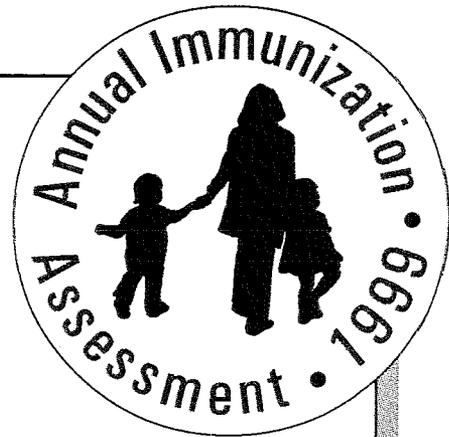


Arizona Health Care Cost Containment System



*A Report on the Immunization Status of
AHCCCS Members Two Years of Age*

October 1, 1998 through September 30, 1999



AHCCCS ANNUAL IMMUNIZATION SURVEY, CONTRACT YEAR 1999

EXECUTIVE SUMMARY

As required by legislation, the seventh annual immunization survey covered AHCCCS contract year XVII (10/1/98 - 9/30/99) and focused on immunization completion rates among children who reached 24 months of age during the study period. The Centers for Disease Control and Prevention (CDC) and the National Committee for Quality Assurance (NCQA) recommend immunizing children for ten preventable diseases. Specific recommended immunizations discussed in this report are: Diphtheria, Tetanus, and Pertussis (DTP), Oral Polio Vaccine (OPV), Mumps, Measles, and Rubella (MMR), Haemophilus Influenza type B (HIB), Hepatitis B Vaccine (HBV), and Varicella-Zoster Virus (VZV).

AHCCCS identified a representative random sample of children within each Health Plan/Program Contractor stratified by County. The final sample size represented 4,310 children whose second birthday occurred during the study period. The Health Plans/Program Contractors collected and abstracted the immunization records using a scannable assessment tool. As an alternative method to a full medical record assessment, AHCCCS allowed Health Plans/Program Contractors to use two sources of information to collect data, medical records and administrative data. In accordance with NCQA hybrid methodology, administrative data were combined with medical record data only if there were at least two weeks between the administrative dates of service and the medical record dates. This methodology allows data from different sources to be combined, while reducing the possibility of "double counting" immunizations. Among the 13 Health Plans/Program Contractors, three submitted administrative data.

A validation study was conducted to ensure that immunization data abstracted from medical records was accurate and reliable. Results of the validation study indicated that there were no significant differences in Health Plan/Program Contractor reporting compared to chart review.

All antigen-specific rates were over 75% with the exception of VZV (62%). However, this represented nearly a 50% improvement in VZV over the last year's rate. The highest immunization rate was for OPV (87.2%), followed by MMR (86.8%), and HIB (82.2%). The combined DTP, OPV, and MMR immunization completion rate was 75.4%, an increase of five percentage points over the previous year. The five-antigen completion rate for DTP, OPV, MMR, HIB (2 Doses) and HBV (3 Doses) combined was 62 percent.

Overall, the amount of immunization records not found in the total sample has decreased annually. This year's assessment reached an all-time low in the percentage of missing records. Only 18 (0.4%) out of 4,310 medical records were missing across all 13 Health Plans/Program Contractors.

Clearly immunization awareness in Arizona has increased and providers have made a concerted effort to improve the immunization status of their enrolled children. Much of the observed annual increase in immunizations has been due to the established relationship among AHCCCS, the Health Plans/Program Contractors and the providers. AHCCCS continues to approach the 90 percent immunization goal set by *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*.

AHCCCS ANNUAL IMMUNIZATION ASSESSMENT, CONTRACT YEAR 1999

TABLE OF CONTENTS

	Page
I. PURPOSE	1
II. IMMUNIZATION RECOMMENDATIONS & QUALITY INDICATORS	1
• <i>Primary Quality Indicators</i>	
• <i>Additional Quality Indicators</i>	
III. METHODOLOGY	3
• <i>Study Sample</i>	
• <i>Assessment Tool</i>	
• <i>Data Collection</i>	
• <i>Data Validation</i>	
• <i>Data Analysis</i>	
IV. RESULTS	5
V. CONCLUSIONS	8

VI. TABLES

VII. APPENDIX

- *Data Collection Tool & Abstractor Instructions*
-

AHCCCS ANNUAL IMMUNIZATION ASSESSMENT, CONTRACT YEAR 1999

LIST OF TABLES

Table

- 1 Summary of Immunization Records Requested By AHCCCS Health Plan/Program Contractor
 - 2 Summary of the Immunization Completion Rates By 24 Months of Age By AHCCCS Health Plan/Program Contractor
 - 3 Summary of Combined Immunization Completion Rates By 24 Months of Age By AHCCCS Health Plan/Program Contractor
 - 4 Summary of the Immunization Completion Rates By 24 Months of Age - By County
 - 5 Summary of Combined Immunization Completion Rates By 24 Months of Age - By County
 - 6 Analysis of Missed Opportunities in DTP Completion Rates By 24 Months of Age By AHCCCS Health Plan/Program Contractor
 - 7 Analysis of Missed Opportunities in DTP Completion Rates By 24 Months of Age - By County
-
-

LIST OF IMMUNIZATIONS AND COMBINED ANTIGENS

DTP	Diphtheria, Tetanus, and Pertussis
OPV	Oral Polio Vaccine
MMR	Mumps, Measles, and Rubella
HIB	Haemophilus Influenza type B
HBV	Hepatitis B
VZV	Varicella Zoster Virus Vaccine
TETRA	DTP and HIB in a single immunization
COMVAX	HIB and HBV in a single immunization
IPV	Inactivated Poliovirus Vaccine
DTaP	Diphtheria and Tetanus toxoids and Acellular Pertussis

AHCCCS ANNUAL IMMUNIZATION SURVEY CONTRACT YEAR 1999

I. PURPOSE

Arizona places a high priority on childhood immunizations and has been very proactive in its efforts to improve immunization rates. The Arizona legislature enacted House Bill 2044 in 1993, which requires an annual assessment and a written report describing the immunization status of children enrolled in the AHCCCS program. This report was the seventh annual assessment. It covered AHCCCS contract year XVII(10/1/98 - 9/30/99) and focused on immunization completion rates among children who reached 24 months of age. The report identified the National Committee for Quality Assurance's (NCQA) Health Plan Employer Data and Information Set (HEDIS®), the Center for Disease Control and Prevention (CDC) and Advisory Committee on Immunization Practices (ACIP) recommended immunizations, described the audit methodology, and presented results by Health Plan/Program Contractor and by County.

This report provided AHCCCS Health Plans/Program Contractors with a tool for quality improvement. Results of prior AHCCCS immunization audits were included in this document for comparative purposes. Their inclusion allowed evaluation of annual differences, provided a base against which improvement can be measured, and identified potential areas for improvement. In addition, a quality improvement tool was included that identifies partially immunized children and areas to focus improvement efforts.

II. IMMUNIZATION RECOMMENDATIONS & QUALITY INDICATORS

During the time frame of this study, CDC recommended immunizing children for ten preventable diseases. Specific recommended immunizations discussed in this report are: Diphtheria, Tetanus, and Pertussis (DTP), Oral Polio Vaccine (OPV), Mumps, Measles, and Rubella (MMR), Haemophilus Influenza type B (HIB), Hepatitis B Vaccine (HBV) and the Varicella Zoster Virus (VZV). In addition to the six primary vaccines, single doses of combined antigens (i.e., Tetra-immune (TETRA), DTP and HIB in a single immunization, and COMVAX, HIB and HBV together) were separated into the appropriate primary vaccines. Derivatives of the primary vaccines, such as Inactivated Poliovirus Vaccine (IPV) and Diphtheria and Tetanus toxoids and Acellular Pertussis (DTaP), were also included in the results.

This immunization study followed NCQA's HEDIS® 2000 criteria, along with consideration of CDC and ACIP recommendations. HEDIS® 2000 requirements are for immunizations given in 1999. In order to measure improvement and establish trends, results based on both the current and past year's HEDIS® criteria are presented. Definitions of the current quality indicators are listed below with the name of the indicator in bold letters, followed by a description of the numerator (NUM), i.e., those children that received the recommended immunizations. All quality indicators are based on the same identical criteria for their denominator, i.e., those children eligible for the study. The following definition applies to all quality indicators presented in this report:

Denominator:

Children who reached 24 months of age in the study period and were continuously enrolled in the Health Plan/Program Contractor between 12 and 24 months of age with no more than one break in enrollment of up to 30 days.

Primary Quality Indicators

1. **DTP Immunization Rate at Two Years of Age**
NUM: At least Four DTP doses by the child's second birthday.
2. **OPV Immunization Rate at Two Years of Age**
NUM: At least Three OPV or IPV doses by the child's second birthday.
3. **MMR Immunization Rate at Two Years of Age**
NUM: One MMR dose between the child's first and second birthday.
4. **HIB Immunization Rate at Two Years of Age**
NUM: Two H influenza type b with different dates of service by the child's second birthday, with at least one of them falling on or between the child's first and second birthdays.
5. **HBV Immunization Rate at Two Years of Age (3 Doses)**
NUM: At least three HBV doses by the child's second birthday, with at least one of them falling on or between the child's sixth month and second birthday.
6. **VZV Immunization Rate at Two Years of Age**
NUM: At least one chicken pox vaccine (VZV) with a date of service falling on or between the child's first and second birthdays.
7. **HEDIS® 2000 Combination #1 (4:3:1:2:3)**
NUM: The number of children that received the appropriate doses of DTP, OPV, MMR, HIB (2 doses), and 3 doses of HBV by their second birthday.
8. **HEDIS® 2000 Combination #2 (4:3:1:2:3:1)**
NUM: The number of children that received the appropriate doses of DTP, OPV, MMR, HIB (2 doses), HBV (3 doses) and VZV by their second birthday.

In addition to the eight HEDIS® quality indicators listed above, three additional quality indicators were reported. This provided Health Plans/Program Contractors with considerably more information for comparison to other sources and their own prior immunization rates.

Additional Quality Indicators

1. **HBV Immunization Rate at Two Years of Age (2 Doses)**
NUM: At least two HBV doses by the child's second birthday, with at least one of them falling on or between the child's sixth month and second birthday.
2. **Three-Antigen Combined Immunization Rate at Two Years of Age (4:3:1)**
NUM: The number of children that received the appropriate doses of DTP, OPV and MMR by their second birthday.

3. HEDIS® 3.0 / 1999 Five-Antigen Combined Rate (4:3:1:2:2)

NUM: The number of children that received the appropriate doses of DTP, OPV, MMR, HIB (2 doses), and 2 doses of HBV by their second birthday.

Since this study followed HEDIS® 2000 criteria that assess the immunization status of children at 24 months of age, any antigens administered after 24 months of age were not included in the numerator. HEDIS® also restricts the time frame for the doses of MMR, HIB, HBV and VZV. Consequently, children who receive their last dose of either MMR, HIB or VZV vaccines before 12 months of age were not included in the numerator. The time restriction for HBV was more liberal, requiring at least one dose administered after six months of age. This follows the recommended timing of the MMR, HIB, HBV and VZV vaccines by ACIP.

III. METHODOLOGY

AHCCCS contracted with Health Services Advisory Group, Inc. (HSAG) to carry out the mandated annual assessment. HSAG is an external quality review organization that is also under contract with the Health Care Financing Administration (HCFA) to oversee the quality of care provided to Medicare beneficiaries in Arizona. HSAG has conducted the annual immunization assessment since 1993.

Study Sample

AHCCCS identified the study group by defining a representative random sample of children within each Health Plan/Program Contractor using a finite sampling factor and accounting for the population distribution by county. Sample selection was calculated for each Health Plan/Program Contractor to provide a 99 percent confidence level. The sample consisted of children whose second birthday occurred between 10/1/98 and 9/30/99 and who had at least 12 months of continuous enrollment prior to, and including, their second birthday. A disenrollment period of not more than 30 days in the 12 months was allowed. The total representative sample size of eligible enrollees originally drawn for the study was 4,380 children. One case was dropped from the study when it became clear the child had not reached 24 months of age during the study period. Another 69 cases were dropped after their records indicated that there was either parental refusal or immunizations were contraindicated. The final sample size consisted of 4,310 children, an increase of 21% from 1998. The distribution of the sample cases by Health Plan/Program Contractor is presented in Table 1. Final sample sizes by individual Health Plan/Program Contractor ranged from 36 to 1,375 children.

Assessment Tool

The assessment tool developed and used for the prior study was updated for this assessment (see Appendix A). The assessment tool was designed in a scannable format that could be recognized by *Teleform* (V5.4) software. This software package uses the latest technology in object character recognition (OCR) to automate scannable forms that both improved data validity and reduced data processing time. Scanning eliminates data entry and the errors and clean-up associated with key-punching. Although OCR still required verification, it was minimized by the design of the tool and the high proportion of numeric characters and legible handwriting.

Data Collection

This contract year's data collection process followed the same methodology as the previous two years. An electronic list of sample cases and an appropriate number of assessment tools were provided to each Health Plan/Program Contractor. Health Plans/Program Contractors were fully responsible for identifying all appropriate primary care providers (PCP) and submitting completed assessment tools to HSAG for processing. This collaborative method has proven to be an efficient mechanism for data collection and it has greatly improved the case tracking process.

As an alternative method to a full medical record assessment, AHCCCS allowed Health Plans/Program Contractors to use two sources of information to collect data: medical records and administrative data. In accordance with NCQA hybrid methodology, administrative data were combined with medical record data only if there were at least two weeks between the administrative dates of service and the medical record dates. This methodology allows data from different sources to be combined, while reducing the possibility of "double counting" immunizations. Among the 13 Health Plans/Program Contractors, three submitted administrative data.

Data Validation

In order to ensure the accuracy of the data collected, a sample of 732 cases stratified by Health Plan/Program Contractor was randomly chosen for validation from the sample cases that had recorded immunization information. This sample size was increased by 12% from the validation sample in 1998. Health Plan/Program Contractor specific validation samples ranged from 13 to 232 cases.

Data validation included both medical records and data from administrative databases. Antigen-specific results from this validation sample indicated better than a 95% agreement with the data that was previously submitted from the Health Plans/Program Contractors. Although there did appear to be minimal over-reporting, none appeared to come from any one particular Health Plan/Program Contractor. Additionally, there was under-reporting for HBV and VZV. This under-reporting was also minimal and not statistically significant from the results of the study. The few errors that were observed appeared to occur strictly by chance alone. Consequently, comparative results of the antigen rates were not significantly different between the original cases and the re-abstracted validation cases.

Data Analysis

Once data collection and validation was finalized, HSAG managed the database and conducted the analysis using *Stata* (V5.0) statistical software. *Stata* statistical code was first developed to generate antigen-specific and combined immunization rates for the initial Arizona immunization status report. The computer code has been updated annually to address changes in recommended immunization schedules and newly recommended antigens (sources: NCQA HEDIS® 2000, CDC, and/or ACIP). In determining if a child is age-appropriately immunized for a particular antigen, HSAG computer algorithms followed NCQA HEDIS® 2000 definitions. Consequently, providers were not expected to immunize children within the explicit time frame recommended in the ACIP schedule.

The primary analysis provided results on the percentage of two-year-old members that were age-appropriately immunized for each of HEDIS® 2000 quality indicators (DTP, OPV, MMR, Hib, HBV, VZV and the Combination rates). The HBV immunization rate was also calculated for two doses,

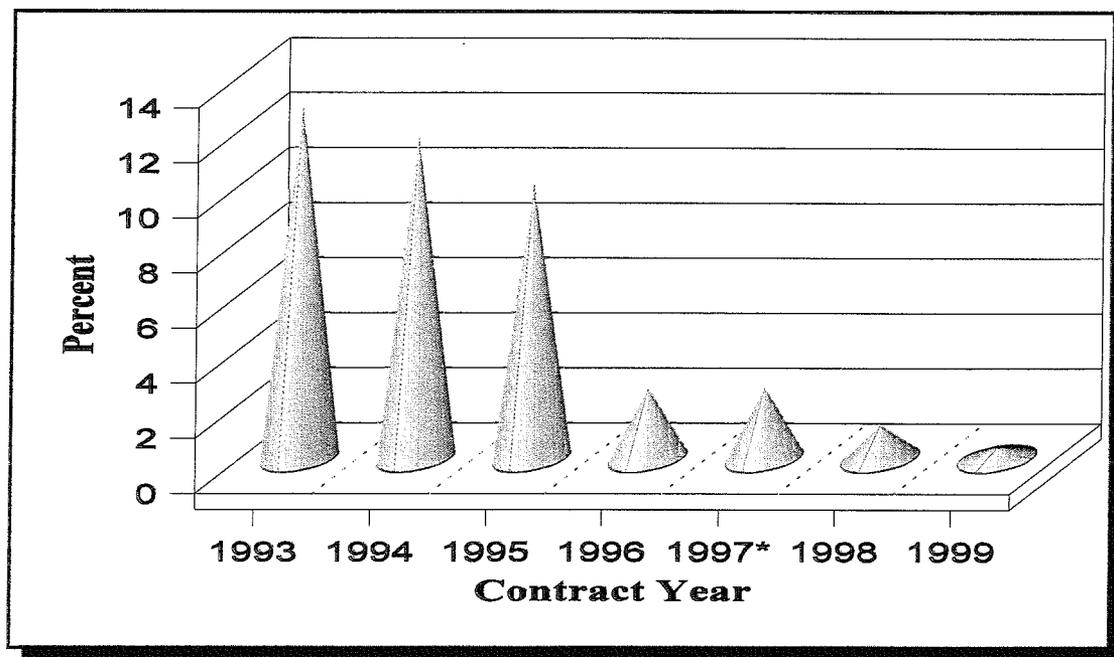
following the HEDIS®3.0 1999 criteria. This provided Health Plans/Program Contractors with additional information for comparison to prior reports and other comparative study results.

Additional analysis was reported for DTP to identify missed opportunities and the degree of partially immunized children, both by Health Plan/Program Contractor and County. This analyses can greatly enhance Health Plans/Program Contractors improvement efforts, since DTP requires four doses by two years of age and it typically has the lowest immunization rate among the antigens. A combined-antigen rate, at best, can equal but never exceed the lowest individual antigen being included. For example, combined rates that include VZV will be negatively impacted due to its newness and possible lack of documentation that it was contraindicated.

IV. RESULTS

Beginning with the first assessment in 1993, the percentage of missing records decreased at a rate of about 10% per year. However, as the figure below illustrates, there was an unparalleled decline of 75% between 1995 and 1996. After leveling off at about 2.5 percent during 1996 and 1997, last year's assessment reached an all-time low in the percentage of missing records. This year, the percentage of missing records once again reached an all-time low. Out of the 4,310 children in the final immunization assessment sample, only 18 (0.4%) of the records were missing across all 13 Health Plans/Program Contractors. This improvement was due almost exclusively to the concerted effort put forth by the Health Plans/Program Contractors.

ANNUAL SUMMARY OF MISSING RECORDS



* Excludes one Health Plan that ended its AHCCCS contract on 9/30/97, had difficulty collecting data, and accounted for 55% of the total missing records across all AHCCCS Health Plans/Program Contractors.

The 1999 AHCCCS assessment results are summarized in the following chart along with results from the 1998 assessment for comparison. Six individual antigens rates are displayed along with two combinations of antigens. Four of the six individual immunization rates recorded a small increase of 2 to 5 percentage points over the previous year. The HBV rate actually had a one percent decline in the rate, while VZV had an increase of 19 percentage points. All of the individual immunization rates were above 75%, except VZV (62%), though this antigen had the largest increase from the prior year. Both annual change in percentage points and annual percent change are presented in the summary table. While the former is perhaps easier to interpret from year to year, the later is more commonly used to measure performance and improvement in quality.

IMMUNIZATION SUMMARY

CONTRACT YEAR	DTP (4)	OPV (3)	MMR (1)	HIB (2)	HBV (3)	VZV (1)	4:3:1 Series	4:3:1:2:3 Series
1998	75%	85%	83%	79%	80%	44%	70%	61%
1999	80%	87%	87%	82%	79%	63%	75%	62%
Change (98v99) in percentage points	+5	+2	+4	+3	-1	+19	+5	+1
Percent Change	7%	2%	5%	4%	-1%	43%	7%	2%

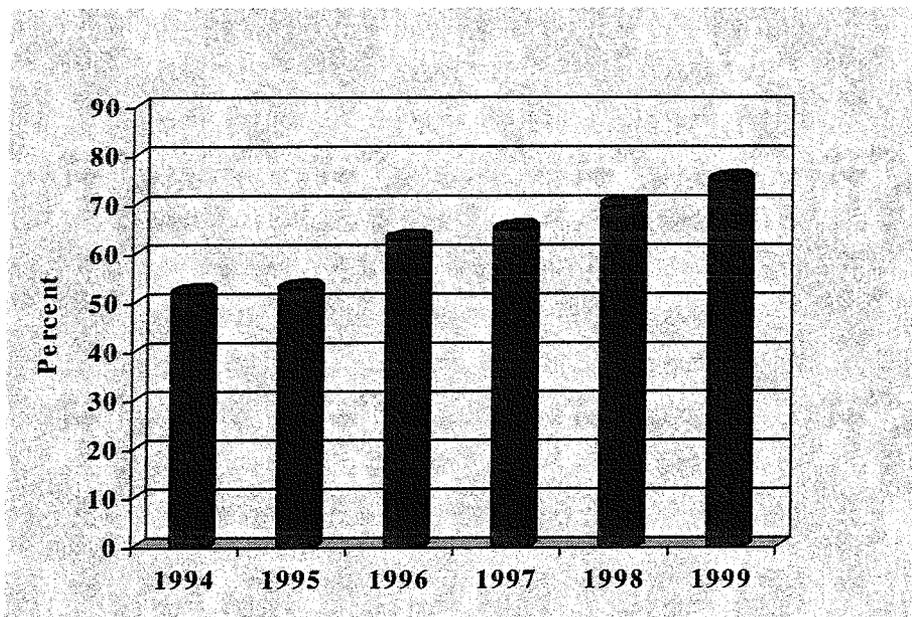
- NOTES:
- Immunization rates were based on NCQA HEDIS*2000 methodology.
 - Numbers in parentheses below the antigen represents the number of doses.
 - 4:3:1 Series is DTP 4 doses, OPV 3 doses, and MMR 1 dose
 - 4:3:1:2:3 Series is DTP 4 doses, OPV 3 doses, MMR 1 dose, HIB 2 doses, and HBV 3 doses

Tables 2-7, following the Conclusion Section, contain detailed results of antigen-specific and combined antigen data. The information provided in the tables was produced by AHCCCS Health Plans/Program Contractors and by County. Not only do Health Plans/Program Contractors have a measure of their own results compared to the overall AHCCCS total, but their ranking among peers is presented. Tables 2, 3 and 6 display results by Health Plans/Program Contractors. Tables 4, 5 and 7 compare the results by county. Several county-specific rates are based on relatively few sample cases and are included for descriptive purposes, though these children represent the entire eligible population for those counties. Nevertheless, the results may assist AHCCCS and its Health Plans/Program Contractors in identifying potential areas for targeting future focused assessments and interventions.

Although the tables present the results of combined rates using four different combinations of antigens, only two are displayed in the above summary chart. The first is the traditional combination with just the three classic antigens DTP, OPV, and MMR; referred to as the 4:3:1 series. Being the longest standing set of immunizations, this combination is used most often for trends. In fact, *Healthy People 2000* goals are based on the this combination. In 1993, this combined immunization rate was 46.3 percent. Between 1998 and 1999 the AHCCCS rate for the 4:3:1 series increased five percentage

points to a high of 75.4 percent. Over the seven years childhood immunization has been assessed, a 63 percent increase in the 4:3:1 series has been observed. The following graph displays this annual trend in the combined DTP, OPV and MMR rate from 1994 to present.

Annual Trend in the Combined DTP, OPV and MMR Rate Between Contract Years 1994 and 1999



The second combined antigen rate presented in the summary chart includes five antigens and is a primary quality indicator with HEDIS[®]2000 specifications. This allows Health Plans/Program Contractors to directly compare their individual results with prior results, other HEDIS[®] reports and service lines. The 1998 AHCCCS immunization rate for the 4:3:1:2:3 series (DTP, OPV, MMR, HIB and HBV) only increased by one percent for 1999. This was surprising, given the increase in the DTP rate. Nevertheless, the HBV rate with the 3 dose requirement (and at least one dose given after six months of age) had a slight decline of one percent, which may have accounted for the relatively constant immunization rate for the 4:3:1:2:3 series.

The traditional three-antigen combined rate was impacted most by the DTP antigen, which had the lowest rate among those antigens included in the combined rate. This is understandable since DTP is the only antigen that requires four doses by two years of age. Tables 6 and 7 summarize the impact of the fourth dose of DTP among children that have already received three of the recommended doses. More than half of the children that were not age-appropriately immunized for DTP had received three of the four recommended DTP doses. Although the DTP rate reached a high of 79.9%, Tables 6 and 7 show the DTP rate could have been 91.6% had those children with three doses of DTP received their last required shot. The other combined rates were impacted by both DTP and HBV. In 1998, only two doses of HBV were required to be age-appropriately immunized. This was to allow for health plans

that could not adequately capture the first dose of HBV that was typically given in the hospital. The HEDIS® 2000 specifications now require three doses of HBV with at least one dose between six and 24 months of age.

As the summary chart and Tables 2-7 show, almost all of the immunization rates increased again this year over the previous year's results. The 90% immunization goal set by *Healthy People 2000* has been met by some of the individual 13 Health Plans/Program Contractors for individual antigens. Indeed, four Health Plans/Program Contractors exceeded the 90% immunization rate for OPV and MMR, while another five Health Plans/Program Contractors were within five percent of the goal. Only one Health Plan/Program Contractor reached the 90% goal for DTP, though seven others had immunization rates that exceeded 80% for DTP.

In 1998, the highest rate of any individual antigen was two doses of HBV (89%). This was also the case in 1997 when HBV was at least four percentage points higher than any other antigen. This year, OPV (87.2%) and MMR (86.8%) had the highest rates for the individual antigens, while the rate for two doses of HBV decreased 5 percentage points to about 84 percent. Typically there is a direct relationship between immunization rates and the number of doses required to be considered age-appropriately immunized. DTP (79.9%), which usually has the lowest rate due to the four dose requirement, was higher than the HBV and VZV rate.

The only single antigen rate that was less than 75 percent was VZV with a rate of 63 percent. However, this represented a 43% increase in VZV over 1998. Individually, two Health Plans/Program Contractors had rates above 80% for VZV (87.6% and 82.6%) and two others had rates above 70% for VZV. Two years ago was the first year information was collected on this new antigen, and the baseline rate for VZV was very low (16%). Both HIB and HBV, also relatively recent additions to the recommended schedule, went through the same initial period, albeit not with as much annual improvement. This is the second year that NCQA has included the VZV as recommended antigen by CDC/ACIP in one of the HEDIS® combined rates. Previously, Health Plans/Program Contractors have been aware that their combined rates were driven by DTP, their lowest single antigen. However in the short term, combination completion rates will be driven by VZV when it is included as one of the antigens, rather than DTP. Over time and with increased education, VZV should closely mirror the rate for MMR, given they follow the same immunization schedule.

V. CONCLUSION

The annual AHCCCS immunization assessment has been a statewide demonstration of continuous quality improvement over each of the last seven years. Collaboration between AHCCCS, its Health Plans/Program Contractors, their providers, and HSAG has produced a highly efficient study design.

The greatest evidence of this is the record low percentage of missing information. Initially in 1993, immunization documentation was found for 87% of the AHCCCS study sample. Seven years later, immunization information was located for 99.6% of the sample cases. As anticipated, it appears that the statewide centralized immunization registry, which was enacted in January 1998, served to compliment the Health Plan's/Program Contractor's efforts to locate information. Additionally, it is anticipated that this registry will help to improve the efforts of the Health Plans/Program Contractors in monitoring the immunization status of children, thereby increasing the immunization completion rates among children enrolled in the Health Plans/Program Contractors.

In the past, DTP has been the primary antigen limiting the immunization rates for combined antigens. This was not surprising since DTP is the only antigen that requires four doses by two years of age. A combined-antigen rate, at best, can equal but never exceed the lowest individual-antigen being included in the combined-antigen rate. Improvement efforts focused on DTP were reflected in a statewide AHCCCS rate of 75% in 1998 and nearly 80% in 1999. However, in addition to DTP, Health Plans/Program Contractors must now focus attention on VZV, as well. Two years ago was the first year information was collected on this new antigen and, like past antigens that were first introduced, the baseline rate was extremely low. Although there was a three-fold increase in the VZV rate last year and a nearly 50% increase this year, it will likely be VZV and not DTP in the next few years that limits combined antigen rates. To continue the upward movement and achieve the 90% immunization goal, a concerted effort to at least maintain OPV and MMR and improve HIB and HBV, which can be given together in a single COMVAX shot, is strongly recommended.

Annual AHCCCS immunization rates for nearly all the quality indicators improved over the prior year. Clearly immunization awareness in Arizona has increased and providers have made a concerted effort to improve the immunization status of children by two years of age. AHCCCS and its contracted Health Plans/Program Contractors have made great strides toward achieving the 90 percent immunization goal set by *Healthy People 2000*. Given that an assessment of the year 2000 is still one year away, the 90 percent immunization goal appears to be well within reach for individual antigens. Indeed, many Health Plans/Program Contractors have already surpassed the goal for some individual antigens and have combined rates above 80 percent. As the immunization status continues to improve, Health Plans/Program Contractors need to be aware that it will become more difficult to target improvement and reach the at-risk population.

APPENDIX

Table 1
Summary of Immunization Records Requested
By AHCCCS Health Plan/Program Contractor

AHCCCS HEALTH PLAN / PROGRAM CONTRACTOR	ORIGINAL SAMPLE SIZE	INVALID CASES	OTHER EXCLUDED CASES	FINAL SAMPLE SIZE
Maricopa Health Plan	247	0	0	247
Pima Health System	118	0	5	113
Arizona Physicians IPA	1408	0	33	1375
DES/CMDP	194	0	0	194
Family Health Plan of NEAZ	54	0	1	53
Doctors Health Plan	37	0	1	36
Phoenix Health Plan	447	0	0	447
Mercy Care Plan	888	1	4	883
University Family Care	138	0	0	138
Health Choice Arizona	346	0	2	344
Arizona Health Concepts	118	0	21	97
CIGNA Community Choice	223	0	1	222
DES/DDD	162	0	1	161
STATEWIDE	4380	1	69	4310

NOTE: Invalid Cases refers to children that did not turn two years of age between October 1, 1998 and September 30, 1999.

Other Excluded Cases refers to those children with documented parental refusal or contraindications. These 69 cases were excluded from the analysis.

Table 2
Summary of the Immunization Completion Rates By 24 Months of Age,
By AHCCCS Health Plan/Program Contractor

AHCCCS HEALTH PLAN	FINAL SAMPLE SIZE	IMMUNIZATION RECORD NOT FOUND (%)	PERCENT IMMUNIZATION COMPLETED BY 24 MONTHS OF AGE						
			DTP	OPV	MMR	H1B	HBV 2	HBV 3	VZV
Maricopa Health Plan	247	0.0	78.1	89.5	87.0	79.4	81.4	78.5	73.7
Pima Health System	113	0.0	93.8	94.7	92.2	88.5	85.0	84.1	87.6
Arizona Physicians IPA	1375	0.0	81.0	88.4	86.4	83.3	85.2	83.7	59.8
DES/CMDP	194	6.2	66.5	79.4	80.4	72.2	83.0	80.9	62.9
Family Health Plan of NEAZ	53	0.0	84.9	92.5	84.9	90.6	83.0	81.1	13.2
Doctors Health Plan	36	0.0	58.3	75.0	80.6	72.2	86.1	83.3	25.0
Phoenix Health Plan	447	0.0	86.6	92.2	93.1	87.9	88.6	83.2	59.3
Mercy Care Plan	883	0.1	81.2	87.4	87.7	82.9	83.4	76.0	64.4
University Family Care	138	0.0	84.1	90.6	90.6	82.6	80.4	79.0	82.6
Health Choice Arizona	344	0.3	80.5	86.6	86.3	82.0	83.1	76.7	58.7
Arizona Health Concepts	97	1.0	48.5	55.7	65.0	53.6	56.7	51.6	44.3
CIGNA Community Choice	222	0.0	82.9	88.3	90.1	88.3	86.5	77.5	76.1
DES/DDD	161	2.5	67.7	77.6	80.8	73.9	78.3	72.7	62.7
STATEWIDE	4310	0.4	79.9	87.2	86.8	82.2	83.7	79.5	62.8

Note: Parental refusal and contraindications accounted for 69 cases. These cases were excluded from the analysis.

Table 3
Summary of Combined Immunization Completion Rates By 24 Months of Age,
By AHCCCS Health Plan/Program Contractor

AHCCCS HEALTH PLAN	FINAL SAMPLE SIZE	TRADITIONAL DTP, OPV & MMR Rate	HEDIS® 1999	HEDIS® 2000	
			DTP, OPV, MMR, HIB (2 Doses) & HBV (2 Doses)	DTP, OPV, MMR, HIB (2 Doses) & HBV (3 Doses)	DTP, OPV, MMR, HIB, HBV (3 Doses) & VZV
Maricopa Health Plan	247	75.7	59.9	59.5	51.8
Pima Health System	113	89.4	72.6	71.7	65.5
Arizona Physicians IPA	1375	75.7	64.4	64.0	44.2
DES/CMDP	194	64.4	57.2	57.2	47.4
Family Health Plan of NEAZ	53	73.6	62.3	60.4	7.6
Doctors Health Plan	36	50.0	41.7	41.7	5.6
Phoenix Health Plan	447	83.7	72.7	70.5	47.4
Mercy Care Plan	883	76.6	63.8	59.9	45.8
University Family Care	138	80.4	60.9	60.1	55.8
Health Choice Arizona	344	78.2	67.4	64.5	42.7
Arizona Health Concepts	97	41.2	34.0	30.9	26.8
CIGNA Community Choice	222	77.0	67.1	63.1	52.2
DES/DDD	161	61.5	53.4	51.6	37.9
STATEWIDE	4310	75.4	63.7	61.9	45.2

Note: Parental refusal and contraindications accounted for 69 cases. These cases were excluded from the analysis.

Table 4
Summary of the Immunization Completion Rates
By 24 Months of Age - By County

COUNTY	FINAL SAMPLE SIZE	IMMUNIZATION RECORD NOT FOUND (%)	PERCENT IMMUNIZATION COMPLETED BY 24 MONTHS OF AGE						
			DTP	OPV	MMR	HIB	HBV 2	HBV 3	VZV
Apache	34	0.0	58.8	67.6	70.6	64.7	70.6	67.6	11.8
Cochise	222	0.0	76.6	89.6	82.0	77.0	81.5	79.3	51.8
Coconino	109	0.0	86.2	89.9	92.7	82.6	79.8	78.0	60.6
Gila	66	1.5	74.2	83.3	89.4	78.8	80.3	74.2	48.5
Graham	60	0.0	71.7	80.0	88.3	81.7	85.0	83.3	26.7
Greenlee	16	0.0	62.5	93.8	68.8	81.2	93.8	81.2	37.5
Maricopa	1889	0.4	80.0	88.4	87.8	83.6	84.5	78.9	66.0
Mohave	205	1.0	63.4	74.6	74.6	70.2	73.7	70.2	53.7
Navajo	108	0.9	75.9	80.6	76.8	79.6	77.8	75.9	21.3
Pima	889	0.6	82.0	87.1	87.1	81.0	84.8	81.4	70.3
Pinal	204	1.0	80.4	86.3	89.2	82.8	84.3	79.4	52.0
Santa Cruz	99	0.0	91.9	95.0	88.9	86.9	87.9	86.9	76.8
Yavapai	121	0.0	80.2	88.4	86.0	86.0	80.2	76.0	60.3
Yuma	265	0.0	91.3	91.7	95.5	92.1	89.4	88.3	73.2
La Paz	23	0.0	52.2	60.9	73.9	60.9	69.6	65.2	56.5
STATEWIDE	4310	0.4	79.9	87.2	86.8	82.2	83.7	79.5	62.8

Note: Parental refusal and contraindications accounted for 69 cases. These cases were excluded from the analysis.

Table 5
Summary of Combined Immunization Completion Rates
By 24 Months of Age - By County

COUNTY	FINAL SAMPLE SIZE	TRADITIONAL DTP, OPV & MMR RATE	HEDIS [®] 1999	HEDIS [®] 2000	
			DTP, OPV, MMR, HIB (2 Doses) & HBV (2 Doses)	DTP, OPV, MMR, HIB (2 Doses) & HBV (3 Doses)	DTP, OPV, MMR, HIB (2 Doses), HBV (3 Doses) & VZV
Apache	34	52.9	44.1	44.1	5.9
Cochise	222	70.3	55.0	54.0	30.6
Coconino	109	82.6	64.2	63.3	42.2
Gila	66	72.7	60.6	59.1	31.8
Graham	60	66.7	58.3	58.3	15.0
Greenlee	16	56.2	50.0	43.8	25.0
Maricopa	1889	76.0	64.5	62.1	47.6
Mohave	205	57.1	48.3	46.3	36.1
Navajo	108	67.6	56.5	55.6	13.9
Pima	889	78.1	65.7	64.0	50.6
Pinal	204	79.4	70.1	68.6	44.6
Santa Cruz	99	84.8	71.7	70.7	60.6
Yavapai	121	73.6	60.3	57.0	38.8
Yuma	265	84.9	75.1	74.7	59.2
La Paz	23	47.8	34.8	34.8	30.4
STATEWIDE	4310	75.4	63.7	61.9	45.2

Note: Parental refusal and contraindications accounted for 69 cases. These cases were excluded from the analysis.

Table 6
Analysis of Missed Opportunities in DTP Completion Rates By 24 Months of Age
By AHCCCS Health Plan/Program Contractor

AHCCCS HEALTH PLAN	FINAL SAMPLE SIZE	DTP COMPLETE		3 DTP DOSES		POSSIBLE	
		#	%	#	%	#	%
Maricopa Health Plan	247	193	78.1	31	12.6	224	90.7
Pima Health System	113	106	93.8	3	2.6	109	96.5
Arizona Physicians IPA	1375	1114	81.0	173	12.6	1287	93.6
DES/CMDP	194	129	66.5	37	19.1	166	85.6
Family Health Plan of NEAZ	53	45	84.9	5	9.4	50	94.3
Doctors Health Plan	36	21	58.3	10	27.8	31	86.1
Phoenix Health Plan	447	387	86.6	38	8.5	425	95.1
Mercy Care Plan	883	717	81.2	99	11.2	816	92.4
University Family Care	138	116	84.1	13	9.4	129	93.5
Health Choice Arizona	344	277	80.5	31	9.0	308	89.5
Arizona Health Concepts	97	47	48.5	17	17.5	64	66.0
CIGNA Community Choice	222	184	82.9	21	9.5	205	92.3
DES/DDD	161	109	67.7	27	16.8	136	84.5
STATEWIDE	4310	3445	79.9	505	11.7	3950	91.6

Note: The Possible column in the above table is what the immunization rate would have been if the last DTP dose had been administered prior to the child's second birthday. This represents an opportunity for improvement.

Table 7
Analysis of Missed Opportunities in DTP Completion Rates
By 24 Months of Age - By County

COUNTY	FINAL SAMPLE SIZE	DTP COMPLETE		3 DTP DOSES		POSSIBLE	
		#	%	#	%	#	%
Apache	34	20	58.8	4	11.8	24	70.6
Cochise	222	170	76.6	42	18.9	212	95.5
Coconino	109	94	86.2	8	7.3	102	93.6
Gila	66	49	74.2	9	13.6	58	87.9
Graham	60	43	71.7	11	18.3	54	90.0
Greenlee	16	10	62.5	5	31.2	15	93.8
Maricopa	1889	1512	80.0	231	12.2	1743	92.3
Mohave	205	130	63.4	38	18.5	168	82.0
Navajo	108	82	75.9	8	7.4	90	83.3
Pima	889	729	82.0	88	9.9	817	91.9
Pinal	204	164	80.4	15	7.4	179	87.7
Santa Cruz	99	91	91.9	7	7.1	98	99.0
Yavapai	121	97	80.2	16	13.2	113	93.4
Yuma	265	242	91.3	18	6.8	260	98.1
La Paz	23	12	52.2	5	21.7	17	73.9
STATEWIDE	4310	3445	79.9	505	11.7	3950	91.6

Note: The Possible column in the above table is what the immunization rate would have been if the last DTP dose had been administered prior to the child's second birthday. This represents an opportunity for improvement.