needs that participants believed were most important in terms of size and seriousness, and which the Title V maternal-child health program has the capacity to influence.

Meetings of key stakeholders were held through an Integrated Services Grant, over a four-year period from 2005 through 2009. Stakeholders included all of Arizona's child-serving agencies, the state Medicaid agency, Arizona Early Intervention Program, Indian Health Services, Arizona Medical Association, American Academy of Pediatrics, hospitals and other health care providers, educators, community colleges, universities, families, youth, and self advocates. Committees focused on transportation, healthcare, education, family and youth involvement, youth to adult transition, adolescent health, telemedicine, cultural competence, and screening for special health care needs. The recommendations from the ISG Taskforce were an important source of public input. For additional information regarding the ISG, please refer to [Data Sources](#).

Key informant interviews were conducted from September 2008 through March 2009 to facilitate public input. Participants included agency leaders and physicians working with CSHCN. Informants provided suggestions for improving the service delivery system and addressing its gaps. For more information regarding the key informant interviews, please see [Data Sources](#).

In 2010, OCSHCN began to solicit public input for the needs assessment through its website. Families and providers were sent email invitations to visit the website, where they could find links to slide presentations focusing on:

- An overview of the needs assessment process,
- Arizona data on MCH Bureau Core Indicators for CYSHCN at two points in time, and
- Data showing how CSHCN compared to other children in Arizona on key indicators.

Website visitors could then respond with questions or comments to an email address, or could call OCSHCN staff directly. In addition, two survey monkey tools were posted to the website, one for providers, and one for families. The surveys were conducted to compare the perceived needs of the families of CSHCN with those of the provider community. For additional information regarding the surveys, please refer to [Data Sources](#).

Finally, OCSHCN regularly receives calls from families and providers, which range from inquiries about available services and requests for assistance, to complaints or quality of care concerns. Information from these calls is tracked and analyzed to identify needs to develop resources and for opportunities for training and program improvements. OCSHCN also builds more structured feedback mechanisms into all of its programs. Information from all of these sources were included in the needs assessment process.

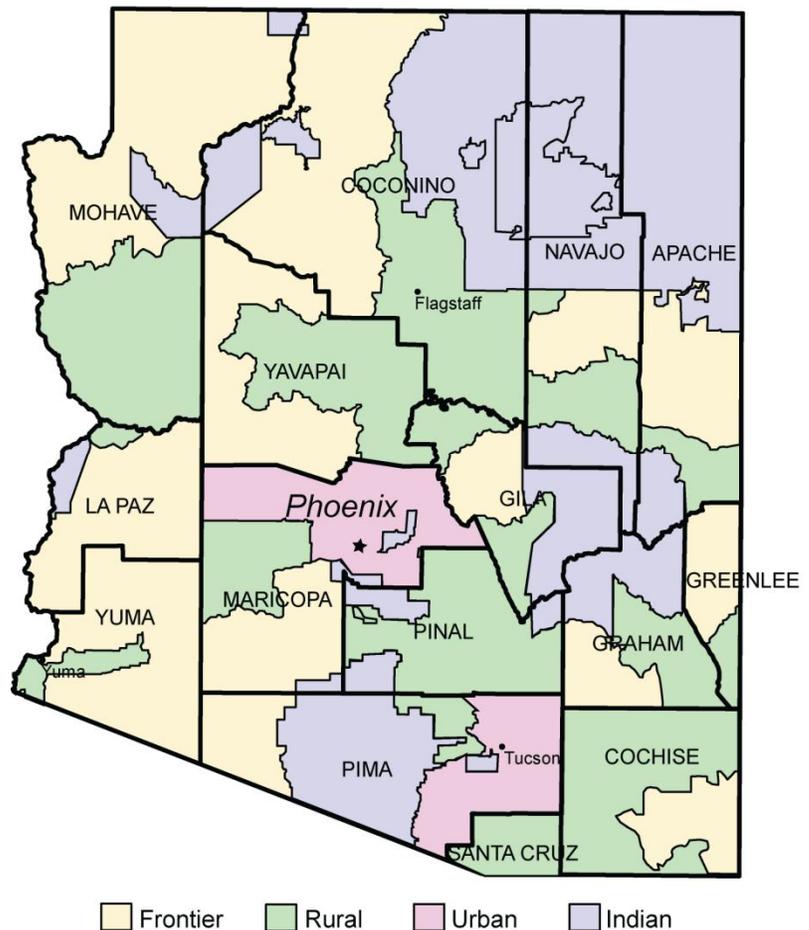
3. OVERVIEW OF THE STATE

Arizona is the sixth largest state in the nation, with a total area of 114,000 square miles . about 400 miles long and 310 miles wide. Arizona is also one of the youngest states. The end of the Mexican-American War in 1848 resulted in Mexico ceding 55 percent of its territory, including parts of present-day Arizona to the United States. It was not until 1863 that a separate territory was carved out for Arizona. On February 14, 1912, President Taft signed the bill making Arizona the 48th state.

POPULATION TRENDS

Arizona has 59 people per square mile; however, 75 percent of the population lives in urban areas, where the population density is 673 people per square mile. Twenty-three percent of Arizona residents live in rural areas, where the density is 44 people per square mile, and 2 percent live in areas that are considered to be frontier, in which there are only 3 people per square mile.¹ Figure 3.1 is an Arizona map showing Frontier, Rural, Urban, and Indian areas of the state.

Figure 3.1 Arizona Frontier, Rural, Urban and Indian PCAs



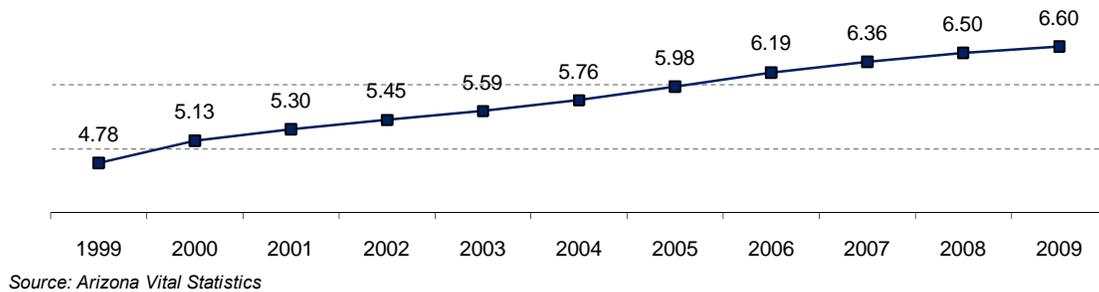
Source: Arizona Department of Health Services-Bureau of Health Systems Development

¹ Frontier Special Area (SArea)-STATISTICAL PROFILE - 2009. (2010, February 9). Arizona Department of Health Services- Bureau of Health Systems Development. Retrieved May 20, 2010, from www.azdhs.gov/hsd/profiles/frontier.pdf

3. OVERVIEW OF THE STATE

From 1999 to 2009, the population of Arizona grew from 5 million to 7 million people. During that time, Arizona had the second highest growth rate (32 percent) in the nation and came in fifth in terms of the number of new residents. Figure 3.2 shows the number of Arizona residents by year from 1999 through 2009.²

Figure 3.2. Arizona Population Growth in Millions, 1999 through 2009



US Census data indicates that the largest component of growth in Arizona over the last decade has been domestic migration, or people moving to Arizona from other states (49 percent). The next largest component of the population increase was the net natural increase, or the number of births minus the number of deaths. The net natural increase in Arizona accounted for 32 percent of the population growth during the last decade. The remaining growth (19 percent) was from the net international migration, or people moving here from other countries minus the number of people moving out.³

The rapid growth seen in Arizona as a whole has not been evenly distributed throughout the state. During the years between 1999 and 2009, growth rates in Arizona's 15 counties ranged from a low of two percent in Greenlee County (from 8,535 residents to 8,688) to a high of 89 percent in Pinal County (154,335 residents to 327,699). Currently, 75 percent of the state's population resides in either Maricopa or Pima Counties.⁴

Three subpopulations in Arizona that had been increasing for many years, have recently declined. The number of births to Arizona residents peaked in 2007 at 102,687 births, and declined in both 2008 and 2009 (see Figure 3.3). In 2009, the number of births declined to 92,616, a 10 percent decrease from the high point in 2007.⁵

² Arizona Vital Statistics - Population Denominators. (2010, February 2). Arizona Department of Health Services. Retrieved May 2, 2010, from <http://www.azdhs.gov/plan/menu/info/pd.htm>

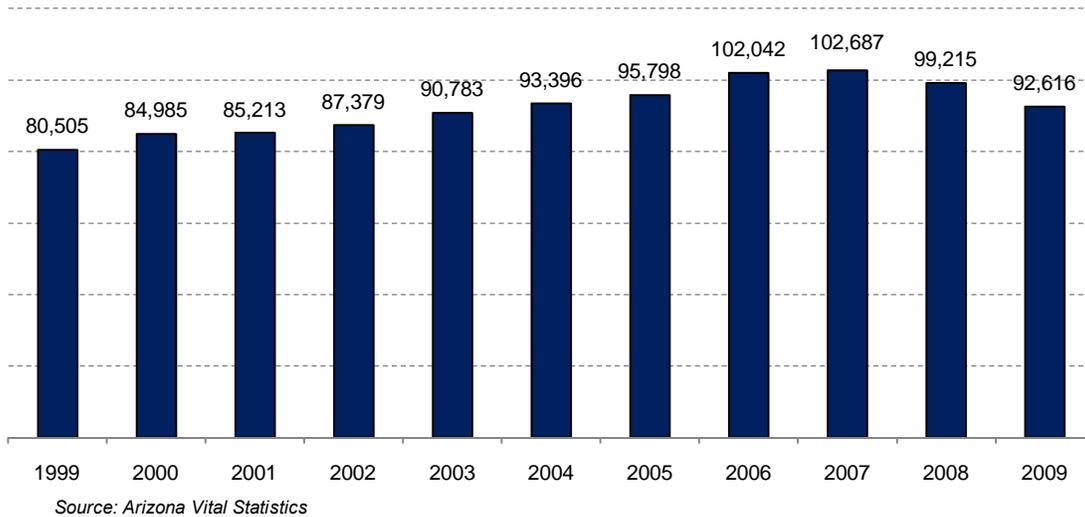
³ National and State Population Estimates-NST-EST2009-04. (2009, December). U.S. Census Bureau. Retrieved May 26, 2010, from <http://www.census.gov/popest/states/NST-comp-chg.html>

⁴ Arizona Vital Statistics - Population Denominators - Table 10B-1. (2010, February 2). Arizona Department of Health Services. Retrieved May 2, 2010, from <http://www.azdhs.gov/plan/menu/info/pd.htm>

⁵ Arizona Vital Statistics - Birth Statistics. (2010, May 12). Arizona Department of Health Services. Retrieved May 12, 2010, from <http://www.azdhs.gov/plan/menu/for/births.htm>

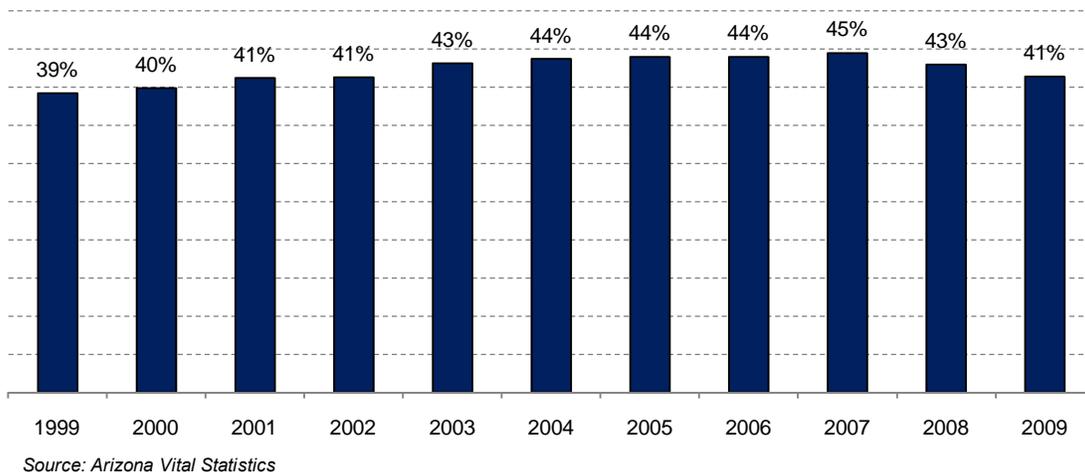
3. OVERVIEW OF THE STATE

Figure 3.3 Number of Births to Arizona Residents



There was a similar pattern during this same time period in the proportion of Hispanic births, which increased for most of the decade and declined in recent years. In 2003, Hispanic births (n=39,101) exceeded the number of non-Hispanic, White births (n=38,842). Hispanic births continued to outnumber non-Hispanic, White births until 2009 when there were 38,362 Hispanic births compared to 39,781 births to non-Hispanic, Whites. Figure 3.4 shows the fluctuation in the proportion of Hispanic births from 1999 through 2009.⁶

Figure 3.4 Hispanic Births as a Percent of all Births

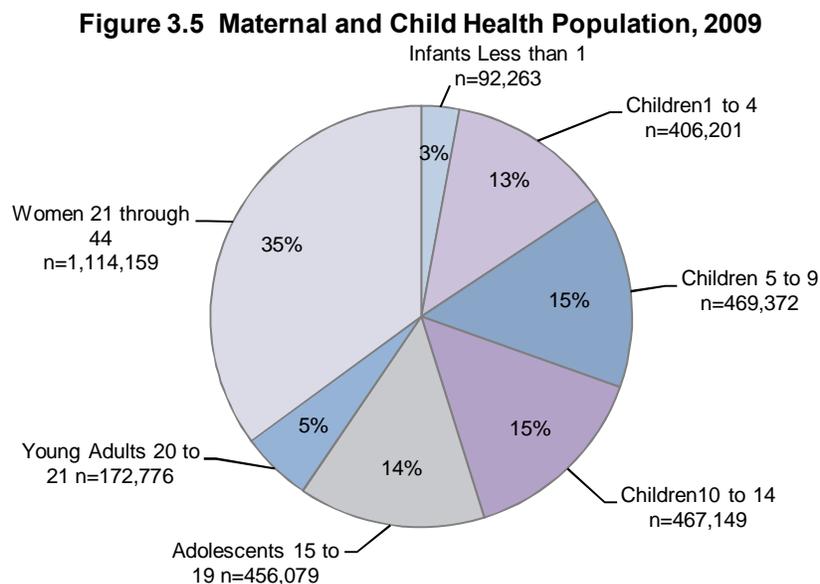


⁶ Arizona Vital Statistics - Birth Statistics. (2010, May 12). *Arizona Department of Health Services*. Retrieved May 12, 2010, from <http://www.azdhs.gov/plan/menu/for/births.htm>

3. OVERVIEW OF THE STATE

The population of immigrants without documentation of American citizenship grew for most of the last decade, but has recently declined. After growing by 70 percent from January 2000 to January 2008, the undocumented population declined from 560,000 in January 2008 to 460,000 in January 2009.⁷ In April 2010, Senate Bill 1070 was signed into law making it a crime to be in the state without proper documentation. The expressed intent of the law is %a . to discourage and deter the unlawful entry and presence of aliens and economic activity by persons unlawfully present in the United States.⁸ Effective July 2010, this legislation will require police officers who are enforcing another law to determine, when practicable, the immigration status of the person lawfully detained and verify that status with the federal government.⁹ It is likely that this law will affect the demographic composition of Arizona in the future.

Since the last five year maternal and child health needs assessment was written, the Maternal and Child Health (MCH) population in Arizona has increased by 14 percent from 2,797,421 in 2004 to 3,177,999 in 2009. Of these, 1,344,836 are women of childbearing age (15 through 44), and 257,980 are estimated to be CSHCN. Figure 3.5 provides a breakdown of the MCH population by age group.



Source: Community Survey (2009). Bureau of Women and Children's Health

⁷ Hofer, M., Rytina, N., & Baker, B.C. (2010, January). Estimates of the Unauthorized Immigrant Population Residing in the United States: January 2009. *U.S. Department of Homeland Security - Office of Immigration Statistics - Policy Directorate*. Retrieved April 30, 2010 from www.dhs.gov/xlibrary/assets/statistics/publications/ois_ill_pe_2009.pdf

⁸ Chapter 113-House Bill 1070. (n.d.). *Arizona Department of State-Office of the Secretary of State*. Retrieved May 11, 2010, from

http://www.azsos.gov/public_services/Chapter_Laws/2010/49th_legislature_2nd_regular_session/CH_113.pdf

⁹ Chapter 211-House Bill 2162. (n.d.). *Arizona Department of State-Office of the Secretary of State*. Retrieved May 11, 2010, from

www.azsos.gov/public_services/Chapter_Laws/2010/49th_legislature_2nd_regular_session/CH_211.pdf

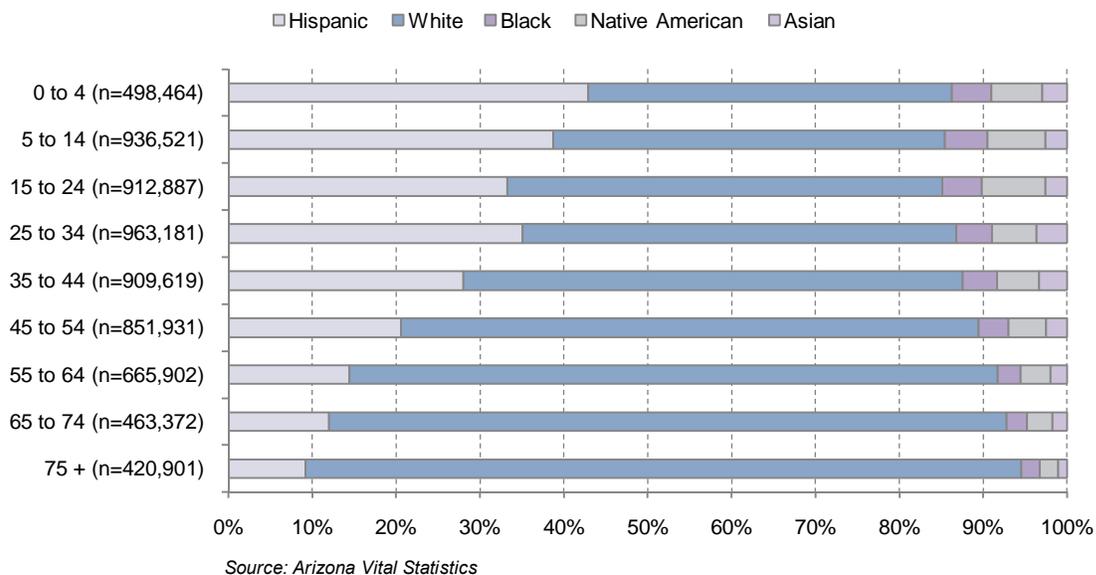
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RACE/ETHNICITY

The racial and ethnic makeup of the state of Arizona is different than the nation. The proportion of the population which is Hispanic in Arizona is twice that of the nation (30 percent compared to 15 percent nationally). In addition to having a higher proportion of Hispanics, Arizona's population also differs from the nation in that there is a smaller proportion of African Americans (5 percent compared to 14 percent nationally) and a higher proportion of Native Americans (6 percent compared to 2 percent in the nation).

The racial makeup of Arizona varies by age group. Among older age groups, the population is predominantly white, while the proportion of the population represented by Hispanics is highest among the younger groups. Over 40 percent of those younger than five are Hispanic compared to eight percent of people 75 and older (see Figure 3.6).

Figure 3.6 Proportion of the Population by Race within Age Group, Arizona 2009

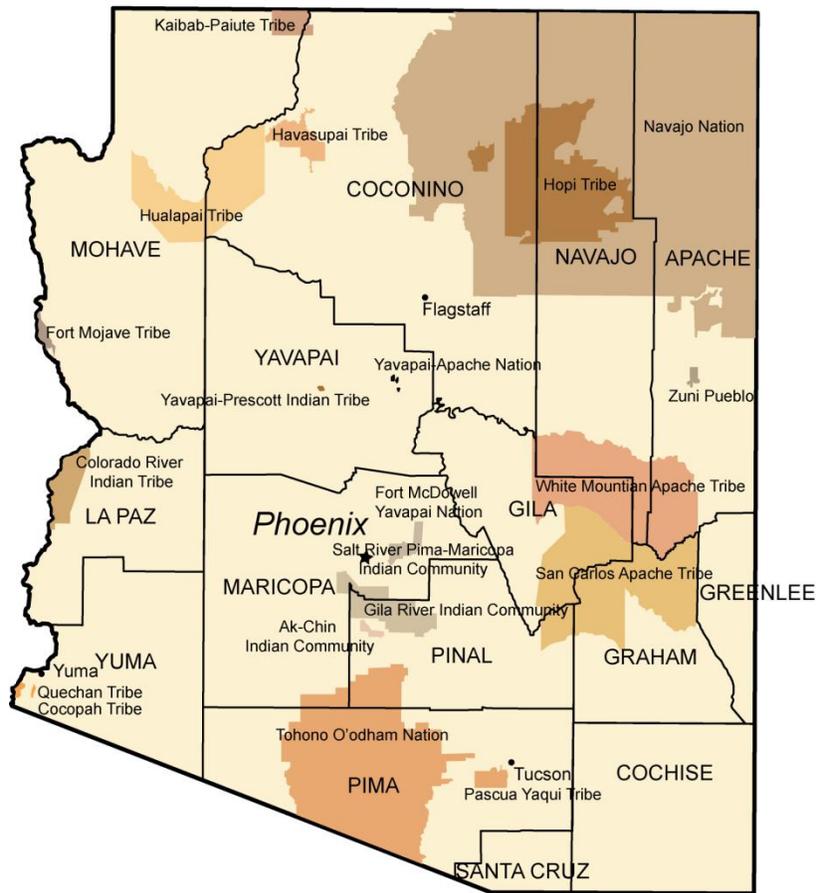


Twenty-one federally-recognized American Indian tribes are located in Arizona, each representing a sovereign nation with its own language and culture. Tribal lands span the state and even beyond state borders, with the Navajo Reservation crossing into New Mexico and Utah, and the Tohono Oodham Reservation crossing international boundaries into Mexico. Some counties have high proportions of American Indians. Eighty percent of Apache County, 48 percent of Navajo County, and 30 percent of Coconino County residents are American Indians.¹⁰ Figure 3.7 is a map showing Arizona's counties and tribal lands.

¹⁰ Arizona Vital Statistics - Population denominators for 2009 . Table 10D-3. (2010, February 10). Arizona Department of Health Services. Retrieved May 3, 2010, from www.azdhs.gov/plan/menu/info/pop/pop09/pd09.htm

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Figure 3.7 Arizona's Counties and Tribal Lands



Source: ITCA: Maps. Inter Tribal Council of Arizona, Inc.

LANGUAGE SPOKEN

Arizona residents are more likely to speak a language other than English at home (28 percent in Arizona compared to 20 percent nationally), and more likely to report speaking English less than very well+ (12 percent in Arizona compared to 9 percent nationally). Among Arizona residents who spoke a language other than English, 78 percent spoke Spanish, while the other 22 percent spoke one of many other languages.¹¹

¹¹ Arizona . S1601 Language Spoken at Home 2006-2008. (n.d.). U.S. Census Bureau. Retrieved May 4, 2010, from http://factfinder.census.gov/servlet/STTable?_bm=y&-context=st&-qr_name=ACS_2008_3YR_G00_S1601&-ds_name=ACS_2008_3YR_G00_&-tree_id=3308&-redoLog=false&-caller=geoselect&-geo_id=04000US04&-format=&-lang=en

3. OVERVIEW OF THE STATE

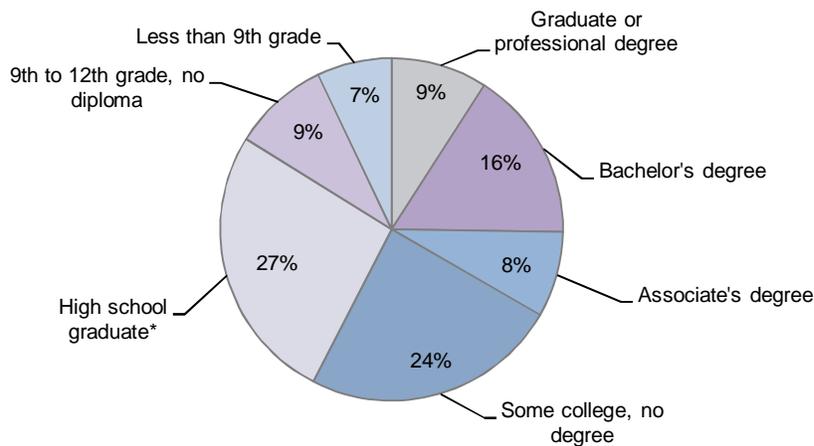
EDUCATION

Arizona has consistently ranked lower in the nation per pupil spending compared to the U.S. The National Center for Education Statistics reported that Arizona spent \$7,727 per student compared to the nation's average of \$10,297 in fiscal year 2008.¹²

During the 2008 -2009 school year, Arizona had 586 school districts, including 349 charter holders. These districts housed 1,975 schools and 1,082,221 students in kindergarten through 12th grade.¹³ Over 10 percent of Arizona's K-12 students attend a charter school.¹⁴

Educational attainment for adults living in Arizona is similar to the United States. Overall, 84 percent of Arizona residents age 25 and older are high school graduates compared to 85 percent nationally. The most recent American Community Survey report shows that seven percent of adults in Arizona did not complete ninth grade and another nine percent have not graduated from high school. Figure 3.8 provides a breakdown of the educational attainment status for Arizona residents age 25 and older.¹⁵

Figure 3.8 Educational Attainment, Arizona Residents Age 25 and Older, 2006-2008



Source: U.S Census Bureau

¹² Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2007-08 (Fiscal Year 2008). (2010, May 19). *National Center for Education Statistics (NCES)*. Retrieved June 1, 2010, from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2010326>

¹³ Annual Report of the Arizona Superintendent of Public Instruction. (2010, January) *Arizona Department of Education*. Retrieved May 12, 2010, from www.ade.az.gov/AnnualReport/AnnualReport2009/Vol1.pdf

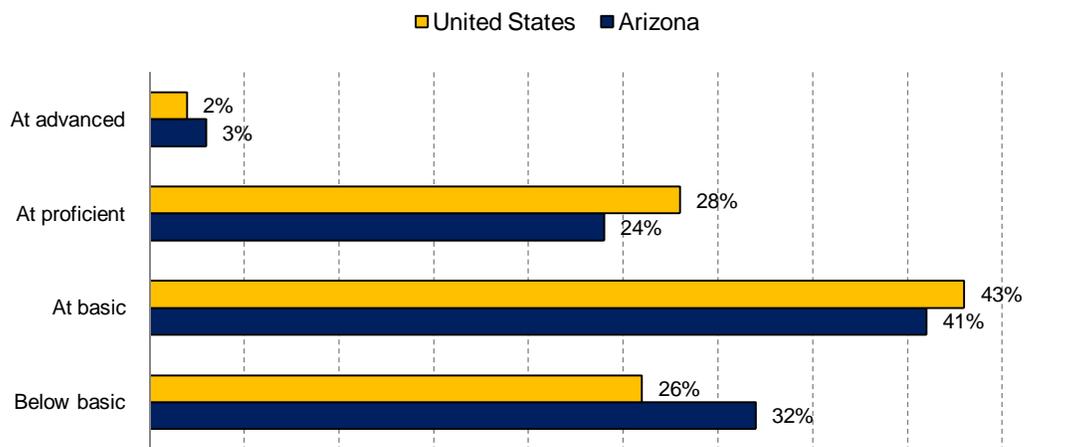
¹⁴ Public Charter School Dashboard 2009. (n.d.). *Public Charters National Alliance for Schools*. Retrieved May 12, 2010, from www.publiccharters.org/files/publications/DataDashboard.pdf

¹⁵ Arizona . S1501 Educational Attainment 2006-2008. (n.d.). *U.S. Census Bureau*. Retrieved May 12, 2010, from http://factfinder.census.gov/servlet/STTable?_bm=y&-context=st&-qr_name=ACS_2008_3YR_G00_S1501&-ds_name=ACS_2008_3YR_G00_&-tree_id=3308&-redoLog=false&-caller=geoselect&-geo_id=04000US04&-format=&-lang=en

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The National Assessment of Educational Progress (NAEP) is an assessment of what America's students know. In 2009, eighth grade students in Arizona public schools ranked 41st in NAEP reading scores.¹⁶ Thirty-two percent of Arizona eighth graders tested below basic skill level for their grade compared to 26 percent nationally. This represents an improvement over the reading levels reported in the previous five-year needs assessment, when 46 percent of Arizona 4th graders read below proficiency, compared to 38 percent in the rest of the nation. Figure 3.9 compares Arizona reading test results to the nation at each level of achievement in 2009.

Figure 3.9 Percentages at Each Achievement Level for Reading, Grade 8, Arizona vs. United States, 2009



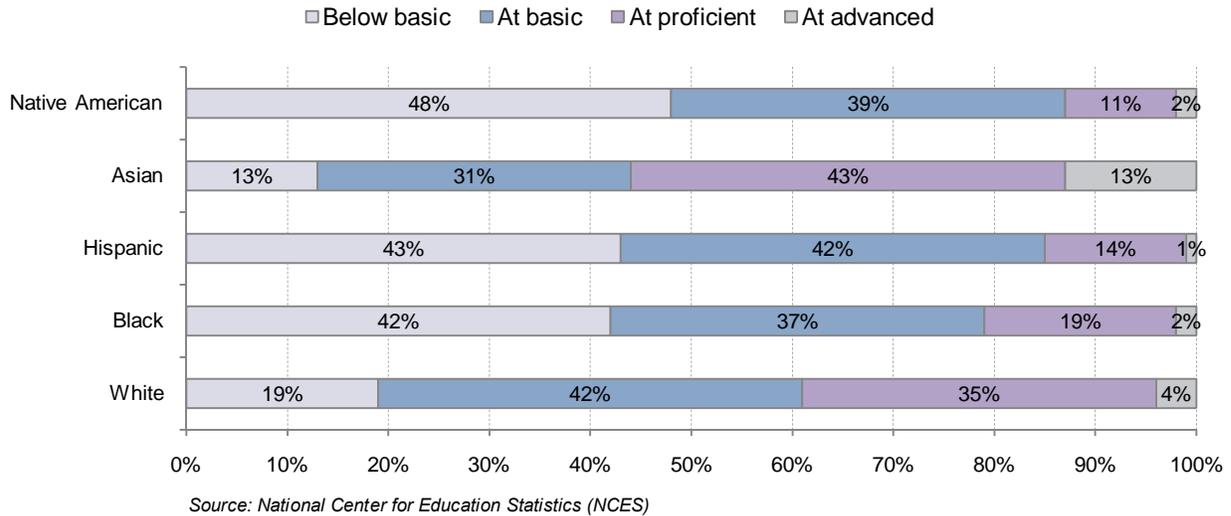
Source: National Center for Education Statistics (NCES)

NAEP reading achievement varied considerably by race and ethnicity. Higher proportions of Native American, Hispanic, and Black public school students tested below the basic level in reading achievement, while Asian students were more likely to test at proficient or higher. Figure 3.10 shows eighth grade reading test results by race and ethnicity for each level of achievement in Arizona.

¹⁶ NAEP Data Explorer. (n.d.). *National Center for Education Statistics (NCES)*. Retrieved May 13, 2010, from <http://nces.ed.gov/nationsreportcard/naepdata/dataset.aspx>

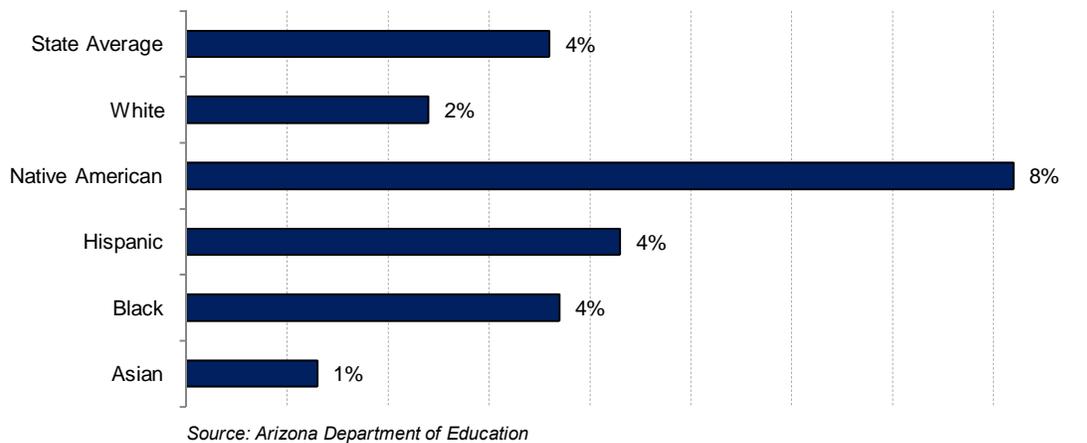
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Figure 3.10 Eight Grade Reading Achievement Level by Race/Ethnicity, Arizona 2009



In fiscal year 2008, 4 percent of students dropped out of public school from grade seven through nine.¹⁷ This represents an improvement over the dropout rates from the 2003-2004 school year of 6 percent.¹⁸ The dropout rate for boys was 4 percent compared to 3 percent for girls. However, the dropout rate among Native American students was twice the statewide rate. Figure 3.11 provides details on Arizona's dropout rate by race and ethnicity.¹⁹

Figure 3.11 Arizona Dropout Rate, 7th - 12th Grade by Race and Ethnicity, 2008



¹⁷ Academic Achievement Dropout Prevention. (2010, October 2). *Arizona Department of Education*. Retrieved May 13, 2010, from <http://www.ade.state.az.us/asd/dropout/definitions.asp>

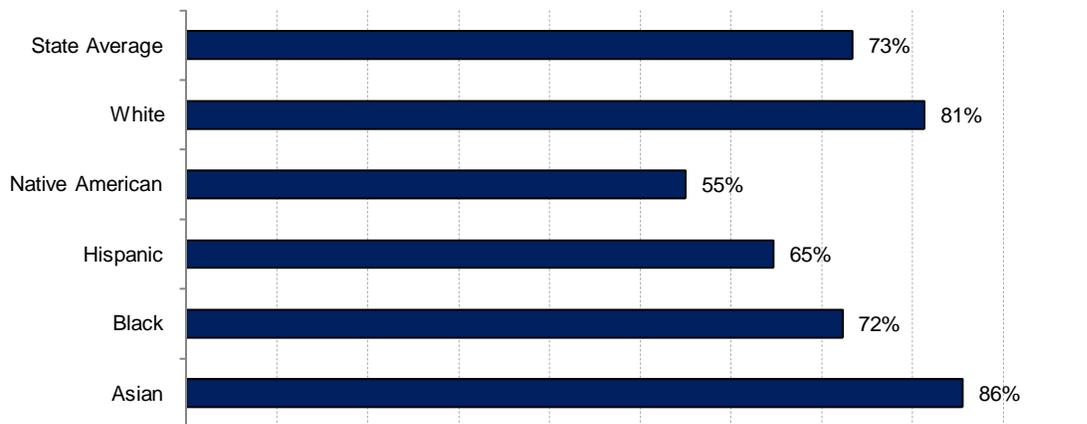
¹⁸ Dropout Rate Report 2003-2004-Arizona Public Schools Grades Seven Through Twelve. (2005, March). *Arizona Department of Education*. Retrieved May 14, 2010, from https://www.ade.state.az.us/researchpolicy/DropoutInfo/Complete_2003-2004_Dropout_Report.pdf

¹⁹ Dropout Rate Study Report - 2008. (n.d.). *Arizona Department of Education*. Retrieved May 13, 2010, from <https://www.ade.state.az.us/researchpolicy/DropoutInfo/>

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The Arizona Department of Education also tracks cohorts of students and measures the percent who graduate within four years.²⁰ The graduation rate for the cohort that would be expected to graduate by 2007 was 73 percent. Girls were more likely to graduate within four years (78 percent) than boys (69 percent). However, the graduation rate varied considerably by race and ethnicity, as shown in Figure 3.12.²¹

Figure 3.12 Four Year Graduation Rate for Arizona by Race and Ethnicity, 2007



Source: Arizona Department of Education

ECONOMY

Arizona incomes, as measured by average wage, earnings per employee, and per capita income, have always tended to be lower than national averages. In 2007, the average per capita personal income in Arizona was 85 percent of the national average. Per capita income within Arizona varied from a high of 94 percent of the national average in Maricopa County to a low of 53 percent in Navajo County.²² According to US Census estimates, Arizona's median household income in 2008 was lower than the rest of the nation (\$51,009 in Arizona compared to \$52,209), ranking 29th.

Over the course of the last decade, the civilian workforce in Arizona has grown 22 percent from 3 million individuals in 2001, to more than 3 million in 2010. During this time, the composition of the jobs has changed. The largest decrease in terms of both number and proportion of jobs lost during this time period was in construction. In 2001, there were 173,600 construction jobs in Arizona compared to just 111,600 in 2010, a decrease of 36 percent. There were also decreases in the number of jobs in manufacturing, information, and state government. The employment sector with the

²⁰ Graduation Rate Technical Manual. (2009, August). *Arizona Department of Education*. Retrieved May 13, 2010, from https://www.ade.az.gov/ResearchPolicy/grad/Grad_Rate_Codes_2008.pdf

²¹ Graduation Rates - 2007. (n.d.). *Arizona Department of Education*. Retrieved May 13, 2010, from <https://www.ade.az.gov/ResearchPolicy/grad/>

²² Bureau of Economic Analysis. (2010, April 22). *U.S. Bureau of Economic Analysis (BEA)*. Retrieved April 29, 2010, from <http://www.bea.gov/regional/reis/drill.cfm>

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largest increase in the number of jobs was trade, transportation and utilities, which grew from 440,600 jobs in 2001 to 477,500 jobs in 2010 (an 8 percent increase). The health and education services sector grew the most, with a 52 percent increase from 219,900 jobs in 2001 to 334,000 in 2010. This sector grew from representing 10 percent of non-farm jobs in 2001, to representing 14 percent in 2010.

In January of 2010, Arizona ranked 8th out of 51 states and the District of Columbia in regards to economic distress, according to a Kaiser State Health report. The report based this rank on foreclosure rates (Arizona ranks 2nd), unemployment rates (Arizona tied for 31st), and the proportion of the population on food stamps (Arizona tied for 10th).²³

A closer look at the three measures utilized in the Kaiser report shows that certain sectors of the population in Arizona are in more distress than others. In terms of foreclosure rates, 13 of the 15 counties in Arizona had foreclosure rates that were classified as high in March 2010 by the U. S. Bureau of Labor Statistics. The highest foreclosure rate was found in Pinal County, with one out of every 89 households experiencing a foreclosure.²⁴

During the course of the last decade, unemployment in Arizona ranged from a historic low of 4 percent in July of 2007 to a recent high of 10 percent in February 2010.²⁵ The Flagstaff Metropolitan Statistical Area (MSA) had the lowest unemployment rate at 9 percent, while the Yuma MSA represented the highest rate, at 30 percent in February 2010.

There is also wide variation in the proportion of households on food stamps in Arizona. The most recent American Community Survey data shows that on average, 7 percent of households in Arizona receive food stamps. Maricopa County (6 percent), Yavapai (6 percent), and Coconino County (7 percent) had fewer households receiving food stamps than the state average and two counties (Navajo, 16 percent and Apache 18 percent) had twice the state average.

Arizona also has a higher percentage of residents living in poverty compared to the nation. In 2008, 13 percent of the nation lived in poverty compared to 15 percent of those living in Arizona (ranked 39th).²⁶ The American Community Survey published average poverty rates for Arizona residents for 2006 through 2008 by county and other demographic characteristics. During that time period, the average poverty rate for Arizona residents was 14 percent; however, the rate varied greatly by race, educational

²³ Measures of State Economic Distress: Housing Foreclosures and Changes in Unemployment and Food Stamp Participation. (n.d.). *The Kaiser Family Foundation- State Health Facts*. Retrieved April 14, 2010, from www.statehealthfacts.org/comparetable.jsp?ind=649&cat=1

²⁴ Interactive Map: The Economy Where You Live. (n.d.). *NPR : National Public Radio*. Retrieved April 16, 2010, from <http://www.npr.org/templates/story/story.php?storyId=111494514&sc=nl&cc=bh-20090807>

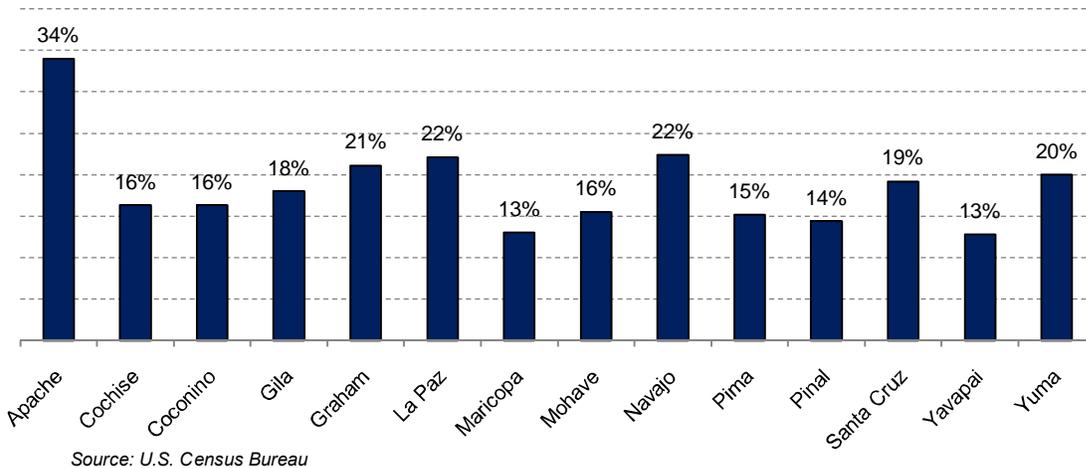
²⁵ Current Unemployment Rates for States and Historical Highs/Lows. (2010, May 21). *U.S. Bureau of Labor Statistics*. Retrieved May 26, 2010, from <http://www.bls.gov/web/laus/lausth1.htm>

²⁶ 2008 Poverty and Median Income Estimates - States . (2009, November). *U.S. Census Bureau, Small Area Estimates Branch*. Retrieved April 8, 2010, from www.census.gov/did/www/saipe/downloads/estmod08/est08US.xls

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attainment level, gender, and geographic location. Women (16 percent), children (20 percent), African Americans (20 percent), Indian and Alaska Natives (32 percent), and Hispanics (23 percent) have higher poverty rates than the general population in Arizona.²⁷ Figure 3.13 shows the variation of poverty rates by county. Apache County has a poverty rate of 34 percent, which is more than twice the state poverty rate.

Figure 3.13 Poverty Rates by County, 2006-2008



THE ARIZONA STATE BUDGET

The majority of the Arizona state general fund is spent on education. Forty-two percent of the general fund goes to elementary and secondary education and another 13 percent is used for higher education. The next largest expenditures are Medicaid (16 percent) and corrections (11 percent).²⁸

Rankings of Arizona spending relative to other states prior to the recent recession showed that Arizona spent more per capita on police and fire protection (rank = 11) and corrections (rank = 13), and less on highways (rank = 35), health and hospitals (rank = 37), public welfare (rank = 38), and local public schools (rank = 48).²⁹ Figure 3.14 shows Arizona's state and local government expenditures as a percent of the national average for state fiscal year 2006-2007.

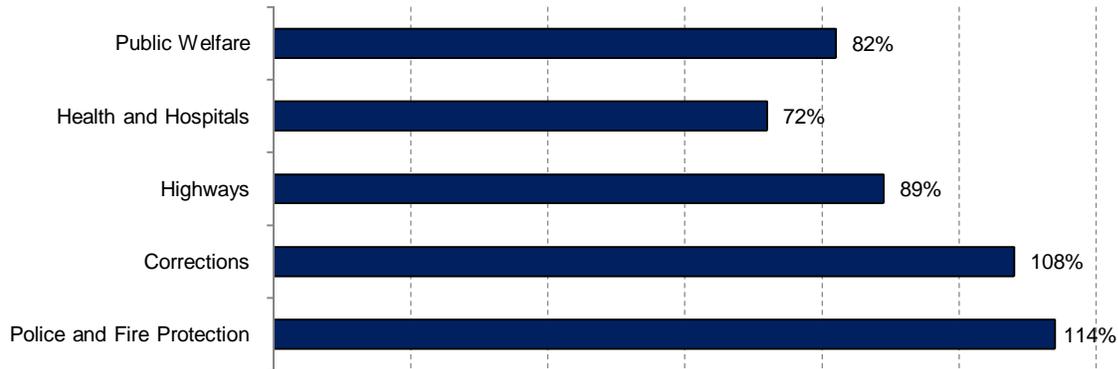
²⁷ Arizona . S1701. Poverty Status in the Past 12 Months 2006-2008. (n.d.). U.S. Census Bureau. Retrieved June 1, 2010, from http://www.factfinder.census.gov/servlet/STTable?_bm=y&-geo_id=01000US&-qr_name=ACS_2008_3YR_G00_S1701&-ds_name=ACS_2008_3YR_G00_-redoLog=false&-CONTEXT=st

²⁸ "THEN AND NOW" - FY 2001 vs. FY 2011 General Fund Spending. (n.d.). Arizona Legislature-Joint Legislative Budget Committee. Retrieved May 28, 2010, from www.azleg.gov/jlbc/bh24.pdf

²⁹ Ranking and Estimates-Ranking of the States 2009 and Estimates of School Statistics 2010. (2009, December). National Education Association. Retrieved May 26, 2010, from www.nea.org/assets/docs/010rankings.pdf

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Figure 3.14 Arizona State and Local Government Expenditures as a Percent of National Average, 2006-2007



Source: National Education Association

Arizona's tax base depends heavily on income and sales taxes, which have been affected by the recession. A reduction in revenues generated by income and sales taxes, together with numerous tax cuts over the last 15 years, has resulted in a decline in state general fund revenues. State tax revenues have declined 34 percent in the past three years. Since the recession began in state fiscal year 2007, sales tax revenues have decreased 22 percent, personal income tax revenues have decreased 38 percent, and corporate income tax revenues have decreased 57 percent.³⁰ In state fiscal year 2009, Arizona had the largest decrease (42.5 percent) in income tax in the nation.³¹

While the general fund used to receive \$50 in revenue per \$1,000 of personal income in the mid 1990s, it currently receives less than \$30. A structural deficit was created as taxes were permanently reduced during years of high revenues without corresponding decreases in the budget. Even when the economy recovers and begins to expand, revenues are projected to only rise to \$36 per \$1,000 income, which is 28 percent lower than the historical norm.³²

The result of these economic forces is a budget deficit projection in Arizona for 2010 of \$5 billion dollars, representing 52 percent of the total general fund budget. This is the second largest proportional state budget deficit in the nation, exceeded by California, where a \$52 billion deficit represents 57 percent of their budget. The average budget deficit nationally is 29 percent.³³

³⁰ Governor's Fiscal Year 2011 Budget Proposal. (2010, January 15). *Arizona Governor Jan Brewer*. Retrieved May 24, 2010, from <http://www.azgovernor.gov/Budget2011.asp>

³¹ State Government Tax Collections in 2009. (2010, March). *U.S. Census Bureau*. Retrieved May 25, 2010, from www2.census.gov/govs/statetax/2009stcreport.pdf

³² Public Finance. (n.d.). *Arizona Indicators*. Retrieved May 25, 2010, from <http://www.arizonaindicators.org/pages/finance/index.html>

³³ McNichol, E., & Johnson, N. (2010, February 25). Recession Continues to Batter State Budgets; State Responses Could Slow Recovery. *Center on Budget and Policy Priorities*. Retrieved May 12, 2010, from <http://www.cbpp.org/cms/index.cfm?fa=view&id=711>

3. OVERVIEW OF THE STATE

To balance the fiscal year 2009 budget, every state agency was given a lump sum reduction with discretion of where to cut. Agencies used a combination of program cuts, unpaid furlough days, and reductions in force, among other methods, to reduce their budgets.³⁴ To help balance the 2011 budget, employees of each state agency will take a combination of pay reductions and furlough days for each of the next two fiscal years, which will result in an overall annual compensation reduction of five percent. All state employees will take the same furlough days, according to a state-mandated schedule, which will shut down state government on those days. In addition, Arizona state buildings including, the state capitol, the state hospital and state prisons have been put up for sale.

Other state agencies serving children experienced significant cuts. The state budgets for both the Arizona Department of Education and Arizona Department of Economic Security were reduced by 20 percent between state fiscal years 2008 and 2011.³⁵ Examples of program cuts that Arizona has enacted outside of the Department of Health Services that affect the maternal-child population include:

- A cap on KidsCare (which is the state's CHIP program).
- Elimination of temporary health insurance for people with disabilities who are coping with serious medical problems.
- Elimination of general assistance, a program designed to provide time-limited case assistance to adults with physical or mental disabilities.
- Elimination of independent living supports for 450 elderly residents and respite-care funding for 130 caregivers.
- Eliminated preschool for 4,328 children.
- Increased in-state undergraduate tuition between 9 and 20 percent.
- Reduction of TANF cash assistance grants for 38,500 low-income families.
- Elimination of substance abuse services for 1,400 parents and guardians.
- Decreased homeless shelter capacity by 1,100 individuals.
- Stopped accepting new families in its child care assistance program in February, 2009 (denying assistance to more than 10,000 children.)

Over the past three years, ADHS has dramatically reduced spending and staffing levels in an effort to bring spending in line with state revenues. Excluding the money that goes toward the matching funds that are required for Medicaid (AHCCCS), Behavioral Health and Children's Rehabilitative Services, the overall ADHS General Fund budget has been reduced by more than 47 percent during the past 3 years. Seventeen million dollars in operating budgets were cut during that time period, including the entire licensure budget of \$10 million.

³⁴ McNichol, E., & Johnson, N. (2010, February 25). Recession Continues to Batter State Budgets; State Responses Could Slow Recovery. *Center on Budget and Policy Priorities*. Retrieved May 12, 2010, from <http://www.cbpp.org/cms/index.cfm?fa=view&id=711>

³⁵ General Fund Budget Changes FY 2008 - FY 2011. (n.d.). *Arizona Legislature-Joint Legislative Budget Committee*. Retrieved May 28, 2010, from <http://www.azleg.gov/jlbc/ReductionsFY08-FY11.pdf>

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Fiscal Year 2010 cuts include:

- Suspended enrollment in Children's Rehabilitative Services for more than 4,000 children who are not enrolled in AHCCCS;
- Reduced approximately 8,800 home visits to newborns discharged from neonatal intensive care, and enrolled in the High Risk Perinatal Program;
- Suspended all prenatal block grants to county health departments for services to 19,000 women and children;
- Eliminated the Hepatitis C and Valley Fever public health prevention programs;
- Reduced county contracts for tuberculosis care by more than 50 percent;
- Eliminated all state funding for children's vaccines;
- Suspended remaining HIV surveillance contracts with Maricopa and Pima County;
- Suspended remaining county grants for diabetes prevention;
- Suspended all retinal and podiatry screenings for diabetics;
- Suspended all grants to counties for public health personnel;
- Reduced support for both Arizona Poison Control Centers by more than 50 percent;
- Eliminated all birth defect call center services.

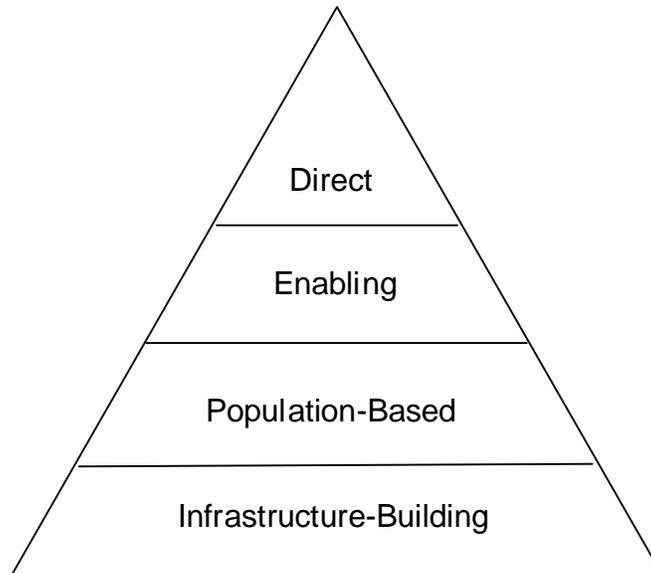
State funding for maternal and child health programs within the Bureau of Women & Children's Health reached a high of \$10 million in state fiscal year 2007 and comprised 44 percent of the bureau's total budget; by state fiscal year 2010, state funding had dropped by 64 percent to a total of \$3 million. State appropriated funds now comprise 18 percent of the bureau's budget. State general funding for Health Start, Abstinence Education, County Prenatal Block Grant, and Pregnancy Services was completely eliminated. The budget for the High Risk Perinatal Program has been reduced by nearly 60 percent. State funding for the Children's Rehabilitative Services Program have also been eliminated.

A one percent three-year temporary sales tax known as Proposition 100 was passed in a special election on May 18, 2010, with 64 percent of the vote. A projected \$1 billion per year will be raised by the tax. If the initiative had failed, a legislative contingency plan would have cut another \$900 million from the 2011 state budget.

4. STATE CAPACITY TO ADDRESS MCH POPULATION NEEDS

Services offered through the Title V Maternal and Child Block Grant may be envisioned as a pyramid with four levels. Each level corresponds to certain types of services. Figure 4.1 is a graphic depiction of these four levels of services: direct, enabling, population-based, and infrastructure-building. In this section, the state capacity to address the needs of the maternal and child health population will be discussed within this conceptual scheme.

Figure 4.1 MCH Pyramid



DIRECT HEALTH CARE SERVICES

Direct health care services are what most people would consider ordinary medical care, delivered one-on-one between a health professional and a patient in an office, clinic or emergency room. For CSHCN, this level of the pyramid includes specialty and subspecialty care for conditions requiring sophisticated technology, access to highly trained specialists, or services not generally available in most communities.

GENERAL AND SPECIAL HOSPITALS

According to the Arizona Department of Health Services Division of Licensing Services, there were 64 general acute care hospitals in the State of Arizona in 2009, with 13,245 beds and 34 specialty hospitals with 2,433 beds. There are two children's hospitals, both of which are located in the Phoenix metropolitan area. In 2007, the state overall had 2 hospital beds per 1,000 population compared to the national average of 3 per 1,000. Arizona ranks 46 in the number of hospital beds per 100,000 population.³⁶

³⁶ Providers & Service Use - Arizona . (n.d.). *The Kaiser Family Foundation- State Health Facts*. Retrieved March 22, 2010, from <http://www.statehealthfacts.org/profilecat.jsp?rgn=4&cat=8>

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Neonatal intensive care units and continuing care units are classified by the level of care they are capable of providing. In Arizona, while hospitals are licensed by the ADHS Office of Licensing, perinatal care facilities are certified by the Arizona Perinatal Trust, a nonprofit organization established in 1980 and dedicated to improving the health of Arizona's mothers and babies. The certification teams, all volunteers, consist of a neonatologist or pediatrician, maternal fetal medicine or an obstetrician (depending on the level of a facility), both a NICU and labor and delivery nurse, ADHS Office of Children's Health, and AHCCCS (the state's Medicaid agency).

The levels of neonatal care are built on the classification system of the American Academy of Pediatrics with some Arizona specific differences. The Level III facilities are the highest level and are capable of caring for all neonates. They require the 24 hour in house pediatric services and 24 hour availability of perinatology service. Some of the Level III NICUs (Newborn Intensive Care Unit) are capable of supporting specialty surgery. Level II Enhanced Qualification (EQ) Units can be licensed as either a NICU or CCN (Continuing Care Nursery). They are qualified to care for infants 28 weeks of gestation or greater and can offer neonatal specific respiratory support and care for selected neonatal transports received. Level II units, referred to in Arizona as continuing care nurseries, provide services for low-risk and selected high-risk obstetrical and newborn patients at 32 weeks gestation and greater.

Finally, Level I provides services for low-risk obstetrical patients and newborns, including cesarean section at 36 weeks gestation and greater, and in-hospital birthing centers, only found within Indian Health Service, provide services for low-risk obstetrical patients and newborns, excluding cesarean sections and at 37 weeks gestation and greater. In Arizona, there are currently nine Level III, six Level II EQ, fourteen Level II, nine Level I hospitals and two In-Hospital Birthing Centers.

Disproportionate share hospitals (DSH) are hospitals that serve large numbers of Medicaid, low-income, and uninsured patients. In the DSH program, a state makes a separate payment to a hospital in addition to its standard Medicaid reimbursement which is reimbursed by the federal government based upon the state's Medicaid matching rate. The American Recovery and Reinvestment Act of 2009 (ARRA) provided a temporary increase of about \$3 million in Arizona's DSH allotment for Fiscal Years 2009 and 2010. However, due to state budget cuts, DSH payments were reduced by over \$25 million in Arizona during Fiscal Year 2010.

PROFESSIONAL HEALTH CARE PROVIDERS

Arizona has 12,436 physicians, 58,441 registered nurses, and 3,633 dentists. The majority of physicians (87 percent), nurses (80 percent), and dentists (82 percent) practice in either Maricopa or Pima County. Table 4.1 shows that the provider-to-population ratios in Arizona remain below the national averages.

4. STATE CAPACITY TO ADDRESS MCH POPULATION NEEDS

Table 4.1 Providers per population in 2008, Arizona compared to United States

Provider	Arizona rate	United States rate	Arizona rank
Dentists	70 per 100,000	80 per 100,000	24
Physicians	270 per 100,000	320 per 100,000	34
Registered Nurses	581 per 100,000	836 per 100,000	51

Source: The Kaiser Family Foundation- State Health Facts

Although midwifery is a recognized alternative to the medical model of prenatal care, it is faced with a number of challenges. Hospitals that admit women and babies who received midwifery services use the same protocols as if the women had not received any prenatal care and most insurance plans do not cover midwifery services. However, AHCCCS allows coverage for midwife services, and most of the AHCCCS-contracted health plans contract with them.

According to the National Center for Vital Statistics, the percentage of midwife-attended births has gradually increased from 1 percent in 1975, to 8 percent in 2002 and remains the same in 2006. Arizona reached a high of 10 percent of births being attended by a midwife in 1997. However, since 1997 there has been a gradual decrease in the percentage of midwife-attended births to 6 percent in 2008. However, more than one in four American Indian births continues to be attended by midwives. As reported by the Arizona Department of Health Services Division of Licensing Services, there were a total of 52 licensed midwives and 173 certified nurse midwives in 2009.

Other key direct health service providers include nurse practitioners and physician assistants. Table 4.2 gives an overview of key providers per 100,000 residents by urban and rural metropolitan statistical areas (MSAs). In general, there are more providers in urban MSAs compared to rural MSAs.

Table 4.2 Key health service providers in Arizona by region per 100,000 residents

Provider	Rural	Urban
Dentists	45	58
Doctor of Osteopathy (DO)	25	26
Midwife	2	1
Doctor of Medicine (MD)	126	203
Nurse Practitioner	41	44
Physician Assistant	21	24
Registered Nurse	810	911

Source: Bureau of Health Systems Development Database. Arizona Department of Health Services.

4. STATE CAPACITY TO ADDRESS MCH POPULATION NEEDS

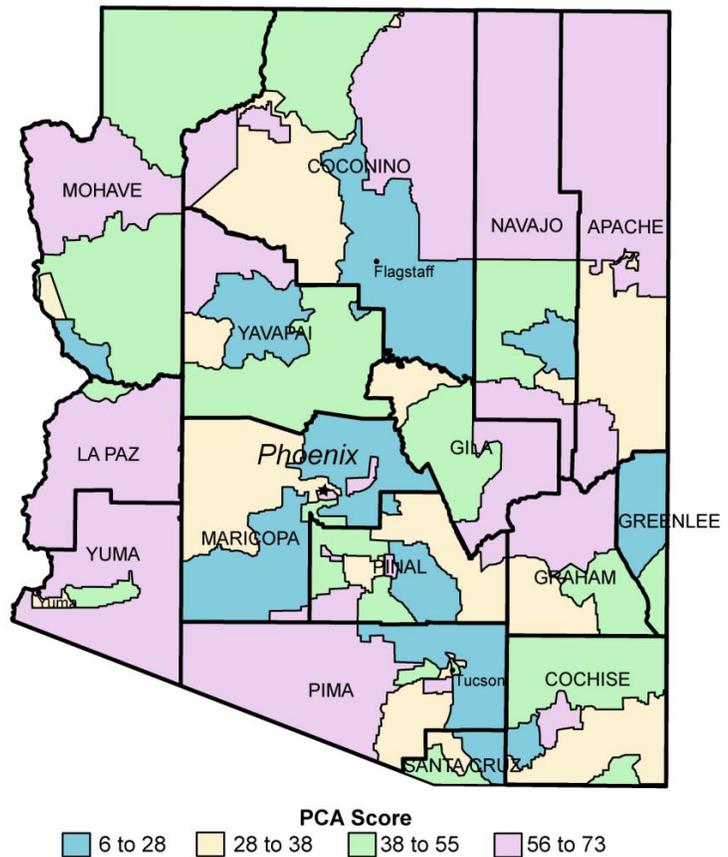
Federal regulations establish health professional shortage areas (HPSA) based on three criteria: the area must be rational for the delivery of health services, more than 3,500 people per physician or 3,000 people per physician if the area has high need, and healthcare resources in surrounding areas must be unavailable because of distance, over-utilization, or access barriers. As of May 2010, 63 areas in Arizona are federally designated as Primary Care HPSAs, 51 areas are designated as Dental HPSAs, and 6 areas are designated as Mental HPSAs. According to the Arizona Department of Health Services Bureau of Health Systems Development, Arizona has a shortage of 242 FTE primary care physicians.

Federal regulations also establish medically underserved areas/populations (MUA/MUP) based upon four criteria: ratio of primary medical care physicians per 1,000 population, infant mortality rate, percentage of population below the federal poverty level, and percentage of population 65 years and older. As of May 2010, 49 areas in Arizona have federal MUA/MUP designations.

Additionally, Arizona has developed its own designation system for identifying under-served areas. All federally designated HPSAs are automatically designated as Arizona shortage areas. In addition, Arizona's system involves the application of an index which weights 14 indicators such as providers to population ratios, travel time, percent of population below poverty, and adequacy of prenatal care. As of May 2010, there are five state designated Arizona medically under-served areas.

Figure 4.2 shows Arizona's Primary Care Areas (PCA) by Primary Care Index (PCI) scores. A PCA is a geographic area in which most residents seek primary health services. The score is a sum of points given by the PCI³⁷. Higher PCI scores indicate greater medical under-service.

Figure 4.2 PCI Scores by Primary Care Areas



Source: Arizona Department of Health Services- Bureau of Health Systems Development

³⁷ There are seven major indicators applied to the PCI that include availability of providers, geographic accessibility, ability to pay, ambulatory sensitive conditions, natality (percent of LBW, and percent of women who received no prenatal care and/or those who began care in second/third trimester), mortality (premature mortality, and infant mortality) and other supplemental criteria (e.g. percent minority, percent elderly, and unemployment rate).

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According to the American Medical Association Masterfile, there were 57,698 general pediatricians in the United States in 2007, representing about 8 pediatricians per 10,000 children age 0-17. Arizona has 914 general pediatricians, representing 5 pediatricians per 10,000 children age 0-17. The majority of pediatricians practice in Maricopa (68 percent) and Pima (22 percent) Counties. A recent survey of primary care pediatricians raised significant concerns about the adequacy of children's access to pediatric subspecialists, especially in rural communities.³⁸

CSHCN often require services provided by pediatric specialists and sub-specialists. An analysis of data on pediatric subspecialty practices nationwide estimated the size of the pediatric population that would be necessary to sustain a subspecialty practice. Depending upon the kind of subspecialty, estimates ranged from a low of 100,000 children per specialist to 200,000 children per specialist.³⁹ By this estimate, there are only two areas in Arizona with pediatric populations large enough to support pediatric subspecialty practices: Maricopa and Pima Counties, which is where Phoenix and Tucson are located. There is also a shortage of pediatric physical, speech, and occupational therapists, which results in approximately one in four CSHCN in Arizona having an unmet need for these services, according to the 2005/2006 NS-CSHCN.

CHILDREN'S REHABILITATIVE SERVICES

Children's Rehabilitative Services (CRS) Program is administered by the Office for Children with Special Health Care Needs (OCSHCN) at the Arizona Department of Health Services. CRS provides multi-specialty interdisciplinary care to children under age 21 with qualifying chronic and disabling health conditions. There are over 350 conditions covered by CRS, including diagnoses such as cerebral palsy, cleft lip/cleft palate and other cranial-facial disorders, tracheal-esophageal fistula, scoliosis, juvenile arthritis, muscular dystrophy, osteogenesis imperfecta, spina bifida, cystic fibrosis, sickle cell anemia, metabolic and endocrine disorders, neurofibromatosis, heart conditions, Hirschsprungs disease, hydrocephalus, glaucoma, neurosensory disorders, broncho pulmonary dysplasia, and many congenital anomalies.

Members typically have more than one diagnostic condition, and are involved in multiple systems of care across child-serving programs and agencies. CRS members often require multiple specialists and a high level of care coordination. A team approach allows for interdisciplinary, family-centered, culturally-competent care to address the multiple medical needs of members, as well as transition and family-support.

Covered services include surgeries and other inpatient hospital services; pediatric physician specialty care; physical, speech, and occupational therapies; laboratory, radiology and pharmacy services; vision services; durable medical equipment, such as

³⁸ Pletcher B. A., Rimsza M. E., Cull W. L., Shipman S. A., Shugerman R. P., O'Connor K. G. (2010). Primary Care Pediatricians' Satisfaction with Subspecialty Care, Perceived Supply, and Barriers to Care. *The Journal of Pediatrics*, 156(6), 1011-1015.e1.

³⁹ Mayer, ML. Are we there yet? Distance to care and relative supply among pediatric medical subspecialties. *Pediatrics*, 118:2313-2321, 2006.

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orthotics and wheelchairs; and social services. CRS does not cover basic primary care that is not related to the CRS diagnosis. The ultimate aim of the CRS program is to enhance members' quality of life through the appropriate utilization of services, optimizing their functionality and minimizing their need for emergency care.

The relative scarcity of some specialists poses a challenge for delivering timely services, especially to members who live in remote areas of the state. The CRS program offers statewide management of these specialists and innovative strategies to ensure that services are coordinated and delivered timely throughout the state. In addition to members and providers traveling to clinics, members also receive services through the use of telemedicine and in field/outreach clinics.

Before March of 2009, CRS covered the cost of medical services for children that did not qualify for AHCCCS, but were below certain family income limits. These members were called State-Only members. However in March 2009, due to budget cuts, all State-Only members assumed all responsibility for payment for medical services, regardless of income, but were able to cap their fees at rates no higher than AHCCCS provider scheduled rates. In December of 2009, further cuts resulted in the suspension of all State-Only services, and approximately 4,000 members were disenrolled from CRS. Consequently, only members who are enrolled in an AHCCCS Health Plan remain enrolled.

COMMUNITY HEALTH CENTERS

Community health centers were established in the 1960s by federal law to treat and provide primary care to all patients regardless of their ability to pay. The Arizona Association of Community Health Centers represents health centers statewide and provides advocacy, professional education programs, financial services, and programs designed to improve the health status of the medically underserved and uninsured. The Association reports that their membership included 37 community health centers with more than 150 locations statewide in 2009.⁴⁰

In February 2009, the American Recovery and Reinvestment Act (ARRA) included various funding for community health centers. In Arizona, \$4 million in New Access Point Services funding through the ARRA helped establish two new community health centers, Native Health and Wesley Community Center to provide primary care services to the underserved in Maricopa County, and a new clinic site for North Country HealthCare in Flagstaff. Sixteen community health centers in Arizona received Increased Demand for Services grants (totaling \$6 million) to provide services to nearly 60,000 new patients and 22,000 new uninsured individuals in the state. The Capital Improvement Construction Program (totaling \$16 million) and Facility Investment Construction Program (totaling \$9 million) funds were used to renovate clinic facilities, create new jobs, and upgrade information technology systems.

⁴⁰ Momentum- 2009 Annual Report. (n.d.). *Arizona Association of Community Health Centers*. Retrieved April 20, 2010, from <http://www.aachc.org/pdf/aachcannre09.pdf>

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Although federal funding was awarded, community health centers were affected by Arizona state budget reductions in 2009. Cuts were made to the Primary Care Program which distributed funds to community health centers to assist in supporting the provision of services on a sliding fee scale. Funding for community health centers through the Primary Care Program was reduced from \$12 million to \$2 million. A one-time appropriation from Arizona's ARRA funding restored sliding fee scale services in Fiscal Year 2010 for patients between 100 and 200 percent of the federal poverty level. However, the Fiscal Year 2011 state budget will not restore the cuts to community health centers sliding fee scale program, as the ARRA funds will no longer be available.

As a result of the loss of state funds and ARRA funding ending in June 2010, the Arizona Primary Care Program terminated 19 contracts with 138 service sites throughout the state. Some of the sites are expected to close or scale back the availability of services to Arizona's uninsured population. However, significant increases in funding to Federally Qualified Community Health Centers are expected through the passage of the Patient Protection and Affordable Health Care Act. The legislation authorizes a total of \$14 billion over a five year period, and is expected to result in 7,000 - 10,000 new and expanded community health center sites nationwide.

REPRODUCTIVE HEALTH SERVICES

A nation-wide comparison of reproductive health services and family planning indicated that the number of women in need of contraceptive services and supplies grew by 6 percent nationally between 2000 and 2008, and over 28 percent in Arizona.⁴¹ The Guttmacher Institute reports that the increase in need for publicly funded care was due to a disproportionate rise in the number of poor women (those with family incomes below 100% of the federal poverty level) needing contraceptive services and supplies.⁴² Table 4.3 compares Arizona to the US on indicators for reproductive and family planning services. The need met in Arizona is also much lower compared to the nation. These differences may be partly attributable to the diversity of population and growth in women of child-bearing age in Arizona, especially among Latina women, who are more likely to be poor than non-Hispanic White women.

The cost of family planning is substantially less than the cost of giving birth. In Arizona the annual family planning cost per client was \$270, while the cost per Medicaid-funded birth in Arizona was \$10,697.⁴³

⁴¹ Frost, J.J., Henshaw, S.K., & Sonfield, A. (2010). *Contraceptive needs and services: national and state data, 2008 update*, New York: Guttmacher Institute.

⁴² Ibid., 5.

⁴³ Ibid., 18.

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Table 4.3 Key Indicators and Reproductive Health and Family Planning Services in Arizona and the United States

Indicator	United States	Arizona
1. Percent change from 2000-2008 in women needing contraceptive services and supplies ⁴	6%	28%
2. Percent change from 2000-2008 in women needing publicly funded contraceptive services and supplies ⁴	6%	27%
3. Percentage need met by Title X funded clinics for contraceptive services	27%	10%
4. Percentage of need met by clinics for contraceptive services	41%	22%

⁴Percentages are the proportion of need met by clinics. They do not provide a complete measure of unmet need for publicly funded contraceptive services because they exclude women who receive Medicaid-covered services from private physicians, as well as users of nonprescription methods who have not made a visit for contraceptive services.

Source: Contraceptive needs and services: national and state data, 2008 update, New York: Guttmacher Institute. Table C, D, & E.

The Bureau of Women's and Children's Health (BWCH) dedicates Title V funds to support family planning services through twelve county health departments and Maricopa Integrated Health Services, which operates several clinic sites in Maricopa County. About 4,300 low-income people are served each year through Title V funding. BWCH works closely with the Arizona Family Planning Council, the statewide organization that administers federal Title X funds, to coordinate family planning services and address gaps in the state. Title X funding provides services to over 42,000 women, teens and men through 33 family planning health centers throughout the state.

The Arizona Family Planning Council (AFPC) utilizes Title X funds to provide integrated preventive health screenings, including HIV testing and community linkages, reproductive life planning and provision of contraception and supplies. Reproductive health services for individuals under 250% of federal poverty guidelines are provided on a zero-based sliding fee scale. As required by the Title X program, a wide range of contraceptive methods are offered, including natural family planning and emergency contraception. Abortion services are not part of the family planning program. Oral contraceptives continue to have high demand (38 percent), while IUDs are becoming much more popular (6 percent).

AFPC continues to work with its providers to improve compliance with Chlamydia screening of the target population (women 25 years old and under) as part of ADHSq contract with CDC which is referred to as the Infertility Prevention Project (IPP). Title V and X family planners provide over 60 percent of Chlamydia screening and over 62 percent of gonorrhea testing and treatment in Arizona, so this network is a critical part of reducing infertility statewide.

As the economy tightened and Arizonans lost insurance coverage in 2009, family planning health centers stepped up their efforts as a critical part of the safety net. With minimal infusion of additional funds, the network provided care to 16 percent more

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unduplicated clients from the previous year. Title X funded 50 percent more tubal ligations and over 250 percent more vasectomies as families were determined to prevent unplanned pregnancy. Almost 80 percent of Title X clients have incomes below 100% of FPL, and 35 percent had limited English proficiency.

SCHOOL-BASED HEALTH CENTERS

There are nearly 100 school sites in Arizona that provide basic, primary health services to more than 20,000 youth every year through school-based health centers (SBHC). Most SBHCs are located in urban, middle schools and 45 percent are located in rural areas. Over 82 percent of the children who use SBHC services are uninsured Arizona residents.⁴⁴ Students receive free services or are charged on a sliding discount basis.

SBHCs allow students to have immediate access to health care providers for problems ranging from minor aches and scrapes to acute illnesses. They are staffed with nurse practitioners and physician assistants who work closely with a medical director. For many students, these health centers are the only source of medical care offering access to health care in communities where there is a significant provider shortage and where transportation to health care services may be problematic.

Most SBHCs are affiliated with a hospital-based outpatient department that provides on-call services and after-hours coverage when the center is closed. This configuration not only offers a location for the child to go at times when the health center is not open, but the affiliated location is also available as a medical home for all family members. All of the health centers encourage parental involvement and parental consent is required before any services are provided. The health centers support the philosophy of the parent participating as a partner in the decision making process.

Funding for SBHCs was incorporated in the Patient Protection and Affordable Care Act (also known as Health Care Reform) that was signed by President Obama on March 23, 2010. The Patient Protection and Affordable Care Act includes language authorizing a federal SBHC grant program and an emergency appropriation that would provide \$200 million for SBHCs over four years.

ENABLING SERVICES

Enabling services facilitate access to basic health care services, especially required for low income, disadvantaged, geographically or culturally isolated, and those with special and complicated health needs. Enabling services include such things as transportation, translation services, outreach, respite care, health education, family support services, purchase of health insurance, case management, coordination with Medicaid, and WIC.

⁴⁴ AZSBHCC Fact Sheet. (n.d.). *Arizona School-Based Health Care Council*. Retrieved April 22, 2010, from <http://www.azsbhc.org/facts.php>

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HEALTH INSURANCE

The health care delivery system and its financing have dramatically changed in the last 30 years, and managed care has played a dominant role in its evolution. Approximately 67 percent of the population in the United States under age 65 currently has private health insurance, the majority of which is managed care based and obtained through the workplace.⁴⁵ Under the managed care umbrella, health maintenance organizations (HMO) and preferred provider organizations (PPO) have become major sources of health care for beneficiaries of both employer funded care and publicly funded programs, Medicaid, and Medicare. In 2009, 66 million people had health insurance through an HMO and 53 million people had insurance through a PPO in the United States.⁴⁶

Over the past years, the percentage of employer-sponsored health insurance coverage has gradually decreased while insurance premiums have increased. The average nationwide premium for family health insurance increased 131 percent from 1999 to 2009.⁴⁷ The economic recession intensified the loss of health insurance for Arizona residents resulting in an increase in enrollment in public insurance programs. According to 2008 United States Census data, 81 percent of Arizona residents have some type of health insurance. Many people have more than one kind of insurance: 60 percent of people have private insurance, either employment-based (52 percent) or direct purchase (8 percent); and 31 percent had some kind of government-sponsored insurance such as Medicaid (18 percent), Medicare (12 percent), or military health insurance (4 percent).⁴⁸

Seventy percent of all business establishments in Arizona are small businesses with less than 50 employees. There are more than 85,000 small businesses in Arizona, and each year, small businesses add more workers to the workforce than large businesses. One of their top challenges is to offer competitive benefits. Only 35 percent of Arizona small businesses offer employer-sponsored health coverage with cost being cited as the primary barrier to offering coverage.⁴⁹ For many Arizonans, healthcare remains unaffordable.

Recognizing the importance of affordable health care, the Healthcare Group (HCG) was created in 1985 by the Arizona State Legislature with the support of the Robert Wood Johnson Foundation. It is a state-sponsored, guaranteed issue health insurance

⁴⁵ Health, United States, 2009- with Special Feature on Medical Technology. (n.d.). *U.S. Department of Health and Human Services- Centers for Disease Control and Prevention*. Retrieved March 17, 2010, from www.cdc.gov/nchs/data/hus/hus09.pdf

⁴⁶ National HMO Enrollment. (n.d.). *Managed Care Facts Sheets*. Retrieved May 7, 2010, from <http://www.mcareol.com/factshts/factnati.htm>

⁴⁷ The Kaiser Family Foundation and Health Research & Educational Trust: Employer Health Benefits 2009 Annual Survey. (n.d.). *The Kaiser Family Foundation*. Retrieved May 7, 2010, from <http://ehbs.kff.org/pdf/2009/7936.pdf>

⁴⁸ Annual Social and Economic (ASEC) Supplement - Health Insurance Coverage Status and Type of Coverage by State and Age for All People - 2008. (2009, September 11). *U.S. Census Bureau*. Retrieved March 10, 2010, from <http://www.census.gov/hhes/www/cpstables/032009/health/toc.htm>

⁴⁹ MEPS-IC State Tables in Spreadsheet Format by State - 2008. (n.d.). *Medical Expenditure Panel Survey*. Retrieved March 16, 2010, from http://www.meps.ahrq.gov/mepsweb/data_stats/state_tables.jsp

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program for small businesses and public servants. The Arizona Health Care Cost Containment System (AHCCCS), Arizona's Medicaid agency, oversees and administers the program. Since inception, HCG has undergone several substantial changes, the most notable occurring in 2004 when the Arizona State Legislature eliminated the state subsidy that had supported the program since 1999. Beginning in fiscal year 2005, the program has operated entirely from premiums paid by subscribers. Enrollment has continued to grow, more than doubling between 2004 and 2006, with March 2007 enrollment reaching 26,062 medical plan members. HCG also offers a dental and a vision plan, bringing the total enrollment in all plans to 45,521 and making HCG one of the largest state initiatives to provide health insurance for small businesses nationwide.⁵⁰

The very concept of health insurance must be redefined as it applies to American Indians, who are entitled to healthcare through treaties with the United States government. However, tribal members face significant barriers to accessing care, including provider shortages and sometimes a confusing array of barriers when accessing services. Arizona's Native American health care community includes 21 tribal health offices, three Urban Indian Health Programs, three Indian Health Service Area Offices, and the Inter Tribal Council of Arizona, Inc.

ARIZONA HEALTH CARE COST CONTAINMENT SYSTEM

Arizona was the last state in the nation to implement a Title XIX Medicaid program. After much debate, the legislature rejected traditional fee-for-service financing arrangements in favor of an innovative plan for Medicaid managed care. The Arizona Health Care Cost Containment System (AHCCCS . pronounced %access-), is today the state's Medicaid program, representing the single largest source of health insurance for Arizonans, providing coverage to over 1 million people.

Although federal laws set minimum standards, individual states have considerable flexibility when it comes to designing and running their respective Medicaid programs. Specifically, the federal government may, at a state's request, %waive+selected provisions of federal Medicaid law to facilitate a demonstration project that supports the unique objectives of the particular state Medicaid program.

Since its inception in 1982, AHCCCS has operated under a federal research and demonstration waiver that allows for a managed care model of service delivery. This means that, through a competitive bid process, AHCCCS contracts with multiple acute and long term care health plans, paying them prospectively to provide primary, acute, and long term care services to recipients. The health plans, in turn, are responsible for maintaining and reimbursing an adequate network of direct providers to deliver care to their respective members. The result is a managed care system that mainstreams recipients and allows them to select their providers. It is a system that reduces costly emergency services by emphasizing prevention, early intervention, and management of

⁵⁰ Profiles in Coverage: Arizona Healthcare Group. (2007, May). *State Coverage Initiatives*. Retrieved March 10, 2010, from www.statecoverage.org/files/Profiles%20in%20Coverage%20Arizona%20Healthcare%20Group.pdf

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chronic illness. Currently there are over 52,000 AHCCCS-registered providers throughout the State, including approximately 80 percent of Arizona's physicians.

Acute Care

The acute care program accounts for the greatest percentage (97 percent) of the AHCCCS population, and includes both Title XIX and Title XXI. The vast majority of Acute Care recipients include children and pregnant women who qualify for the federal Medicaid program (Title XIX). American Indians and Alaska Natives may choose to receive services through either the contracted health plans or the American Indian Health Program. The only other population not enrolled in a contracted health plan includes individuals who, because of immigration status, qualify for emergency services only.

In 1998, KidsCare became Arizona's Title XXI Children's Health Insurance Program (CHIP). Eligibility for KidsCare includes children under age 19 whose families' incomes are higher than that allowed for Medicaid eligibility under Title XIX, but lower than 200% of the Federal Poverty Level (FPL). With the exception of American Indians, who are exempt in accordance with federal law, parents pay a monthly premium based on income.

In November 2000, Arizona voters approved Proposition 204, which increased the income limit for Medicaid to 100% of the Federal Poverty Level (FPL) and permitted childless adults and parents to enroll in the Medicaid program.

In 2002, the KidsCare program was expanded to cover the parents of children enrolled in KidsCare. The expansion, called KidsCare Parents, was a low-cost health insurance program for working parents whose income is below 200% of the federal poverty level. Parents paid a monthly premium of up to \$100 depending on their income. Table 4.4 shows current Medicaid (Title XIX) and SCHIP (Title XXI) eligibility as a percent of the federal poverty level.

Table 4.4 Current Medicaid and SCHIP Eligibility Levels

Medicaid Eligibility	% of FPL	SCHIP Eligibility	% of FPL
Infants (0-1)	140	Infants (0-1)	200
Children age 1-6	133	Children age 1-18	200
Children age 6-18	100	Pregnant Women	200
Pregnant Women	150		

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By July 2009, AHCCCS was providing health care coverage to approximately 19 percent of Arizona's population. At the same time, Arizona's budget deficit was deepening, which necessitated changes to AHCCCS eligibility requirements. On September 30, 2009, the KidsCare Parents program was eliminated, which had served approximately 10,000 adults. On January 1, 2010, KidsCare enrollment was frozen, which meant that no new applications are being processed, but applicants are put on a waiting list. The state budget passed in March of 2010 directed AHCCCS to eliminate the KidsCare program beginning June 15, 2010. Partial funding was also to be cut beginning January 1, 2011 for the population covered by the Proposition 204 expansion.

The law to repeal KidsCare had not taken full effect when the Patient Protection and Affordable Care Act (also known as Health Care Reform) was passed and signed by President Obama on March 23, 2010. This law contained a provision that required a maintenance of effort, which effectively required the State to restore, at a minimum, the KidsCare program with a freeze on new enrollment, and maintain the Medicaid program at the level that was in effect at the time that the Patient Protection and Affordable Care Act was signed. On April 29, 2010, the Arizona Legislature restored the matching funds for KidsCare with a freeze on new enrollment.

Long Term Care

Arizona Long Term Care System (ALTCS) provides acute care, long-term care, and case management to individuals who are elderly, physically disabled, or developmentally disabled, and who are at risk for institutionalization. To be eligible for ALTCS as either a physically or developmentally disabled individual, an applicant must meet functional and income requirements.

Functional requirements are measured by a pre-admission screening, which assesses the degree to which the diagnosis impacts the ability to do activities of daily living, such as bathing, dressing, eating, directing health care, and making age-appropriate decisions, among other factors. Income requirements for ALTCS apply only to the applicant, not the entire family. When ALTCS-eligible children are covered by their parents' private health insurance, the private insurance is the primary payer, but ALTCS covers co-pays at approved providers.

ALTCS is unique in that all covered services are integrated into a single delivery package that is coordinated and managed by a program contractor. Program contractors provide services for ALTCS members in the same way that health plans provide acute care services to AHCCCS members and, like acute care health plans, offer members choice of direct providers.

As an alternative to institutionalization, ALTCS supports the delivery of services in home and community-based settings, which reduces costs and improves member satisfaction by offering a meaningful degree of independence and control. Approximately 70 percent of ALTCS members who are elderly and physically disabled, and 98 percent of those who are developmentally disabled, receive home and community based services.

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Inter-Governmental Agreements between AHCCCS and ADHS

Behavioral health services for the acute care AHCCCS population and medical and rehabilitative services for children with qualifying chronic and disabling conditions for both AHCCCS acute care and ALTCS long term care recipients are provided through Inter-Governmental Agreements (IGAs) with the Arizona Department of Health Services. For more information on these areas of service, please see the following section on Behavioral Health Services, and the Children's Rehabilitative Services section under Direct Services.

Baby Arizona is a program to help pregnant women begin the important prenatal care they need while waiting for the AHCCCS eligibility process. Women who enter into the eligibility process through Baby Arizona are connected with doctors, clinics, and community health centers. Once a woman goes to the Baby Arizona provider she chooses, they will help her apply for AHCCCS health insurance and pre-enroll her in a health plan. Women begin prenatal care at no cost while their eligibility is processed. If a woman is ineligible for AHCCCS once her application is processed, the Baby Arizona doctor who began her prenatal care should work out a reasonable payment plan with the woman and continue care. As of December 2009, there were 156 Baby Arizona practice sites and a total of 350 individual providers. Approximately 57 percent of Baby Arizona providers were located in medically underserved areas in 2009.

BEHAVIORAL HEALTH

The Arizona Department of Health Services's Division of Behavioral Health Services (ADHS/DBHS) serves as the single state authority to provide coordination, planning, administration, regulation and monitoring of all facets of the state public behavioral health system. The division's focus is to promote healthy development and to provide effective prevention, evaluation, treatment, and intervention services to children and adults in need who would otherwise go unserved.

The State is divided into six geographical service areas (GSAs) served by four Regional Behavioral Health Authorities (RBHAs). Magellan serves Maricopa County. Northern Arizona Behavioral Health Authority (NARBHA) serves Mohave, Coconino, Apache, Navajo, and Yavapai Counties. Cenpatico Behavioral Health of Arizona serves Pinal, Gila, Yuma, and La Paz Counties. Community Partnership of Southern Arizona (CPSA) serves Pima, Graham, Greenlee, Santa Cruz, and Cochise Counties. These contractors are either non-profit or private organizations that function in a similar fashion to a health maintenance organization, managing networks of providers to deliver a full range of behavioral health care supports and services.

ADHS/DBHS also has Intergovernmental Agreements with five American Indian Tribes to deliver behavioral health services to persons living on the reservation. These tribes are the Gila River Indian Community, Navajo Nation, Pascua Yaqui Tribe, White Mountain Apache Tribe of Arizona, and Colorado River Indian Tribe. Services to other Native American Indian Tribes are provided and covered by the local RBHA in which the tribal reservation resides.

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Behavioral health services are provided to both federally eligible (Title XIX and Title XXI) and State-only (Non-Title XIX) populations. In addition to Title XIX and Title XXI funds, BHS receives funding from federal block grants and state appropriations.

However, state budget cuts in Fiscal Year 2010 have affected many behavioral health services such as:

- Elimination of all Medicare Part-D copayment subsidies for medications for dual-eligible behavioral health recipients, except those with a serious mental illness;
- Reduction of all appropriated funds for non-Medicaid treatment for substance abuse by 60 percent, for children by 11 percent, for adult general mental health services by 29 percent, and for adults with serious mental illness by 7 percent;
- Closure of the Adolescent Treatment Unit at the State Hospital.

Starting Fiscal Year 2011, there will be additional and substantial reductions to the behavioral health services that are provided to Non-Title XIX (State-only) populations. Beginning July 1, 2010, the State will offer a medication only benefit to Non-Title XIX adults with serious mental illness, crisis services for all persons presenting with a behavioral health crisis, and reprioritize general fund housing monies towards Title XIX enrolled individuals, while transitioning Non-Title XIX members to alternate housing or housing funded through other methods.

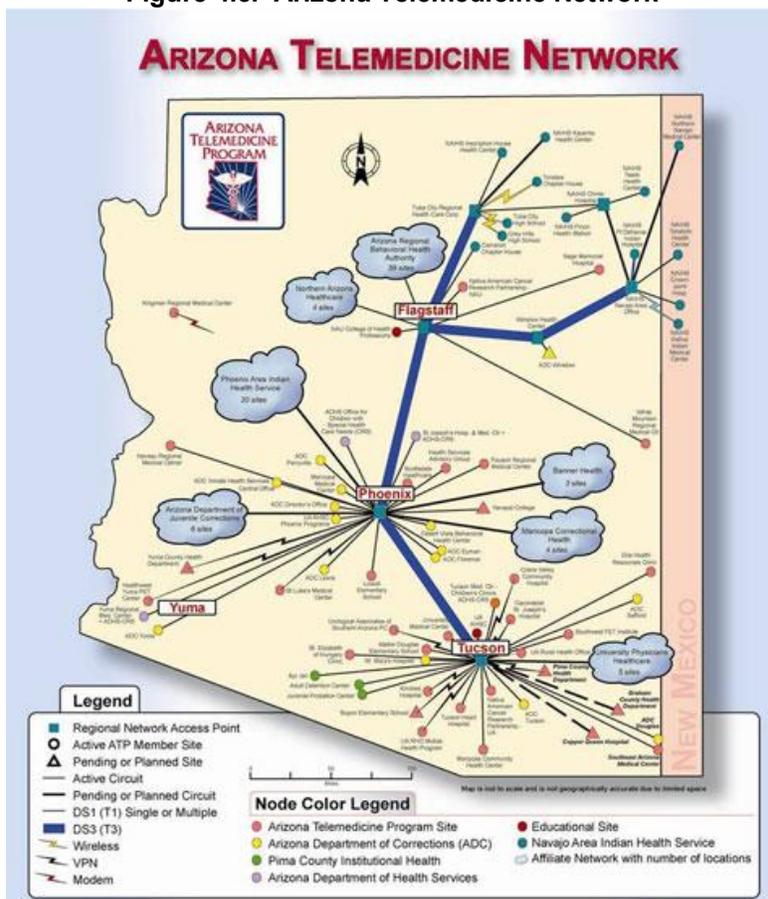
TELEMEDICINE

Telemedicine is the practice of medicine using a telecommunication system to provide clinical services at a geographically separate site. Service can be delivered ~~real-time~~ using interactive video conferencing or through ~~store and forward~~ which relies on the transmission of images for review immediately or at a later time.

The University of Arizona Telemedicine Program is a statewide program intended to increase access to healthcare to all residents in Arizona using telemedicine technologies. The use of telemedicine enhances the rural health infrastructure and reduces the need for rural patients and their families to travel to urban centers for health services. The program's telecommunications network spans the entire state and serves as a hub for linking all of the telemedicine networks in Arizona. Arizona's telemedicine network serves three functions: health care delivery, education and training, and videoconferencing administrative meetings. The complete telemedicine network is shown in Figure 4.3.

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Figure 4.3. Arizona Telemedicine Network



Teledentistry is an emergent area of dentistry that integrates electronic dental records, telecommunications technology, digital imaging, and the internet to link dental providers and patients. Teledentistry can facilitate the delivery of dental care in rural or remote areas that are underserved by dental practitioners. Teledentistry can also be a resource for dental consulting, referral for specialized care, dental mentoring, dentist laboratory communications, and continuing education.

The Office of Oral Health in the Bureau of Women's and Children's Health was awarded a HRSA Grant to States to Support Oral Health Workforce Activities in 2006 and a subsequent grant which continues through 2012. These grants funded a program to promote and develop enhanced dental teams utilizing teledentistry practice to improve workforce capacity, diversity and flexibility for providing oral health services to underserved populations and underserved areas.

As of November 2009, five sites in Arizona are using teledentistry technology:

- Hopi Health Care Center Dental Clinic
- Northern Arizona Council of Governments Head Start
- Northern Arizona University Dental Hygiene Department

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- North Country Community Health Center in collaboration with Arizona School of Dentistry and Oral Health
- Neighborhood Outreach Action for Health

These Arizona teledentistry providers, located in rural and urban areas, are in the early stages of developing their teledentistry models. The providers use multiple sites to deliver dental services and have different practice settings such as a mobile school-based program, a school-based fixed dental clinic, a community-based health center, and a private dental practice.

ARIZONA CHILD FIND

The Arizona Child Find program is a component of the Individuals with Disabilities Education Act (IDEA) that requires states to identify and evaluate all children with disabilities birth through age 21 who are in need of early intervention or special education services. Children are identified through school districts and other settings, such as community events. Child Find refers children to early intervention or special education services. The most frequently identified special needs in the 2008 Child Find data were related to specific learning disabilities, followed by speech and language impairments. In 2008, the Child Find program identified 123,327 children. Table 4.5 shows the distribution of disabilities that were identified by the Child Find Program.

Table 4.5 Distribution of Disabilities Identified in 2008 Arizona Child Find Program

Disability	%
Specific learning disabilities	45%
Speech or language impairments	20%
Developmental delay	7%
Cognitive disabilities	7%
Emotional disturbance	7%
Other health impairments	6%
Autism	4%
Hearing impairments	2%
Multiple disabilities	2%
Orthopedic impairments	1%
Visual impairments	1%
Deaf-blindness	<1%
Traumatic brain injury	<1%

Source: 2008 Arizona Child Find Program

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ARIZONA EARLY INTERVENTION PROGRAM

The Arizona Early Intervention Program (AzEIP) at the Arizona Department of Economic Security (ADES) serves children from birth until age three. To qualify for the program, children must have a developmental delay in which the child has not reached 50 percent of the developmental milestones expected at his/her chronological age, in one or more of the following domains: physical, cognitive, language/communication, social/emotional, and adaptive self-help. Established conditions that have a high probability of developmental delay include, chromosomal abnormalities; metabolic disorders; hydrocephalus; neural tube defects (spina bifida); intraventricular hemorrhage (grade 3 or 4); periventricular leukomalacia; cerebral palsy; significant auditory impairment; significant visual impairment; failure to thrive; severe attachment disorders.

AzEIP provides an array of services, including assistive technology, audiology, family training, counseling and in home visits, health services, medical services only for diagnostic or evaluation purposes, nursing services, nutrition, occupational therapy, physical therapy, psychological services, service coordination, social work, special instruction, speech-language therapy, vision services, and transportation (to enable child and family to participate in early intervention services).

Due to budget cuts, AzEIP is implementing a system of fees for certain services such as speech therapy, occupational therapy, physical therapy, and developmental special instruction. Fees will not exceed 20 percent of allowable costs, and no fees will be associated with activities related to determining eligibility or developing an Individualized Family Service Plan. Fees will be based on family income and family size. AHCCCS-enrolled children will not be required to pay.

DIVISION OF DEVELOPMENTAL DISABILITIES (DDD)

The Division of Developmental Disabilities (DDD) at ADES serves all ages, but has different eligibility requirements for different age groups. To qualify for services, a child from birth through age five must have a developmental disability or significant delay in one or more areas of development (language, cognitive, social, physical, self-help) that could lead to a developmental disability. Significant delay is defined as 50 percent or greater delay in one area or 25 percent or greater delay in two or more areas. A child also qualifies if he or she has a condition that is likely to result in a developmental disability without services.

Children age six and over must have cerebral palsy, epilepsy, autism, or a cognitive disability. The qualifying condition must be identified before the age of 18, be likely to continue indefinitely, and cause substantial limitations in three or more of the following life functions: receptive and expressive language, learning, self-direction, self-care, mobility, capacity for independent living, and economic self-sufficiency. The limitations must be attributable to the qualifying diagnosis.

Before Arizona had a Medicaid program, DDD was entirely state funded. The program has historically covered anyone with cerebral palsy, epilepsy, autism, or a cognitive

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disability. In the mid 1980s, Arizona was in the midst of a movement to de-institutionalize care for the developmentally disabled, when the ALTCS program was implemented, which was based on home and community-based services. People who had a developmental disability covered by DDD, and who also met the eligibility requirements for ALTCS came to be known as DDD ALTCS, and their services were paid through the Medicaid program.

Those who had a DDD diagnosis but did not meet either ALTCS functional or income criterion were served in a state-only DDD program, whose services are dependent on the availability of state general funds. Services in the state-only program were limited to the following home and community-based services: attendant care, day treatment and training, employment support services, rehabilitation, home health aide, home nursing, respite, therapies such as respiratory, occupational, physical, speech, and non-emergency transportation. On May 31, 2010, state-funded home and community based services were eliminated for everyone, with the exception of those living in foster care or residential supports, and children qualifying for early intervention services.

HIGH RISK PERINATAL AND NEWBORN INTENSIVE CARE PROGRAM

For nearly 40 years, the BWCH High Risk Perinatal Program/Newborn Intensive Care program has provided maternal and neonatal transports, hospital and inpatient physician services, and community health nursing to families. The program requires higher level Newborn Intensive Care Units (NICUs) to provide a NIDCAP® certified developmental specialist to support the infant's optimal developmental growth. Follow-up services support the family during transition from the hospital to home; conduct developmental, physical, and environmental assessments; provide education and guidance; and direct families to programs and services. During home visits, community nurses also assess other children in the home to identify children at risk and screen mothers for postpartum wellness. Budget cuts during fiscal year 2010 eliminated approximately 8,800 home visits to newborns who had previously been in newborn intensive care. Eligibility criteria were also changed to require a minimum five day stay (previously three days) in the NICU to be enrolled in the program.

MEDICAL SERVICES PROJECT

To help improve access to care for children, the Bureau of Women & Children's Health provides Title V funding to the Medical Services Project. Administered through the Arizona chapter of the American Academy of Pediatrics, the Medical Services Project was designed to increase access to and utilization of primary care services for Arizona's uninsured children from low-income families. The Medical Services Project provides delivery of medical services in participating physicians' offices to children without health insurance and to those who do not qualify (or are in the process of qualifying) for public assistance. The Medical Services Project creates a system of linkages between medical providers and school nurses to assist with health care provision to the target population. School nurses identify children who are eligible to participate in the Medical Services Project and facilitate their enrollment. To be eligible for the Medical Services Project a child must have no health insurance, must not be eligible for AHCCCS, KidsCare, or Indian Health Services; and must have a household income less than 185

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percent of the federal poverty level. For children who appear to be eligible for AHCCCS or KidsCare, the school nurse is encouraged to identify resources to assist families with the application process. A child with an acute illness may be seen through the Medical Services Project while in the qualifying process. The child is provided with a referral form to a participating health care provider and the school nurse makes the appointment.

A network of physicians (pediatricians, family practice physicians, and specialists) provides care to children qualifying for the Medical Services Project for a fee of either \$5 or \$10 as payment-in-full for an office visit. The health care providers agree to provide a certain number of appointment slots to Medical Services Project children each month. In addition, prescription medications, diagnostic laboratory services and eyeglasses are provided as necessary to qualifying children. In 2009, the Medical Services Project served 242 individual children.

ARIZONA SCHOOL FOR THE DEAF AND BLIND

Children age 3-22 with hearing or vision loss are eligible to receive services through Arizona School for the Deaf and Blind. Services provided include education, vocational training, work education, transition planning, occupational and physical therapy, counseling, social work, speech therapy, communication, and recreation.

POPULATION-BASED SERVICES

Population-based services include preventive interventions and personal health services that are developed and available for the entire MCH population, whether care is delivered in the private or public system, rural clinic, or an HMO, and whether the person is insured or not. Disease prevention, health promotion, and statewide outreach are considered to be population-based services. Examples of services at this level of the pyramid are newborn screening, lead screening, immunization, SIDS counseling, oral health, injury prevention, nutrition and outreach/public education.

STATE AND COUNTY HEALTH DEPARTMENTS

The Arizona Department of Health Services (ADHS) is responsible for public health, behavioral health, the Arizona State Hospital, emergency medical services, the state laboratory, public health data and statistics, vital records, disease control, emergency preparedness, and licensing of health and child care facilities.

In Arizona's public health system, the relationship between state and county public health agencies impact the availability and quality of public health services delivered in local communities. The public health system in Arizona is a decentralized system. Local health departments have discretion over decision-making and service delivery. The state and local health departments have independent authority, but work collaboratively to ensure an effective public health system. The Arizona Revised Statutes provide a framework for what the state and local health departments do. Each local health department responds according to its own organizational governance,

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jurisdictional differences and resources. County boards of supervisors oversee local health departments; they may delegate some oversight to a local board of health. Arizona has 15 county governments and each has a public health department. Ten are operated as units of the county government, and five are operated as public health service districts.

Formation of a public health service district requires approval by the majority of persons voting in a county election or the unanimous vote of the board of supervisors. Districts are then allowed to levy a tax to support the District. This allows counties with a District to remove a county health department's expenses from the county's own tax levy limit. Districts have no board of health and the County Supervisors serve as the board of directors.

ADHS works collaboratively with and provides funding to county health departments to implement many state administered maternal and child health programs, including but not limited to family planning, High Risk Perinatal Community Health Nursing, Health Start, teen pregnancy prevention, and WIC. County health departments may have additional funding for maternal and child health programs through First Things First, federal grants, and county funds.

HOME VISITING PROGRAMS

Home visiting has been shown to improve child health and development outcomes and to prevent child abuse. Home visiting has had a solid presence in Arizona and is poised to grow. There are three state agencies and several nonprofit organizations and local governments with significant home visitation capacity ranging from Nurse Family Partnership and Community Health Nurses to lay health workers or visitors. Some of these programs have been rigorously evaluated and some have not.

While some of these programs have a more medical focus, the others seek to provide parent education, increase parenting skills and prevent child maltreatment and abuse or prepare children for school. The major programs currently in practice include Nurse Family Partnership, Community Health Nurses who follow infants who have spent time in a Newborn Intensive Care Unit, Health Start, Healthy Families, Early Head Start, Choices, Parents as Teachers, and Migrant Education. Beyond that there were 16 other smaller home visiting services identified. Several of these are assisted by Title V funds.

The Bureau of Women's & Children's Health administers two home visiting programs. The High Risk Perinatal Program's Community Health Nursing component has been described previously in this document. The Arizona Health Start Program is BWCH's other home visiting program. It was established through statute in 1992, and is currently funded with state lottery dollars. Health Start applies a community based model that utilizes Community Health Workers or promotoras to identify, screen and enroll at risk pregnant or postpartum women and their families and assists them with obtaining early and consistent prenatal care, provides prenatal and postpartum education, information and referral services, advocacy and emphasizes timely immunizations and developmental assessments for their children. In 2009, the Health

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Start Program was provided in 100 targeted high risk communities in ten counties and provided services to 2,300 women and their families. Recently published research on the Health Start Program by ADHS found that Health Start participants had higher birth weight babies (above 2,500 grams) and longer gestational periods (greater than or equal to 37 weeks) than non Health Start participants.

In anticipation of federal health care legislation and its emphasis on home visiting, in October 2009, the ADHS joined with First Things First, the Department of Economic Security, Department of Education, and other community partners who provide home visitation services to create a task force to study home visiting in Arizona and create a vision and plan for home visiting. The taskforce sought to develop a systematic plan for home visitation to better serve Arizona's young families.

The group found that statewide, approximately 53,000 children birth to age five and their families have been provided home visitation services in FY 2010 with funding totaling more than \$60 million in SFY 2010. The home visiting that was assessed was mapped out by services, number and percent of children served. It is estimated that 11 percent of children under the age of five were able to be visited at home.

Capacity for home visiting is expected to grow as a result of the new federal Maternal, Infant, and Early Childhood Home Visiting Program authorized as part of the Health Care Reform Act. Arizona is expected to receive nearly \$2 million for the first year, with additional funding authorized through federal fiscal year 2014. The new program is intended to provide evidence-based home visiting services to pregnant women and families with young children residing in high risk communities.

SPECIAL SUPPLEMENTAL NUTRITION PROGRAM FOR WOMEN, INFANTS AND CHILDREN (WIC)

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) is an integral part of Arizona's public health system and is designed to reach families most in need of preventative health services. Through a network of local partners, the Arizona WIC Program provides services in 14 counties at more than 120 sites. Monthly, 187,000 women, infants and children participate in the Arizona WIC Program. The Navajo Nation and the Inter Tribal Council of Arizona, Inc., also provide WIC services in Arizona to American Indians both on and off reservations, and our combined services reach more than 200,000.

WIC is federally funded by the United States Department of Agriculture (USDA). It provides low-income pregnant, breastfeeding and postpartum women, infants, and children to age five determined to be at nutritional risk, at no cost, nutrition and breastfeeding education, referrals to health care and social service providers and a food prescription.

To increase both incidence and duration, the WIC program has worked very closely with the Bureau of Women and Children's Health to develop and implement a comprehensive breastfeeding promotion and support program. This is an integral part of the WIC program and is provided through peer counseling, breastfeeding education, breast pumps for mothers returning to school or work, and a toll-free breastfeeding

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support telephone hotline. Last year, the Arizona WIC Program served an average of 44,932 women each month. Of this number, 63 percent were Hispanic and WIC reached more than 50 percent of infants born in our service area. All of the participants are considered to be at nutritional risk and have incomes below 185% of poverty.

Research has shown that the WIC Program plays an important role in improving birth outcomes and containing health care costs. Using WIC and Medicaid data, the USDA found that WIC participation for low-income Medicaid women resulted in:

- Longer pregnancies;
- Fewer premature births;
- Lower incidence of moderately low and very low birth weight infants;
- Fewer infant deaths;
- Greater likelihood of receiving prenatal care; and
- Greater savings in health care costs.

NEWBORN SCREENING

The Arizona Department of Health Services Newborn Screening Program screens all babies born in Arizona for several conditions before they leave the hospital. The program follows infants with presumptive positive tests to ensure they receive a second screen and to facilitate diagnosis and treatment.

ADHS is mandated by state law to provide newborn screening, follow-up services, a data registry of screening results, and education related to newborn screening. The Newborn Screening Program is funded through fees collected for the screening. State law capped the fee for the first specimen and hearing test at \$30 and at \$40 for the second specimen and hearing test. State law also requires that a Newborn Screening Committee with specified representation meet annually to provide recommendations and advice to the program regarding tests that the committee believes should be included in the newborn screening program. The Newborn Screening Program is located within the State laboratory, and by law the state laboratory is designated as the only testing facility for the program.

In 2006, the screening panel was expanded to include 29 conditions in accordance with recommendations from the American College of Medical Genetics, Academy of Pediatrics, and the national March of Dimes. In 2009, 96% of the 93,314 babies born in Arizona were screened for all of the recommended diseases. Through these screens, 3,651 children were identified with a presumptive positive test. These children and their families received follow-up services and as a result of getting a second screen, 115 children were confirmed as positive for one of the diseases on the expanded panel. Fifty-five children were diagnosed with Congenital Hypothyroidism, 14 with Cystic Fibrosis and 12 with Sickle Cell Anemia.

The Newborn Hearing Screening Program ensures all babies born in Arizona hospitals receive a hearing screen prior to birth. The results of the hearing test are recorded on the baby's immunization record so primary care providers are aware of their patient's results. Babies who do not pass their hearing test are referred to the program for

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follow-up services to ensure the child receives a diagnostic testing within the first three months of life. In 2009, 98 % of the babies born in Arizona received a hearing screen in the hospital. Of the infants not screened prior to hospital discharge, 56% returned for outpatient screens, most within 30 days. Arizona's hearing screening rate surpasses the Healthy People 2010 Objective 28 -11 of screening 90% of all infants by one month of age.

HEARING AND VISION SCREENING

Arizona Statute requires that hearing evaluation services be administered to all children no later than the first year of attendance in an education program or residential facility for disabled children until the child has reached age sixteen or is no longer enrolled in an education program. Arizona Department of Health Services has the statutory responsibility of administering a program of hearing evaluation services and implementing administrative rules to provide standards and procedures for the program.

While the requirement to providing hearing screening is an unfunded state mandate for the schools and ADHS, the Bureau of Women's and Children's Health uses Title V dollars at the state level to support the infrastructure necessary to carry out the statutory duties of ADHS. The Bureau of Women's and Children's Health contracts with the University of Arizona to develop hearing screening curriculum and to train hearing screening trainers. Arizona currently has 128 hearing screening trainers throughout the state that provide the infrastructure to train enough hearing screeners to screen Arizona's school age children. In the school year 2008-2009, 535,001 students were screened and 1,259 were identified for the first time with a hearing disorder. To help support the schools, ADHS makes hearing screening equipment available by loan to Arizona's schools.

Unlike hearing screening, vision screening is not mandated in the state of Arizona. However, many schools voluntarily provide vision screening to school age children. The ADHS Bureau of Women's and Children's Health supports vision screening with Title V dollars by contracting with the University of Arizona to develop vision screening curriculum and to train vision screening trainers. Some of the hearing screening trainers are also vision screening trainers. In addition, ADHS has worked with many partner organizations to update Vision Screening Guidelines to serve as a tool for schools and others who provide vision screening to children.

IMMUNIZATIONS

Arizona's immunization rates for children 19 to 35 months of age are similar to national rates. Results from the CDC's National Immunization Survey in 2009 indicated that both in Arizona and the United States, 76% of these children received the full schedule of age appropriate immunizations against measles, mumps, rubella, polio, diphtheria, tetanus, Pertussis, Haemophilus influenza, and hepatitis B.

The ADHS Arizona Office of Immunization Program is working to raise immunization rates for all children and adults by:

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- Providing vaccines for Medicaid eligible children, Native American children and uninsured or underinsured children in Arizona through the Vaccines for Children program.
- Supporting public immunization providers in order to enhance service delivery of immunizations.
- Providing education about vaccine-preventable diseases, vaccines, and immunizations to healthcare providers and the public.
- Increasing awareness among health professionals of awareness on the importance of following recommended immunization schedules for age appropriate vaccinations.

The program increases public awareness by providing educational materials to all vaccine providers through partnerships with coalitions, such as The Arizona Partnership for Immunization (TAPI), the Maricopa County Childhood Immunization Partnership (MCCHIP) the Arizona Partnership for Adult Immunizations (APAI) and the Southern Arizona Immunization Coalition (SAIC). Title V funds have supported the work of The Arizona Partnership for Immunization (TAPI) for the past decade.

The program monitors immunization levels of Arizona's children attending school or child care; vaccine-preventable disease surveillance and outbreak control; healthcare provider and community immunization information and education; and enforcement of the state's immunization requirements. This Fall, Arizona children 11 years and older entering 6th, 7th, and 8th grades will be required to be vaccinated against meningococcal disease and pertussis prior to school entry if 5 years have passed since their last tetanus/diphtheria containing vaccination.

All healthcare professionals administering immunizations to children must report these immunizations to the Arizona State Immunization Information System (ASIIS). The registry serves as a receptacle for accommodating the reported data and is a valuable tool for the management and reporting of immunization information to public health professionals, private and public healthcare providers, parents, guardians and other child care personnel. An effort is underway to integrate ASIIS into electronic health records throughout the state.

ADHS also has a Perinatal Hepatitis B Prevention Program that focuses primarily on 1) testing all pregnant women for hepatitis B virus and 2) ensuring the appropriate prophylactic treatment of infants born to hepatitis B positive women or to women whose antigen status is unknown. Additionally, testing and hepatitis B immunizations are offered to all household and sexual contacts of the positive woman. Comprehensive adolescent "catch up" programs have also been initiated in schools, juvenile correctional facilities and other high risk areas for hepatitis B virus infection. Within the past two years, ADHS has enhanced efforts to encourage the pertussis vaccination of infant's family members, since data show that infants are most likely to contract pertussis from their mothers and other close family members. Infants are at highest risk for pertussis-related complications and hospitalizations, and those less than 6 months of age have the greatest risk of dying. The tetanus, diphtheria, and acellular

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pertussis vaccine (Tdap) has been recently licensed for adults. ADHS has recommended to obstetrical health care providers that they vaccinate postpartum women before leaving the hospital or birthing center; encourage fathers, other family members, and close contacts of infants to receive Tdap, and; consider Tdap vaccination in women of childbearing age during preconception wellness visits.

ORAL HEALTH

The National Survey on Children's Health 2007 data indicates that 75 percent of Arizona's children received at least one dental visit in the past year compared to 78 percent nationally. Table 4.6 presents oral health capacity indicators from the PEW Center on the States Report comparing Arizona to the US.⁵¹

Table 4.6 Key Indicators of Oral Health Services and Capacity in Arizona and the United States

Indicator	United States	Arizona
1. Percentage of low-income children receiving dental services in 2007	38%	40%
2. Percentage of each state's civilian population that is living in Dental Health Professional Shortage Areas (DHPSAs)	10%	8%
3. Percentage of citizens on community water systems that are fluoridated	75%	56%
4. State Medicaid program reimburses medical care providers for preventive dental health services	Yes	No

Source: PEW Center on the States (2010): The cost of delay: State dental policies fail one in five children.

The overall capacity of the current workforce to address the oral health needs of Arizonans is recognized in three areas: lack of dental providers in rural areas; lack of public health clinics serving the uninsured and underinsured; and lack of dental providers accepting Medicaid. In Arizona, there are 44 dentists per 100,000 residents in rural areas and about 57 dentists per 100,000 in urban areas. While an Affiliated Practice Dental Hygienist (APDH) can ease the workforce shortage in rural areas by eliminating the need for a dentist to perform an exam prior to a hygienist placing sealants, Arizona's Medicaid agency has not been able to successfully reimburse APDHs for sealant services.

The lack of progress in supplying Dental Health Professional Shortage Areas with needed dental providers underscores the need for attention to distribution. Arizona has two new dental schools and six accredited dental hygiene programs with the prospect of graduating 150 dentists and over 300 dental hygienists annually. The increase in the number of dental providers has the capacity to address distribution and supply demands.

⁵¹ PEW Center on the States (2010): The cost of delay: State dental policies fail one in five children. Retrieved May 25, 2010, from http://www.pewcenteronthestates.org/report_detail.aspx?id=56870

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State public health capacity is enhanced through the state's Office of Oral Health (OOH) in the Arizona Department of Health Services. While the requirement to have an oral health program is an unfunded state mandate, the Bureau of Women's and Children's Health dedicates Title V dollars to carry out statutory duties of ADHS. Prevention efforts are focused in evidence-based programs. The Office of Oral Health contracts with county health departments to provide school-based dental sealants and screenings to over 10,000 children per year. OOH manages the Arizona Fluoride Mouthrinse program, providing approximately 20,000 children in participating schools with fluoride mouthrinse annually. OOH supports the efforts of communities to fluoridate their water systems through providing technical assistance, training, and workshops for community fluoridation campaigns. Unlike some other states where water fluoridation is a state mandate, in Arizona, water fluoridation is initiated at the community level through the city council or public vote.

OOH works to develop the current dental workforce by creating linkages with the Bureau of Health Systems Development scholarship and loan forgiveness programs. OOH was awarded a HRSA Grant to States to Support Oral Health Workforce Activities in 2006 and a subsequent grant which continues through 2012. These grants funded a program to promote and develop enhanced dental teams utilizing teledentistry practice to improve workforce capacity, diversity and flexibility for providing oral health services to underserved populations. As of June 2010, five dental service delivery sites in Arizona are using teledentistry technology.

The passage of health care reform is expected to bring additional federal funds for oral health. These funds represent a comprehensive systems change approach to oral health with funding specific for building state infrastructure and school-based sealant programs.

DOMESTIC VIOLENCE AND SEXUAL VIOLENCE SERVICES

According to the 2009 domestic violence counts national summary,⁵² 65,321 people were served by domestic violence programs in one day in the entire nation, and 1,567 people were served in Arizona. This provides a snapshot of how many people in Arizona are seeking help for domestic violence on any given day. Table 4.7 compares key indicators on services available to victims of domestic violence in Arizona and across the nation. While Arizona fares well in providing emergency shelter or transitional housing to victims compared to the U.S., Arizona does substantially less well in providing non-residential services, which includes individual counseling, legal advocacy, and children's support groups. Only 18 percent of Arizona domestic violence victims received these services compared to the 50 percent in the U.S.

⁵² Census: Domestic Violence Counts. (n.d.). *National Network to End Domestic Violence - National Network to End Domestic Violence*. Retrieved July 1, 2010, from <http://www.nnedv.org/resources/census>

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Table 4.7 Key Indicators of Services to Domestic Violence Victims in Arizona and the United States

Indicator	United States	Arizona
1. Percent of victims who found refuge in an emergency shelter or transitional housing	50%	82%
2. Percent of adults and children who received non-residential assistance and services, including individual counseling, legal advocacy, and children's support groups	50%	18%
3. Percent of programs that reported "unable to meet services" due to lack of funding	40%	33%
4. Percent of programs that reported "unable to meet services" due to lack of specialized services	23%	25%
5. Percent of programs that reported "unable to meet services" due to lack of available beds or funding for hotels	24%	33%
6. Percent of programs that reported "unable to meet services" due to limited funding for translators, bilingual staff, or accessible equipment	11%	14%

Source: *Domestic Violence Counts 2009: A 24-Hour Census of Domestic Violence Shelters and Services.*

The Arizona Department of Economic Security annually surveys all the 32 domestic violence shelters receiving state Domestic Violence Shelter Funds. Shelters were asked to determine the needs for victims and their families that go beyond the scope of services their shelters provide. In 2009, the primary need identified across the state was housing, which included the need for more emergency shelter beds, transitional housing, and stable affordable housing. Transportation, childcare, and legal assistance were all identified as much needed supports for victims and their families.⁵³ Department of Economic Security reported that there were 8,468 unmet requests for shelter in 2009. A total of 11,209 adults and children received services, with children representing 47 percent of that total.⁵⁴

In state fiscal 2008, Arizona state agencies administered over \$26 million in federal and state funding dedicated to domestic violence. In contrast, state agencies administered just over \$2 million in the same year for sexual assault.⁵⁵ (*State Agency Coordination Team, 2008 Report.*) All state agencies involved in domestic and sexual violence services, including Arizona Department of Health Services, meet regularly as the State Agency Coordination Team, to address common issues and ensure services are coordinated throughout the state.

The Bureau of Women's and Children's Health administers the federal Family Violence Prevention and Services Act Grant. These funds are used primarily to support shelter and services in rural Arizona, known as the Rural Safe Home Network. Between

⁵³ Domestic Violence Shelter Fund Annual Report 2009. *Arizona Department of Economic Security.* Retrieved June 24, 2010, from

https://www.azdes.gov/InternetFiles/Reports/pdf/domestic_violence_shelter_fund_annual_report_2009.pdf

⁵⁴ *Arizona Department of Economic Security.* Retrieved June 24, 2010, from

<https://www.azdes.gov/common.aspx?menu=36&menuc=28&id=2324>

⁵⁵ State Agency Coordination Team 2008 Report. (2008, December). *Arizona Governor's Office for Children, Youth and Families.* Retrieved June 23, 2010, from gocyf.az.gov/Women/Policy/SACTReport2008.pdf

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October 1, 2008 and September 30, 2009 the Rural Safe Home Network programs provided 14,567 shelter nights to 466 women, 515 children and three men. Programs provided 1,825 hours of batterers' intervention services to 572 people, as well as 766 domestic violence training and prevention services to 24,741 participants.

The Bureau of Women's and Children's Health also administers the only funding source dedicated solely to primary prevention of sexual violence. The Arizona's federally funded Sexual Violence Prevention and Education Program reached 25,719 Arizonans with primary prevention education in the last fiscal year. The program uses multi-faceted, evidence and theory based activities and/or strategies; addresses change at multiple levels; and focuses on multiple life stages of child, adolescent, and adult. The program worked with multiple stakeholders to develop the first state plan specific to the prevention of sexual violence.

From a policy perspective, the capacity of the state has experienced some improvement in recent years. In 2005, the state legislature passed a law authorizing the creation of local domestic violence fatality review teams. Teams examine incidents of domestic violence related fatalities to better understand the dynamics of these fatalities, and are required to report to the Arizona Attorney General their findings and recommendations as to how incidents of domestic violence related fatalities may be prevented and how the system can be improved. By December 2009, Arizona had six (6) Domestic Violence Fatality Review Teams in place. Those teams are located in: City of Phoenix, Pinal County, Town of Sahuarita, Coconino/Flagstaff, Yuma County and Mohave County. (From the Commission to Prevent Violence Against Women 2009 Annual Report)

The passage of the *Capacity Law* in 2009 recognized sexual and romantic relationships under Arizona's domestic violence statute, bringing individuals abused by their significant other the same protections as those who are married, formerly married, live together, formerly lived together, have a child in common or one is pregnant by the other party, or are related by blood or court order. Domestic violence was added to the factors that must be considered and documented in determining the best interests of the child during child custody cases. Lastly, to help address teen dating violence, legislation was passed to require school districts to consider adding teen dating violence/healthy relationship curriculum to health or sex education requirements.

NON-PROFIT AGENCIES

Nonprofit agencies play a critical role in providing health and human services to those most in need. Nonprofit agencies help carry out the state's maternal and child health mission in a variety of ways - providing shelter and support to domestic violence victims, providing prevention education in schools and universities, and providing home visiting services to new mothers - citing just a few examples. In 2009, there were 21,718 registered non-profit agencies in Arizona. Arizona nonprofits employ over 120,000 people and inject more than \$17 billion into the Arizona economy annually.⁵⁶

⁵⁶ Arizona Nonprofits. (n.d.). *Alliance of Arizona Nonprofits*. Retrieved May 25, 2010, from <http://www.arizonanonprofits.org/arizona-nonprofits/aznonprofits.aspx>

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The Alliance of Arizona Nonprofits surveyed nonprofits at the end of 2009 about the effects of the recession. The Alliance found that six out of 10 nonprofits experienced a drop in revenues in 2009. On average, revenues decreased 22 percent in 2009. The highest average decrease (25 percent) in revenues in 2009 was from government sources. Thirty-eight percent (38 percent) reported layoffs of one or more employees. At the same time demand for services continue to rise. Eighty-five (85 percent) of nonprofits expect demand for their services to rise in 2010. Nearly one out of four nonprofits reported considering or reviewing possibilities for merger with other nonprofits and other joint ventures.⁵⁷

There are several publicly and privately funded organizations that provide services for CYSHCN in Arizona. Some organizations are specific to certain special health care needs such as cerebral palsy, hearing and visual impairment, and autism. Services include counseling, rehabilitation, education, therapy, recreation, employment, housing, information, and referral. Support groups for families of CYSHCN offer the opportunity for parents or family members to connect with others who face similar challenges. Organizations that provide family support allow group discussions or one-on-one conversations where families can find emotional support as well as to share experiences. Families are also able to attend social or educational gatherings related to their child's condition. For a list of nonprofit organizations that support and serve families of CYSHCN, please see the resource list at the end of Chapter X titled "CYSHCN Health Status and Needs+."

INFRASTRUCTURE-BUILDING SERVICES

Infrastructure-building services are activities directed at improving and maintaining the health status of all women and children by providing support for development and maintenance of comprehensive health services systems including development and maintenance of health services standards and guidelines. Services in this part of the pyramid include needs assessment, evaluation, planning, policy development, coordination, quality assurance, standards development, monitoring, training, applied research, information systems and systems of care.

Arizona has only one state medical school, two dental schools, and two schools of osteopathic medicine. As a result, Arizona trains fewer of its own providers than most other states and many Arizona medical graduates leave to practice in other parts of the country. The percent of in-state medical school graduates in Arizona is 10 percent compared to 29 percent in the nation. In addition, more than 20 percent of physicians in Arizona are older than age 65 which is higher than the national average of 13 percent.⁵⁸ These factors all affect Arizona's ability to develop and maintain an adequate provider

⁵⁷ Community Cornerstones: Arizona Nonprofits Ride Out the Economic Storm. (2010, January). *Alliance of Arizona Nonprofits*. Retrieved May 25, 2010, from <http://www.arizonanonprofits.org/common/files/Community%20Cornerstones%201.10.pdf>

⁵⁸ The United States Workforce Profile. (2006, October). *University of Albany-The New York Center for Health Workforce Studies*. Retrieved April 23, 2010, from www.albany.edu/news/pdf_files/U.S._Health_Workforce_Profile_October2006_11-09.pdf

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network. Due to budget cuts, the state of Arizona reduced funding for graduate medical education by over \$42 million during Fiscal Year 2010.⁵⁹ Therefore, hospitals have fewer training positions for medical students, and studies have shown that young doctors are more likely to start their careers in communities where they train.

Fifteen hospitals received funds from AHCCCS for graduate medical education in 2009.⁶⁰ These programs produce pediatric specialists. There is a shortage of qualified pediatric specialists and sub-specialists both in Arizona and the nation. This shortage of physicians and specialists in Arizona may be intensified from the recent loss of funding for graduate medical education.

FIRST THINGS FIRST

The Early Childhood Development and Health Board, also known as First Things First (FTF), was established in 2008 as the result of a statewide voter initiative. The initiative called for an 80 cent tax on tobacco products to fund programs to support children and families so that all Arizona's children would be healthy and ready to succeed in school. The law charged the Board with increasing access to early childhood development and preventive health programs and health screenings, providing parent education about early childhood including brain development, and providing training and support to early childhood providers.

By law, 90 percent of FTF's money goes directly to programs and services, and only 10 percent of those funds can be spent on statewide strategies. The remaining 80 percent of funds are directed by 31 Regional Partnership Councils across the state. Each council identifies their communities' assets and needs or gaps and develops strategies and funding plans.

Beyond establishing a quality improvement and rating system for child care providers and supporting enhanced education for early childhood care providers and educators, First Things First also supports a statewide system of Child Care Health Consultants. Over \$4.5 million has been expended on the Child Care Health Consultant system both through infrastructure building and training.

Other statewide health strategies include outreach and enrollment assistance for public health insurance, increasing access to oral health, physician outreach and education supporting the medical home concept, mental health consultation for child care settings and workforce support and readiness. A partnership with Arizona State University's speech language pathology program will expand early intervention knowledge as part of a master's degree program, as well as provide continuing education to support licensed mental health clinicians and therapists in providing mental health consultation programs serving young children. Beyond that the local regions have invested a great deal in

⁵⁹ Cumulative Budget Reduction Savings Summary. *Arizona Health Care Cost Containment System*. Retrieved May 19, 2010, from

<http://www.azahcccs.gov/reporting/Downloads/BudgetProposals/FY2010/CumulativeReductionSummary.pdf>

⁶⁰ Graduate Medical Education Payment History. *Arizona Health Care Cost Containment System*. Retrieved May 19, 2010, from <http://www.azahcccs.gov/commercial/Downloads/HospitalSupplements/GMEpayments.pdf>

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home visitation, health and nutrition activities, oral health, hearing and vision screenings and preventive health care and education.

Over \$200 million on early childhood activities have been invested since First Things First's inception; however, as a result of a severe economic climate, the legislature has slated a ballot initiative for the November 2010 election asking voters to eliminate the program while continuing the tax, so that revenues would be deposited in the state general fund.

INJURY PREVENTION

Arizona is one of 30 states that are funded by the Centers for Disease Control and Prevention (CDC) to enhance the injury prevention infrastructure in the state. This infrastructure at the state level includes an injury epidemiologist, a program manager, an Injury Prevention Advisory Council, and a state injury prevention plan. Arizona's Injury Prevention Program resides within the ADHS Bureau of Women's and Children's Health, providing easy integration with maternal and child health programs.

The injury prevention network is vast, and includes trauma/children hospitals, county health departments, tribal governments, fire and EMS services, and community based organizations. Five of the fifteen Arizona county health departments have an injury prevention program. ADHS provides technical assistance and support upon request, and produces annual county injury reports.

Arizona Safe Kids is a statewide program dedicated to the prevention of unintentional injury for Arizona's children less than 15 years of age. Arizona Safe Kids is a member of Safe Kids Worldwide. Local Safe Kids Coalitions throughout Arizona receive leadership and technical assistance from Arizona Safe Kids. There are five local Safe Kids Coalitions, one local chapter, and the Arizona State Coalition. Local coalition accomplishments include regular car seat check events, a permanent car seat check site, child passenger safety technician certification and development of resource materials for public education.

Emergency Medical Services for Children (EMSC) program works to expand and improve capacity to reduce and ameliorate pediatric emergencies. In 2008, the program utilized its Pediatric Advisory Committee for Emergency Services, along with additional stakeholders, to begin working on establishing a voluntary pediatric designation system for hospital emergency departments. This system will identify minimum training and equipment a hospital should have to care for a pediatric patient. The system is scheduled to begin in fall of 2010.

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Legislation and other policy changes can have a significant impact on prevention of injuries. The following are some key policy changes that have occurred in recent years:

- A number of documented driving studies have indicated that young drivers could benefit from the education and experience required by a graduated driver licensing program. In July 2008, Arizona was successful in passing legislation that strengthened the licensing requirement. The requirements include many of the recommendations from studies such as supervised driving time that includes night time experience, passenger restrictions, the adult supervisor must be over 18 years of age and sit in the front seat and the law includes night curfew restrictions.
- All Terrain Vehicles (ATVs) injuries and deaths have increased steadily over the last six years. In January 2009, legislation was passed that requires drivers less than age 18 to wear a helmet, and passengers are prohibited on ATVs designed for one.
- While the State of Arizona does not have a booster seat law, the Navajo Nation enacted legislation in 2009 which requires children less than four feet, nine inches in height to be restrained in booster seats while riding in vehicles.
- Arizona passed legislation allowing the use and sale of hand held sparklers (fireworks), which had formerly been outlawed primarily due to concerns of fire. Arizona also repealed the requirement for a permit to carry a concealed weapon, and passed legislation to allow guns in bars and restaurants.
- Rules for licensed child care facilities are being revised that will enhance injury prevention. Pending rules include requirements related to soft products in a crib, placing an infant on the infant's back to sleep, usage of wheelchairs in a motor vehicle; prohibiting children being seated in front of an air bag in a vehicles, and prohibiting outdoor play equipment to be located in the fall zone of another piece of outdoor play equipment

CHILD FATALITY REVIEW PROGRAM

The Arizona Child Fatality Review Program was created in 1993 (A.R.S. § 36-342, 36-3501-4) and data collection began in 1994. A state team is mandated by statute to produce an annual report summarizing the findings and study the adequacy of existing statutes, ordinances, rules, training, and services to determine what changes are needed to decrease the number of preventable child fatalities. Each year, the state team makes evidence-based recommendations regarding the prevention of child deaths. These recommendations are used to educate communities, initiate legislative action, and develop prevention programs. Actual reviews of child deaths are conducted by local child fatality review teams located throughout the state. During the last review year, there were 255 volunteers across the state engaged in the difficult work of reviewing deaths. Teams have been able to complete reviews on 100 percent of the child deaths in Arizona for the past four years.

Funding for the Child Fatality Review Program is comprised of multiple sources. Through statutory authority, the Arizona Department of Health Services assesses a one-dollar surcharge on fees for all certified copies of death certificates, which is capped at \$100,000 each year. Because this funding is not adequate to support the local child fatality review teams and infrastructure necessary at the state level,

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additional funding for the program is provided by Emergency Medical Services, Behavioral Health Services, and the Title V MCH Block Grant.

INSTITUTE FOR HUMAN DEVELOPMENT

The Institute for Human Development (IHD) is a disability research and training program located on the campus of Northern Arizona University in Flagstaff, Arizona. The IHD is one of a national network of University Centers for Excellence in Developmental Disabilities Education, Research and Service. The mission of the IHD is to build and enhance the capacity of an integrated, statewide service continuum for persons with disabilities. The IHD offers an extensive array of programs and services including direct services through contracts with state service agencies, technical assistance to program administrators, service providers and individuals with disabilities, assistive technology direct services, interdisciplinary training, technical assistance, and information dissemination.

SONORAN UNIVERSITY CENTER FOR EXCELLENCE IN DEVELOPMENTAL DISABILITIES

The Sonoran University Center for Excellence in Developmental Disabilities (Sonoran UCEDD) Education, Research and Service is based on the vision of Arizona as a community benefiting from the full participation of all members, with recognition of the strengths brought by diversity in abilities, culture, age, interests and life-experience. The Sonoran UCEDD, located on the University of Arizona campus, learns from and supports people living with developmental disabilities in all stages of life through interdisciplinary education, service development, information dissemination, research and impact on public policy.

The Sonoran UCEDD is a collaborative effort between the Department of Family and Community Medicine, Disability Resource Center at The University of Arizona, the Arizona Center on Aging, Department of Pediatrics, state and local disability agencies and community groups focused on community needs which weren't being met --- health, wellness and competent treatment issues for adults with developmental disabilities; concern of aging care givers and people with developmental disabilities as they age; employment barriers for people with developmental disabilities; and the complex questions of supports and services in the Arizona-Mexico border region.

DEVELOPMENTAL DISABILITIES PLANNING COUNCIL

The Developmental Disabilities Planning Council was established on September 3, 2009 by Arizona Governor Jan Brewer. The purpose of the Council is to engage in advocacy, capacity building and systemic change activities for individuals with developmental disabilities and their families. A primary activity of the Council is to develop a five-year State Plan that will summarize how services and programs (e.g. employment, health, housing, recreation, child-care, etc.) should be structured within the State of Arizona. The Council will assure that individuals with developmental disabilities and their families participate in the design of, and have access to needed community services, individualized supports and other forms of assistance that promote self-determination, independence, productivity and integration and inclusion in all facets of community life.

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CHILD CARE SERVICES

In recent years, child care has been on the forefront of many initiatives in Arizona. The responsibility of licensing child care settings rests with the Arizona Department of Health Services. The Department of Economic Security (DES) assists low income families with the cost of child care, certifies small family child care homes and invests funds to increase the availability, affordability and quality of child care. A newly created agency, The Arizona Early Childhood Development and Health Board, also known as First Things First, assists in supporting quality improvement.

In Arizona, there is capacity for over 250,000 children to be cared for in licensed child care. However, according to Arizona's Early Childhood Opportunities 2009 Report, there are about 340,000 children in Arizona under the age of five who have all parents in the home in the labor force. Arizona's Early Childhood Opportunities 2009 Report estimates that 16 percent of all Arizona children, birth through five, are receiving regulated child care.⁶¹

Currently there are 2,757 facilities licensed by ADHS. These fall into three broad categories: child care center (60 percent), child care public school (25 percent), and child care small group homes (17 percent) with varying licensed capacities. Due to the state budget crisis, the ADHS Office of Licensing lost all of its state funds and now supports itself through licensing fees. This change caused a dramatic increase in the cost of child care licenses. There was a great deal of concern that the additional fee, passed on to families, would force some families to seek unregulated care. In order to offset the cost for providers and to provide a safety-net for families, ADHS utilized Title V and tobacco tax funds to create an innovative program called EMPOWER that subsidizes child care licensing fees to those facilities that adapt new guidelines promoting best practices in preventing childhood obesity and tobacco use in families.

The state budget situation also greatly reduced the ability of DES to assist low income families with the cost of care. The estimated median cost of child care in Arizona was \$9,583 for an infant and \$7,328 for a four-year-old in center-based care, and care provided in regulated family home settings was a median of \$5,208 for children birth through five.⁶² DES has been operating a waiting list for services since February 2009 due to budget shortfalls. By June 30, 2010 15,000 children will have been placed on a waiting list. Fortunately, First Things First has been able to make available to child care providers some funds for scholarships to support the children of low income working parents to maintain child care services in a licensed child care facility. So far about \$30 million has been spent at the state or local level to help fund these scholarships.

In spite of budget challenges, child care in Arizona has been able to make some significant advances. The ADHS is in the process of amending child care center rules to strengthen the support for the health, development and safety of Arizona's young

⁶¹ First Thing First (2009). Arizona's Early Childhood Opportunities 2009 Report.

⁶² Ibid

4. STATE CAPACITY TO ADDRESS MCH POPULATION NEEDS

children. Areas strengthened include physical activity and nutrition requirements, safety, CSHCN and education for providers.

The quality of a child care setting has a significant impact on the child's school readiness and development. Accreditation is a primary indicator for high quality early care and education. In Arizona there are currently 216 NAECY (National Association for the Education of Children and Youth) accredited ECE centers that represent 11 percent of all ECE centers and only 13 percent of children in licensed centers are attending these accredited programs.

Since 2008, First Things First began implementing a quality improvement and rating system for child care called Quality First. First Things First currently has over 700 centers enrolled in Quality First. Elements of this system include the nationally known T.E.A.C.H. program (Teacher Education and Compensation Helps), which offers scholarship support for child care providers to gain higher education such as their Child Development Associate (CDA) credential. The Reward\$ program is an additional program of First Things First to support and help retain quality early childhood teachers. This program will provide financial incentives to remain in early education settings after attaining credentials.

First Things First is also funding the state infrastructure for Child Care Health Consultants (currently 52) and Child Care Mental Health Consultants (currently 37). Over \$5 million is budgeted for SFY2011 for Child Care Health Consultants and \$5 million for Early Childhood Mental Health Consultants. Child Care Health Consultants (CCHCs) are experts in child health available to support child care providers to assure that children in their care are safe, healthy and ready to succeed.

5. CSHCN HEALTH STATUS AND NEEDS

CSHCN are defined as children:

- who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and
- who also require health and related services of a type or amount beyond that required by children generally.

There are several ways that a child could be identified with a special health care need. A certain number are identified at birth, before the infant leaves the hospital. The Newborn Screening Program screens all babies born in Arizona for 29 disorders⁶³ including hearing loss before they leave the hospital. The program follows infants with presumptive positive tests through a second screening, to facilitate diagnosis and treatment. Children can get screened during well-child checkups as well as at childcare settings and at school. The Arizona Child Find program also identifies children with disabilities birth through age 21 through school districts and other community settings.

Prevalence refers to the proportion within a given population that has some defined characteristic. Estimating the prevalence of CSHCN depends upon the recognition and identification of a need as special. The National Survey of Children's Health (NSCH) identifies C/YSHCN through the following screening questions regarding the need or use of services, prescription medications, specialized therapies, and having functional difficulties due to an ongoing condition:

Screening Questions:

1. Does child currently need or use medicine prescribed by a doctor, other than vitamins?
 - Is [his/her] need for prescription medicine because of ANY medical, behavioral or other health condition?
 - Is this a condition that has lasted or is expected to last 12 months or longer?
2. Does child need or use more medical care, mental health or educational services than is usual for most children of the same age?
 - Is [his/her] need for medical care, mental health, or educational services because of ANY medical, behavioral or other health condition?
 - Is this a condition that has lasted or is expected to last 12 months or longer?
3. Is child limited or prevented in any way in [his/her] ability to do the things most children of the same age can do?

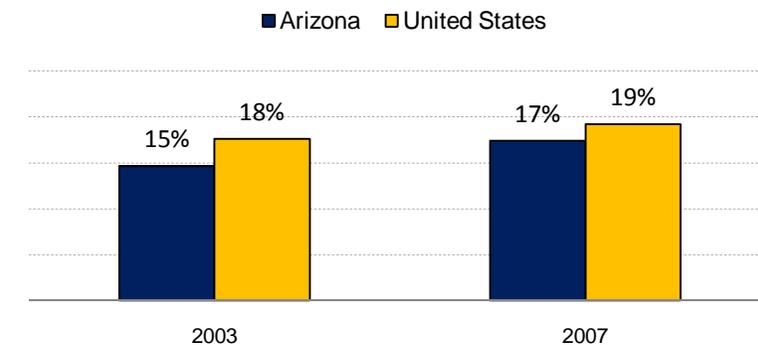
⁶³ The newborn screening panel screens for 6 amino acid disorders, 5 fatty acid oxidation disorders, 9 organic acid disorders, biotinidase deficiency, classic galactosemia, congenital hypothyroidism, congenital adrenal hyperplasia, 3 hemoglobin disorders, cystic fibrosis, and hearing loss.

5. CSHCN HEALTH STATUS AND NEEDS

- Is [his/her] limitation in abilities because of ANY medical, behavioral or other health condition?
 - Is this a condition that has lasted or is expected to last 12 months or longer?
4. Does child need or get special therapy such as physical, occupational, or speech therapy?
- Is [his/her] need for special therapy because of ANY medical, behavioral or other health condition?
 - Is this a condition that has lasted or is expected to last 12 months or longer?
5. Does child have any kind of emotional, developmental or behavioral problem for which he/she needs treatment or counseling?
- Has [his/her] emotional, developmental or behavioral problem lasted or expected to last for 12 months or longer?

The most recent estimate using these functional criteria indicates that there were 288,152 CSHCN in Arizona in 2007, representing 17 percent of all children and youth between the ages of 0 through 17. The differences between the 2003 and 2007 Arizona estimates, as well as the differences between Arizona and national rates in 2007 are not statistically significant (see Figure 5.1). Differences in prevalence rates by gender were not statistically significant, nor were differences by race or ethnicity.

Figure 5.1 Prevalence of CSHCN



Source: National Survey of Children's Health 2003,2007

Early intervention is widely recognized as being both beneficial to the child and cost effective over the course of a child's life. Early treatment leads to a greater likelihood that a child will be successful in school, and less likely to incur greater health care costs later in life. Table 5.1 shows that only 6 percent of children are identified as having a special need during the first five years of life in Arizona, which is half of the national rate of 12 percent. From ages 6 through 11, when children are typically in elementary school, the rate of identification increases to 20 percent of children, much closer to the national rate of 22 percent. The small differences between Arizona's rates and the national rates within each of the older age groups are not statistically significant.

5. CSHCN HEALTH STATUS AND NEEDS

**Table 5.1 Prevalence of CSHCN by Age
Arizona compared to the United States**

Age Group	AZ %	US %
0-5 years	6	12
6-11 years	20	22
12-17 years	27	23

Source: National Survey of Children's Health 2007

Early intervention was a common theme brought up during public input sessions. Families believed that early intervention is crucial and needs more funding in Arizona. They said they faced challenges in accessing both evaluation and diagnostic services, and in receiving treatment. Barriers they cited included restrictive eligibility criteria as well as restrictive service packages for various state funded services, long waiting lists, and a fragmented system of care, which can be difficult to navigate.

Among children in Arizona with an identified special health care need, 55 percent are males and 45 percent are females. Approximately half are White, Non-Hispanic (50 percent), and 38 percent are Hispanic. The remaining 12 percent identified themselves as some other race, but sample sizes were too small to yield reliable estimates for each group. Because children in Arizona tend to be identified when they are older, only 13 percent are in the 0-5 year age group; while approximately half are ages 12-17. Table 5.2 shows the age distribution of CSHCN in Arizona compared to the Nation.

**Table 5.2. Age Distribution CSHCN
Arizona compared to the United States**

Age Distribution:	AZ %	US %
0-5 years	13	20
6-11 years	38	38
12-17 years	50	42

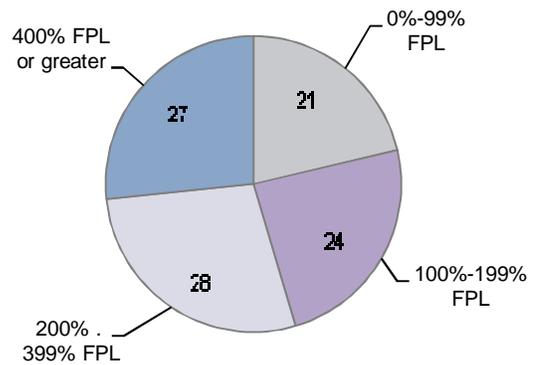
Source: National Survey of Children's Health 2007

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Twenty-seven percent of families of CSHCN in Arizona live in rural areas.⁶⁴ However, some families of CSHCN move to urban areas to be closer to needed services.

Nearly half of families with CSHCN (45 percent) have incomes below 200% of the federal poverty level. Figure 5.2 shows the distribution of income levels for families of CSHCN in Arizona in 2007.

Figure 5.2 Distribution of Family Incomes of CSHCN by Poverty Level



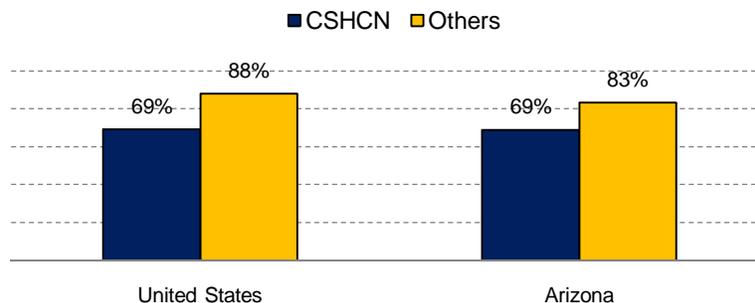
Source: National Survey of Children's Health 2007

HEALTH STATUS

The population meeting the broad definition of CSHCN includes children with a wide range of conditions with varying levels of impact. This section describes their health status and the impact of the special health care need on the child's everyday life, as well as types of services or treatments that children require, and how well their health needs are met.

Many children have more than one special health care need or condition. More than half of CSHCN have allergies (55 percent). Forty-three percent of CSHCN in Arizona have asthma, which is higher than the national proportion of 39 percent. Not surprisingly, parents of CSHCN were less likely than other parents to describe the health of their children as excellent or very good (69 percent compared to 83 percent), as shown in Figure 5.3. Arizona parents of CSHCN reported similar levels of excellent or good health as parents of CSHCN nationally.

Figure 5.3 Child's Health Described as Excellent or Very Good, Arizona Compared to United States



Source: National Survey of Children's Health 2007

⁶⁴ The 2007 NSCH defines rural versus urban by using Rural-Urban Commuting Area (RUCA) codes. RUCA codes are based upon Census tracts and are determined using data on characteristics such as population, geography, and commuting patterns.

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The 2005/2006 NS-CSHCN asked families about the impact of children's conditions on their ability to perform a wide range of functions and activities. These questions provide a general measure of the magnitude of the challenges CSHCN experience in their daily lives. While one in three parents of CSHCN in Arizona reported that their children's special health care need never affected their daily lives, 42 percent reported that their daily activities were moderately affected some of the time and 25 percent reported that their activities were consistently affected, often a great deal.

In Arizona, 64 percent of CSHCN reported one or more limitations in bodily function such as breathing, swallowing or digestion, circulation, vision even when wearing glasses, hearing even when using aids, or chronic physical pain, including headaches. Approximately half (51 percent) reported one or more limitation in activities or participation such as self-care; coordination or movement; using hands; learning, understanding or paying attention; or speaking, communicating or being understood. Nearly one in five (17 percent) of CSHCN missed 11 or more days of school due to illness.

A large proportion (40%) of parents report that their children's special health care needs interfere with their ability to make friends, attend school regularly, or participate in sports and other activities (40 percent Arizona vs. 31 percent nationally). Many CSHCN have some kind of cognitive or emotional problem: 28 percent have Attention Deficit Disorders, 26 percent have emotional problems, 12 have cognitive disabilities, and 6 percent have autism. Table 5.3 shows the percent of CSHCN with several specific difficulties with everyday functions related to learning, communication, and behavioral or emotional issues.

Table 5.3. Difficulty with Everyday Functions

Type	%
Learning, understanding, or paying attention	40%
Speaking, communicating, or being understood	24%
Feeling anxious or depressed	30%
Behavior problems	28%
Making and keeping friends	21%

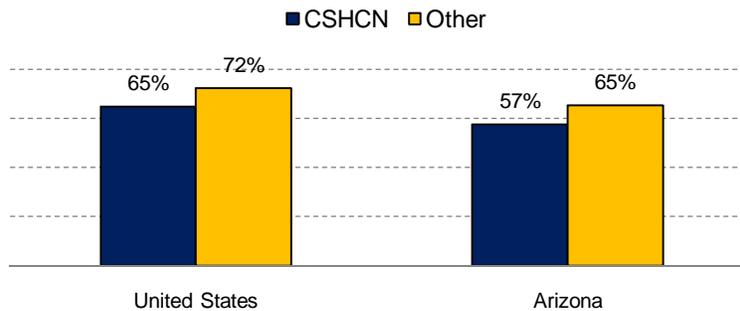
Source: National Survey of Children's Health 2007

The 2007 NSCH asked parents about the condition of their children's teeth. Compared to the rest of the nation, parents in Arizona were less likely to describe the condition of their children's teeth as excellent or very good (57% in Arizona vs. 65% nationally). Additionally, parents of CSHCN were less likely than other parents to describe the condition of their children's teeth positively. Nearly one third (31 percent) of CSHCN in

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Arizona were reported to have tooth decay or a cavity in the last six months compared to 23 percent of CSHCN nationally.

Figure 5.4 Condition of Child's Teeth Described as Excellent or Very Good, Arizona Compared to United States



Source: National Survey of Children's Health 2007

UNMET NEED

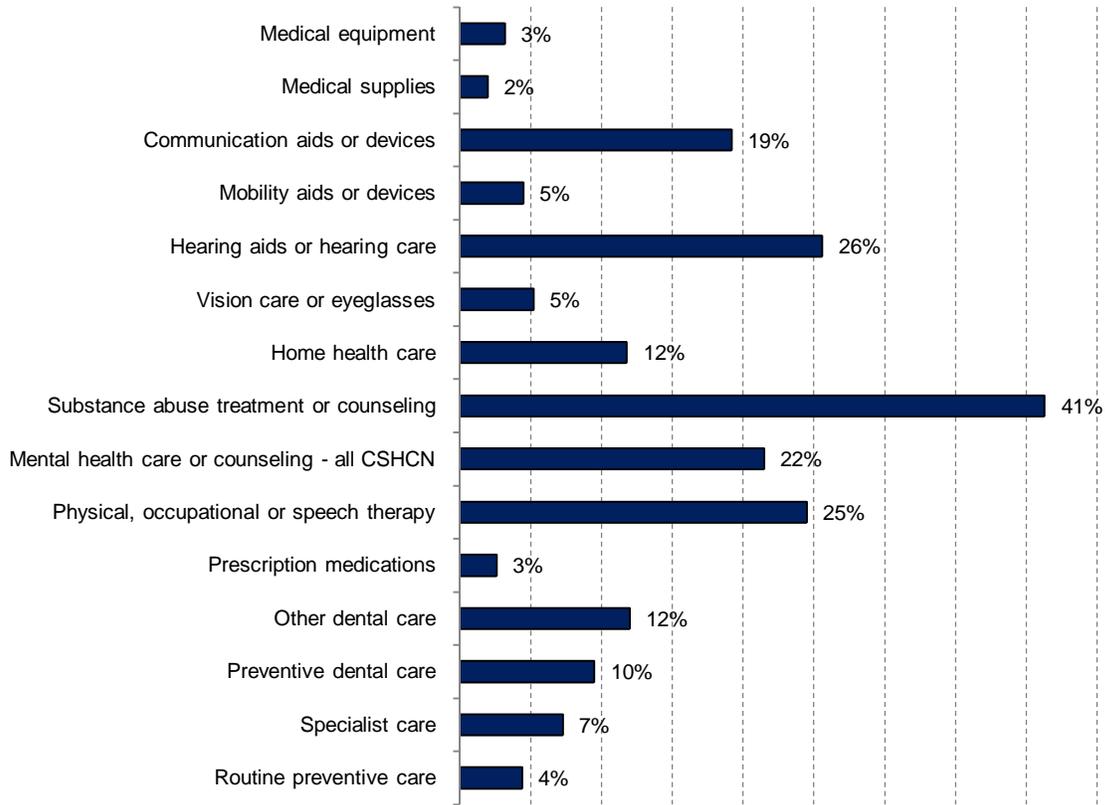
Nineteen percent of CSHCN in Arizona reported having at least one unmet health care need during the last 12 months, according to the 2007 NSCH. This rate is two and a half times higher than the rate for other children (7 percent). About half of CSHCN (50 percent) in Arizona were reported to need some specialty care in the last 12 months (2005/2006 NS-CSHCN), and 30 percent were not able to get all of the referrals they needed. This percent is higher than the 21 percent who report not getting needed referrals nationally in 2005/2006.

The 2005/2006 NS-CSHCN asked questions about 15 specific health care needs and access to care. The five most frequently noted types of care required for CSHCN in Arizona were prescription medications (84 percent), vision care or eyeglasses (33 percent), mental health care or counseling (26 percent), physical, occupational or speech therapy (22 percent), and medical supplies (20 percent).

Input from parents and community partners indicates that there are often barriers to obtaining needed services. Families without health insurance often have difficulties affording needed services, and even for those who have health insurance, needed services are not always covered. Figure 5.5 shows the percent of CSHCN in Arizona with an unmet need by type of service. Of those who needed substance abuse treatment or counseling, 41 percent did not receive all the services needed; while 26 percent of those needing hearing aids or hearing care and 25 percent of those needing physical, occupational or speech therapy did not get all the care they needed. Children with health insurance are more likely to have all of their health care needs met (81 percent) than children who either do not have insurance, or who have some kind of gap (57 percent).

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Figure 5.5 Percent of CSHCN in Arizona with a Need for Services that Did Not Receive All Care Needed



Source: National Survey of Children with Special Health Care Needs 2005/2006

IMPACT ON FAMILY

Arizona families of CSHCN spend many hours coordinating care in a complicated health care delivery system. During public input sessions, families expressed the need for help in navigating the system between different agencies, which each has its own set of rules. One parent said that her role was to coordinate the many coordinators that work in different agencies.

About one half of families with CSHCN provide some health care at home for their children, 15 percent spend three or more hours coordinating care each week, and ten percent spend eight or more hours providing care (see Figures 5.6 and 5.7).

5. CSHCN HEALTH STATUS AND NEEDS

Figure 5.6 Time Spent Providing Care at Home Per Week, Arizona

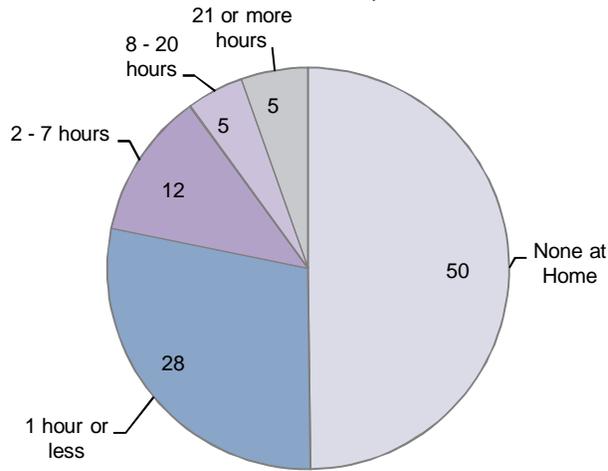
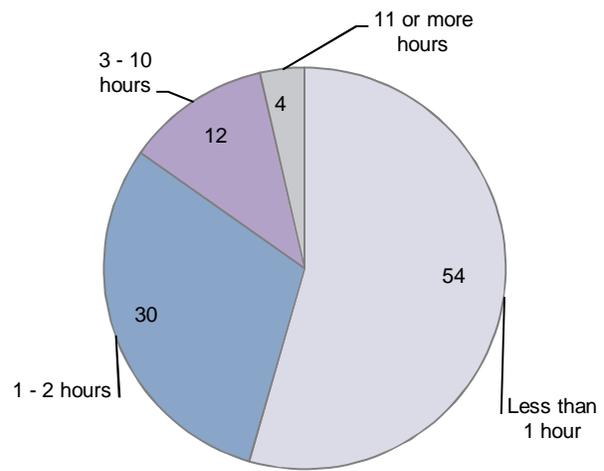


Figure 5.7 Time Spent Coordinating Care Per Week, Arizona



Source: National Survey of Children with Special Health Care Needs 2005/2006

Many families have significant out-of-pocket medical expenses due to their children's special health care needs: 18 percent of families spent between \$1,000 and \$5,000 per year and another 4 percent spent more than \$5,000 on medical expenses. Nearly one in five families (18 percent) reported that they needed additional income to cover their children's medical expenses.

At the same time, it is often difficult for parents of CSHCN to stay in the labor force, or to remain fully employed because of the amount of time needed to care for their children. Many families (17 percent) report having to cut back on work, and 12 percent said they had to stop working entirely to take care of their CSHCN. Some parents in public input sessions said that they are unable to find a caregiver who is prepared to care for their children's special needs while they work. Others talked about passing up promotions that would have brought in more family income, but they could not spend any more time outside of their homes. Table 5.4 summarizes areas of financial impact to families of CSHCN in Arizona.

Table 5.4. Financial Impact of Special Health Care Needs on the Family

Families pay \$1,000 to \$5000 in medical expenses per year	18%
Families pay \$5,000 or more in medical expenses per year	4%
Families experience financial problems due to child's health needs	20%
Family needed additional income to cover child's medical expenses	18%
Family member had to cut back on working because of child's health needs	17%
Family member had to stop working because of child's health needs	12%

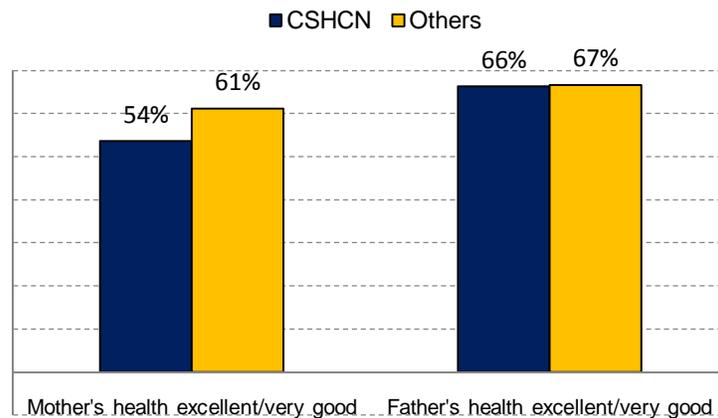
Source: National Survey of Children with Special Health Care Needs 2005/2006

5. CSHCN HEALTH STATUS AND NEEDS

As a result of both increased medical expenses and difficulties staying in the labor force, one in five families reported that they experience financial problems due to their children's special health care need. As one mother put it, "We pay \$780/ month for healthcare insurance plus \$2,000 deductible . . . I have to work and care for my two special needs teens. . . . I get support from state and pay out of pocket \$300/month copay for meds and limited treatment. I can only work part time. How can I work to keep my house and pay off creditors?+ For some families, the only option to provide adequate care for their child is to put the child in a care home or give the child up to foster care. For children in state care, all medical needs are covered.

Having a CSHCN in Arizona influences the physical health status of mothers; however there were no differences in the health status of fathers regardless of whether their children had special health care needs. Fathers also were more likely than mothers to report their health status as excellent or good. Mothers of CSHCN were less likely than other mothers to report their health status as excellent or good (54 percent compared to 61 percent). Arizona mothers were also less likely to report excellent or good health status compared to the nation (56 percent for CSHCN and 67 percent for others, see Figure 5.8).

Figure 5.8 Health Status of Parents, Arizona



Source: National Survey of Children's Health 2007

CORE MCH OUTCOME MEASURES FOR CSHCN

There are six core outcome measures that apply to C/YSHCN. Each is comprised of multiple questions, to which respondents must affirmatively respond in order to count as a successful outcome. These measures provide a wealth of information. Since the measures are repeated using the same methodology, they allow a state to track its progress over time. They also provide points of comparison with the nation as a whole. In addition, it is possible to break the measures down by subgroups, to see what factors are associated with meeting the outcome measure. This kind of analysis helps to identify barriers and evaluate potential strategies that could be used to improve the measure.

5. CSHCN HEALTH STATUS AND NEEDS

This section relies heavily on two different surveys, the NS-CSHCN and the NSCH. Each of these surveys has been conducted twice. The NS-CSHCN was conducted in 2001 and again in 2005/2006 and focuses solely on CSHCN. The NSCH was conducted in both 2003 and 2007, and includes information on both CSHCN and other children (children who do not have special health care needs). All core outcome measures come from the NS-CSHCN. When questions on a similar topic were included in the NSCH, data from them is presented to add context, including how CSHCN compare to other children in Arizona.

Both surveys were conducted on samples, which were designed to be representative of the populations from which they were drawn. Any time a sample is used in place of getting information on an entire population, there will be a certain amount of estimation error, typically referred to as sampling error. Statistical significance tests allow for an evaluation of whether observed differences are more likely to be due to sampling error than reflecting an actual difference in the population. Statistical significance is not the same as social significance. A difference could be statistically significant, but still quite small. Differences that are not statistically significant will be noted.

CORE OUTCOME 1:

FAMILIES PARTNER IN DECISION MAKING AND ARE SATISFIED WITH SERVICES

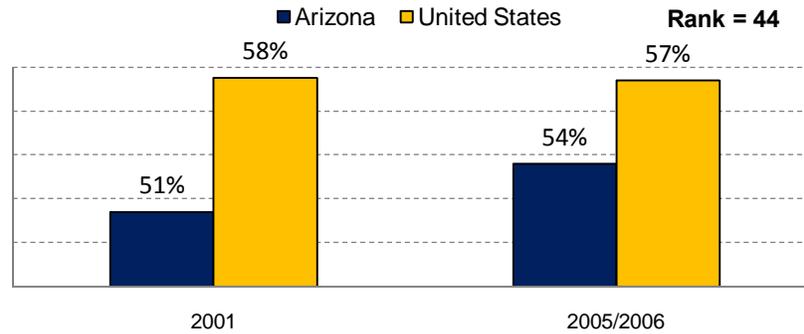
Families are in the best position to understand what their children need. They are the ones who are most responsible for providing care and often become care coordinators for their children. Families are the one consistent thread in the complicated system of agencies and specialists. It is important for them to be active partners in decision-making.

What is best for one family is not necessarily best for another. Families have different beliefs and hold different values, which may lead to different priorities. All of these affect their health care choices. For example, there are risks associated with medical procedures, including anesthesia, as well as side effects with medications. Families are often presented with imperfect and uncertain choices, and even conflicting advice. While each specialist focuses on their specialty area, families must consider the whole child.

Approximately half (54 percent) of families with CSHCN in Arizona report that they both partner in decision making and are satisfied with the services they receive. The difference between Arizona's score and the national score of 57 percent is not statistically significant. Arizona ranks 44th on this measure. Figure 5.9 shows Arizona and national scores for core outcome one in 2001 and 2005/2006.

5. CSHCN HEALTH STATUS AND NEEDS

Figure 5.9 Families Partner in Decision Making and are Satisfied with Services



Source: National Survey for Children with Special Health Care Needs 2005/2006

Some families were less likely than others to report partnering in decision making and being satisfied with services. Only 29 percent of those who had a family member stop working to care for the child, 29 percent who had one or more unmet need, 33 percent who had a family member cut work hours to care for the child, 37 percent of those whose health care caused financial problems, 38 percent of those who had severe functional difficulties, and 39 percent of those who lacked continuous health insurance during the last year reported partnering in decision making and being satisfied with services.

Core outcome one is made up of two separate questions. In order to be counted as meeting the outcome measure, respondents have to answer both that 1) they usually or always feel like a partner, and 2) that they are very satisfied with services. Table 5.5 shows that in Arizona, families of CSHCN generally feel that their child's doctors usually or always make the family feel like a partner (83 percent) but do not report as favorably when asked if they are satisfied with the services they received (56 percent). Although Arizona appeared to lag behind the nation on each of the two components, the differences between Arizona and the nation are not statistically significant for the satisfaction component.

Table 5.5 Components of Core Outcome 1

Condition	AZ %	US %
1a. Doctors usually or always make the family feel like a partner	83	88
1b. Family is very satisfied with services	56	60
Core Outcome 1:	54	57

Source: National Survey of Children with Special Health Care Needs 2005/2006

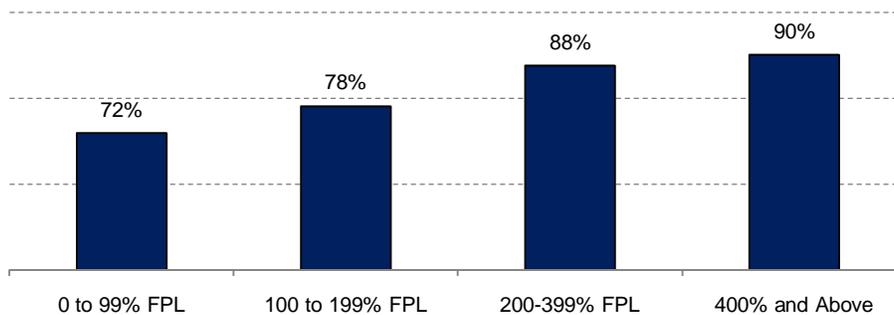
5. CSHCN HEALTH STATUS AND NEEDS

1a. Feeling like partners

The online family and provider surveys posted to the OCSHCN website asked several questions about provider and family partnerships. While providers indicated a high level of partnership with families, results from this survey showed that parents experienced a lower level of partnership. One explanation for this apparent disparity is that parents and providers expectations differ about what it means to partner. While this is a plausible explanation, it should be noted that respondents were not chosen through a statistically representative process, but were self-selected, and therefore not likely to be representative of providers in general or families in general. It is possible that the providers who filled out the survey were more interested in partnering with the parents of CSHCN than the providers who were the reference point for families.

When asked how often their children's doctors and other health care providers help them feel like partners, 83 percent said they usually or always do. However, there were differences by income level. Ninety percent of families in the highest income bracket (400% FPL and above) felt like partners in their children's care compared to 72 percent of those living below 100% of the FPL (see Figure 5.10).

Figure 5.10 Doctor Usually or Always Makes the Family Feel Like a Partner by Income Level



Source: National Survey for Children with Special Health Care Needs 2005/2006

1b. Satisfied with Services

When asked about their satisfaction with services, 56 percent reported that they were very satisfied with the services received. Satisfaction depends in part on expectations and how well a service met the expectation. Families may not realize that procedures do not have guaranteed positive outcomes; the more complicated the condition, the less predictable the outcome. Satisfaction also depends on the options available and how well they are understood. During public input sessions, families talked about how it feels to be told that your child needs something that you cannot afford because of insurance limits or lack of financial means. Many CSHCN require physical, occupation and speech therapy. Though providers often tell parents that on-going therapy services are needed for the child to develop to their full potential, families often lack insurance coverage for those services or are unable to find therapists.

The Children's Rehabilitative Services (CRS) Family Centered Survey asked several questions related to decision making. In the 2010 survey, families reported that they

5. CSHCN HEALTH STATUS AND NEEDS

were well informed and involved in decision making. When decisions were made, 91 percent reported usually or always being offered choices about their child's health care, 89 percent reported usually or always being asked to tell the health care provider what choices they prefer, and 94 percent said they were usually or always involved as much as they wanted when decisions were made. The survey also revealed that families were highly satisfied with their services. CRS care was rated at an average of 9.0 on a 10-point scale, with 10 being the highest level. The average rating on a scale from 0 to 10, with 10 being the best specialist possible, was 9 and 89 percent of respondents gave their child's specialist a score of 8 or higher.

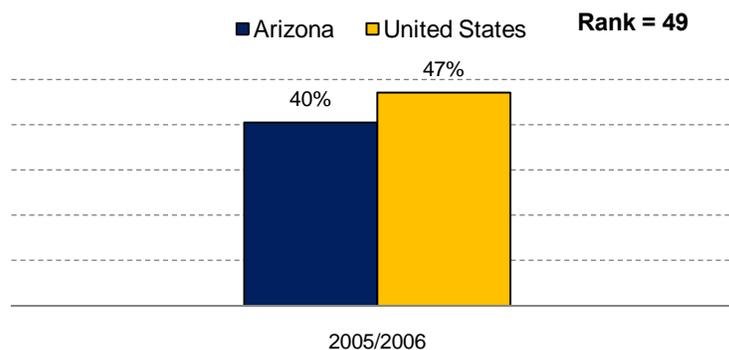
CORE OUTCOME 2:

CHILDREN WITH SPECIAL HEALTH CARE NEEDS RECEIVE COORDINATED, ON-GOING, COMPREHENSIVE CARE WITHIN A MEDICAL HOME

Having a medical home is important in assuring the provision of preventive, acute, and chronic care from birth through transition to adulthood. A medical home should help families navigate existing systems of care and should include an interdisciplinary team of patients and families, primary care physicians, specialists and subspecialists, other health professionals, hospitals and healthcare facilities, public health and the community⁶⁵.

Overall, 40 percent of families in Arizona say that their CSHCN received coordinated, on-going, comprehensive care within a medical home compared to 47 percent nationally in 2005 (see Figure 5.11). Arizona ranks 49th in the nation on this measure. Although the 2001 NS-CSHCN also included a measure on medical home, the methods for the composite measure were substantially different and the results are not comparable to the 2005 survey. Therefore, no comparison to 2001 is presented for composite core outcome measure 2.

Figure 5.11 Children Receive Coordinated, On-Going, Comprehensive Care within a Medical Home



Source: National Survey for Children with Special Health Care Needs 2005/2006

Overall, the groups that had the lowest scores on core outcome 2 were those who had a family member who stopped working due to the child's health (13 percent) and those

⁶⁵ National Center for Medical Home Implementation. (n.d.). *American Academy of Pediatrics*. Retrieved June 24, 2010, from <http://www.medicalhomeinfo.org/>

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who had a family member cut work hours to care for the child (17 percent). The severity of the child's condition is also related to the likelihood that the child will have a medical home. Only 19 percent of children with severe functional difficulties, 20 percent of children who are always affected by their condition, and 28 percent of those who lacked continuous health insurance coverage had a medical home. Figures 5.12 and 5.13 below show that the more severe the condition and the more the child is affected by the condition, the less likely the child is to have a medical home.

Figure 5.12 Receive Coordinated, On-Going, Comprehensive Care within Medical Home by Severity of Functional Difficulties

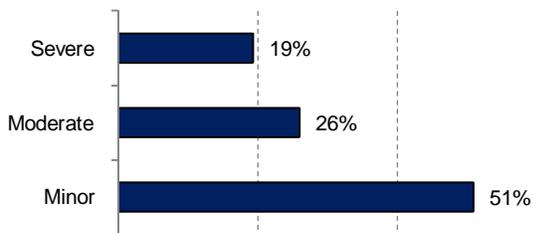
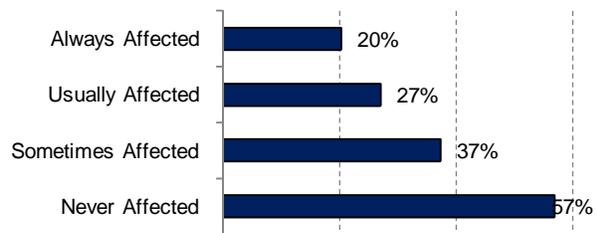


Figure 5.13 Receive Coordinated, On-Going, Comprehensive Care within Medical Home by How Affected Child is by Condition



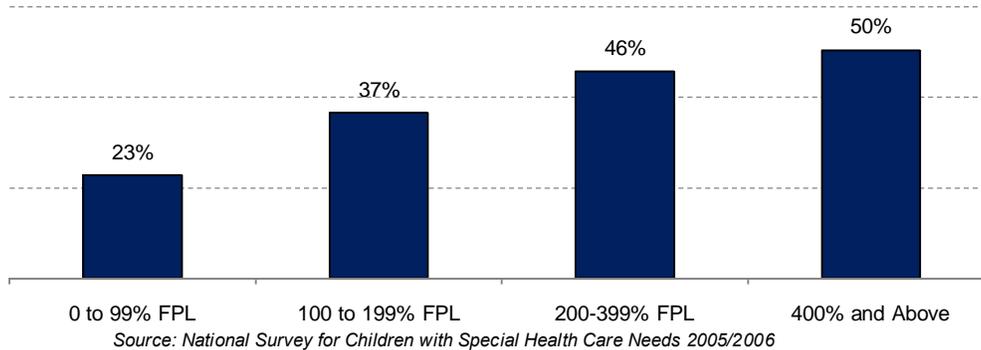
Source: National Survey for Children with Special Health Care Needs 2005/2006

As discussed earlier, most medical providers in Arizona are located within the Phoenix and Tucson metropolitan areas. So, it is not surprising that fewer children living outside of metropolitan statistical areas were reported to receive care within a medical home (33 percent). During public input sessions, families suggested the use of mobile health clinics within rural, remote communities to improve access to care. The CRS program uses a variety of innovative strategies to ensure that specialty services are available throughout the state. These strategies include the use of telemedicine and field clinics, in addition to providers traveling to regional clinics located in rural areas to provide specialty services.

Families of CSHCN with lower household incomes are also less likely to report meeting the criteria for having a medical home. While 50 percent of those who live in households at or above 400 percent of the FPL have a medical home, just 23 percent of those living in households at or below 99 percent FPL have a medical home (see Figure 5.14).

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Figure 5.14 Receive Coordinated, On-Going, Comprehensive Care within Medical Home by Income Level



Core outcome measure 2 is made up of five separate components. Arizona lagged behind the nation on the overall measure and each of the five components, although the difference between the proportion of CSHCN in Arizona vs. the nation who report having a personal doctor or nurse is not statistically significant (see Table 5.6). Almost all CSHCN in Arizona had a personal doctor or nurse (91 percent) and a usual source of care (90 percent), 70 percent had no problems obtaining referrals when needed, 62 percent received family centered care, and just over half (53 percent) received effective care coordination. Table 5.6 shows that while most people have a usual source of care and a personal doctor or nurse, many lack effective care coordination and report not receiving family-centered care.

Table 5.6 Components of Core Outcome 2

Condition	AZ %	US %
2a. Child has usual source of care	90	93
2b. Child has personal doctor or nurse	91	94
2c. Child has no problem obtaining referrals when needed	70	79
2d. Child receives effective care coordination	53	59
2e. Child receives family-centered care	62	66
Core Outcome 2:	40	47

Source: National Survey of Children with Special Health Care Needs 2005/2006

Core outcome measure 2d looks at the proportion of CSHCN who receive effective care coordination. Community partners provided input on this topic through a number of venues. Issues that were raised included the need for better communication among physicians. Families talked about how time intensive it can be to coordinate care for CSHCN and unless a parent or teacher takes initiative, the child often falls through the cracks. They talked about becoming specialists in coordinating their child's care, using

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the system, and knowing who to call to get results. Finally, families reported difficulty in working with insurance providers who lack knowledge of specialized conditions, especially very rare ones. Some parents expressed concerns that families with less time and resources may not be able to obtain the same level of services for their children.

These family observations are supported by core outcome measure 2d which is comprised of three components: 1) being very satisfied with doctors' communication with each other, 2) being very satisfied with doctors' communication with other programs, and 3) usually or always getting sufficient help coordinating care if needed. The most problematic component of core outcome 2d is the physicians' communication with other programs. Less than half (45 percent) of families in Arizona reported that they were very satisfied with their doctors' communication in this area (see Table 5.7).

Table 5.7 Components of Core Outcome 2d

Condition	AZ %	US %
Family is very satisfied with doctors' communication with each other	57	64
Family is very satisfied with doctors' communication with other programs	45	52
Family usually or always gets sufficient help coordinating care, if needed	62	67
Outcome 2d:	53	59

Source: National Survey of Children with Special Health Care Needs 2005/2006

2e. Child receives family centered care

Family centered care involves providers taking time to listen to people. Community partners have suggested that physicians may not always have enough time to provide full family-centered care. They thought that physician extenders might have more time to provide these additional services.

A frequent theme from partner input was the need for sensitivity or cultural competency training. This training should not be limited to clinical providers, but should be extended to staff working in the grievance and complaint area to ensure that families can access these processes without fear of retaliation or penalty.

Cultural competency and family centered care are priorities. These concepts are imbedded in contracts for services, which are monitored for compliance. Families of CSHCN participate in developing policies, resources, and requests for solicitations, and sit on committees to evaluate proposals for services and contract oversight. Regular training is devoted to appreciating cultural differences among Arizona's diverse populations, as well as issues that are particular to special health care needs.

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An example of a training focused on a local tribe's belief in the Circle of Life, which is composed of spiritual, mental, emotional and physical elements. Unwellness is seen as the result of these elements being out of balance. Traditional medicine may involve techniques to bring elements into balance. Understanding and respecting this orientation is fundamental to providing appropriate care. In fact, American Indians actually have legal rights to choose traditional practices over allopathic medical advice or treatment. During the tribal consultation input session, the importance of understanding native cultures individually was mentioned; as each tribe has specific infrastructure, government, language and cultural beliefs.

OCSHCN's Cultural Competency Committee was noted in the 2009 External Quality Review Organization (EQRO) Annual Report for Children's Rehabilitative Services Administration (CRSA) under "Best and Emerging Practices for Improving Quality of Care and Services." The report stated that OCSHCN,

. . . has established a Family Centered Cultural Competency Committee comprised of members/parents of diverse cultures; community advocacy groups; stakeholders and staff that meet on a regular basis. This forum allows the entire community to have a voice in shaping relevant policy and programs.

Core outcome 2e measures family centered care and is comprised of six separate questions. Table 5.8 provides details on how Arizona compared to the nation for each of these. Although Arizona lagged slightly behind the nation on most of the measures, an interpreter was always available when needed more often in Arizona than in the nation generally (70 percent in Arizona compared to 56 percent nationally).

Table 5.8 Components of Core Outcome 2e

Condition	AZ %	US %
Doctors usually or always spend enough time	75	79
Doctors usually or always listen carefully	85	89
Doctors are usually or always sensitive to values and customs	87	89
Doctors usually or always provide needed information	80	83
Doctors usually or always make the family feel like a partner	83	88
An interpreter is always available when needed	70	56
Outcome 2e:	62	66

Source: National Survey of Children with Special Health Care Needs 2005/2006

5. CSHCN HEALTH STATUS AND NEEDS

CORE OUTCOME 3:

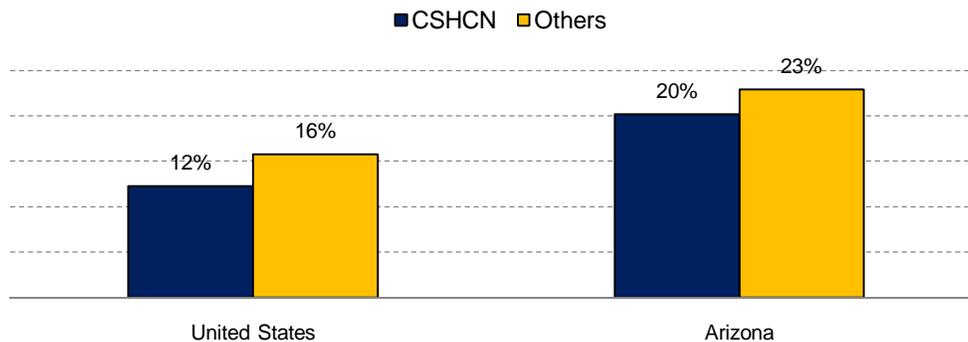
FAMILIES HAVE ADEQUATE PUBLIC AND/OR PRIVATE INSURANCE TO PAY FOR NEEDED SERVICES

Health insurance facilitates access to health care services and provides financial protection in case of serious illness. However, having health insurance does not guarantee that a child's health care needs will be met. In addition to not covering certain conditions and providers, insurance often has annual or lifetime limits that may prevent children from receiving all the care they need.

During public input sessions, Arizona families expressed concerns about the rising cost of insurance including increased copayments and premiums, and employers ceasing to offer insurance. Families reported that some private insurance companies are telling families to first look at services available from state agencies. Many people said they rely on state agency services to fill the gap between what is provided by private insurance and the cost of services needed.

Both the NSCH and the NS-CSHCN report information on the percentage of children who are currently uninsured and children who had gaps in coverage at any time during the last 12 months. According to the 2007 NSCH, 20 percent were either currently uninsured or had a gap in coverage at some point in the last year. Figure 5.15 shows that a higher percentage of children in Arizona were uninsured in 2007 compared to their national counterparts.

Figure 5.15 Percent of Children who are Currently Uninsured or were Uninsured at Some Time During the Previous Year



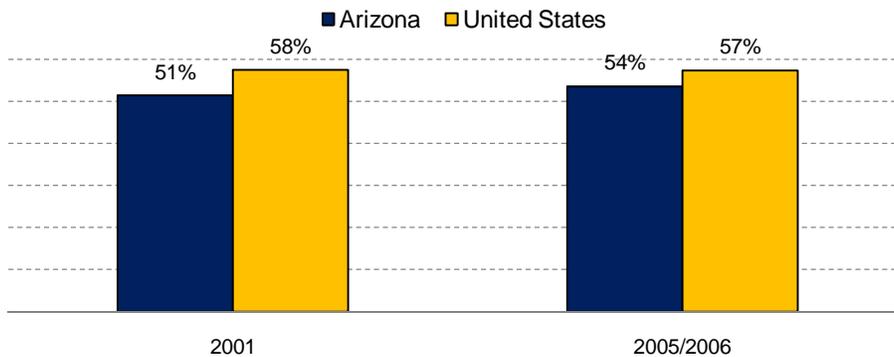
Source: National Survey of Children's Health 2007

During public input sessions, families raised concerns regarding difficulties in purchasing insurance. Often, families cannot buy insurance because of pre-existing conditions (for individual purchase or small groups). Young adults who have jobs often do not have insurance and cannot get coverage through their parents' policies. Health Reform initiatives may change this picture in the near future, as federal requirements are implemented to allow children to be included on their parents' policies up to age 26. In addition, there are new provisions for people who were excluded from health care coverage due to having certain health care conditions.

5. CSHCN HEALTH STATUS AND NEEDS

Over half (58 percent) of families with CSHCN in Arizona say that they have adequate public or private insurance to pay for needed services, compared to 62 percent nationally. Arizona ranks 46th in the nation on this measure. Arizona's apparent decrease in performance on this measure from 2001 to 2005/2006 is not statistically significant (see Figure 5.16). However, since this survey was conducted, the economic recession resulted in higher unemployment rates, which in turn caused many people to lose employer-sponsored health insurance. In addition, state budget cuts have led to CSHCN being dis-enrolled from state-funded services. Both of these will likely result in decreased performance on this measure when the next survey is conducted.

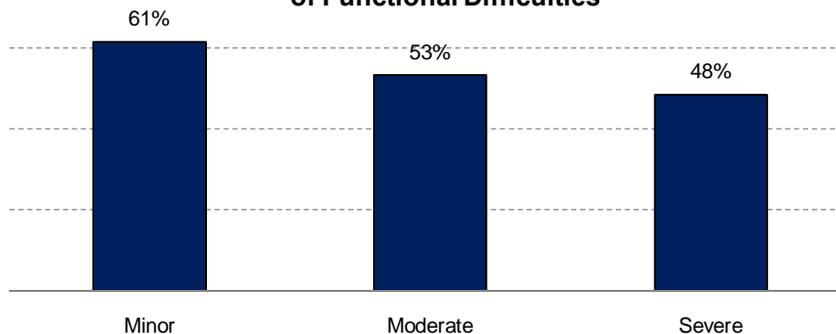
Figure 5.16 Percent of Children who are Currently Uninsured or were Uninsured at Some Time During the Previous Year



Source: National Survey of Children with Special Health Care Needs 2001, 2005/2006

Having adequate insurance varied by the severity of the child's functional difficulties. The more severe the condition, the less likely the family had adequate insurance to pay for needed services (see Figure 5.17).

Figure 5.17 Families have Adequate Insurance to Pay for Needed Services by Children's Severity of Functional Difficulties



Source: National Survey of Children with Special Health Care Needs 2005/2006

5. CSHCN HEALTH STATUS AND NEEDS

This outcome measure is made up of five components (see Table 5.9). The majority of families with CSHCN reported that their children had public or private insurance at the time of the interview (95 percent) but less often said that the costs that were not covered by insurance were almost always reasonable (70 percent). Comparing Arizona's performance to the nation on individual components, the only difference that is statistically significant is 3b, in which children in Arizona were more likely to have a gap in insurance coverage.

Table 5.9 Components of Core Outcome 3

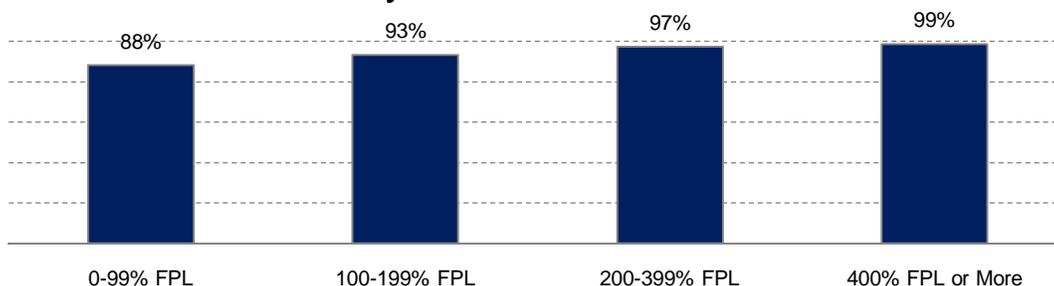
Condition	AZ %	US %
3a. Child has public or private insurance at time of interview	95	97
3b. Child has no gaps in coverage during the year before the interview	88	91
3c. Insurance usually or always meets the child's needs	89	87
3d. Costs not covered by insurance are reasonable	70	72
3e. Insurance usually or always allows child to see needed providers	90	91
Core Outcome 3:	58	62

Source: National Survey of Children with Special Health Care Needs 2005/2006

3a. Child has public or private insurance

Five percent of Arizona families were uninsured at the time of the 2005/2006 NS-CSHCN interview. Of the remaining 95 percent, 61 percent had private insurance, 28 percent had public insurance, and 5 percent had both public and private insurance. Insurance coverage varied by family income level. Figure 5.18 shows that as income increases, the proportion of children with public or private insurance also increases.

Figure 5.18 Children who have Public or Private Insurance by Income Level



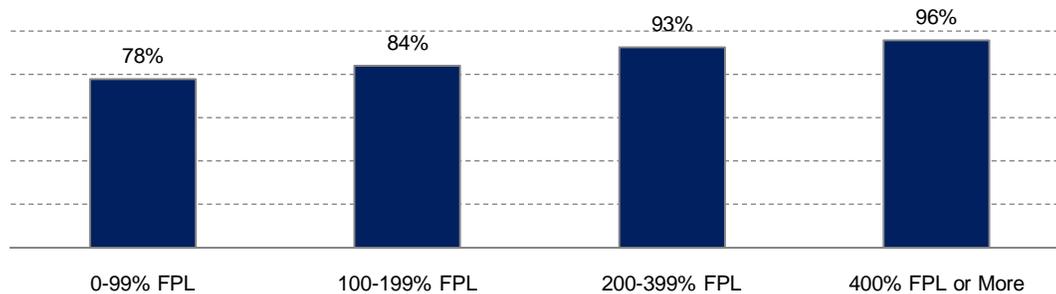
Source: National Survey of Children with Special Health Care Needs 2005/2006

5. CSHCN HEALTH STATUS AND NEEDS

3b. Child has no gaps in coverage

Families of CSHCN in Arizona were less likely to have continuous insurance coverage (88 percent) compared to the nation (91 percent). Although this difference is small, it is statistically significant. Figure 5.19 shows that the higher the family income level, the more likely the child had continuous insurance coverage.

Figure 5.19 Children who have No Gaps in Coverage by Income Level



Source: National Survey of Children with Special Health Care Needs 2005/2006

3c. Insurance meets child's needs

Eighty-nine percent of CSHCN in Arizona had insurance that either usually or always met their needs. The 2007 NSCH gave a comparison of CSHCN to other children in Arizona on this same question, and provide more detail on responses. CSHCN were less likely than other children in Arizona to have insurance that always met their needs (67 percent of CSHCN vs. 77 percent). Some children have insurance that does not cover their special health care diagnosis or needed services, such as nursing, respite, nutrition, behavioral health, and therapies. Families and providers discussed difficulties involved when service options for genetics testing, durable medical equipment, music therapy, metabolic formulas, and certain medications were not covered. Parents expressed frustration over not being able to get approval from their insurance companies for services that had been prescribed by their child's health care provider.

3d. Costs not covered by insurance are reasonable

When compared to the other components of this outcome measure, a lower percentage of families, both nationally and in Arizona, reported that costs not covered by their children's health insurance were always or usually reasonable (70 percent in Arizona compared to 72 percent nationally). The difference between Arizona and the nation is not statistically significant.

In the 2007 NSCH, 56 percent of CSHCN either had no out-of-pocket expenses or reported that the expenses were reasonable compared to 63 percent for other children. A much higher percent of those with public insurance indicated that they either had no out-of-pocket expenses or that the expenses were always reasonable (90 percent with public insurance versus 49 percent with private insurance).

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3e. Insurance allows child to see needed providers

Ninety percent of Arizona families said that their health insurance usually (22 percent) or always (68 percent) allowed their children to see needed health care providers. The 2007 NSCH found that CSHCN were less likely than other children to have insurance that always allowed them to see the providers they needed (77 percent vs. 83 percent). During public input sessions, parents talked about a change in which AHCCCS health plans were available in their areas, which led to different providers being in their provider network, and the resulting disruption in services.

As previously mentioned, the combined effects of the economic recession and state budget cuts will likely result in decreased performance on this measure when the next survey is conducted. Due to a freeze on new enrollment for the KidsCare program, more and more families are likely to find themselves with income levels that exceed Medicaid eligibility limits, but are still below 200% of the federal poverty level. The children in these families would have been eligible for KidsCare, but will now remain on a waiting list. Nevertheless, during public input meetings, families remained interested in strategies to increase access to affordable insurance coverage. One recommendation was for state agencies to conduct a feasibility study on implementing a Medicaid buy-in program.

The importance of having continuous insurance coverage cannot be overstated. Children with continuous coverage have less unmet need, and score better on every core outcome measure.

CORE OUTCOME 4:

CHILDREN WITH SPECIAL HEALTH CARE NEEDS ARE SCREENED EARLY AND CONTINUOUSLY FOR SPECIAL HEALTH CARE NEEDS

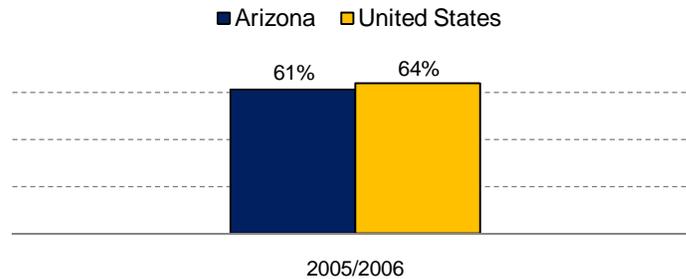
Early and continuous screening is important to the identification of a special health care need. Early identification can prevent future morbidity, promote optimal development, and offer the opportunity for early intervention such as treatment, rehabilitation, and therapy. As stated by one parent, "Early intervention saves money in the long run."

As seen in Figure 5.20, 61 percent of families with CSHCN in Arizona say that their children are screened early and continuously for special health care needs, compared to 64 percent nationally. This difference is not statistically significant. Arizona ranks 42nd in the nation on this measure. No comparison with 2001 is presented on this outcome, because it was not assessed.

5. CSHCN HEALTH STATUS AND NEEDS

Figure 5.20 CSHCN who are Screened Early and Continuously for Special Health Care Needs

Rank = 42

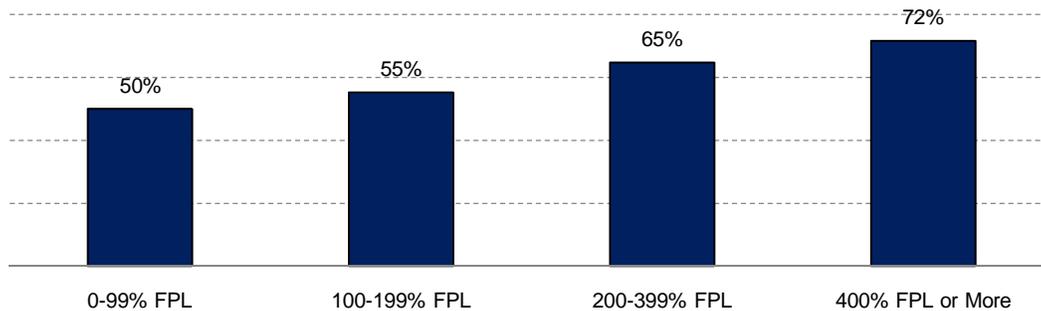


Source: National Survey of Children with Special Health Care Needs 2005/2006

Hispanics were less likely to be screened early and continuously for special health care needs (55 percent). Children who lacked continuous insurance coverage and children in families whose health care caused financial problems were also less likely to be screened (41 percent and 56 percent, respectively).

Families reporting that their children were screened early and continuously varied by income level. The higher the family income level, the more likely the children received early and continuous screening for special health care needs (see Figure 5.21).

Figure 5.21 Children who were Screened Early and Continuously by Income Level



Source: National Survey of Children with Special Health Care Needs 2005/2006

This outcome measure is made up of two components, shown in Table 5.10. Seventy-seven percent of families with CSHCN in Arizona reported that their children received routine preventive medical care, and 76 percent reported that their children received routine preventive dental care in the past year. The differences shown on Table 5.10 between Arizona and the nation are not statistically significant.

5. CSHCN HEALTH STATUS AND NEEDS

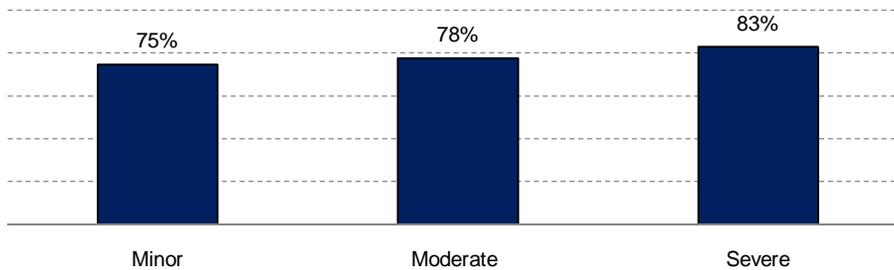
Table 5.10 Components of Core Outcome 4

Condition	AZ %	US %
4a. Child has received routine preventive medical care in past year	77	77
4b. Child has received routine preventive dental care in past year	76	79
Core Outcome 4:	61	64

Source: National Survey of Children with Special Health Care Needs 2005/2006

In Arizona, CSHCN were more likely to receive preventive dental care (8 percent) than children who do not have a special health care need (74 percent). Dental care for CSHCN can often be more complicated and may require special accommodations. Some children have to be anesthetized to get dental care, which is not a normal procedure for most general dental settings. Children with more severe conditions tend to receive more routine preventive medical care (see Figure 5.22).

Figure 5.22 Children who Received Routine Preventive Medical Care by Severity of Functional Difficulties



Source: National Survey of Children with Special Health Care Needs 2005/2006

Suggested strategies for early and continuous screening during public input sessions were primarily related to training. Families believed that primary care physicians needed more education on screening and could play a better role in identification. Education may include trainings on the use of model screening tools and providing information on what to do after a child is identified with a special health care need. Many felt that families lacked knowledge of developmental expectations for children birth to age five and suggested training on developmental milestones. Families also suggested using schools to screen and identify children. One parent stated that the OCSHCN, should improve access to preventive health care for all CSHCN and ensure once screening is done that children can access the needed services such as with vision screening.

Arizona families believe that once children are identified with a special health care need, services are often not available for needed follow up. The newborn screening program recently expanded their panel to test every newborn on 29 different conditions, but there is a shortage of resources available to families who cannot afford follow-up services.

5. CSHCN HEALTH STATUS AND NEEDS

Parents also talked about their experiences being labeled as non-compliant because they did not follow the advice of either a physician or school nurse, when they could not afford follow-up services. Financial barriers sometimes result in choosing a service based on what is affordable, rather than what their children need.

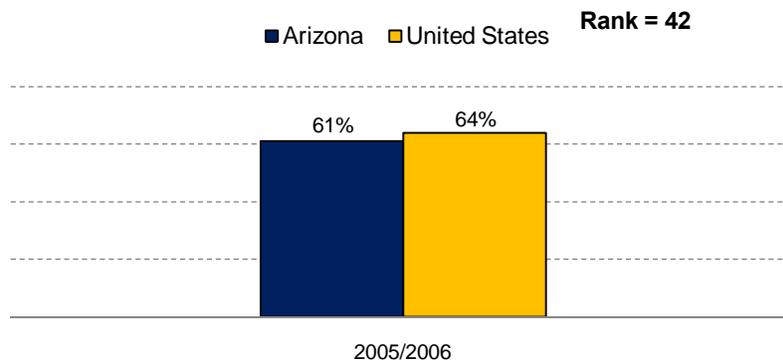
CORE OUTCOME 5:

PERCENT OF CSHCN WHOSE COMMUNITY-BASED SERVICE SYSTEMS ARE ORGANIZED SO FAMILIES CAN USE THEM EASILY

Children with special health care needs often rely on services that are provided by schools, childcare facilities, vocational education and rehabilitation programs, and other community programs. These types of services give the child an opportunity to be integrated into the social, educational, and recreational activities.

Most families report that community-based service systems are organized so families can use them easily (see Figure 5.23). Arizona ranks 42nd in the nation on this measure, however, the difference between Arizona's score and the national score is not statistically significant. Revisions were made to a question used for this outcome in the 2005/2006 NS-CSHCN, therefore no comparison to 2001 is presented for composite core outcome measure 5.

Figure 5.23 CSHCN whose Community-Based Service Systems are Organized so Families Can Use Them Easily



Source: National Survey of Children with Special Health Care Needs 2005/2006

Hispanics were less likely to report that community-based systems are organized so families can use them easily (80 percent), as were families who lacked continuous health insurance coverage (70 percent). Children who were always affected by their condition (64 percent) and those with severe functional limitations (58 percent) were also less likely to say that systems were organized so that they could use them easily.

A recurrent theme brought up during public input sessions was the need for inclusion. With the rise of CSHCN being mainstreamed into schools systems, the need for inclusion and other activities increase, such as increased involvement in sports and nutrition education. While some children require relatively minor accommodations,

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families say that schools are not well-prepared to make accommodations, and are often afraid to do them. Parents do not want to return to a model in which specialty services are concentrated in segregated schools.

Families also expressed concern over the lack of community services for their children. Examples included difficulty finding childcare for CSHCN, shortages of school nurses, lack of specialized therapists, and shortages of therapists in rural areas. The OCSHCN often receives calls from parents encountering problems with getting their child tested for services, integrating health concerns into their Individualized Education Plans (IEP), and the lack of transition services from early intervention to preschool, and from preschool to elementary school. Recently, there have been substantial reductions in funding for vocational rehabilitation programs. With returning veterans, these reductions have resulted in the competition for resources and the establishment of a waiting list.

During public input, a suggested strategy for addressing inclusion issues was for the OCSHCN to partner with other offices within the Arizona Department of Health Services on prevention activities such as injury prevention, nutrition, and physical activities in order to make all health and wellness strategies inclusive of CSHCN.

CORE OUTCOME 6:

YSHCN RECEIVE SERVICES NECESSARY TO TRANSITION TO ALL ASPECTS OF ADULT LIFE

Transition, as defined by the Society for Adolescent Medicine, is "the purposeful, planned movement of adolescents and young adults with chronic physical and medical conditions from a child-centered to adult-oriented health care system."⁶⁶ In recent years, more and more youth with chronic conditions are surviving into adulthood. Each year, in the United States, nearly half a million CSHCN cross the threshold into adulthood.⁶⁷ One generation ago, most of those with severe disabilities died before reaching maturity; now more than 90 percent survive to adulthood.⁶⁸ Thus, transition planning has become even more important as a health care quality issue.

Transition planning is a complex process that needs to be individualized for each young adult and requires coordination with health care providers, family members, and all involved in the care of the young adult. Transition plans should include steps to assure that young adults attain optimum levels of independence and functioning in all aspects of their adult lives. Areas of transition include healthcare coverage and finances, guardianship, educational transition and employment, community participation, mobility, living arrangements, social and recreational issues, and medical transition.

Preparation for adulthood can begin as soon as the child is old enough to make choices. The concept of transition may be applied to transition from hospital to home,

⁶⁶ American Academy of Pediatrics, Committee on Children with Disabilities and Committee on Adolescence. Transition of Care Provided for Adolescents with Special Health Care Needs. *Pediatrics*. 1996; 98:1203-1206.

⁶⁷ Newacheck PW, Taylor WR. Childhood Chronic Illness: Prevalence, Severity, and Impact. *American Journal of Public Health* 1994;82:364-371.

⁶⁸ Blum RW. Transition to Adult Health Care: Setting the Stage. *Journal of Adolescent Health* 1995;17:3-5.

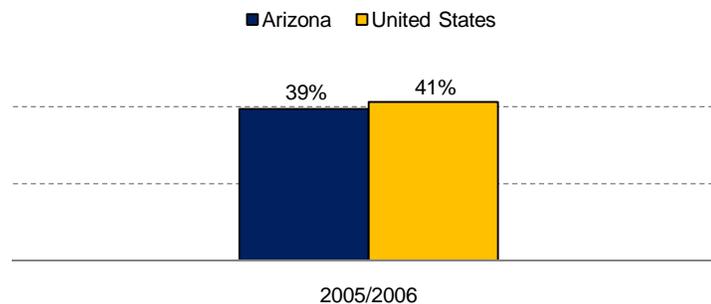
5. CSHCN HEALTH STATUS AND NEEDS

home to preschool, preschool to school, home to community, school to work, as well as to adulthood.

Transition was a recurring topic throughout public input. The lack of adult providers and providers' lack of understanding of how to address health care for YSHCN were major concerns. Families expressed that among adult providers, there are specialists who understand parts of a condition, like how a particular body system is affected, but there are few who understand the entire condition and the interplay of that condition with all aspects of health.

The NS-CSHCN asks a series of questions of families with 12 to 17 year-old YSHCN to determine whether or not youth receive the services necessary to make the transition to adult life. In 2005, Arizona ranked 35th in the nation on the overall measure of provision of transition services. 40 percent of Arizona's YSHCN received all the services necessary to make the transition to adulthood compared to 41 percent of YSHCN throughout the nation (see Figure 5.24). This difference is not statistically significant. Substantial changes to the methods for this outcome were made in the 2005/2006 NS-CSHCN, therefore no comparison to 2001 is presented for composite core outcome measure 6.

Figure 5.24 YSHCN Receive Services Necessary to Make Transition to All Aspects of Adult Life
Rank = 35

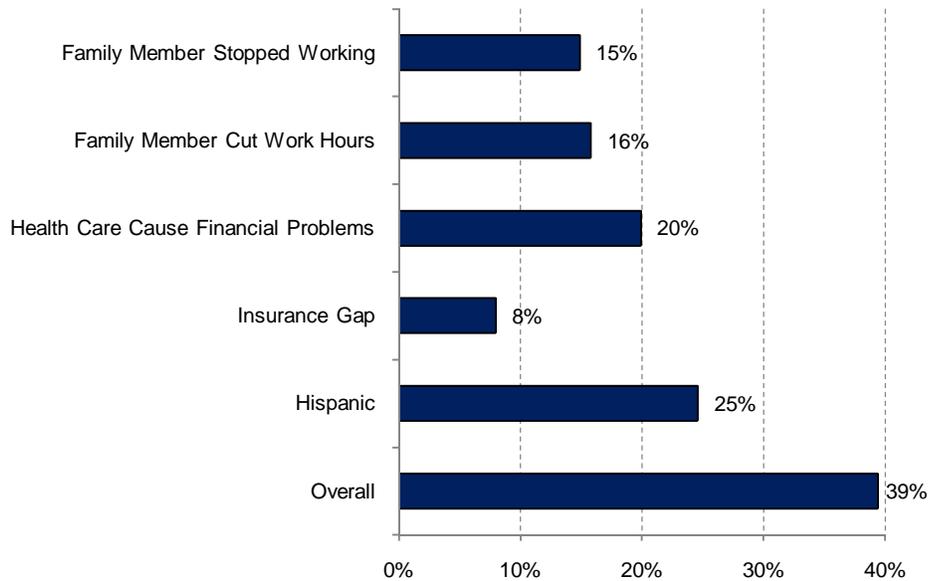


Source: National Survey of Children with Special Health Care Needs 2005/2006

Only 25 percent of Hispanic youths received transition services during the past year. There were some groups who were even less likely to receive them: only 8 percent of those who lacked continuous insurance coverage, 20 percent of those whose health care caused financial problems, 16 percent of those who had a family member who cut work hours to care for the child, and 15 percent of those who had a family member stop working received all the services necessary to transition to all aspects of adult life. (see Figure 5.25)

5. CSHCN HEALTH STATUS AND NEEDS

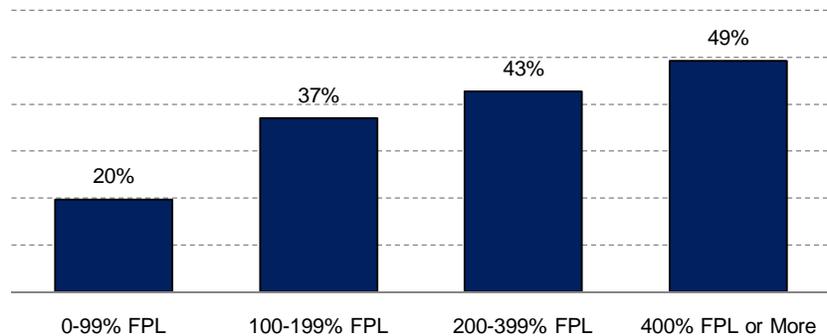
Figure 5.25 YSHCN Receive Services Necessary to Make Transitions to All Aspects of Adult Life



Source: National Survey of Children with Special Health Care Needs 2005/2006

As seen in other core measures, living in a household with a higher income is associated with having a positive outcome for core measure 6. Figure 5.26 shows that as income increases, the proportion of YSHCN receiving all the services necessary to transition to all aspects of adult life also increases.

Figure 5.26 YSHCN Receiving All Services to Transition to Adult Life by Income Level



Source: National Survey of Children with Special Health Care Needs 2005/2006

Core outcome measure six is made up two major components. In order to be counted as meeting the outcome measure, participants have to respond that their children received all necessary anticipatory guidance and that they were encouraged to take responsibility for their health care. Table 5.11 provides a breakdown of these components. Both nationally and in Arizona, youths were encouraged to take responsibility for their health care (79 percent in Arizona and 78 percent nationally). However, a much smaller proportion of YSHCN received guidance in the transition into

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adulthood (37 percent in Arizona compared to 38 percent nationally). Neither of the differences between Arizona and the nation are statistically significant.

Table 5.11 Components of Core Outcome 6

Condition	AZ %	US %
6a. Child receives anticipatory guidance in the transition to adulthood	37	38
6ai. Doctors have discussed shift to adult provider, if necessary	42	42
6aii. Doctors have discussed future health care needs, if necessary	56	63
6aiii. Doctors have discussed future insurance needs, if necessary	33	34
6b. The child has usually or always been encouraged to take responsibility for his or her health care	79	78
Core Outcome 6:	39	41

Source: National Survey of Children with Special Health Care Needs 2005/2006

6a. Child receives anticipatory guidance in the transition to adulthood

Over half of families in Arizona reported that doctors have discussed future health care needs if necessary (56 percent). Less than half (42 percent) of families reported that doctors have discussed a shift to an adult provider if necessary and one third (33 percent) of those needing to discuss future health insurance needs discussed this issue with their doctors. These low scores are supported by family observations. Families say that physicians do not know the ins and outs of health insurance and do not understand services that are offered to CSHCN.

6b. The child has usually or always been encouraged to take responsibility for his or her health care

While three out of four families of CSHCN reported that their children were usually or always encouraged to take responsibility for his or her health care, families still expressed concerns during public input. Mothers say that it is often the mother who is the one person who is most knowledgeable about her child's condition and is the only person that understands all of the complications and interactions between various healthcare needs. As a result, providers tend to direct messages to the mother rather than the child. For example, a mother stated concerns about transition issues regarding her nonverbal 14 year old son. She stated that her son's doctor addresses her instead of her son and would like the doctor to include her son in conversations in preparation for transitioning. For the youth to be prepared to provide the information that adult providers expect and partner in decisions about their health care, the youth must be involved with transition activities throughout adolescence.

Families also expressed that doctors should talk to kids about the long-term consequences of their treatments in order to prevent secondary conditions. A college student, who was also a Children's Rehabilitative Services graduate, nearly had a shunt failure and ended up in the emergency room multiple times because he had not been trained to understand his own self care. Additionally, the OCSHCN has received calls from young adults who do not have an understanding of their conditions, nor do they

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know how to navigate the adult system with multiple specialists and little or no care coordination.

PRIORITIES FOR CSHCN

Public input sessions were described in both in the introduction and the second chapter on Partnership Building and Collaboration Efforts. The public input process included presenting data on key indicators from MCH core outcome measures as well as health status and unmet need. Information was also presented on budget cuts and how they affected programs. At the end of each input session, community partners were invited to add topics of interest that had not been addressed through the materials presented. When discussion concluded and all relevant issues were on the table, participants were asked to identify those needs that they thought should be considered top priorities for the state.

The OCSHCN needs assessment team compiled suggested priorities from all sources into an evaluation tool. The needs assessment team plus key staff and community partners convened a meeting in which each of the suggested priorities was rated in terms of several dimensions on a scale ranging from 0 to 3.

Participants then discussed the list of issues and reviewed public input comments on them. Discussion then focused on the meaning of each evaluation dimension, why it was important, and how to apply ratings. Finally, each participant individually rated each dimension before scores were shared with the group. Individuals ratings were remarkably consistent and often unanimous. On those occasions where someone's score differed from the group, discussion resolved differences and consensus was easily reached.

A list of priorities was compiled and evaluated, with numerical ratings of 0 through 3 for each of dimensions:

- 1) Numbers affected: Higher scores were given to issues that affected more children.
- 2) Severity or importance: Higher scores were given to issues that were seen as more important or had more severe consequences.
- 3) Known interventions: Higher scores indicated that there was an identified intervention that was known to be successful in addressing the priority without regard to the feasibility of implementation.
- 4) Resources to implement intervention: Higher scores indicated that the known interventions could be implemented using identified resources that were either at the disposal of the MCH program or were available through community partners.
- 5) Interest of partners: It is important to always keep in mind what issues are interesting to community partners, and to look for strategic opportunities to extend each other's resources. There are times when neither the state nor

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- community partners can accomplish something on their own, but together can push an initiative past a tipping point. Higher scores on this dimension indicate that community partners not only expressed interest in the need, but were interested in collaborating on strategies.
- 6) Likelihood of impact: Likelihood of impact took a broader view of the feasibility of implementation, and higher scores were given to interventions that were more likely to produce change. Lower scores were given when the means to effect change were beyond the control of the CSHCN program and its partners.
 - 7) Annually measurable: The MCH block grant national performance measures for CSHCN are often excellent conceptual matches and are done on a representative sample of the entire CSHCN population. This makes them very attractive for measuring potential priorities; however, they are not available on an annual basis and they are too expensive for the state to replicate annually. Consequently, higher scores for this dimension are reserved for priorities in which an appropriate conceptual measure can be implemented annually.

After all topics were rated, scores were summarized, and the topics with the highest scores across all areas evaluated were hearing, inclusion, and transition. These were selected as the top priorities for CSHCN.

CSHCN PRIORITY 1: REDUCE UNMET NEED FOR HEARING SERVICES

Hearing issues scored a total of 20 out of a possible 21 points. Although not all CSHCN are affected by hearing issues, the consequences of untreated issues for those who are can be severe. Lack of follow up services following screening in general was an important theme during public input, as was the inadequacy of health insurance to cover needed services around hearing issues in particular. Families often found themselves in need to follow up services that they could not afford either because they had no health insurance or because their health insurance did not cover hearing aids and the specialty services associated with hearing loss.

While every newborn in Arizona is screened for hearing loss, approximately one third of those who fail the initial screening do not receive appropriate follow up services. The needs assessment data shows a relatively high proportion of unmet need related to hearing, with one in four of the CSHCN with an identified need for hearing aids or hearing care failing to have those needs met.

Arizona Early Hearing Detection and Intervention Program and the EAR Foundation are very interested in collaborating with OCSHCN to ensure that all children in Arizona receive appropriate follow up services for hearing-related problems. These partners are well prepared with known effective interventions, and through collaborating with OCSHCN will have an opportunity to extend their reach. While the EAR Foundation is effective at raising funds for specific needed services, they have not been able to develop their analytic capabilities to support strategic planning. OCSHCN will support this aspect of their strategies, as well as extend their reach through making the e-

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Learning platform available for training, and through the use of the telemedicine system. Training and technical assistance will be provided through community health centers, physician offices, and Early Head Start. OCSHCN will also work with First Things First, who will assist with ensuring that children receive needed second screenings and audiology services.

OCSHCN will monitor progress on this priority by creating a state performance measure, which will track the percent of newborns who fail their initial hearing screening who receive appropriate follow up services. The baseline for this measure in 2008 is 72%. The five-year goal for this measure is to reach 90% by 2013.

PRIORITY 2: PREPARE CYSHCN FOR TRANSITION TO ADULTHOOD

This priority was tied for second place with 15 out of a possible 21 points. Although adolescents represent a relatively small proportion of all CSHCN, most CSHCN will eventually become adults and will require transition services. In addition, the transition process begins long before adolescence. Whether a child will grow to live independently or require some kind of assistance, every family must address how health care needs will be met as well as all of the requirements of everyday living.

All avenues of public input emphasized the importance of transition, and several community partners have some kind of programmatic activity directed towards it. OCSHCN has long had an emphasis on developing resources and training on transition, and will continue to collaborate with community partners on all aspects of transition. The most appropriate measure for tracking progress on transition over the long term is through the MCH National Performance Measure #6: Percent of YSHCN who received services necessary to make transition to all aspects of adult life, including health services, work, and independence. Unfortunately, this measure is not produced annually. OCSHCN will work with its partners to develop new performance measures to track annual progress during the interim years.

PRIORITY 3: PROMOTE INCLUSION OF CSHCN IN ALL ASPECTS OF LIFE

This priority was tied for second place with 15 out of a possible 21 points. Inclusion of CSHCN in childcare, school, sports, work, and even in Department of Health Services wellness activities, such as nutrition and physical activity and injury prevention, presented many opportunities for improvement. During public input, families often spoke about the lack of accommodations for CSHCN to participate in all aspects of life, and how important these were to address. Interventions sometimes were as simple as including OCSHCN staff in larger prevention initiatives, such as participation in the State Injury Prevention Plan, or adapting wellness messages to accommodate special needs. These activities present opportunities to leverage others' resources on behalf of CSHCN. OCSHCN will continue to participate in policy development to include CSHCN, as well as collaborate with partners, such as school nurses, to ensure that the needs of CSHCN and barriers to their participation are understood and addressed.

The most appropriate measure for tracking progress on inclusion over the long term is through the MCH Performance Measure #5: Percent of CSHCN age 0-18 whose

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families report the community-based service systems are organized so they can use them easily. Unfortunately, this measure is not produced annually. OCSHCN will work with its partners to develop new performance measures to track annual progress during the interim years.

There were several other potential priorities that were considered, but did not rise to top priority status. Early identification of special needs was seen as affecting many, with important consequences, and there was interest among community partners in increasing the percent of CSHCN that are identified early. This priority received serious attention. However, other initiatives are being developed with First Things First taking the lead, and OCSHCN will support those efforts.

Health insurance that adequately covers special health care needs, mental health services, therapies, and childcare were all identified as needs that affected many families, were very important, and had known interventions that could be implemented if there were adequate resources available. However, due to budget cuts, no resources were identified that could make an impact and consequently, these issues are currently beyond the control of OCSHCN and its community partners.

Fragmentation of the system of care for CSHCN and the need for care coordination affected a moderate number of CSHCN, and was seen as important, and many partners expressed interest in it. However, no new strategies were suggested for how OCSHCN could impact care coordination beyond the information and referral services that were currently offered, and which OCSHCN intends to continue. Genetics testing was rated as being very important for those who needed it, but affected very few children and few resources were available to make a meaningful impact, since genetic tests are often very expensive.

NON PROFIT ORGANIZATIONS

The chapter on State Capacity to Address MCH Population Needs described state agencies that serve CYSHCN. The following organizations also support and serve families of CYSHCN:

ARIZONA BLIND AND DEAF CHILDREN'S FOUNDATION

The Arizona Blind and Deaf Children's Foundation is committed to ensuring that blind, deaf, low-vision, and hard-of-hearing children throughout the state have access to experiential learning in key areas that encompass, and expand upon traditional education. The Foundation's key focus areas are: a comprehensive arts program, sports and recreation programs, access to adaptive communication tools, and independent living skills programs.

ARIZONA CENTER FOR THE BLIND AND VISUALLY IMPAIRED

The mission of the Arizona Center for the Blind and Visually Impaired is to enhance the quality of life of people who are blind or otherwise visually impaired by providing a wide

5. CSHCN HEALTH STATUS AND NEEDS

range of services. Services include assistive technology, counseling and social work, orientation and mobility training, rehabilitation teaching, and social recreation.

ARIZONA HANDS AND VOICES

Hands and Voices is a non-profit, parent-driven national organization dedicated to supporting families of children who are deaf or hard of hearing. Hands and Voices is non-biased about communication methodologies and believes that families can make the best choices for their child if they have access to good information and support. Services include a speaker's bureau, advocacy, training, and providing resource information.

ASPERGER PARENT NETWORK

The Asperger Parent Network is a group of parents serving Arizona who share the challenge of raising a child or teen with Asperger's Syndrome. The group is also appropriate for parents of kids with high functioning autism, PDD, or PDD-NOS. The group's monthly meetings offer a variety of opportunities including networking with other parents, listening to speakers present on topics related to specific challenges, getting kids together for activities, and social events.

CHILD IMPROVEMENT THROUGH THERAPY

Child Improvement Through Therapy (CITT) is a community organization of therapists, parents, businesses and others committed to supporting children and their families with special needs. CITT provides financial resources to offset the costs of raising children with special needs and purchasing medical equipment.

CYSTIC FIBROSIS FOUNDATION

The Cystic Fibrosis (CF) Foundation is a nonprofit donor-supported organization. It is the leading organization in the United States devoted to CF. The CF Foundation funds and accredits CF care centers and adult care programs, supports new trails in CF research, holds fund-raising activities to secure money support CF Foundation efforts, advocates fund-raising activities to secure money to support CF Foundation efforts, advocates to keep CF a top priority, funds drug discovery and development, links patients and families to specialized CF care and offers support, information, and referral to families.

EAR FOUNDATION

The EAR Foundation of Arizona is an affiliate chapter of the EAR Foundation in Nashville, Tennessee, a national, not for profit organization that provides services to persons who are deaf, have a hearing loss or balance impairment. The EAR Foundation provides loaner hearing aids, financial assistance for permanent hearing aids and vouchers for audiological evaluations or medical evaluations to provide medical clearance for hearing aids for families in financial need. The EAR Foundation also provides free screening equipment, training, consultation and technical assistance to many hospitals in Arizona.

5. CSHCN HEALTH STATUS AND NEEDS

FOUNDATION FOR BLIND CHILDREN

The mission of the Foundation for Blind Children is to help blind and visually impaired children, adults and their families lead lives of independence and dignity through mastery of their environment. A continuum of services is provided from infancy through preschool, elementary and secondary education. Other programs include Adult and Transition Services, Independent Living Training Program, Orientation and Mobility Training Program, Vision Rehabilitation Service, a Technology Center, a Media Center and Braille and Large Print Library.

PILOT PARENTS OF SOUTHERN ARIZONA

Pilot Parents of Southern Arizona is committed to providing encouragement and support to families who have children with special needs so that their children can reach their maximum potential within the family and society. Services include Parent Training and Information Center, Partners in Policymaking, Lending Library, and The Navigator quarterly newsletter providing reviews on Lending Library books and tapes, upcoming trainings, articles related to disabilities, updates on state and local issues, legislative issues and community updates. Pilot Parents is a designated Parent Training and Information Center under the U.S. Department of Education, Office of Special Education Programs (OSEP) offering trainings to parents and professionals

QUEST TO CURE

Quest to Cure was created as a parent-to-parent support group designed to teach and promote self advocacy and build a stronger inclusive sickle cell community. Services include the Sickle Cell Camp; Joshua's Journal, a literacy program; Bedside Buddies, a program created to build the self-esteem of the hospitalized child/youth; the School Success Program, a program to educate and bring awareness to educational professional and school personnel of the protocol needs and emergencies associated with a sickle cell carrier; the Holiday Help/Referral Program and Support Groups/Family Fun Days.

RAISING SPECIAL KIDS

Raising Special Kids is a non-profit organization of families helping families of children with disabilities and special health needs in Arizona. All programs and services are provided to families free of charge. At all ages and stages of a child's development, Raising Special Kids supports parents through: family support services, parent leadership opportunities, special education information, healthcare information, and transition to adult services, training and workshops. Community outreach supports families of diverse language and culture with services in rural areas and for tribal families. Raising Special Kids is Arizona's Parent Training and Information Center, one of over 100 centers authorized under the Individuals with Disabilities Education Act (IDEA) to provide assistance in special education to families and schools.

RONALD McDONALD HOUSE CHARITIES

Ronald McDonald House Charities provides a temporary home-away-from-home for families who must travel to receive medical treatment for their children. The Ronald

5. CSHCN HEALTH STATUS AND NEEDS

McDonald House allows families to access specialized medical treatment by providing a place to stay at little or sometimes no cost.

RYAN HOUSE

Ryan House provides a comprehensive program of family-centered care including medical, emotional, social and spiritual support services and therapies to enhance quality of life. Services include pediatric palliative care, respite care, end of life care, and bereavement care.

SOUTHERN ARIZONA ASSOCIATION FOR THE VISUALLY IMPAIRED

Southern Arizona Association for the Visually Impaired is a non-profit agency serving visually impaired adults in Southern Arizona since 1964. Services include aids and appliances, assistive technology, comprehensive day programs, habilitation, health and wellness, independent living skills, and orientation and mobility.

SOUTHWEST AUTISM RESEARCH AND RESOURCE CENTER (SARRC)

The Southwest Autism Research and Resource Center (SARRC) mission is to advance research and provide a lifetime of support for individuals with autism and their families. SARRC's research brings together many methods and scientists in an effort to gain a greater understanding of possible causes of autism, identify better treatments, learn how to prevent it and ultimately find a cure for those affected by autism spectrum disorders. SARRC provides clinical services, school-based services, and vocational services.

SOUTHWEST HUMAN DEVELOPMENT

Southwest Human Development (SWHD) provides services to children and adults with disabilities and other special needs, and support to their families. The Assistive Technology and Resource Center offers workshops and training, evaluations, support groups, and has a lending library. The early intervention program offers occupational, speech, and physical therapy, and service coordination. The infant toddler feeding program provides comprehensive assessments; consultation and medical record review, and follow up by a developmental pediatrician.

Southwest Human Development's child health and welfare programs range from early literacy to mental health to child abuse prevention. Southwest Head Start offers low-income children a high-quality education, health screenings, and family services. SWHD also offers nationally recognized education and training programs to professionals and organizations working with young children.

SOUTHWEST INSTITUTE FOR FAMILIES AND CHILDREN (SWI)

Southwest Institute for Families and Children is a non-profit research and development organization focusing on children's health and education. SWI conducts research, demonstration, implementation, and training projects that advance knowledge and change practice; thus, improving the quality of health, education, and social services for families, children, and youth. The SWI **Youth Action Council of Arizona** (YAC-AZ) provides youth with disabilities a group in which they have the opportunity to meet,

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interact, and work with other youth towards the common goal of promoting self-determination through independence and self advocacy.

SPINA BIFIDA ASSOCIATION OF ARIZONA

The mission of the Spina Bifida Association of Arizona is to promote awareness of Spina Bifida and enhance the lives of those affected. Services include education, advocacy, awareness programs, and providing resource information. The Spina Bifida Association (SBA) publishes a quarterly magazine nationwide, called *Insights*. The magazine serves to educate and enlighten with articles about medical conditions, employment, family issues, advocacy, research, and SBA activities.

UNITED CEREBRAL PALSY OF CENTRAL ARIZONA

United Cerebral Palsy of Central Arizona (UCP) is committed to creating possibilities and nurturing opportunities for those with disabilities. UCP is a leader in providing therapies, independent living services, inclusive and integrated educational based programs, innovative social opportunities, and basic research. Programs are dedicated to advancing the independence, productivity and self-sufficiency of each individual. Programs and services include early intervention, early learning center, therapy services, day treatment and training for children and adolescents, day treatment for adults, employment services, home and community based services, and information and referral.

6. PREGNANT WOMAN AND INFANTS

HEALTH STATUS AND WELL-BEING

STABILIZATION OF PRETERM BIRTH AND LOW BIRTH WEIGHT OFFERS HOPE FOR INFANT HEALTH

DESCRIPTION OF PRETERM AND LOW BIRTH WEIGHT INFANTS:

Preterm birth (prematurity) is defined as the delivery of a live born infant at less than 37 weeks gestation. Preterm births are characterized as either ~~very~~ very preterm (i.e. prior to 32 weeks gestation) or ~~moderately~~ moderately preterm (32-36 weeks gestation).⁶⁹ ~~Late~~ Late preterm is used to describe those deliveries occurring at 34-36 weeks gestation. Two methods are used to determine gestational age of the infant; mother's recall of the data of last menses or physician's clinical estimate of gestational age. Risk factors for preterm birth include; multiple gestation (i.e. twins, triplets or more), history of preterm birth, problems with the uterus or cervix, health problems in the mother (e.g. diabetes, high blood pressure), maternal smoking, and alcohol use or illegal drug use.⁷⁰

Low birth weight is defined as a live born infant weighing less than 2,500 grams (i.e. less than 5 pounds 8 ounces), and very low birth weight is less than 1,500 grams (i.e. less than 3 pounds 5 ounces). Unlike the methods used to determine gestational age, birth weight is not subject to biases inherent to estimation. The two main reasons that account for low birth weight are preterm birth and fetal growth restriction. Multiple factors are associated with fetal growth restriction including maternal smoking or alcohol consumption, inadequate maternal weight gain, maternal age younger than 15 or older than 35 years, infections involving the uterus or in the fetus, placental problems, and birth defects.⁷¹ The life course perspective attributes these proximal factors in both prematurity and low birth weight to socioeconomic status, environmental exposures, stress, and other influences prior to and during a woman's reproductive years.⁷²

WHY ARE PREMATUREITY AND LOW BIRTH WEIGHT PROBLEMS?

Prematurity is the leading cause of infant death in the United States.⁷³ Early death and lifelong morbidity are more likely for infants born prior to 34 weeks gestation.⁷⁴ Infants that survive often face lifelong health problems such as breathing and respiratory difficulties, cerebral palsy, vision and hearing loss, feeding and digestive problems, and intellectual disabilities. Premature infants frequently require specialized care in neonatal intensive care units (NICU) for weeks or months. According to the CDC, ~~in~~ in 2005, the annual societal economic cost (medical, educational, and lost productivity) of preterm

⁶⁹Centers for Disease Control and Prevention, Maternal and Infant Health Research: Preterm Birth, (2009). Retrieved from <http://cdc.gov/ReproductiveHealth/MaternalInfantHealth/PBP.htm>[accessed February 11, 2010].

⁷⁰ March of Dimes, For Professionals: Premature Birth, (2009). Retrieved from, http://www.marchofdimes.com/prematuritytest/index_professionals_1157.asp#head2 [Accessed February 11, 2010].

⁷¹ March of Dimes, Professionals and Researchers: Low Birth Weight (2008). Retrieved from. http://www.marchofdimes.com/professionals/14332_1153.asp [Accessed February 11, 2010].

⁷² U.S. Department of Health and Human Services, The Life Course Approach, n.d. Retrieved from: <http://mchb.hrsa.gov/lifecourseresources.htm> [Accessed February, 16, 2010].

⁷³ Centers for Disease Control and Prevention, Reproductive and Birth Outcomes, n.d. Retrieved from: <http://ephtracking.cdc.gov/showRbPrematureBirthEnv.action> [Accessed February 16, 2010].

⁷⁴ Martin, J.A., Kirmeyer, S., Osterman, M., & Shepherd, R.A.(2009). Born a Bit Too Early: Recent Trends in Late Preterm Births. *National Center for Health Statistics*, (24), 1-8. Retrieved from: <http://www.cdc.gov/nchs/data/databriefs/db24.pdf> [Accessed, February, 16, 2010].

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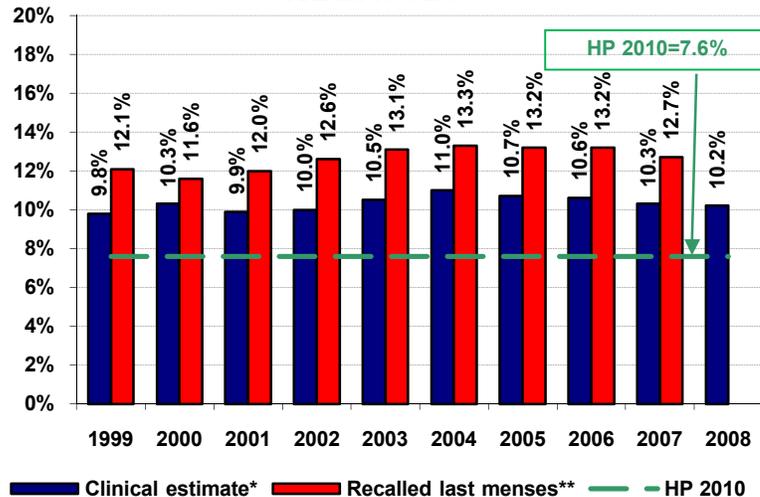
birth in the United States was at least \$26.2 billion. The average first year medical costs were about 10 times for preterm than for full-term babies.⁷⁵ From 1990-2006 preterm births increased by 20 percent in the United States to one-in-eight deliveries, with a majority of the increase occurring in babies delivered at 34 to 36 weeks gestation (late preterm).⁷⁶

Due to the strong association between prematurity and low birth weight, many of the aforementioned health outcomes are shared by low birth weight infants, even those born at term. In addition, some studies have shown an association between low birth weight and adult health problems such as high blood pressure, type-2 diabetes, and heart disease. Fetal growth restriction may cause changes in insulin-sensitive organs that negatively affect metabolic processes in adulthood.⁷⁷

HOW IS ARIZONA DOING?

Figure 1 shows the percentage of infants born preterm in Arizona from 1999-2008 using two different measurements of gestational age.⁷⁸ Regardless of the methodology used to determine gestational age, the percent of premature infants born in Arizona remained significantly greater than the Healthy People 2010 goal of 7.6 percent. In 2008, Arizona Vital Statistics noted that 10,073 infants were born prior to 37 weeks gestation representing approximately 2,532 excess preterm deliveries in 2008 beyond the Healthy People 2010 goal.

Figure 1. Percent of Infants Born Preterm (<37 weeks gestation) by Type of Gestational Estimate Arizona 1999-2008



*prematurity based on physicians estimate of gestational age

**prematurity based on mother's recall date of last menses

Source: National Center for Health Statistics and Arizona Vital Statistics, 2008

Very premature infants (i.e. ≤ 32 weeks of gestation period) comprised 1.3 percent to 1.5 percent of all births from 1999-2008. However, the majority of premature births were

⁷⁵ Centers for Disease Control and Prevention: Prematurity (2009). Retrieved from: <http://www.cdc.gov/features/prematurebirth/> [Accessed February 16, 2010].

⁷⁶ Martin, J.A., Kirmeyer, S., Osterman, M., & Shepherd, R.A. (2009). Born a Bit Too Early: Recent Trends in Late Preterm Births. *National Center for Health Statistics*, (24), 1-8. Retrieved from: <http://www.cdc.gov/nchs/data/databriefs/db24.pdf> [Accessed, February, 16, 2010].

⁷⁷ March of Dimes, Professionals and Researchers: Low Birth Weight (2008). Retrieved from: http://www.marchofdimes.com/professionals/14332_1153.asp [Accessed February 11, 2010].

⁷⁸ Gestational age is calculated by either mother's recollection of last menses (LMP), or clinical estimate of gestational age. Because LMP is missing for approximately six percent of birth records, and is subject to recall bias, Arizona Vital Statistics uses clinical estimate of gestational age. This accounts for the difference in prematurity rates reported by the Arizona Bureau of Vital Statistics and the National Center for Health Statistics.

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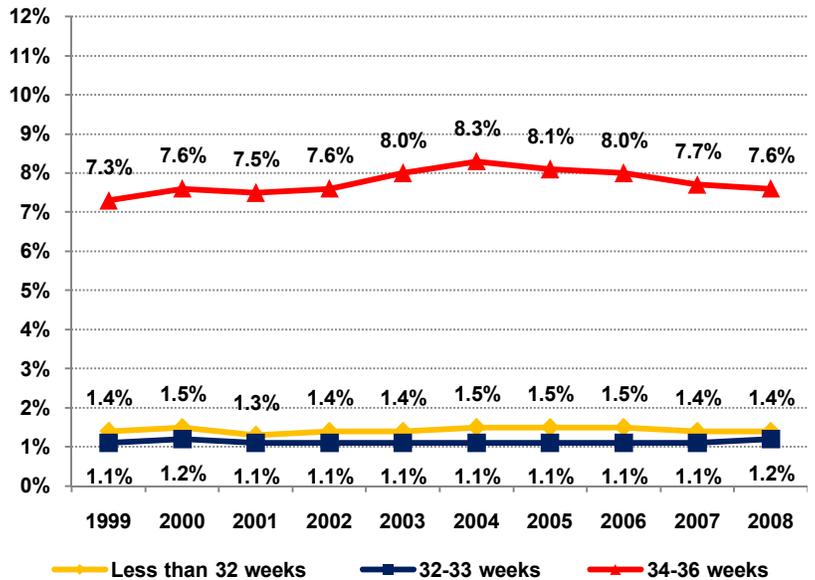
delivered in the late preterm stage.

Figure 2 shows the percent of infants born from 32 through 36 weeks (moderately preterm), and from 34 through 36 weeks (late preterm) from 1999-2008. The percent of late preterm infants has declined from a high of 8.3 percent in 2004 to 7.6 percent of all births in Arizona in 2008. This rate is thought to be influenced by the secular trend increase in the proportion of mothers undergoing preterm cesarean sections.⁷⁹

Figure 3 displays cesarean sections for Arizona from 1999-2008, and it is evident that there has been a significant increasing linear trend in the proportion of late preterm infants delivered by cesarean section.

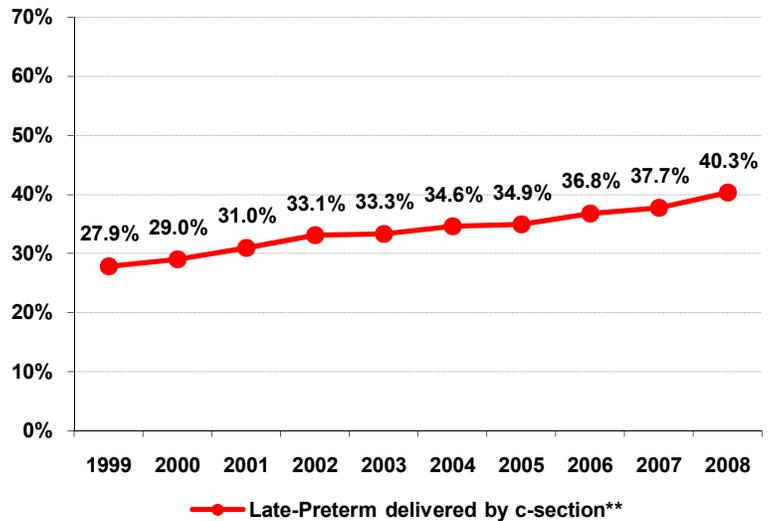
Table 1 on the following page shows the differences in the percent of preterm births from 1999-2008 by demographic characteristics of the mother. Since 2005 the infants of Black or African American mothers were significantly more likely to be born preterm compared to White non-Hispanic mothers. The percentage of preterm births among White non-Hispanics has declined more rapidly than for Hispanic or Latinas. Mother's age and multiple births remained the most robust predictors of preterm birth. Approximately 1-in-6 deliveries to women over 40

Figure 2. Percent of Live Births Born Preterm by Week of Clinical Gestation Estimate, Arizona 1999-2008



Source: Arizona Birth Certificates, 1999-2008

Figure 3. Percent of "Late Preterm Infants" (34-36 weeks) Delivered by Cesarean Section* Arizona 1999-2008



*includes primary and repeat c-sections

**Cochran-Armitage Trend Test $p < 0.0001$

Source: Arizona Birth Certificate Data, 1999-2008

⁷⁹ March of Dimes, C-Sections and Critical Factor as Preterm Birth Increases, 2008 [accessed February 12, 2010]. Available at: http://www.marchofdimes.com/aboutus/22684_30185.asp

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years of age are preterm compared to 1-in-10 for women aged 18-34 years. The difference was significant each year from 2003-2008. Teen mothers 17 years and younger also assumed a greater risk for preterm delivery than women aged 18-34 years. The risk for preterm was greatest for the youngest teens (< 15 years old), although small number of deliveries for this cohort makes rates unstable. Approximately two-thirds of all multiple births were born preterm from 2003-2008. This percentage was seven times as great as for singleton births.

TABLE 1
Premature Births (< 37 weeks)^{*}, Arizona 2003-2008

Race/Ethnicity	2003	2004	2005	2006	2007	2008
<i>White non-Hispanic</i>	11.0%	11.4%	10.9%	10.5%	10.4%	10.1%
Black/African American	11.7%	11.6%	12.6% [Ⓢ]	12.7% [Ⓢ]	12.8% [Ⓢ]	11.7% [Ⓢ]
American Indian/AK Native	9.8% [Ⓢ]	10.9%	10.6%	11.7% [Ⓢ]	10.4%	9.8%
Asian/Pacific Islander	10.8%	11.0%	10.2%	10.4%	9.6%	10.0%
Hispanic/Latina	9.8% [Ⓢ]	10.3% [Ⓢ]	10.1% [Ⓢ]	10.1%	9.8%	9.9%
Mother's Age						
<i>18-34 years</i>	10.0%	10.5%	10.2%	10.1%	9.9%	9.7%
<18 years	10.9%	11.8% [Ⓢ]	12.1% [Ⓢ]	11.9% [Ⓢ]	10.7%	11.0% [Ⓢ]
40 years +	16.9% [Ⓢ]	17.6% [Ⓢ]	16.8% [Ⓢ]	15.0% [Ⓢ]	16.4% [Ⓢ]	17.2% [Ⓢ]
Number of Births						
<i>Singleton</i>	8.9%	9.2%	9.2%	9.0%	8.7%	8.5%
Multiple	64.7% [Ⓢ]	70.3% [Ⓢ]	64.6% [Ⓢ]	67.6% [Ⓢ]	67.4% [Ⓢ]	65.5% [Ⓢ]
Payee for Birth						
<i>Private Insurance</i>	10.5%	10.8%	10.5%	10.3%	10.2%	10.1%
AHCCCS	10.5%	11.4%	10.9%	10.8%	10.4%	10.2%
Prenatal Care						
<i>1st Trimester</i>	10.4%	10.9%	10.5%	10.5%	10.2%	10.1%
3 rd Trimester or No Prenatal Care	13.1% [Ⓢ]	13.1% [Ⓢ]	14.5% [Ⓢ]	15.9% [Ⓢ]	14.6% [Ⓢ]	13.8% [Ⓢ]
Area of Residence^{**}						
<i>Urban County</i>	10.6%	11.0%	10.8%	10.7%	10.3%	10.2%
Rural County	10.0%	10.9%	10.0% [Ⓢ]	10.0% [Ⓢ]	10.0%	9.7%

^{*}Physician's estimate of gestational age

^{**}Urban Counties are Maricopa, Pinal, Pima, and Yuma. All other counties are considered rural.

Italicized category is reference group

[Ⓢ]statistically significant difference from reference group at <0.05

Source: Arizona Health Status and Vital Statistics, 2003-2008

While there is mixed evidence regarding prenatal care and its direct impact on prematurity and low birth weight; nonetheless, data from 2003-2008 indicate that preterm birth was significantly greater among mothers with 3rd trimester or no prenatal care compared to those with early prenatal care.

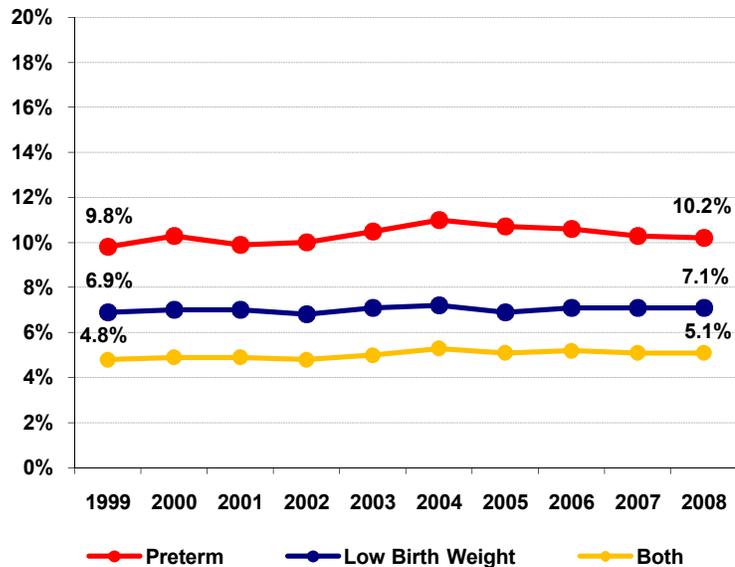
6. PREGNANT WOMAN AND INFANTS

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Preterm birth is the strongest risk factor for low birth weight, and therefore, rates of low birth weight closely follow trends in preterm birth. Figure 4 shows the proportion of low birth weight infants and preterm infants from 1999-2008. Approximately 50 percent of all preterm infants are born at low birth weight compared to two percent of all term babies. In 2008, there were 7,026 infants born at low birth weight, and 1,156 infants born at very low birth weight in Arizona.

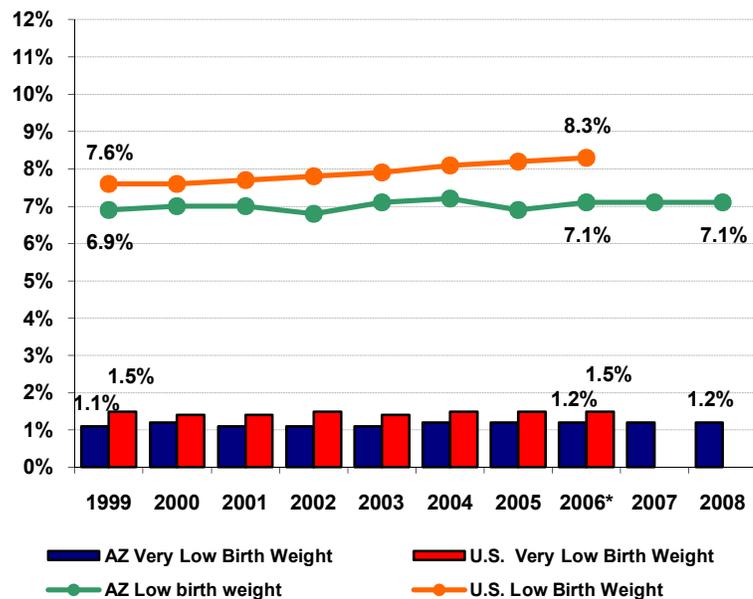
Figure 5 shows the percentage of Arizona births at low (7.1%) and very low birth weight (1.2 percent) remained lower than for infants delivered across the U.S. Demographic differences in Arizona's population relative to the national population likely account for greater birth weights in Arizona. For example, Black or African American infants (i.e. infants at highest risk for delivering a low birth weight infant) made up only 3.8 percent of births in Arizona in 2006 (latest comparison data available), but 15.6 percent nationally. Also, the large percentage of Hispanic or Latina infants (44 percent) and American Indian or Alaskan Native infants (62 percent) delivered in Arizona in 2006 reduced the total rate of low birth weight. Despite these demographics, Arizona did not meet the Healthy People 2010 goal of 5.0 percent low birth weight and 0.9 percent very low birth weight infants.

Figure 4. Percent Preterm (<37 weeks)* and Low Birth Weight, Arizona 1999-2008



*prematurity based on physicians estimate of gestational age
Source: Arizona Birth Certificates, 1999-2008

Figure 5. Low Birth Weight (<2,500 grams) and Very Low Birth Weight (<1,500 grams), Arizona & U.S. 1999-2008



*latest year of national data available at time of data collection.
Sources: Arizona Vital Statistics, 1999-2008 and National Vital Statistics

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As with preterm delivery, disparities in low birth weight among Arizona infants were driven by similar maternal risk factors. Table 2 shows the percentage of low birth weight by maternal characteristics from 2003-2008.

TABLE 2						
Low Birth Weight (< 2,500 grams), Arizona 2003-2008						
Race/Ethnicity	2003	2004	2005	2006	2007	2008
<i>White non-Hispanic</i>	6.9%	7.2%	6.9%	6.7%	7.1%	6.9%
Black/African American	11.7% [Ⓢ]	11.6% [Ⓢ]	12.6% [Ⓢ]	12.7% [Ⓢ]	12.8% [Ⓢ]	11.7% [Ⓢ]
American Indian/AK Native	6.8%	7.2%	7.3%	7.4%	6.6%	6.7%
Asian/Pacific Islander	8.5% [Ⓢ]	8.0%	8.0%	8.5% [Ⓢ]	8.0%	9.1% [Ⓢ]
Hispanic/Latina	6.9%	6.8%	6.4%	6.9%	6.6%	6.7%
Mother's Age						
<i>18-34 years</i>	6.8%	6.9%	6.7%	6.8%	6.8%	6.7%
<18 years	8.4% [Ⓢ]	8.4% [Ⓢ]	8.4% [Ⓢ]	8.5% [Ⓢ]	8.3% [Ⓢ]	9.1% [Ⓢ]
40 years +	12.4% [Ⓢ]	12.2% [Ⓢ]	9.6% [Ⓢ]	9.6% [Ⓢ]	11.4% [Ⓢ]	11.4% [Ⓢ]
Number of Births						
<i>Singleton</i>	5.6%	5.6%	5.5%	5.7%	5.6%	5.6%
Multiple	58.3% [Ⓢ]	59.7% [Ⓢ]	56.3% [Ⓢ]	57.8% [Ⓢ]	60.3% [Ⓢ]	57.0% [Ⓢ]
Payee for Birth						
<i>Private Insurance</i>	6.6%	6.7%	6.5%	6.6%	6.8%	6.9%
AHCCCS	7.4% [Ⓢ]	7.5% [Ⓢ]	7.2% [Ⓢ]	7.5% [Ⓢ]	7.4% [Ⓢ]	7.2%
Prenatal Care						
<i>1st Trimester</i>	6.9%	7.1%	6.9%	7.1%	7.1%	7.1%
Other or None	8.5% [Ⓢ]	7.4%	8.4% [Ⓢ]	9.1% [Ⓢ]	9.1% [Ⓢ]	8.9% [Ⓢ]
Area of Residence						
<i>Urban County</i>	7.0%	7.1%	6.9%	7.0%	7.0%	7.0%
Rural County	7.3%	7.7%	7.4%	7.7%	7.5%	7.5%

Italicized category is reference group

[Ⓢ]Urban Counties are Maricopa, Pinal, Pima, and Yuma. All other counties are considered rural.

[Ⓢ]statistically significant difference from reference group at $p < 0.05$

Source: Arizona Health Status and Vital Statistics, 2003-2008

6. PREGNANT WOMAN AND INFANTS

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DISPARITIES PERSIST AMONG INFANT DEATHS

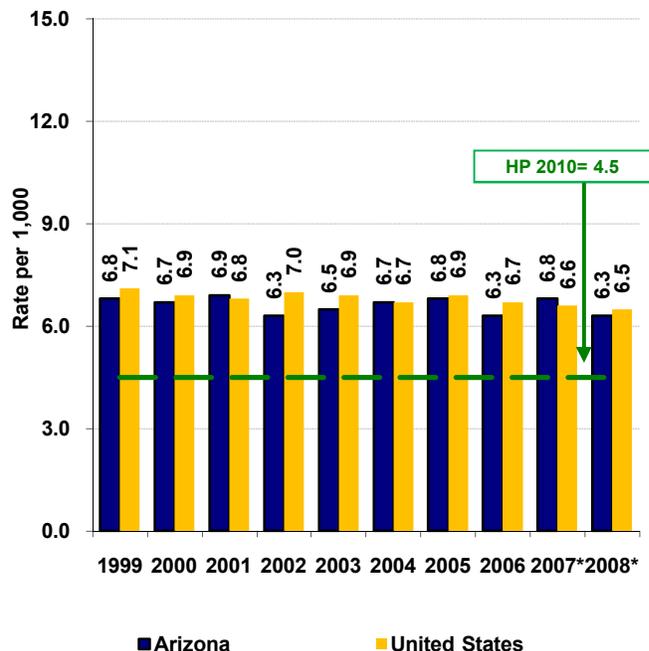
DESCRIPTION OF INFANT MORTALITY:

Infant mortality is defined as the death of an infant at any time from birth up to, but not including, the first year of life. Two distinct periods make up the infant mortality timeframe; neonatal (from birth through 27 days of live) and postneonatal (28 days of age but less than one year of life). A majority of infant deaths occur in the neonatal period. In Arizona, infant mortality rate is determined by dividing the number of infant deaths by the total sum of live births during a calendar year.

WHY IS INFANT MORTALITY A PROBLEM?

According to the latest international comparison, United States ranked 30th in the world⁸⁰ in infant mortality with 6.9 infant deaths per 1,000 live births in 2005 and the rate had declined to 6.5 in 2008.⁸¹ A high percentage of preterm births (less than 37 weeks gestation) accounts for the disparity in infant mortality between the United States and other industrialized nations.⁸² Approximately 37 percent of all infant deaths in the U.S. are attributable to preterm related causes. Preterm deliveries have increased 36 percent since 1984, challenging the U.S. efforts to reach the Healthy People 2010 goal of 4.5 infant deaths per 1,000 live births. According to the National Center for Health Statistics, the proportion of preterm babies delivered in Arizona increased from 12.1 percent in 1999 to 13.3 percent in 2004 before declining slightly to 12.7 percent in 2007.⁸³

Figure 1. Rate of Infant Deaths per 1,000 Live Births, Arizona & U.S. 1999-2008



*Provisional rates for the U.S. in 2007 and 2008
Source: Arizona Health Status and Vital Statistics, 2008

⁸⁰ MacDorman, M.F. & Mathews, M.S. (2009). Behind International Rankings of Infant Mortality: How the United States Compares with Europe. *National Vital Statistics Report*, (23), 1-7.

⁸¹ Arizona Bureau of Vital Statistics. (2009). Health Status and Vital Statistics, 2008 [accessed November 30, 2009]. Available at: <http://www.azdhs.gov/plan/report/ahs/ahs2008/toc08.htm>

⁸² National Center for Health Statistics. Health United States, 2008 [accessed December 2, 2009]. Available at: <http://www.cdc.gov/nchs/hus.htm>.

⁸³ The NCHS uses mother's self reported date of last menses to determine gestational age while the Arizona Bureau of Vital Statistics uses clinical estimate for gestational age. In 2008 the Arizona Bureau of Vital Statistics found 10.2 percent of infants were preterm in 2008.

6. PREGNANT WOMAN AND INFANTS

HEALTH STATUS AND WELL-BEING

HOW IS ARIZONA DOING?

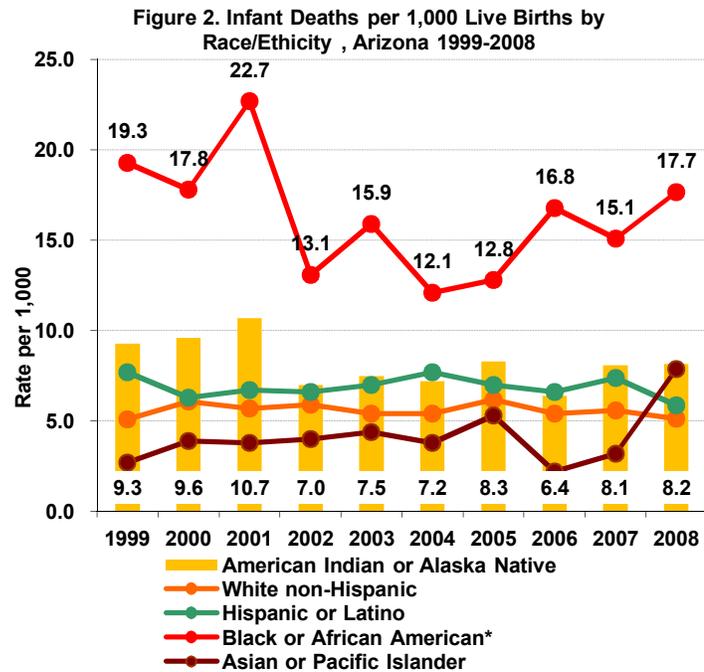
Figure 1 displays the ten year infant mortality trend from 1999 to 2008 for Arizona. Arizona had a cumulative infant mortality rate of 6.6 per 1,000 live births from 1999 to 2008. Although the infant mortality rate in Arizona has declined 7 percent from 1999 to 2008, there has been no significant trend as the rate has fluctuated between 6.8 and 6.3. More than 6,000 infants died prior to reaching their first birthday during this time period, with 625 of those infant deaths occurring in 2008. Arizona ranked 22nd of 50 states (1st being lowest) according to the most recent data available for state comparisons.⁸⁴

TABLE 1 Neonatal and Postneonatal Mortality Rates United States and Arizona 1999-2008										
UNITED STATES	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Neonatal mortality ¹	4.7	4.6	4.6	4.7	4.6	4.5	4.6	4.5	NA	NA
Postneonatal mortality ¹	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.2	NA	NA
ARIZONA										
Neonatal mortality ¹	4.5	4.3	4.5	4.1	4.3	4.5	4.4	4.3	4.7	4.2
Postneonatal mortality ¹	2.3	2.4	2.4	2.2	2.2	2.2	2.4	2.0	2.2	2.1

Source: Arizona Health Status and Vital Statistics, 2008

¹Rates per 1,000 live births. The U.S. rates are from the National Center for Health Statistics.

Table 1 gives an overview of the neonatal and post-neonatal mortality in Arizona from 1999 to 2008. In Arizona, the neonatal mortality rate varied between 4.1 and 4.7 and the post-neonatal mortality rate varied between 2.0 and 2.4 from 1999 through 2008. Approximately 66 percent of infant mortality in Arizona and the U.S. was accounted for by infant deaths during the neonatal period. Race and ethnicity, areas of mother's residence and the sex of the infant have a differential impact on infant mortality. Figure 2 displays the differences in infant mortality rates by race and ethnicity. Infants born to Black or African American



⁸⁴ Heron, M, Hoyert, D.L., Murphy, S.L., Xu, J., Kochanek, K.D., & Tejada-Vera, B. (2009). Deaths: Final Data for 2006. National Vital Statistics Report, 57(23), 1-136.

6. PREGNANT WOMAN AND INFANTS

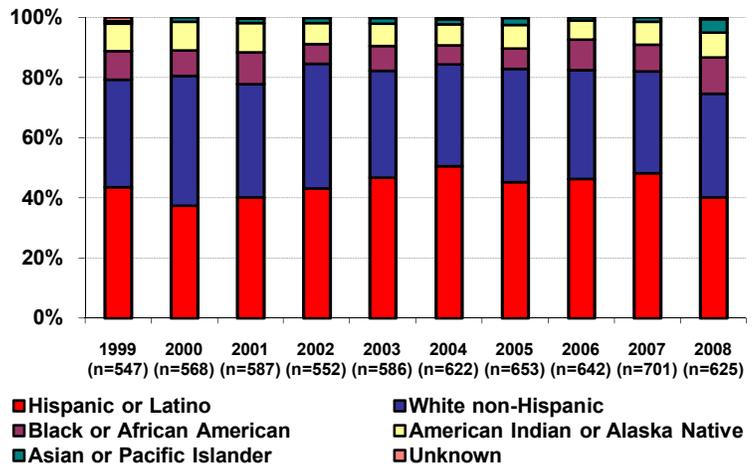
HEALTH STATUS AND WELL-BEING

mothers assumed the highest rate of infant mortality in Arizona (17.7 per 1,000 live births). American Indian or Alaska Native infants assumed the next greatest burden of infant mortality (8.2), followed by Asian or Pacific Islander (7.9), Hispanic or Latino (5.9) and White non-Hispanic (5.1) infants. The Black or African American infant mortality rate (17.7) remained significantly greater than the rate for all other races and ethnicities (6.3) in 2008 as evident from Figure 2. Black or African American infants had nearly three times the rate of both neonatal and postneonatal mortality compared to non-Black or African American infants. From 1999-2008 there were approximately 316 excess infant deaths for Black or African American infants relative to non-Black or African American infants.

Although the rate of death among Black or African American infants is greatest in Arizona, Hispanic or Latino and White non-Hispanic accounted for approximately 80 percent of all infant deaths in Arizona from 1999 through 2008 (Figure 3). Therefore, most of the variability in the total state infant mortality rate is explained by infant deaths among Hispanic or Latino and White non-Hispanic infants. Arizona will not meet the Healthy People 2010 goal of 4.1 infant deaths per 1,000 live births unless infant mortality rates are reduced for these two groups.

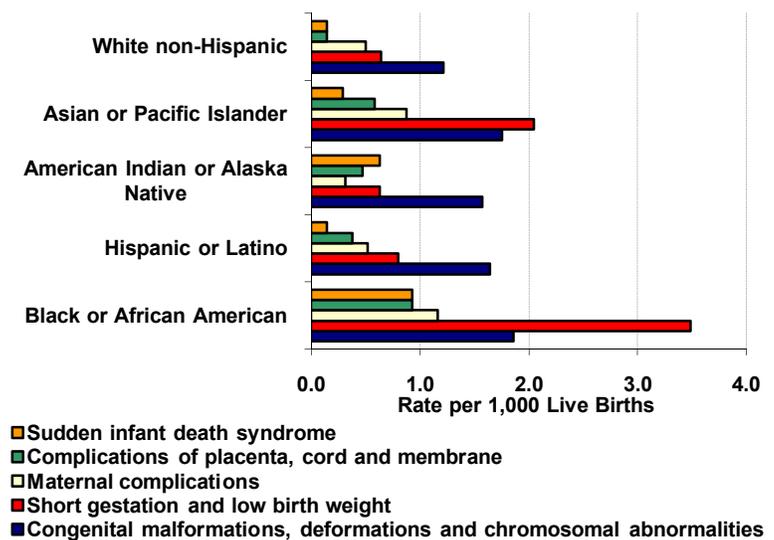
The causes of infant death are also associated with race and ethnicity (see Figure 4). Leading causes of infant death in Arizona included but were not limited to: congenital malformations, and deformations and chromosomal abnormalities (23 %), prematurity and low birth weight (15%), maternal complications (8%), complications of the placenta, cord and membrane (5%), and Sudden Infant Death Syndrome (3%). Black or African American infants assume a significantly greater rate of death from

Figure 3. Proportion of Total Infant Deaths by Race and Ethnicity, Arizona, 1999-2008 (n= 6,083)



Source: Arizona Health Status and Vital Statistics, 2008

Figure 4. Infant Mortality Rates for the Five Leading Causes of Death by Race and Ethnicity Arizona, 2008



Source: Arizona Health Status and Vital Statistics, 2008

6. PREGNANT WOMAN AND INFANTS

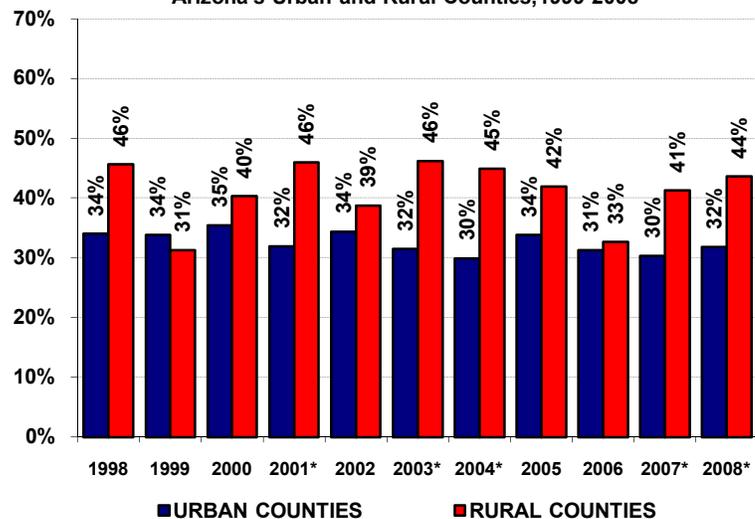
HEALTH STATUS AND WELL-BEING

prematurity (short gestation) and low birth weight (3.5 per 1,000) compared to non-Black or African Americans (0.6 per 1,000).⁸⁵ In 2008 there was an increase in the infant mortality rate for Asian or Pacific Islanders driven by prematurity and low birth weight, and congenital malformations, deformations and chromosomal abnormalities. However, the small number of Asian or Pacific Islander deaths (n=27) prevent generalizations about infant mortality within this group.

Infant mortality rates also varied based on mother's area residence in Arizona. Although the 2008 infant mortality rates for urban counties (6.3 per 1,000 live births) and rural counties (6.2) were similar, the proportion of all infant deaths that occurred during the postneonatal period (28 days of age but less than one year of life) was significantly greater for mothers residing in rural areas compared to urban areas during 2007 and 2008 (Figure 5). The greater proportion of postneonatal deaths for rural residents may indicate disparities in health care access for critically ill infants by area of residence.

Finally, infant mortality rates differ significantly by gender. The rate for male infants (6.8 per 1,000 births) was 17 percent greater than the rate for female infants (5.8) in 2008. Male infants are more likely to be born premature and suffer from respiratory conditions during the perinatal period. Reductions in prematurity and advances in treating premature infants have a disproportionate effect on male infant mortality.⁸⁶

Figure 5. Percent of Infant Mortality Rate that is Postneonatal Mortality
Arizona's Urban and Rural Counties, 1999-2008



* Significant difference between urban and rural at $\alpha=0.05$.

Source: Arizona Health Status and Vital Statistics, 2008

Urban Counties are Maricopa, Pima, Pinal and Yuma. The remaining counties comprise Arizona's rural areas. Records with unknown county of residence are

⁸⁵ Chi-square=49.354 (1), $p<0.0001$

⁸⁶ Drevenstedt, G.L., Crimmins, E.M., Vasunilashorn, S., & Finch, C.E. (2008). The rise and fall of excess male infant mortality. *The National Academy of Sciences of the USA*, 105(13), 5016-5021.

6. PREGNANT WOMEN AND INFANTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

RISK FACTORS IN PREGNANCY INCREASE BUT BREASTFEEDING RATES ARE HIGH IN ARIZONA

DESCRIPTION OF RISK FACTORS/DELIVERY METHODS FOR BIRTH AND BREASTFEEDING:

Risk factors at delivery of a live born infant are collected off the medical record of the mother and some important ones include; late or no prenatal care, substance use, any diabetes, anemia, and pregnancy associated hypertension (gestational hypertension or preeclampsia). Arizona still uses the 1989 U.S. Standard Birth Certificate; therefore, no data is available about pre-pregnancy weight or body mass index (BMI). Primary and secondary cesarean sections (c-sections) are methods of delivery that are also recorded on the Arizona birth certificate.

Exclusive and some breastfeeding at different time periods postpartum are two important rates determined by an interview of the postpartum mother in the National Immunization Survey (NIS). Additionally, data from the Women, Infants, and Children Program (WIC) Pediatric Nutrition Surveillance System (PedNSS) provides evidence of breastfeeding among low income women in Arizona.

WHY ARE RISK FACTORS/DELIVERY METHODS AND BREASTFEEDING PROBLEMS?

The risk for morbidity and mortality for both the mother and newborn increase with the number of risk factors present during pregnancy. Nationwide, the percentage of births to women obtaining first trimester prenatal care increased to 84 percent and smoking among women of reproductive age decreased to 20 percent in 2008.⁸⁷ Other risk factors such as anemia, diabetes, and gestational hypertension disproportionately affect Black or African American women and American Indian women U.S.^{88,89} The presence of any single risk factor can increase the need for c-section which on its own increases the risk for maternal and infant morbidity and mortality. The cesarean rate rose by 53 percent from 1996 to 2007, reaching 32%, the highest rate ever reported in the United States.⁹⁰ Breastfeeding is believed to help protect infants against infectious disease and may lower the risk for pediatric obesity.⁹¹ Any breastfeeding at six months postpartum increased in the U.S. from 34 percent in 2000 to 43 percent in 2006.⁹² However, Black or African American women (29 percent) were significantly below the U.S. average for this measure.

⁸⁷ March of Dimes PeriStats, Welcome to Peristats, 2010 [accessed May 20, 2010]. Retrieved from: <http://www.marchofdimes.com/peristats/>

⁸⁸ Ehrental, D.B. et al. (2007). A population study of the contribution of medical comorbidity to the risk of prematurity in blacks. *American Journal of Obstetrics and Gynecology*, 197(4),409e1-409e6.

⁸⁹ Centers for Disease Control and Prevention, Health, United States, 2009 American Indian or Alaska Native Population [accessed May 2, 2010]. Retrieved from:<http://www.cdc.gov/nchs/hus/american.htm>

⁹⁰ Menacher, F. & Hamilton, B.E.(2010). Recent Trends in Cesarean Delivery in the United States. *NCHS Data Brief*, 35,1-8.

⁹¹ Pediatrics Online, The Burden of Suboptimal Breastfeeding in the United States: A Pediatric Cost Analysis, 2009 [accessed May 20, 2010]. Retrieved from: <http://pediatrics.aappublications.org/cgi/content/abstract/peds.2009-1616v1>.

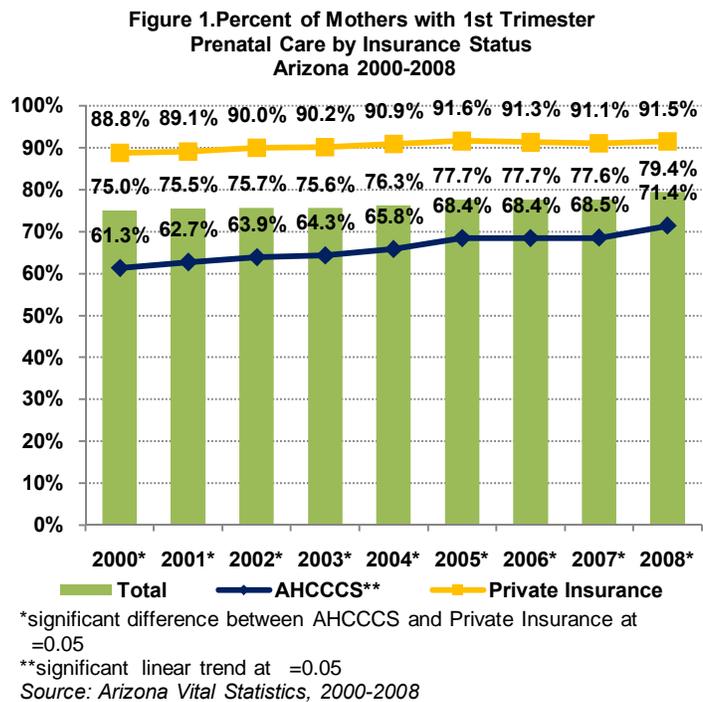
⁹² Centers for Disease Control and Prevention, Breastfeeding Among U.S. Children Born 1999-2006, CDC National Immunization Survey [accessed May 21, 2010]. Retrieved from:http://www.cdc.gov/breastfeeding/data/NIS_data/index.htm

6. PREGNANT WOMEN AND INFANTS

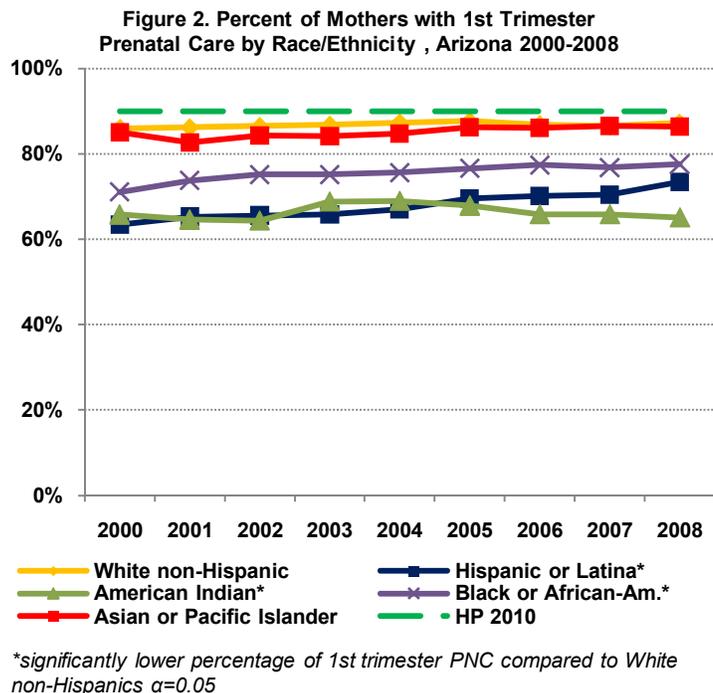
HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

HOW IS ARIZONA DOING?

The percentage of Arizonan women delivering a live birth who accessed prenatal care during the first trimester increased from 75 percent in 2000 to 79.4 percent in 2008. Figure 1 shows that most of the increase in first trimester prenatal care was accounted for by women on public Medicaid (AHCCCS) in Arizona as first trimester prenatal care rose significantly from 61 percent to 71 percent among this cohort. However, women on AHCCCS remained significantly less likely to initiate prenatal care during the first trimester compared to women with private insurance. Women with private insurance met the Healthy People 2010 goal of 90 percent first trimester prenatal care.⁹³



When prenatal care is stratified by race and ethnicity (see Figure 2) disparities in prenatal care initiation become apparent in Arizona. No group met the Healthy People 2010 goal; however, both White non-Hispanics (87%) and Asian or Pacific Islander (86%) women approached the target. Although Black or African Americans and Hispanic or Latinas were significantly less likely to start prenatal care during the first trimester compared to White non-Hispanic women, both groups experienced significant increases in prenatal care from 2000-2008. Only American Indian women saw a decline in first trimester prenatal care, most of which occurred after 2005.



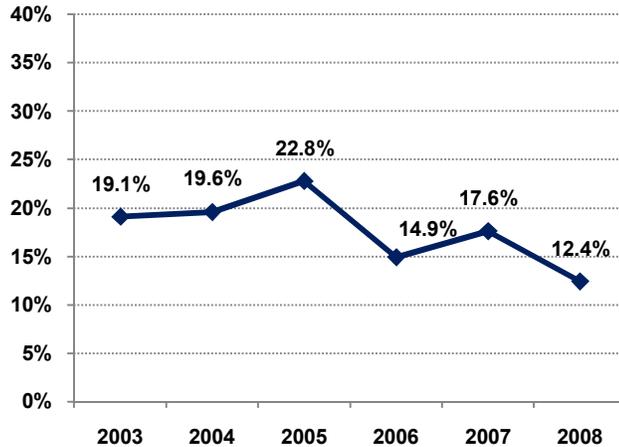
⁹³ Healthy People 2010, #16: Maternal, Infant, and Child Health, 2000 [accessed May 21, 2010]. Retrieved from: <http://www.healthypeople.gov/Document/HTML/volume2/16MICH.htm>

6. PREGNANT WOMEN AND INFANTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

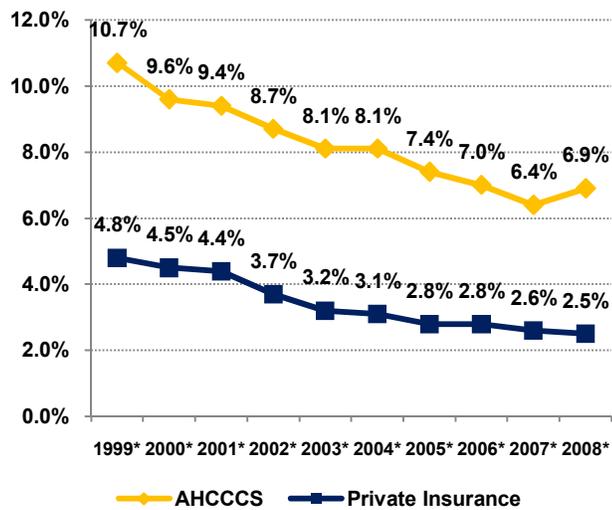
Compared to the proportion of 18-44 year old women smoking across the U.S., Arizonan women were less likely to smoke during the past three years (see Figure 3). The proportion of smokers declined from a high of 22.8 percent in 2005 to 12.4 percent in 2008. Hispanic or Latina women were the least likely to smoke and accounted for Arizona's relatively low percentage of smokers as they made up 31 percent of this age cohort in 2008. White non-Hispanic women (8.4%) and Black or African American women (7.3%) were most likely to report smoking in 2008. Poverty was an indicator of smoking status among women giving birth in Arizona. Figure 4 shows that women on AHCCCS at delivery reported smoking during pregnancy significantly more often than women on private insurance.

Figure 3. Women Age 18-44 Years who are Current Smokers, Arizona, 2003-2008

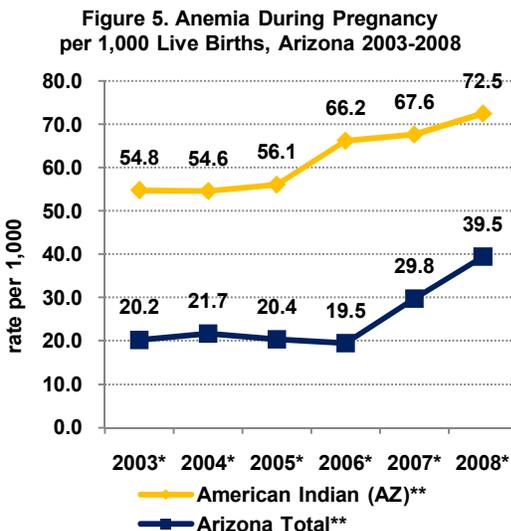


Source: Arizona BRFSS, 2003-2008

Figure 4. Mothers Who Reported Smoking Tobacco During Pregnancy by Insurance Status Arizona 1999-2008



*significant difference between groups at $\alpha=0.05$
Source: Arizona Birth Certificates, 2000-2009



*significant difference between groups at $\alpha=0.05$
**significant increase from 2006 to 2008 at $\alpha=0.05$
Source: Arizona Birth Certificates, 2003-2008

greatest for American Indian mothers. Figure 5 shows that American Indians had a significantly higher rate of births to mothers with anemia compared to other race/ethnic

Anemia during pregnancy, defined as a hemoglobin level of less than 10.0 g/dL during pregnancy, or hematocrit of less than 30 percent, increased significantly among mothers in Arizona from 2006-2008. The disparity was

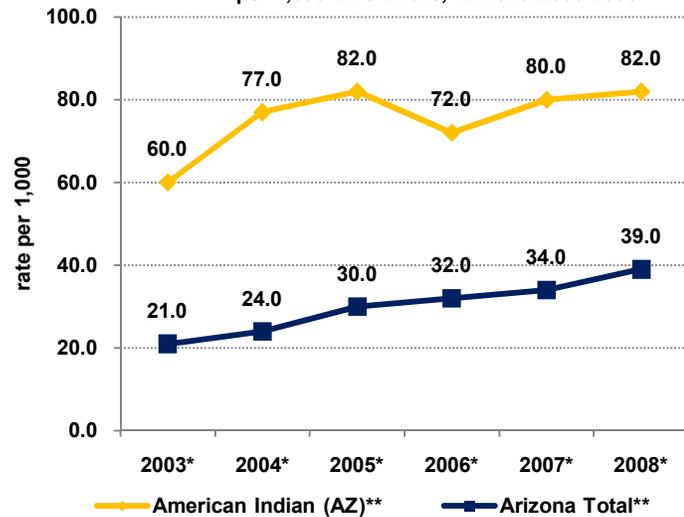
6. PREGNANT WOMEN AND INFANTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

groups. The link between anemia and an iron-deficient diet is strong.⁹⁴ Therefore, the higher rate of anemia among American Indian mothers in Arizona is an indicator of greater risk of an iron deficient diet for this population of women.

Similar to the increase in anemia, the rate of any diabetes (gestational, Type 1 or 2) in mothers delivering a live birth nearly doubled from 21.0 per 1,000 in 2003 to 39.0 per 1,000 in 2008 (see Figure 6). This increase was not as pronounced among American Indian mothers, as this population still assumed a greatest rate of diabetes than other races and ethnicities. American Indians are more likely to suffer from type 2 diabetes than any other group; therefore, high rates of diabetes among new mothers will likely continue until the epidemic declines among the total American Indian population in Arizona. Hypertension associated with pregnancy begins after week 20 gestation, but causes are less well understood than anemia and diabetes.⁹⁵ American Indian women had the highest rate of gestational hypertension in Arizona from 2003-2008 (see Figure 7). The overall rate of pregnancy associated hypertension in Arizona increased 26 percent during 2003-2008, while this rate remained stable for American Indians. The increase in the state rate was partially driven by a 44 percent increase in gestational hypertension within Hispanic or Latina mothers. Obesity is associated with hypertension during

Figure 6. Any Diabetes for Females Giving Birth per 1,000 Live Births, Arizona 2003-2008

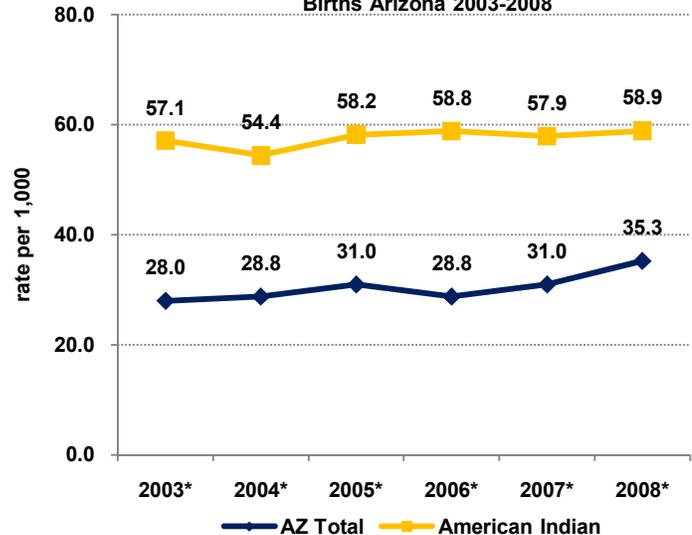


*significant difference at $\alpha=0.05$

**significant difference between 2003 and 2008 at $\alpha=0.05$

Source: Arizona VBirth Certificates, 2003-2008

Figure 7. Hypertension During Pregnancy per 1,000 Live Births Arizona 2003-2008



*significant difference between groups at $\alpha=0.05$

Source: Arizona Birth Certificates, 2003-2008

⁹⁴ March of Dimes, Pregnancy and Newborn: Anemia During Pregnancy, 2010 [accessed May 22, 2010]. Retrieved from: http://www.marchofdimes.com/pnhec/188_1049.asp

⁹⁵ MayoClinic.com, Preeclampsia, 2010 [accessed June 2, 2010]. Retrieved from: <http://www.mayoclinic.com/health/preeclampsia/DS00583/DSECTION=causes>

6. PREGNANT WOMEN AND INFANTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

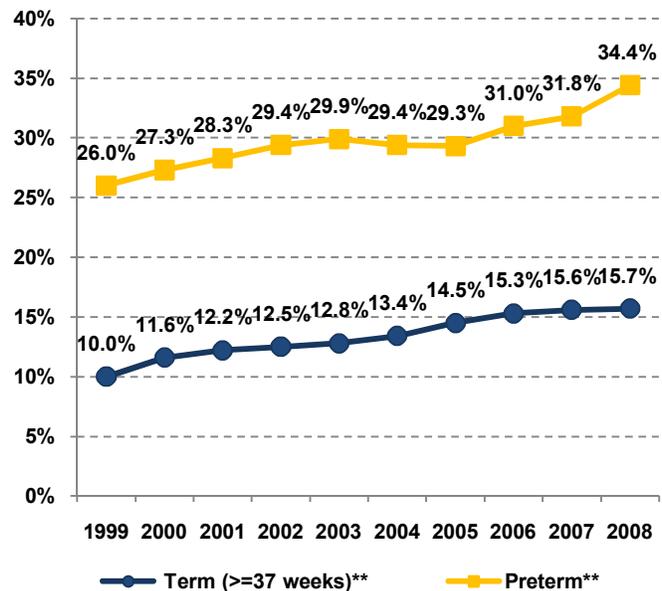
pregnancy. The percentage of women who gained 31 or more pounds during pregnancy increased from 36 percent in 2003 to 41 percent in 2008 even though obesity among reproductive age women increased during the same time period.

However, because the Arizona Birth Certificate does not record baseline pregnancy weight it is not possible to analyze the relationship between obesity and hypertension among women delivering a live birth.

Cesarean section has increasingly become a popular method of delivery in Arizona. Primary c-section (i.e. mother undergoing the c-section for the first time) is a robust measure of the frequency of c-sections. Figure 8 shows that the primary c-section rate for both term and preterm infants increased significantly in Arizona from 2003-2008. Even though the Healthy People 2010 goal of 15 percent seems within reach of women undergoing term c-sections for the first time^{6, 96}, Arizona will not achieve the 15 percent goal unless the percentage of preterm births delivered by c-section is reduced significantly.

Unlike other risk factors during pregnancy, American Indians had the lowest rate of primary c-sections for term singleton births from 1999-2008, although the rate did increase from 8.7 percent to 12.3 percent (Figure 9). Despite having lower medical risks during pregnancy, White non-Hispanics were as likely to have a c-section delivery as Black or African American women and significantly more likely than American Indian women from 1999-2008. The probability of having a c-section was highly correlated with insurance status at delivery.

Figure 8. Term and Preterm Infants* Delivered by Primary Cesaraen Section, Arizona 1999-2008

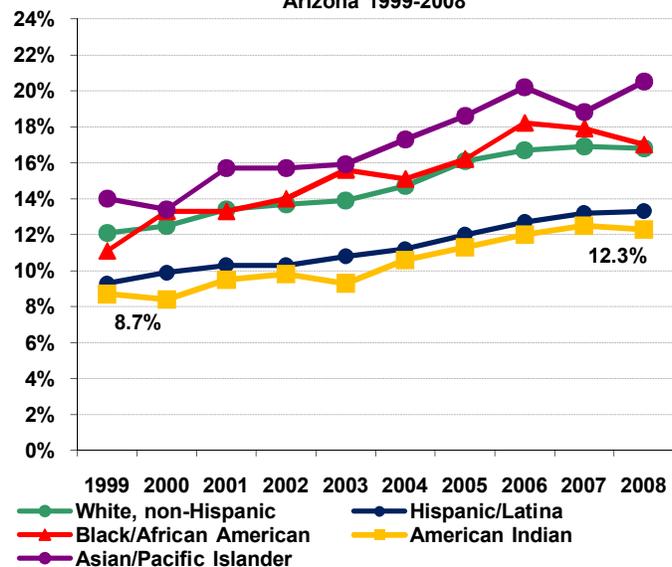


*clinical estimate

**significant increase between 1999 and 2008 at $p=0.05$

Source: Arizona Birth Certificate Data, 1999-2008

Figure 9. Primary Cesarean Sections for Singleton Term Births (37-41 weeks) by Race/Ethnicity Arizona 1999-2008



Source: Arizona Birth Certificate data, 1999-2008

⁹⁶ Centers for Disease Control and Prevention, Breastfeeding Among U.S. Children Born 1999-2006, CDC National Immunization Survey [accessed May 21, 2010]. Retrieved from: http://www.cdc.gov/breastfeeding/data/NIS_data/index.htm

6. PREGNANT WOMEN AND INFANTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

Figure 10 illustrates that women with private insurance were significantly more likely to have a primary c-section than women on AHCCCS or Indian Health Service insurance. White non-Hispanics and Asian or Pacific Islanders were more likely to have private insurance compared to other races and ethnicities.

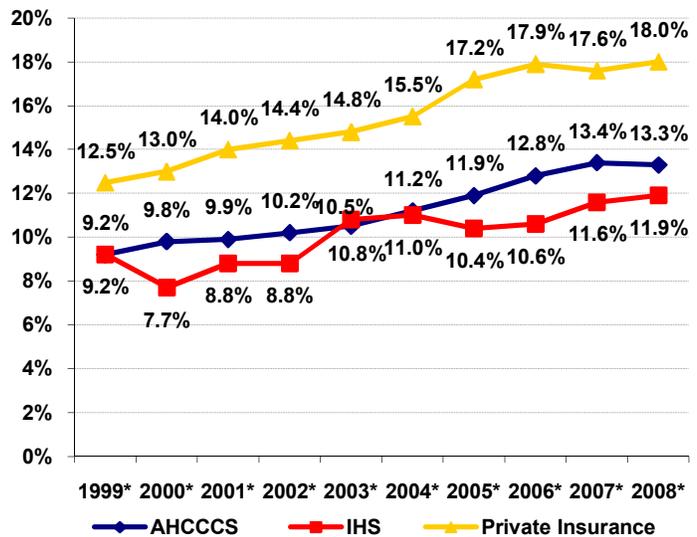
The Healthy People 2010 target for vaginal birth after previous c-section (VBAC) is 37 percent.⁹⁷ Like most states, Arizona did not achieve this goal through 2008 (see Figure 11). From 1999-2008 all races and ethnicities experienced a decline in VBAC. The highest proportion of

women delivering by VBAC was American Indians at 14.8 percent in 2008.

Arizona met the Healthy People 2010 goal of 80 percent of infants initiating breastfeeding in 2003, 2004, and 2005 (see figure 12 on the following page).⁹⁸ Although breastfeeding estimates indicated decline to 76.5 percent in 2006, the decline was not significant for this birth cohort. The proportion of infants in Arizona who were ever breastfed was greater than most other states from 2000-2006. Further, the proportion of infants with any breastfeeding at six and 12 months

were not significantly different than the Healthy People 2010 goals of 50 and 25 percent respectively. No particular race or ethnic group met the Healthy People 2010 goal for breastfeeding. However, available data from WIC data in Arizona indicated that some disparities in breastfeeding existed among infants from low income families. Figure 13

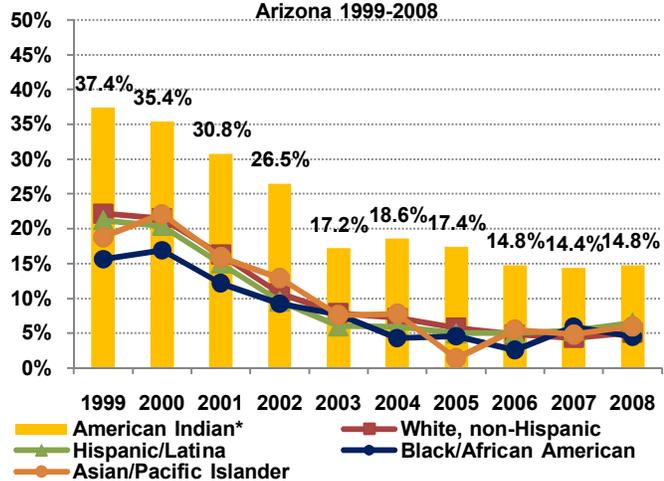
Figure 10. Primary Cesarean Sections for Singleton Term Births (37-41 weeks) by Insurance Status Arizona 1999-2008



*significant difference between private insurance and public insurance at $\alpha=0.05$

Source: Arizona Birth Certificate data, 1999-2008

Figure 11. Vaginal Birth After Cesarean Section Arizona 1999-2008



*significantly greater percentage of VBAC compared to other groups at $\alpha=0.05$

Source: Arizona Birth Certificate Data, 1999-2008

⁹⁷ Healthy People 2010, #16: Maternal, Infant, and Child Health, 2000 [accessed May 21, 2010]. Retrieved from: <http://www.healthypeople.gov/Document/HTML/volume2/16MICH.htm>

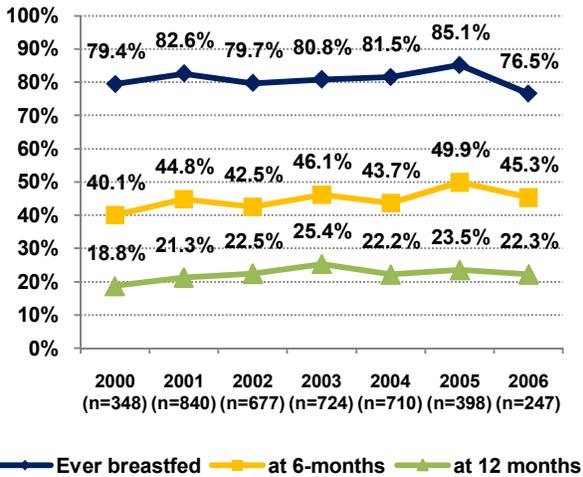
⁹⁸ Ibid.

6. PREGNANT WOMEN AND INFANTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

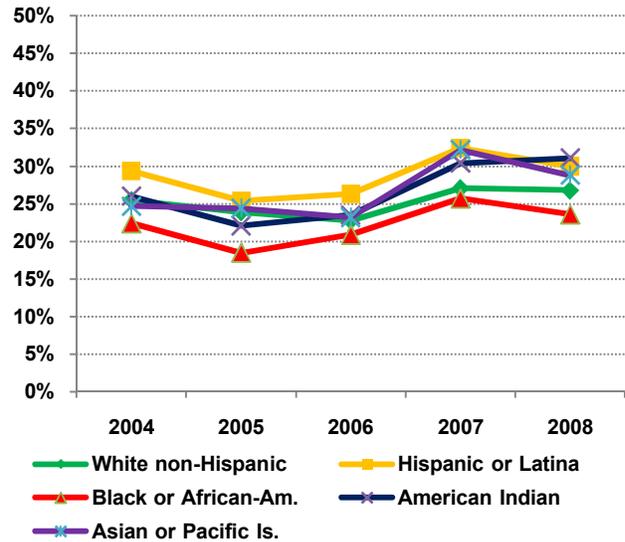
shows that Black or African American infants were least likely to be breastfed at six months while American Indian, Hispanic or Latina, and Asian or Pacific Islander infants were most likely to breastfeed at until this recommended interval.

Figure 12. Percent of Any Breastfeeding for Infants by Postpartum Age Arizona 2000-2006



Source: National Immunization Survey, 2000-2006 birth cohorts

Figure 13. Breastfeeding at 6-Months for Infants in Low Income Families, Arizona 2004-2008



Source: Pediatric Nutrition Surveillance System, 2004-2008

7. CHILDREN AND ADOLESCENTS

HEALTH STATUS AND WELL-BEING

REDUCTION IN MOTOR VEHICLE CRASH FATALITY HELPS LOWER MORTALITY

DESCRIPTION OF INJURY

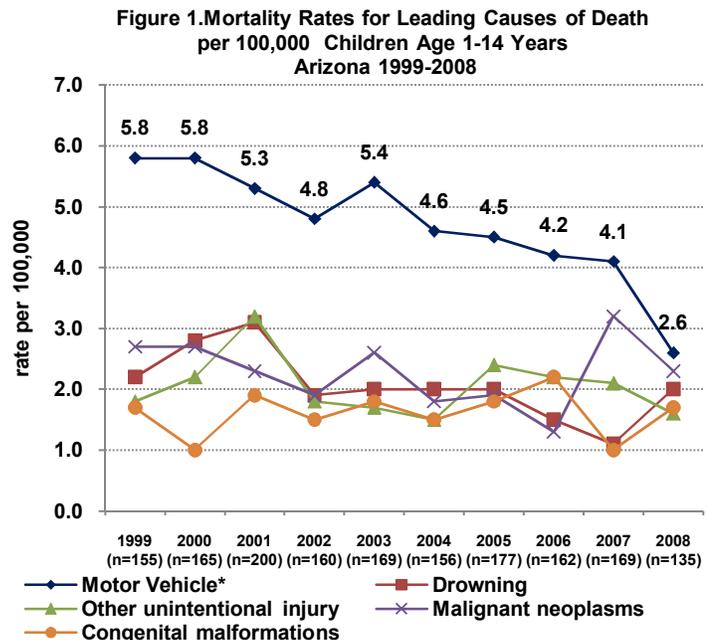
Injury is a serious public health problem impacting the health of children and adolescents. Injuries may result from unintentional or intentional events. According to the Centers for Disease Control and Prevention, unintentional events are those that are not inflicted by deliberate means.⁹⁹ On the other hand, intent of injury is whether an injury was caused by an act carried out on purpose by oneself or by another person(s), with the goal of injuring or killing.¹⁰⁰ Deaths that occur due to intentional injuries can be further broken down into suicide (self-inflicted with intent to harm) or homicide (inflicted by another with intent to harm).

WHY IS INJURY A PROBLEM?

Unintentional injuries are the leading cause of morbidity and mortality among children in the United States¹⁰¹ and pose serious threats to the health of children and adolescents in the United States. Children and adolescents are at high risk for many injuries that can lead to death or disability. Young children often lack awareness of risk both in and outside of the home, and must rely on adults to protect them from injury. Poisonings, playground injuries, and child maltreatment are common causes of injury for young children. Older adolescents are at increased risk of motor vehicle injury as they begin to drive, and intentional violence due to suicide and homicide.

HOW IS ARIZONA DOING?

Figure 1 shows that injury from motor vehicle crashes was the leading cause of death for young children age 1-14 years in Arizona from 1999-2008. Overall mortality



*significant difference between 1999 and 2008 at $p=0.05$
Source: Arizona Vital Statistics, 1999-2008

⁹⁹ Centers for Disease Control and Prevention, Definitions for WISQARS: Non-Fatal, 2007 [accessed May 5, 2010]. Available at: <http://www.cdc.gov/ncipc/wisqars/nonfatal/definitions.htm>
[/plan/report/ahs/ahs2008/pdf/2c8.pdf](http://www.cdc.gov/ncipc/wisqars/nonfatal/definitions.htm)

¹⁰⁰ Practice Management Information Corporation. (2006). International Classification of Diseases, 9th edition, Clinical modification 6th edition (Vols. 1-3). Los Angeles, CA: PMIC.

¹⁰¹ Centers for Disease Control and Prevention, CDC Childhood Injury Report: Patterns of Unintentional Injury among 0-19 Year Olds in the United States, 2000-2006 [accessed May 6, 2010] Available at: <http://www.cdc.gov/safecild/images/CDC-ChildhoodInjury.pdf>

7. CHILDREN AND ADOLESCENTS

HEALTH STATUS AND WELL-BEING

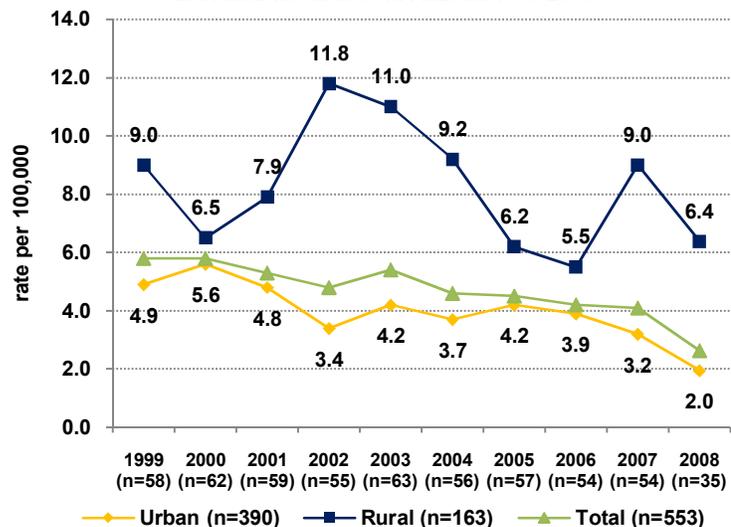
among 1-14 year old children in Arizona declined from 24.1 per 100,000 in 1999 to 19.8 per 100,000 in 2008.¹⁰² However, death from motor vehicle crash declined significantly for this age cohort between 1999 and 2007. Between 2007 and 2008 Arizona witnessed an unprecedented 37 percent reduction in the rate of child mortality from motor vehicle crash in part due to the effects of the economic recession on miles driven per capita in Arizona. The burden of mortality due to motor vehicle crash is not evenly distributed across Arizona.

Figure 2 compares rural and urban differences in mortality rates for deaths by motor vehicle crashes. Children residing in rural counties assumed up to three-times greater mortality rate from motor vehicle crash compared to children residing in urban counties from 1999-2008. However, 70 percent of child deaths from motor vehicle injuries occurred in urban areas due to the greater proportion of youth living in one of Arizona's four urban counties.

Arizona has one of the highest rates of early childhood drowning in the nation,¹⁰³ in part due to the abundance of home swimming pools. According to the Arizona Child Fatality Review, in 2008 nearly half of early childhood drowning occurred in pools. Children age 0-4 years comprised 62 percent (n=73) all child drowning deaths from 2005-2008. Lack of adequate supervision was the most cited for these deaths.¹⁰⁴ Increased supervision can help reduce these deaths that are preventable.

Arizona Child Fatality Review Teams classify deaths from maltreatment by manner and cause of death. Homicide by blunt force trauma is most common manner and cause of death by maltreatment. More than 90 percent of maltreatment deaths from 2004-2008 involved younger children age zero to 14 years. The rate of death from maltreatment increased from 3.5 in 2005 to 4.5 per 100,000 children in 2007 before declining back to 3.5 per 100,000 in 2008 (Figure 3). In 2008, the rate of death by maltreatment was

Figure 2. Mortality Rates for Deaths by Motor Vehicle Accidents per 100,000 Children Age 1-14 Years by Urban and Rural Residents in Arizona 1999-2008



Urban areas are; Maricopa, Pima, Pinal, and Yuma Counties. All other counties are considered rural.

Source: Arizona Vital Statistics, 1999-2008

¹⁰² Arizona Department of Health Services Public Health Vital Statistics, Arizona Health Status and Vital Statistics, 2008 [accessed May 6, 2010] Available at: <http://www.azdhs.gov>

¹⁰³ Centers for Disease Control and Prevention, Injury Prevention & Control: Data & Statistics (WISQARS), 2010 [accessed May 5, 2010] Available at: <http://www.cdc.gov/injury/wisqars/index.html>

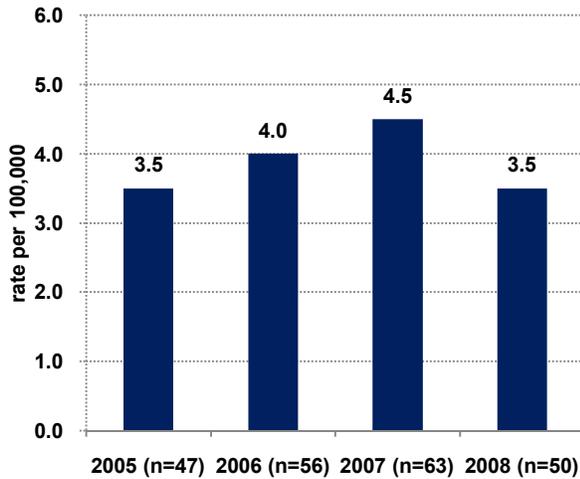
¹⁰⁴ Arizona Department of Health Services Bureau of Women & Children's Health, Arizona Child Fatality Review Program Sixteenth Annual Report, 2009 [accessed May 7, 2010] Available at: <http://www.azdhs.gov/phs/owch/pdf/cfr2009.pdf>

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greatest for Black or African American (11.4 per 100,000) and American Indian (8.4 per 100,000) children. The use of drugs and/or alcohol remained the most common preventative factor identified in child maltreatment deaths during this time period.¹⁰⁵

Figure 3. Rate of Maltreatment Death per 100,000 Children Age 0-14 Years in Arizona 2005-2008

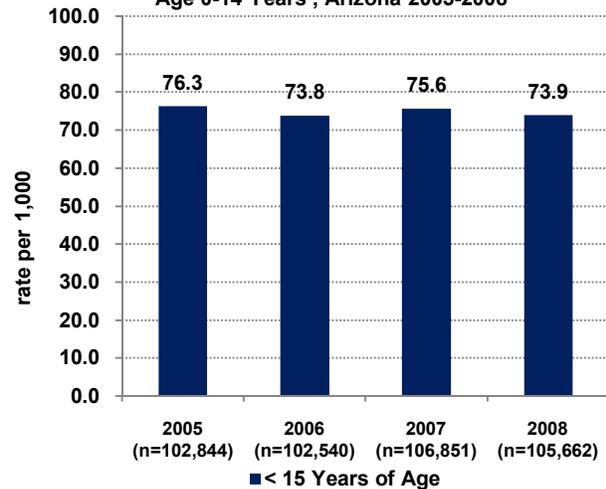


Source: Arizona Child Fatality Review Report Program, 2005-2008

emergency room visits for injury is not a true measure of incidence, this rate indicates that use of emergency rooms for injury and poisoning has not declined

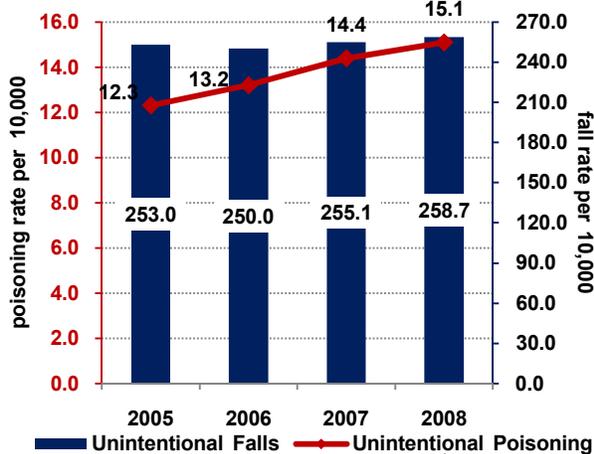
According to Arizona's Hospital Discharge Data, the rate of emergency room visits for injury and poisoning has remained between 76.3 and approximately 74.0 per 1,000 children 14 years of age and younger since 2005 (Figure 4). Although

Figure 4. Rate of Emergency Room Visits for Injury and Poisoning per 1,000 Children Age 0-14 Years, Arizona 2005-2008



Source: Arizona Vital Statistics, 2005-2008

Figure 5. Rate of Emergency Room Visits for Unintentional Poisoning and Falls per 10,000 Children Age 0-14 Years, Arizona 2005-2008



*significant increase between 2005 and 2008 at $\alpha = 0.05$

in the four years of available data.

Figure 5 shows that the rates of visits for unintentional poisoning and falls per 10,000 children 14 years and younger increased significantly since 2005. As with young children, the overall rate of mortality among Arizonan adolescents declined from 81.4 per 100,000 in 1999 to 65.7 per 100,000 in 2008. Although adolescent males continued to have twice the rate of mortality compared to females, only males experienced a significant decrease in mortality from 117.6 per 100,000 in 1999 to

¹⁰⁵ Arizona Department of Health Services Bureau of Women's and Children's Health, Arizona Child Fatality Review Program Sixteenth Annual Report, 2009 [accessed May 7, 2010] Available at: <http://www.azdhs.gov/phs/owch/pdf/cfr2009.pdf>

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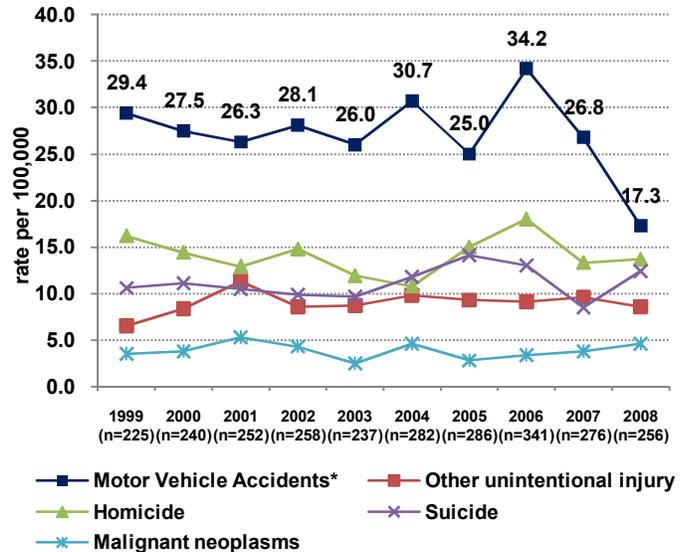
89.1 per 100,000 in 2008.¹⁰⁶

Figure 6 displays the mortality trends for leading causes of death for adolescent age 15 to 19 years and between 1999 and 2007 the mortality rate from motor vehicle accidents demonstrated no noticeable trend (see Figure 6). The largest cause of mortality for adolescents remained motor vehicle crash. Only in 2008 did adolescents experience a 35 percent reduction in the mortality rate due to motor vehicle crash. Possible explanations for the abrupt decline include the effects of the economic recession and an increase in gas prices that disproportionately affect the ability of adolescents to afford the cost of operating a motor vehicle.

Figure 7 displays mortality rates for adolescents 15 to 19 years for motor vehicle crashes by area of residence. Despite the reduction in motor vehicle mortality, adolescents residing in rural areas had nearly twice the rate of death from motor vehicle crash as urban residents in 2008.

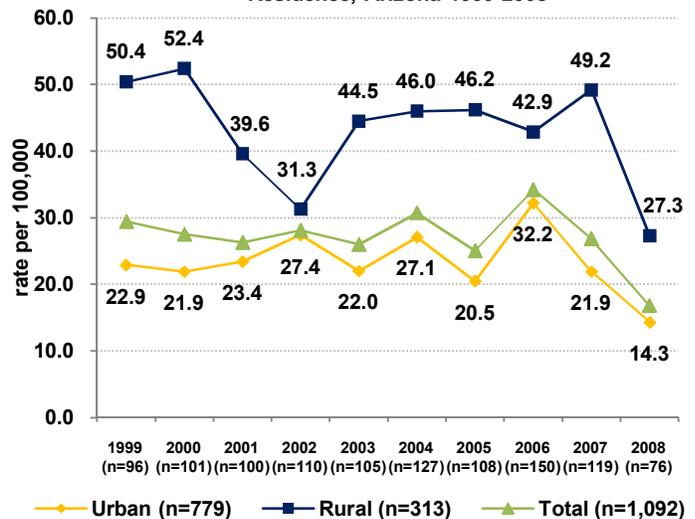
Among adolescents residing in Arizona the rates of homicide and suicide account for the majority of fatal intentional injury (see Figure 6).

Figure 6. Mortality Rates for Leading Causes of Death per 100,000 Adolescents Age 15-19 Years Arizona 1999-2008



*significant difference between 2007 and 2008 rates at $p=0.05$
 Source: Arizona Vital Statistics, 1999-2007

Figure 7. Mortality Rate for Deaths by Motor Vehicle Accident for Adolescents Age 15-19 Years by Area of Residence, Arizona 1999-2008



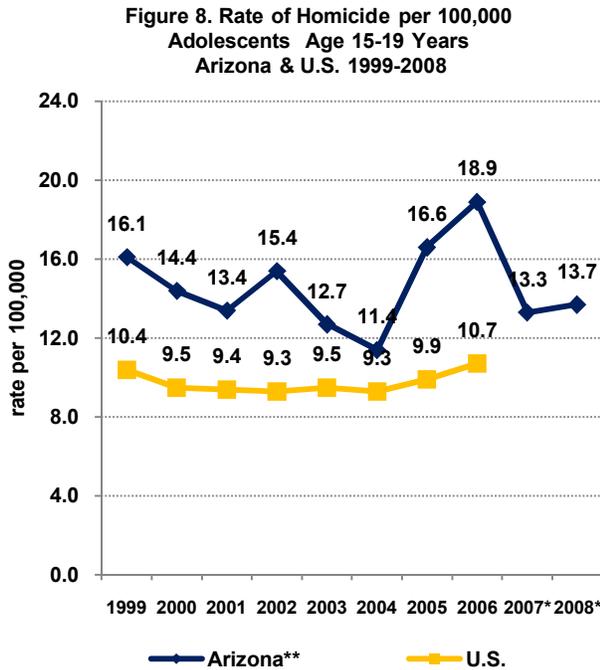
Source: Arizona Vital Statistics, 1999-2008

¹⁰⁶ Arizona Department of Health Services Public Health Vital Statistics, Arizona Health Status and Vital Statistics, 2008 [accessed May 6, 2010] Available at: <http://www.azdhs.gov/plan/report/ahs/ahs2008/pdf/2c8.pdf>

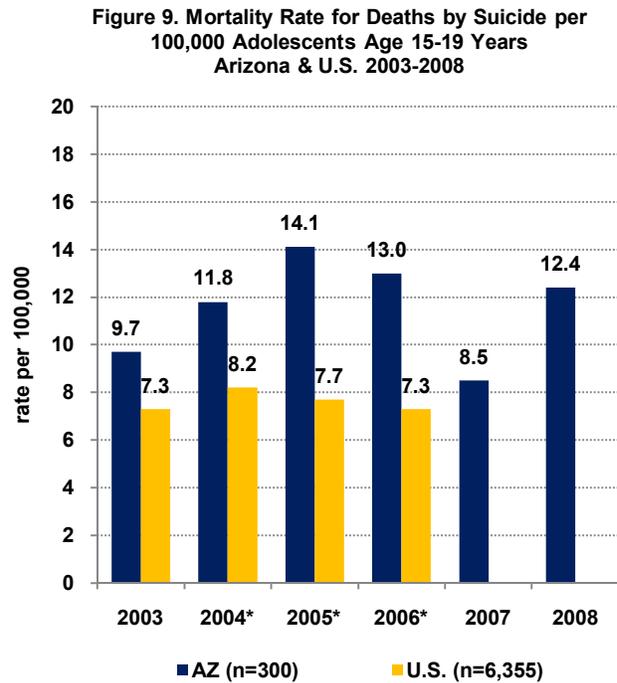
7. CHILDREN AND ADOLESCENTS

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Figure 8 and 9 compare the mortality rates for adolescents in Arizona and the US. Mortality rates for both homicide and suicide are greater for adolescents in Arizona than for their peers nationally.



**significantly greater rates for Arizona from 1999-2006 compared to the U.S.
Sources: CDC Wonder and *Arizona Vital Statistics for 2007-2008 estimates



*significant difference between AZ and the U.S. at $p=0.05$
Sources: Arizona Vital Statistics and CDC Wonder (data for U.S. not available for 2007, 2008)

Although Hispanic or Latinos were 33 percent of Arizona's 15-19 year old population in 2008, they made up 66 percent (n=41) of the homicide victims in this age cohort (n=62). Firearms remained the most common method of homicide (81 percent) and suicide (43 percent) among adolescents age 15-19 years in 2008.⁷ In 2008, Arizonan males 15-19 were nearly four-times more likely to be victims of homicide and three-times more likely to commit suicide than their female peers.¹⁰⁷

¹⁰⁷ Arizona Department of Health Services Public Health Vital Statistics, Arizona Health Status and Vital Statistics, 2008 [accessed May 7, 2010] Available at: <http://www.azdhs.gov/plan/report/ahs/ahs2008/pdf/2c15.pdf>

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DISPROPORTIONATE RISKS FOR MENTAL HEALTH AND SEXUALLY TRANSMITTED DISEASES AMONG ADOLESCENTS

DESCRIPTION OF MENTAL AND SEXUAL HEALTH FOR ADOLESCENTS:

Mental illness among adolescents includes a wide variety of personality, conduct and eating disorders. Some disorders, such as bipolar disorder, are more likely to develop in youth with a family history of the condition. Other disorders, such as conduct disorder, may have a specific genetic component rendering one sex more vulnerable. Depression is a treatable illness that is often unrecognized by parents who attribute increasingly withdrawn and moody behavior to normal teenage development. However, depression affects a youth's ability to reason, feel and behave in a socially acceptable manner around peers, adults, and in school. Untreated depression is associated with suicidal thoughts and attempts.¹⁰⁸

Important aspects of adolescent sexual behavior include engaging or abstaining from sexual activity, and whether or not to use condoms and/or other birth control to protect against pregnancy and sexually transmitted disease. Family, peer groups, and mental health influence the sexual behavior and personal agency (i.e. the capability to direct actions for a given purpose)¹⁰⁹ within intimate partner relationships. The incidence of sexually transmitted diseases, including chlamydia and gonorrhea, is one of many possible negative health outcomes caused by risky sexual behavior.

WHY ARE MENTAL AND SEXUAL HEALTH PROBLEMS FOR ADOLESCENTS?

The mind and body are developing during adolescence. Behaviors initiated during adolescence can have consequences for life-long mental health. The teenage brain is developing and is vulnerable to both genetic and environmental influences.¹¹⁰ Mental illnesses, such as depression often begin prior to any external symptoms.¹¹¹ It is estimated that one-in-ten children and adolescents in the U.S. suffer from serious emotional disturbances. Adolescent suicide, the most serious manifestation of mental illness, is the third leading cause of death for 15-24 year olds in the U.S.¹¹²

Although teenage pregnancy rates have declined across the U.S., the rate of some sexually transmitted diseases (STD), such as chlamydia, has increased. Sexually active female adolescents are particularly at risk for an STD. Females are more frequently

¹⁰⁸ American Academy of Child & Adolescent Psychiatry, Child and Adolescent Mental Illness and Drug Abuse Statistics, 2009 [accessed June 28, 2010]. Retrieved from:

http://www.aacap.org/cs/root/resources_for_families/child_and_adolescent_mental_illness_statistics

¹⁰⁹ Zimmerman, B.J., & Cleary, T.J. (Eds.). (2006). *Self-Efficacy Beliefs of Adolescents*. Greenwich, CT: Information Age Publishing.

¹¹⁰ National Institute of Mental Health, Teenage Brain: A work in progress (Fact Sheet), 2001 [accessed June 29, 2010]. Retrieved from:

<http://menanddepression.nimh.nih.gov/health/publications/teenage-brain-a-work-in-progress-fact-sheet/index.shtml>

¹¹¹ National Institute of Mental Health, Treatment of Children with Mental Illness, 2009 [accessed June 29, 2010].

Retrieved from: <http://menanddepression.nimh.nih.gov/health/publications/treatment-of-children-with-mental-illness-fact-sheet/index.shtml>

¹¹² National Institute of Mental Health, Suicide in the U.S.: Statistics and Prevention, 2009 [accessed June 29, 2010]. Retrieved from: <http://www.nimh.nih.gov/health/publications/suicide-in-the-us-statistics-and-prevention/index.shtml#children>

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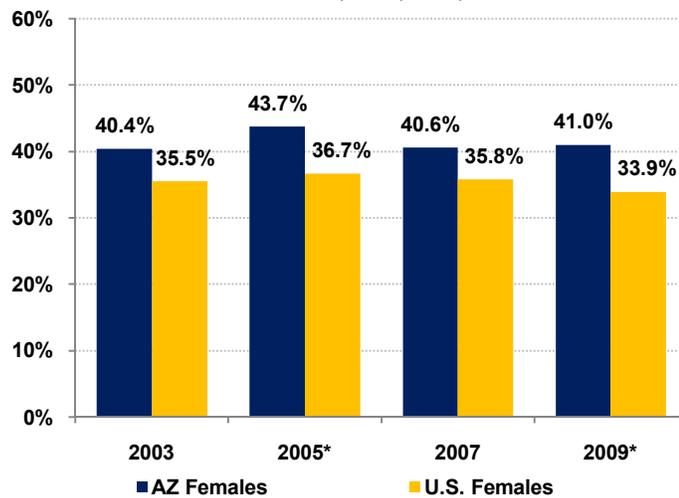
diagnosed with an STD than are male adolescents. National guidelines for chlamydia and gonorrhea testing encourage sexually active females to be tested. Also females are more likely to have noticeable symptoms from an STD infection than males who are more frequently asymptomatic.¹¹³

HOW IS ARIZONA DOING?

Arizona youth report depression symptoms more often than their national peers. According to the 2009 Youth Risk Behavior Survey (YRBS), 34.9 percent of Arizona High School students were feeling sad and hopeless almost every day for two or more weeks in a row so that they stopped doing some usual activities during the 12 months before the survey. This proportion was significantly greater than the 26.1 percent of students nationwide who reported the same condition. In fact, Arizona teens had the greatest risk of reporting these feelings among the 45 other states with responses across this measure. Figure 1 shows that Arizona's female students were significantly more likely than their national peers to report depression symptoms in 2005 and 2009.

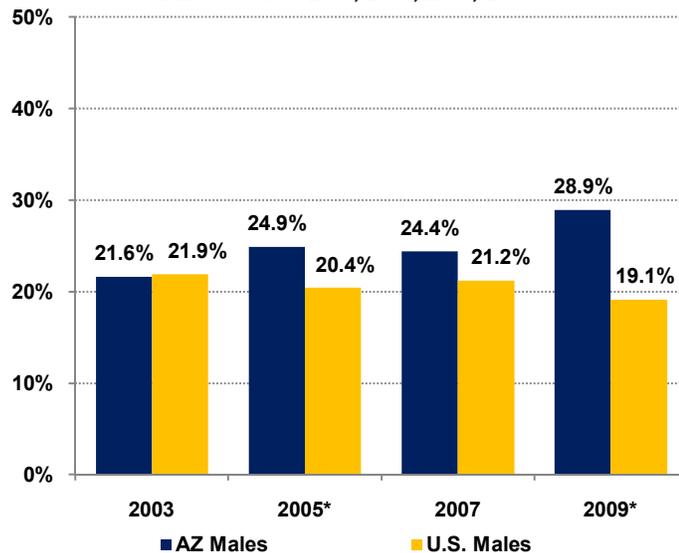
Figure 2 indicates that in general male adolescents are less likely to report feeling sad or hopeless compared to female students. As with females, males attending high school in Arizona reported depressive symptoms more often than their national peers in 2005 and 2009. In addition the percentage of Arizonan males reporting these feelings increased from 21.6 percent in 2003 to 28.9 percent in 2009.

Figure 1. Female High School Aged Students Reporting Feeling Sad and Hopeless Arizona & U.S. 2003, 2005, 2007, 2009



*significant difference between AZ and U.S. females at $\alpha=0.05$

Figure 2. Male High School Aged Students Reporting Feeling Sad and Hopeless Arizona & U.S. 2003, 2005, 2007, 2009



*significant difference between AZ and U.S. males at $\alpha=0.05$
Source: Youth Risk Behavior Survey, 2003, 2005, 2007, 2009

¹¹³ Arizona Office of HIV, STD, and Hepatitis Services, Sexually Transmitted Diseases (STD) Among Arizona Youth, 2009 [accessed June 30, 2010]. Retrieved from: <http://www.azdhs.gov/phs/oids/std/pdf/FINAL%202009%20Youth%20Report%2005262010.pdf>

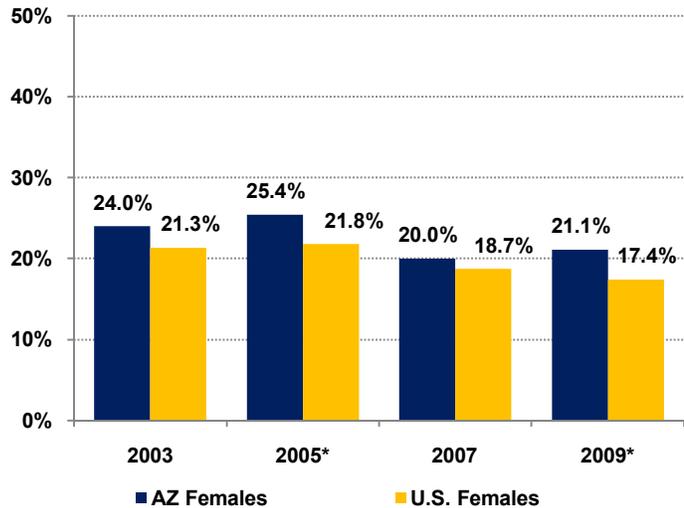
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The high incidence of depression symptoms among Arizonan youth was also reflected in the incidence of suicidal thoughts. In the 2009 YRBS, a significantly greater percentage of Arizona high school students (17.3%) seriously considered suicide during the past 12 months compared to national peers (13.8%). Between one-in-four and one-in-five female students residing in Arizona reported suicidal thoughts between 2003 and 2009. Figure 3 demonstrates that the incidence among Arizona females was significantly greater than among national females in both 2005 and 2009.

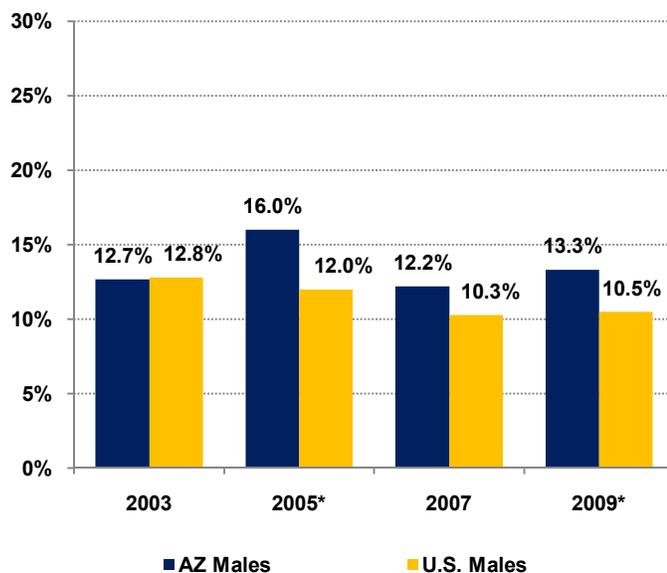
Although male adolescents are more likely to commit suicide they are less likely to report suicidal thoughts compared to females. Approximately one-in-twelve male high school students reported seriously considering attempting suicide in the past year in Arizona (see Figure 4). While overall report of males in Arizona seriously considering suicide declined from 2005 to 2009, in 2005 and 2009 the difference between Arizona male reports of seriously considering suicide and the nation's males seriously considering suicide was statistically significant with four percentage-point difference two percentage-point difference respectively. Greater incidence of depressive symptoms and serious contemplation of suicide among Arizona youth were manifested in the high suicide rate for adolescents from 2000-2006 (see %injury+section for children and adolescents).

Figure 3. Female High School Students Reporting Seriously Considered Attempting Suicide in Past 12 Months
Arizona & U.S. 2003, 2005, 2007, 2009



*significant difference between AZ and U.S. females at $p=0.05$
Source: Youth Risk Behavior Survey, 2003, 2005, 2007, 2009

Figure 4. Male High School Students Reporting Seriously Considered Attempting Suicide
Arizona & U.S. 2003, 2005, 2008, 2009



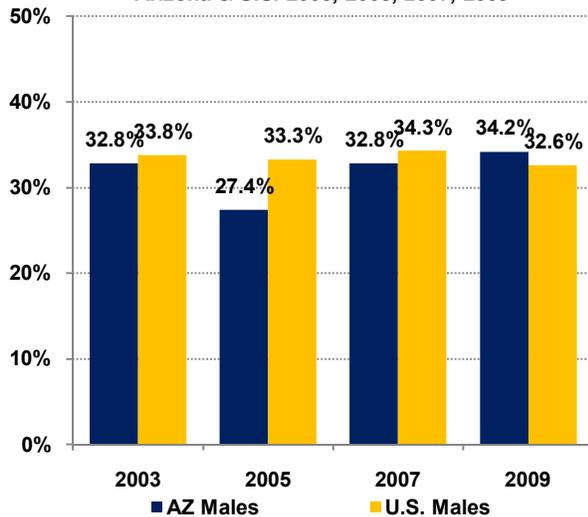
*significant difference between AZ and U.S. males at $p=0.05$
Source: Youth Risk Behavior Survey, 2003, 2005, 2007, 2009

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The percentage of youth reporting sexual intercourse in the YRBS during the past three-months remained stable at approximately 34 percent for both Arizona and the U.S. While Arizona females were less likely to report being sexually active compared to their national peers, the difference was not significant in any year from 2003 to 2009 (Figure 5). Similar results were found for males in Arizona and across the nation (Figure 6).

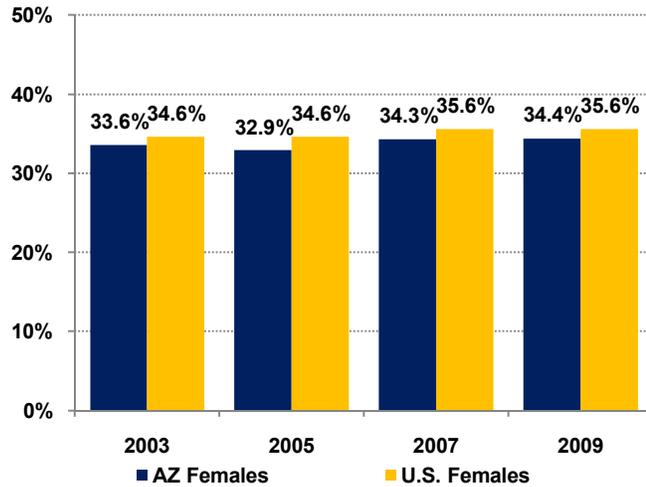
Figure 6. Percent of High School Males who are Sexually Active Arizona & U.S. 2003, 2005, 2007, 2009



Source: Youth Risk Behavior Survey, 2003,2005,2007,2009

intercourse as frequently as the national average. Approximately half of all female high school students in Arizona reported that they did not use a condom during last sexual intercourse with a male partner (see Figure 7). In 2003 and 2007 the difference was significant between condom use among Arizona females and all females in the U.S.

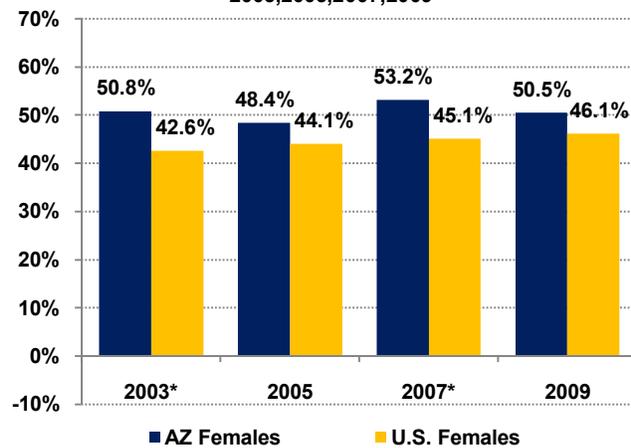
Figure 5. Percent of High School Females who are Sexually Active Arizona & U.S. 2003,2005,2007,2009



Source: Youth Risk Behavior Survey, 2003,2005,2007,2009

Condom use during last sexual intercourse is an important measure of sexual behavior among sexually active youth. Failure to use condoms is associated with higher incidence of sexually transmitted disease and teen pregnancy.^{114,115} Sexually active Arizona youth are not reporting condom use at last

Figure 7. Percent of High School Females who are Sexually Active and Did Not Use a Condom at Last Intercourse, Arizona and U.S. 2003,2005,2007,2009



*significant difference between AZ and U.S. females at $\alpha = 0.05$
Source: Youth Risk Behavior Survey, 2003,2005,2007,2009

¹¹⁴ Centers for Disease Control and Prevention, Condoms and STDs: Fact Sheet for Public Health Personnel, 2010 [accessed June 29, 2010]. Retrieved from: <http://www.cdc.gov/condomeffectiveness/latex.htm>

¹¹⁵ Centers for Disease Control and Prevention, Unintended Pregnancy Prevention: Contraception, 209 [accessed June 30, 2010]. Retrieved from: <http://www.cdc.gov/reproductivehealth/unintendedpregnancy/contraception.htm>

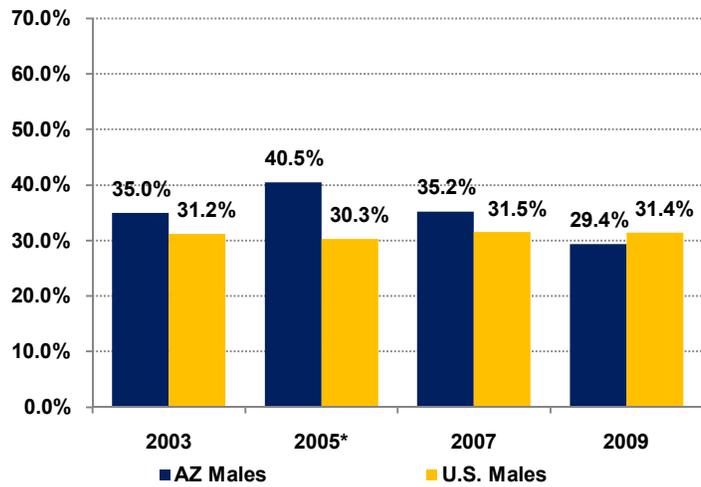
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Figure 8 illustrates condom use for males for Arizona. U.S. male high school students were significantly less likely than females to report not having used a condom at last intercourse, perhaps reflecting a gender response bias to this survey question. Male students living in Arizona (40.5%) were more likely than their national counterparts (30.3%) to not use a condom in 2005. By 2009 the percentage of Arizona males not using a condom at last intercourse declined significantly to 29.4 percent.

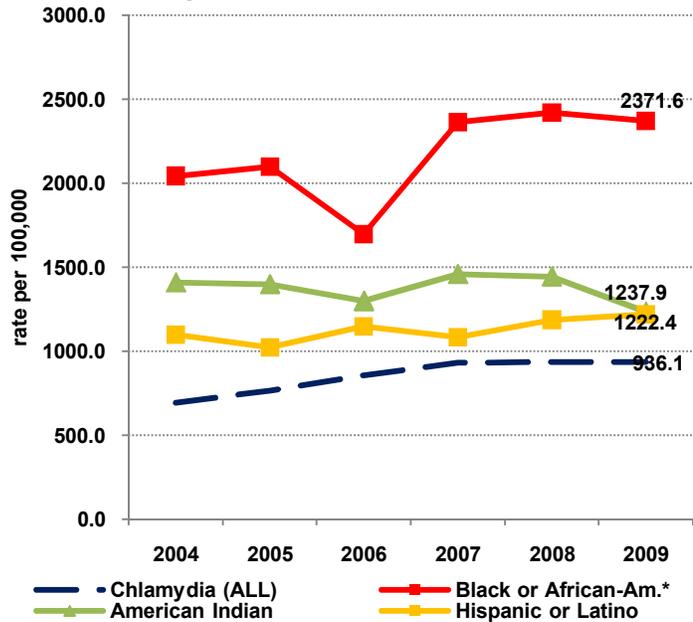
According to the Arizona Office of HIV, STD, and Hepatitis Services, Arizona continues to have very high rates of sexually transmitted diseases (STDs). Bacterial (chlamydia, gonorrhea, syphilis) and viral (genital herpes) STDs disproportionately affect youth ages 10-19. In 2009 alone, 31% of all STDs reported in Arizona were reported in the 10-19 year old age group.⁺ Sexually transmitted diseases disproportionately affect non-White or Hispanic youth. The most recent rate of chlamydia in the U.S. is 940.6 per 100,000 for youth age 10-19 years,¹¹⁶ nearly the same as the Arizona estimate. However, the rate of chlamydia among Black or African American adolescents residing in Arizona was over twice as great as the state rate in 2009 (see Figure 9). Rates for American Indian and Hispanic or Latino youth were also greater than overall State rate from 2004-2009. The national

Figure 8. Percent of High School Males who are Sexually Active and Did Not Use a Condom at Last Intercourse, Arizona & U.S. 2003, 2005, 2007, 2009



*significant difference between AZ and U.S. females at $p=0.05$
 Source: Youth Risk Behavior Survey, 2003, 2005, 2007, 2009

Figure 9. Chlamydia Rate per 100,000 Adolescents Age 10-19 Years, Arizona 2004-2009



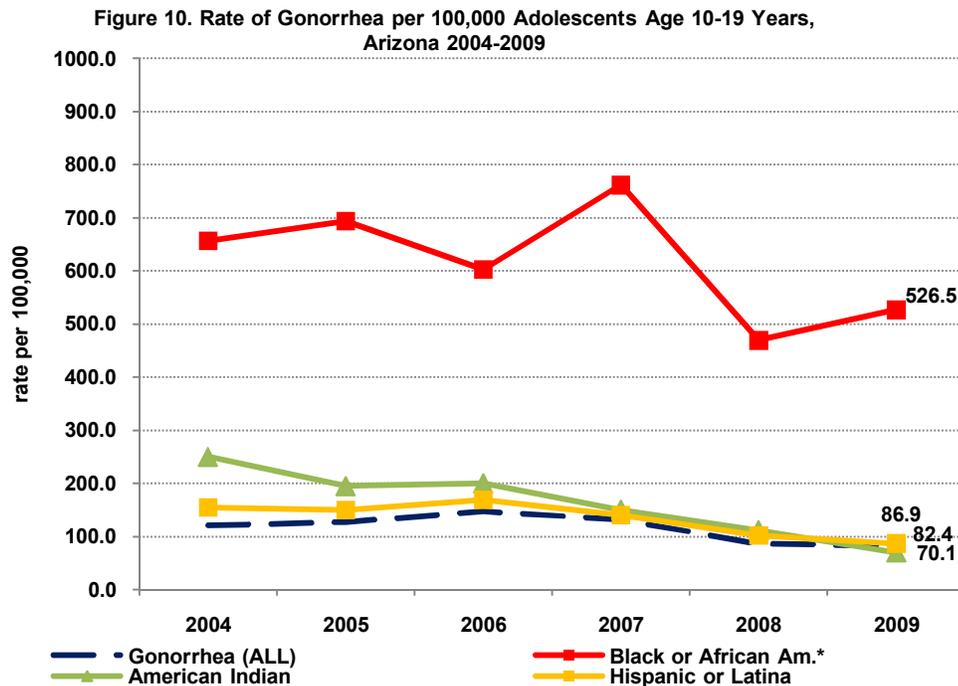
*significantly higher rates compared to other groups from 2004-2009 at $p=0.05$
 Source: Office of HIV, STD and Hep Services, 2009

¹¹⁶ Centers for Disease Control and Prevention, Sexually Transmitted Disease Surveillance 2007, 2009 [accessed June 30, 2010]. Retrieved from: <http://www.cdc.gov/std/stats07/tables/10.htm>

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rate of gonorrhea for 10-19 year olds (245.4 per 100,000)¹¹⁷ was significantly greater for the U.S. than for Arizona (82.4 per 100,000). The overall rate for youth in Arizona declined 44 percent from 2006-2009.¹¹⁸ Figure 10 displays rates of gonorrhea per 100,000 individuals in the age 10-19 in Arizona. It is evident that Black or African American youth assumed a significantly greater rate of gonorrhea than any other race or ethnicity in Arizona from 2004-2009.



*significantly higher rates compared to other groups from 2004-2009 at $p=0.05$
Source: Office of HIV, STD and Hep Services, 2009

¹¹⁷ Centers for Disease Control and Prevention, Sexually Transmitted Disease Surveillance 2007, 2009 [accessed June 30, 2010]. Retrieved from: <http://www.cdc.gov/std/stats07/tables/20.htm>

¹¹⁸ Arizona Office of HIV, STD, and Hepatitis Services, Sexually Transmitted Diseases (STD) Among Arizona Youth, 2009 [accessed June 30, 2010]. Retrieved from: <http://www.azdhs.gov/phs/oids/std/pdf/FINAL%202009%20Youth%20Report%2005262010.pdf>

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ARIZONA YOUTH AT HIGH RISK FOR DIABETES AND ORAL DISEASE

DESCRIPTION OF CHRONIC CONDITIONS AND ORAL HEALTH FOR YOUTH:

Pediatric asthma is a chronic inflammatory disorder of the airways that causes wheezing, chest tightness and coughing. It may be caused by external stimuli such as environmental allergens and pollution, or exercise induced. Having a current physician diagnosis is indicative of current asthma.¹¹⁹

The proximal cause of type 2 diabetes is chronically elevated blood sugar as determined by a glycated hemoglobin (A1C) test. Type 2 diabetes is caused when the body becomes resistant to insulin or when the pancreas stops producing enough insulin. Obesity and lack of physical activity are believed to increase the risk for type 2 diabetes in both adults and children.¹²⁰

Oral disease is most commonly represented in children by tooth decay (caries). As a tooth decays small holes develop that threaten the root of the tooth resulting in pain, infection and possible tooth loss. A diet of food and drink high in sugar and starches combined with poor oral hygiene increases the risk for dental caries in children.

WHY ARE CHRONIC CONDITIONS AND ORAL HEALTH PROBLEMS?

Asthma and diabetes are chronic conditions that increasingly begin in childhood and pose lifelong challenges to health. Children and adolescents with asthma or type 2 diabetes are more likely to miss school and are burdened with greater medical costs than those youth without these chronic conditions.^{121,122} Although disability and death are largely preventable with proper case management, diabetes increases the risk of early death for youth.¹²³

Oral disease is the most common disease affecting children. More than half of children aged 5-9 have had at least one cavity or filling; 78 percent of 17-year-olds have experienced tooth decay.¹²⁴ It is progressive and cumulative with similar short and long term effects as childhood chronic disease. Immediate consequences include pain and suffering that often negatively affect diet and school attendance, while long term effects include greater risk for diabetes, heart disease, and adverse pregnancy outcomes, as well as increased costs for dental care.¹²⁵

¹¹⁹ Council of State and Territorial Epidemiologists, CSTE Annual Meeting: CSTE Position Statement 1998-EH/CD1, 1998 [accessed June 16, 2010]. Available at: <http://www.cste.org/ps/1998/1998-eh-cd-01.htm>

¹²⁰ MayoClinic, Type 2 diabetes in children, 2009 [accessed June 16, 2010] Available at: <http://www.mayoclinic.com/health/Type-2-diabetes-in-children/DS00946>

¹²¹ Weiss, K.B., Sullivan, S.D., & Lytle, C.S. (2000). Trends in the Cost of Illness for Asthma in the US, 1985-1994. *Journal of Allergy Clinical Immunology*, 106,493-499.

¹²² Akinbami, L.J., Moorman, J.E., Garbe, P.L., & Sondik, E.J. (2009). Status of Childhood Asthma in the United States, 1980-2007. *Pediatrics*, 123(3), s131-145.

¹²³ Centers for Disease Control and Prevention, National Diabetes Fact Sheet, 2007 [accessed June 20, 2010]. Available at: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf

¹²⁴ Centers for Disease Control and Prevention, Children's Oral Health, 2009 [accessed June 20, 2010]. Available at: <http://www.cdc.gov/OralHealth/topics/child.htm>

¹²⁵ The Oral Health of Arizona's Children: Current Status, Trends and Disparities, 2005 [accessed June 20, 2010]. Available at: http://www.azdhs.gov/cfhs/ooh/pdf/OOH_AZSchoolChildrenReport-pagebypage.pdf

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HOW IS ARIZONA DOING?

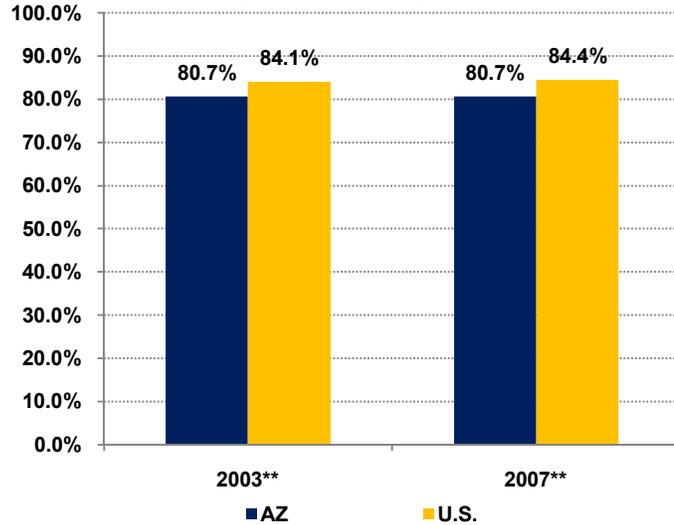
According to the National Survey of Children's Health (NSCH) approximately 80 percent of parents of children age 0-17 years rated their children's health as excellent or very good+ in Arizona (Figure 1). However, this was significantly less than the 84 percent of parents nationwide who reported excellent or very good+ health for their children.

Figure 2 demonstrates that when stratified by family income, the impact of poverty on perceptions of child health are dramatic. In both 2003 and 2007, over 90 percent of families in the highest quartile of income (income greater than or equal to 400 percent of the Federal Poverty Level) described their children's health as excellent or very good+. For each decreasing quartile of income, family perception of child health declined until the lowest quartile in which approximately 60 percent of families considered their children's health to be excellent or very good+. During both survey periods there were significant differences in perception of child health between those families below 200 percent of the Federal Poverty Level (FPL), and families at 200 percent or greater FPL.

Current asthma diagnosis for children in the U.S. and Arizona was reported at nine percent and 8.5 percent by the NSCH in 2007.¹²⁶ Preliminary results from the 2009

Arizona Healthy Smiles, Healthy Bodies Survey estimated current asthma among pre-school and third grade students at 4.5 percent. Arizona hospital discharge data provides

Figure 1. Percent of Children Age 0-17 Years With Excellent or Very Good Health* Arizona & U.S. 2003/2007

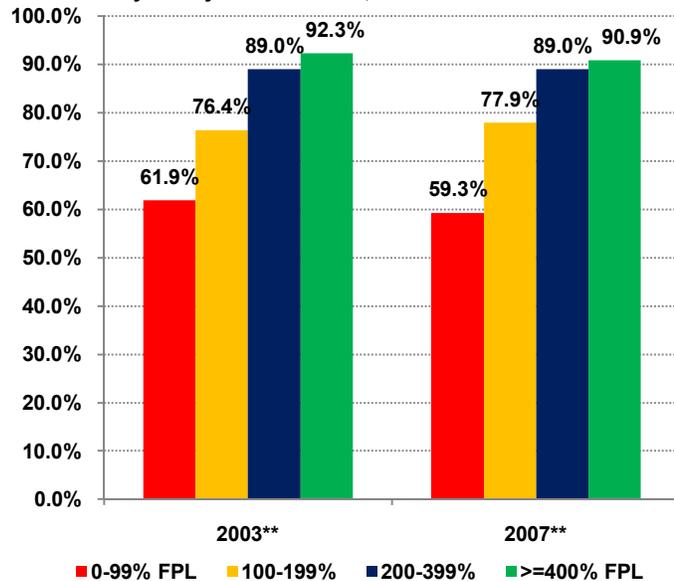


*As reported by parent

**significant difference between AZ and the U.S. at $\alpha=0.05$

Source: National Survey of Children's Health, 2003/2007

Figure 2. Percent of Children Age 0-17 Years with Excellent or Very Good Health* by Family Income Level, Arizona 2003/2007



*As reported by parent

*Significant difference between 0-199% FPL and 200-400% FPL at $\alpha=0.05$

Source: National Survey of Children's Health, 2003, 2007

¹²⁶ The Child and Adolescent Health Initiative, Data Resource Center for Child and Adolescent Health, n.d. [accessed June 21, 2010]. Available at: <http://www.childhealthdata.org/content/Default.aspx>

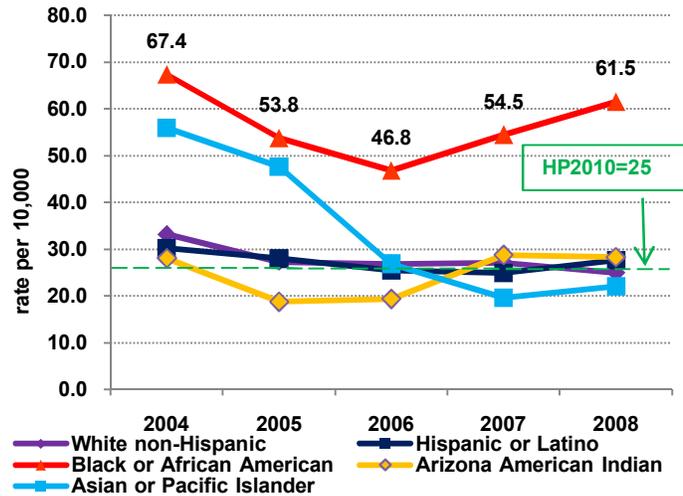
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a sufficient population to analyze the burden of asthma by race and ethnicity. During 2004-2008 the asthma hospitalization rate per 100,000 children under five years of age in Arizona declined significantly from 35.6 to 28.9.¹²⁷ However, rates of hospitalization for asthma were more than twice as great for Black or African children compared to children of other races and ethnicities (see Figure 3).

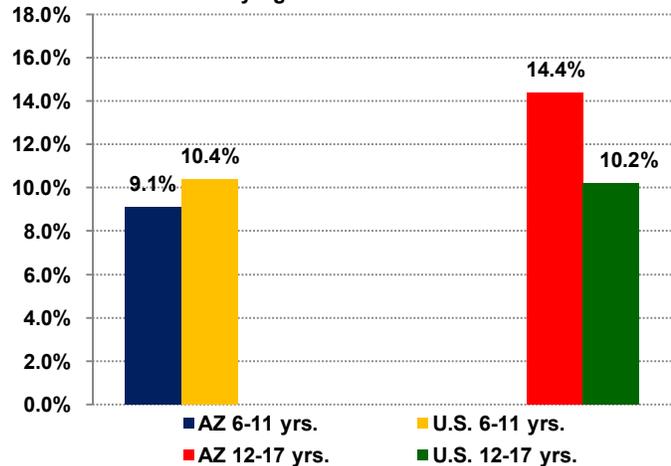
As expected older children and adolescents were more likely to have a current diagnosis for asthma than were young children (see Figure 4). Although the percentage of adolescents with current asthma was greater in Arizona (14.4%) than nationwide (10.2%) in the NSCH, the difference was not significant.

Figure 3. Hospitalization Rate for Asthma per 10,000 Children Age <5 Years by Race/Ethnicity Arizona 2004-2008



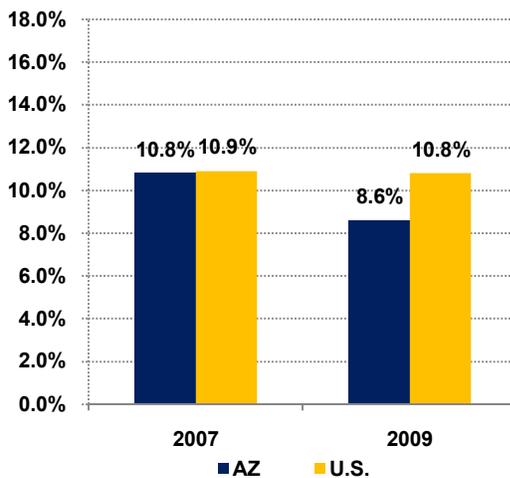
Source: Arizona Hospital Discharge Data, 2004-2008

Figure 4. Percent of Children with Current Asthma* by Age Arizona & U.S.



Source: National Survey of Children's Health, 2003/2007

Figure 5. Percent of High School Students Reporting Current Asthma Arizona & U.S. 2007/2009



Source: Youth Risk Behavior Survey, 2007/2009

Figure 5 compares the percent of high school students reporting asthma for Arizona and the US. While the US and Arizona's self-reported measure on asthma were similar in 2007 as per Youth Risk Behavior Survey (YRBS) data, there was approximately two-percentage point difference in 2009. In fact, compared to 2007 there was a decline among Arizona high school

students's self-report of asthma in from 10.8 percent to 8.6 percent in 2009. Further, an unusual disparity is revealed by the YRBS data as White non-Hispanics had a significantly greater prevalence of current asthma diagnosis compared to Hispanic or

¹²⁷ Chi-square=32.92 (1); p<0.0001

7. CHILDREN AND ADOLESCENTS

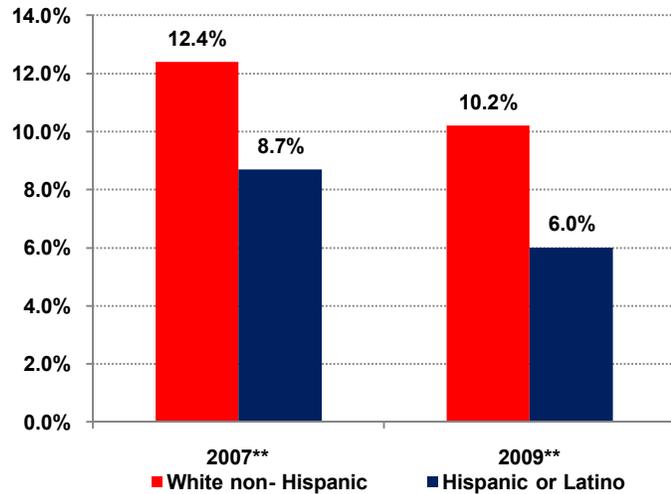
HEALTH STATUS AND WELL-BEING

Latinos (see Figure 6). The measure implies lack of access to and diagnosis by a physician, thus the disparity may reflect a disparity in equitable health care rather than disparities in risk for asthma. Additional years of survey data are needed to discern asthma prevalence trends over time.

Type 2 diabetes has been on the increase for children and adolescents. Nationally an estimated 3,700 youth (5.3 per 100,000) were diagnosed with type 2 diabetes in 2002-2003.¹²⁸ Although type 1 diabetes is the most common form in all children under ten years old, the burden of incident type 2 diabetes in adolescents is greatest among American Indians.¹²⁹ In fact, Pima Indian youth age 15-19 have one of the highest rates of type 2 diabetes (50.9 per 1,000) among all youth nationally.¹³⁰

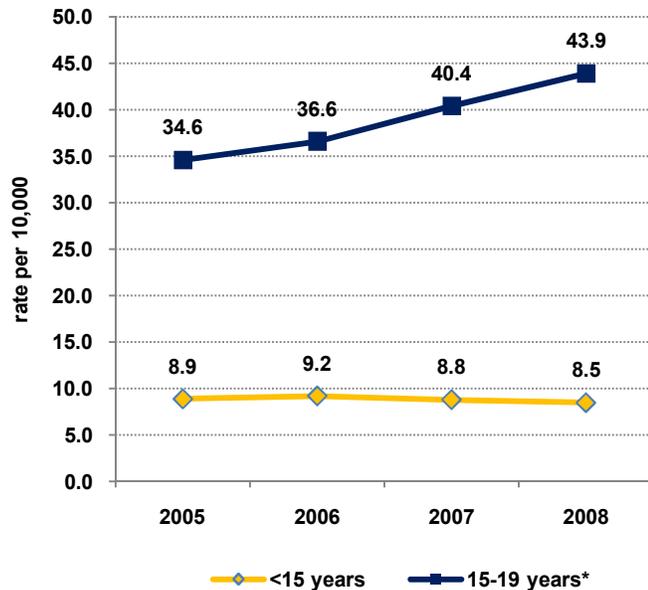
Unlike asthma, the NCHS and YRBS data do not capture incidence or prevalence of diabetes, and other sources of diabetes surveillance (e.g. National Health Nutrition Examination Survey) do not have a large enough sample to capture prevalence at the state level. The proportion of youth age 10-19 years that are American Indian and Hispanic or Latino living in Arizona (41 percent) make it likely that the national incidence rate for type 2 (5.3 per 100,000) diabetes is an underestimate for this state. Arizona hospital discharge data (see

Figure 6. Percent of High School Students with Current Asthma by Race/Ethnicity Arizona 2007/2009



**significant difference between Whites and Hispanics at $p=0.05$
Source: Youth Risk Behavior Survey, 2007/2009

Figure 7. Diabetes-related Emergency Room Visits and Inpatient Discharges per 10,000 Children and Adolescents, Arizona 2005-2008



*significant increase from 2005 to 2008 at $p=0.05$
Source: Arizona Hospital Discharge Database, 2004-2008

¹²⁸ Centers for Disease Control and Prevention, National Diabetes Fact Sheet, 2007 [accessed June 20, 2010]. Available at: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2007.pdf

¹²⁹ Ibid.

¹³⁰ Centers for Disease Control and Prevention, Diabetes Public Health Resource, 2010 [accessed June 17, 2010]. Available at: <http://www.cdc.gov/diabetes/projects/cda2.htm>

7. CHILDREN AND ADOLESCENTS

HEALTH STATUS AND WELL-BEING

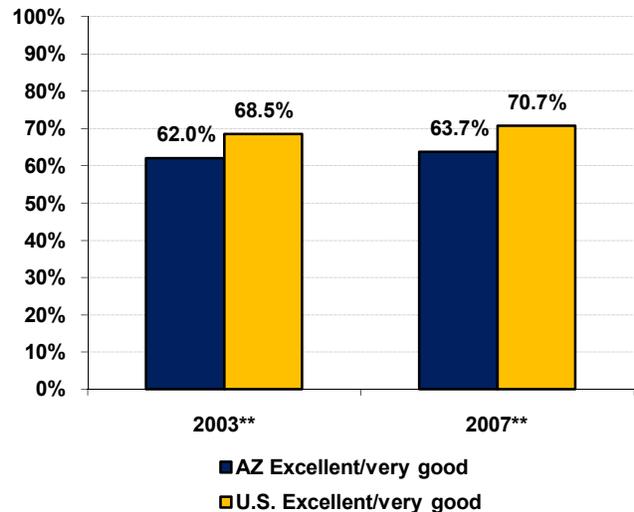
figure 7) is used to measure the rate of hospitalization and emergency room visits due from diabetes-related conditions. It is evident that from 2005-2008 the rate of hospitalizations and emergency room visits increased significantly for older adolescents from 34.6 to 43.9 per 10,000 age 15-19 years. These data may indicate either a true increase in diabetes within the adolescent population and/or an increase in cases that are poorly managed necessitating repeated medical attention.

The oral health of children residing in Arizona is significantly worse than for their national peers. Parent perception of their children's oral health reflects this disparity. In Arizona approximately 63 percent of parents reported that their children's teeth were in excellent or very good condition, while 70 percent of parents across the nation reported the same (see Figure 8).

As with overall health, perception of oral health varies by income (see Figure 9). In 2003 and 2007 families with incomes under 200 percent of the federal poverty level perceived were significantly less likely to perceive their children's teen to be in excellent or very good condition compared to those above 200 percent. Particularly troubling was the large disparity in perception between the lowest and highest income quartiles.

Figure 10 on the following page displays the race and ethnic differences for untreated tooth decay among 2-4 year olds. Differences in the proportion of untreated tooth decay were evident for different race and ethnic groups in Arizona. For the youngest children, the Healthy Smiles, Healthy Bodies Survey reported that 31 percent of children age 2-4 years in Arizona had untreated tooth decay while only 16 percent of their peers nationally had untreated tooth decay (see Figure 10). More than 50 percent of Asian children had untreated tooth decay, but the larger populations of Hispanic and Native

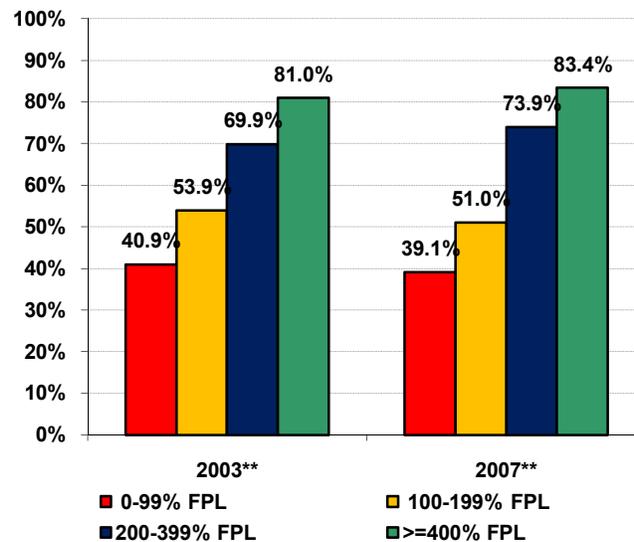
Figure 8. Children Age 0-17 Years with Teeth in Excellent or Very Good Condition* Arizona & U.S. 2003, 2007



* As reported by parent

**Significant difference between Arizona and the U.S. at $\alpha=0.05$
Source: National Survey of Children's Health, 2003, 2007

Figure 9. Children Age 1-17 Years with Teeth in Excellent or Very Good Condition* by Family Income Level, Arizona 2003, 2007



*As reported by parent

**Significant difference between 0-199% FPL and 200-400% FPL at $\alpha=0.05$

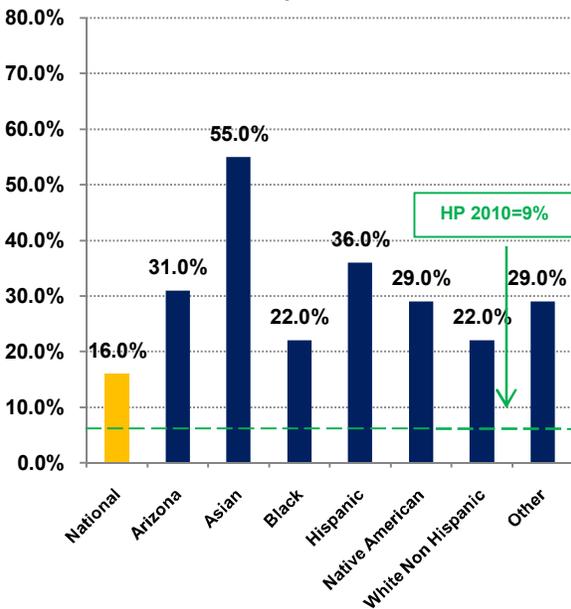
Source: National Survey of Children's Health, 2003, 2007

7. CHILDREN AND ADOLESCENTS

HEALTH STATUS AND WELL-BEING

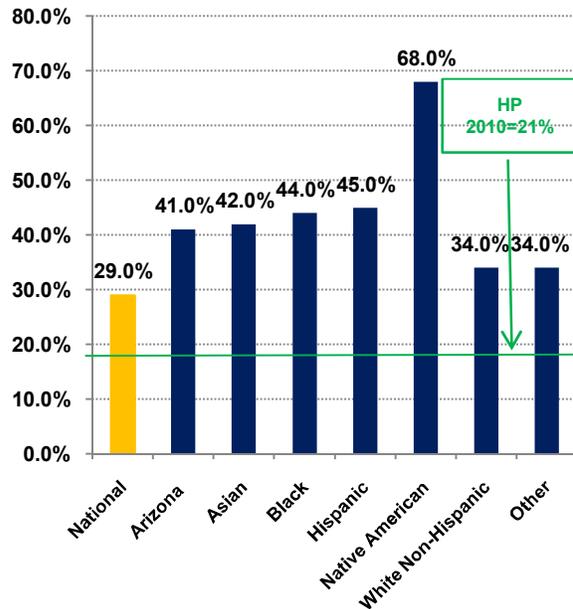
Americans account for the high proportion of tooth decay in this age cohort. As children age in Arizona their risk for tooth decay increases. By the 3rd grade more than 40 percent of Arizonans were found with tooth decay (see Figure 11). This was far above the 29 percent estimate nationwide and nearly twice the Healthy People 2010 goal of 21 percent. Of particular concern was the disproportionate percentage of Native American 3rd graders with untreated tooth decay at 68 percent. During public input sessions across Arizona in April and May of 2010, citizens and dental practitioners expressed strong concerns about the poor oral health of children in their communities.

Figure 10. Children Age 2-4 Years with Untreated Tooth Decay, Arizona & U.S. 2009



Source: Arizona Healthy Smiles Healthy Bodies Survey, 2009 (data unweighted to population)

Figure 11. 3rd Grade with Untreated Tooth Decay, Arizona & U.S. 2009



Source: Healthy Smiles Healthy Bodies Survey, 2009 (data unweighted to population)

7. CHILDREN AND ADOLESCENTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

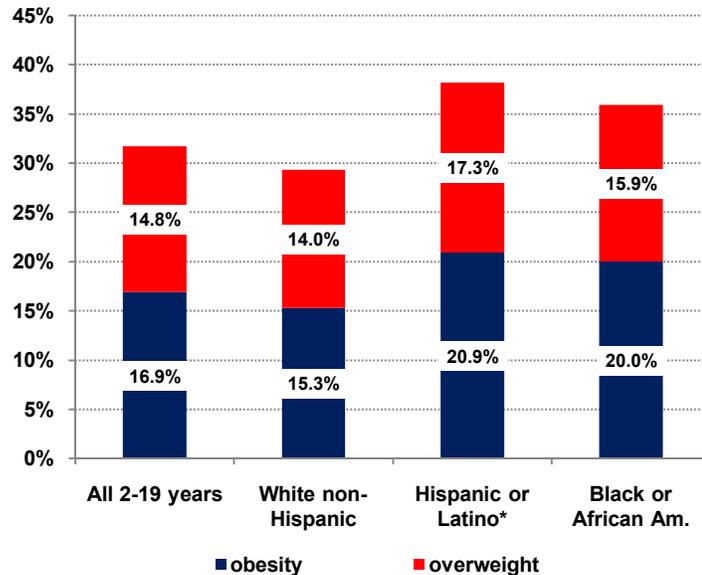
INCREASING OVERWEIGHT AND OBESITY AMONG YOUTH IN ARIZONA

DESCRIPTION OF OVERWEIGHT AND OBESITY

Obesity and overweight in children and adolescents (age 2-19 years) is determined by a Body Mass Index (BMI) value plotted on a growth chart that is age and sex specific.¹³¹

Overweight is defined as a BMI at or above the 85th percentile and lower than the 95th percentile, while obesity is a BMI at or above the 95th percentile for children of the same age and sex. Obesity may represent the single greatest threat to the long term health and life expectancy of America's youth. Figure 1 gives an overview of the prevalence of overweight and obesity in 2007-2008 from the National Health Nutrition and Examination Survey. The survey reported an overweight and obesity prevalence (\geq 85th percentile) of 31.7 percent (\pm 2.5 percent) among children age 2-19 years, with significant disparities by race and ethnicity.¹³²

Figure 1. Overweight and Obesity Prevalence for Youth
Age 2-19 Years, U.S. 2007-2008



*significantly greater than White non-Hispanic at $\alpha=0.05$
Source: NHANES, 2007-2008

WHY IS OVERWEIGHT AND OBESITY A PROBLEM?

Overweight children are at increased risk for becoming obese. When children become obese they become at risk for chronic conditions such as high blood pressure, high cholesterol and Type 2 diabetes which in turn elevate risk for cardiovascular disease early in life.¹³³ Childhood obesity is a strong predictor of adult obesity;¹³⁴ and therefore, the increasing proportion of obese children will influence population health for an entire generation. As with adults, obesity prevalence in youth is associated with race and socioeconomic status, and thus threatens to perpetuate existing disparities found in adult health.

¹³¹ Ogden, C.L., Carroll, M.D., Curtin, L.R., Lamb, M.M., & Flegal, K.M. (2010). Prevalence of High Body Mass Index in US Children and Adolescents, 2007-2008. *JAMA*, 303(3), 242-249.

¹³² *Ibid.*

¹³³ Centers for Disease Control and Prevention, Childhood Overweight and Obesity, 2010 [accessed March 10, 2010]. Available at: <http://www.cdc.gov/obesity/childhood/index.html>

¹³⁴ Parsons, T.J., Power, C., Logan, S., et al. (1999). Childhood predictors of adult obesity: a systematic review, *Int J Obes Relat Metab Disord*, 23(suppl 8), S1-S107.

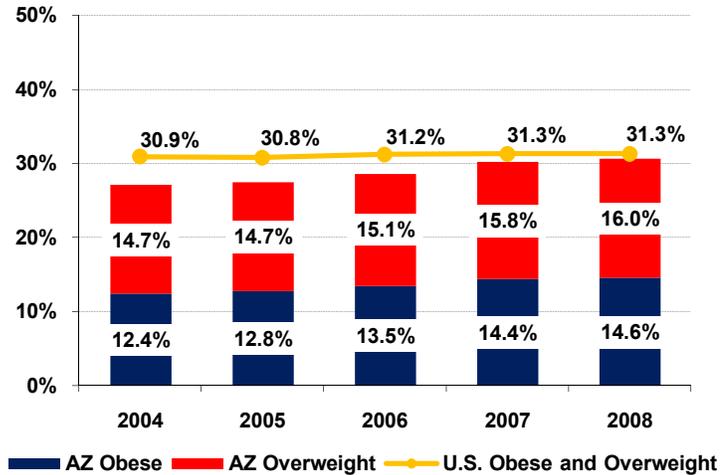
7. CHILDREN AND ADOLESCENTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

HOW IS ARIZONA DOING?

While overweight and obesity among Arizona's youngest children are slightly below the national average, disparities based on race/ethnicity and income are increasing. According to the CDC Pediatric Nutrition Surveillance (PedNSS) data shown in Figure 2, overweight and obesity prevalence among low-income children age two to five years living in Arizona increased from approximately 27 percent in 2004 to greater than 30 percent in 2008. Table 1 gives an overview of burden of overweight and obesity by race and ethnicity. It is evident that

Figure 2. Prevalence of Obesity and Overweight Among Low Income Children Age 2 to <5 Years Arizona 2004-2008



Source: Pediatric Nutrition Surveillance, 2004-2008

TABLE 1
Prevalence of Overweight and Obesity by Race/Ethnicity of Low-income Children Age 2 to <5 Years, Arizona 1999 & 2008

	1999 ¹	2008 ¹	Percent Change
White non-Hispanic			
Overweight	10.9%	14.0%	28.4%
Obesity	6.6%	9.5%	43.9%
Total Overweight or Obese	17.5%	23.5%	34.3%
Hispanic or Latino			
Overweight	13.2%	16.6%	25.8%
Obesity	11.5%	16.2%	40.9%
Total Overweight or Obese	24.7%	32.8%	32.8%
Black or African American			
Overweight	10.4%	13.5%	29.8%
Obesity	6.5%	10.3%	58.5%
Total Overweight or Obese	16.9%	23.8%	40.8%
American Indian or Alaska Native			
Overweight	15.2%	20.4%	34.2%
Obesity	15.7%	20.1%	28.0%
Total Overweight or Obese	30.9%	40.5%	31.1%
Asian or Pacific Islander			
Overweight	9.9%	12.1%	21.8%
Obesity	8.5%	14.4%	69.4%
Total Overweight or Obese	18.4%	26.5%	44.0%

Source: Pediatric Nutrition Surveillance, 2008

¹ per 100 children age 2 to <5 years.

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HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

the burden of overweight and obesity in young low-income children was greatest among American Indian (40.5 percent) and Hispanic or Latinos (32.8 percent).

The prevalence of overweight and obesity is also increasing across for older children in Arizona. The Youth Risk Behavior Survey (see Figure 3) shows the prevalence of overweight and obesity among Arizona's high school aged youth increased from 25 percent in 2003 to 27.7 percent in 2009. However, the burden of overweight and obesity is greatest among non-White or Hispanic teens. The prevalence of overweight and obesity in Arizona in 2009 (27.7%) equaled the national prevalence (27.8%). The National Survey of Children's Health (NSCH) reported that Arizona youth age 10 through 17 years had an increase in overweight and obesity from 29.7 percent in 2003 to 30.6 percent in 2007.¹³⁵ Particularly troubling was the 45.9 percent increase in the prevalence of obesity from 12.2 percent in 2003 to 17.8 percent in 2007. According to the survey results, Arizona youth had the greatest increase in the prevalence of obesity among all 50 states and Washington D.C.

Figure 4 displays percent of infants born at high birth weight (> 4,000 grams) as high birth weight also places infants at increased risk for death and birth injuries.¹³⁶ In addition, high birth weight is increasingly recognized as an

Figure 3. Percent of Overweight and Obesity among High School Youth, Arizona 2003/2005/2007/2009

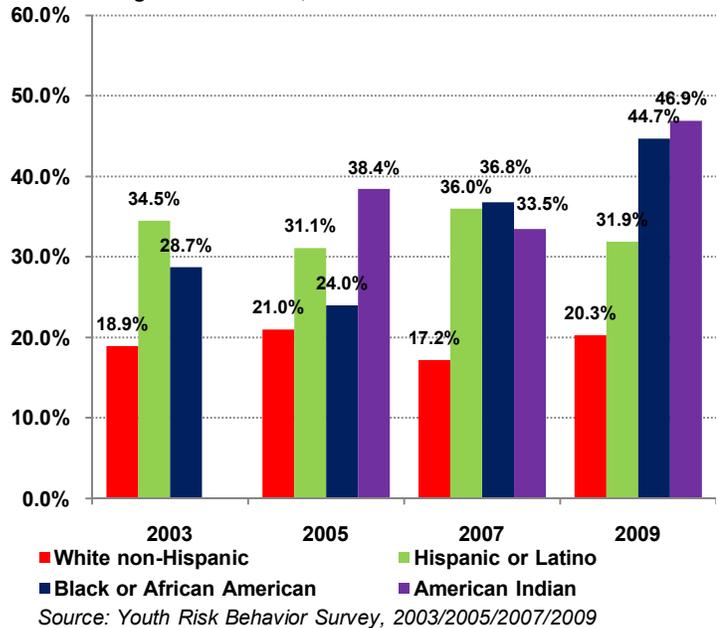
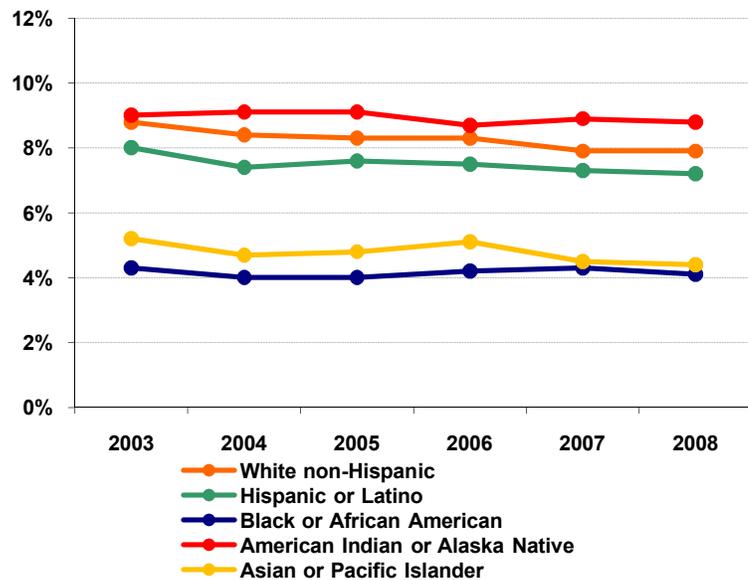


Figure 4. Percent of Infants Born at High Birthweight (>=4,000 grams), Arizona 2003-2008



¹³⁵ Singh, G.K., Kogan, M.D., & van Dyck, P.C. (2010). Changes in State-Specific Childhood Obesity and Overweight Prevalence in the United States From 2003 to 2007. *Arch Pediatr Adolesc Med*, 164 (7), e1-e10.

¹³⁶ Centers for Disease Control and Prevention, PedNSS Health Indicators, 2009 [accessed March 12, 2010]. Available at: http://www.cdc.gov/pednss/what_is/pednss_health_indicators.htm

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HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

early risk factor for childhood obesity.¹³⁷ The percentage of live born infants at high birth weight in Arizona has declined from approximately eight percent in 2003 to just over seven percent in 2008. However, the burden of high birth weight is greatest among American Indian infants at nine percent (see Figure 4). The burden of high birth weight among low-income infants in Arizona (6.6%) is similar to that of the U.S. (6.4%).¹³⁸ During pregnancy, mother's obesity is also a risk factor for childhood obesity. Analyses of this empirical relationship is limited because Arizona utilizes the 1989 U.S. National Birth Certificate to record all births, which does not include mother's weight at first prenatal care visit.

¹³⁷ Colditz, G.A., Gillman, M.W., Rifas-Shiman, S., et al. (2003). Maternal Gestational Diabetes, Birth Weight, and Adolescent Obesity. *Pediatrics*, 111, e221-e226.

¹³⁸ Centers for Disease Control and Prevention, PedNSS Health Indicators, 2009 [accessed March 12, 2010]. Available at: http://www.cdc.gov/pednss/what_is/pednss_health_indicators.htm

DECLINING TEEN PREGNANCY AND TEEN BIRTHS RATES IN ARIZONA

DESCRIPTION OF TEEN PREGNANCY:

The rate of teen pregnancy is commonly defined as the count of adolescent females who delivered a live infant, had an induced termination of pregnancy, or delivered a fetal death divided by the total number of adolescent females in a population during a given year. It is important to note that the rates of and risk for teen pregnancy are underestimated as no data are available for pregnancy ending in miscarriage. Data on pregnancy are obtained from birth and fetal death certificates and, in the case of Arizona, abortion data reported annually by hospitals, outpatient treatment centers and physicians' offices. No valid comparison is possible between the rate of teen pregnancy in Arizona and the estimated rate in the U.S.¹³⁹ However, the rate of live births delivered by teens in the U.S. is comparable to the rate in Arizona.

WHY IS TEEN PREGNANCY A PROBLEM?

According to the Centers for Disease Control and Prevention (CDC), babies born to teenage mothers are at elevated risk of poor birth outcomes, including higher rates of low birth weight, preterm birth, and death in infancy. The limited educational, social, and financial resources often available to teenage mothers add to their higher risk profile. A recent study found that the public costs of teenage childbearing in the U.S. are about 9.1 billion annually.¹⁴⁰

These negative outcomes are associated with births delivered by adolescents in Arizona. In 2008 the rates of low birth weight (7.6 per 1,000 live births), and infant mortality (8.1 per 1,000 live births) were significantly greater for Arizona females 19 years old and younger compared to mothers age 20-34 years old.¹⁴¹ While there is mixed evidence regarding prenatal care and its direct impact on prematurity and low birth weight, Arizona teens age 15-19 delivering a live infant in 2008 were significantly less likely to enter prenatal care during the first trimester of pregnancy (67.6 percent) compared to older women delivering a live infant (81.1 percent). Arizona Medicaid (AHCCCS) was more likely to be the payor of deliveries for Arizona teens (81 percent) than for adult females (51 percent). These costs, combined with the greater rates of negative health outcomes for the child and teen mother, mean that the cost of childbearing per teen mother remains higher than that of adult mothers.¹⁴²

¹³⁹ Arizona Bureau of Vital Statistics, Teen Pregnancy Arizona 1998-2008, 2008. Retrieved from: <http://www.azdhs.gov/plan/report/tp/teen08/teenpregnancy2008.pdf> [accessed February 3, 2010].

¹⁴⁰ Martin, J.A. et.al. 2009. Births: Final Data for 2006. *National Vital Statistics Reports*, 57,1-102.

¹⁴¹ LBW: Chi-square =15.073 (1), p<0.0001; IMR: Chi-square =10.638 (1), p<0.001

¹⁴² PNC 1st Trimester: Chi-square=1192.5 (1), p<0.0001

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HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

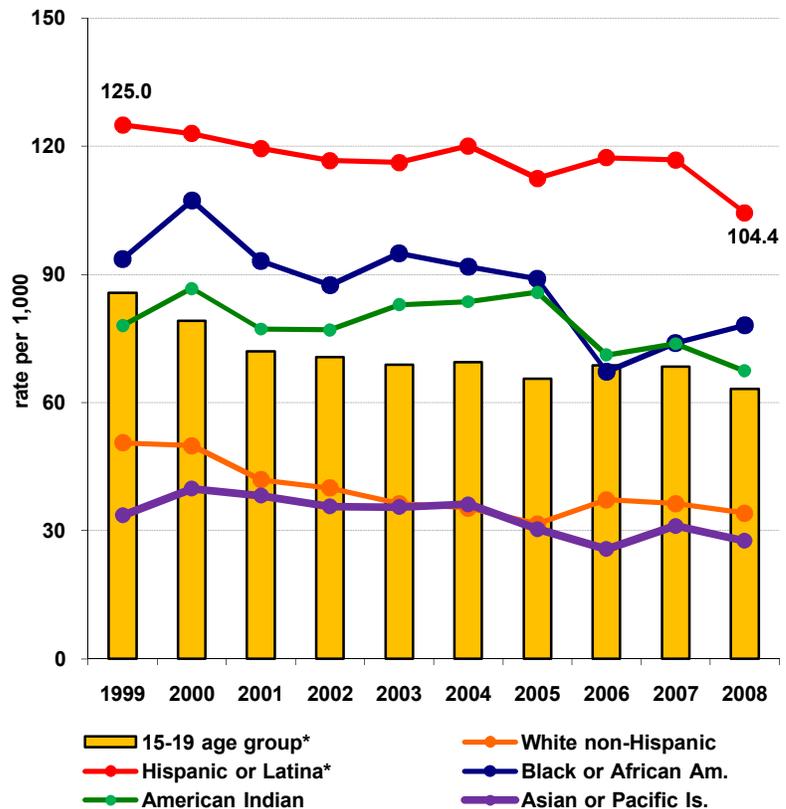
HOW IS ARIZONA DOING?

~TEEN PREGNANCY

In 2008, an estimated 14,047 females under 20 years of age were pregnant, and 22 percent (n=2,679) of new adolescent mothers reported a having had a previous pregnancy. The rate of teen pregnancy was 31.6 per 1,000 females age 19 years and younger. The risk for pregnancy increased each year of age. Approximately 27 percent of females in Arizona will become pregnant before their 20th birthday.¹⁴³ Teens age 15-19 years accounted for the vast majority of adolescent pregnancies (n=13,817) and remain the focus of prevention programs funded by the Arizona Department of Health Bureau of Women and Children's Health Teen Pregnancy Prevention Program.

Since 1999 the teen pregnancy rate for 15-19 year old teens has declined 26 percent (85.7 to 63.2 per 1,000). The greatest reduction was among teens age 15-17 years (33 percent). Therefore, Arizona has met the Healthy Arizona 2010 goal of reducing teen pregnancy in this cohort. Although the pregnancy rate for 18-19 year old teens increased in 2006 and 2007, the rate began declining again (8 percent) in 2008. Hispanic or Latina teens have a significantly greater rate of pregnancy compared to the state rate (Figure 1). Nearly 64 percent of all teen pregnancies in Arizona during 2008 occurred among Hispanic or Latina females even though this group comprised only 33 percent of Arizona's teen female population. The large percentage Hispanic or Latina females under 20 years old residing in Arizona (40 percent) has the greatest influence on the overall teen pregnancy rate in Arizona. All races and ethnicities accounted for in the data

Figure 1. Teen Pregnancy for Females Age 15-19 Years by Race/Ethnicity, Arizona 1999-2008



* significant difference between total rate and rate for Hispanic or Latina from 1999-2008 at $\alpha=0.05$
 Source: Arizona Vital Statistics, 1999-2008

¹⁴³ The cumulative risk for pregnancy is calculated using the formula $CR_i = 1 - (1 - CR_{i-1}) * (1 - R_i)$. This method was proposed during a CDC conference call in 2000 with Sappenfield, Long, Elrifai and Rosenberg, and differs from the method used by the National Campaign to Prevent Teen Pregnancy (http://www.thenationalcampaign.org/resources/pdf/FactSheet_3in10_Apr2008.pdf).

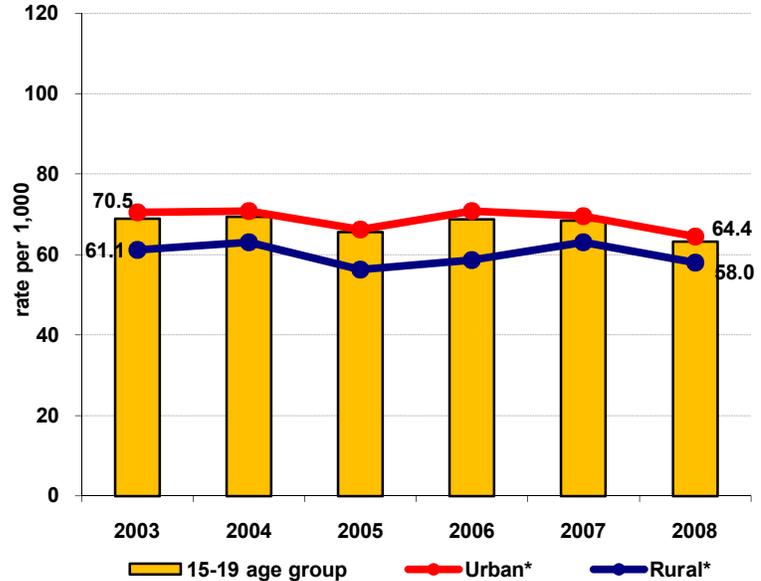
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experienced a decrease in their pregnancy rates from the baseline year of 1999, with White non-Hispanic teens having the largest decrease (33 percent).

Figure 2 indicates the rural urban differences in Arizona's teens and it is evident that teens residing in urban areas have greater rates of pregnancy than teens living in rural areas. In 2008, there was a small but significant difference between the rates of teen pregnancy based on rural or urban area of residence. From 2003 through 2008 both urban and rural counties witnessed a gradual decline in the rate of pregnancy for younger teens (15-17 years). However, the rate of pregnancy for older teens (18-19 years) was more variable and demonstrated no obvious decrease.

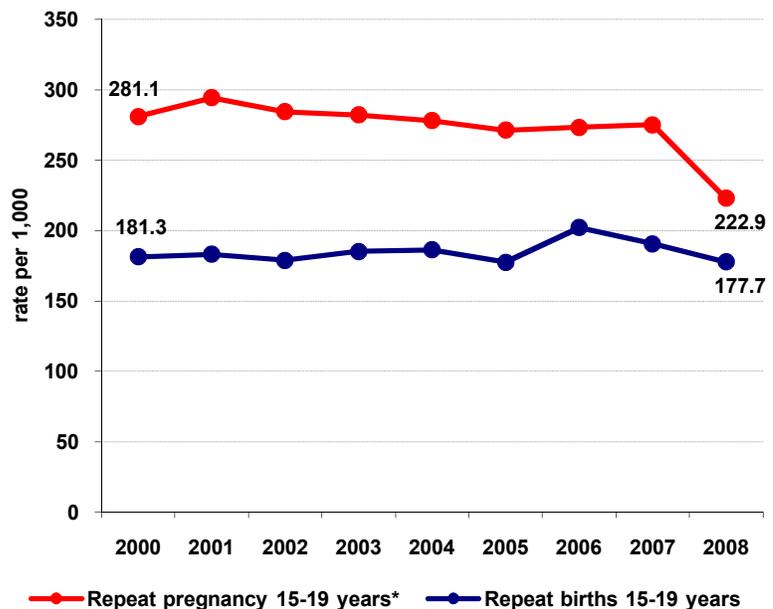
Figure 2. Teen Pregnancy for Females Age 15-19 Years by Urban and Rural Residence Arizona 2003-2008



*significant difference between Urban and Rural rates at $\alpha=0.05$
Source: Arizona Vital Statistics, 2003-2008

A previous pregnancy is associated with increased risk for additional pregnancies during adolescence. Repeat pregnancies among teen mothers age 15-19 years declined during from 2003-2008 (21 percent), with most of the decline occurring during the past year (Figure 3). In 2008 approximately 1-in-8 teen pregnancies in Arizona ended with abortion compared to 1-in-12 for pregnant women age 20-34 years. The abortion ratio for females 15-19 years old was significantly higher (145.5 per 1,000 live births) than for older women (95.4 per 1,000 live

Figure 3. Repeat Pregnancies & Births to Females Age 15-19 Years , Arizona 2000-2008



*significant difference between 2000 and 2008 at $\alpha=0.05$
Source: Arizona Vital Statistics, 2000-2008

7. CHILDREN AND ADOLESCENTS

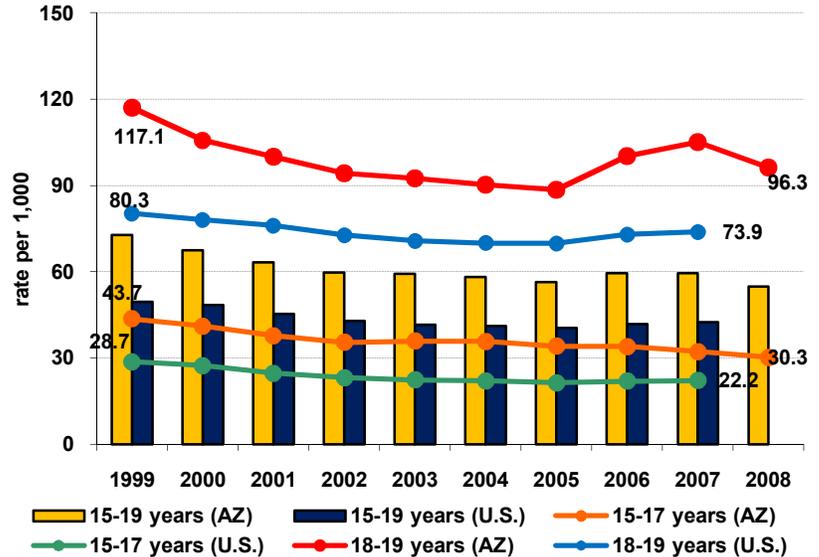
HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

births).¹⁴⁴ Pregnant teens had a non-significantly greater rate of stillbirths (5.9 per 1,000 live births and fetal deaths) compared to women age 20-34 years (5.1 per 1,000). Social risk factors rather than differences in biology are implicated in greater negative pregnancy outcomes for teens relative to their older peers.¹⁴⁵⁻¹⁴⁶

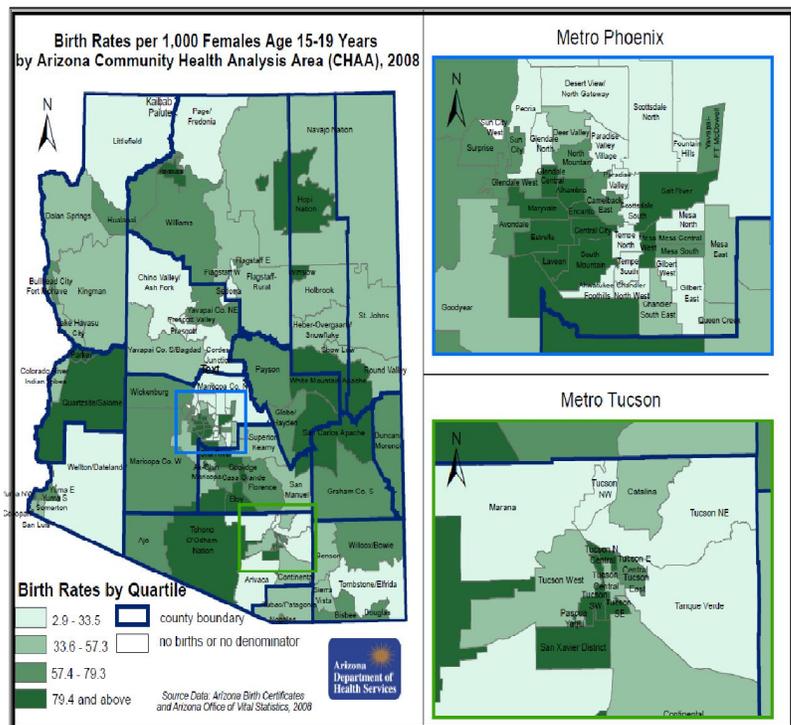
~TEEN BIRTHS

Approximately 87 percent of pregnancies for teens age 15-19 years resulted in a live birth in 2008 (n=12,000). The birth rate for Arizona teens age 15-19 has remained greater than the national rate over the past decade (Figure 4). Although the teen birth rate in Arizona declined significantly (25%) from 1999 to 2008, it remained 23 percent greater than the latest available national rate in 2007.¹⁴⁷ Similar to the increasing risk for pregnancy by age, older teens in Arizona assumed a 69 percent greater birth rate than younger teens. The birth rate for older teens increased significantly from 2005 to 2007 while the rate for younger teens continued to decline. Urban core areas (i.e. Phoenix and Tucson) and American Indian Reservations assumed the greatest rates of

Figure 4. Births to Females Age 15-19 Years
Arizona and the U.S. 1999-2008



Source: Arizona Vital Statistics, 1999-2008



¹⁴⁴ The abortion ratio is the number of reported abortions per 1,000 live births in a given year. Chi-square =11.370 (1), p<0.0007.

¹⁴⁵ Committee on Adolescence, American Academy of Pediatrics (1999). Adolescent pregnancy-current trends and issues; 1998. *Pediatrics*, 103,516-520.

¹⁴⁶ Maynard R.A. (1996). Kids Having Kids. A Robin Hood Foundation Special Report on the Costs of Adolescent Childbearing. *The Robin Hood Foundation*, 2-30.

¹⁴⁷ Hamilton, B.E. et al. (2009). Births: Preliminary Data for 2007. *National Vital Statistics Reports* 2009, 57, 1-23.

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HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

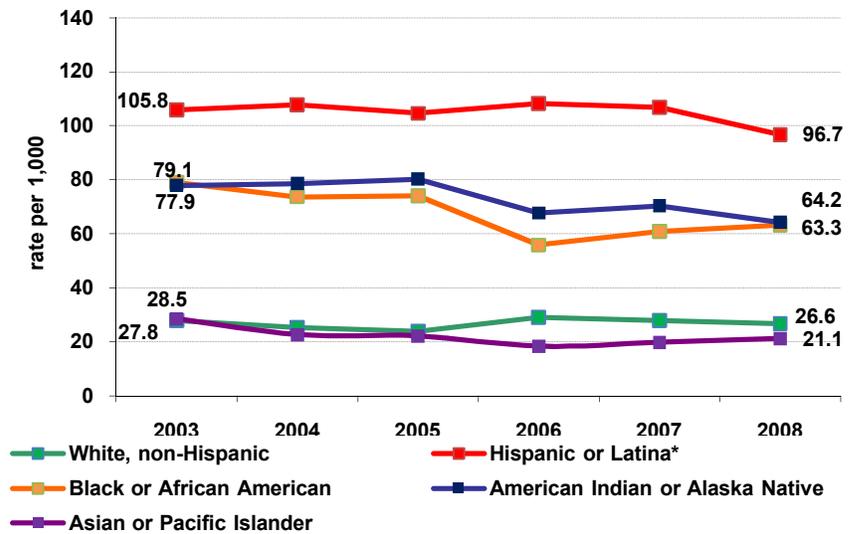
teen birth in Arizona.¹⁴⁸

Birth rates by race and ethnicity (Figure 5) show that Hispanic or Latina teens had a 65 percent greater birth rate in 2008 (96.7 per 1,000 Hispanic or Latinas age 15-19 years) compared to teens of other races and ethnicities (33.9 per 1,000 teens of other race or ethnicity). Similar to the disparity seen in teen pregnancy, Hispanic or Latina teens accounted for a majority of births in this age cohort (59%) even though they comprised a third of Arizona's teen population. Nevertheless, the birth rate for Hispanic or Latinas declined more than any other group in 2008 (9%), thus driving Arizona's teen birth rate to its lowest level in ten years. The birth rates also declined for White non-Hispanic, and American Indian or Alaskan Native females. However, Black or African American, and Asian or Pacific Islander teens experienced increases in their birth rates during the past two years.

The proportion of pregnant teens initiating prenatal care during the first trimester increased from 2003 to 2008 (Figure 6). However,

younger teens 15-17 years (63.5%) were less likely to start prenatal care during the first trimester compared to older teens (69.7 percent). Only 67 percent of teens 15-19 years

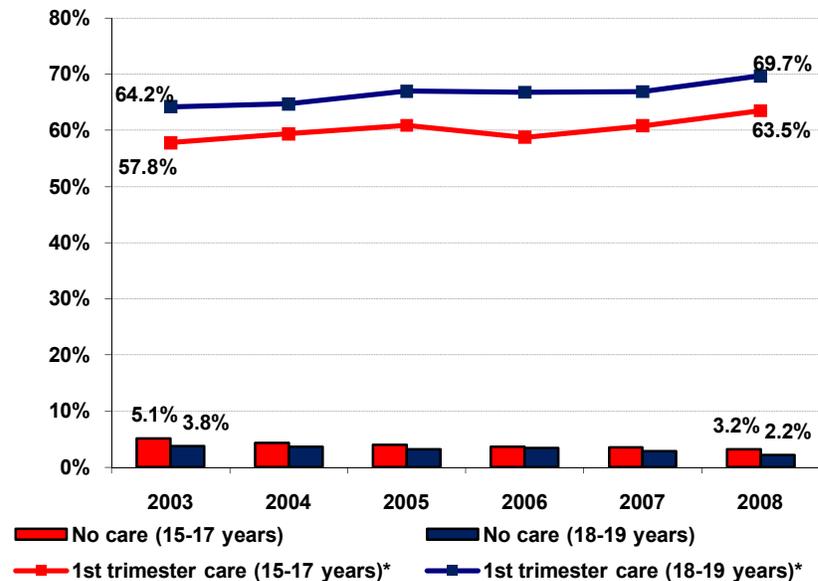
Figure 5. Birth Rate for Females Age 15-19 Years by Race and Ethnicity, Arizona 2003-2008



*significant difference in rates between Hispanic or Latina and all other race/ethnicities combined from 2003-2008 at $\alpha=0.05$ *

Source: Arizona Vital Statistics, 2003-2008

Figure 6. Percent of Births to Females Age 15-19 Years by Prenatal Care Initiation, Arizona 2003-2008



*significant difference between age groups from 2003-2008 at $\alpha=0.05$

Source: Arizona Vital Statistics, 2003-2008

¹⁴⁸ For more information about Community Health Analysis Areas, please see <http://www.azdhs.gov/phs/azchaa/>

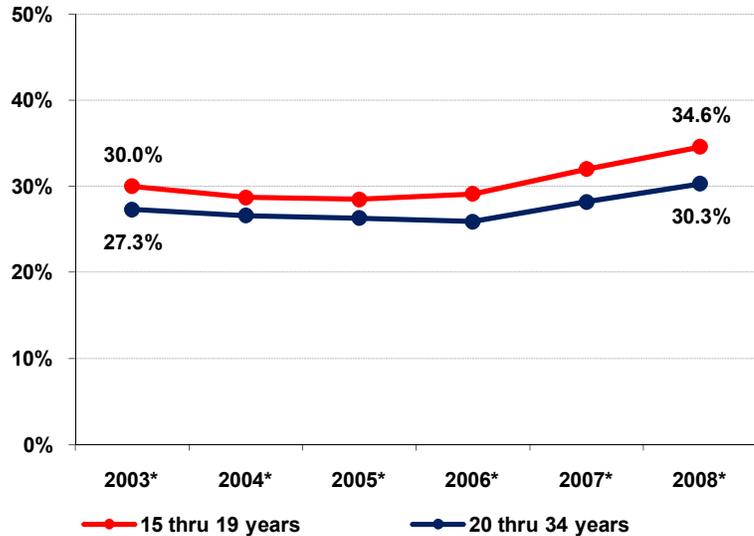
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entered prenatal care at first trimester compared with 81 percent of women 20 years and older. Early prenatal care is especially important for pregnant teens as they remained significantly more likely to have medical risk factors recorded on the birth certificate data (Figure 7) compared with women age 20-34 years from 2003-2008.¹⁴⁹

Teens may be less aware of the physiology of pregnancy and the healthy behaviors that are required to decrease negative birth outcomes, such as consuming vitamins with folic acid and appropriate weight gain during pregnancy. Early prenatal provides education and support for behavioral change that is especially important for women with greater risks of unhealthy pregnancies.

Figure 7. Mothers with Medical Risk Factors per 100 Live Births for Females Age 15-19 and Age 20-34 Years Arizona 2003-2008



* significant difference between age groups from 2003-2008 at $\alpha=0.05$
Source: Arizona Vital Statistics, 2003-2008

¹⁴⁹ Age is a confounding factor for medical risks during pregnancy for women 35 years and older. Therefore, the valid comparison involves women age 20-34 years.

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HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

RISK AND ANTI-SOCIAL BEHAVIORS THREATEN HEALTH OF ARIZONA'S YOUTH

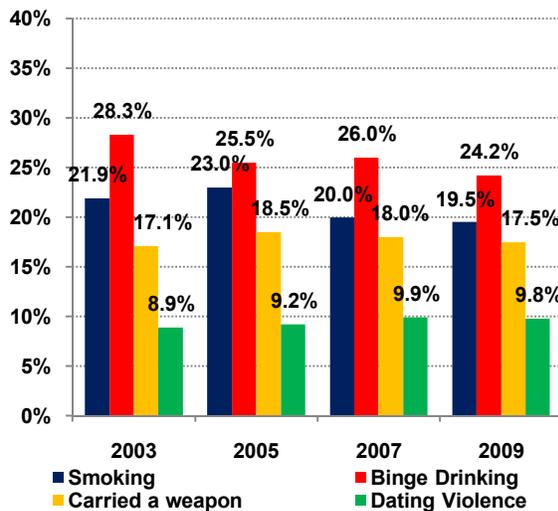
DESCRIPTION OF RISK AND ANTI-SOCIAL BEHAVIORS:

Adolescent risk and anti-social behaviors threaten the trajectory of health across the lifespan. From unprotected sexual intercourse to substance abuse to violence, adolescents engage in risk and anti-social behaviors because of changes in neurological development and socio-environmental influences. Gender, race/ethnicity, and relationships with family and peers act as modifying influences on adolescent behavior and offer points of intervention to assist youth that are at greater risk for negative behaviors.

WHY ARE RISK AND ANTI-SOCIAL BEHAVIORS PROBLEMS?

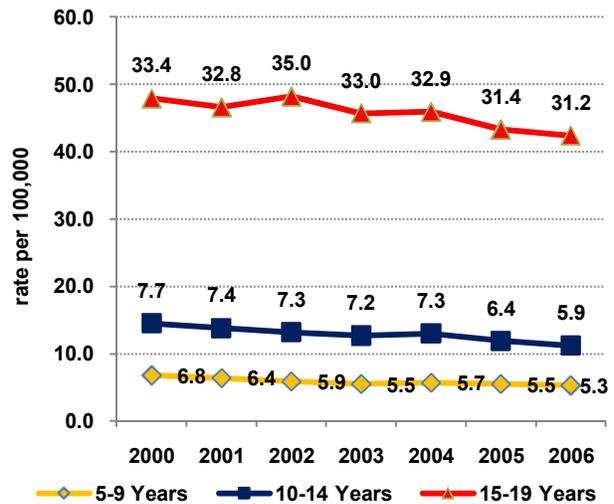
Adolescence is a time period when the risk for morbidity and mortality increases due to risk and anti-social behavior. Some risk and anti-social behaviors have remained persistent despite the best efforts of the public health and educational communities (see Figure 1). According to the Youth Risk Behavior Survey, in the past 30 days nearly one-in-five teens report smoking at least one cigarette, one-in-four report binge drinking alcohol, one-in-six report having carried a weapon, and one-in-ten report being a victim of physical dating violence. None of these indicators have declined significantly since 2003.¹⁵⁰ Mortality rates for unintentional injury (see Figure 2) and intentional injury during adolescence are approximately six and nine times greater respectively compared to younger children.¹⁵¹

Figure 1. Percent of High School Age Youth Reporting Specified Risk and Anti-Social Behaviors, United States 2003/2005/2007/2009



Source: Youth Risk Behavior Survey, 2003/2005/2007/2009

Figure 2. Unintentional Injury Mortality Rate per 100,000 Youth by Age Group United States 2000-2006



Source: CDC Wonder, 2000-2006

¹⁵⁰ Centers for Disease Control and Prevention, Youth Online: High School YRBS, 2010 [accessed June 22, 2010]. Retrieved from: <http://apps.nccd.cdc.gov/youthonline/App/Default.aspx?SID=HS>

¹⁵¹ Centers for Disease Control and Prevention, CDC WONDER, 2010 [accessed June 14, 2010] Retrieved from: <http://wonder.cdc.gov/>

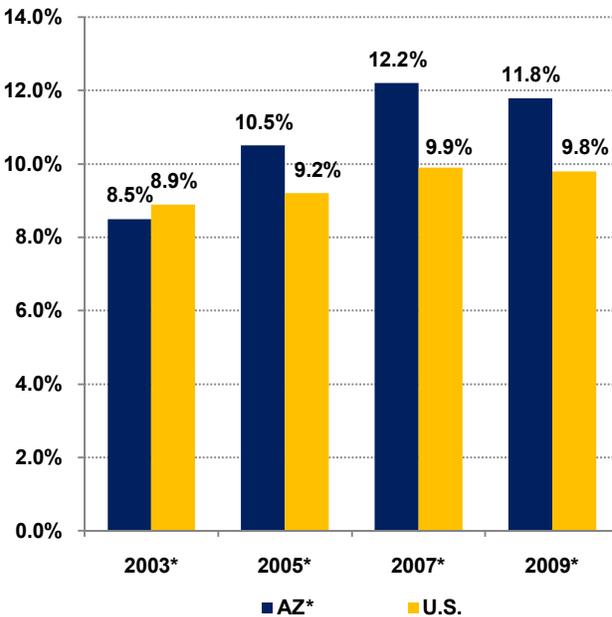
7. CHILDREN AND ADOLESCENTS

HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

HOW IS ARIZONA DOING?

According to the Youth Risk Behavior Survey (YRBS), Arizona high school students generally assume more risky and anti-social behaviors than their peers across the nation. Figure 3 shows that youth residing in Arizona were significantly more likely to engage in binge drinking,¹⁵² although the proportion of students in Arizona reporting this behavior declined significantly from 34.8 percent in 2003 to 27.4 percent in 2009. Male teens were more likely to report binge drinking than females; however, the difference was not significant in any reporting year.

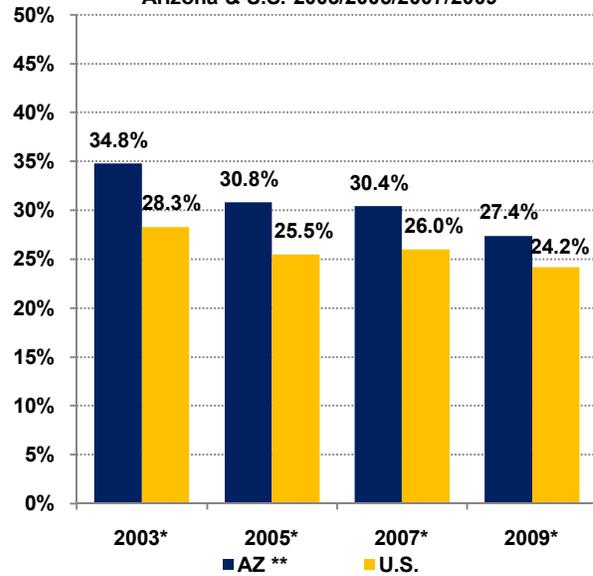
Figure 4. Percent of High School Students Reporting Physical Abuse from Dating Partner in Past Year, Arizona & U.S. 2003/2005/2007/2009



*significant difference in Arizona between 2003 and 2009 at $\alpha=0.05$

Source: Arizona Youth Risk Behavior Survey, 2003,2005,2007,2009

Figure 3. Percent of High School Students Reporting Binge Drinking in Past Month Arizona & U.S. 2003/2005/2007/2009



*significant difference between AZ and U.S. at $\alpha=0.05$

**significant difference in AZ between 2003 and 2009 at $\alpha=0.05$

Source: Youth Risk Behavior Survey, 2003,2005,2007,2009

Figure 4 compares Arizona and the US on reported dating violence among adolescents. It is evident that self-reported dating violence among adolescents increased faster in Arizona than in the U.S. between 2003 and 2009. Approximately one out of every eight high school students in Arizona reported experiencing physical abuse from a dating partner during the past year. While the differences in Arizona and the US was significant for all adolescents reporting dating violence, it is important to note that there were no significant gender differences in dating violence in Arizona in any reporting year.

¹⁵² Five or more drinks of alcohol in a row within a couple of hours on at least 1 day during the past month

7. CHILDREN AND ADOLESCENTS

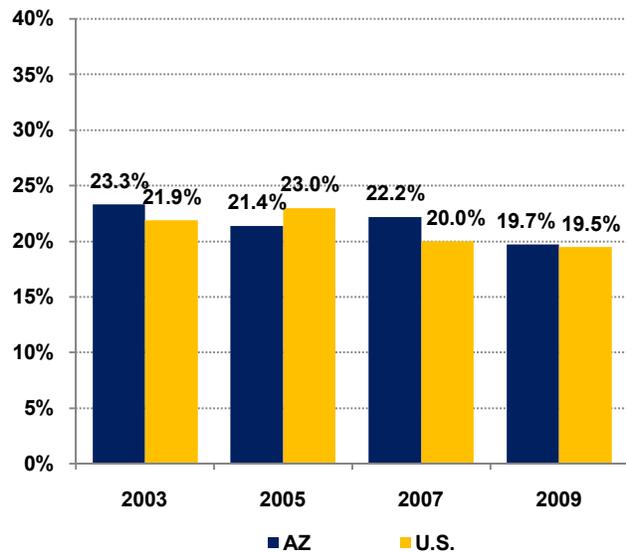
HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

The percentage of high school students who reported smoking cigarettes declined from 2003-2009 (see Figure 5). The reduction in Arizona occurred only among females with 23.9 percent reporting smoking in 2003 and 17.3 percent in 2009.¹⁵³ The percentage of male students who smoked remained unchanged during the time period. Non-Hispanic White males and females were equally likely to be current smokers, while Hispanic or Latino males were significantly more likely to smoke than Hispanic or Latina females.¹⁵⁴

Adolescents who carry weapons include those intending to commit an act of violence and those feeling threatened by their school/social environment. Approximately one-in-five high school students in Arizona reported carrying a weapon anywhere during the past month (see Figure 6). Male adolescents were nearly three times as likely to carry a weapon as females.

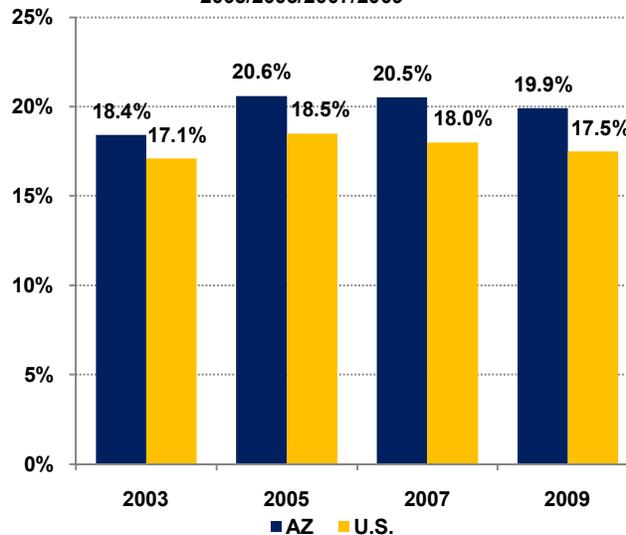
Arizona Revised Statute §41-2416 requires the Arizona Criminal Justice Commission (ACJC) to conduct a statewide survey that is designed to measure the prevalence and frequency of substance abuse by youth, as well as their attitudes toward substance abuse. The Arizona Youth Survey (AYS) conducted by ACJC measures self-reported risk and delinquent behavior at the 8th, 10th, and 12th grades in public schools using a risk and protective framework. Because of its large sample size (n=54,734) data are robust for

Figure 5. Percent of High School Students Who Smoked Cigarettes in Past Month Arizona & U.S. 2003/2005/2007/2009



Source: Youth Risk Behavior Survey, 2003,2005,2007,2009

Figure 6. Percent of High School Students Reporting Having Carried a Weapon in Past Month, Arizona & U.S. 2003/2005/2007/2009



Source: Youth Risk Behavior Survey, 2003,2005,2007,2009

¹⁵³ Arizona Criminal Justice Commission, Arizona Youth Survey State Report, 2008 [accessed June 15, 2010]. Retrieved from:

http://www.azcjc.gov/ACJC.Web/sac/AYSReports/2008/Arizona_2008_Report_Draft_122908_final.pdf

¹⁵⁴ Ibid.

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measuring incidence of less frequently reported risk and anti-social behaviors.¹⁵⁵ Table 1 outlines different risk domains of Arizona youth.

TABLE 1: Behavior Reported by Students in Past 12 Months Arizona Youth Survey, 2004/2006/2008									
Substance Abuse	Grade 8 2004	Grade 8 2006	Grade 8 2008	Grade 10 2004	Grade 10 2006	Grade 10 2008	Grade 12 2004	Grade 12 2006	Grade 12 2008
Marijuana	9.7%	8.5%	7.6%	16.2%	15.7%	15.1%	18.5%	18.1%	18.7%
Inhalants	5.8%	6.2%	5.4%	2.9%	3.1%	3.0%	1.4%	1.7%	1.6%
Methamphetamine	n/a	1.0%	0.4%	n/a	1.7%	0.6%	n/a	1.4%	0.8%
Prescription drugs	n/a	7.0%	8.6%	n/a	10.3%	12.2%	n/a	10.3%	13.1%
OTC drugs	n/a	n/a	5.6%	n/a	n/a	6.4%	n/a	n/a	5.9%
Antisocial behavior	Grade 8 2004	Grade 8 2006	Grade 8 2008	Grade 10 2004	Grade 10 2006	Grade 10 2008	Grade 12 2004	Grade 12 2006	Grade 12 2008
Drunk or high at school	13.2%	13.0%	12.0%	20.8%	21.1%	20.5%	22.2%	21.4%	22.2%
Attack someone w/idea of harm	17.8%	17.9%	18.1%	16.5%	16.5%	16.1%	13.3%	13.2%	12.9%
Carried a handgun	6.5%	7.6%	7.7%	5.9%	7.5%	7.2%	5.5%	7.0%	8.1%
Gambling	Grade 8 2004	Grade 8 2006	Grade 8 2008	Grade 10 2004	Grade 10 2006	Grade 10 2008	Grade 12 2004	Grade 12 2006	Grade 12 2008
Any gambling	n/a	54.2%	69.1%	n/a	51.8%	65.9%	n/a	46.3	60.6%
Bet on sports	n/a	n/a	31.8%	n/a	n/a	30.2%	n/a	n/a	25.6%
Bet on game of personal skill	n/a	20.8%	32.7%	n/a	21.4%	31.3%	n/a	18.5%	27.0%
Played lottery	n/a	26.3%	24.8%	n/a	22.3%	21.8%	n/a	17.9%	19.0%

Source: Arizona Youth Survey, 2004/2006/2008

According to Table 1 use of drugs increased with age except for inhalants which were used more often by 8th grade students than older students. Of particular concern was the increased reported use of prescription drugs among all students. Within the %anti-social+domain, 20 percent of 10th and 12th grade students reported being drunk or high at school least one time during the past 12 months. During the past month approximately 30 percent of *all students* reported riding in a car with someone who had been drinking alcohol.¹⁵⁶ The percentage of students who reported attacking another person with the intent to harm decreased with age from 18 percent in 8th grade to 13 percent in 12th grade (see Table 1). However, reported handgun possession increased among all grades from 2004 to 2008. Nearly one-in-twelve students carried a handgun

¹⁵⁵ Arizona Criminal Justice Commission, Arizona Youth Survey State Report, 2008 [accessed June 15, 2010]. Retrieved from:

http://www.azcjc.gov/ACJC.Web/sac/AYSReports/2008/Arizona_2008_Report_Draft_122908_final.pdf

¹⁵⁶ Ibid.

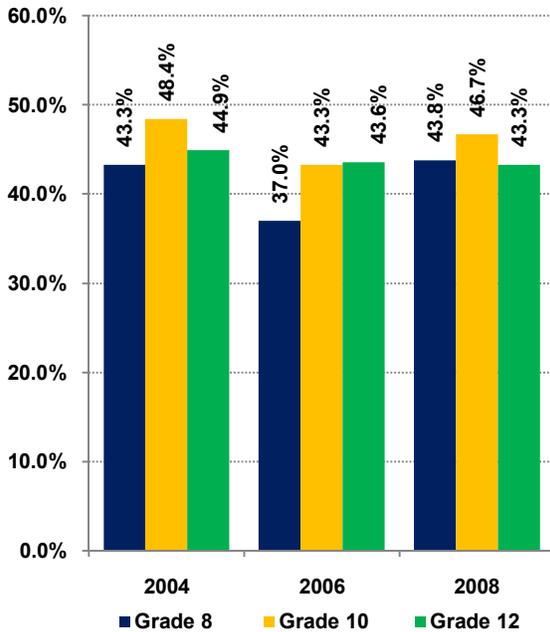
7. CHILDREN AND ADOLESCENTS

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during the past year. Gambling is one of the most prevalent anti-social behaviors exhibited by adolescent youth. Table 1 show that gambling has increased to more than 60 percent of all students during the past two AYS reporting periods.

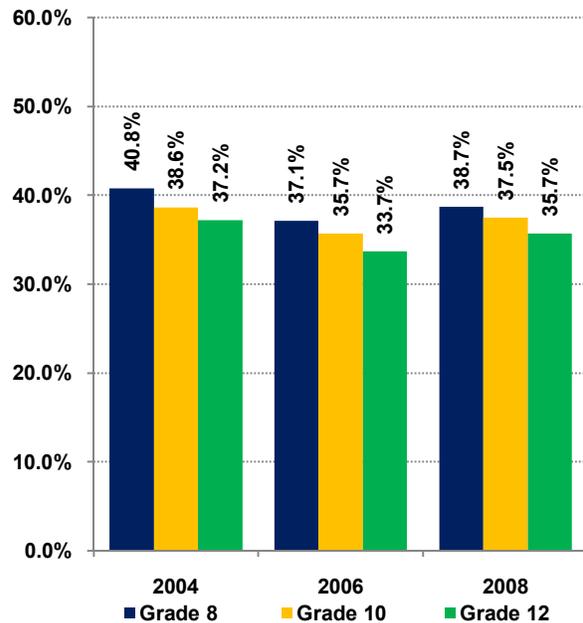
The AYS uses risk and anti-social domains to classify students by risk level. Students with more than a specified number of risk factors across four domains; community, family, school, and peer-individual are classified as %high risk %¹⁵⁷ Students with five or more protective factors across those domains are considered students with %high protection.¹⁵⁸ No significant trend was noted for either classification during the 2004-2008 reporting period (Figures 7 and 8). Approximately 45 percent of adolescent students were at %high protection+and 37 percent were at %high risk+. Younger students were slightly more likely to be at %high risk+compared to older students.

Figure 7. Percent of Adolescents with High Protective Factors, Arizona 2004/2006/2008



Source: Arizona Youth Survey, 2004,2006,2008

Figure 8. Percent of Adolescents at High Risk Arizona 2004/2006/2008



Source: Arizona Youth Survey, 2004,2006,2008

Students attending tribal schools in Arizona assume a greater risk profile compared to students in other public schools. In 2008, the Arizona Criminal Justice Commission examined the crime and delinquency data on Arizona's federally recognized tribes.¹⁵⁹ Youth attending school on tribal lands engaged in the same types of drug taking behavior as youth statewide, but at higher levels (see Figure 9). The greatest disparity

¹⁵⁷ Arizona Criminal Justice Commission, Arizona Youth Survey State Report, 2008 [accessed June 15, 2010]. Retrieved from:

http://www.azcjc.gov/ACJC.Web/sac/AYSReports/2008/Arizona_2008_Report_Draft_122908_final.pdf

¹⁵⁸ Ibid.

¹⁵⁹ Arizona Criminal Justice Commission, Tribal Crime Data Arizona Tribes, 2009 [accessed June 16, 2010].

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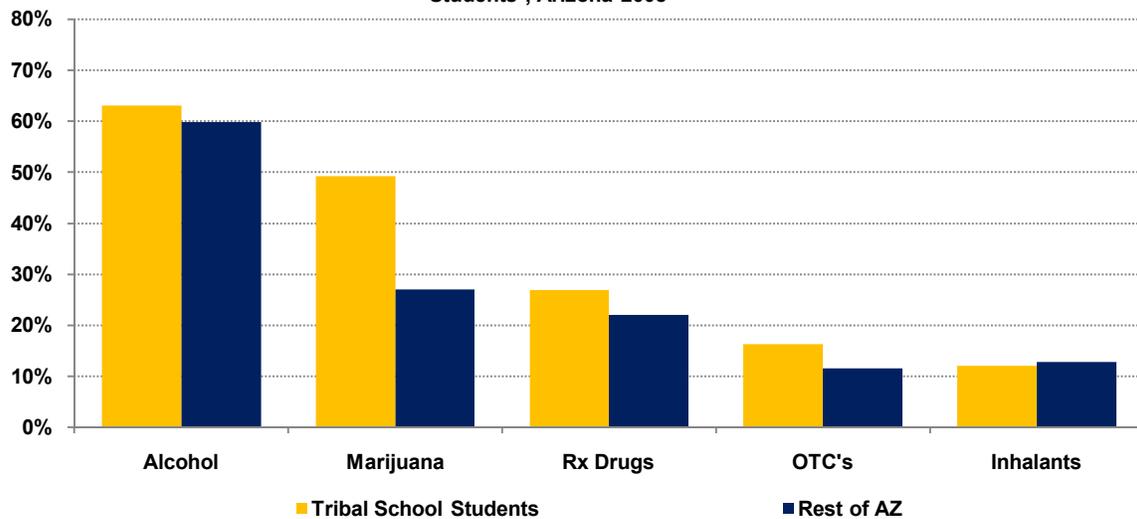
http://www.azcjc.gov/ACJC.Web/Pubs/Home/Tribal%20Crime%20Data%20Brief_ArizonaTribes_finaldraft.pdf

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HEALTH DETERMINATES, RISK, AND PROTECTIVE FACTORS

was the percentage of tribal youth (49.3%) reporting lifetime use of marijuana compared to youth statewide (27.1%).

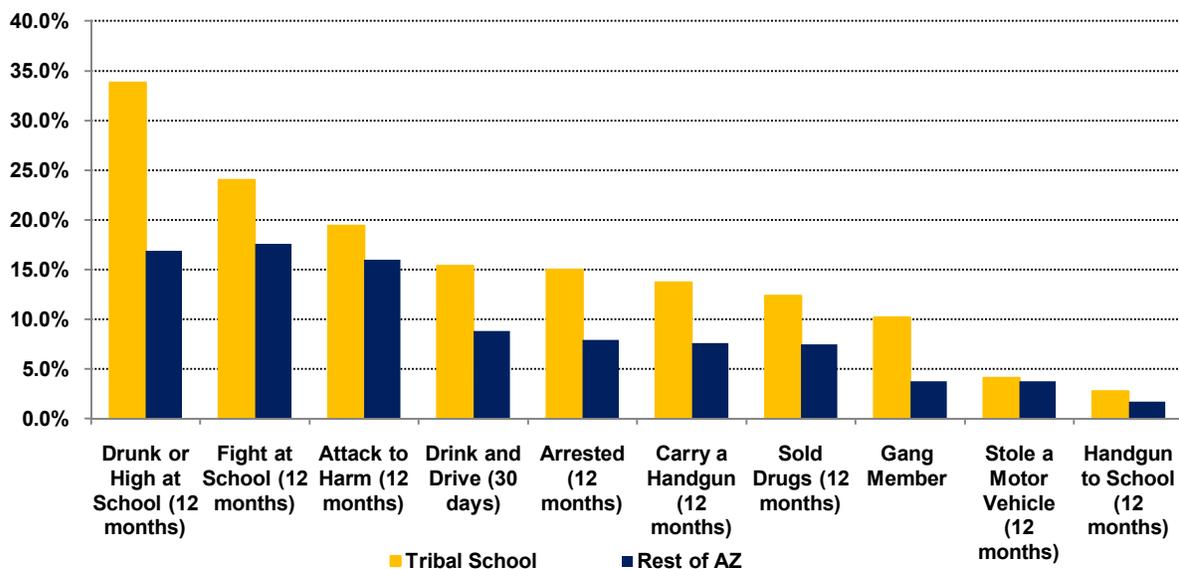
Figure 9. Percent of Lifetime Substance Use Reported Among 8th, 10th, & 12th Grade Students , Arizona 2008



Source: Arizona Youth Survey, 2008

A similar pattern was found for measures of other anti-social behavior (see Figure 10). A greater percentage of tribal youth engaged in these delinquency and anti-social behaviors than youth statewide.

Figure 10. Delinquency and Anti-Social Behavior Arizona 2008



Source: Arizona Youth Survey, 2008

8. WOMEN OF REPRODUCTIVE AGE

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OVERALL INJURY ON DECLINE BUT VIOLENCE AGAINST WOMEN PERSASIVE

DESCRIPTION OF INJURY AND VIOLENCE AGAINST WOMEN

Injury is a serious public health problem impacting the health of all women. Injuries may result from unintentional (e.g. motor vehicle crash and poisoning) or intentional events (e.g. homicide and suicide), and cause temporary or permanent physical and/or mental distress. Prevalence of intentional injury caused by is difficult to estimate with precision due to incomplete data. Nonetheless, intentional injury caused by physical, sexual, and/or psychological violence is believed to be far more prevalent than revealed by crime statistics and population surveys and females assume greater risk for physical, sexual, and psychological assault especially within intimate partner relationships.¹⁶⁰

WHY ARE INJURY AND VIOLENCE PROBLEMS FOR WOMEN?

Women assume significantly lower rates of mortality from unintentional injury caused by motor vehicle accidents and intentional injury caused by suicide and homicide than males in the United States.¹⁶¹ However, injury, especially those caused by intentional violence, is believed to contribute to a weathering effect on the health of women and place women at risk for negative birth outcomes such as stillbirth, low infant birth weight, and infant and maternal mortality.^{162,163,164} Women who experience intentional violence at an early age are more likely to experience assault throughout adulthood. For instance, according to the seminal Violence Against Women Survey [2000], *“Of the 17.6 percent of all women surveyed who said they had been the victim of a completed or attempted rape at some time in their life, 21.6 percent were younger than age 12 when they were first raped, and 32.4 percent were ages 12 to 1...Women who reported they were raped before age 18 were twice as likely to report being raped as an adult.”*¹⁶⁵

Intimate partners were responsible for 3% of all violence against males and 23% of all violence against women in the U.S. in 2008.¹⁶⁶ Victims knew the offenders in about 5 in 10 violent crimes against men and 7 in 10 violent crimes against women.¹⁶⁷ In the first rape experience of female victims, perpetrators were reported to be intimate partners (30.4%), family members (23.7%), and acquaintances (20%).¹⁶⁸ In 2008, females in the

¹⁶⁰ U.S. Department of Justice, Extent, Nature, and Consequences of Intimate Partner Violence, 2000 [accessed May 27, 2010]. Retrieved from: <http://www.ncjrs.gov/pdffiles1/nij/181867.pdf>

¹⁶¹ Centers for Disease Control and Prevention, Injury Prevention & Control: Data & Statistics (WISQARS), 2010 [accessed May 26, 2010]. Retrieved from: <http://www.cdc.gov/injury/wisqars/index.html>

¹⁶² Campbell, J. et al. (2002). Health consequences of intimate partner violence. *The Lancet*, 359(9314), 1331-1336.

¹⁶³ Gazmararian, J.A. et al. (1996). Prevalence of violence against pregnant women. *Journal of the American Medical Association*, 275(24), 1915-1920.

¹⁶⁴ Murphy, C. et al. Abuse: a risk factor for low birth weight? (2001). A systemic review and meta-analysis. *Canadian Medical Association Journal*, 164(11), 1567-1572.

¹⁶⁵ U.S. Department of Justice, Full Report of the Prevalence, Incidence, and Consequences of Violence Against Women, 2000 [accessed May 27, 2010]. Retrieved from: <http://www.ncjrs.gov/pdffiles1/nij/183781.pdf>

¹⁶⁶ U.S. Department of Justice, Criminal Victimization in the United States, 2008 [accessed June 1, 2010]. Retrieved from: <http://bjs.ojp.usdoj.gov/index.cfm?ty=pbdetail&iid=1743>

¹⁶⁷ Centers for Disease Control and Prevention, Sexual Violence: Facts at a Glance, 2008 [accessed June 1, 2010]. Retrieve from: <http://www.cdc.gov/ViolencePrevention/pdf/SV-DataSheet-a.pdf>

¹⁶⁸ U.S. Department of Justice, Female Victims of Violence, 2009 [accessed June 2, 2010]. Retrieved from: <http://bjs.ojp.usdoj.gov/content/pub/pdf/fvv.pdf>

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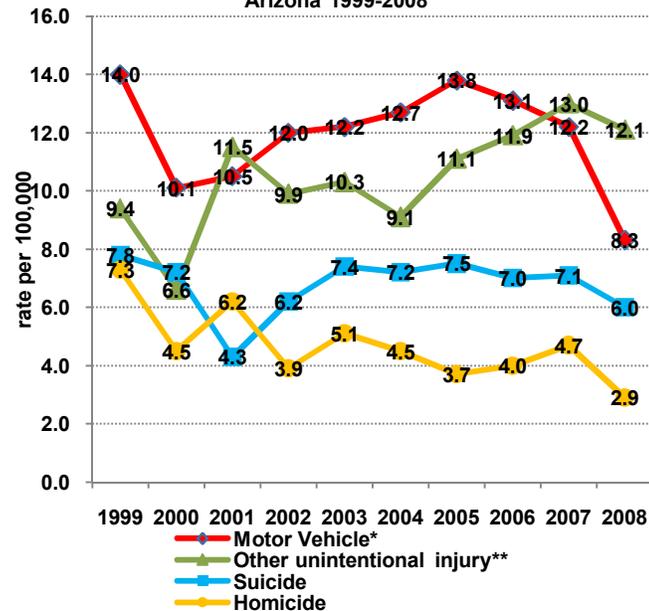
U.S. aged 12 or older, experienced approximately 552,000 nonfatal violent victimizations (rape/sexual assault, robbery, or aggravated or simple assault) by an intimate partner (current or former spouse, boyfriend, or girlfriend).¹⁶⁹ Greater rates of victimization are found among non-White populations. American Indian/Alaska Native women were significantly more likely than white women or African-American women to report they were raped. American Indian women were also significantly more likely than white women or African-American women to report they were stalked.¹⁷⁰

HOW IS ARIZONA DOING?

As with other populations in Arizona, mortality from motor vehicle crash declined significantly for women age 20-44 years from 14.0 per 100,000 in 1999 to 8.8 per 100,000 in 2008 (see Figure 1). An unprecedented decrease was witnessed from 2007 (12.2 per 100,000) to 2008 (8.8 per 100,000), likely influenced by the effects of the economic recession and higher gas prices in Arizona. Mortality from other unintentional injury increased for this age cohort from 1999 (9.4 per 100,000) to 2008 (12.1 per 100,000). A significant increase in unintentional poisoning from 6.3 per 100,000 in 2004 to 10.2 per 100,000 in 2008 accounted for much of the increase in unintentional injury related mortality in recent years. Intentional injury-related mortality, as measured by suicide and homicide, also declined during the past decade for women of reproductive age. The rate of suicide decreased, albeit insignificantly, from 7.8 to 6.0 per 100,000. The suicide rate for this cohort of women in Arizona was slightly greater than for their peers nationally (5.4 per 100,000).¹⁷¹ The homicide rate in Arizona declined significantly from 7.3 to 2.9 per 100,000 women age 20-44 years. The 2008 homicide rate for 20-44 year old women in Arizona was lower than the U.S. rate of 3.7.

Similar to younger populations, women age 20-44 years living in rural counties were more at-risk for early mortality than peers living in urban counties (see Figure 2). Motor vehicle accidents accounted for most of the disparity in female mortality by residence.

Figure 1. Mortality Rates for Injury Related Causes of Death Among Women Age 20-44 Years Arizona 1999-2008



*significant difference between 1999 and 2008 rates at $p=0.05$
 **significant difference between 1999 and 2008 rates at $p=0.05$

¹⁶⁹ Arizona Sexual Violence Prevention Program, Statistics: Arizona Crime Clock, (2010). [accessed June 3, 2010]. Retrieved from: <http://azrapeprevention.org/statistics>

¹⁷⁰ U.S. Department of Justice, Full Report of the Prevalence, Incidence, and Consequences of Violence Against Women, 2000 [accessed May 27, 2010]. Available at: <http://www.ncjrs.gov/pdffiles1/nij/183781.pdf>

¹⁷¹ CDC Wonder 2006 data. Retrieved from: <http://wonder.cdc.gov/Welcome.html>

8. WOMEN OF REPRODUCTIVE AGE

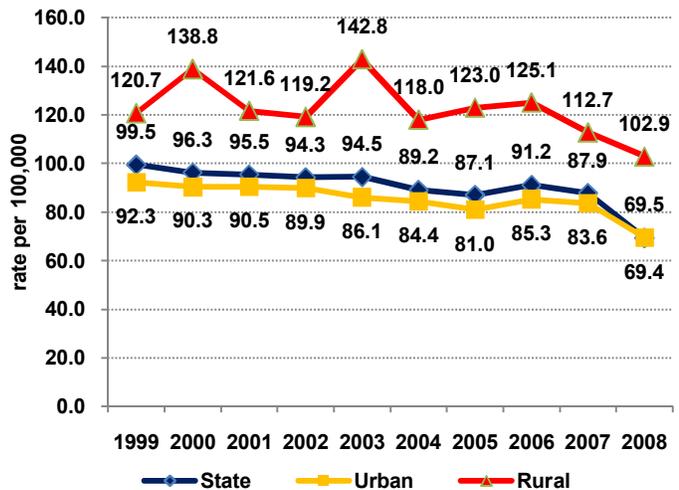
HEALTH STATUS AND WELL-BEING

Although death is the most serious risk of injury caused by domestic and intimate partner violence, the vast majority of cases do not result in mortality. Nevertheless, data measuring non-fatal assault by intimate partner at the state level are likely underestimated due to underreporting by victims, physicians and law enforcement. Victim reluctance is cited in at least 50 percent of cases that are dropped by prosecutors in Arizona. Estimates of domestic violence will change as the legal case definition of domestic violence in Arizona changed in 2009 with the addition of victims involved in a romantic or sexual relationship to those related by blood, marriage or household residency. The Arizona Department of Economic Security reported 22,358 domestic violence hotline calls were received during fiscal year 2009. In addition, domestic violence was raised as a critical issue during three of the Title V input sessions conducted in Arizona in April 2010.

Figure 3 displays sexual assault arrests, sexual assault counts, and sexual assault convictions from 2004 to 2008. According to data from the Arizona Criminal Justice Commission (2008), the total count of arrests, counts, and convictions for sexual assault has declined in Arizona since 2004 (see Figure 3). However, it is to be noted that these data are

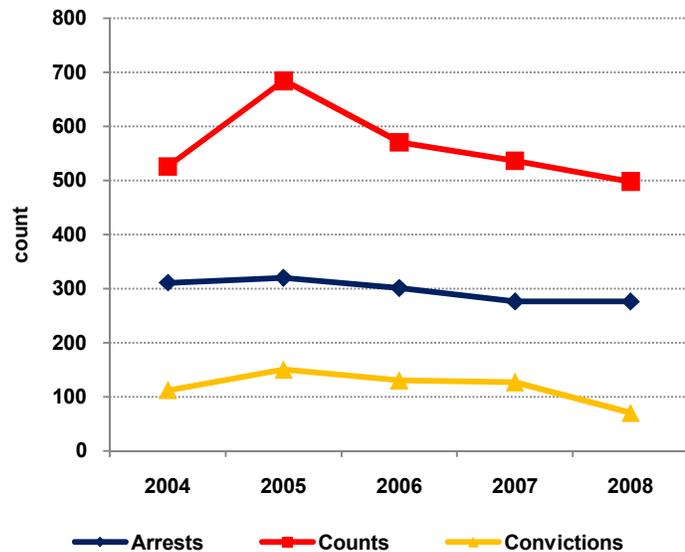
underreported and are therefore underestimated as are the FBI Uniform Crime Report Statistics. This decrease is mirrored by a decline in the rate of forcible rape against females of all ages from 33.0 in 2004 to 25.7 per 100,000 in 2008 (see Figure 4), bringing the rate in Arizona below the national rate. Nevertheless the Arizona

Figure 2. Mortality Rate for Leading Causes of Death Among Women Age 20-44 Years by Urban and Rural Residence, Arizona 1999-2008



*significant difference between 1999 and 2008 rates at $\alpha=0.05$
 Source: Arizona Vital Statistics, 1999-2008

Figure 3. Count of Sexual Assault Arrests, Counts, and Convictions, Arizona 2004-2008



Source: Arizona Criminal Justice Commission, 2008

8. WOMEN OF REPRODUCTIVE AGE

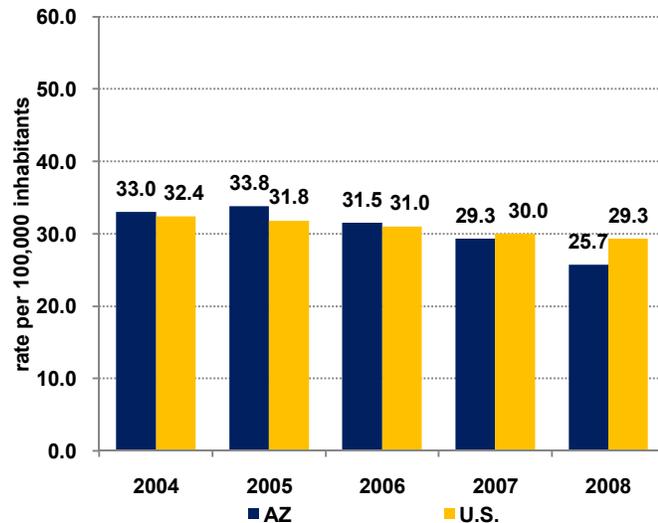
HEALTH STATUS AND WELL-BEING

Department of Public Safety estimates that a forcible rape occurs every 4.5 hours in Arizona.¹⁷²

National data indicate that American Indian women are more likely to report lifetime. The hidden burden of sexual assault may be especially high in Arizona as American Indian females made up a greater proportion of Arizona's female population in 2008 (5.4 percent) than nationally (0.8 percent). The available data are based on criminal report rather than true incidence; therefore, the declining reporting trends may or may not be indicative of the incidence of forcible rape in Arizona.

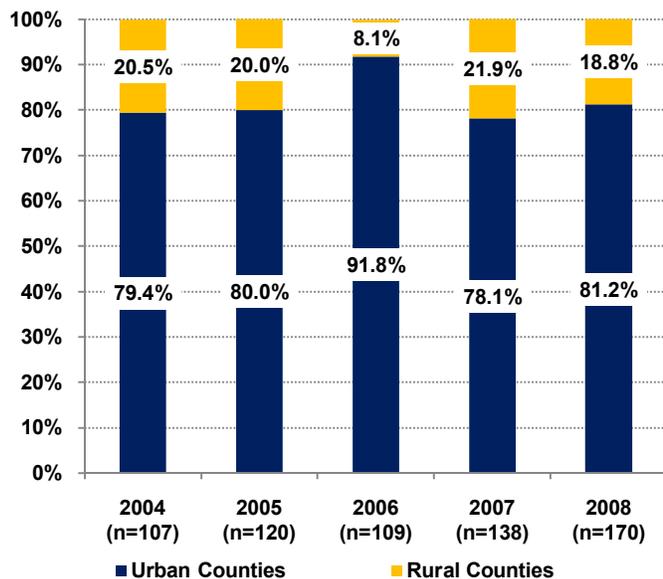
Figure 5 shows the breakdown of hospitalizations and emergency room visits from sexual assault-related injuries by victim residence. Although the total counts by year are likely gross underestimates of incidence, the ratio of sexual assault injuries to rural compared to urban residents remained one-to-five with the exception of 2006 when rural residents were underrepresented in the data. The hospital charges for all inpatient was \$766,000 dollars and emergency department visits was \$888,000 dollars for sexual violence and this totaled to \$1.7 million.¹¹ It is important to note that medical costs captured by hospital discharge data represent a fraction of the true long term expense of sexual assault as utilization of social services for mental health care, and economic and housing support are not captured in data related to sexual assault and intimate partner violence.

Figure 4. Rate of Forcible Rape Against Females of All Ages, Arizona & U.S. 2004-2008



Source: FBI UCR, 2004-2008

Figure 5. Percent of Total Non-fatal Hospitalizations and Emergency Room Visits Resulting from Injuries due to Sexual Violence by Victim Residence, Arizona 2004-2008



Source: Arizona Hospital Discharge Data, 2004-2008

¹⁷² Arizona Sexual Violence Prevention Program, Statistics: Arizona Crime Clock,(2010). [accessed June 3, 2010]. Retrieved from: <http://azrapeprevention.org/statistics>

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HEALTH STATUS AND WELL-BEING

MENTAL HEALTH STATUS PLACES WOMEN AT RISK FOR NEGATIVE HEALTH OUTCOMES

DESCRIPTION OF MENTAL HEALTH

Mental health disorders are the most common threat to the health of adult women and men. It is estimated that more than one-in-four adults suffer from a diagnosable mental disorder annually.¹⁷³ Depression is the leading cause of disability in the United States for individuals ages 15 to 44.¹⁷⁴ Lost productive time among U.S. workers due to depression is estimated to be in excess of \$31 billion per year.¹⁷⁵ Depression is associated with co-morbidities such as heart disease, cancer, and chronic pain.^{176,177,178}

Approximately 30,000 Americans commit suicide, while hundreds of thousands make suicide attempts. In 2006, suicide was the 12th leading cause of death for women in the United States, and the sixth leading cause of years of life lost per 100,000 women under 75 years of age (145.7 years).¹⁷⁹ From mood disorders such as bipolar disorder to eating disorders such as bulimia nervosa, mental health affects the general and reproductive health of women. Unlike most contagious and chronic diseases, estimating the incidence and prevalence of mental health disorders among adult females is challenging because of unmet need for treatment and perceived social stigma of adult mental health illness.

WHY IS MENTAL HEALTH IMPORTANT FOR WOMEN OF REPRODUCTIVE AGE?

Long term mental illness can have a ~~weathering~~ affect on the reproductive health of women. Mental disorders that begin in childhood and remain ineffectually treated can increase behaviors, such as smoking and alcohol use that are associated with increased risk for stillbirth, preterm birth, and maternal mortality. As is the case with intimate partner violence, mental health disorders interact and magnify other negative behaviors and health outcomes.

¹⁷³ Kessler, R.C., Chiu, W.T., Demler O. Walters, E.E. (2005). Prevalence, severity, and comorbidity of twelve-month DSM-IV disorders in the National Comorbidity Survey Replication (NCS-R). *Archives of General Psychiatry*, 62(6), 617-27.

¹⁷⁴ Mental Health America. (2007). Ranking America's Mental Health: An Analysis of Depression Across the States. Mental Health America [accessed June 1, 2010]. Retrieved from: <http://www.nmha.org/go/state-ranking>.

¹⁷⁵ Stewart, W.F., Ricci, J.A., Chee, E., Hahn, S.R., & Morganstein, D. (2003). Cost of lost productive work time among US workers with depression. *Journal of the American Medical Association*, 289(23), 3135-44.

¹⁷⁶ Blumenthal J.A., Sherwood, A., Rogers, S.D., Babyak M.A., Murali Doraiswamy, P., Watkins, L., Hoffman, B.M., O'Connell, C., Johnson, J.J., Patidar, S.M., Waugh, R., & Hinderliter, A. (2007). Understanding prognostic benefits of exercise and antidepressant therapy for persons with depression and heart disease: the UPBEAT study rationale, design, and methodological issues. *Clinical Trials*, 4(5), 548-59.

¹⁷⁷ Moussavi, S., Chatterji, S., Verdes, E., Tandon, A., Pate, I.V., & Ustun, B. (2007). Depression, chronic diseases, and decrements in health: results from the World Health Surveys. *Lancet*. Sep 8;370(9590):851-8.

¹⁷⁸ Munce, S.E., Stansfeld, S.A., Blackmore, E.R., & Stewart, D.E. (2007). The Role of Depression and Chronic Pain Conditions in Absenteeism: Results From a National Epidemiologic Survey. *Journal of Occupational and Environmental Medicine*, 49(11), 1206-1211.

¹⁷⁹ Centers for Disease Control and Prevention. (2010). Health United States, 2009 [accessed June 3, 2010]. Retrieved from: <http://www.cdc.gov/nchs/hs.htm>.

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HEALTH STATUS AND WELL-BEING

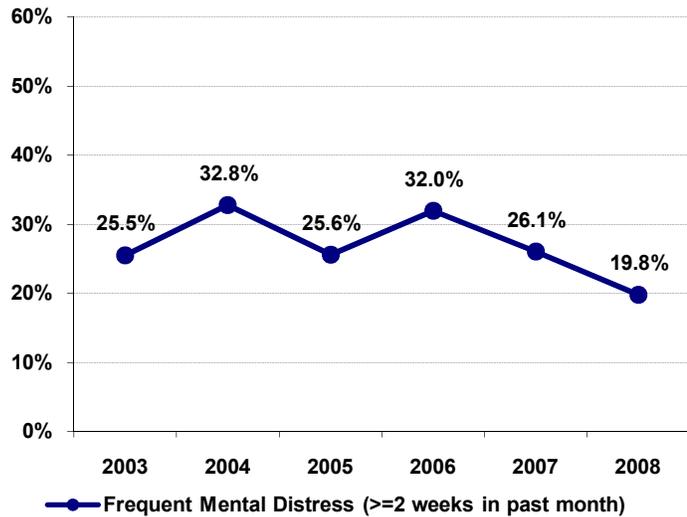
HOW IS ARIZONA DOING?

The prevalence of self-reported frequent mental distress¹⁸⁰ among women of reproductive age declined in Arizona from 2003-2008 (see Figure 1). This trend is associated with a decline in suicide for this age cohort from 7.1 per 100,000 in 2007 to 6.0 per 100,000 in 2008. Nevertheless, nearly one-in-five women age 18-44 years had problems dealing with depression, stress, and/or emotions during the past month.

Frequent mental distress does not affect women equally by race and ethnicity or by geography. From 2003-2008, Non-white or Hispanic women of reproductive age were more likely to suffer from frequent mental distress than White non-Hispanic women (Figure 2). Although the difference remained insignificant due to small sample size of non-White participants within the BRFSS, from 2006-2008 the disparity widened as frequent mental distress declined nearly 50 percent within White non-Hispanic women age 18-44 years.

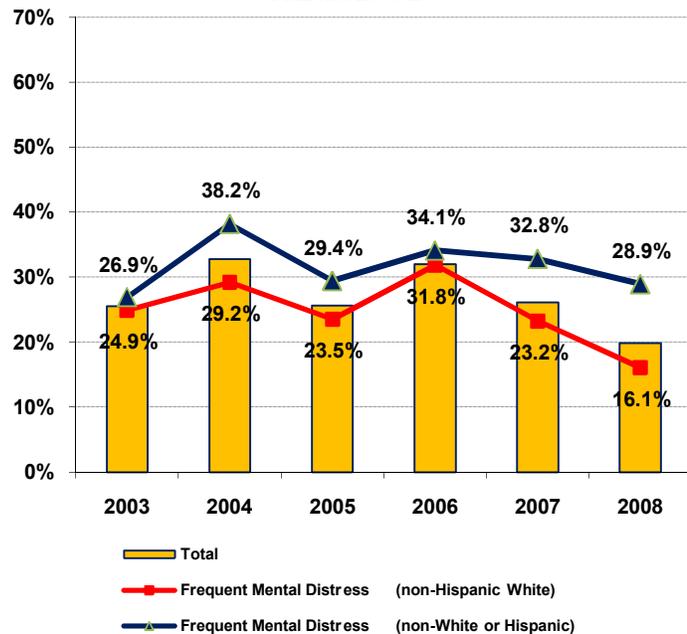
Research suggests that depression is more prevalent in rural areas than urban areas and there are also barriers to accessing mental health, which include the overburdened primary health care system, poverty, inadequate funding for mental health services, lack of mental health providers, transportation, geographic isolation, stigma, and concerns about confidentiality.¹⁸¹ While the trends of reported mental distress by residence are heading

Figure 1. Frequent Mental Distress for Women Age 18-44 Years, Arizona 2000-2008



Source: Arizona BRFSS, 2003-2008

Figure 2. Frequent Mental Distress for Women Age 18-44 Years by Race/Ethnicity Arizona 2003-2008



Source: Arizona BRFSS, 2003-2008

¹⁸⁰ Frequent mental distress is recognized as a health-related quality of life indicator by the Centers for Disease Control and Prevention (<http://www.cdc.gov/hrqol/index.htm>)

¹⁸¹ Probst, J., Laditka, S., Moore, C., Harun, N., Powell, M., & Baxley, E. (2006). Rural-urban differences in depression prevalence: Implications for family medicine. *Family Medicine*, 38(9), 653-660.

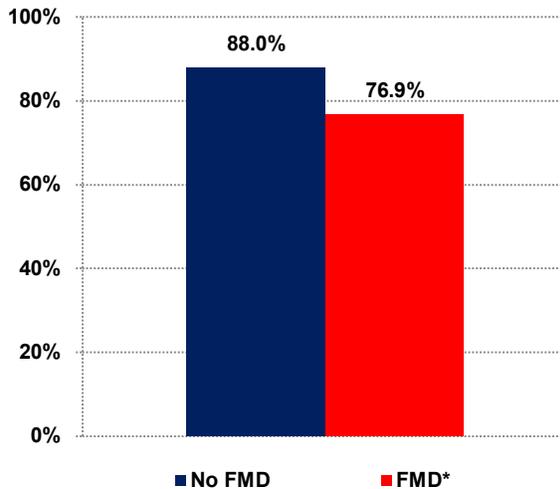
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lower, the data show that women in urban areas were less likely to suffer from frequent mental distress in five of the past six years (Figure 3). Frequent mental distress is associated with negative health outcomes among women of reproductive age in Arizona.

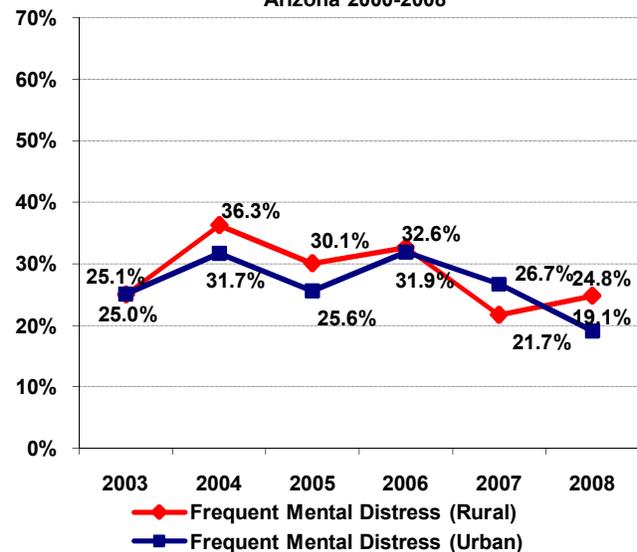
Figure 4 shows a significant disparity between women with frequent mental distress who rated their overall health as **Excellent or Good+** compared to women without mental distress who rated their health as **Excellent or Good+**. This perception is supported the inequitable distribution of negative health outcomes and risk behaviors.

Figure 4. "Excellent or Good" Health Status Among Females Age 18-44 Years by Presence of Frequent Mental Distress (FMD), Arizona 2003-2008



*significant difference at $\alpha=0.05$
Source: Arizona BRFSS, 2003-2008

Figure 3. Frequent Mental Distress Women Age 18-44 Years by Rural and Urban Residence* Arizona 2000-2008

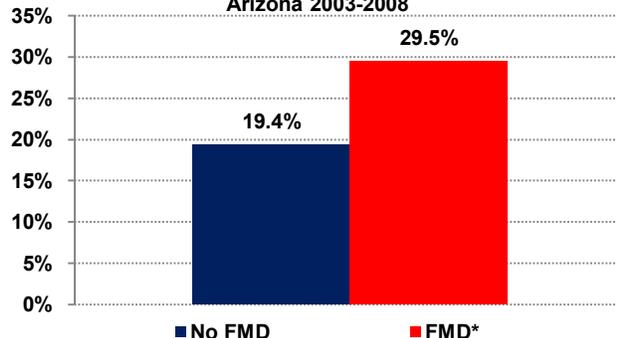


Source: Arizona BRFSS, 2003-2008

*urban counties are Maricopa, Pima, Pinal and Yuma. The remaining counties are considered rural.

There is some evidence to suggest that depression and obesity are related and the evidence of a **bidirectional link**¹⁸² between depression and obesity was also found in Arizona's BRFSS data. For instance, women with frequent mental distress were significantly more likely to be obese than women without frequent mental distress (see Figure 5).

Figure 5. Obesity Prevalence Among Females Age 18-44 Years With and Without Frequent Mental Distress (FMD), Arizona 2003-2008



*significant difference at $\alpha=0.05$
Source: Arizona BRFSS, 2003-2008

¹⁸² Luppino, F.S. et al. (2010). Overweight, Obesity, and Depression A Systematic Review and Meta-analysis of Longitudinal Studies. *Archives of General Psychiatry*, 67(3), 220-229.

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SEXUALLY TRANSMITTED DISEASES AND HIV ON THE DECLINE IN ARIZONA

DESCRIPTION OF SEXUAL HEALTH

According to the Centers for Disease Control and Prevention, *Sexual health* is a state of physical, emotional, mental and social wellbeing in relation to sexuality...¹⁸³ Population sexual health is strongly influenced by the incidence and prevalence of sexually transmitted disease (e.g. chlamydia) and HIV/AIDS among women of reproductive age. Similar to mental health disorders, stigma and lack of early identification of STDs mask the true incidence of STDs among women.

WHY ARE SEXUALLY TRANSMITTED DISEASES PROBLEMS?

As stated by the Arizona Office of HIV, STD, and Hep C Services, *Sexually transmitted diseases can cause significant health problems among those who become infected. For instance, untreated chlamydia and gonorrhea can lead to pelvic inflammatory disease (PID). PID can become recurrent among young women and girls, often leading to expensive health complications. Other young women may suffer ectopic pregnancies and chronic pelvic pain. Worse still, sexually transmitted diseases can lead to infertility.*¹⁸⁴

Early detection and treatment of STDs and HIV are vital for reducing transmission, alleviating symptoms, preserving reproductive and infant health, and lowering the rate of early mortality. Over one-million incident cases of chlamydia, gonorrhea, and syphilis were reported for women living in the U.S. and the District of Columbia in 2008.¹⁸⁵ The prevalence of Herpes Simplex Virus-2 (HSV-2) among women age 14-49 years is estimated at 20 percent, making HSV-2 one of the most prevalent diseases in the U.S.¹⁸⁶

While HIV transmission is more likely during male-to-male sexual contact, among females the predominant HIV transmission category is high-risk heterosexual contact with Black and Hispanic females assuming approximately 15 times and four times higher incidence rates than White non-Hispanic Females.¹⁸⁷

HOW IS ARIZONA DOING?

Surveillance of STDs in Arizona relies on mandatory reporting of positive cases by health care providers. Rates of STDs are likely underestimates of true incidence as a

¹⁸³ The Centers for Disease Control and Prevention, Sexual Health, 2010 [accessed May 20, 2010]. Retrieved from: <http://www.cdc.gov/sexualhealth/>

¹⁸⁴ The Arizona Office of HIC, STD, and Hepatitis Services, 2008 Annual Progress Report, 2008 [accessed May 15, 2010]. Retrieved from: <http://www.azdhs.gov/phs/oids/std/pdf/Arizona%20STD%20Annual%20Report%202008.pdf>

¹⁸⁵ The Centers for Disease Control and Prevention, CDC WONDER Sexually Transmitted Disease Morbidity, 1984-2008 Request, 2008 [accessed May 16, 2010]. Retrieved from: <http://wonder.cdc.gov/std-v2008.html>

¹⁸⁶ Xu, F. et al. (2010). Seroprevalence of Herpes Simplex Virus Type 2 Among Persons Aged 14-49 Years---United States 2005-2008. *The Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report*, 59(15),456-459.

¹⁸⁷ The Centers for Disease Control and Prevention, Diagnoses of HIV infection and AIDS in the United States and Dependent Areas, 2008, 2010 [accessed June 15, 2010]. Retrieved from: <http://www.cdc.gov/hiv/surveillance/resources/reports/2008report/index.htm>

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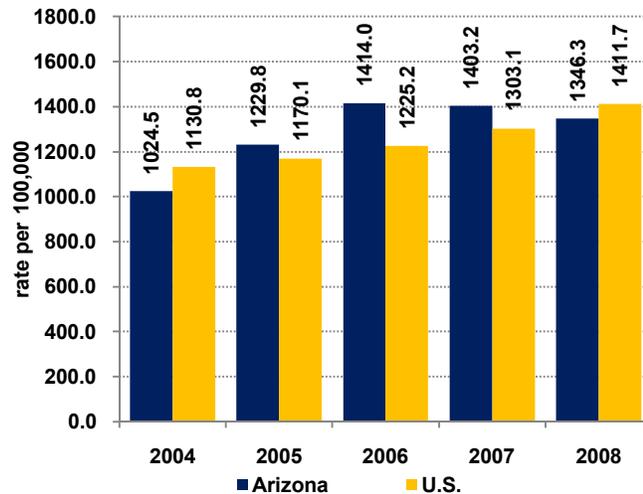
proportion of seropositive women may not access testing and treatment either during the year they became positive, or any time after infection.

The *Arizona Administrative Code R9-6-201* requires that physicians and healthcare administrators report cases and or treatment of chlamydia, gonorrhea, and syphilis (discussed below), as well as chancroid, lymphogranuloma venereum, and genital herpes to the appropriate local health department within five business days of diagnosis and treatment.¹⁸⁸ In Arizona, HIV/AIDS reporting, estimates of incidence are based upon the sum of new HIV cases, and new AIDS cases not diagnosed as HIV infections in any prior calendar year. These cases are referred to as *emergent* cases and are used as an estimate of incidence.¹⁸⁹

The rate of chlamydia per 100,000 females age 15-44 years in Arizona increased from 2004-2006, but declined from 2007-2008 (see Figure 1). This is in contrast to the U.S. rate of chlamydia which has increased each year from 2004-2008. Women age 15-24 years were more likely to have a reported case of chlamydia than older women, and American Indian and Hispanic/ or Latina women remain the groups most at risk for chlamydia among females living in Arizona.¹⁹⁰

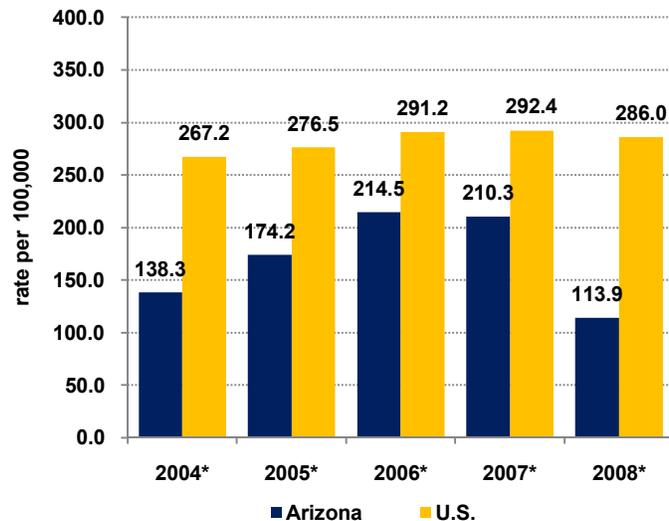
Rates of gonorrhea per 100,000 female age 15-44 years in Arizona increased 55 percent between 2004 and 2006, then declined 47 percent

Figure 1. Reported Chlamydia per 100,000 Females Age 15-44 Years, Arizona and U.S. 2004-2008



Sources: Arizona HIV, STD, and Hep C, 2004-2008 and CDC Sexually Transmitted Disease Surveillance 2004-2008. Census CPS population denominators used to calculate U.S. rates.

Figure 2. Reported Gonorrhea per 100,000 Females Age 15-44 Years Arizona & U.S. 2004-2008



*Significant difference at $\alpha = 0.05$

Source: Arizona HIV, STD, and Hep C, and CDC Sexually Transmitted Disease Surveillance 2004-2008. Census CPS population denominators used to calculate US rates

¹⁸⁸ The Arizona Office of HIV, STD, and Hepatitis Services, 2008 Annual Progress Report, 2008 [accessed May 15, 2010]. Retrieved from: <http://www.azdhs.gov/phs/oids/std/pdf/Arizona%20STD%20Annual%20Report%202008.pdf>

¹⁸⁹ The Arizona Office of HIV, STD, and Hepatitis Services, Executive Summary HIV/AIDS Annual Report, 2010 [accessed June 15, 2010]. Retrieved from:

<http://www.azdhs.gov/phs/hiv/pdf/2010annReport/2010%20EXECUTIVE%20SUMMARY.pdf>

¹⁹⁰ Ibid.

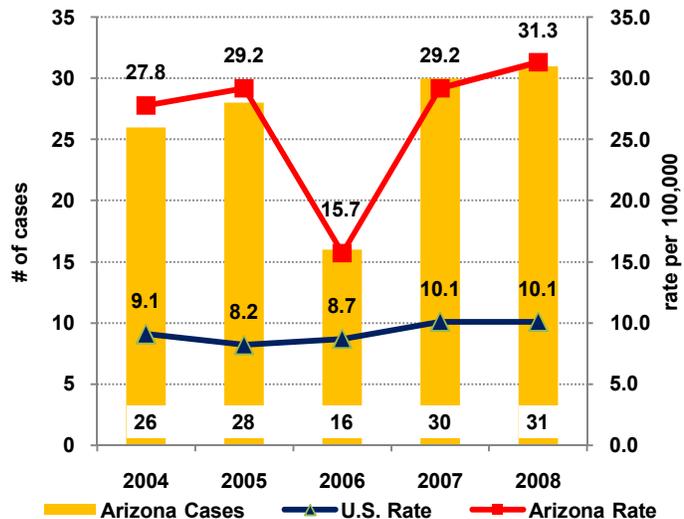
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between 2006 and 2008 (see Figure 2). Arizona's rate was significantly lower than the overall U.S. rate during that six year period in part because the greatest rates of gonorrhea reside in Black or African Americans which make up a small proportion of Arizona's population. According to the Arizona STD Control Program, the decline in the incidence of gonorrhea took place in part because fluoroquinolone resistant gonorrhea has not spread through Arizona as it has in other Western states.¹⁹¹ As with chlamydia, women age 15-24 years were more likely to have a reported case of gonorrhea than older females, but overall males assumed greater risk for gonorrhea.¹⁹²

Although the number (n=129) and rate (9.2 per 100,000) of syphilis for females age 15-44 years in 2008 were much lower than for chlamydia or gonorrhea, syphilis is of special concern in pregnant women. Arizona had one of the highest rates of reported congenital syphilis in the U.S. from 2004-2008 (see Figure 3). The number of cases was likely an underestimate because it does not include cases that contributed to fetal demise and is based on passive surveillance of birth certificate data.¹⁹³ Live born infants delivered by Hispanic or Latina mothers comprised 80 percent of the cases (n=105) from 2004-2008.¹⁹⁴

Figure 3. Reported Congenital Syphilis Cases and Rates per 100,000 Live Births, Arizona & U.S. 2004-2008



Source: Arizona HIV, STD and Hep C and CDC Sexually Transmitted Disease Surveillance, 2004-2008

The incidence and prevalence of HIV/AIDS in Arizona remained lower than the national average for women from 2004-2008. As with other states, emergent HIV/AIDS disproportionately affects Black or African-American women in Arizona. *According to the HIV/AIDS Annual Report for the State of Arizona, 2008*, although HIV has historically been a disease that predominantly affects males in Arizona, the 2004-2008 rate of emergent HIV among African American women was 41 percent higher than the statewide rate among men.¹⁹⁵ From 2003-2007, the rate of emergent cases of HIV/AIDS among Black or African American females of all ages (29.2 per 100,000) was

¹⁹¹ The Arizona Office of HIV, STD, and Hepatitis Services, 2008 Annual Progress Report, 2008 [accessed May 15, 2010]. Retrieved from: <http://www.azdhs.gov/phs/oids/std/pdf/Arizona%20STD%20Annual%20Report%202008.pdf>

¹⁹² Ibid.

¹⁹³ Ibid.

¹⁹⁴ Ibid.

¹⁹⁵ The Arizona Office of HIV, STD, and Hepatitis Services, Executive Summary HIV/AIDS Annual Report, 2010 [accessed June 15, 2010]. Retrieved from:

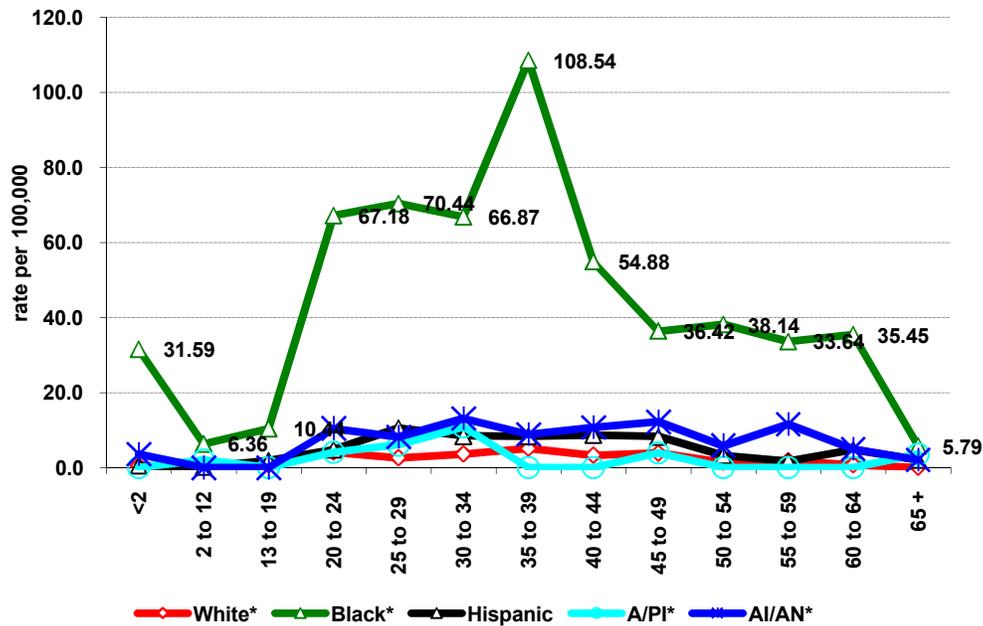
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nearly ten times as great as the overall state rate for females (3.48 per 100,000).¹⁹⁶ However, the greatest disparity was seen among women 20-44 years old (Figure 4). Among Black or African American women in Arizona, over 50 percent of all prevalent HIV/AIDS was acquired via high-risk heterosexual contact.¹⁹⁷

Figure 4. Age of Emergent HIV/AIDS Infection per 100,000 Women by Race and Ethnicity
Arizona 2003-2007



*Excludes ethnic Hispanics

Source: Arizona Office of HIV/AIDS, 2008

¹⁹⁶ The Arizona Office of HIV, STD, and Hepatitis Services, Groups of Special Concern HIV/AIDS Annual Report, 2010 [accessed June 15, 2010]. Retrieved from: http://www.azdhs.gov/phs/hiv/pdf/2010annReport/Groups%20of%20Special%20Concern%20%20Black%20Women_2010.pdf

¹⁹⁷ The Arizona Office of HIV, STD, and Hepatitis Services, Groups of Special Concern HIV/AIDS Annual Report, 2010 [accessed June 15, 2010]. Retrieved from:

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HEALTH DETERMINANTS, RISK, AND PROTECTIVE FACTORS

PREVALENCE OF OBESITY INCREASING AMONG VULNERABLE WOMEN

DESCRIPTION OF OVERWEIGHT AND OBESITY FOR ADULTS

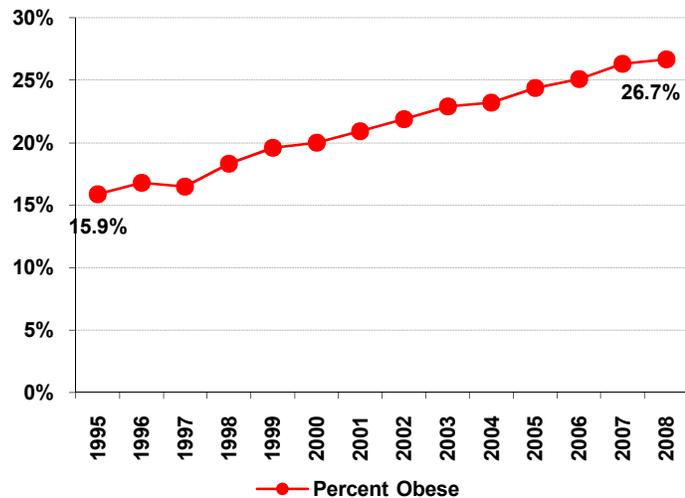
According to the Centers for Disease Control, overweight and obesity describe ranges of weight that is greater than what is generally considered healthy for a given height.¹⁹⁸ For adults these ranges are determined by using height and weight to calculate body mass index (BMI). Adults who have a BMI between 25 and 29.9 are considered overweight, while a BMI of 30 or greater indicates obesity. The BMI measure for adults is correlated with body fatness and is widely accepted as an indicator of body fatness and metabolic health. According to the CDC, behavior, environment, and genetic factors have been strongly associated with overweight and obesity. The proximal factor in weight gain is an energy imbalance created by consuming additional calories beyond what the body uses during physical activity. Behavioral interventions target both diet and physical activity in order to address this imbalance. Rapid environmental changes during the past 30 years, from increased availability of high caloric food to decreases in neighborhood connectivity for walking, have been associated with increases in the prevalence of obesity.¹⁹⁹ Creating environments that support behavioral change is vital to reduce the burden of overweight and obesity in high prevalence communities. Genes can be the direct cause of or increase a person's susceptibility to overweight or obesity. However, according to Hill and Frederick, the genetic composition of the population does not change rapidly. Therefore, the large increase in... [obesity] must reflect major changes in non-genetic factors.²⁰⁰

WHY ARE OVERWEIGHT AND OBESITY IMPORTANT?

National data show that the prevalence of obesity among adults has increased from 15.9 percent in 1995 to 26.7 percent in 2008 (see Figure 1). Ten years ago only seven states had obesity prevalence greater than 20 percent. Today 49 of 50 states have an obesity prevalence of at least 20 percent.

Overweight and obesity can increase the chance of developing chronic health conditions such as hypertension, type-2 diabetes, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea,

Figure 1. Percent Obese
U.S. Adult Population, 1995-2008



Source: CDC BRFSS, 2008

¹⁹⁸ Trust for America's Health. (2009). *F as in Fat. How Obesity Policies are Failing America* [accessed January 6, 2010]. Available at: <http://healthyamericans.org/reports/obesity2009/>.

¹⁹⁹ Ibid.

²⁰⁰ Centers for Disease Control and Prevention. (2009). *Overweight and Obesity: Causes and Consequences* [accessed January 5, 2010]. Available at: <http://www.cdc.gov/obesity/causes/index.html>.

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HEALTH DETERMINANTS, RISK, AND PROTECTIVE FACTORS

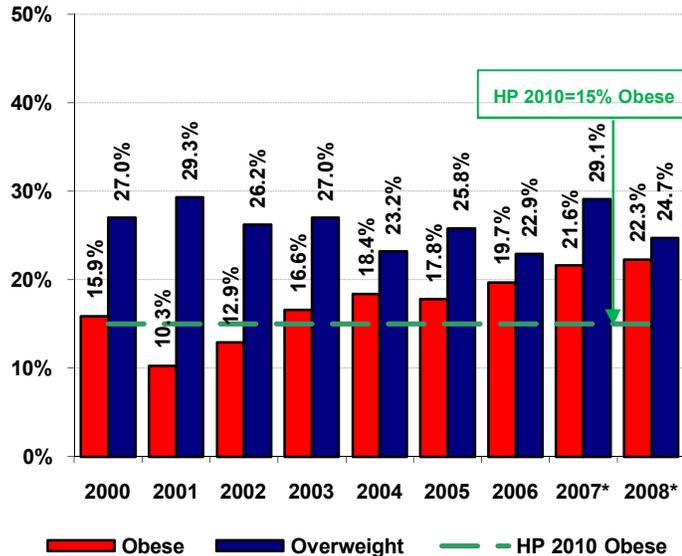
dyslipidemia (high cholesterol/triglycerides), and some types of cancers (such as endometrial, breast and colon cancers).²⁰¹ The economic cost of diabetes alone is estimated at \$174 billion and is expected to increase in tandem with obesity prevalence.²⁰²

HOW IS ARIZONA DOING?

Arizona ranked 18th among all states in the nation, (50 being highest prevalence) with an estimated 24.8 percent obesity prevalence among its adult population. Nearly half of all reproductive age women²⁰³ in Arizona are either overweight or obese. The prevalence of obesity among women aged 18 through 44 years has increased from 15.9 percent in 2000 to 22.3 percent in 2008 (see Figure 2.), surpassing the Healthy People 2010 goal of 15.0 percent prevalence. Pregnant women who are obese assume greater risks for fetal death, and other negative birth outcomes compared to women of healthy weight.²⁰⁴

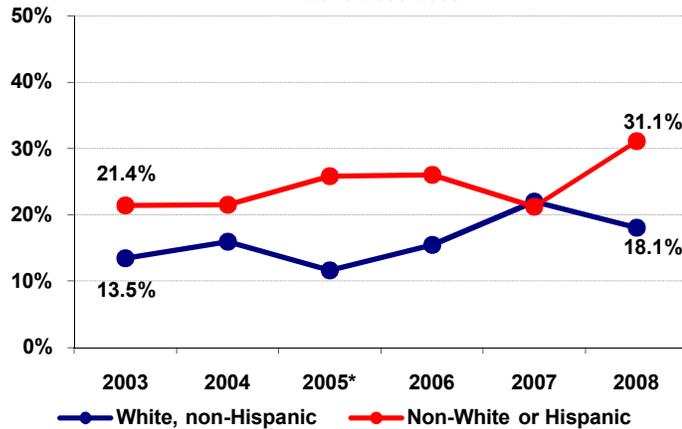
Reproductive aged women assume greater risk for obesity based on their race and ethnicity, education and income levels, and residence. In 2008, survey data (see Figure 3) reported approximately 31 percent of non-White or Hispanic women aged 18 through 44 were obese, while only 18.1 percent of White non-Hispanic women were obese. Socioeconomic status, as measured by limited years of

Figure 2. Prevalence of Overweight and Obesity Women Aged 18 thru 44, Arizona 2000-2008



Source: Arizona BRFSS, 2000-2008

Figure 3. Percent of Females Aged 18 thru 44 Years who are Obese by Race/Ethnicity Arizona 2000-2008



*significant difference at $p=0.05$
Source: Arizona BRFSS, 2000-2008

²⁰¹ Centers for Disease Control and Prevention. (2009). Overweight and Obesity: Health Consequences [accessed January 6, 2010]. Available at: <http://www.cdc.gov/obesity/causes/health.html>.

²⁰² Aagaard, N.E. et al. (2006). Prepregnancy obesity and fetal death: A study withing the Danish national birth cohort. *Obstetrical and Gynecological Survey*, 61(1), 7-8.

²⁰³ Centers for Disease Control and Prevention. (2009). Overweight and Obesity: U.S. Obesity Trends, Trends by State 1985-2008 [accessed January 6, 2010]. Available at: <http://www.cdc.gov/obesity/data/trends.html#State>

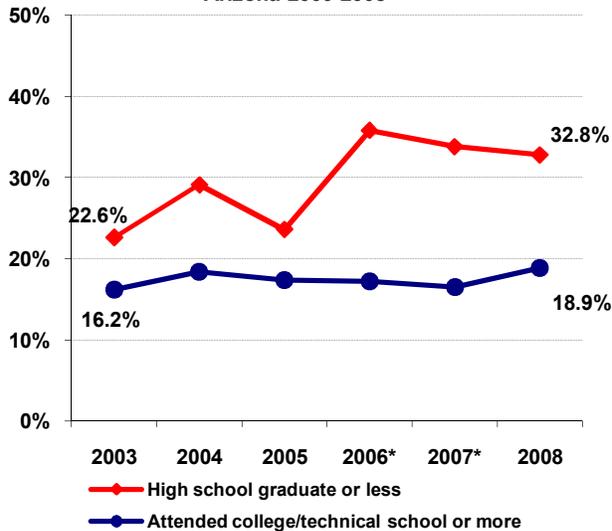
²⁰⁴ Ibid.

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HEALTH DETERMINANTS, RISK, AND PROTECTIVE FACTORS

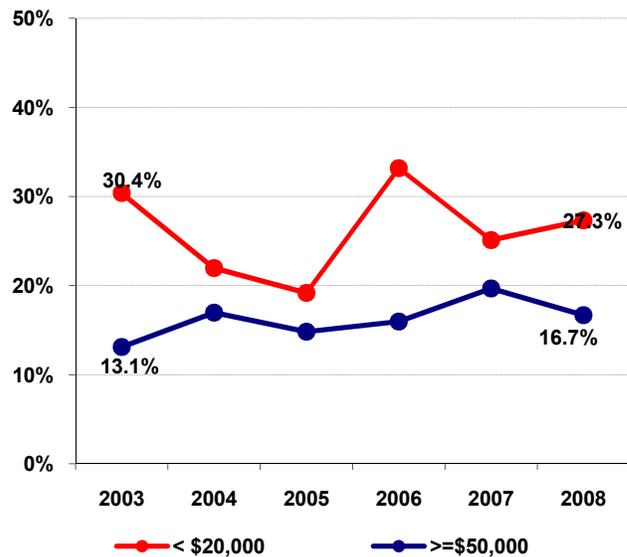
education and low income levels, is a risk marker for obesity. Survey data consistently show the prevalence of obesity is greater among reproductive aged women with lower levels of education and income (see Figure 4 and Figure 5).

Figure 4. Percent of Females Age 15 thru 44 Years who are Obese by Education Level, Arizona 2000-2008



*significant difference in obese by education level at $\alpha=0.05$
Source: Arizona BRFSS, 2003-2008

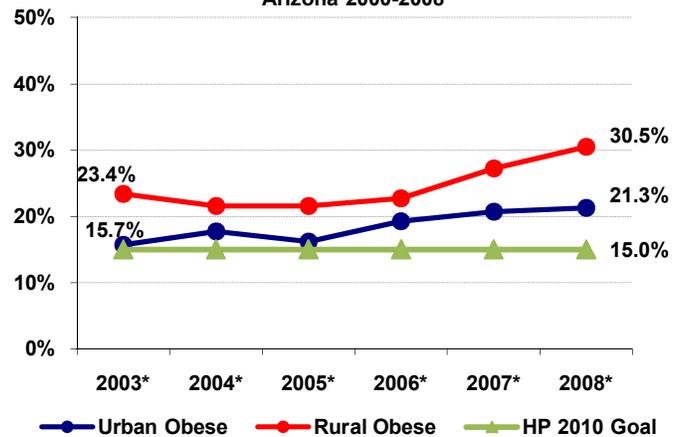
Figure 5. Percent of Females Aged 15 thru 44 Years who are Obese by Family Income Arizona 2000-2008



Source: Arizona BRFSS, 2003-2008

Fast food and convenience stores are more prevalent in neighborhoods with lower socioeconomic status.²⁰⁵ Difficult economic conditions influence dietary behaviors as consumers with lower incomes increasingly turn toward high caloric fast-food to fulfill their perceived dietary needs.²⁰⁶ In addition higher crime rates and limited options for physical activity within these neighborhoods are barriers to women obtaining recommended levels of exercise.²⁰⁷ Obesity in rural and urban areas was significantly different (Figure 6).

Figure 6. Percent of Females Aged 18 thru 44 who are Obese by Urban & Rural Regions Arizona 2000-2008



*significant difference between rural obese estimate and HP 2010 Goal at $\alpha=0.05$

Source: Arizona BRFSS, 2000-2008

²⁰⁵ Yancey, A.K. and S.K. Kumanyika. (2007) Bridging the Gap: Understanding the Structure of Social Inequities in Childhood Obesity. *American Journal of Preventive Medicine* 33(4S), S172-S174.

²⁰⁶ Ludwig, D.S. & Pollack, H.A. (2009). Obesity and the Economy: From Crisis to Opportunity. *Journal of the American Medical Association*, 301(5), 333-335.

²⁰⁷ Loukaitou-Sideris, A. (2007). Crime Prevention and Active Living. *American Journal of Health Promotion*, 21(4), 380-389.

WOMEN STRIVING FOR IMPROVED PHYSICAL ACTIVITY & NUTRITION

DESCRIPTION OF PHYSICAL ACTIVITY AND NUTRITION

Physical activity and the consumption of fruits, vegetables, and folic acid are necessary for robust preconception health. New recommendations for physical activity issued by the U.S. Department of Health and Human Services in 2008 call for at least two hours and 30 minutes of moderate physical activity, or one hour and 15 minutes of vigorous activity, or an equivalent combination of both moderate and vigorous activity per week. Additionally, participation in muscle strengthening activity is recommended at least twice per week.²⁰⁸

The latest recommendations for the consumption of fruits and vegetables call for women of reproductive age to eat at least two cups of fruits and two-and-a-half to three cups of vegetables daily based on their level of physical activity.²⁰⁹ According to the Institutes of Medicine, women who may become pregnant should have a daily intake of folic acid 400 micrograms per day.²¹⁰ Sources of daily folic acid include; most multivitamins, dark leafy green vegetables, and breakfast cereals and breads that are fortified with folic acid.

WHY ARE PHYSICAL ACTIVITY AND NUTRITION IMPORTANT?

There is strong evidence that physical activity lowers the risk of early death, heart disease, stroke, type 2 diabetes, high blood pressure, metabolic syndrome, and colon and breast cancers. Physical activity may also reduce the risk of pregnancy complications, such as preeclampsia and gestational diabetes, and the length of labor. During the post-partum period, physical activity increases a woman's cardio-respiratory fitness and improves her mood.²¹¹ Women who eat generous amounts of fruits and vegetables are more likely to have a lower risk for stroke, type 2 diabetes, and some types of cancer. In addition, a diet rich in fruits and vegetables allow women to more easily control weight gain, thus reducing the risk for overweight and obesity.²¹² Consuming recommended amounts of folic acid significantly lowers the risk for neural tube defects (Spina Bifida and anencephaly), certain birth defects, and fetal and infant death linked to those birth defects.²¹³ Approximately 2,500 infants are born in the United States with a neural tube defect, and an estimated 1,500 pregnancies are still born or terminated due to these defects.²¹⁴ Most recent data available through the Arizona Birth

²⁰⁸ U.S. Department of Health & Human Services (2009). 2008 Physical Activity Guidelines for Americans [accessed January 12, 2010]. Retrieved from: <http://www.health.gov/paguidelines/guidelines/default.aspx#toc>

²⁰⁹ Ibid.

²¹⁰ Centers for Disease Control and Prevention. (n.d.). Fruits and Veggies More Matters Campaign Brochure. How Much do You Need? [accessed January 5, 2010]. Retrieved from: <http://www.fruitsandveggiesmorematters.gov>

²¹¹ U.S. Department of Health & Human Services (2009). 2008 Physical Activity Guidelines for Americans [accessed January 12, 2010]. Retrieved from: <http://www.health.gov/paguidelines/guidelines/default.aspx#toc>

²¹² Centers for Disease Control and Prevention. (n.d.). Fruits and Veggies More Matters Campaign Brochure. How Much do You Need? [accessed January 5, 2010]. Retrieved from: <http://www.fruitsandveggiesmorematters.gov>

²¹³ Centers for Disease Control and Prevention. (2009). Facts About Folic Acid [accessed January 6, 2010]. Available at: <http://www.cdc.gov/ncbddd/folicacid/about.html>

²¹⁴Centers for Disease Control and Prevention. (1995). Economic costs of birth defects and cerebral palsy . United States, 1992. *United States Department of Health and Human Services, Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report, 44(37)*, 694-9.

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HEALTH DETERMINANTS, RISK, AND PROTECTIVE FACTORS

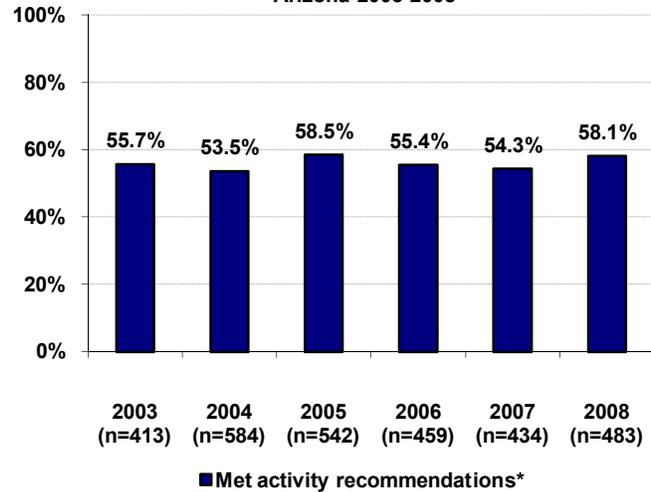
Defects Registry show the average rate of Spina Bifida in Arizona from 1994-2004 was 4.2 per 10,000 live births.²¹⁵ Infants born with anencephaly die before or shortly after birth, while infants born with Spina Bifida can survive to adulthood with varying levels of disability or paralysis. Annual estimates for medical care for people with Spina Bifida in the United States exceed \$200 million.²¹⁶

HOW IS ARIZONA DOING?

Prevalence of physical activity is measured by self-reported responses to the Behavioral Risk Factor Surveillance System (BRFSS). Women of reproductive age who met the guidelines for moderate or vigorous physical activity or both are shown in Figure 1. The majority of women aged 18-44 years (58.1%) met physical activity recommendations in 2008. However, this proportion has not shown significant improvement since 2003. Although non-significant, White non-Hispanic women met 60.6% of the physical activity guideline compared to non-White or Hispanic women (54.3%) as evidenced in Figure 2. Comparisons based on income and urban or rural area of residence showed inconsistent trends and non-significant differences between groups.

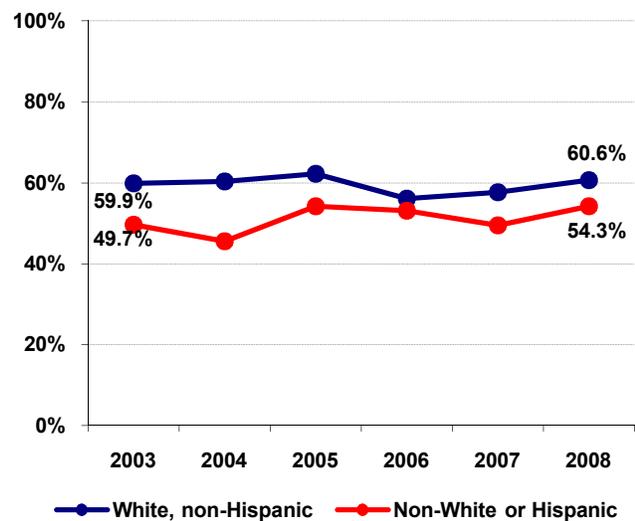
According to Healthy People 2010, few modern occupations provide sufficient moderate or vigorous activity to produce health benefits.²¹⁷ Healthy People 2010 goal was to

Figure 1. Percent of Women Aged 18-44 Meeting Physical Activity Recommendations* Arizona 2003-2008



*for moderate activity, or vigorous activity, or both.
Source: Arizona BRFSS, 2003-2008 (percentages weighted to population)

Figure 2. Percent of Women Aged 18-44 Meeting Physical Activity Recommendations* by Race/Ethnicity, Arizona 2003-2008



*for moderate activity, or vigorous activity or both
Source: Arizona BRFSS, 2003-2008 (percentages weighted to population)

²¹⁵AZ Birth Defects Registry. (2008). Facts about Spina Bifida, 1994-2004, Arizona [accessed January 14, 2010]. Available at: <http://www.azdhs.gov/phs/phstats/bdr/reports/SpinaBifida.pdf>

²¹⁶Centers for Disease Control and Prevention. (1995). Economic costs of birth defects and cerebral palsy. United States, 1992. *United States Department of Health and Human Services, Centers for Disease Control and Prevention Morbidity and Mortality Weekly Report*, 44(37), 694-9.

²¹⁷United States Department of Health and Human Services. (2000). Healthy People 2010, Vol.II: Understanding and Improving Our Health, Chapter 22, Physical Activity and Fitness [accessed January 5, 2010]. Available at: <http://www.healthypeople.gov/Document/tableofcontents.htm#partb>

8. WOMEN OF REPRODUCTIVE AGE

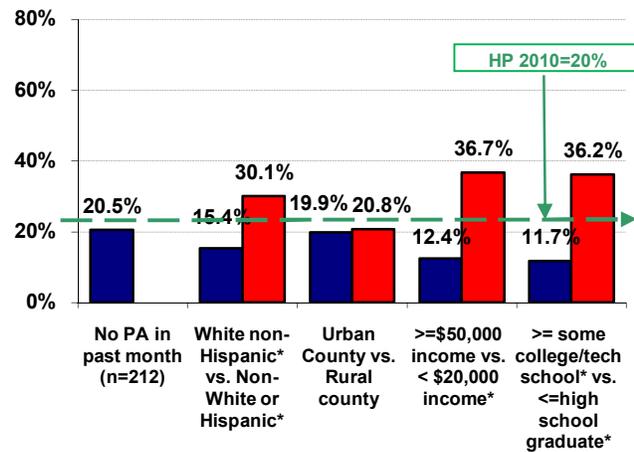
HEALTH DETERMINANTS, RISK, AND PROTECTIVE FACTORS

reduce the proportion of adults who do not engage in leisure time physical activity.

Figure 3 shows that Arizona women aged 18-44 years met this goal in 2008 (20.5%). However, there were significant disparities in meeting the Health People 2010 goal based on race/ethnicity, income level, and educational attainment. The data indicate that women with higher socioeconomic status are more likely to engage in leisure time activity compared with women of lower socioeconomic status.

Survey data from the Arizona BRFSS measure the percent of women age 18-44 years eating 5 or more servings of fruits and vegetables a day, rather than the new recommendation based on age and activity levels. Figure 4 indicates that approximately one-quarter of Arizona women aged 18-44 years consumed five servings of fruits and vegetables per day in 2008 (25.5%). Although this was the lowest estimate since 2003, the proportion of women eating 5-A-Day has not

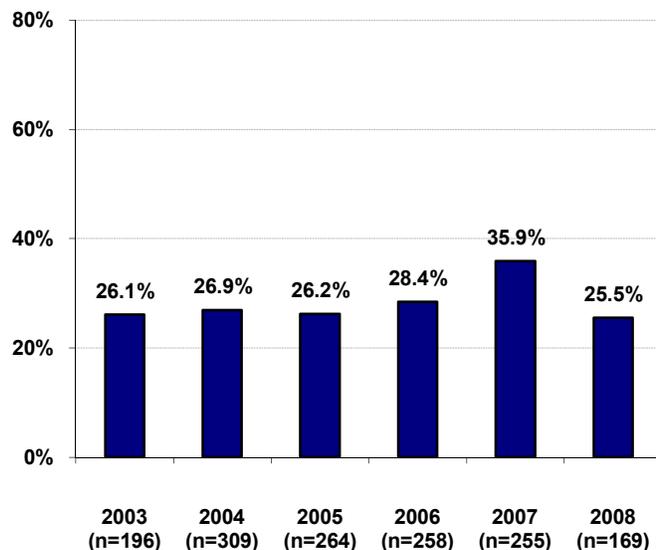
Figure 3. Percent of Women Aged 18-44 Reporting No Leisure Time Physical Activity in Past 30 Days Arizona 2008



*significant difference =0.05

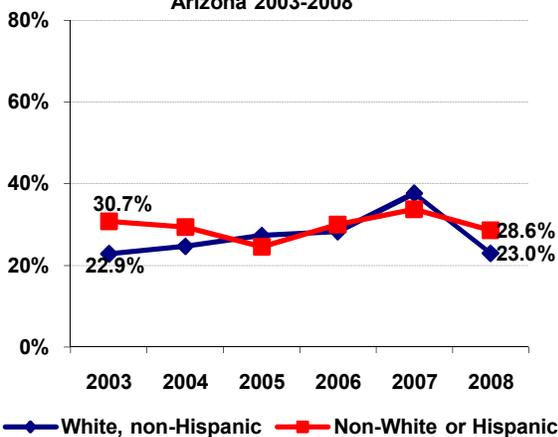
Source: Arizona BRFSS, 2008 (percentages weighted to population)

Figure 4. Percent of Women Aged 18-44 Years Eating '5-A-Day', Arizona 2003-2008



Source: Arizona BRFSS, 2003-2008 (percentages weighted to population)

Figure 5. Percent of Women Aged 18-44 Eating "5-A-Day" by Race/Ethnicity Arizona 2003-2008



Source: Arizona BRFSS, 2003-2008 (percentages weighted to population)

changed significantly during this time period. No disparities were found among populations of reproductive age women eating 5-A-Day in Arizona. The non-White or Hispanic population in Arizona consumes fruits and vegetables equally to that of the White non-Hispanic population (Figure 5). In 2008, approximately 28.6 percent of non-White or Hispanic women and 23 percent of White, non-Hispanic women consumed 5 servings of

8. WOMEN OF REPRODUCTIVE AGE

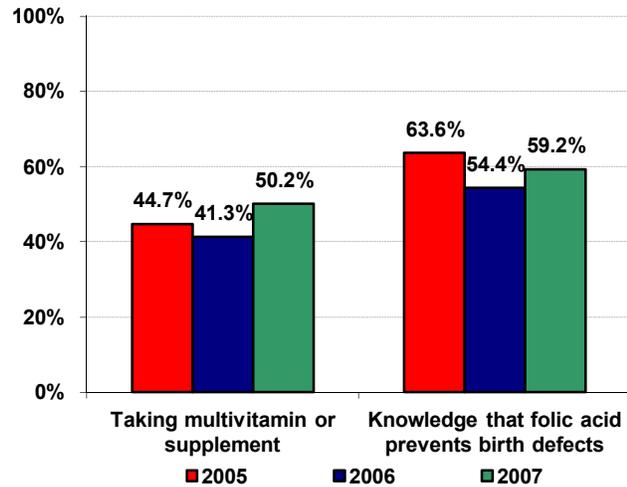
HEALTH DETERMINANTS, RISK, AND PROTECTIVE FACTORS

fruits and vegetables per day. Non-significant differences exist between low and higher income groups, and urban and rural residents.

Figure 6 shows that only half of Arizona women aged 18-44 years reported consuming multivitamins or supplements with folic acid in 2007. A lack of knowledge of the protective effects of folic acid may partially account for the low proportion of women taking folic acid vitamins or supplements. In 2007, there was a 9 percent difference in the proportion of women who knew that consuming folic acid prevents certain birth defects and women taking a folic acid multivitamin or supplement.²¹⁸

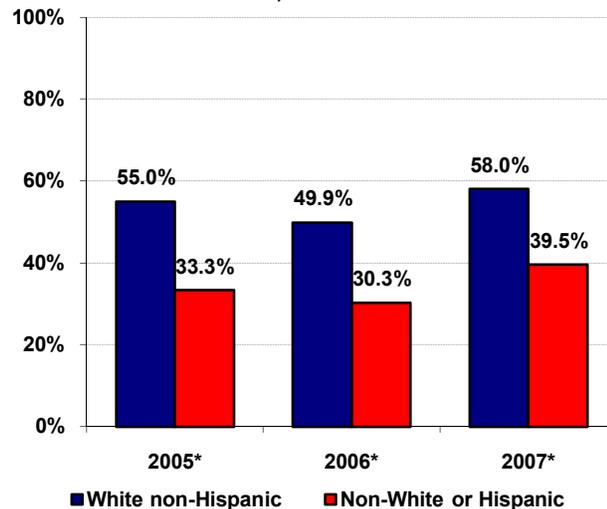
There are disparities in the consumption of multivitamins or supplements with folic acid based on race, education, and income. Figure 7 shows that for the past three years White non-Hispanic women have been significantly more likely to report consuming folic acid in multivitamins or supplements than non-White or Hispanic women. In 2007, a majority of White non-Hispanic women (58.0%) consumed these sources of folic acid compared to 39.5 percent of non-White or Hispanic women. This disparity in folic acid consumption may partially account for the inequities seen in the rates of neural tube defects. From 1999-2004 live and stillborn infants of delivered by Hispanic or American Indian and/or Alaskan Native mothers in Arizona had elevated rates of Spina Bifida compared to White non-Hispanic, or Black/African American infants.²¹⁹ Socio-economic status is associated with taking

Figure 6. Percent of Women Aged 18-44 Taking Folic Acid and Knowledge of Folic Acid Arizona 2005-2007



Source: Arizona BRFSS 2005-2007 (percentages weighted to population)

Figure 7. Percent of Women Aged 18-44 Years Consuming a Vitamin or Supplement with Folic Acid, Arizona 2005-2007



*significant difference between groups at $\alpha=0.05$

Source: Arizona BRFSS 2005-2007 (percentages weighted to population)

²¹⁸ Data about folic acid use in the Arizona BRFSS is only available 2005-2007. Data about self-reported knowledge of folic acid is shown for 2005-2007, but is available 2003-2007.

²¹⁹ AZ Birth Defects Registry. (2008). Facts about Spina Bifida, 1994-2004, Arizona [accessed January 14, 2010]. Available at: <http://www.azdhs.gov/phs/phstats/bdr/reports/SpinaBifida.pdf>

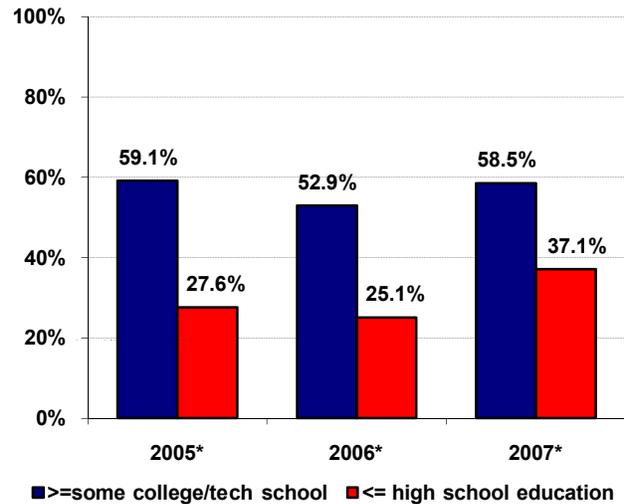
8. WOMEN OF REPRODUCTIVE AGE

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vitamins or supplements with folic acid. In 2007, 58.5 percent of women with at least some college or technical school education took folic acid in vitamin or supplement form compared to only 37.1 percent of women with a high school education or less.

A significantly greater proportion of women with more years of formal education reported taking multivitamins or supplements with folic acid compared to women with lower levels of education from 2005-2007 (see Figure 8). The Arizona Nutrition Status Report showed large disparities of folic acid consumption by income level. In 2007, approximately 58 percent of women aged 18-44 above 130 percent of the poverty level took multivitamins or supplements with folic acid compared to only 22 percent of women with family incomes below 130 percent of the poverty level.²²⁰

Figure 8. Percent of Women Aged 18-44 Years Consuming a Vitamin or Supplement with Folic Acid by Level of Education, Arizona 2005-2007



*significant difference between groups at $\alpha=0.05$
Source: Arizona BRFSS, 2005-2007

²²⁰ U.S. Department of Health & Human Services. (2009). 2008 Physical Activity Guidelines for Americans [accessed January 12, 2010]. Available at: <http://www.health.gov/paguidelines/guidelines/default.aspx#toc>

9. SELECTION OF STATE PRIORITY NEEDS

Arizona's selection of state Title V priorities for 2011-2016 was grounded in review of quantitative and qualitative data, as well as careful consideration of public input. Input was gathered through multiple means . surveys, focus groups, and special public sessions.

PROCESS FOR PRIORITY-SETTING – GENERAL MATERNAL AND CHILD HEALTH

In selecting the general maternal and child health priorities, the Bureau of Women & Children's Health conducted a priority-setting session on May 7 that involved multiple stakeholders and partners. Participants in the session not only included the BWCH leadership, epidemiologists and program managers, and Children with Special Health Care Needs, but also included key partners from county health departments, community health centers, March of Dimes, county hospital system, and Academy of Pediatrics; and leadership from other parts of ADHS (Behavioral Health Services, Local Health, Tobacco & Chronic Disease, Health Systems Development, Nutrition & Physical Activity, Immunizations, and Epidemiology & Disease Control.)

In order to help prioritize the group considered the following decision criteria: 1) the need is supported by the data (disparity, magnitude, severity, trend); 2) interventions are available and effective/action will have an impact on the target population (within five years); 3) the issue is feasible to address/ADHS has the ability to address it; and 4) the issue is complementary (action on this issue can be leveraged by or leverage action on other issues). Participants reviewed the list of current MCH priorities, which are: 1) teen pregnancy and access to reproductive health services; 2) obesity/overweight among women and children; 3) preventable infant mortality; 4) injuries, unintentional and intentional; 5) prenatal care among the underserved; 6) oral health; and 7) mental health (integration with general health care). To this list, they added: 8) preconception health/internatal; 9) substance abuse (alcohol and other drugs); 10) preventive health for children; 11) post-partum depression; and 12) breastfeeding. Participants then utilized the scoring criteria and rated the issues low, medium, and high. The issues that ranked the highest were: i) preventive health for children; ii) obesity/overweight among children; iii) preconception health/internatal, and injuries; and iv) unintentional and intentional injuries

The group also discussed the different ways in which some of the issues could be combined with one another, but final determination was left to Bureau of Women & Children's Health with the understanding that all issues would be addressed even if not specifically identified as a priority. For example, there are national performance measures related to breastfeeding and prenatal care, so those issues are certain of being addressed in the annual application. The Bureau also considered any national or federal priorities that may support and contribute to the state's capacity to address the issues.

9. SELECTION OF STATE PRIORITY NEEDS

The following priorities will be continued: teen pregnancy, oral health, injury prevention, and obesity/overweight. The previous priority of integration with mental health was broadened to encompass behavioral health to include substance abuse as well as post-partum depression and mental health. The two new priorities are preventive health for children and preconception health. Two previous priority areas will be addressed as part of preconception health: access to reproductive health services will be a primary strategy under preconception health, and preventable infant mortality is expected to be an outcome of improved preconception health. Priorities below are not written in any particular order.

PRIORITY 1: REDUCE THE RATE OF TEEN PREGNANCY AMONG YOUTH LESS THAN 19 YEARS OF AGE.

While Arizona's rates of teen pregnancy and teen births have been declining over the past decade, Arizona still ranks within the top five highest teen birth rates in the nation. Support for continuation of teen pregnancy as a state priority was evidenced during the public input process. Along with public support, Arizona also has capacity to address this priority through state lottery dollars that total over \$3 million annually. Additional funding for comprehensive teen pregnancy and abstinence education is expected through the Affordable Care Act. Addressing teen pregnancy is primarily a population-based strategy through education and youth development services, with infrastructure support to local providers through provider training and technical assistance. Arizona will measure and report on progress through national performance measure #8, which measures the rate of birth for teens ages 15 - 17 years.

PRIORITY 2: IMPROVE THE PERCENTAGE OF CHILDREN AND FAMILIES WHO ARE AT A HEALTHY WEIGHT.

Arizona's percentage of children who are overweight or obese has increased at higher rates than any other state. For youth 10 to 17 years of age, there was a 45.9 percent increase in the prevalence of obesity from 2003 to 2007, which was the greatest increase in the nation. Nearly half of all reproductive age women in Arizona are either overweight or obese. Public input sessions further confirmed the need to continue to maintain addressing obesity and overweight as a priority. Public support, as well as national and state momentum to address this priority has clearly been increasing. Arizona is working on policy initiatives to address obesity through federal funding as well as state actions such as the Empower Program. There is little funding to address strategies to improve the percentage of children and families at a healthy weight, especially on a local level. Title V funds can be used to help support critical infrastructure and population-based strategies to implement this priority. Progress will be measured through the national priority measure on percentage of children, ages 2 to 5 years, receiving WIC services with a Body Mass Index (BMI) at or above the 85th percentile, and the state performance measure on the percent of high school students who are overweight or obese.

PRIORITY 3: IMPROVE THE HEALTH OF WOMEN PRIOR TO PREGNANCY.

Since 2006 when the Centers for Disease Control issued its recommendations on how to improve the health of women prior to pregnancy - known as preconception health -

9. SELECTION OF STATE PRIORITY NEEDS

there has been growing attention both nationally and in Arizona about the critical nature of preconception health. Participants of public input sessions identified this as a priority area, and stakeholders recommended preconception health be added as a state priority area during the May 7 priority-setting session. Preconception health comprehensively addresses multiple areas of women's health, including reproductive health, nutrition, physical activity, tobacco use, substance abuse and mental health. Because it is so comprehensive, Arizona has great potential and opportunities to improve preconception health. However, the state lacks resources dedicated specifically to preconception health. ADHS is leading development of a statewide preconception health action plan, which will provide direction on future strategies. Strategies are likely to be population-based and infrastructure-building. Progress on preconception health will be measured through multiple performance measures, including the national performance measure on smoking during pregnancy, and the state performance measure on percent of high school students who are overweight or obese. In addition, a new state performance measure has been developed to help measure the important strategy of birth spacing; Arizona will measure the percent of women having a subsequent pregnancy during the inter-pregnancy interval of 18-59 months. Lastly, health status indicators related to low birth weights will also serve as indicators of preconception health.

PRIORITY 4: REDUCE THE RATE OF INJURIES, BOTH INTENTIONAL AND UNINTENTIONAL, AMONG ARIZONANS.

Injuries are the leading causes of death for Arizonans ages 1-44. Homicides and suicides remain a significant issue for teens and young adults, and dating violence among Arizona high school students increased significantly between 2003 and 2007. Arizona has strong infrastructure at the state level to implement injury prevention through the state's injury prevention program, domestic violence programs in ADHS and other state agencies, and sexual violence prevention programs. Capacity at the local level, especially for unintentional injury, could be strengthened. Capacity for violence prevention is weakened by lack of funding. Strategies to prevent intentional and unintentional injuries are population-based and infrastructure-building, and all maternal and child health population groups will be addressed. Multiple performance measures will be used to assess progress on this priority area, including the national measures of the rate of deaths of children ages 14 years and younger caused by motor vehicle crashes and the rate of suicide deaths among youths aged 15-19. Arizona will continue to use state measure on emergency department visits for unintentional injuries among children 1-14. In order to monitor progress and report on violence prevention efforts to reduce unintentional injuries, Arizona will be using a new state measure on dating violence among high school students.

PRIORITY 5: IMPROVE ACCESS TO AND QUALITY OF PREVENTIVE HEALTH SERVICES FOR CHILDREN.

The new priority of preventive health services for children was identified by the group of stakeholders and ADHS staff was charged with setting general MCH priorities. This new priority ranked highest of any other priority during this session. Arizona has some increasing capacity to provide preventive health services for children ages 0 . 5 through funding from the Early Education and Health Development Board (First Things First),

9. SELECTION OF STATE PRIORITY NEEDS

and potential funding for home visiting programs through the Affordable Care Act. At the same time, Arizona is experiencing decreased capacity due to cuts in the state Medicaid program and a waiting list for children to access the state SCHIP program, Kids Care. Strategies for implementing this new priority will primarily be enabling services, as the state strives to assist children with accessing available services and establish new resources to the extent possible. Several national performance measures will be used to help measure progress in various areas of preventive health services for children. These include: percent of newborns who received timely follow-up by the newborn screening program; percent of 19 to 35 months olds who received full schedule of age appropriate immunizations; percent of third grade children who received protective sealants on at least one permanent tooth; percent of children without health insurance; and percent of very low-birth weight infants delivered at facilities for high-risk deliveries and neonates. The state performance measure on Medicaid enrollees ages 1-18 who received at least one preventive dental service within the last year will also be utilized.

PRIORITY 6: IMPROVE THE ORAL HEALTH OF ARIZONANS.

The oral health of children residing in Arizona is significantly worse than for their national peers. Arizona's Healthy Smiles, Healthy Bodies survey reported that 31 percent of children ages 2-5 years in Arizona had untreated tooth decay, compared to only 16 percent of their peers nationally. Public input sessions and the BWCH partner and community surveys all confirmed oral health as a critical need in Arizona. Capacity to improve oral health may be increasing through HRSA oral health workforce grant that is helping to implement teledentistry sites, through additional funding from First Things First for local organizations to address oral health needs of young children, and through possible future funding through the Affordable Care Act that will strengthen the state infrastructure and school-based sealant program. Strategies for improving oral health fall in all levels of the pyramid. For example, teledentistry builds infrastructure in the state but will also provide children with direct dental care. All maternal and child health populations are addressed by this priority area. Progress on this priority area will be measured by the national performance measure of third graders who have dental sealants on at least one permanent tooth, and the state performance measure on percent of Medicaid enrollees ages 1-18 who received at least one preventive dental service within the past year.

PRIORITY 7: IMPROVE THE BEHAVIORAL HEALTH OF WOMEN AND CHILDREN.

While quantitative data is lacking to fully assess the behavioral health status of women and children, both the BWCH partner survey and community survey, and input provided by stakeholders, indicated that mental health and substance use/abuse (including alcohol as well as illegal drug use) are critical issues that need to be addressed. Areas of particular concern identified during public input sessions included post-partum depression, substance abuse among adolescents, substance abuse among pregnant women, depression among women, and mental health of children. The capacity of Arizona to address behavioral health is a bit uncertain as budget cuts have begun to impact access to behavioral health services, particularly to those who are not eligible for Medicaid. However, women and children remain a priority for treatment within the

9. SELECTION OF STATE PRIORITY NEEDS

behavioral health system. The Title V program has opportunities to promote overall mental wellness, prevention of substance abuse, and further integration of perinatal depression screening. Strategies to address this critical need will be a combination of enabling services, population-based, and infrastructure-building. Improvement in behavioral health will be monitored through the national performance measure on suicide deaths among 15 . 19 year olds, and a new state performance measure on percent of women ages 18 and older who suffer from frequent mental distress will also be utilized.

PROCESS FOR PRIORITY-SETTING – CHILDREN WITH SPECIAL HEALTH CARE NEEDS

The OCSHCN needs assessment team compiled suggested priorities from community partners into an evaluation tool. The needs assessment team plus key staff and community partners convened a meeting in which each of the suggested priorities was rated. A list of priorities was compiled and evaluated, with numerical ratings of 0 through 3 for each dimension: numbers affected, severity or importance, known interventions, resources to implement intervention, interest of partners, likelihood of impact, and annually measurable.

Potential topics included early identification of special needs, hearing, access to follow up services, health insurance that adequately covers special health care needs, mental health services, therapies, childcare, inclusion, fragmentation of the system of care for CSHCN, the need for care coordination, genetics testing, and transition. After all topics were rated, scores were summarized, and the topics with the highest scores across all areas evaluated were hearing, inclusion, and transition. Three priorities were selected as the top priorities for CSHCN, which are newly defined priorities since the last needs assessment. In general, OCSHCN's community partners are more likely to perform enabling services around each of these priorities, while OCSHCN's role for each can best be described as infrastructure building. OCSHCN efforts for each priority are centered around analysis, policy and guideline development, and developing resources and training.

PRIORITY 8: REDUCE UNMET NEED FOR HEARING SERVICES.

While every newborn in Arizona is screened for hearing loss, approximately one third of those who fail the initial screening do not receive appropriate follow up services. The needs assessment data shows a relatively high proportion of unmet need related to hearing, with one in four of the CSHCN with an identified need for hearing aids or hearing care failing to have those needs met. Early Hearing Detection and Intervention Program and the EAR Foundation are very interested in collaborating with OCSHCN to ensure that all children in Arizona receive appropriate follow up services for hearing-related problems. These partners are well prepared with known effective interventions, and through collaborating with OCSHCN will have an opportunity to extend their reach. While the EAR Foundation is effective at raising funds for specific needed services, they have not been able to develop their analytic capabilities to support strategic planning.

9. SELECTION OF STATE PRIORITY NEEDS

OCSHCN will support this aspect of their strategies, as well as extend their reach through making the e-Learning platform available for training, and through the use of the telemedicine system. Training and technical assistance will be provided through community health centers, physician offices, and Early Head Start. OCSHCN will also work with First Things First, who will assist with ensuring that children receive needed second screenings and audiology services. OCSHCN will monitor progress on this priority by creating a state performance measure, which will track the percent of newborns who fail their initial hearing screening who receive appropriate follow up services. The baseline for this measure in 2008 is 72%. The five-year goal for this measure is to reach 90% by 2013.

PRIORITY 9: PREPARE CYSHCN FOR TRANSITION TO ADULTHOOD.

Although adolescents represent a relatively small proportion of all CSHCN, most CSHCN will eventually become adults and will require transition services. In addition, the transition process begins long before adolescence. Whether a child will grow to live independently or require some kind of assistance, every family must address how health care needs will be met as well as all of the requirements of everyday living. All avenues of public input emphasized the importance of transition, and several community partners have some kind of programmatic activity directed towards it. OCSHCN has long had an emphasis on developing resources and training on transition, and will continue to collaborate with community partners on all aspects of transition. The most appropriate measure for tracking progress on transition over the long term is through the MCH National Performance Measure #6: Percent of youth with special health care needs who received services necessary to make transition to all aspects of adult life, including health services, work, and independence.

PRIORITY 10: PROMOTE INCLUSION OF CSHCN IN ALL ASPECTS OF LIFE.

Inclusion of CSHCN in childcare, school, sports, work, and even in Department of Health Services wellness activities, such as nutrition and physical activity, and injury prevention, presented many opportunities for improvement. During public input, families often spoke about the lack of accommodations for CSHCN to participate in all aspects of life, and how important these were to address. Interventions sometimes were as simple as including OCSHCN staff in larger prevention initiatives, such as participation in the State Injury Prevention Plan, or adapting wellness messages to accommodate special needs. These activities present opportunities to leverage others' resources on behalf of CSHCN. OCSHCN will continue to participate in policy development to include CSHCN, as well as collaborate with partners, such as school nurses, to ensure that the needs of CSHCN and barriers to their participation are understood and addressed. The most appropriate measure for tracking progress on inclusion over the long term is through the MCH National Performance Measure #5: Percent of CSHCN age 0-18 whose families report the community-based service systems are organized so they can use them easily.

10. OUTCOMES AND FUTURE OF MATERNAL AND CHILD HEALTH

There are myriad factors that impact the health of the maternal and child health population, many of which are not within the Title V program's ability to influence. Arizona's economy is of great concern - not only because of the impact on families but also because of the state's loss of capacity in many areas to provide services, including access to health care, to support families.

Nonetheless, Title V activities collectively contribute to health outcomes, whether it be an improvement in outcomes, or, with more challenging outcomes, it may be that outcomes did not worsen or would have been more negatively impacted had Title V programs not been present.

The majority of general Title V maternal and child health activities focus on primary prevention to support the notion that many health problems are preventable and better stopped before health care resources are needed to address them. In other cases, critical direct care services are missing and Title V serves an important gap-filling role. For children with special health care needs, a focus on wellness requires ensuring that policies in settings outside of health care appreciate the adaptations that are required to include children with disabilities and other conditions in childcare, school, or other prevention strategies, as well as ensuring that their health care is accessible, family-centered, integrated, and coordinated.

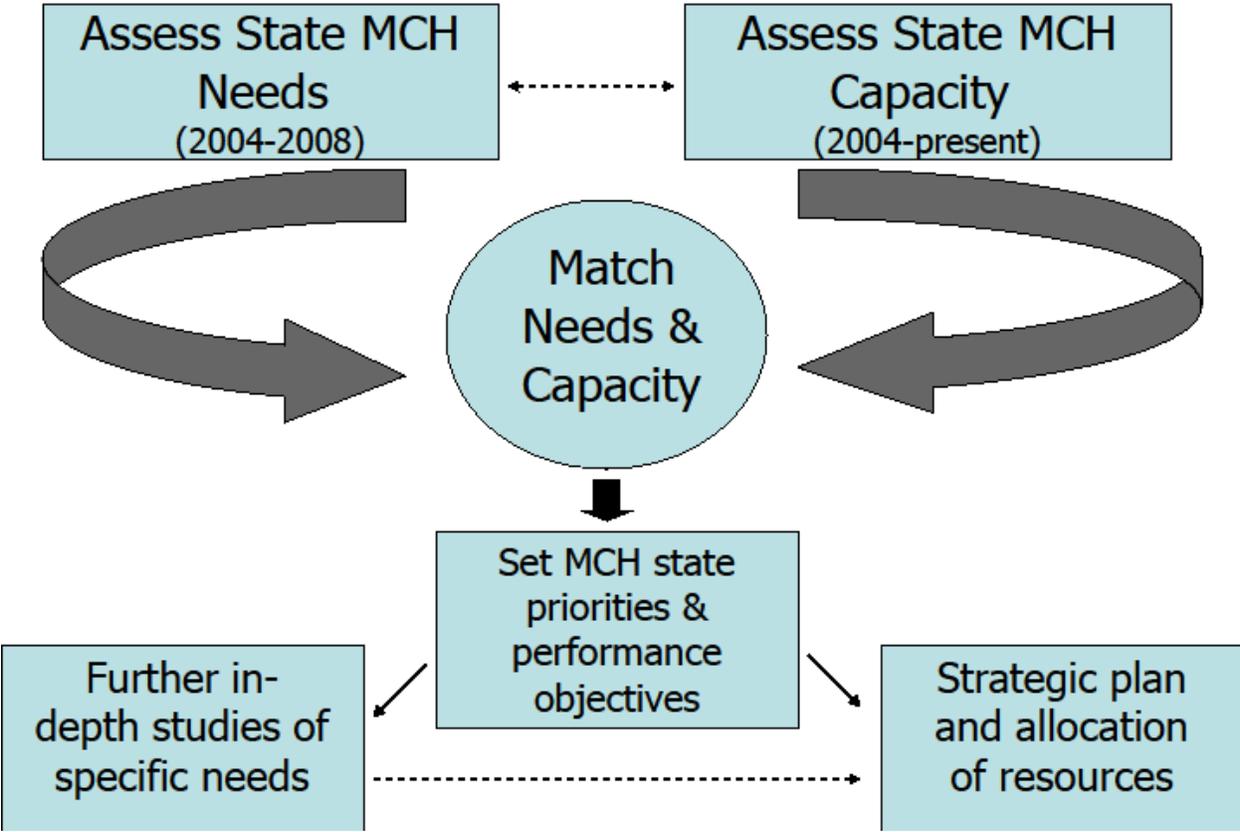
Strategic planning is currently underway to identify impactful actions that can and should be taken by the state Title V program over the next five years. For all priority areas, health disparities will be carefully considered so that those populations most severely impacted will be given priority for strategic interventions. In addition, the Bureau of Women's and Children's Health and the Office for Children with Special Health Care Needs will incorporate the social determinants of health and life course perspective into its planning efforts. This perspective looks at health, not as disconnected ages unrelated to each other, but as an integrated continuum, with each life stage influencing the next. Social, economic, and physical environments interact across the life course and have a profound impact on individual and community health.

The future of Arizona's Title V program will likely bring an increased focus on policy initiatives in order to have the largest impact with few resources. Policy changes, whether in the form of legislation, local ordinances, administrative rules, organizational policies or state program policies can be implemented to make the healthy choice the easy one and healthy behaviors the standard. Arizona will also continue a strong focus on integrating public health programs and activities in order to maximize funding and enhance consistency of messaging.

Appendix A

Arizona's MCH Needs Assessment Framework

Arizona Needs Assessment Framework



Appendix B

Summary of Title V Public Comments:

Input Sessions, Partner Meetings, Written Comments

As of May 4, 2010

1. Are there any critical issues related to the health of women and children that were not discussed in the presentation? If so, what are they?

Tucson Public Input – April 6

- Asthma
- Obesity
- Sleep Disorders
- Syphilis and stillbirths
- Diabetes in young children
- Diabetes with type I and type II in children
- Polycystic ovarian syndrome and primary C-Section
- Influence of epidurals on c-sections
- V-back, epidurals - VRQC (par of ACOG) is a national program looking at C-sections – they may have information on what is driving the rates up.
- Pre-conception and inter-conceptual care
- Pregnancy spacing
- Parental permission for health care for teens
- Domestic violence
- Well child exams – AHCCCS and non-AHCCCS
- School nurses collecting data on BMI
- High cholesterol, triglycerides, etc on children

- Age of first sexual intercourse
- More comprehensive early screening for wide variety of issues.
- Infant Mortality in Arizona?
- Maternal Mortality in Arizona?
- 0-5 Childhood Injury

Flagstaff – April 19

- Gap between school age children's knowledge of healthy behaviors and their parents' knowledge (the children are receiving the messages but not parents). This may be happening more in low income and Hispanic families. (Exercise and diet, injury prevention, etc)
- Building on getting parents involved – are people asking the target population directly what the needs are.
- Looking at birth to first year – should there be a label of preconception and inter-conception care so that care can begin to be reimbursed.
- Increase use of telemedicine, webinars and other means of disseminating information throughout Arizona.
- Child abuse was mentioned as an area of focus to look at.
- Is there a plan to align current focus to outcomes measures?
- There is an interest in having STI information on adolescents.
- As part of the five year needs assessment for Coconino County, drug abuse, lack of treatment options, domestic violence (especially on reservation and Hispanic populations), underserved areas – lack of transportation. Gap between health care providers, the services they provide, and the people who are eligible for the services not know. Lack of general health education.
- Although transportation is covered by AHCCCS providers, the member handbooks do not make it clear to the members. Also, they will put you on the bus (with a special needs child) at 4 am. Also, AHCCCS does not transport the accompanying child(ren). Social Service funds cover transportation costs for CHCN family members that AHCCCS will not

cover, but transportation companies are saying there are liability issues beyond money.

- Families appreciate the NICP program. Are we tracking the readmission rates for 35 to 36 week gestation babies? Many of these go home from newborn nursery.
- Also, pregnancy rates for 12 – 15 year-olds.
- The question of whether the proposed law requiring parental consent for medical care will impact teen pregnancy rates.
- Controlling C-Sections is a concern vs. Vaginal delivery
- Pregnancy and birth rate for girls ages 12-15. Rate of “late pre term births” (35-36 gestation) and correlation to infant mortality/morbidity.

Mesa – April 22

- School services for CSHCN
- Immunizations - difficulty in getting all children immunized, especially children with special health care needs (ex. Florence School District)
- Transportation issues – difficulty in getting services such as immunizations (ex. Florence School District)

Phoenix – April 28

- Working with discharge planning nurses.
- The impact that diabetes during pregnancy (and type II) has on the infant (for that infant’s entire life). They are seeing pre-term large birth weight babies.
- “Two bodies in one”
- Education of health care providers regarding diabetes and pregnancy.
- Patients are being labeled non-compliant but don’t have resources.
- Use schools for screening. They identify at-risk people through health fairs but there are not resources for follow-up services.
- Was expecting to hear what programs are out there currently.

- Need more nutrition education in schools because obesity and lack of nutrition knowledge is related to so many conditions.
- Education on disease process for CSHCN so they can transition into adulthood. For spina bifida the teenagers become non-compliant because of their stage of development. With support from OCSHCN, the health plans could work on this issue together.
- Behavioral and mental health of moms. Pre-natal, post-partum depression is on the increase.
- Increase of teen moms.
- We should be looking at younger teens too when looking at teen pregnancy.
- Native American population has highest rates of alcohol abuse, FAS, suicide, highway fatalities, obesity, hypertension, ER admissions. Didn't see all of this reflected in the presentation. Clients aren't going to I.H.S. because of long waits and don't want to go to other clinics because they don't want to deal with 'system'. Hence, they don't get the care they need and have poor outcomes. This becomes cyclical.
- A lot of pregnant women they are seeing have had no education about what they need for a healthy birth outcome. For example, don't know that STD can impact outcome.
- Child care – people who are going through disease management can't get childcare. This is a problem because parents will sometimes not seek treatment due to not having childcare.
- Didn't see a lot of data on domestic violence yet it is so prevalent – it affects income level, mental health, keeps effecting women over and over.
- Discussion on obtaining reliable rates of domestic violence data.
- Postpartum depression data, Chronic health conditions, Diabetes, CHF, Hypertension, and other health conditions on Women's and Children

Tribal session – May 4

What are the critical issues related to health of women & children in your communities?

- Increase in teen pregnancy last two years (Pascua Yaqui) – due to economy?

- Substance abuse among adolescents – alcohol and prescription drugs
- Childhood overweight and obesity – lack of nutrition
- Diabetes – Type II, adolescents, rates increasing
- Car seats – used for infants, need for toddlers and older children
- Identifying special needs in school age children
- Violence and gang activity
 - Increase in home invasions
 - Bullying prevention (outreach in schools?) – one on one, cyber bullying
 - Keeping children busy after school
- Suicide prevention – education, mental health education, drug and alcohol prevention
- Lack of parenting skills – lack of participation, responsibility
 - Need for parenting classes
- Lack of resources in Native American communities (Tohono O’odham) – medical and social services
- Teen pregnancy prevention - Birth control (sensitive issue), lack of education, cultural issues
- Special needs (Salt River Pima-Maricopa) - not just health care needs, currently focused on children
 - Need for transition services (vocational), adulthood
 - Data needs – ITCA epi center (tribal specific data), sensitivity around data sharing
- Women with housing, financial, multiple pregnancies, limited resources, children with truancy issues, hunger, neglect, inadequate parenting, lack of family support. Early intervention for developmental delayed, Teen pregnancy, Domestic Violence
- Alcohol / Drug addicted moms during pregnancy.
- Need for car seats for all ages/ stages and multiple children

2. Thinking of the health of women and children in your communities, what need(s) would you consider to be the highest priority? Why?

Tucson – April 6

- Obesity because it impacts so many other areas. Maybe ADHS can bring together the myriad of groups that are focused on obesity.
- Have everyone in state whoever has funding promote awareness of obesity (such as tribal communities).
- Asthma
- Medical Home for CSHCN. Empower families with knowledge and information.
- Breastfeeding duration because it can influence so many areas.
- Where ever we decide to focus, the focus should go beyond education and emphasize outcome. Look at policy, coalition building, other ways to get to outcomes.
- If ADHS can bring obesity/nutrition to a level where you can have a common media message that would be appropriate for urban and rural children – use that message, with repetition, so we can change patterns.
- A major issue in Santa Cruz County is drugs in schools.
- Physical activity. It has to be a community approach. \$ at health department OK, but if billboard right next door with fast food....
- Suicide and homicide in young people.
- Early identification of mental health issues. There are good tools. Still a lot of stigma. Especially more screening in adolescents.
- Make sure that we are looking forward.
- Oral health.
- Look at program evaluation, performance measures, are the things that have been around really making a difference. If not, move on.
- Obesity / Nutrition
- All children have access to a medical home

- Teen substance abuse / Behavioral health issues

Flagstaff – April 19

- ACES through United Way just did priorities for Northern Arizona. Information is available on the web.
- There are a lot of kids missing a lot of school because of oral health issues. There is mis-information regarding diet and what is healthy. Junk food tax helpful? WIC provides juice and parents get the impression that juice is good.
- The low income population is more impacted. Education needs to start before the birth of the child.
- Fluoride in the water in Northern Arizona.
- Dental Sealant Program has improved – more schools are eligible for the program since expanding eligibility
- More prevention and consistency in messages. More factual based (accurate) messages.
- Alternate service models. Using asset based community models to leverage resources.
- As changes are happening to AZIP and DDD, children are being bounced around from agency to agency. If providers know what the rules are, they will spend less time trying to find out where to get services and more time providing services.
- Teen pregnancy prevention because of the ripple effect – not finishing high school, poverty, incarceration, etc.
- There is no consistent educational message for teen pregnancy prevention. Medically based, accurate education that is evidence based and comprehensive. Education needs to be greatly expanded.
- Support for drivers education. High rate of motor vehicle deaths but the parents have to pay for driver's education.
- You don't know what you don't know from the families that don't get health care. (Those who live in isolated locations, don't have enough money, etc)

- Drivers Education: Highest numbers of total impact adults, teen's kids in accidents.
- Infant mortality: SIDS prevention information. Reduce IM rate.
- Mental Health: Depression impacts all age groups (obesity, suicide rates, Access to health care for babies/ kids due to parental depression).

Mesa – April 22

- Parent education – after birth, for both mother and father, taking responsibility of child's health care. Responsibility of parenthood including fathers. Invest early - only one set of parents and you're it. How to deal with stress.
- Kids cut off behavioral health meds were not weaned off.

Phoenix – April 28

- Prevention programs need to be sustainable. There was a program that was funded at the county, but when the program ended, women did not have those healthy resources to go to.
- Sex education – evidence based. A program was funded, but they couldn't find a home for it because of acceptability in the community.
- Programs that help parents discuss sensitive topics with children.
- Integration of oral and medical health. Prevention of oral health issues in the broader health context.
- Integrate more than just dental. Mental health, dental health, ob/gyn – holistic care. Medical home (if it is in the same building).
- We need to focus on adolescent health – going back to age 10 and out to 23. We need to transition children into adolescents and adolescents into adults.
- Have a registry of programs. There are so many programs that people are unaware of. You can have something right in your community that would be beneficial to your clients that you are unaware of.
- Arizona Health Matters contains some of the resource information but could be enhanced. Health Matters San Francisco is a nice model. It might be

better to have the resource housed by a university – such as the San Francisco model.

- Fetal infant mortality review board.
- For women: Free / low cost Pap smears and mamograms, free breast exams, with free follow up treatment.
- For Children: Free health exams, free dental exams and free follow up treatment.
- There are a high number of children/ women in the community that are not insured and have not seen a doctor for well exams ever.
- Mental and behavioral health services, Oral health services, Adolescence health and transitional care, Violence prevention

Tribal session – May 4

- Obesity
- Teen suicide prevention
- Teen pregnancy/STD prevention
- Service coordination to ensure continuum from birth to adult (special needs population)
 - Within maternal and child health
 - Partnership for continuum of services - work with First Things First, DHHS
 - Limited services but available opportunities for coordination
 - Transportation issues – transportation needs in the communities, need for face to face contact rather than by telephone
- Teen pregnancy impacts mother/ child throughout lifespan.
- School dropout, Poverty, Child raised by another child, CPS issues, Medical neglect, High risk infants.
- Lack of education of real life consequences of behavior
- Lack of knowledge to identify problems of child
- Poor mental health modeling

3. What need(s) would you recommend that Arizona Department of Health Services make a priority and address at the state level? Why? How should the need(s) be addressed?

Tucson – April 6

- Evaluate programs that are funded.
- Have strong performance measures.
- Have Department coordinate obesity efforts.
- Look at funding in rural AZ and funding to make sure that rural needs are considered in funding decisions.
- Consider how much more it costs to serve rural areas.
- Consider lack of providers/resources – transportation, telemedicine, try to recruit providers, be creative.
- Messaging around healthy foods.
- Have consistent messages – short, simple messages around a select group of issues.
- Use social media and cell phones for messaging.
- ADHS should identify and distribute their 5 year plan to the “stakeholders” in Arizona. Take the role in coordinating the state goals and objectives and develop areas of policy and div, media messages. Community stakeholders, and pulling the players together to deliver a “unified message’ and use the synergy of state program resources. I like the Larry Cohn preventive model “Spectrum of Prevention”.
- As a former school nurse it is apparent to me that this is a venue that is underutilized as far as outreach promotion and education and even possibly direct care services. Even when other resources and facilities are not available as in rural areas, there are children and families involved in schools. Oral health, Nutrition, physical activity programs, telemedicine, and Behavioral health as well as special health care needs, can all be addressed here working with school nurses and other school professionals

Flagstaff – April 19

- Teen sexual health issues – more funding would allow for more staff and moving into more communities.
- Is there a way to combine WIC with a prevention program for dental?
- Partnering with other agencies with large populations of children (oral health).
- Word of mouth may be better than written materials. Using peers (parent to parent). People need to be told by someone they trust. If they just get a handout, they don't trust it.
- The immigration bill is a potential threat to people trusting those who they do not know.
- Awareness days could assist in getting the word out. These should be something fun. Picnics, performances, target audience should be part of the entertainment. These events require resources (such as social workers) to put events together as well as staffing events.
- How much do proclamations matter? Not much.
- Public service announcements for nutrition and exercise (because they fall into so many areas).
- Have WIC moms come out to speak for peer to peer education.
- Child care subsidies are needed. Also, childcare for CSHCN is difficult to obtain.
- Fund drivers education for all teens: Lowering the accident rate would lower mortality, general cost to society, health care costs.
- SIDS Prevention: Provide info on how to use blankets correctly; how to position babies safely. Give "Sleep Sacks" to every Arizona newborn with education materials. Sleep Sacks cost \$3.00.
- Depression screenings in P.E classes? At all OB visits? At all Peds visits (moms with small kids)?
- STOP CUTTING! Tax something else alcohol, food..... to bring in money why make those vulnerable more vulnerable.

- Who are more important prisoners or children? Are Children important in Arizona? Is Education important in Arizona? Is Parent / Family advocacy important in Arizona? (Home visit programs)

Mesa – April 22

- Meet with AAP president. Work on example that explains impact of CRS cuts.

Phoenix – April 28

- Fetal infant mortality review board.
- The focus should be on preventative health.
- With limited funding, use the most effective programs.
- Simplification of eligibility system and places where services can be received.
- Community health centers.
- Using provider extenders to do health education.
- Utilize parish nurses
- Train the trainer programmers to increase education opportunities.
- Sometimes the system isn't very user friendly. Cultural brokers are needed to facilitate communication/care. Sensitivity training? Common sense?
- Some of the insensitivity may be related to the lack of time allotted to providing care. There is a structural issue. In order to do the family centered thing, you need to take the time to listen to people.
- Supporting providers to provide appropriate care.
- There is a Governor's website that provides individualized information on benefits that you can receive.
- Get something for the public to help advocate for themselves.

- Arizona has taxed cigarettes so much but the monies aren't realized in these areas. I would like to see a high tax on "Alcohol" as well and use that money to fund more free/low cost clinics. Why? Too many women and children are not receiving well exams. Follow up exams and are visiting E.R. services rather than regular ongoing visits. Accessible visits to a medical provider/home.
- Chronic Disease management and Health Improvement, Preconception Health and Post Partum health, Oral/Medical health integration

Tribal session – May 4

- Each tribe has specific infrastructure – you have to be able to look at each tribe and their priorities to design particular services
- IGA preferred over competitive grants
 - Struggle to find funding for continuing programs
 - Need for maintaining programs in place rather than implementing new programs
- Unusual relationship between the State and tribes
 - However, opportunities available to collaborate
 - ITCA epi center
 - IHS (meth, suicide, violence prevention grants available - only to certain tribes)
- Mechanism to share best practices – similarities between tribal and isolated communities (commonalities)
- Obesity prevention/nutrition – emphasize healthy lifestyles and nutrition
- 411 resource – loss of funding, was a great resource
- Students of nursing and medical programs – sources of data, valuable participants
- Need for more multi-disciplinary clinics for children – such as mobile team (travel once or twice a week), through ITCA?, work with community pediatricians, link to continual care, trial period of 18 months (before we know it works)
- Assess needs in each tribe, compare tribal programs
 - How can ADHS support?

- Support for parenting classes, Support groups for new teen moms, Moms ability to bond with child during first year of life
- Mental health services for elementary school children
- Funding reinstated for childcare, Transportation, Mothers to stay in school, Children given early childhood education, Services to prepare them for school, Child development education for parents.

4. Other comments:

Tucson – April 6

- A concern was expressed that we could be using this money in a duplicative manner to First Things First.
- There was a reminder that First Things First may go away and with it the services they provide (Child Health Consultants)
- Look at disparities of rural health data compared to urban data.
- Messaging clear, concise, simple. Can be used throughout the state.

Flagstaff – April 19

- Maintaining the NICP program is a vital link to the health of newborns in Arizona. The late pre term kids are a demographic group at risk for readmission to the hospital.

Mesa – April 22

- Congenital Syphilis
 - Only 30 cases per year, specific ethnic & geographic population
 - Mandatory maternal testing (3-4 times) and child testing (1 time) in Maricopa County, expensive (low rate of return)
 - Money should be spent elsewhere such as suicide prevention (higher rate of return)
- Insurance coverage
 - Difficulty understanding eligibility and budget cuts
 - Inform AZAAP about CRS and budget cuts – include one page summary in Chapter Newsletter
 - Children losing behavior medication (ex. Florence School District)

- In rural areas transportation and distance is a issue. Transportation is inconsistent and not on time.
- Services for CSHCN missing from school. Not much interaction between doctors and schools.
- Clarification on what is a medical home. When start kindergarten, you don't have to say who your doctor is.
- Transient kids lost; importance of medical home and continuing of care. Focus after birth is on getting social security numbers and birth certificates. Hospital of birth responsible for insuring follow up doctor is named for baby. Baby is on moms plan until gets on babies own plan.
- Getting immunizations up to date is challenge for children with special health care needs. May get behind because they're sick or in hospital. Collect data with Newborn screening on how we can follow up re guarding CRS/OCSHCN.

Phoenix – April 28

- I have firsthand knowledge of women and children who are not receiving basic well exams. Even if they qualify for sliding scales fees for service. They can't afford to pay. Many families have large numbers of children and one income provider many times the cost of health care vs the later wins out.
- I truly believe that a higher tax on Alcohol is going to be needed. We've already taxed cigarettes so much that those consumers are purchasing on line and through other means to save money let's try something new.

Tribal session – May 4

- Removing child from home - moving child across counties
 - Does AHCCCS coverage stop across counties?
 - Need for merging counseling services across counties
 - Occur in rural areas, late at night – makes it difficult to establish pre-treatment plans
- Who can they call at the State to reassemble services (due to interruptions)? – CMDP (AHCCCS health plan)

- Women's health- Focus on wellness, Paps, Mammograms, family planning, Prenatal care, Diabetes, Obesity
- Continue Health Start program
- Provide educational help and advocacy to families struggling to understand treatment for special needs children.
- Bulling prevention / Counseling in schools
- No Tolerance for Bullying campaign

Other partner meetings:

- What can we do about increase in c-section rates? What should our goal be? What interventions have been shown to work? What are the best practices?
- Data speaks to importance of impacting schools
- Need to address substance abuse and teen pregnancy
- More focus on coordination between systems of care for children
- Need to address post-partum health – depression, obesity

Other comments submitted:

I have worked for various needs that range from community development to human and health of local inner city neighborhoods for over thirty years throughout the United States and for the over 15 years in Phoenix, Arizona. As you know, there is a lack of ongoing health education and information for individuals that reside in these areas. It is for this reason that I am respectfully recommending the inclusion of a request for funding to support Health Education and Information Centers. Serving as the Coordinator, the Az Department of Health Services would establish partnerships between community based organizations and local health institutions (hmo's and hospitals) to provide at locally based community facilities health education and information to residents in their community. Minimal health related services could be provided also with payment on a sliding scale. If we are to decrease the state of health (obesity, high blood pressure, cancer, diabetes, asthma, etc.) among inner city residents, a resource of this type is needed to enhance and improve their quality of life.

Appendix C

Summary of Community Survey Findings

Community Survey		
Adequacy of Services Provided in Your Community for Selected MCH Populations		
<i>Women of Reproductive Age (15-44 years)</i>		
Reproductive health and family planning (n=754)		
Affordable and healthy food for people using food stamps (n=741)		
Shelters for domestic violence victims (n=742)		
Mental health treatment (n=727)		
Affordable health care (n=755)		
Dental care (n=735)		

Community Survey		
Adequacy of Services Provided in Your Community for Selected MCH Populations		
<i>Pregnant Women and Infants</i>		
Access to hospital with delivery facilities (n=757)		
Birth education classes (n=719)		
Breastfeeding education (n=746)		
Dental care (n=738)		
Affordable transportation to access health care (n=711)		
Support for breastfeeding at work (n=712)		

Community Survey**Adequacy of Services Provided in Your Community for Selected MCH Populations**

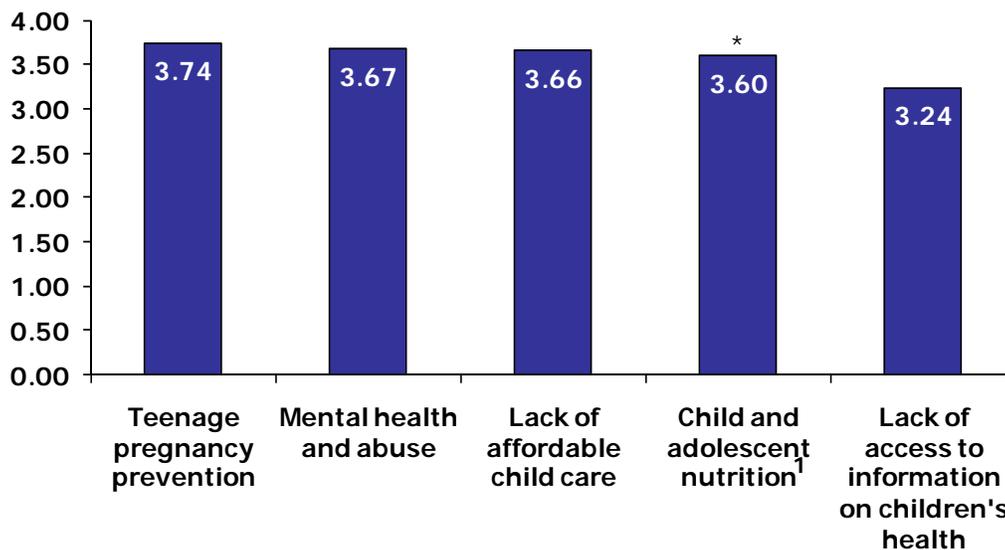
Safe places to play and exercise (n=764)		
Reproductive health/family planning (n=717)		
Mental health care (n=732)		
Drug and alcohol treatment (n=720)		
Teen driver and safety training (n=665)		
After school activities for teens (n=719)		

Appendix D

Summary of Partner Survey Findings

- 57 partners responded to an online survey
- 501(c) 3's (41 %), County Health Departments (14%), Community Health Centers (13%), IHS/Tribes (9%), and Others (23%)
- Assessed needs, issues, barriers to care, capacity

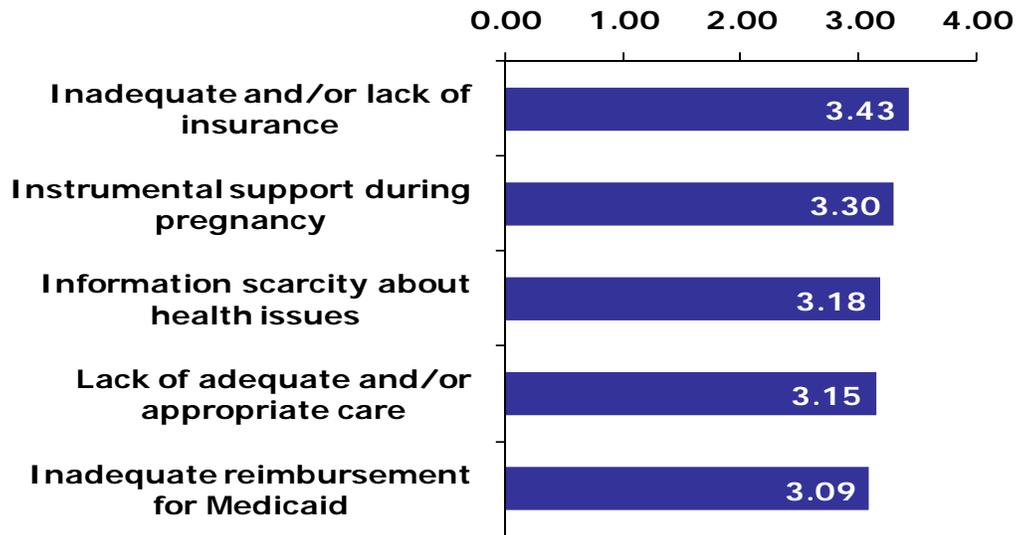
Partners' perception of Critical Needs for Children and Adolescents



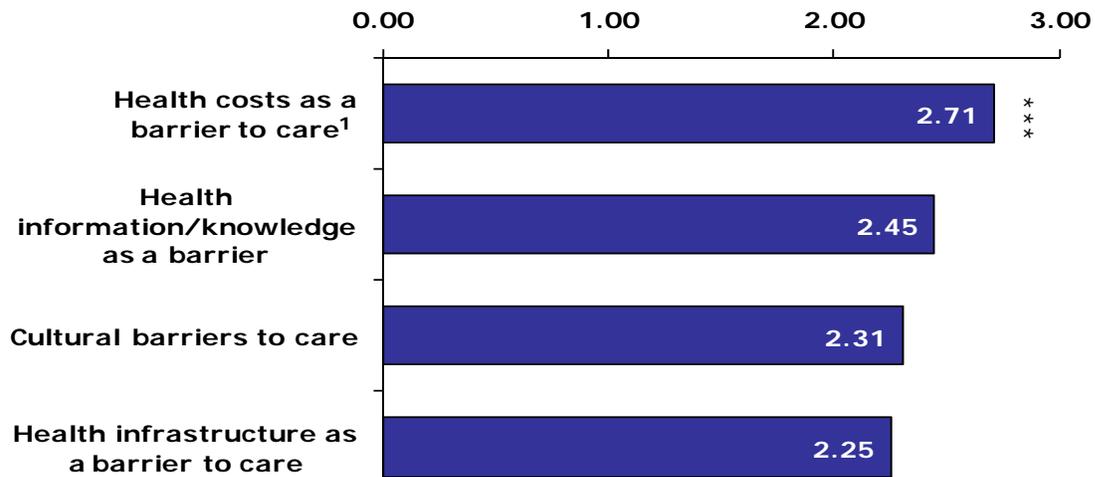
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¹Significant differences by type of organization

Partners' perception of Critical Health Issues for women, children, and adolescents



Partners' perception of barriers that prevent women, children, and adolescents accessing quality care



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¹Significant differences by type of organization

Appendix E

Access to Care Indicators

Indicator	Arizona	US
1. Percent of individuals who did not get medical care due to cost ¹	7.00%	5.80%
2. Percent of individuals who delayed medical care due to cost ¹	9.50%	7.80%
3. Percent of individuals who did not get prescription drugs due cost ¹	10.20%	7.10%
4. Percent of women who are 18 or older who received PAP tests in the last three years ²	82.30%	82.90%
5. Percent of women who visited a dental clinic or dentist in the past 12 months ²	69.10%	72.90%
6. Percent of women who utilized prenatal care by first trimester ³	77.70%	83.20%
7. Percent of children with a preventive medical visit in the past year ⁴	83.90%	88.50%
8. Percent of children with a preventive dental visit in the past year ⁴	75.50%	78.40%
9. Percent of children who received care within a medical home ⁴	50%	57%
10. Percent of children age 10 months to 5 years who received a standardized screening for developmental or behavioral problems ⁴	17.30%	19.50%
11. Percent of children age 19 to 35 months who received four or more doses of DTAP ⁵	86.2%	84.9%

Sources:

¹National Health Interview Survey (NHIS 2006-2007)

²Behavioral Risk Factor Surveillance System (BRFSS 2008)

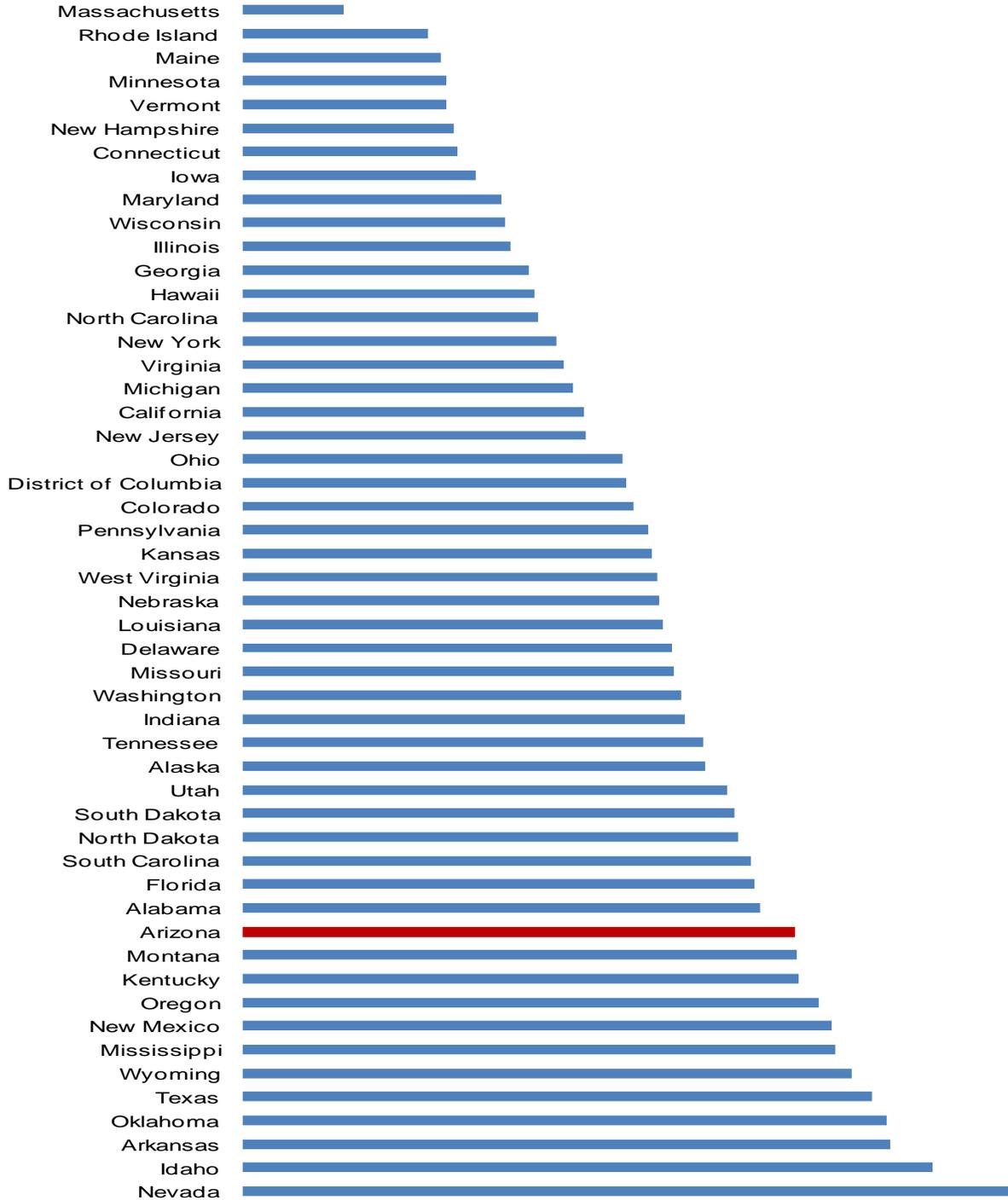
³Kaiser State Health Facts (Comparable US data available for 2006 only)

⁴National Survey for Children's Health (NSCH 2007)

⁵National Immunization Survey, 3/2008- 2/2009

Appendix F

State comparison on MCH access to care indicators



Notes: States are rank-ordered from best to worst with shorter bars representing favorable rank and vice-versa.