

April 2, 2018

The Honorable Douglas A. Ducey  
Governor of Arizona  
1700 W. Washington  
Phoenix, AZ 85007

Dear Governor Ducey:

Pursuant to A.R.S. 36-2904, the Arizona Health Care Cost Containment System (AHCCCS) is required to prepare a biennial report indicating the number of children who by age two and by contractor received immunizations recommended by the National Centers for Disease Control and Prevention while enrolled as members.

If you have any questions regarding the attached report, or the restatement of the prior report, please feel free to contact me at (602) 417-4711.

Sincerely,



Thomas J. Betlach  
Director

cc: The Honorable Steve Yarbrough, President, Arizona State Senate  
The Honorable J.D. Mesnard, Speaker, Arizona State House of Representatives  
Matthew Gress, Director, Governor's Office of Strategic Planning and Budgeting  
Christina Corieri, Senior Policy Advisor, Governor's Office



# Childhood Immunization Completion Rates



A biennial report to the Arizona Governor, President of the Senate and Speaker of the House evaluating the compliance rates of childhood immunizations of children by two years of age enrolled in AHCCCS, Arizona's Medicaid program.

**Acute Care Contractors and the  
Division of Development  
Disabilities**

**Thomas J. Betlach, Director**

**Prepared by the Division of  
Health Care Management**

**April 2018**



*"Our first care is your health care."*

*For questions or comments about this report, please contact:*  
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CHILDHOOD IMMUNIZATION STATUS AT 24 MONTHS OF AGE

A Biennial Report to the Governor, President of the Senate, and Speaker of the House for the Measurement Period Ending September 30, 2017

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# CHILDHOOD IMMUNIZATION STATUS AT 24 MONTHS OF AGE

A Biennial Report to the Governor, President of the Senate, and Speaker of the House for the Measurement Period Ending September 30, 2017

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## EXECUTIVE SUMMARY

“Diseases that used to be common in this country and around the world, including polio, measles, diphtheria, pertussis (whooping cough), rubella (German measles), mumps, tetanus, rotavirus and *Haemophilus influenzae* type b (HiB) can now be prevented by vaccination”<sup>1</sup>. Children are born with an immune system made up of cells, tissues and organs designed to defend the body against infectious organisms. When organisms are introduced into the body, several cell type work together to detect and respond to these organisms with antibodies<sup>2</sup>. Once produced, antibodies remain in the body so that in the event the body encounters these organisms again they can respond quickly. Immunizations prevent specific diseases by introducing the body to antigens which will in turn protect a person from future attacks by organisms or germs by acting quickly to attack and remove them.

Since 1993, the Arizona Health Care Cost Containment System (AHCCCS) has regularly measured the immunization status of children 24 months of age. This report is presented in accordance to state law (ARS 36-2904), which requires a biennial status of 24-month immunization completion rates for children served by the AHCCCS. This report evaluates the performance of AHCCCS contracted health plans (Contractors) individually and overall.

One barrier that continues since the previous measurement period is the concern and miseducation by parents regarding complications and risks associated with vaccinating children. Many of these parents are choosing to refuse or delay vaccinating their child. These decisions put not only their child at risk but also those within their communities, especially those who cannot be vaccinated due to illness or other medical reasons; for example those who experience vaccine failure and children too young to be vaccinated. Two national surveys conducted on parents of children under the age of six indicate that over 20 percent of parents had reservations regarding the risks of vaccinations<sup>3,4</sup>.

Arizona law requires children to receive specific vaccines to attend school with exceptions only for medical, religious or personal belief reasons. The Arizona Department of Health Services evaluates exemption rates and reported an increase in exemption rates from 2016 to 2017. Childcare and kindergarten exception rates increased from 3.5% to 3.9% and 4.5% to 4.9% respectively<sup>5</sup>.

AHCCCS has established minimum performance standards (MPS) for childhood immunization rates which are used to evaluate Contractor performance. Contractors must meet the MPS for each vaccine and vaccine series; if they perform lower than the MPS they must implement a Corrective Action Plan (CAP) and may be subject to regulatory actions, which may include sanction(s) if they fail to improve their rates.

### *Methodology*

AHCCCS used the Centers for Medicare and Medicaid Services (CMS) technical specifications developed for the *Core Set of Children’s Health Care Quality Measures for Medicaid and CHIP*<sup>6</sup> (*Child Core Set*). A random sample of children who turned 24 months of age on or between October 1, 2016 and September 30, 2017 and who were continuously enrolled twelve months prior to the child’s second birthday were included in this study.

All data was collected according to applicable privacy and confidentiality laws and safeguards. AHCCCS first sent the sample to the Arizona Department of Health Services (ADHS) to obtain data from the Arizona State Immunization Information System<sup>7</sup> (ASIIS), which is an electronic registry maintained by ADHS. The ASIIS registry was searched by

first and last name and date of birth within the AHCCCS file. ADHS then provided AHCCCS with all immunization dates in the registry for those members for which it was able to find a match. The sample was then sent to the Contractors who conducted a hybrid audit for those members, meaning they gathered medical records and/or claims to confirm a member's receipt of documented vaccinations and potential receipt of missing vaccinations.

### Overall Results and Analysis

Aggregate performance rates for individual and combination immunizations are shown in the table below. The final sample consisted of 3,745 children enrolled with nine Contractors whose second birthdays occurred during Contract Year Ending (CYE) 2017.

- Since the last report, one measure (Combination 2) is no longer contractually required, as it looked at a limited number of immunizations; therefore, it is not an included component of this report.
- Since the last report, a more stringent validation process to confirm adherence with CMS *Core Set of Children's Health Care Quality Measures for Medicaid and CHIP (Child Core Set) Technical Specifications and Resource Manual*<sup>11</sup> has been implemented and is believed to impact the calculated rates for this measurement period.

### Aggregate Individual Immunization Completion Rates by 24 Months of Age Measurement period ending September 30, 2017

	DTaP (4 doses)	IPV (3 doses)	MMR (1 dose)	HiB (3 doses)	Hep B (3 doses)	VZV (1 dose)	PCV (4 doses)	Hep A (1 dose)	RV (2-3 doses)	Flu (2 doses)	Combo 3
<b>AHCCCS MPS (%)</b>	85%	91%	91%	90%	90%	88%	82%	40%	60%	45%	68%
<b>Medicaid Mean FFY 2016</b>	76.8%	88.7%	89.5%	88.1%	88.0%	89.0%	77.2%	84.2%	69.0%	45.3%	69.7%
<b>Current AHCCCS Rate (%)</b>	77.4%	86.4%	87.6%	86.3%	85.9%	86.8%	74.9%	<b>87.3%</b>	59.0%	38.1%	<b>69.1%</b>
<b>Previous AHCCCS Rate (%)<sup>1</sup></b>	82.9%	90.8%	93.0%	89.3%	89.9%	92.6%	80.1%	92.3%	76.4%	46.6%	73.2%

Rates in bold met or exceeded the AHCCCS MPS

<sup>1</sup>Data for CYE 2015 presented in the tables below have been updated to address a data revision post publication of the CYE2015 Childhood Immunization Completion Rates Report.

AHCCCS rates were compared with the most recent national means for Medicaid health plans as reported by the National Committee for Quality Assurance (NCQA) within the State of Health Care Quality 2017 report<sup>8</sup>. NCQA produces this report annually and it focuses on quality issues the country faces and assists in driving improvement in the delivery of evidence-based medicine and care. The report trends performance over time, tracks variations in care and recommends quality improvement. When compared to the mean for Medicaid on a national level, Arizona met or exceeded the national mean for two childhood immunizations, DTaP and Hep A.

### Conclusion

AHCCCS will provide the data and rates for this measurement period to Contractors for additional analysis so they may identify barriers and develop interventions to improve their performance. Contractors continue comprehensive outreach efforts to encourage parents to complete scheduled immunizations for their children and to providers to schedule appointments necessary to administer vaccinations. AHCCCS and its Contractors also continue to promote completion and timely immunizations for all populations served with a specific focus on childhood and adolescent immunizations.

AHCCCS, AHCCCS Contractors and relevant stakeholders work collaboratively to develop interventions and education initiatives between measurement periods, which include monitoring local, state and national trends that could potentially impact immunization rates.

AHCCCS will continue to work with and monitor Contractors, especially those with lower compliance, to assist them in making progress toward reaching state and national goals.

## CHILDHOOD IMMUNIZATION STATUS AT 24 MONTHS OF AGE

A Biennial Report to the Governor, President of the Senate, and Speaker of the House for the Measurement Period Ending September 30, 2017

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### OVERVIEW

#### *Background*

Since 1993, AHCCCS has measured the immunization rates of children by two years of age. Arizona Revised Statute 36-2904 requires that AHCCCS submit a report to the Governor and Legislature that represents a statistically valid sample evaluating the number of AHCCCS enrolled children who received immunizations recommended by the Centers for Disease Control and Prevention (CDC) by age two. This biannual report evaluates childhood immunization compliance for each AHCCCS acute-care and Division of Developmental Disabilities (DDD) contracted health plans (Contractors).

This report includes 2017 measurement results of nine individual vaccines, two combination vaccines and the influenza vaccine, which protect against fourteen different diseases and viruses: diphtheria, tetanus and acellular pertussis (DTaP); inactivated poliovirus (IPV); measles, mumps and rubella (MMR); haemophilus influenzae type b (HiB); hepatitis B (Hep B); varicella zoster (VZV); pneumococcal conjugate (PCV); hepatitis A (Hep A); rotavirus (RV) and influenza. The recommended vaccination schedule can be found in Appendix B.

Vaccination is important not only to the individual, but also to those living in their communities. “When a sufficiently high proportion of a population is vaccinated against communicable diseases, the entire population can obtain protection.”<sup>9</sup> Within the United States childhood diseases have decreased by 95 percent due to immunizations since the end of the 20<sup>th</sup> century<sup>10</sup>. Monitoring of immunization completion rates is critical to identifying under-vaccinated populations and increasing coverage levels in order to prevent outbreaks of disease.

AHCCCS established Minimum Performance Standards (MPS) for childhood immunization rates, both individual and combinations, which are used in evaluating Contractor performance. If a Contractor does not meet the MPS set for a specific immunization or combination, the Contractor must develop and implement a Corrective Action Plan (CAP) and may be subject to regulatory action which may include sanction(s). It is important to note that a Contractor may not meet the MPS for an individual immunization, but may meet it for a particular combination as the MPS set for combinations are lower than those for individual immunizations.

#### *Changes*

- Two Contractors (Maricopa Health Plan and Phoenix Health Plan) are no longer contracted with AHCCCS as acute-care health plans.
- Since the last report, one measure (Combination 2) is no longer contractually required, as it looked at a limited number of immunizations; therefore, it is not included component of this report.
- In addition, there have been continued improvements within the data validation efforts that are outlined later within this report.

#### *Medicaid Mean*

AHCCCS rates were compared with the most recent national means for Medicaid health plans as reported by the National Committee for Quality Assurance (NCQA) within the State of Health Care Quality 2017 report<sup>8</sup>. NCQA produces this report annually and it focuses on quality issues this country faces and assists in driving improvement in the delivery of



evidence-based medicine and care. The report trends performance over time, tracks variations in care and recommends quality improvement. When compared to the mean for Medicaid on a national level, Arizona met or exceeded the national mean for two childhood immunizations, DTaP and Hep A.

**AHCCCS Performance Measure Standards for Childhood Immunizations  
Measurement Period Ending September 30, 2017**

Immunization	AHCCCS Minimum Performance Standard (MPS)	Medicaid Mean FFY 2016
DTaP – 4 doses	85%	76.8%
IPV – 3 doses	91%	88.7%
MMR – 1 dose	91%	89.5%
HiB – 3 doses	90%	88.1%
Hep B – 3 doses	90%	88.0%
VZV – 1 dose	88%	89.0%
PCV – 4 doses	82%	77.2%
Hep A – 1 dose	40%	84.2%
RV – 2-3 doses	60%	69.0%
Influenza – 2 doses	45%	45.3%
Combination 3	68%	69.7%

**PURPOSE OF THE MEASUREMENT**

This study was conducted to determine the immunization rates of AHCCCS members who turned age two by September 30, 2017, as required by state law (*ARS 36-2904*) and to evaluate Contractor performance. Aggregate rates are reported to determine the compliance rates of children enrolled in AHCCCS statewide. Individual Contractor rates are reported separately to evaluate the performance of each Contractor. Results of the current measurement year stratified by race/ethnicity and county are also included to determine if any disparities exist and assist in identifying opportunities for improvement.

**QUALITY INDICATORS**

This immunization study utilized the Centers for Medicare and Medicaid Services (CMS) technical specifications and resource manual for federal fiscal year 2017 reporting specific to the *Core Set of Children’s Health Care Quality Measures for Medicaid and CHIP<sup>6</sup> (Child Core Set)*. The Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA) included provisions to strengthen the quality of care provided to and health outcomes of children in Medicaid and CHIP. CHIPRA required HHS to identify and publish a core measure set of children’s health care quality

measures for voluntary use by State Medicaid and CHIP programs. All quality indicators are based on identical denominator criteria. These indicators are listed below with the numerator criteria.

- DTaP – the total number of children in the denominator who received at least four DTaP (diphtheria, tetanus and acellular pertussis) vaccinations with different dates of service on or before the child’s second birthday.
- IPV – the total number of children in the denominator who received at least three IPV (inactivated poliovirus) vaccinations with different dates of service on or before the child’s second birthday.
- MMR – the total number of children in the denominator who received any of the following with a date of service on or before the child’s second birthday:
  - at least one MMR (measles, mumps and rubella) vaccination
  - at least one measles and rubella vaccination and at least one mumps vaccination or history of illness on the same date of service or on different dates of service
  - at least one measles vaccination or history of the illness and at least one mumps vaccination or history of the illness and at least one rubella vaccination or history of the illness on the same date of service or on different dates of service
- HiB – the total number of children in the denominator who received at least three HiB (haemophilus influenzae type b) vaccinations with different dates of service on or before the child’s second birthday.
- Hep B – the total number of children in the denominator who had either of the following on or before the child’s second birthday:
  - At least three hepatitis B vaccinations with different dates of service
  - History of hepatitis illness
- VZV – the total number of children in the denominator who had either of the following:
  - At least one VZV (varicella) vaccination with a date of service on or before the child’s second birthday
  - History of varicella zoster illness
- PCV – the total number of children in the denominator who received at least four PCV (pneumococcal conjugate) vaccinations with dates of service on or before the child’s second birthday.
- Hep A – the total number of children in the denominator who had either of the following:
  - At least one hepatitis A vaccination with a date of service on or before the child’s second birthday
  - History of hepatitis A illness
- RV – the total number of children in the denominator who received any of the following on or before the child’s second birthday:
  - At least two doses of the two-dose rotavirus vaccine on different dates of service
  - At least three doses of the three-dose rotavirus vaccine on different dates of service
  - At least one dose of the two-dose rotavirus vaccine and at least two doses of the three-dose rotavirus vaccine, all on different dates of service

- Influenza – the total number of children in the denominator who received at least two influenza vaccinations with different dates of service on or before the child’s second birthday.
- Combination #3 – the total number of children in the denominator who received four DTaP vaccinations, three IPV vaccinations, one MMR vaccination, three HiB vaccinations, three HBV vaccinations, one VZV vaccination and four PCV vaccinations on or before their second birthdays.

For further information related to technical specifications utilized, please refer to the CMS *Core Set of Children’s Health Care Quality Measures for Medicaid and CHIP (Child Core Set) Technical Specifications and Resource Manual*<sup>11</sup>.

## METHODOLOGY

The measurement included children who turned two years of age during the contract year ending (CYE) September 30, 2017, who were continuously enrolled with AHCCCS Contractors and were eligible under Medicaid (Title XIX of the Social Security Act).

### *Eligible population*

- Children who turn 2 years old during the measurement year.
- Children who were continuously enrolled 12 months prior to the child’s second birthday.
- Children with no more than one gap in enrollment of up to 45 days during the 12 months prior to the child’s second birthday.
- Children who were enrolled on their second birthday.

### *Study Sample*

AHCCCS pulled a random sample of eligible members inclusive of an oversample for a total of 453 members per Contractor. One Contractor did not have a large enough population to pull a sample from; therefore their entire eligible population was used for this measure. The total sample for all contractors was 3,745 members.

### *Data Collection*

AHCCCS identified all eligible children enrolled with AHCCCS and pulled a random sample of members inclusive of an oversample for each Contractor. AHCCCS then collaborated with the Arizona Department of Health Services (ADHS) to obtain data from the Arizona State Immunization Information System (ASIIS) which is an electronic registry maintained by ADHS. AHCCCS provided ASIIS with an electronic file containing the members included for this study. The ASIIS registry was searched by first and last name and date of birth within the AHCCCS file, the registry was further searched to match against other factors such as child or mothers social security number; this was done only in the event that more than one member was found with the same name and date of birth. ADHS provided AHCCCS with all immunizations in the registry for those members included in the file if an immunization existed within the registry. The data was then merged with any vaccination data for administration of vaccines collected from the AHCCCS encounter system through the AHCCCS Data Warehouse.

Respective samples were provided to the Contractors with the vaccination data that had been collected through the means identified above. Contractor personnel were instructed on the purpose of the study, the methodology, data collection methods and internal quality control/validation procedures to ensure that data was collected and reported to AHCCCS in a consistent and reliable manner. Contractor staff collected additional data from medical records and/or any claims

(encounter) not yet received or processed by AHCCCS. Dates collected were entered into an excel file and all relevant documentation which provides proof that a vaccine was administered was submitted by the Contractors to AHCCCS.

#### *Data Validation*

AHCCCS reviewed documentation submitted by Contractors to verify valid exclusions and validate the administration of vaccinations in accordance with CMS *Core Set of Children's Health Care Quality Measures for Medicaid and CHIP (Child Core Set) Technical Specifications and Resource Manual*<sup>11</sup>. This included the review and validation of any listed date of service that did not meet the standard methodology in regards to allowable time periods and/or supporting documentation requirements.

For further information related to technical specifications utilized, please refer to the CMS [\*Core Set of Children's Health Care Quality Measures for Medicaid and CHIP \(Child Core Set\) Technical Specifications and Resource Manual\*<sup>11</sup>](#).

#### *Data Analysis*

Once data collection and validation was finalized, AHCCCS merged the data from the Contractors and performed a primary analysis. Following CMS technical specifications, if the data showed that an individual member received two doses of the same vaccine with dates of service that were within 14 days of each other as gathered through both administrative and medical record documentation, the doses were considered a single immunization. This allowed for data from different sources to be combined, while reducing the possibility of counting the same immunization twice due to data entry errors. The primary analysis provided results on the percentage of members who were age-appropriately immunized by two years of age for each quality indicator overall, by individual Contractor, by county and by race/ethnicity.

#### *Data Limitation*

Data obtained from ASIIS and provided to the Contractors for hybrid review included dates of service outside of that allowed per CMS *Core Set of Children's Health Care Quality Measures for Medicaid and CHIP (Child Core Set) Technical Specifications and Resource Manual*<sup>11</sup>, thus impacting the individual Contractor and AHCCCS aggregate rates provided as part of this report. Analysis of this data limitation revealed a statistically significant impact for up to three of the ninety-nine individual immunization rates reported by Contractor and seven of the AHCCCS aggregate rates reported.

## RESULTS

The final sample consisted of 3,745 children enrolled in AHCCCS across nine Contractors. The sample included 453 members for all but one health plan, of which had an eligible population too small to sample from; therefore, their entire population was used for the study. Compliance rates for the combined health plans along with comparative data are as follows:

**Aggregate Individual Immunization Completion Rates by 24 Months of Age**  
**Measurement period ending September 30, 2017**

	DTaP (4 doses)	IPV (3 doses)	MMR (1 dose)	HiB (3 doses)	Hep B (3 doses)	VZV (1 dose)	PCV (4 doses)	Hep A (1 dose)	RV (2-3 doses)	Flu (2 doses)	Combo 3
<b>AHCCCS MPS (%)</b>	85%	91%	91%	90%	90%	88%	82%	40%	60%	45%	68%
<b>Medicaid Mean FFY 2016</b>	76.8%	88.7%	89.5%	88.1%	88.0%	89.0%	77.2%	84.2%	69.0%	45.3%	69.7%
<b>Current AHCCCS Rate (%)</b>	77.4%	86.4%	87.6%	86.3%	85.9%	86.8%	74.9%	<b>87.3%</b>	59.0%	38.1%	<b>69.1%</b>
<b>Previous AHCCCS Rate (%)<sup>1</sup></b>	82.9%	90.8%	93.0%	89.3%	89.9%	92.6%	80.1%	92.3%	76.4%	46.6%	73.2%

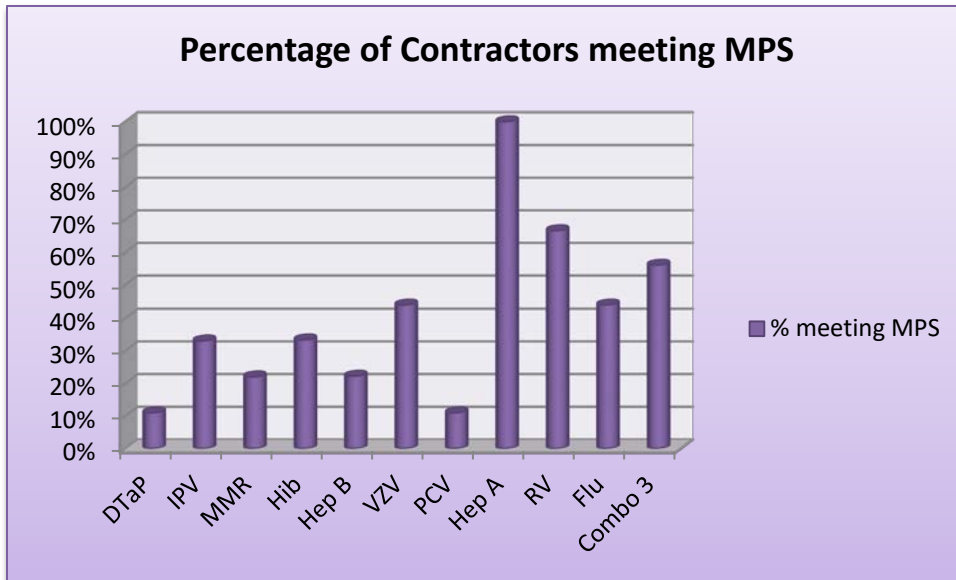
Rates in bold met or exceeded the AHCCCS MPS

<sup>1</sup>Note: Data for CYE 2015 presented in the tables below have been updated to address a data revision post publication of the CYE2015 Childhood Immunization Completion Rates Report.

Statewide, two immunization rates met the MPS set; however, the total number of children receiving each individual immunization and the combination immunization showed a statistically significant decrease from the previous measurement period.

Refer to Graph 1 to review the percentage of Contractors who met or exceeded the AHCCCS established MPS by immunization.

**Graph 1:**  
**Percentage of Contractors meeting MPS, by Immunization**



Results by Contractor

For the Medicaid population, there are ninety-nine reported rates that allow for calculation of statistical significance when looking at individual immunizations by Contractor. One Contractor met the MPS for all measure evaluation as part of this study; yet, decreases were experienced in the aggregate for all immunizations. At the Contractor level, it is important to note that forty of the ninety-nine reported rates met the established MPS. A combination of statistically significant decreases by four Contractors, non-significant decreases by two Contractors, and a more stringent validation process to confirm adherence with CMS *Core Set of Children’s Health Care Quality Measures for Medicaid and CHIP (Child Core Set) Technical Specifications and Resource Manual<sup>11</sup>*, contributed to a statistically significant decrease for each of the immunizations statewide.

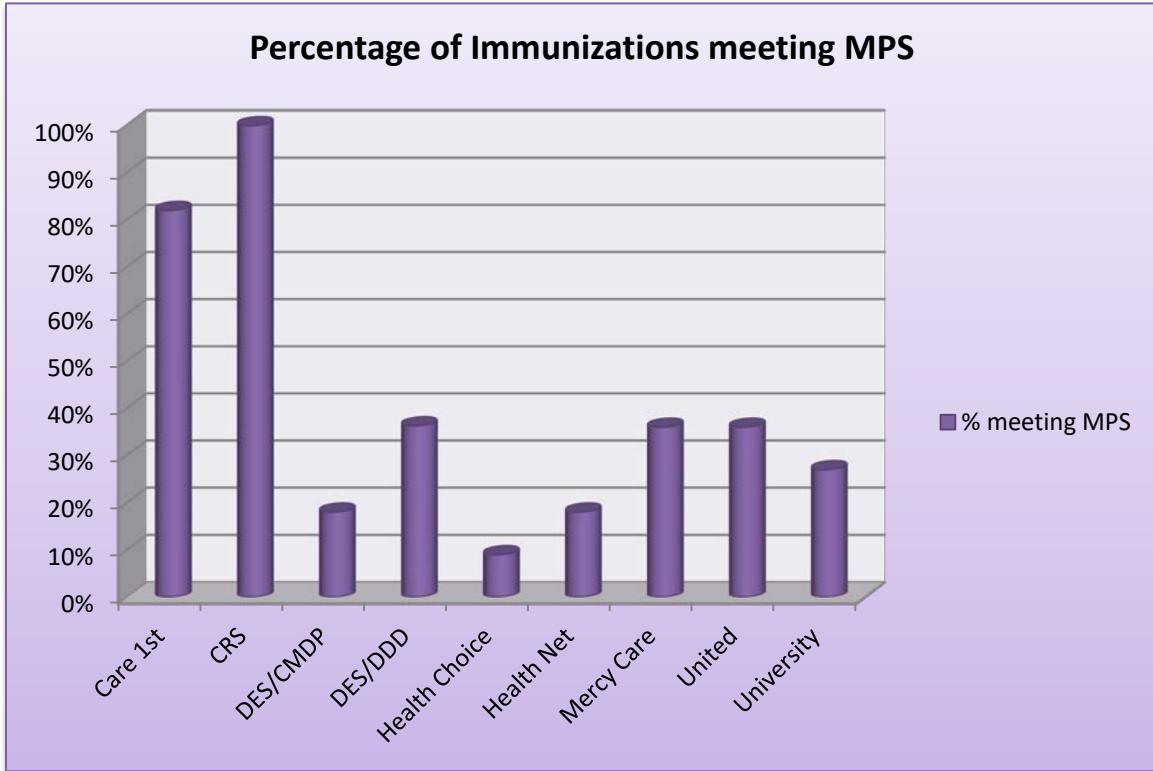
**Table 1:  
Medicaid Rates for Individual Immunizations, by Contractor**

AHCCCS Contractor	Percent of Immunizations Completed by 24 Months of Age										
	DTaP (4 doses)	IPV (3 doses)	MMR (1 dose)	HiB (3 doses)	Hep B (3 doses)	VZV (1 dose)	PCV (4 doses)	Hep A (1 dose)	RV (2-3 doses)	Flu (2 doses)	Combo 3
Care 1 <sup>st</sup> Arizona	83.7	<b>91.6</b>	<b>92.7</b>	<b>91.4</b>	<b>91.4</b>	<b>91.2</b>	81.7	<b>91.6</b>	<b>69.3</b>	<b>45.9</b>	<b>76.8</b>
	85.8	92.9	93.3	92.5	94.5	93.3	82.6	93.1	83.2	49.1	78.5
CRS	<b>85.7</b>	<b>92.9</b>	<b>92.3</b>	<b>92.7</b>	<b>91.8</b>	<b>91.8</b>	<b>83.4</b>	<b>92.3</b>	<b>64.0</b>	<b>52.1</b>	<b>78.4</b>
	82.9	92.7	94.9	94.1	92.2	94.3	82.4	93.7	65.3	53.3	76.1
DES/CMDP	76.2	85.9	89.0	87.4	85.2	87.4	70.4	<b>91.8</b>	43.7	<b>47.2</b>	63.4
	82.4	95.1	98.0	94.5	93.1	97.4	77.7	96.1	70.8	55.8	68.8
DES/DDD	81.0	88.4	90.9	<b>90.1</b>	83.5	<b>90.1</b>	79.3	<b>90.9</b>	30.6	<b>64.5</b>	67.8
	63.9	72.2	84.2	81.2	66.2	81.2	58.6	86.5	57.1	40.6	42.1
Health Choice Arizona	60.3	68.4	75.7	69.3	70.6	75.3	56.3	<b>77.9</b>	41.1	5.1	53.4
	90.9	93.7	93.5	94.7	91.1	93.9	88.8	94.7	89.5	52.7	84.6
Health Net Access	74.4	84.5	85.2	86.1	82.6	85.2	73.5	<b>83.0</b>	<b>61.6</b>	32.5	66.2
	52.0	63.8	80.3	27.1	62.4	79.0	49.3	82.5	59.8	10.5	20.9
Mercy Care Plan	79.2	<b>91.4</b>	88.3	89.2	89.4	87.4	79.7	<b>88.5</b>	<b>68.7</b>	39.3	<b>72.0</b>
	88.6	94.3	93.5	93.3	93.7	93.5	85.4	93.5	76.9	50.5	79.7
United Health Care	80.6	88.1	90.3	86.5	88.1	<b>89.4</b>	77.3	<b>88.3</b>	<b>63.8</b>	40.6	<b>72.4</b>
	76.7	89.2	91.3	91.3	90.1	89.9	77.5	87.8	66.3	42.6	70.6
University Family Care	77.9	88.1	86.3	86.8	89.0	85.4	75.5	<b>83.7</b>	<b>67.5</b>	34.7	<b>70.6</b>
	85.6	92.5	93.3	90.7	93.1	93.1	80.5	90.7	79.3	45.8	77.1
<b>TOTAL</b>	77.4	86.4	87.6	86.3	85.9	86.8	74.9	<b>87.3</b>	59.0	38.1	<b>69.1</b>
PREVIOUS TOTAL*	82.9	90.8	93.0	89.3	89.9	92.6	80.1	92.3	76.4	46.6	73.2

Note: The shaded lines are representative of the previous (CYE 2015) measurements. Bolded rates indicate results equal to or above the Minimum Performance Standards.

\* Rates inclusive of two Contractors (Maricopa Health Plan and Phoenix Health Plan) no longer active as of CYE 2017.

**Graph 2:  
Percentage of Immunizations Meeting MPS, by Contractor**



*Results by County*

The data was analyzed by county in order to determine if any disparities (significant variance) exists by region. Counties who had 100 percent compliance for any immunization were not included in the disparity analysis. While these counties are included in the tables below, they were not used in calculating disparities. For individual immunizations: Apache County had comparatively lower rates for nine immunizations (DTaP, IPV, MMR, HiB, Hep B, VZV, PCV, Hep A, and RV); Mohave County had comparatively lower rates for five immunizations (MMR, HiB, VZV, RV and Flu); Yavapai County had comparatively lower rates for five immunizations (MMR, HiB, Hep B, VZV, and Hep A); Gila County had comparatively lower rates for three immunizations (MMR, VZV, and Flu); Pinal County had comparatively lower rates for three immunizations (HiB, RV, and Flu); Yuma had comparatively lower rates for two immunizations (IPV and MMR); and Navajo had comparatively lower rates for one immunization (Flu). Combination 3 showed disparity within Apache County. Contractors which serve counties showing disparities for any vaccine will be encouraged to study potential barriers leading to lower compliance.

**Table 3:  
Percentage of Immunizations Completed by 24 Months of Age, by County**

County	Percent of Immunizations Completed by 24 Months of Age										
	DTaP (4 doses)	IPV (3 doses)	MMR (1 dose)	HiB (3 doses)	Hep B (3 doses)	VZV (1 dose)	PCV (4 doses)	Hep A (1 dose)	RV (2-3 doses)	Flu (2 doses)	Combo 3
Apache	<b>42.9%</b>	<b>50.0%</b>	<b>64.3%</b>	<b>42.9%</b>	<b>50.0%</b>	<b>57.1%</b>	<b>42.9%</b>	<b>57.1%</b>	<b>28.6%</b>	28.6%	<b>42.9%</b>
Cochise	74.6%	87.3%	88.7%	90.1%	94.4%	88.7%	76.1%	87.3%	60.6%	36.6%	70.4%
Coconino	82.9%	88.6%	88.6%	88.6%	88.6%	88.6%	80.0%	88.6%	48.6%	51.4%	77.1%
Gila	65.5%	79.3%	<b>72.4%</b>	79.3%	86.2%	<b>72.4%</b>	65.5%	79.3%	44.8%	<b>6.9%</b>	62.1%
Graham	73.1%	92.3%	92.3%	88.5%	92.3%	88.5%	69.2%	88.5%	65.4%	34.6%	57.7%
Greenlee	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	85.7%	100.0%	42.9%	14.3%	85.7%
La Paz	60.0%	80.0%	80.0%	80.0%	60.0%	80.0%	60.0%	80.0%	40.0%	20.0%	40.0%
Maricopa	76.8%	86.3%	87.5%	86.6%	84.5%	86.6%	74.7%	87.8%	59.8%	36.9%	67.8%
Mohave	72.6%	80.0%	<b>78.9%</b>	<b>77.9%</b>	83.2%	<b>78.9%</b>	69.5%	82.1%	<b>47.4%</b>	<b>16.8%</b>	64.2%
Navajo	78.1%	87.5%	90.6%	87.5%	87.5%	87.5%	65.6%	81.3%	43.8%	<b>15.6%</b>	59.4%
Pima	82.7%	88.8%	89.7%	87.9%	91.4%	89.0%	78.8%	89.0%	59.6%	54.0%	75.9%
Pinal	71.3%	81.1%	86.6%	<b>80.5%</b>	81.1%	86.0%	68.3%	83.5%	<b>51.8%</b>	<b>29.3%</b>	64.6%
Santa Cruz	83.0%	91.5%	91.5%	91.5%	93.6%	91.5%	76.6%	93.6%	63.8%	44.7%	74.5%
Yavapai	70.8%	81.1%	<b>79.2%</b>	<b>78.3%</b>	<b>77.4%</b>	<b>78.3%</b>	67.9%	<b>75.5%</b>	60.4%	28.3%	64.2%
Yuma	84.0%	<b>93.3%</b>	<b>94.5%</b>	92.6%	94.5%	93.3%	82.2%	90.8%	66.9%	35.0%	78.5%
TOTAL	77.4%	86.4%	87.6%	86.3%	85.9%	86.8%	74.9%	87.3%	59.0%	38.1%	69.1%

**Bold** indicates a disparity exists

*Results by Race/Ethnicity*

The data was analyzed by race/ethnicity in order to determine if any disparities exists. For individual immunizations, African Americans showed disparities for DTaP, IPV, RV and Flu; whereas, American Indians/Alaska Natives showed disparities for RV, all of which require more than one dose of the vaccine and may be attributing to the lower rates. Combination 3 showed disparities for Native Americans. Contractors must further analyze their data to identify any trends leading to these disparities and develop interventions to improve compliance rates.



**Table 5:  
Percentage of Immunizations Completed by 24 Months of Age, by Race/Ethnicity**

Race/Ethnicity	Percent of Immunizations Completed by 24 Months of Age										
	DTaP (4 doses)	IPV (3 doses)	MMR (1 dose)	HiB (3 doses)	Hep B (3 doses)	VZV (1 dose)	PCV (4 doses)	Hep A (1 dose)	RV (2-3 doses)	Flu (2 doses)	Combo 3
Asian/Pacific Islander	84.1%	88.4%	89.9%	89.9%	85.5%	89.9%	81.2%	89.9%	69.6%	42.0%	76.8%
African American	<b>71.2%</b>	<b>82.7%</b>	84.3%	83.0%	82.4%	84.3%	70.6%	84.0%	<b>50.0%</b>	<b>27.8%</b>	63.7%
Caucasian	76.8%	85.2%	87.0%	85.2%	84.8%	86.0%	74.8%	86.7%	57.3%	36.1%	68.5%
Hispanic	76.0%	85.4%	87.2%	86.5%	87.8%	86.3%	74.7%	86.1%	64.5%	37.5%	70.1%
American Indian/Alaska Native	69.7%	79.8%	84.9%	82.4%	78.2%	84.0%	68.9%	87.4%	<b>45.4%</b>	40.3%	<b>59.7%</b>
Other	85.7%	85.7%	85.7%	85.7%	71.4%	85.7%	57.1%	85.7%	42.9%	57.1%	42.9%
Unknown	80.9%	90.4%	89.6%	88.9%	88.5%	88.8%	76.6%	89.4%	62.1%	43.2%	71.7%
TOTAL	77.4%	86.4%	87.6%	86.3%	85.9%	86.8%	74.9%	87.3%	59.0%	38.1%	69.1%

**Bold** indicates a disparity exists

#### DISCUSSION AND CONCLUSION

The methodology used to administer the performance measures has been used by Medicaid health plans since 1995 and provide a reliable method to measure compliance with immunization for children two years of age who have been enrolled in these health plans for a year or more. AHCCCS Contractors are contractually mandated to track and trend performance for childhood immunizations and provide an action plan for how each will work to reach the established MPS and potential goals. Contractors who do not meet the MPS must submit a Corrective Action Plan (CAP) and may be subject to sanctions if improvement does not occur.

AHCCCS provides data to Contractors for further analysis and to identify barriers and areas in need of improvement so that interventions can be developed and implemented. AHCCCS will continue to work with Contractors, especially those with the lowest rates of childhood immunizations, to assist them in making progress toward state and national goals. Sustained success and continual improvement will be the major focus over the next two years.

#### *State Comparisons*

AHCCCS rates were compared with statewide data obtained from the Arizona Department of Health Services (ADHS) for children who were over two years and less than three years of age as of October 1, 2017. AHCCCS rates met or exceeded the statewide rates provided by ADHS for eight of 10 individual immunizations.

**Table 6:  
Percentage of Immunizations Completed by 24 Months of Age, by Agency**

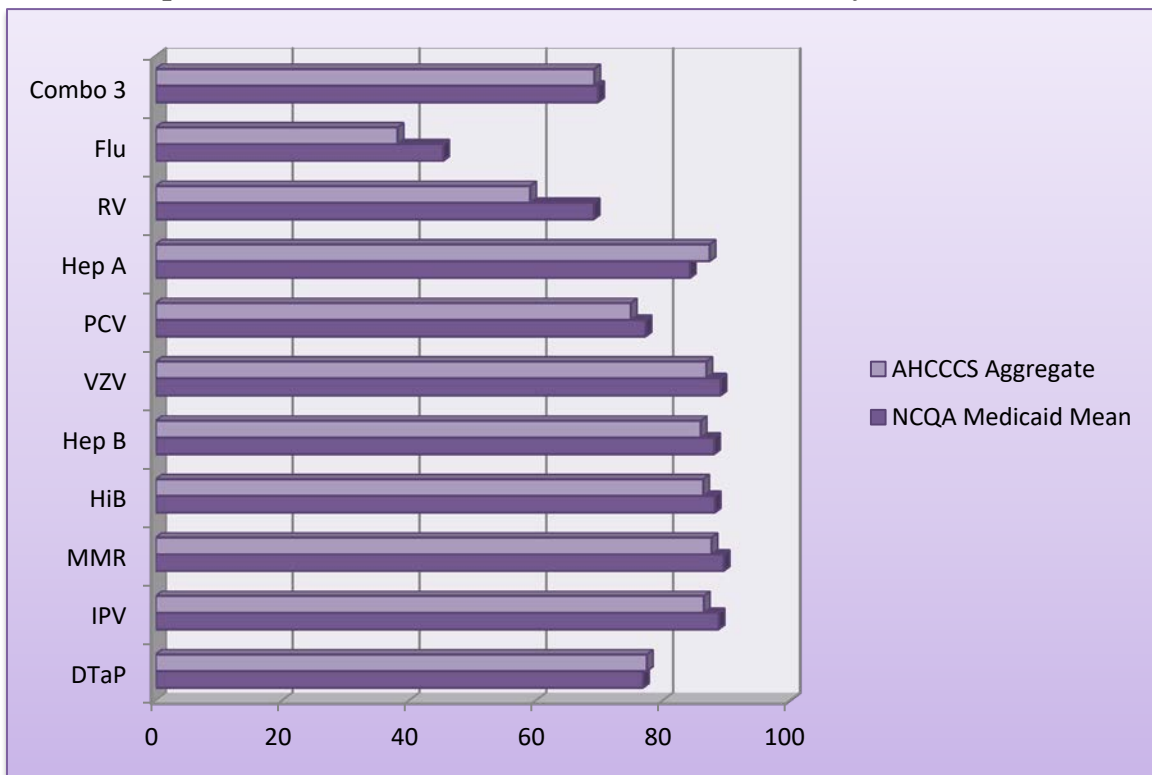
	DTaP (4 doses)	IPV (3 doses)	MMR (1 dose)	HiB (3 doses)	Hep B (3 doses)	VZV (1 dose)	PCV (4 doses)	Hep A (1 dose)	RV (2-3 doses)	Flu (2 doses)	Combo 3
<b>ADHS Statewide Rate (%)</b>	64%	73%	78%	75%	72%	78%	61%	81%	69.0%	44%	N/A
<b>Current AHCCCS Rate (%)</b>	77.4%	86.4%	87.6%	86.3%	85.9%	86.8%	74.9%	<b>87.3%</b>	59.0%	38.1%	<b>69.1%</b>

*Note:* Bolded results indicate rate above the Minimum Performance Standard

*National Comparisons*

AHCCCS rates were compared with the most recent national means for Medicaid health plans as reported by the National Committee for Quality Assurance (NCQA) within the State of Health Care Quality 2017 report. NCQA produces this report annually and it focuses on quality issues the country faces and assists in driving improvement in the delivery of evidence-based medicine and care. The report trends performance over time, tracks variations in care and recommends quality improvement. When compared on a national Medicaid level, Arizona met or exceeded the national mean in regard to two childhood immunizations.

**Graph 3:  
Comparison of AHCCCS Immunization Rates  
Compared with NCQA Medicaid Mean for FFY2016, by Immunization**



The following recommendations to improve or maintain immunization completion rates among two year old members enrolled in AHCCCS were compiled from evidence-based research and identified best practices. Many AHCCCS Contractors have implemented several of these strategies, and their continued use should help sustain or further improve performance.

**Contractors should continue using a variety of means to reach parents/guardians and encourage them to complete their children's immunizations<sup>12</sup>.** Mail and telephone reminders to parents and providers have been found to be effective in improving immunization-completion rates. In addition, increasing the use of technology within member communication efforts, including the use of social media platforms and text messaging campaigns should also be considered. Contractors may also consider offering incentives to parents of children who complete all immunizations by 24 months.

**In addition to ongoing monitoring of completion of all childhood vaccinations, Contractors should focus on rates of DTaP and PCV completion, particularly those children who have received only three doses<sup>13</sup>.** Given the effect that missing the fourth dose has on completion rates for the full series of immunizations, Contractors and providers should focus on ensuring that children receive all the necessary doses of these vaccines.

**Since all childhood vaccines can be completed at approximately 15 months of age, Contractors should begin checking the immunization status of members at 12 months of age<sup>13</sup>.** If members are lacking doses, this could give parents time to get immunizations completed by the time their children turn 2 years. Contractors should utilize the CDC's "catch up" immunization schedule, to help plan for completion of vaccinations. When children are overdue, Contractors should consider the additional step of assisting parents/guardians with making appointments with their Primary Care Physicians (PCPs) and make arrangements for transportation assistance if needed.

**Contractors should target outreach for specific racial/ethnic groups, as needed.** Results demonstrated that African Americans and Caucasian children had disparities for RV and Flu. American Indian/Alaska Native members also showed disparities for Hep B and RV. Contractors should work to bring rates up within these populations by conducting a needs analysis and developing culturally competent interventions.

**Contractors should continue or enhance member education to overcome parental fears regarding vaccination<sup>14</sup>.** This includes direct communication with members and working with providers to ensure that parents and guardians understand the potential consequences of not having children fully immunized — including seizures, meningitis, hearing impairment and even death due to infectious diseases.

Contractors should use and encourage their network providers to utilize resources from the CDC's National Immunization Program (NIP)<sup>15</sup>, such as Vaccine Information Statements<sup>15</sup>, which provide easy-to-understand information on the benefits and risks of specific vaccines. A Vaccine Information Statement (VIS) must be provided to the recipient of any vaccine covered by the National Childhood Vaccine Injury Act (NVCIA) of 1986, which includes most immunizations given in childhood. These statements are available for all vaccines licensed in the U.S. Copies of VISs are available from state health authorities responsible for immunization. They can also be obtained from the CDC's website ([www.cdc.gov](http://www.cdc.gov)) or from the Immunization Action Coalition ([www.immunize.org](http://www.immunize.org)). Translations of VISs into languages other than English also are available from the Immunization Action Coalition website and may be available from state immunization programs.

One approach to overcoming unwarranted parental refusal that is seeing some success nationally is provider education in regard to a parent's refusal at one visit and assisting them to understand that initial refusal may not mean that unnecessary fears and objections cannot be overcome in the future. Providers should continue attempts to educate parents that have previously refused vaccines, focusing on those that are the subject of the least amount of misinformation. Parents may agree to a few vaccines at first and their fears may be eased over time.

**Contractors should target outreach activities in specific geographic areas, as needed.** Results showed that Apache, Yavapai, Mohave, Gila and Pinal County had comparatively lower rates for up to eight individual immunizations. Contractors who serve these counties should work to bring rates in these areas up, including working with providers and possibly county health departments to identify barriers to immunizations and resources to address those barriers. Education in vaccine management and delivery for providers serving some areas of the state may be helpful.

**Contractors should continue to ensure that health care professionals providing immunizations report all vaccinations to ASIIS.** With complete reporting, an automated registry is a valuable tool in helping providers determine the immunization status of children they are seeing at each visit, so that opportunities to vaccinate are not missed. This is especially important when children receive immunizations at multiple sites and parents do not have current immunization records. Use of ASIIS to check patients' immunization status should prevent the need for them to return for vaccinations.

**Contractors should encourage providers to implement an Electronic Health Record (EHR) system.** Not only is there value in automating health records for the providers, but automation also aids Contractors in gathering complete data without relying on paper records or disrupting physician office routines. In addition, providers may be eligible to receive incentive payments from CMS if they meet the necessary requirements, one of which is the electronically sharing of immunization information utilizing a certified EHR to the state immunization system, ASIIS.

AHCCCS and its Contractors will continue to monitor immunization coverage levels among children. AHCCCS also will maintain its ongoing work with low-performing Contractors to ensure they meet contractual standards and goals.

## Works Cited

1. Centers for Disease Control and Prevention. (2014). Vaccines and Immunizations. CDC. (On-line). Available: <http://www.cdc.gov/vaccines/vac-gen/howvpd.htm>. Centers for Disease Control and Prevention. Originally cited May 19, 2014.
2. Nemours Children's Health System. (n.d.). Immune System. KidsHealth. (On-line). Available: <http://kidshealth.org/en/parents/immune.html>.
3. Kennedy, A., Lavail, K., Basket, M., Landry, S. (2011). Confidence About Vaccines in the United States: Understanding Parents' Perceptions. Health Affairs, 1151-1159.
4. Kennedy, A., Basket, M. & Sheedy, K. (2011). Vaccine Attitudes, Concerns, and Information Sources Reported by Parents of Young Children: Results From the 2009 HealthStyles Survey. Pediatrics, Vol. 127.
5. Arizona Department of Health Services. Trends in Arizona Immunization Coverage and Exemption Rates (Data Obtained from Immunization Data Reports from 2012-2016). (On-line). Available: <http://azdhs.gov/documents/preparedness/epidemiology-disease-control/immunization/statistics-reports/2016-2017/2016-2017-az-trends-in-immunization.pdf>. Phoenix, AZ.
6. Centers for Medicare and Medicaid Services. (2017). Children's Health Care Quality Measures. (On-line). Available: <https://www.medicare.gov/medicaid/quality-of-care/performance-measurement/child-core-set/index.html>
7. Arizona Department of Health Services. (n.d.). Arizona State Immunization System. (On-line). Available: <http://azdhs.gov/preparedness/epidemiology-disease-control/immunization/asiis/index.php>
8. National Committee for Quality Assurance (NCQA). (2017). State of Health Care Quality Childhood Immunization Status (On-line). Available: <http://www.ncqa.org/report-cards/health-plans/state-of-health-care-quality/2017-table-of-contents/childhood-immunization-status>
9. Lee, E.O., Rosenthal, L., & Scheffler, G. (2013). The Effect of Childhood Vaccine. Washington, DC : Center for American Progress. (On-line). Available: <https://www.americanprogress.org/issues/healthcare/reports/2013/11/14/76471/the-effect-of-childhood-vaccine-exemptions-on-disease-outbreaks/>
10. Briss, P.A., Rodewald, L.E., Hinman, A.R., Shefer, AM, Strikas, R.A., Bernier, R.R., Carande,-Kulis, V.G., Yusuf, H.R., Ndiaye, S.M., Williams, S.M. (2000). Reviews of Evidence Regarding Interventions to Improve Vaccination Coverage in Children, Adolescents, and Adults. American Journal of Preventive Medicine, 18(1, Supplemental), 97-140.
11. Centers for Medicare and Medicaid Services. (2017). Core Set of Children's Health Care Quality Measures for Medicaid and CHIP (Child Core Set) Technical Specifications and Resource Manual. (On-line). Available: <https://www.medicare.gov/medicaid/quality-of-care/downloads/medicaid-and-chip-child-core-set-manual.pdf>
12. Centers for Disease Control and Prevention. (2018). Provider Resources for Vaccine Conversations with Parents. (On-line). Available: <https://www.cdc.gov/vaccines/hcp/conversations/index.html>
13. American Academy of Pediatrics. (2017). Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger, United States 2017. (On-line). Available: <https://www.aap.org/en-us/Documents/immunizationschedule2017.pdf>
14. American Academy of Pediatrics. (2018). Immunizations: Office Strategies for Improving Immunization Rates (On-line). Available: <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/immunizations/Practice-Management/Pages/office-strategies.aspx>
15. Centers for Disease Control and Prevention. (2018). National Immunization Program; Vaccine Information Statements. (On-line). Available: <https://www.cdc.gov/vaccines/hcp/vis/>
16. Centers for Disease Control and Prevention. (2017). 2017 Recommended Immunizations for Children from Birth Through 6 Years Old. (On-line). Available: <https://www.cdc.gov/vaccines/parents/downloads/parent-ver-sch-0-6yrs.pdf>

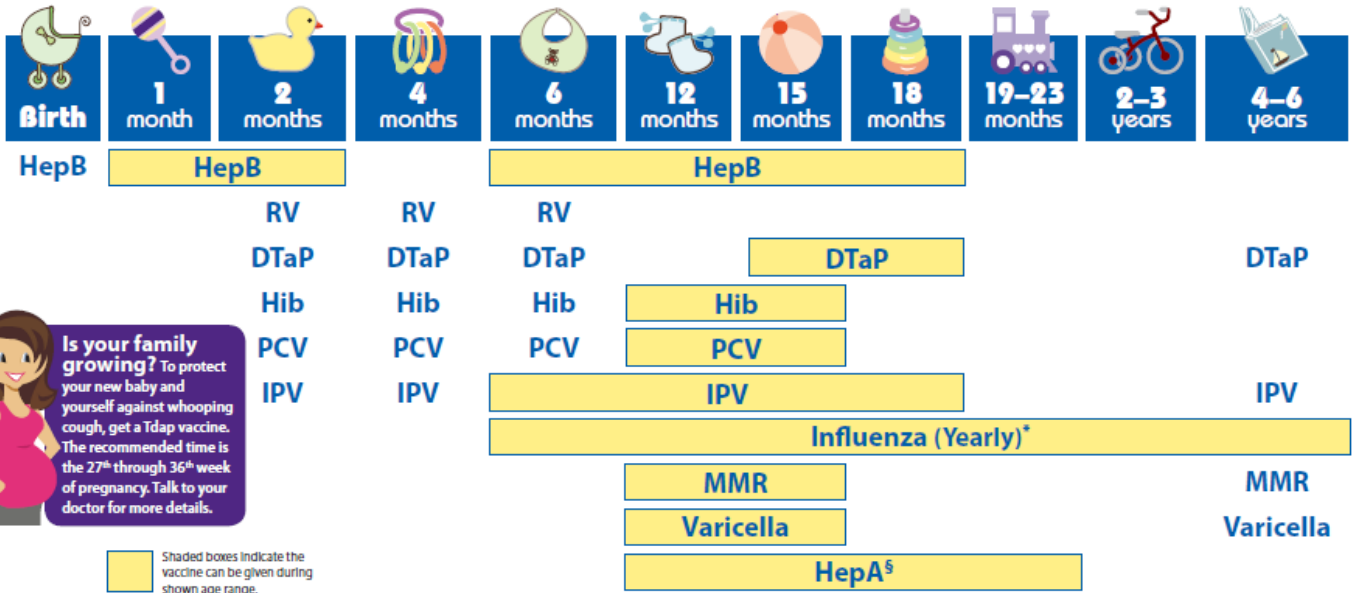
## Appendix A – Statistical Significance Calculation Tables

AHCCCS Contractor	Percent of Immunizations Completed by 24 Months of Age										
	DTaP (4 doses)	IPV (3 doses)	MMR (1 dose)	HiB (3 doses)	Hep B (3 doses)	VZV (1 dose)	PCV (4 doses)	Hep A (1 dose)	RV (2-3 doses)	Flu (2 doses)	Combo 3
Care 1 <sup>st</sup> Arizona	83.7	<b>91.6</b>	<b>92.7</b>	<b>91.4</b>	<b>91.4</b>	<b>91.2</b>	81.7	<b>91.6</b>	<b>69.3</b>	<b>45.9</b>	<b>76.8</b>
	85.8	92.9	93.3	92.5	94.5	93.3	82.6	93.1	83.2	49.1	78.5
<i>Statistical Significance (p value)</i>	<b>P=.043</b>	P=.458	P=.721	P=.533	P=.059	P=.219	P=.725	P=.387	<b>P&lt;.001</b>	P=.329	P=.536
CRS	<b>85.7</b>	<b>92.9</b>	<b>92.3</b>	<b>92.7</b>	<b>91.8</b>	<b>91.8</b>	<b>83.4</b>	<b>92.3</b>	<b>64.0</b>	<b>52.1</b>	<b>78.4</b>
	82.9	92.7	94.9	94.1	92.2	94.3	82.4	93.7	65.3	53.3	76.1
<i>Statistical Significance (p value)</i>	P=.240	P=.867	P=.099	P=.398	P=.815	P=.137	P=.685	P=.400	P=.679	P=.720	P=.412
DES/CMDP	76.2	85.9	89.0	87.4	85.2	87.4	70.4	<b>91.8</b>	43.7	<b>47.2</b>	63.4
	82.4	95.1	98.0	94.5	93.1	97.4	77.7	96.1	70.8	55.8	68.8
<i>Statistical Significance (p value)</i>	<b>P=.019</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P=.011</b>	<b>P=.005</b>	<b>P&lt;.001</b>	<b>P=.009</b>	P=.079
DES/DDD	81.0	88.4	90.9	<b>90.1</b>	83.5	<b>90.1</b>	79.3	<b>90.9</b>	30.6	<b>64.5</b>	67.8
	63.9	72.2	84.2	81.2	66.2	81.2	58.6	86.5	57.1	40.6	42.1
<i>Statistical Significance (p value)</i>	<b>P=.002</b>	<b>P=.001</b>	P=.108	<b>P=.045</b>	<b>P=.002</b>	<b>P=.045</b>	<b>P&lt;.001</b>	P=.266	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>
Health Choice Arizona	60.3	68.4	75.7	69.3	70.6	75.3	56.3	<b>77.9</b>	41.1	5.1	53.4
	90.9	93.7	93.5	94.7	91.1	93.9	88.8	94.7	89.5	52.7	84.6
<i>Statistical Significance (p value)</i>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>
Health Net Access	74.4	84.5	85.2	86.1	82.6	85.2	73.5	<b>83.0</b>	<b>61.6</b>	32.5	66.2
	52.0	63.8	80.3	27.1	62.4	79.0	49.3	82.5	59.8	10.5	20.9
<i>Statistical Significance (p value)</i>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	P=.106	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P=.042</b>	<b>P&lt;.001</b>	P=.878	P=.656	<b>P&lt;.001</b>	<b>P&lt;.001</b>
Mercy Care Plan	79.2	<b>91.4</b>	88.3	89.2	89.4	87.4	79.7	<b>88.5</b>	<b>68.7</b>	39.3	<b>72.0</b>
	88.6	94.3	93.5	93.3	93.7	93.5	85.4	93.5	76.9	50.5	79.7
<i>Statistical Significance (p value)</i>	<b>P&lt;.001</b>	P=.079	<b>P=.005</b>	<b>P=.024</b>	<b>P=.017</b>	<b>P=.001</b>	<b>P=.021</b>	<b>P=.007</b>	<b>P=.004</b>	<b>P=.001</b>	<b>P=.005</b>
United Health Care	80.6	88.1	90.3	86.5	88.1	<b>89.4</b>	77.3	<b>88.3</b>	<b>63.8</b>	40.6	<b>72.4</b>
	76.7	89.2	91.3	91.3	90.1	89.9	77.5	87.8	66.3	42.6	70.6
<i>Statistical Significance (p value)</i>	P=.144	P=.570	P=.598	<b>P=.020</b>	P=.328	P=.819	P=.935	P=.824	P=.414	P=.538	P=.536
University Family Care	77.9	88.1	86.3	86.8	89.0	85.4	75.5	<b>83.7</b>	<b>67.5</b>	34.7	<b>70.6</b>
	85.6	92.5	93.3	90.7	93.1	93.1	80.5	90.7	79.3	45.8	77.1
<i>Statistical Significance (p value)</i>	<b>P=.002</b>	<b>P=.021</b>	<b>P&lt;.001</b>	P=.057	<b>P=0.25</b>	<b>P&lt;.001</b>	P=.062	<b>P=.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P=.024</b>
<b>TOTAL</b>	77.4	86.4	87.6	86.3	85.9	86.8	74.9	<b>87.3</b>	59.0	38.1	<b>69.1</b>
PREVIOUS TOTAL*	82.9	90.8	93.0	89.3	89.9	92.6	80.1	92.3	76.4	46.6	73.2
<i>Statistical Significance (p value)</i>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>	<b>P&lt;.001</b>

\* Rates inclusive of two Contractors (Maricopa Health Plan and Phoenix Health Plan) no longer active as of CYE 2017

# Appendix B – Immunization Schedule<sup>16</sup>

## 2017 Recommended Immunizations for Children from Birth Through 6 Years Old



**Is your family growing?** To protect your new baby and yourself against whooping cough, get a Tdap vaccine. The recommended time is the 27<sup>th</sup> through 36<sup>th</sup> week of pregnancy. Talk to your doctor for more details.

Shaded boxes indicate the vaccine can be given during shown age range.

**NOTE:** If your child misses a shot, you don't need to start over, just go back to your child's doctor for the next shot. Talk with your child's doctor if you have questions about vaccines.

**FOOTNOTES:**

- \* Two doses given at least four weeks apart are recommended for children aged 6 months through 8 years of age who are getting an influenza (flu) vaccine for the first time and for some other children in this age group.
- § Two doses of HepA vaccine are needed for lasting protection. The first dose of HepA vaccine should be given between 12 months and 23 months of age. The second dose should be given 6 to 18 months later. HepA vaccination may be given to any child 12 months and older to protect against HepA. Children and adolescents who did not receive the HepA vaccine and are at high-risk, should be vaccinated against HepA.

*If your child has any medical conditions that put him at risk for infection or is traveling outside the United States, talk to your child's doctor about additional vaccines that he may need.*



For more information, call toll free **1-800-CDC-INFO** (1-800-232-4636) or visit [www.cdc.gov/vaccines/parents](http://www.cdc.gov/vaccines/parents)



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