

FISCAL YEAR 2008-2009 COLORADO PIP VALIDATION REPORT

Childhood Immunization

for
Denver Health Medicaid Choice

May 2009
for
Validation Year 4

*This report was produced by Health Services Advisory Group, Inc., for the
Colorado Department of Health Care Policy & Financing*



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CAHPS® refers to the Consumer Assessment of Healthcare Providers and Systems and is a registered trademark of the Agency for Healthcare Research and Quality (AHRQ).

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1. Executive Summary

for Denver Health Medicaid Choice

The Balanced Budget Act of 1997 (BBA), Public Law 105-33, requires that states conduct an annual evaluation of their managed care organizations (MCOs) and prepaid inpatient health plans (PIHPs) to determine the MCOs' and PIHPs' compliance with federal regulations and quality improvement standards. According to the BBA, the quality of health care delivered to Medicaid members in MCOs and PIHPs must be tracked, analyzed, and reported annually. The Colorado Department of Health Care Policy & Financing (the Department) has contractual requirements with each MCO and behavioral health organization (BHO) to conduct and submit performance improvement projects (PIPs) annually.

As one of the mandatory external quality review activities under the BBA, the Department is required to validate the PIPs. To meet this validation requirement, the Department contracted with Health Services Advisory Group, Inc. (HSAG), as an external quality review organization. The primary objective of the PIP validation is to determine compliance with requirements set forth in the Code of Federal Regulations (CFR) at 42 CFR 438.240(b)(1), including:

- ◆ Measurement of performance using objective quality indicators.
- ◆ Implementation of system interventions to achieve improvement in quality.
- ◆ Evaluation of the effectiveness of the interventions.
- ◆ Planning and initiation of activities for increasing or sustaining improvement.

In its PIP evaluation and validation, HSAG used the Centers for Medicare & Medicaid Services (CMS) publication, *Validating Performance Improvement Projects: A Protocol for Use in Conducting Medicaid External Quality Review Activities*, final protocol, Version 1.0, May 1, 2002. In this report, HSAG refers to “steps” when discussing the PIP validation process and CMS Protocols for validating PIPs. HSAG refers to “activities” when discussing conducting a PIP and CMS Protocols for conducting PIPs based on the CMS publication, *Conducting Performance Improvement Projects: A Protocol for Use in Conducting Medicaid External Quality Review Activities*, final protocol, Version 1.0, May 1, 2002.

Overview

Denver Health Medicaid Choice (DHMC) continued its clinical PIP, *Childhood Immunization*, for fiscal year (FY) 08–09. This topic addressed CMS' requirements related to quality outcomes—specifically, access to care and services. The purpose of the study was to evaluate the immunization history of children who turned 2 years of age during the study period. The goal of the study was to increase the number of children who received their entire immunization series by the age of 2 based on **DHMC's** Childhood Immunization Guidelines.

DHMC stated the study question as follows: “Will interventions implemented by the Denver Health Medicaid Choice Program on behalf of members and by providers increase immunization rates in children during their first two years of life?”

The PIP had nine study indicators, which **DHMC** defined as follows:

- ◆ Study Indicator 1: “The percentage of eligible children during the measurement period who had four DTP/DtaP vaccines by the second birthday.”
- ◆ Study Indicator 2: “The percentage of eligible children during the measurement period who had three IPV vaccines by the second birthday.”
- ◆ Study Indicator 3: “The percentage of eligible children during the measurement period who had at least one MMR vaccine by the second birthday.”
- ◆ Study Indicator 4: “The percentage of eligible children during the measurement period who had at least three influenza type b vaccines by the second birthday.”
- ◆ Study Indicator 5: “The percentage of eligible children during the measurement period who had three hepatitis B vaccines by the second birthday.”
- ◆ Study Indicator 6: “The percentage of eligible children during the measurement period who had at least one chicken pox vaccine by the second birthday.”
- ◆ Study Indicator 7: “The percentage of eligible children during the measurement period who had the required pneumococcal conjugate vaccines by the second birthday.”
- ◆ Study Indicator 8: “The percentage of eligible children during the measurement period who had the required DTP/DtaP, IPV, MMR, Hib, HepB, and VZV vaccines by the second birthday.”
- ◆ Study Indicator 9: “The percentage of eligible children during the measurement period who had the required DTP/DtaPs, IPV, MMR, Hib, HepB, VZV, and four pneumococcal conjugate vaccines by the second birthday.”

The study population included all eligible children who were continuously enrolled with no more than one gap in enrollment of up to 45 days during the 12 months prior to the child’s second birthday.

Conclusions

For the FY 08–09 validation cycle, HSAG validated Steps I through X. The final validation finding for **DHMC’s** PIP showed an overall score of 92 percent, a critical element score of 100 percent, and a *Met* validation status. Going forward, HSAG recommends that the PIP be retired from submission for validation.

Table 1-1 displays the MCO’s performance across all steps. The second column represents the total number of evaluation elements *Met* by the MCO compared to the total number of applicable evaluation elements for each step reviewed, including critical elements. The third column represents the total number of critical elements *Met* by the MCO for each step reviewed compared to the total number of applicable critical evaluation elements.

Table 1-1—Performance Across all Steps		
Review Steps	Total Number of Evaluation Elements <i>Met</i> /Total Number Applicable Evaluation Elements	Total Number of Critical Elements <i>Met</i> /Total Number of Applicable Critical Evaluation Elements
I. Review the Selected Study Topic(s)	6/6	1/1
II. Review the Study Question(s)	2/2	2/2
III. Review the Selected Study Indicator(s)	6/6	3/3
IV. Review the Identified Study Population	3/3	2/2
V. Review Sampling Methods	6/6	1/1
VI. Review Data Collection Procedures	10/10	1/1
VII. Assess Improvement Strategies	3/3	1/1
VIII. Review Data Analysis and the Interpretation of Study Results	9/9	2/2
IX. Assess for Real Improvement	1/4	No Critical Elements
X. Assess for Sustained Improvement	0/1	No Critical Elements

Overall Validity and Reliability of the Findings

Based on the validation of this PIP, HSAG’s assessment determined confidence in the results.

Strengths/PIP Progression

DHMC demonstrated strength in its study design and study implementation by receiving *Met* scores for all applicable evaluation elements for Steps I through VIII. **DHMC** developed its interventions based on causes/barriers; the interventions were system changes that would have a long-term effect on the results. Seven of the nine study indicators demonstrated improvement from Baseline.

Opportunities for Improvement and Recommendations

HSAG determines opportunities for improvement based on those evaluation elements that receive a *Partially Met* or a *Not Met* score, indicating that those elements are not in full compliance with CMS Protocols. The PIP also includes *Points of Clarification* as opportunities for improvement. For a detailed explanation of opportunities for improvement, see the PIP Validation Tool section of this report under the corresponding step.

Step VII: Assess Improvement Strategies

DHMC should provide the dates on which the causal/barrier analyses were performed.

Step VIII: Review Data Analysis and the Interpretation of Study Results

In the data table in the PIP Summary Form, Study Indicator 9 was for Combination 3 (all of Combination 2 plus VZV). Combination 3 should include PCV and not VZV, as VZV was included in Combination 2.

The *p* values from Baseline to the first remeasurement period should also be included in the PIP documentation.

Step IX: Assess for Real Improvement

To receive a *Met* score for achieving real improvement, all study indicators must demonstrate improvement. Going forward with new PIPs, HSAG recommends that **DHMC** focus on 1 or 2 study indicators. It is very difficult to achieve real improvement when the study has several indicators.

Step X: Assess for Sustained Improvement

Of the nine study indicators, four achieved sustained improvement. As stated previously, having fewer study indicators would assist **DHMC** in achieving real and sustained improvement.

Comparison of Years 1 through 4

Each year, HSAG completes a review and evaluation of the entire PIP. The following table illustrates the PIP’s progression, describing the activities completed for each PIP submission and the evaluation scores.

Table 1-2—Year-to-Year Comparison of Results				
Categories Compared	Year 1 FY 05-06	Year 2 FY 06-07	Year 3 FY 07-08	Year 4 FY 08-09
Steps Evaluated	VI	VIII	IX	X
Percentage Score of Evaluation Elements <i>Met</i>	97	100	93	92
Percentage Score of Critical Elements <i>Met</i>	100	100	100	100
Validation Status	<i>Met</i>	<i>Met</i>	<i>Met</i>	<i>Met</i>

For the FY 05–06 validation cycle, **DHMC** completed Activities I through VI, receiving a score of 97 percent for evaluation elements *Met*, a score of 100 percent for critical elements *Met*, and a *Met* validation status. HSAG identified an opportunity in Step VI for **DHMC** to provide written instructions for the manual data collection tool that includes an overview of the study.

For the FY 06–07 validation cycle, **DHMC** progressed through Activity VIII. The PIP received a score of 100 percent for evaluation elements and critical elements *Met*, and a validation status of *Met*. **DHMC** established a new Baseline, since the original Study Indicator 7 was retired and a new Study Indicator 7 was developed. **DHMC** also added Study Indicator 9. The original Baseline for Study Indicators 1 through 6 was for a six-month time period. Going forward, remeasurement results will be compared to the new Baseline. **DHMC** addressed the opportunity for improvement from FY 05–06, and there were no new opportunities for improvement identified during this validation cycle.

For the FY 07–08 validation cycle, **DHMC** progressed through Activity IX, reporting Baseline and Remeasurement 1 results. The PIP received a score of 93 percent for evaluation elements *Met*, 100 percent for critical elements *Met*, and a *Met* validation status. Five of the nine study indicators demonstrated improvement, although there was no statistical evidence that improvement was true improvement. The PIP had multiple study indicators, which makes it difficult for the PIP to achieve real improvement across all study indicators. HSAG recommended that **DHMC** perform a second causal/barrier analysis to assess for necessary changes that **DHMC** could implement in order to achieve its desired outcomes.

For the FY 08–09 validation cycle, **DHMC** completed all 10 activities in the PIP Summary Form and reported results for Baseline through Remeasurement 2. The PIP received a score of 92 percent for evaluation elements *Met*, 100 percent for critical elements *Met*, and a *Met* validation status. Seven of the nine study indicators demonstrated improvement from Remeasurement 1 to Remeasurement 2. The remaining two study indicators demonstrated declines, with one indicator’s results falling below the Baseline rate for Remeasurement 2. As **DHMC** begins new studies, focusing on one or two study indicators would assist **DHMC** in achieving real and sustained improvement.

Analysis of Results

For Remeasurement 2 (January 1, 2007 through December 31, 2007), **DHMC** contracted with TierMed, a certified NCQA HEDIS vendor, to generate a sample of 432 members to be included in the study from the eligible population of 502 members. **DHMC** reported that the sampling was conducted in accordance with HEDIS standards. Table 1-3 presents results for Baseline and all remeasurement periods. All study indicators measured the percentage of Medicaid Choice children who were 2 years of age during the study period and who received particular immunizations by the second birthday.

Table 1-3—Summary of Results						
Study Indicator	Baseline Measurement		Remeasurement 1		Remeasurement 2	
	Goal	Results	Goal	Results	Goal	Results
<i>Study Indicator 1: “The percentage of eligible children during the measurement period who had four DTP/DtaP vaccines by the second birthday.”</i>	90%	88.89%	90%	84.78%	89%	85.64%
<i>Study Indicator 2: “The percentage of eligible children during the measurement period who had three IPV vaccines by the second birthday.”</i>	90%	95.06%	90%	92.39%	95%	94.89%
<i>Study Indicator 3: “The percentage of eligible children during the measurement period who had at least one MMR vaccine by the second birthday.”</i>	90%	93.83%	90%	95.65%	95%	93.19%
<i>Study Indicator 4: “The percentage of eligible children during the measurement period who had at least three influenza type b vaccines by the second birthday.”</i>	90%	95.06%	90%	93.48%	95%	94.40%

Table 1-3—Summary of Results						
Study Indicator	Baseline Measurement		Remeasurement 1		Remeasurement 2	
	Goal	Results	Goal	Results	Goal	Results
<i>Study Indicator 5: “The percentage of eligible children during the measurement period who had three hepatitis B vaccines by the second birthday.”</i>	90%	92.59%	90%	93.48%	95%	95.38%
<i>Study Indicator 6: “The percentage of eligible children during the measurement period who had at least one chicken pox vaccine by the second birthday.”</i>	90%	92.59%	90%	95.65%	94%	93.19%
<i>Study Indicator 7: “The percentage of eligible children during the measurement period who had the required pneumococcal conjugate vaccines by the second birthday.”</i>	90%	86.42%	90%	86.96%	64%	88.08%
<i>Study Indicator 8: “The percentage of eligible children during the measurement period who had the required DTP/DtaP, IPV, MMR, Hib, HepB, and VZV vaccines by the second birthday.”</i>	90%	85.19%	90%	84.78%	83%	85.16%
<i>Study Indicator 9: “The percentage of eligible children during the measurement period who had the required DTP/DtaPs, IPV, MMR, Hib, HepB, VZV, and four pneumococcal conjugate vaccines by the second birthday.”</i>	90%	79.01%	90%	83.70%	58%	84.18%

Comparing results from Remeasurement 1 and Remeasurement 2, Table 1-3 shows that **DHMC** made improvements, though nonsignificant, in seven of the nine study indicators (Study Indicators 1, 2, 4, 5, 7, 8, and 9). In addition, four of these measures exceeded their predetermined Remeasurement 2 goals (Study Indicators 5, 7, 8, and 9).

Reviewing the trends for all study indicators from Baseline through all remeasurement periods, four of the nine study indicators demonstrated improvement in the remeasurement periods, whereas the remaining five study indicators' results for the remeasurement periods were below the Baseline results. In addition, none of the nine study indicators demonstrated statistically significant improvement across all measurement periods. Consequently, **DHMC** had not progressed to the point of standardizing its interventions for sustained improvement. These results also suggested that despite tremendous efforts put forth by **DHMC** and improvement in selected study indicators, childhood immunization rates were not significantly different from the Baseline rates.

One possible explanation for the lack of statistically significant improvement in these measures is that most of the immunization rates were already at a high performance level, making any statistically significant improvement through interventions difficult to achieve. Another explanation is related to the relatively small number of children included in the study for Baseline and Remeasurement 1. The number of children included in Baseline and Remeasurement 1 was about one-fourth of those included in Remeasurement 2. Confidence intervals generated based on the results from Baseline and Remeasurement 1 would be much larger than those from Remeasurement 2, which probably contributes to the lack of statistical significance.

PIP Scores

For this PIP, HSAG reviewed Steps I through X. Table 1-4 and Table 1-5 show **DHMC**'s scores based on HSAG's PIP evaluation of *Childhood Immunization*. Evaluators reviewed and scored each step according to HSAG's validation methodology.

**Table 1-4—Performance Improvement Project Scores
for *Childhood Immunization*
for Denver Health Medicaid Choice**

Review Step	Total Possible Evaluation Elements (Including Critical Elements)	Total Met	Total Partially Met	Total Not Met	Total NA	Total Possible Critical Elements	Total Critical Elements Met	Total Critical Elements Partially Met	Total Critical Elements Not Met	Total Critical Elements NA
I. Review the Selected Study Topic(s)	6	6	0	0	0	1	1	0	0	0
II. Review the Study Question(s)	2	2	0	0	0	2	2	0	0	0
III. Review the Selected Study Indicator(s)	7	6	0	0	1	3	3	0	0	0
IV. Review the Identified Study Population	3	3	0	0	0	2	2	0	0	0
V. Review Sampling Methods	6	6	0	0	0	1	1	0	0	0
VI. Review Data Collection Procedures	11	10	0	0	1	1	1	0	0	0
VII. Assess Improvement Strategies	4	3	0	0	1	1	1	0	0	0
VIII. Review Data Analysis and the Interpretation of Study Results	9	9	0	0	0	2	2	0	0	0
IX. Assess for Real Improvement	4	1	2	1	0	No Critical Elements				
X. Assess for Sustained Improvement	1	0	1	0	0	No Critical Elements				
Totals for All Steps	53	46	3	1	3	13	13	0	0	0

**Table 1-5—Performance Improvement Project Overall Score
for *Childhood Immunization*
for Denver Health Medicaid Choice**

Percentage Score of Evaluation Elements <i>Met</i> *	92%
Percentage Score of Critical Elements <i>Met</i> **	100%
Validation Status***	Met

* The percentage score for all evaluation elements *Met* is calculated by dividing the total *Met* by the sum of all evaluation elements *Met*, *Partially Met*, and *Not Met*.

** The percentage score for critical elements *Met* is calculated by dividing the total critical elements *Met* by the sum of the critical elements *Met*, *Partially Met*, and *Not Met*.

*** *Met* equals confidence/high confidence that the PIP was valid.
Partially Met equals low confidence that the PIP was valid.
Not Met equals reported PIP results that were not valid.

Scoring Methodology

Below is the scoring methodology HSAG uses to evaluate PIPs conducted by the MCO to determine if a PIP is valid and to rate the percentage of compliance with CMS’ Protocol for conducting PIPs.

Each PIP step consists of critical and noncritical evaluation elements necessary for successful completion of a valid PIP. Each evaluation element is scored as *Met*, *Partially Met*, *Not Met*, *Not Applicable*, or *Not Assessed*. In the PIP Validation Tool (Section 3), the column to the left of the evaluation element description indicates if that evaluation element is a critical element. Critical elements are essential to producing a valid and reliable PIP; therefore, each critical element must have a score of *Met*. For example, for Step II of the PIP Validation Tool, if the study question cannot be answered, then the critical element is scored as *Not Met* and the PIP is not valid.

The following is an example of how critical elements are designated in the PIP Validation Tool.

	Evaluation Element	Scoring
C	The written study question is answerable.	<input type="checkbox"/> <i>Met</i> <input type="checkbox"/> <i>Partially Met</i> <input type="checkbox"/> <i>Not Met</i> <input type="checkbox"/> <i>NA</i>

HSAG scores each evaluation element as noted above and creates a table that totals all scores (for critical and noncritical elements). From this table (Table 3-1 in Section 3) HSAG calculates percentage scores and a validation status (Table 3-2 in Section 3). The percentage score for all evaluation elements is calculated by dividing the number of elements (including critical elements) *Met* by the sum of evaluation elements that were *Met*, *Partially Met*, and *Not Met*. The percentage score for critical elements *Met* is calculated by dividing the critical elements *Met* by the sum of critical elements that were *Met*, *Partially Met*, and *Not Met*. The validation status score is based on the percentage score and whether or not critical elements were *Met*, *Partially Met*, or *Not Met*. (See the scoring table on page 2-2 for more details.) The scoring methodology also includes the *Not Applicable* designation for those situations in which the evaluation element does not apply to the PIP. For example, in Activity V, if the PIP did not use sampling techniques, HSAG would score the evaluation elements in Activity V as *Not Applicable*. HSAG uses the *Not Assessed* scoring designation when the PIP has not progressed to the remaining steps in the CMS Protocol. HSAG uses a *Point of Clarification* when documentation for an evaluation element includes the basic components to meet requirements for the evaluation element (as described in the narrative of the PIP), but enhanced documentation would demonstrate a stronger understanding of CMS Protocols.

Due to the importance of critical elements, any critical element scored as *Not Met* will invalidate the PIP. Critical elements that are *Partially Met* and noncritical elements that are *Partially Met* or *Not Met* will not invalidate the PIP but will affect the overall percentage score (which indicates the percentage of the PIP’s compliance with CMS’ Protocol for conducting PIPs).

HSAG will provide technical assistance to help the MCO understand CMS' Protocol and make necessary revisions to the PIP. For future submissions, the MCO will submit a revised PIP Summary Form that includes additional information to address any *Points of Clarification* and any critical and noncritical areas scored as *Partially Met* or *Not Met*.

Met, *Partially Met*, and *Not Met* scores are aggregated to reflect an overall score based on the following criteria:

<i>Met</i>	(1) All critical elements are <i>Met</i> and (2) 80 to 100 percent of all elements are <i>Met</i> across all activities.
<i>Partially Met</i>	(1) All critical elements are <i>Met</i> and 60 to 79 percent of all elements are <i>Met</i> across all activities or (2) One or more critical elements are <i>Partially Met</i> and the percentage score for all elements across all activities is 60 percent or more.
<i>Not Met</i>	(1) All critical elements are <i>Met</i> and less than 60 percent of all elements are <i>Met</i> across all activities or (2) One or more critical elements are <i>Not Met</i> .
<i>Not Applicable (NA)</i>	<i>Not Applicable</i> elements (including critical elements) are removed from all scoring.
<i>Not Assessed</i>	<i>Not Assessed</i> elements (including critical elements) are removed from all scoring.
<i>Point of Clarification</i>	A <i>Point of Clarification</i> is used when documentation for an evaluation element includes the basic components to meet requirements for the evaluation element (as described in the narrative of the PIP), but enhanced documentation would demonstrate a stronger understanding of CMS Protocols.

HSAG then calculates an overall percentage and validation status score as follows:

Percentage Score of Evaluation Elements <i>Met</i>*	%
Percentage Score of Critical Elements <i>Met</i>**	%
Validation Status***	<Met/Partially Met/Not Met>

- * The percentage score for all evaluation elements *Met* is calculated by dividing the total *Met* by the sum of all evaluations elements *Met*, *Partially Met*, and *Not Met*.
- ** The percentage score for critical elements *Met* is calculated by dividing the total critical elements *Met* by the sum of the critical elements *Met*, *Partially Met*, and *Not Met*.
- *** *Met* equals confidence/high confidence that the PIP was valid.
Partially Met equals low confidence that the PIP was valid.
Not Met equals reported PIP results that were not credible.

The scoring methodology is designed to ensure that critical elements are a must-pass step. If at least one critical element is *Not Met*, the overall validation status is *Not Met*. In addition, the methodology addresses the potential situation in which all critical elements are *Met*, but suboptimal performance is observed for noncritical elements. The final outcome would be based on the overall percentage score.

Scoring Methodology Examples

HSAG calculates the score for the MCO as the percentage of elements across all activities that receive a *Met* score. The following examples demonstrate how scoring is applied.

Example 1:

The PIP scores are as follows: *Met*=43, *Partially Met*=1, *Not Met*=1, *NA*=8, and one critical element is *Partially Met*. The MCO receives an overall *Partially Met* validation status, indicating a valid PIP. The percentage score of evaluation elements *Met* for the MCO is calculated as $43/45=95.6$ percent. The percentage score of critical elements *Met* is calculated as $12/13=92$ percent.

Example 2:

The PIP scores are as follows: *Met*=38, *Partially Met*=11, *Not Met*=4, *NA*=0, and all the critical elements are *Met*. The MCO receives an overall *Partially Met* status, indicating a valid PIP. The percentage score of evaluation elements *Met* for the MCO is calculated as $38/53=71.7$ percent. The percentage score of critical elements *Met* is calculated as $13/13=100$ percent.

Section 3: Colorado FY 08-09 PIP Validation Tool:
**Childhood Immunization
 for Denver Health Medicaid Choice**

DEMOGRAPHIC INFORMATION

Health Plan Name:	Denver Health Medicaid Choice		
Study Leader Name:	Mary.Pinkney, RN, BS	Title:	Director of Quality Improvement
Phone Number:	(720) 956-2356	E-mail Address:	Mary.Pinkney@dhha.org
Name of Project/Study:	Childhood Immunization		
Type of Study:	Clinical	<input type="checkbox"/> Collaborative	<input checked="" type="checkbox"/> HEDIS
Date of Study:	1/1/2005 to 12/31/2007		
Type of Delivery System:	MCO	Number of Medicaid Members in MCO:	
		Number of Medicaid Members in Study:	
Year 4 Validation	Validated through Step: X		
Results:	Remeasurement 2		
Initial Submission Date:	11/28/2008	Validation Date:	12/16/2008
Resubmission Date:		Validation Date:	

**Section 3: Colorado FY 08-09 PIP Validation Tool:
Childhood Immunization
for Denver Health Medicaid Choice**

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
I. Review the Selected Study Topic(s): Topics selected for the study should reflect the Medicaid-enrolled population in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of disease. Topics could also address the need for a specific service. The goal of the project should be to improve processes and outcomes of health care. The topic may be specified by the State Medicaid agency or based on input from Medicaid members. The study topic:			
1.	Reflects high-volume or high-risk conditions.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study topic reflected a high-volume service.
2.	Is selected following collection and analysis of data. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study topic was selected following the collection and analysis of data.
3.	Addresses a broad spectrum of care and services. The score for this element will be Met or Not Met.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study topic addressed a broad spectrum of care and services over time.
4.	Includes all eligible populations that meet the study criteria. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	All eligible populations that met the study criteria were included in the PIP.
5.	Does not exclude members with special health care needs. The score for this element will be Met or Not Met.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	Members with special health care needs were not excluded from the PIP.
C*	6. Has the potential to affect member health, functional status, or satisfaction. The score for this element will be Met or Not Met.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study topic had the potential to affect member health and functional status.

Results for Step I

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	Met	Partially Met	Not Met	Not Applicable	Critical Elements***	Met	Partially Met	Not Met	Not Applicable
6	6	0	0	0	1	1	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
Childhood Immunization
for Denver Health Medicaid Choice*

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
II.	Review the Study Question(s): Stating the study question(s) helps maintain the focus of the PIP and sets the framework for data collection, analysis, and interpretation. The study question:		
C*	1. States the problem to be studied in simple terms. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study question was stated in simple terms, maintained the focus of the study, and was in the correct format to meet CMS Protocols.
C*	2. Is answerable. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study question was answerable.

Results for Step II

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	Met	Partially Met	Not Met	Not Applicable	Critical Elements***	Met	Partially Met	Not Met	Not Applicable
2	2	0	0	0	2	2	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

**Section 3: Colorado FY 08-09 PIP Validation Tool:
Childhood Immunization
for Denver Health Medicaid Choice**

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
III. Review the Selected Study Indicator(s): A study indicator is a quantitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a member's blood pressure is or is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research. The study indicators:			
C*	1. Are well-defined, objective, and measurable. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study indicators were well-defined, objective, and measurable.
	2. Are based on current, evidence-based practice guidelines, pertinent peer-reviewed literature, or consensus expert panels.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study indicators were based on HEDIS technical specifications.
C*	3. Allow for the study question to be answered. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study indicators allowed for the study question to be answered.
	4. Measure changes (outcomes) in health or functional status, member satisfaction, or valid process alternatives. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study indicators measured changes in member health status.
C*	5. Have available data that can be collected on each indicator. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	There were data available to be collected on each study indicator.
	6. Are nationally recognized measures, such as HEDIS technical specifications, when appropriate. The scoring for this element will be Met or NA.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study indicators were nationally recognized measures.
	7. Includes the basis on which each indicator(s) was adopted, if internally developed.	<input type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input checked="" type="checkbox"/> NA	The study indicators were not internally developed.

Results for Step III

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	Met	Partially Met	Not Met	Not Applicable	Critical Elements***	Met	Partially Met	Not Met	Not Applicable
7	6	0	0	1	3	3	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
Childhood Immunization
for Denver Health Medicaid Choice*

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
IV. Review the Identified Study Population: The selected topic should represent the entire eligible Medicaid-enrolled population, with systemwide measurement and improvement efforts to which the study indicators apply. The study population:			
C*	1. Is accurately and completely defined. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study population was completely and accurately defined.
	2. Includes requirements for the length of a member's enrollment in the health plan.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The required length of member enrollment was included in the study population definition.
C*	3. Captures all members to whom the study question applies. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The study population definition captured all members to whom the study question applied.

Results for Step IV

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	Met	Partially Met	Not Met	Not Applicable	Critical Elements***	Met	Partially Met	Not Met	Not Applicable
3	3	0	0	0	2	2	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

**Section 3: Colorado FY 08-09 PIP Validation Tool:
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for Denver Health Medicaid Choice**

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
V. Review Sampling Methods: (This step is scored only if sampling is used.) If sampling is used to select members of the study, proper sampling techniques are necessary to provide valid and reliable information on the quality of care provided. The true prevalence or incidence rate for the event in the population may not be known the first time a topic is studied. Sampling methods:			
1.	Consider and specify the true or estimated frequency of occurrence.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The sampling techniques were based on HEDIS technical specifications, with no issues identified in the Final Audit Report.
2.	Identify the sample size.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The sample size was reported as 432, following HEDIS technical specifications.
3.	Specify the confidence level.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The sampling techniques were based on HEDIS technical specifications, with no issues identified in the Final Audit Report.
4.	Specify the acceptable margin of error.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The sampling techniques were based on HEDIS technical specifications, with no issues identified in the Final Audit Report.
C*	5. Ensure a representative sample of the eligible population.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The sampling techniques were based on HEDIS technical specifications, with no issues identified in the Final Audit Report.
	6. Are in accordance with generally accepted principles of research design and statistical analysis.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The sampling techniques were based on HEDIS technical specifications, with no issues identified in the Final Audit Report.

Results for Step V

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	Met	Partially Met	Not Met	Not Applicable	Critical Elements***	Met	Partially Met	Not Met	Not Applicable
6	6	0	0	0	1	1	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
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for Denver Health Medicaid Choice*

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VI. Review Data Collection Procedures: Data collection must ensure that the data collected on the study indicators are valid and reliable. Validity is an indication of the accuracy of the information obtained. Reliability is an indication of the repeatability or reproducibility of a measurement. Data collection procedures include:			
1.	The identification of data elements to be collected. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The data elements collected were identified through the HEDIS technical specifications.
2.	The identification of specified sources of data NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The sources for data collection were reported as administrative data and medical record abstraction.
3.	A defined and systematic process for collecting Baseline and remeasurement data. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	A defined and systematic process for collecting Baseline and remeasurement data was outlined in the PIP documentation.
4.	A timeline for the collection of Baseline and remeasurement data. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	A timeline for the collection of Baseline and remeasurement data was provided.
5.	Qualified staff and personnel to abstract manual data.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The PIP documentation included the relevant information for all manual data collection personnel.
C*	6. A manual data collection tool that ensures consistent and accurate collection of data according to indicator specifications.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	A manual data collection tool that ensured consistent and accurate collection of data was used and an electronic copy was provided.
	7. A manual data collection tool that supports interrater reliability.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The manual data collection tool supported interrater reliability, and the interrater reliability process used by the health plan was discussed.
	8. Clear and concise written instructions for completing the manual data collection tool.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	Instructions for the use of the manual data collection tool were provided.
	9. An overview of the study in written instructions.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	An overview of the study was included in the instructions.

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
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EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VI. Review Data Collection Procedures: Data collection must ensure that the data collected on the study indicators are valid and reliable. Validity is an indication of the accuracy of the information obtained. Reliability is an indication of the repeatability or reproducibility of a measurement. Data collection procedures include:			
10. Administrative data collection algorithms/flow charts that show activities in the production of indicators.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA		The administrative data collection process that showed the steps in the production of the study indicators was outlined in the PIP documentation.
11. An estimated degree of administrative data completeness. Met = 80 - 100% Partially Met = 50 - 79% Not Met = <50% or not provided	<input type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input checked="" type="checkbox"/> NA		The denominator was based on enrollment and the numerator was based on claims/encounters and medical record reviews.

Results for Step VI

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	Met	Partially Met	Not Met	Not Applicable	Critical Elements***	Met	Partially Met	Not Met	Not Applicable
11	10	0	0	1	1	1	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
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EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VII. Assess Improvement Strategies: Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Interventions are designed to change behavior at an institutional, practitioner, or member level. The improvement strategies are:			
C*	1. Related to causes/barriers identified through data analysis and quality improvement processes. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The improvement strategies were related to causes/barriers identified through data analysis and quality improvement processes. Point of Clarification: Study Indicators 3 and 6 did not demonstrate improvement, and it was unclear in the PIP documentation when the causal/barrier analysis occurred that was documented on page 38 of the PIP Summary Form. Future submissions of the PIP should document when this analysis occurred and how it was relevant to indicators that did not demonstrate improvement.
	2. System changes that are likely to induce permanent change.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The interventions were system changes that were likely to induce permanent change.
	3. Revised if the original interventions are not successful.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The interventions were revised based on causal/barrier analysis findings.
	4. Standardized and monitored if interventions are successful.	<input type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input checked="" type="checkbox"/> NA	Not all study indicators demonstrated improvement, and interventions had not been standardized at this time.

Results for Step VII

Total Evaluation Elements**	# of Total Evaluation Elements				Critical Elements***	# of Critical Elements			
	Met	Partially Met	Not Met	Not Applicable		Met	Partially Met	Not Met	Not Applicable
4	3	0	0	1	1	1	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
Childhood Immunization
for Denver Health Medicaid Choice*

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VIII. Review Data Analysis and Study Results: Review the data analysis process for the selected clinical or nonclinical study indicators. Review appropriateness of, and adherence to, the statistical analysis techniques used.			
C*	1. Are conducted according to the data analysis plan in the study design. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The data analysis was conducted according to the analysis plan in the study.
C*	2. Allow for the generalization of results to the study population if a sample was selected. If no sampling was performed, this element is scored NA.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The sampling techniques were based on HEDIS technical specifications, with no issues identified in the Final Audit Report.
	3. Identify factors that threaten internal or external validity of findings. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	Factors that affected the validity of the data findings were discussed.
	4. Include an interpretation of findings. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	An interpretation of the results was provided.
	5. Are presented in a way that provides accurate, clear, and easily understood information. NA is not applicable to this element for scoring.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The data were presented in a clear, accurate, and easily understood format. Point of Clarification: In the data table in Activity IX, Study Indicator 9 was for Combo 3 (all of Combo 2 plus VZV). Combo 3 should include PCV, not VZV, as VZV was included in Combo 2. Future submissions of the PIP should make this correction.
	6. Identify the initial measurement and the remeasurement of study indicators.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The initial measurement and remeasurement of each study indicator was identified in the data findings.

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
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for Denver Health Medicaid Choice*

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
VIII. Review Data Analysis and Study Results: Review the data analysis process for the selected clinical or nonclinical study indicators. Review appropriateness of, and adherence to, the statistical analysis techniques used.			
7.	Identify statistical differences between the initial measurement and the remeasurement.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The PIP included the statistical differences between Remeasurement 1 and Remeasurement 2. Point of Clarification: The p values from Baseline to the first remeasurement period should also be included.
8.	Identify factors that affect the ability to compare the initial measurement with the remeasurement.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	Factors that could affect the ability to compare measurement periods were discussed.
9.	Include an interpretation of the extent to which the study was successful.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	An interpretation of the extent to which the study was successful was included.

Results for Step VIII

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	Met	Partially Met	Not Met	Not Applicable	Critical Elements***	Met	Partially Met	Not Met	Not Applicable
9	9	0	0	0	2	2	0	0	0

* "C" in this column denotes a critical evaluation element.

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
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for Denver Health Medicaid Choice*

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
IX. Assess for Real Improvement: Assess for any meaningful changes in performance observed and was demonstrated during the Baseline measurement. Assess for any random year-to-year variations, population changes, or sampling errors that may have occurred during the measurement process.			
1.	The remeasurement methodology is the same as the Baseline methodology.	<input checked="" type="checkbox"/> Met <input type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	There were no changes to the methodology from Remeasurement 1 to Remeasurement 2.
2.	There is documented improvement in processes or outcomes of care.	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	There was improvement in outcomes of care for all but two study indicators (Study Indicators 3 and 6).
3.	The improvement appears to be the result of planned intervention(s).	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	The improvement for 7 of the 9 study indicators appeared to be the result of the planned interventions.
4.	There is statistical evidence that observed improvement is true improvement.	<input type="checkbox"/> Met <input type="checkbox"/> Partially Met <input checked="" type="checkbox"/> Not Met <input type="checkbox"/> NA	The improvement noted for 7 of the 9 study indicators was not statistically significant.

Results for Step IX

# of Total Evaluation Elements					# of Critical Elements				
Total Evaluation Elements**	Met	Partially Met	Not Met	Not Applicable	Critical Elements***	Met	Partially Met	Not Met	Not Applicable
4	1	2	1	0	0	0	0	0	0

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.



*Section 3: Colorado FY 08-09 PIP Validation Tool:
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for Denver Health Medicaid Choice*

EVALUATION ELEMENTS		SCORING	COMMENTS
Performance Improvement Project/Health Care Study Evaluation			
X.	Assess for Sustained Improvement: Assess for any demonstrated improvement through repeated measurements over comparable time periods. Assess for any random year-to-year variations, population changes, or sampling error that may have occurred during the remeasurement process.		
1.	Repeated measurements over comparable time periods demonstrate sustained improvement or that a decline in improvement is not statistically significant.	<input type="checkbox"/> Met <input checked="" type="checkbox"/> Partially Met <input type="checkbox"/> Not Met <input type="checkbox"/> NA	Of the 9 study indicators, 4 achieved sustained improvement, 1 partially achieved sustained improvement, and 4 did not achieve sustained improvement. HSAG recommends that DHMC perform a causal/barrier analysis and develop improvement strategies for those study indicators that have not demonstrated improvement or achieved sustained improvement, and continue to monitor those indicators internally.

Results for Step X

Total Evaluation Elements**	# of Total Evaluation Elements				Critical Elements***	# of Critical Elements			
	Met	Partially Met	Not Met	Not Applicable		Met	Partially Met	Not Met	Not Applicable
1	0	1	0	0	0	0	0	0	0

** Total Evaluation Elements includes critical elements.

*** This number is a tally of the total number of critical evaluation elements for this review activity.

*Section 3: Colorado FY 08-09 PIP Validation Tool:
Childhood Immunization
for Denver Health Medicaid Choice*

**Table 3-1—FY 08-09 PIP Validation Report Scores:
Childhood Immunization
for Denver Health Medicaid Choice**

Review Step		Total Possible Evaluation Elements (Including Critical Elements)	Total Met	Total Partially Met	Total Not Met	Total NA	Total Possible Critical Elements	Total Critical Elements Met	Total Critical Elements Partially Met	Total Critical Elements Not Met	Total Critical Elements NA
I.	Review the Selected Study Topic(s)	6	6	0	0	0	1	1	0	0	0
II.	Review the Study Question(s)	2	2	0	0	0	2	2	0	0	0
III.	Review the Selected Study Indicator(s)	7	6	0	0	1	3	3	0	0	0
IV.	Review the Identified Study Population	3	3	0	0	0	2	2	0	0	0
V.	Review Sampling Methods	6	6	0	0	0	1	1	0	0	0
VI.	Review Data Collection Procedures	11	10	0	0	1	1	1	0	0	0
VII.	Assess Improvement Strategies	4	3	0	0	1	1	1	0	0	0
VIII.	Review Data Analysis and Study Results	9	9	0	0	0	2	2	0	0	0
IX.	Assess for Real Improvement	4	1	2	1	0	No Critical Elements				
X.	Assess for Sustained Improvement	1	0	1	0	0	No Critical Elements				
Totals for All Steps		53	46	3	1	3	13	13	0	0	0

**Table 3-2—FY 08-09 PIP Validation Report Overall Scores:
Childhood Immunization
for Denver Health Medicaid Choice**

Percentage Score of Evaluation Elements Met*	92%
Percentage Score of Critical Elements Met**	100%
Validation Status***	Met

- * The percentage score is calculated by dividing the total Met by the sum of the total Met, Partially Met, and Not Met.
- ** The percentage score of critical elements Met is calculated by dividing the total critical elements Met by the sum of the critical elements Met, Partially Met, and Not Met.
- *** Met equals confidence/high confidence that the PIP was valid.
Partially Met equals low confidence that the PIP was valid.
Not Met equals reported PIP results that were not credible.

Section 3: Colorado FY 08-09 PIP Validation Tool:
Childhood Immunization
for Denver Health Medicaid Choice

EVALUATION OF THE OVERALL VALIDITY AND RELIABILITY OF PIP RESULTS

HSAG assessed the implications of the study's findings on the likely validity and reliability of the results based on CMS Validating Protocols. HSAG also assessed whether the State should have confidence in the reported PIP findings.

***Met** = Confidence/high confidence in reported PIP results

****Partially Met** = Low confidence in reported PIP results

*****Not Met** = Reported PIP results not credible

Summary of Aggregate Validation Findings

* **Met**

** **Partially Met**

*** **Not Met**

Summary statement on the validation findings:

Steps I through X were assessed for this PIP Validation Report. Based on the validation of this PIP, HSAG's assessment determined confidence in the results.

Introduction

Appendix A is the PIP Summary Form *DHMC* submitted to HSAG for review. HSAG has not altered the content or made grammatical corrections. This appendix does not include any attachments provided with the PIP submission. New or altered information in the PIP Summary Form is dated and highlighted or in bold. Deleted information appears in strike-through font.

- ◆ Appendix A: **Denver Health Medicaid Choice**'s PIP Summary Form for *Childhood Immunization*



**Appendix A: Colorado 2008–2009 PIP Summary Form:
Childhood Immunization
for Denver Health Medicaid Choice**

DEMOGRAPHIC INFORMATION

MCO name: Denver Health Medicaid Choice (DHMC)

Study Leader Name: Mary Pinkney, RN, BS Title: Director of QI for DHMC

Telephone Number: 720-956-2356 E-mail Address: Mary.Pinkney@dhha.org

Name of Project/Study: *CHILDHOOD IMMUNIZATION*

Type of Study:

- Clinical Nonclinical
 Collaborative HEDIS

Type of Delivery System: MCO

Date of Study: _____ to _____

Aug. 1, 2004 to Jan. 31, 2005 (Baseline 1 is for 6 months),
 Jan. 1, 2005 to Dec. 31, 2005 (Baseline 2 is for 12 months),
 January 1, 2006 to December 31, 2006 (Intervention 1- for 12 months),
 January 1, 2007 to December 31, 2007 (Intervention 2 --for 12 months).

Section to be completed by HSAG

_____ Year 1 Validation	_____ Initial Submission	_____ Resubmission
_____ Year 2 Validation	_____ Initial Submission	_____ Resubmission
_____ Year 3 Validation	_____ Initial Submission	_____ Resubmission
<u>X</u> Year 4 Validation	<u>X</u> Initial Submission	_____ Resubmission

_____ Baseline Assessment	_____ Remeasurement 1
<u>X</u> Remeasurement 2	_____ Remeasurement 3



**Appendix A: Colorado 2008–2009 PIP Summary Form:
Childhood Immunization
for Denver Health Medicaid Choice**

DEMOGRAPHIC INFORMATION

Number of Medicaid Members Served by MCOs : _____

Number of Medicaid Members in Project/Study: _____

August 1, 2004--#Medicaid Choice members
(beginning of Baseline 1 6-month study period) Approx. 14,000

June 30, 2005--#Medicaid Choice members
(mid-year, for Baseline 2 12-month study period) 11,351

December 31, 2005--#Medicaid Choice members
(Baseline 2, end of 12-month study period) 9,696

June 30, 2006--#Medicaid Choice members to be
considered for Project/Study, preliminary count.
(Intervention 1--Intervention) 3000
21,819

December 31, 2006--#Medicaid Choice members
((Intervention 1- final count). 35,321

December 31, 2007 -#Medicaid Choice members
((Intervention 2- final count). 36,414

Year 1 validated through Step VI Year 2 validated through Step VIII

Year 3 validated through Step IX Year 4 validated through Step X

Submission Date: _____

Appendix A: Colorado 2008–2009 PIP Summary Form: Childhood Immunization for Denver Health Medicaid Choice

<i>√ = changed or updated</i>	Bookmarks	Table of Contents	
	<u>Section</u>	<u>Page</u>	<u>Title or Description</u>
	A	5	Activity I: Rationale for Selection of Study Topic. Childhood Immunization.
	B	8	Activity II: The Study Question.
	C	10	Activity III: Selected Study Indicators
	D	16	Activity IV: Identified Study Population.
	E	17	Activity V: Sampling Methods.
√	F	18	Activity VIa: Data Collection Procedures. Summary of Research Steps, Data Entry Staff. IRR. Audit.
√		23	Activity VIb Data Collection and Data Analysis Cycle.
√		24	Activity VIc. Other Pertinent Methodological Features. Population Size. Data Completeness.-Internal/External Validity.
	G	30	Activity VIIa: Include improvement strategies
		31	Activity VIIb Improvement Strategies. Baseline 1 Report.
√		35	Activity VIIb. Baseline 2 Report. Chronology of Events.
√		37	Activity VIIb. Intervention Year 1 Report
		37	Chronology of all mailings for PIP
	H	39	Activity VIIIa. Data analysis and interpretation of study results
√		40	Activity VIIIa. Notes on Analysis. Baseline 2. Intervention 1
		42	Activity VIIIb Interpretation of study results
√	I	45	Activity IX. Reported Improvement. Combos 2 & 3 results.
√	J	50	Activity X. Sustained improvement
√		52	Graphs. Baseline 1.
√		54	Graphs. Baseline 2.
√		60	Graphs. Intervention 1
		66	Abbreviations

**Appendix A: Colorado 2008–2009 PIP Summary Form:
Childhood Immunization
for Denver Health Medicaid Choice**

√ = changed or updated	Bookmarks	Table of Contents	
	67	Proprietary names/trademarked terminology and abbreviations	
	68	List of Attachments (for this PIP)	
	70	Chronology; Attachments	

Appendix A: Colorado 2008–2009 PIP Summary Form: Childhood Immunization for Denver Health Medicaid Choice

A. Activity I: Choose the study topic. PIP topics should target improvement in relevant areas of services and reflect the population in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of disease. Topics may be derived from utilization data (ICD-9 or CPT coding data related to diagnoses and procedures; NDC codes for medications; HCPC codes for medications, medical supplies, and medical equipment; adverse events; admissions; readmissions; etc.); grievances and appeals data; survey data; provider access or appointment availability data; member characteristics data such as race/ethnicity/language; other fee-for-service data; or local or national data related to Medicaid risk populations. The goal of the project should be to improve processes and outcomes of health care or services to have a potentially significant impact on member health, functional status, or satisfaction. The topic may be specified by the state Medicaid agency or CMS, or it may be based on input from members. Over time, topics must cover a broad spectrum of key aspects of member care and services, including clinical and nonclinical areas, and should include all enrolled populations (i.e., certain subsets of members should not be consistently excluded from studies).

Study Topic: Childhood Immunizations

This Performance Improvement Project [PIP] focuses on all Denver Health Medicaid Choice [MCD] members from birth to two years of age, including children with special health care needs, who received their age-appropriate immunizations based upon HEDIS-like specifications for Childhood Immunizations. The primary goal of this project is to increase the number of children in this age group who receive their entire immunization series by the age of two based on the MCD Childhood Immunization Guidelines.

According to the 2004 NCQA report *The State of Health Care Quality*, immunizations help to protect children from serious childhood diseases and more than twenty percent of the children in the United States are still missing one or more recommended immunizations (1). It is important to ensure that children receive immunizations to prevent a resurgence of diseases that can be prevented by childhood vaccines. Sixteen to twenty doses of vaccine are required by the age of two based on the MCD childhood immunization guidelines. In terms of financial benefits, it is estimated that for every dollar spent for immunizations, the medical system saves two to five dollars per individual in health care costs for infectious disease treatment (1).

In a 2003 study by the Centers for Disease Control regarding childhood immunization rates, Colorado ranked lowest in state performance, with just 62.7 percent of children receiving all the required childhood immunizations by the age of two (2). As of January 21, 2005, the MCD members under the age of 21 represent more than half the population (approx. 8,500 out of 13,900 members, or 61%). Approximately 15% or 1200 members are children under two years of age, and represent 9% of the total MCD population.

This study reviews the immunization history of 100% of the children who turned 2 years of age during the study period and is a baseline two measurement for Denver Health Medicaid Choice. The measurements used for this study are based on HEDIS specifications for the measurement year and national immunization guidelines (4). Documents supporting this method include the immunization guidelines published by the American Academy of Pediatrics and the CDC (3). The following criteria have been defined based on HEDIS measurement criteria (4, see p. 66):

- a) Diphtheria, Tetanus and Pertussis (four immunizations, with first on or after 42 days of age);

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A. Activity I: Choose the study topic. PIP topics should target improvement in relevant areas of services and reflect the population in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of disease. Topics may be derived from utilization data (ICD-9 or CPT coding data related to diagnoses and procedures; NDC codes for medications; HCPC codes for medications, medical supplies, and medical equipment; adverse events; admissions; readmissions; etc.); grievances and appeals data; survey data; provider access or appointment availability data; member characteristics data such as race/ethnicity/language; other fee-for-service data; or local or national data related to Medicaid risk populations. The goal of the project should be to improve processes and outcomes of health care or services to have a potentially significant impact on member health, functional status, or satisfaction. The topic may be specified by the state Medicaid agency or CMS, or it may be based on input from members. Over time, topics must cover a broad spectrum of key aspects of member care and services, including clinical and nonclinical areas, and should include all enrolled populations (i.e., certain subsets of members should not be consistently excluded from studies).

- b) Hepatitis B (at least three, including booster);
- c) H. influenza type b (at least three, with first on or after 42 days of age);
- d) Polio (three IPV immunizations, with first on or after 42 days of age);
- e) Measles, Mumps and Rubella (one immunization); and
- f) Varicella (Chicken Pox) (one immunization) or evidence of disease,
- g) Pneumococcal Conjugate (four immunizations) ADDED TO 2006 PIP, based on HEDIS 2006 changes that now include this antigen.
- h) Combination one: the immunization of children by the age of two for all of the above (a through e), excluding (f) Varicella (Chicken Pox), REMOVED FROM 2006 PIP, based on HEDIS 2006 changes that retired this antigen.
- i) Combination two: the immunization of children by the age of two fully for all of the above (a through f).
- j) Combination three: the immunization of children by the age of two fully for all of the above (a through f). ADDED TO 2006 PIP, based on HEDIS 2006 changes that now include this antigen.

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A. Activity I: Choose the study topic. PIP topics should target improvement in relevant areas of services and reflect the population in terms of demographic characteristics, prevalence of disease, and the potential consequences (risks) of disease. Topics may be derived from utilization data (ICD-9 or CPT coding data related to diagnoses and procedures; NDC codes for medications; HCPC codes for medications, medical supplies, and medical equipment; adverse events; admissions; readmissions; etc.); grievances and appeals data; survey data; provider access or appointment availability data; member characteristics data such as race/ethnicity/language; other fee-for-service data; or local or national data related to Medicaid risk populations. The goal of the project should be to improve processes and outcomes of health care or services to have a potentially significant impact on member health, functional status, or satisfaction. The topic may be specified by the state Medicaid agency or CMS, or it may be based on input from members. Over time, topics must cover a broad spectrum of key aspects of member care and services, including clinical and nonclinical areas, and should include all enrolled populations (i.e., certain subsets of members should not be consistently excluded from studies).

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B. Activity II: Define the study question(s). Stating the question(s) helps maintain the focus of the PIP and sets the framework for data collection, analysis, and interpretation.

Hypothesis: Will interventions implemented by the Denver Health Medicaid Choice Program on behalf of members and by providers increase immunization rates in children during their first two years of life?

Study Questions for the Study Period of January 1, 2006 to December 31, 2006 (Contract Years 2005 to 2006, 2006 to 2007):

- | | | |
|---|---|---|
| <p>1. What is the baseline percentage rate for immunization of all children who turned two years of age during the study period, for all of the following combination one requirements?</p> <ul style="list-style-type: none"> _____ Diphtheria, Tetanus and Pertussis? [DTP/DtaP, four vaccines required] _____ Hepatitis B? [HepB, at least three vaccines] _____ H. influenzae type b? [Hib, three including booster] _____ Polio? [IPV, at least three vaccines] _____ Measles, Mumps and Rubella? [MMR, at least one vaccine] | } | <p>COMBO 1 -- REMOVED FROM 2006 PIP.
<i>(Retired for HEDIS 2006)</i></p> |
| <p>2. What is the baseline percentage rate for immunization of all children who turned two years of age during the study period, for all of the following combination two requirements?</p> <ul style="list-style-type: none"> _____ Diphtheria, Tetanus and Pertussis? [DTP/DtaP, four vaccines required] _____ Hepatitis B? [HepB, at least three vaccines] _____ H. influenzae type b? [Hib, three including booster] _____ Polio? [IPV, at least three vaccines] _____ Measles, Mumps and Rubella? [MMR, at least one vaccine] _____ Varicella (Chicken Pox)? [VZV, at least one vaccine] | } | <p>COMBO 2 -- Unchanged.</p> |
| <p>3. What is the baseline percentage rate for immunization of all children who turned two years of age during the study period, for all of the following combination three requirements?</p> <ul style="list-style-type: none"> _____ Diphtheria, Tetanus and Pertussis? [DTP/DtaP, four vaccines required] _____ Hepatitis B? [HepB, at least three vaccines] _____ H. influenzae type b? [Hib, three including booster] _____ Polio? [IPV, at least three vaccines] _____ Measles, Mumps and Rubella? [MMR, at least one vaccine] _____ Varicella (Chicken Pox)? [VZV, at least one vaccine] _____ Pneumococcal Conjugate? [at least four vaccines] | } | <p>COMBO 3 -- ADDED TO 2006 PIP.
<i>(New measurement for HEDIS 2006)</i></p> |

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B. Activity II: Define the study question(s). Stating the question(s) helps maintain the focus of the PIP and sets the framework for data collection, analysis, and interpretation.

Description of time periods defined for Study Periods [UNCHANGED]:

- Baseline one will use HEDIS like criteria since it will not be based on the HEDIS specifications of continuous enrollment for twelve months prior to the child's second birthday, with no more than a one month gap in coverage. Baseline one will use a 6 month timeframe from August 1, 2004 to January 31, 2005 and any child who turned 2 years of age with enrollment for any period during these dates was included. HEDIS criteria will not apply due to inadequate time to accumulate a significant sample size in this new Medicaid managed care plan. Had discussions with HSAG and Health Care Policy and Financing (HCPF) and confirmed that this is acceptable to have a baseline one and a recommendation was made by HSAG to do a baseline two following HEDIS specifications which we plan to do.
- Baseline two: Full calendar year from 1/1/05-12/31/05 following all HEDIS 2006 specifications. Note there was an overlap of 1 month, January 1 through 31, 2005 between baseline one and baseline two. This was discussed with HSAG and HCPF and since Baseline 1 is a preliminary review this is not an issue (see also ATT 1, graph depicting Monthly changes in Enrollment.)
- Intervention 1: Full Calendar Year from 1/1/06 to 12/31/06, following all HEDIS 2007 specifications. There is no overlap period for this study and previous baseline studies. Completion and review will take place in 2007.
- Intervention 2: Full Calendar Year from 1/1/07 to 12/31/07, following all HEDIS 2008 specifications. There is no overlap period for this study and previous studies. Completion and review will take place in 2008.

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C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a member's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.

Study Indicator #1: DTP/DTaP	The percentage of eligible children during the measurement period who had four DTP/DTaP vaccines by the second birthday.
Numerator:	Medicaid Choice children who received an initial DTaP followed by at least three DTP, DTaP, or individual diphtheria and tetanus shots, with at least one diphtheria and tetanus falling on or between the child's first and second birthdays, or who have documented history of the illness or a seropositive test result. Vaccinations administered prior to 42 days after birth cannot be counted.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First Measurement Period Dates:	January 1, 2005 to December 31, 2005 [Baseline 2, a 12 mo. study, replaces Baseline 1, a 6 mo study, for this study]
Current Second Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 months)
Baseline Benchmark:	85.8% (90th Percentile); Updated: 88.9% (90th Percentile); Updated: 88.30% (90 th Percentile)
Source of Benchmark:	2006 HEDIS Percentile Rating; Updated 2007 HEDIS Percentile Rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 89% (set at Sept. 11, 2007 Medical Management Committee meeting)
Study Indicator #2: IPV	The percentage of eligible children during the measurement period who had three IPV vaccines by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received at least three antigens on or before the second birthday, on different dates of service, or who have documented history of the illness or a sero-positive test result. Vaccinations administered prior to 42 days after birth cannot be counted.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First Measurement Period Dates:	January 1, 2005 to December 31, 2005 [Baseline 2, a 12 mo. study, replaces Baseline 1, a 6 mo study, for this study]
Current Second Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 months)
Benchmark:	92.8% (90th Percentile); Updated: 94.7% (90th Percentile) Updated 95.80% (90 th Percentile)
Source of Benchmark:	2006 HEDIS Percentile Rating; Updated 2007 HEDIS Percentile Rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 95% (set at Sept. 11, 2007 Medical Management Committee meeting)

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C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a member's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.

Study Indicator #3: MMR	The percentage of eligible children during the measurement period who had at least one MMR vaccine by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received at least one measles, mumps and rubella vaccine on and between the first and second birthday, or who have documented history of the illness or a seropositive test result.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First Measurement Period Dates:	January 1, 2005 to December 31, 2005 [Baseline 2, a 12 mo. study, replaces Baseline 1, a 6 mo study, for this study]
Current Second Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 months)
Benchmark:	94.10% (90 th Percentile); Updated: 95.3% (90 th Percentile) Updated: 94.60% (90 th Percentile)
Source of Benchmark:	2006 HEDIS Percentile Rating; Updated 2007 HEDIS Percentile Rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 95% (set at Sept. 11, 2007 Medical Management Committee meeting))
Study Indicator #4: Hib	The percentage of eligible children during the measurement period who had at least three influenza type b vaccines by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received at least three antigens on or before the second birthday, with at least one antigen received on or between the first and second birthdays, or who have documented history of the illness or a seropositive test result. Vaccinations administered prior to 42 days after birth cannot be counted.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First Measurement Period Dates:	January 1, 2005 to December 31, 2005 [Baseline 2, a 12 mo. study, replaces Baseline 1, a 6 mo study, for this study]
Current Second Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 months)
Baseline Benchmark:	88.3% (90 th Percentile); Updated: 95.1% (90 th Percentile); Updated: 95.40% (90 th Percentile)
Source of Benchmark:	2006 HEDIS Percentile Rating; Updated 2007 HEDIS Percentile Rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 95% (set at Sept. 11, 2007 Medical Management Committee meeting))

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C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a member's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.

Study Indicator #5: HepB	The percentage of eligible children during the measurement period who had three hepatitis B vaccines by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received at least three antigens on different dates, on or before the second birthday with at least one antigen received on or between six months (180 days) and the second birthday, or who have documented history of the illness or a seropositive test result.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First Measurement Period Dates:	January 1, 2005 to December 31, 2005 [Baseline 2, a 12 mo. study, replaces Baseline 1, a 6 mo study, for this study]
Current Second Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 months)
Benchmark:	88.30% (90th Percentile); Updated: 95.2% (90th Percentile); Updated 95.10% (90th Percentile)
Source of Benchmark:	2006 HEDIS Percentile Rating; Updated 2007 HEDIS Percentile Rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 95% (set at Sept. 11, 2007 Medical Management Committee meeting)
Study Indicator #6: VZV	The percentage of eligible children during the measurement period who had at least one chicken pox vaccine by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received at least one antigen on or between the first and second birthdays, or who have documented history of the illness or a seropositive test result.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First Measurement Period Dates:	January 1, 2005 to December 31, 2005 [Baseline 2, a 12 mo. study, replaces Baseline 1, a 6 mo study, for this study]
Current Second Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 Months)
Benchmark:	92.2% (90th Percentile); Updated: 93.8% (90th Percentile); Updated: 94.90% (90th Percentile)
Source of Benchmark:	2006 HEDIS Percentile Rating; Updated to 2007 HEDIS Percentile Rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 94% (set at Sept. 11, 2007 Medical Management Committee meeting)

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C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a member's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.

Study Indicator #7: Combo1 RETIRED!	The percentage of eligible children during the measurement period who had the required DTP/DtaP, IPV, MMR, Hib, and HepB vaccines by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received four DTP/DtaPs, three IPV, one MMR, three Hib, and three HepB vaccines by the second birthday.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First Measurement Period Dates:	January 1, 2005 to December 31, 2005 [Baseline 2, a 12 mo. study, replaces Baseline 1, a 6 mo study, for this study]
Current Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Benchmark:	RETIRED
Source of Benchmark:	RETIRED
Baseline Goal:	RETIRED
Study Indicator #7: Pneumococcal Conjugate	The percentage of eligible children during the measurement period who had the required Pneumococcal Conjugate vaccines by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received four Pneumococcal Conjugate vaccines by the second birthday.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First/Current Measurement Period :	January 1, 2005 to December 31, 2005 (Baseline) (12 months)
Current Second Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 months)
Benchmark:	None (baseline year for this measure); Updated: 64.2%(90 th Percentile); Updated : 80.30% 90 th Percentile
Source of Benchmark:	2006 HEDIS Percentile Rating; Updated 2007 HEDIS Percentile Rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 64% (set at Sept. 11, 2007 Medical Management Committee meeting)

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C. Activity III: Select the study indicator(s). A study indicator is a quantitative or qualitative characteristic or variable that reflects a discrete event (e.g., an older adult has not received an influenza vaccination in the last 12 months) or a status (e.g., a member's blood pressure is/is not below a specified level) that is to be measured. The selected indicators should track performance or improvement over time. The indicators should be objective, clearly and unambiguously defined, and based on current clinical knowledge or health services research.

Study Indicator #8: Combo2	The percentage of eligible children during the measurement period who had the required DTP/DtaP, IPV, MMR, Hib, HepB and VZV vaccines by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received four DTP/DTaPs, three IPV, one MMR, three Hib, three HepB and one VZV vaccine by the second birthday.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First Measurement Period Dates:	January 1, 2005 to December 31, 2005 [Baseline 2, a 12 mo. study, replaces Baseline 1, a 6 mo study, for this study]
Current Second Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 months)
Benchmark:	75.70% (90th Percentile). Updated : 82.7%(90th Percentile); Updated 84.80% (90th Percentile)
Source of Benchmark:	2006 HEDIS Percentile Rating; Updated 2007 HEDIS Percentile rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 83% (set at Sept. 11, 2007 Medical Management Committee meeting)
Study Indicator #9: Combo3	The percentage of eligible children during the measurement period who had the required DTP/DtaP, IPV, MMR, Hib, HepB, VZV and Pneumococcal Conjugate vaccines by the second birthday.
Numerator:	Medicaid Choice children who had a record that they received four DTP/DTaPs, three IPV, one MMR, three Hib, three HepB, and one VZV and four Pneumococcal Conjugate vaccines by the second birthday.
Denominator:	Medicaid Choice children who turned two years of age during the study period.
First/Current Measurement Period :	January 1, 2005 to December 31, 2005 (Baseline) (12 months)
Second Current Measurement Period :	January 1, 2006 to December 31, 2006 (Intervention 1) (12 months)
Current Measurement Period:	January 1, 2007 to December 31, 2007 (Intervention 2) (12 months)
Benchmark:	None (baseline year for this measure); Updated: 57.8%(90th Percentile); Updated 74.50% (90th Percentile)
Source of Benchmark:	NEW MEASURE IN 2005 (2006 Review); 2006 HEDIS Percentile Rating; 2007 HEDIS Percentile Rating
Baseline Goal:	90% (set at Sept. 12, 2006 QAC meeting) Updated: 58% (set at Sept. 11, 2007 Medical Management Committee meeting)

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D. Activity IV: Use a representative and generalizable study population. The selected topic should represent the entire eligible population of Medicaid members, with systemwide measurement and improvement efforts to which the study indicators apply. Once the population is identified, a decision must be made whether or not to review data for the entire population or a sample of that population. The length of a member's enrollment needs to be defined to meet the study population criteria.

Identified Study Population (see ATT 1, ATT 14, p. 1 figure):

Baseline 1 Measurement (UNEDITED): 100 percent of eligible Denver Health Medicaid Choice children identified based on HEDIS-like criteria.

HEDIS criteria requires all children with at least 11 months (12 months with one 30-day gap of enrollment) of continuous enrollment in the health plan be included in the study. This study will only require a 6 month enrollment period and will not use HEDIS eligibility criteria, based on Denver Health Medicaid Choice being a new MCO effective May 1, 2004. Baseline one will use a 6 month timeframe from August 1, 2004 to January 31, 2005 and any child who turned 2 years of age with enrollment for any period during these dates was included.

Initial membership for this study was approximately 1200 in May of 2004. By August 2004, this membership grew to approximately 14,000 members, providing us with a sufficient sample size to study. Since August 2004, the population has been decreasing and as of September 2005 were around 10,000.

Baseline 2 measurement period (1/1/05 to 12/31/05) (NEW): In 2005, Medicaid Choice population decreased on a monthly basis due to changes in the enrollment process related to state computer problems and the automatic enrollment process. This resulted in reenrollment of members and assignment of PCPs as part of a fee-for-service program. This portion of the reenrollment process was corrected around the end of 2005. At the time of the Baseline 2 part of this study, 9,696 members were enrolled in the Medicaid Choice program. This eligible population is based on Diamond enrollment data, and includes all children born on or between August 1, 2002 and January 31, 2003.

Intervention 1 measurement period (1/1/06 to 12/31/06): As of May 1, 2006, Medicaid Choice enrollment increased in size due to changes in the Medicaid Program. New members were enrolled based on Passive Enrollment procedures. Through the end of 2006, monthly enrollment rates are expected to average approximately 4000 to 5000 members per month.

Enrollment in 2006 indicates that total population changes can dilute outcomes; however, current study shows no significant changes.

These possible changes won't show any drastic outcomes in a yearly basis as they will over multiple year periods.

Intervention 2 measurement period (1/1/07 to 12/31/07): The percentage of Denver Health Medicaid Choice children two years of age who had received: four DTaP/DT; three IPV; one MMR; three H influenza type B; three hepatitis B; and one chicken pox vaccine VZV for Combo 2() We measured Combo 3 that included four pneumococcal conjugate vaccines plus all of the preceding vaccines except VZV. HEDIS criteria requires children to be continuously enrolled with no more than 1 45 day gap in enrollment during the 12 months prior to the child's second birthday. Our 2007 Medicaid Choice enrollment grew by 3% compared to 2006. with a total of 36,414 members. We found that 19% or 6,776 are children from birth to age 2.

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E. Activity V: Use sound sampling methods. If sampling is used to select members of the study, proper sampling techniques are necessary to provide valid and reliable information on the quality of care provided. The true prevalence or incidence rate for the event in the population may not be known the first time a topic is studied.

Measure	Sample Size	Population	Method for Determining Size (<i>describe</i>)	Sampling Method (<i>describe</i>)
Baseline 1 (8/1/04 to 1/31/05) and Baseline 2 (1/1/06 to 12/31/06)	No sampling is done; 100% of the population was used.	All Children turning 2 y/o in 2005. Baseline 2 also requires HEDIS eligibility.	100% of entire population was used for the 2005 and 2006 PIP.	NA
Intervention 1 (2007)	No sampling is done; 100% of the population was used because eligible population was 81.	All Children turning 2 y/o between in 2006; requires HEDIS eligibility (see Step 6)	432 members are selected by Tier Med; 411 is typical for HEDIS studies; HEDIS 2007 specifications will be used.	Sampling done by Tier Med in accordance with HEDIS standards.
Intervention 2 (2008)	432 out of 502 (86%) members were selected for the sample	All children turning 2 y/o in 2007; requires HEDIS eligibility (see step 6)	432 members were selected by Tier Med; 411 is typical for HEDIS studies; HEDIS 2008 specifications will be used.	Sampling done by Tier Med in accordance with HEDIS standards.

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F. Activity VIa: Use valid and reliable data collection procedures. Data collection must ensure that data collected on study indicators are valid and reliable. Validity is an indication of the accuracy of the information obtained. Reliability is an indication of the repeatability or reproducibility of a measurement. **[Note, some sections modified to properly describe 2005 research period.]**

[X] Clear identification of the data to be collected **[for BASELINE 2 Study Period]**

100% of Medicaid Choice children who turned two years old during the study period and who for BASELINE 1, met *HEDIS-like criteria* for the 2004-2005 population studied in 2005; for BASELINE 2 met *HEDIS criteria* for 2005 population study carried out in 2006.

[X] Identification of the data sources and how and when the baseline and repeat indicator data will be collected [see Step 6b for process]

Major Data entry methodology changes from 2005 to 2006. *In 2005*, data entry processes were carried out using an internal Access database with data entry forms and IRR/validation forms produced by the QI Analyst at Denver Health. The list of members for this study was provided by HEDIS Help, an NCQA-certified vendor for conducting HEDIS studies. For the first phase of the Baseline 1 activity, data was extracted from internal VaxTrax and Medical Records Imagery [MRI] databases and the statewide CDPHE-operated CIIS database (each described in the last submission), and entered manually into an Access database. After an IRR and internal data validation process were completed, this datasets was then exported in an Excel worksheet form and forwarded to HEDIS Help for final analysis and review. *In 2006*, a new software vendor was contracted—Tier Med—enabling most the manual data entry and IRR/validation processes to be automated. These Tier Med processes replace the manual data entry procedure required for database development in 2005 (see [ATT 3](#)). In March 2006, Guardian Angel Consulting, Inc. became responsible for staff training on performing HEDIS measures.

****NOTE: These HEDIS 2006 data entry and review processes were unchanged and repeated for HEDIS 2007 and related PIP review.**

Population Data Sources and Processing for the 2006 HEDIS. For the Baseline 2 study (1/1/05 to 12/31/05), Tier Med utilized NCQA certified HEDIS software and methods to identify eligible members eligible for this study. ATTACHMENT 1 provides an overview of the population eligible for this study according to demographic statistics pulled for eligible membership as of December 31, 2005.

Data Collection Chronology (see also CHRONOLOGY section at end of PIP): Schedule of events—BASELINE 2 study: December 2005 preliminary data review; March 2006 data collection training by Guardian Angel Consulting, Inc., April 2006 medical records review, May 15 –Inter-rater Reliability review (IRR), June 15, 2006 data submission and analysis of baseline data, July to August 2006 - QAC review of PIP. October 2006 - final PIP submission to state for Baseline 2 study.

Intervention 1 study: January 2007 – reinitiate data review for 2007 HEDIS. **April 2007 – HEDIS data collection, May 15, 2007 – IRR, June 15, 2007, data submission and analysis, July-August 2007 – Med Mgmt Comm. review. Nov. 2007-Submit PIP.**

Intervention 2 study: February 2008 – internal training on HEDIS 2008 specifications; March/April 2008 – HEDIS data collection; June 2008 – IRR; June 15 2008 – HEDIS data submission and analysis; July 2008 – Medical Mgmt Committee review; September 2008 – Submit PIP.

Summary of Research Steps for BASELINE 2 Study Period (10/2005 to 6/2006)

October 1 to December 31, 2005: development of the initial Administrative database: all of the member, enrollment, provider, and claims data was collected and sent to Tier Med where it was processed as HEDIS data using NCQA-certified software. This resulted in a dataset listing eligible members, each with a unique identifier, DOB and some immunization dates populated from claims. The remaining database was then forwarded to QI Analysts, who entered the initial immunization extracted from VaxTrax and MRI. The resulting database was then submitted back to Tier Med in Excel form for review. Following a reconciliation process, this final dataset was imported and entered into the final Tier Med Access database, via an ftp serve, for use in the final data entry process to be carried out using the Tier Med Compass Navigator data entry tool ([ATT 3a-h replaced by ATT 3a-d](#)).

January 1, 2006 – April 30, 2006. QI staff entered the remaining hybrid data into the Childhood Immunization HEDIS database using the Compass

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Navigator Tool provided by Tier Med ([ATT 3d](#)). For each member on the list, Member ID, DOB, and Plan ID were re-verified, followed by entry of any remaining immunization dates uncovered by the team that were not found in this database. Some of this data was obtained from VaxTrax ([ATT 4a-c](#)), CIIS ([ATT 5](#)) and Medical Records Imagery ([ATT 6](#)). As in the Baseline 1 study, Diamond/Perot Systems were used to verify member id and/or provider address when no immunization dates could be located.

May 2006. Inter-rater Reliability Review: throughout the hybrid data entry process, audits were performed internally as well as by an outside agency. During the first stage of the hybrid data entry process in 2006, all of the records entered were audited by Guardian Angel Consulting, Inc. ([ATT 7](#)), an agency contracted to train and oversee QI analysts' activities throughout the data entry processes. Following the initial audit, weekly audits were performed of 10% of the remaining data entries. Throughout this process, the standard for Inter-rater Reliability (IRR) accuracy remained 95% ([ATT 7](#)).

The completed database of eligible members was submitted to HEDIS for review and summarization in May 2006 (see [ATT 3a flowchart](#); [ATT 10](#)). The results of this review and summary were returned and reviewed by QI Director. Following approval of these results by the Director, they were entered into the PIP.

The end results of the data entry are viewable using the Tier Med Compass Viewer tool, an extension of Compass Navigator. These data and/or results were reported to NCQA, HCPF, and HSAG by June 2006, and discussed with the Quality Assurance Committee and Operations Management Team in September in order to determine possible barriers and develop effective interventions ([ATT 11](#)). For other PIP-related analyses, immunization tables were extracted from the Access database and then copied into Excel for further analysis and production of final graphs and figures ([ATT 9](#)).

The final PIP was submitted for review by HSAG in June 2006 (see Step 7 discussion).

These steps will be repeated for each study period, with the addition of intervention procedures discussion in the 2006 study (2007 report).

In September 2006, these results were presented to the Quality Assurance Committee for a review of possible barriers and to determine if any changes or additions to the intervention process are needed.

Following QAC approval, the final PIP is completed and submitted to HSAG for review by October 15th ([ATT 10](#)).

For the Intervention 1 study (1/1/05 to 12/31/05), data collection will begin in December 2006 (see Updated Chronology attachment).

(NEW) 2007: For the 2007 HEDIS, IRR was performed internally, with 95%+ accuracy maintained throughout the data entry process. All remaining processes for HEDIS and the PIP remain unchanged.

Data Collection and Entry Processes.

(UNEDITED). 2004-2005 Immunization Data Collection and Entry (see [ATT 3-5](#)). Any children with evidence of receiving an immunization based on claims will have a date populated on the spreadsheet by Tier Med. DH will obtain the remaining immunization data from VaxTrax, CIIS or from a medical record on antigens without a date. This immunization data is collected and entered from the following information sources (in descending order): Denver Health's (DH's) VaxTrax database, Colorado Immunization Information System (CIIS), DH's Medical Records Imagery (MRI), and DH's Diamond. An Access database [linked to TierMed's Compass Navigator tool](#) will be used for all data entry and review processes. The following process is used for data search and entry on the HEDIS list:

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- 1) Administrative data is extracted primarily from the VaxTrax (Denver Health immunization registry) (see ATT 3, 4a-c)
- 2) The entire database is queried and members with missing data searched in Colorado Immunization Information System (ATT 5).
- 3) Members still missing immunization data will be searched for individually in the Medical Records using the Medical Records Imaging [MRI] system, a Denver Health electronic medical record provided by Denver Health (see ATT 3, 6). These records provide information on immunizations which are repeated following enrollments in Denver Health by members lacking the documentation required to demonstrate their required immunization history or their history of a disease.
- 4) Members lacking an entire series or most of a series of one or more immunizations will be reviewed in the Medical Records to confirm missing data and assessed for contraindications by the use of Medical Records and VaxTrax.

(NEW) 2005 PIP Study/2006 Data Collection and Entry. For the Baseline 2 study period (1/1/05 to 12/31/05), data was gathered and summarized by Tier Med utilizing their NCQA certified software program. Tier Med also produced the final data collection tools and final analyses of data. Tier Med data was transferred to Excel spreadsheets for comparison with goals and previous Baseline 1 results and presentation to QAC in order to establish new goals. Aside from processes involving Tier Med, all other steps in this Data Collection and Analytic processes remain unchanged. [<Back to Table of Contents>](#)

Inter-rater Reliability (NEW): Once all the data is entered into an Access database (and all the necessary steps noted above carried out), Inter-rater reliability is performed using a Tier Med Report Form and review processes discussed earlier carried out by Guardian Angel Consulting, Inc. (ATT 7 (REVISED)). This IRR review is used to verify that all immunization date entries are accurate and complete with medical records. For all steps in this review process, a goal of 95% accuracy is maintained. [<Back to Table of Contents>](#)

Data Submission and Processing. 2005, Baseline 1 process (UNEDITED): Once the data entry, assessment and reconciliation steps are completed, this data is queried to produce an Access database that matches the details of the submission worksheet built by HEDIS HELP, which is designed to interface with their HYBRID HELP software in order to calculate rates (see ATT 1 -- Hybrid Help 2005 User Manual). The method of importing this data into the HEDIS HELP is described in ATT 8. Once results are obtained from QMark, they will be reviewed and, if necessary, reconciliation between the HEDIS HELP dataset and any Excel and Access databases developed during this research process carried out to ensure the count is accurate.

2006, BASELINE 2 Process : The above steps are carried out, with HEDIS HELP replaced by Tier Med and the Hybrid Help Software replaced by the Tier Med program and Compass Navigator Tool. To ensure the accuracy of this new data entry process by Tier Med, a review of the previous year's data and statistical results were carried out in October 2005 (see 3a flowchart). An assessment and reconciliation process was then carried out, consisting of several steps to ensure accuracy in reporting and statistical analysis by Tier Med in agreement with DH QI Director and DH HEDIS IS. This process and its results are summarized in the ATT 3a flowchart.

2007, INTERVENTION 1 (NEW). Data Submission and Processing steps remain UNCHANGED for HEDIS 2007.[Percentage of administrative data completeness from the Claims Lag report for Feb 07, showing the % of claims >90 days from receipt = 99.99% (see att 7c)]

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2008, INTERVENTION 2 – Data Submission and processing steps remain UNCHANGED for HEDIS 2008.

Data Processing Audit: 2005 (UNCHANGED): DH collected HEDIS 2005 data and successfully completed a 2005 NCQA HEDIS audit for the commercial line of business. Our processes for Medicaid Choice have minimal differences compared to our commercial plan. The differences are related to the processing of the member files (see [ATT 1e--](#) BAT Section 5 Member Data Processing for details and documentation of Medicaid Choice Daily Enrollment Files).

2006 (NEW): Following an internal IRR and an external data reviews by Guardian Angel Consulting, Inc., a 2006 NCQA HEDIS audit for the Medicaid line of business was performed and successfully passed prior to submission of the final HEDIS 2006 data results (ATT 8).

2007, INTERVENTION 1. Data Processing steps remain UNCHANGED for HEDIS 2007. Guardian Angel Consulting, Inc. training and review was done by internal staff under the direction of QI RN, Carol Martinez, She developed the training materials and trained staff and was responsible for Inter-rater Reliability.[HEDIS TRAINING and IRR ATT 7].

2008, INTERVENTION 2. Data Processing steps remain UNCHANGED for HEDIS 2008. the medical record training and review was done by internal QI staff under the direction of QI staff RN, Carol Martinez, She developed the training materials, conducted the training, provided feedback and re-training if necessary, and performed Inter-rater Reliability.[HEDIS TRAINING and IRR **ATT ##**].

[X] Specification of who will collect the data [<Back to Table of Contents>](#)

Ivette Villalobos	Information Management Dept.	Experienced Diamond Data analyst x7 years, responsible for HEDIS data management for Managed Care in 2005, HEDIS Help & Tier Med trained.
Jennifer Kikla MSPH	Intervention Manager	Experienced researcher x4 years with DH training including Medical Records Imaging, VaxTrax, Diamond, and CIIS trained.
Carol Martinez, RN	IRR auditor/Data entry.	Experienced HEDIS Medical Record training and auditing x5 yrs. Quality Improvement Coordinator (16 years). DH training includes Medical Records Imaging, VaxTrax, Diamond and Tier Med trained.
Cindy Ashley	HEDIS Project Manager	16 years Managed Care experience. Experienced project manager with 4 years of HEDIS/CAHPS experience. DH training includes Medical Records Imaging, Diamond training and Paradigm training. Tier Med training includes the use of the 2007 Compass Navigator Tool and the Data Collection Tool. These tools are used for analysis, auditing and quality control functions

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Mary Pinkney RN, BS Inter-reliability/database auditor

Experienced project manager, 9+ years HEDIS experience, DH training including Medical Records Imaging, VaxTrax, CIIS, and Diamond, with HEDIS Help trained on the use of the 2005 Hybrid Help tool and auditing functions. Tier Med training

No longer within Denver Health:

Brian Altonen MS, MPH Database Development

Experienced spatial epidemiologist 22 yr; researcher 20 yrs; DH training including Medical Records Imaging, VaxTrax, CIIS, and Diamond, with HEDIS Help trained on the use of the 2005 Hybrid Help tool and auditing functions. Tier Med training

Melissa Cook Database development

Experienced Database technician x3 years with DH training including Medical Records Imaging, VaxTrax, Diamond, Tier Med and CIIS trained.

Identification of instruments used to collect the data **[UNCHANGED]**

Excel spreadsheets and/or Access Database with a Data Entry Form--see ATTs #2, 4, 9.

For HEDIS 2006, a new NCQA-certified software vendor, Tier Med, was contracted (see ATT 3). **Tier Med was also used for HEDIS 2007 and HEDIS 2008 reporting years**

Medical/treatment records: **[UNCHANGED]**

Medical Record Imaging-electronic records (EDM)

Administrative data: **[UNCHANGED]**

Claims

VaxTrax

Colorado Immunization Information Systems (CIIS)

Claims/encounter data Complaints Appeals Telephone service data Appointment/access data

Hybrid (medical/treatment records and administrative)

Occasional use of medical records available through Medical Records Imaging at Denver Health to verify disease and immunization history, or administration of immunizations due to lack of adequate documentation of immunization history.

Pharmacy data

Survey data (attach the survey tool and the complete survey protocol)

Other (list and describe):

Denver Health's VaxTrax--an immunization registry report of a immunizations given to two year olds; was used by Tier Med to obtain immunization dates for all eligible members in this study (see: ATT 4 --VaxTrax immunization registry training tool). CIIS is used to provide additional and supporting documentation for immunizations (see ATT 5). **[NOTE: ATT 4, 5 and 6 not included in this version of the PIP.]**



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F. Activity VIa: Use valid and reliable data collection procedures. Data collection must ensure that data collected on study indicators are valid and reliable. Validity is an indication of the accuracy of the information obtained. Reliability is an indication of the repeatability or reproducibility of a measurement. *[Note, some sections modified to properly describe 2005 research period.]*

NOTE: ALL PARTS REMAIN UNCHANGED FOR THE FOLLOWING SECTIONS

If medical/treatment records, check below:
 Medical/treatment record abstraction

If survey, check all that apply:
 Personal interview
 Mail
 Phone with CATI script
 Phone with IVR
 Internet
 Incentive provided
 Other (list and describe):

If administrative, check all that apply:
 Programmed pull from claims/encounter files of all eligible members
 Programmed pull from claims/encounter files of a sample of members
 Complaint/appeal data by reason codes
 Pharmacy data
 Delegated entity data
 Vendor file
 Automated response time file from call center
 Appointment/access data
 Other (list and describe):

F. Activity VIb: Determine the data collection cycle.

Once a year (for all years of study once baseline is established)
 Twice a year (for first twelve month period of study)
 Once a season
 Once a quarter
 Once a month
 Once a week
 Once a day
 Continuous
 Other (list and describe):

Determine the Data Analysis Cycle.

Once a year
 Once a season
 Once a quarter
 Once a month
 Continuous
 Other (list and describe):

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F. Activity VIc. Data analysis plan and other pertinent methodological features. [Note, some sections modified to describe 2005 research period.]

POPULATION SIZE. BASELINE 1 [UNCHANGED]: The initial baseline measurement data was gathered for the study period of 8/1/04 to 1/31/05. Since then, all study periods extend from January 1st to December 31st for the measurement year. The initial membership population was approximately 1200 in May 2004. By August 2004, the membership increased to approximately 14,000 members, providing a sufficient sample size to study. From August 2004 to September 2005, the population decreased to approximately 10,000 members.

BASELINE 2 [UNCHANGED]: On January 6, 2006, the size of the Medicaid Choice population was 9,696, with 273 children between 0 and 2 years of age. Beginning April 2006, only 81 members who turned two years of age in 2005 were considered eligible for the 2006 HEDIS study and thereby reviewed.

Intervention 1 [UNCHANGED]: As of June 2006, the Medicaid Choice population increased to 21,819 (a 125% increase); this was due to changes in the Enrollment processes. (see p. 11, D. Step 4 section). Approximately 3200 (14.7%) of these members are 0 to 2 years of age, with about 1000 of these children (5% of the total population) born in 2004 making them potentially eligible for the HEDIS 2006 review in 2007. The actual **number and percentage of members to be reviewed** for the Intervention 1 year (2006) study will be determined in December 2006.

~~[NEW]~~ **December 2006 Report.** As of December 2006 the Medicaid Choice population increased to 35,321 members, with 6,370 (18%) of the members between the ages of 0 to 2. For Intervention 1 a total of 2,072 members (6%) turned 2 during 2006 and reviewed for this study period. Please see attachment 1 for a breakdown of the population demographics.

Intervention 2: As of December 2007 Medicaid Choice population increased to 36,614 members, with 6,776 (18.6%) of the members between the ages of 0 to 2. For intervention 2 a total of 2,150 members turned two during 2007 and reviewed for this study period. Please see attachment 1 for a current breakdown of the population demographics.

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F. Activity VIc. Data analysis plan and other pertinent methodological features. [Note, some sections modified to describe 2005 research period.]

DATA COMPLETENESS. [UNCHANGED]: BASELINE 1 (Aug 2004-Jan 2005) (UNCHANGED): Several steps are taken to minimize threats to data completeness, accuracy and reliability. First, this study uses the entire membership that meets the criteria defined for this study based on HEDIS like criteria. Second, to identify members for this study, a list is developed by Information Management staff approximately 5 months (150 days) after the last date of the study period. This reduces the impact of claims lags of 60 to 90 days. Third, a reconciliation process takes place with the goal of verifying members on all datasets produced by QMark and our QI team. This includes reviews of the early datasets provided in Excel by an NCQA-certified software vendor (QMark), data submissions material (in Access form) for import into the Hybrid Help tool, and a review of our results produced by QMark to make sure we have an accurate count and the correct members identified. Fourth, once we have received the final rates from our NCQA-certified software vendor QMark, we verify that the denominator, numerator, and exclusions are correct, and undergo the necessary reconciliation processes for documenting members excluded from the study (no exclusions were found for Baseline 1 according to Coding entries noted in ATT 2a–HEDIS 2005, Childhood Immunization Status, p 8: Table E1-B). Finally, additional steps are taken to ensure data completeness, including the use of Inter-rater Reliability (IRR) tools and the IRR related reconciliation process explained earlier (this PIP, pp 9-10).

Since the greatest risk to data completeness is missing data (data not found), the possibility for name/id search failures and/or missing medical records is reviewed. This includes a thorough review for medical records possibly filed as external documents (e.g. outpatient visit and referrals), rather than as typical internal documents researched with Medical Records Imaging. Also, searches for members with missing data also focus on possible name changes (i.e. post-marital surname change, changed surname spelling, paternal-related name change, hyphenated multiple surname transpositions), using other data sources and identifiers including the DH immunization database (which has a section for alternative names and spelling).

BASELINE 2 (Jan 2005-Dec 2005): Beginning January 1, 2005, the childhood immunization (Denver Health’s VaxTrax Immunization Registry) data was provided electronically by Denver Health to Tier Med; this data is then entered into as administrative data into Tier Med’s NCQA-certified software. The data submitted to Tier Med for this study is the immunization data for all Medicaid Choice children turning two years old in 2005. Tier Med then determines eligibility for these members based on HEDIS specifications.

To validate the accuracy and validity of the resulting database produced by Tier Med, at least 1 in 10 of the members are reviewed by QI staff using previously described methodologies (ATT 7); this process involves a review of the VaxTrax database, Medical Records Imagery and the CIIS database. In addition, missing data is re-researched using VaxTrax, Medical Records Imagery, and CIIS to confirm there is no date for a given immunization. As part of the final review process, members without a VZV date are reviewed in the Medical Records Imagery for documentation of a possible history of the disease.

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F. Activity VIc. Data analysis plan and other pertinent methodological features. [Note, some sections modified to describe 2005 research period.]

INTERNAL VALIDITY. BASELINE 1 (Aug 2004-Jan 2005) [UNCHANGED]: No factors have been identified that influence the internal validity of these research and analytic processes. Selection bias is avoided by the inclusion of all members into this study based solely on their enrollment period, regardless of ethnicity, race, Hispanic background, disability history, or income status. Due to population size (n=217) and age-related features for members of this study (0-2 years of age), experimental mortality is not a major concern. Some variation in results is expected due to changes in membership, for which reason research population are interpreted as unique sets that change membership from year to year, with the likelihood that some members may qualify for one measurement period but not another due to changes in eligibility for baseline 2 only. For further studies, the population will be different from year to year based on the criteria of turning 2 years old during the measurement year. No changes are foreseen for any future instrumentation of this study.

BASELINE 2 (Jan 2005 –Dec 2005): Procedural Change: The data development and submission process for this study changed from a manual process of data entry using an access database (which is then exported into Excel format and submitted to QMark), to an entirely electronic submission process utilizing the internal administrative data source, VaxTrax. This reduces the possibility of errors being generated through the manual data entry process previously used. As with the 2004/5 data entry process, a review of medical records is then carried out upon completion of this work, with the goal of eliminating missing data and/or verifying absent or missing records and/or immunization dates.

Study Design and Engagement: For the most part, the internal validity issues for these processes remain unchanged. As anticipated, a Regression to the Means was observed following completion of Baseline 2 due to the changes in eligibility requirements for the study population and improvements in our ability to obtain complete datasets (see Step 7, Improvement Strategies, p. 23-Baseline 1 and p 24-Baseline 2 “Regression to the Mean” discussions). Future changes in these research methodology-related processes are not expected.

Intervention 1 (Jan. 2006 to Dec. 2006):

While changes in immunization rates may be due to our efforts, without a control group we are unable to link a direct cause and effect relationship. Other possible explanations that could have affected our immunization rates include: Changes in clinic sites with the La Mariposa FP Clinic and Kids Care relocating to the new Webb building on our Main campus. This new facility has lab, pharmacy and offers services for pediatrics, Family Medicine and Internal Medicine. [These system changes may have indirectly influenced our rates or our Medicaid Choice members. Our study interventions directly targeted children turning 2 in the measurement year and those that would be turning 2 within the following measurement year, which would suggest that any improvement seen is most likely the result of our interventions.]

Emphasis on providing immunizations at every visit in the Denver Health clinics and reminders generated from VaxTrax to children who are in need of immunizations. All these factors could have had an effect our childhood immunization rates.

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F. Activity VIc. Data analysis plan and other pertinent methodological features. [Note, some sections modified to describe 2005 research period.]

Intervention 2 (Jan. 2007 to Dec. 2007) [NEW]:

Factors related to internal validity are minimal. The data collection and measurement process has remained unchanged from the previous year. The process for mailing out the reminder letters remained unchanged as well. Selection bias could be one factor since sampling methods were used. However 86% of the population was selected and random sampling was used to ensure the sample was a good cross section of the true population.

EXTERNAL VALIDITY

BASELINE 1 (Aug 2004-Jan 2005) (UNCHANGED): Regional demographic differences may impact one's ability to relate our results to similar studies in other institutions, regions or populations. According to a recent HSAG meeting (August 4, 2005), rural settings contain a significantly different percentage of certain age and income groups than urban settings. Since this study engages families who reside in a fairly urban/suburban setting, the applicability of our results at the state level may be limited. On the other hand, this impact of population differences may also be inconsequential, based on following HEDIS specifications to produce interventions, making them broadly applicable. Finally, it is important to note that education-related efforts to improve childhood immunization rates could be deterred by member address changes, validity, and/or frequent moves by members of this population.

BASELINE 2 (Jan 2005 to Dec 2005) (NEW): The increase in the study period from six months to twelve months for Baseline 2 produced a more accurate and reliable measures of the Denver Health program. The overall impact of these outcomes on external validity remains unchanged.

Intervention 1 (Jan 2006 to Dec 2006): The significant increase in Medicaid Choice enrollment in 2006 has the potential of increasing the similarity of this study population regionally, if not Statewide. For the most part, any differences noted to exist earlier between local urban settings and more peripheral, suburban to rural settings remain unchanged. Likewise, in-migration/out-migration patterns for the Denver urban setting remain an important factor with the potential of differentiating this Denver Health population from other populations in Colorado.

Intervention 2 (Jan 2007 to Dec 2007): **Analyze 08**

Overall there was little change in the membership from 2006 to 2007 with 18% of the population being between the ages 0-2. The demographics of the 0-2 year old members also stayed relatively the same with about half the population male and half female suggesting the results are comparable to last year and no external factors would skew the results.

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F. Activity VIc. Data analysis plan and other pertinent methodological features. [Note, some sections modified to describe 2005 research period.]

ATTACHMENTS – F. Data Collection Process/Methodology

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BASELINE 1

- Qmark Data Requirements. HYBRIDHelp 2005. Version 1.33. Dec. 7, 2004.
- Description of Claims or Encounter Submission Process; Claims quarterly audit for the 4th Quarter of 2004; Data completeness correspondence.
- Qmark HEDIS. Data Extracts.
- Data Assessment Notes and Correspondence
- BAT Section 8-Control Procedures to Ensure HEDIS Data Integrity
- BAT Section 5- Membership Data Processing
- Documentation regarding Medicaid Choice Daily Enrollment Files
- Data Extract Reconciliation and Completeness of Claims/Encounters
- HEDIS 2005, Vol. 2. Technical Specifications. “Childhood Immunization Status”
- 2005 Hybrid Help User Manual. Feb. 28, 2005. “Childhood Immunization Status”
- Qmark HYBRIDHelp. The Data Entry and Evaluation Process . . . (for PIP)
- Vax Trax View Only Training Manual
- Vax Trax Clinic Training Manual
- Worksheet for reviewing VaxTrax Childhood Immunization records
- VaxTrax Correspondence (memos on updates, changes, etc.)
- Getting Started. Colorado Immunization Information System (CIIS)
- Evaluation of Medical Records Imaging Data Worksheet (3pp)
- DH Inter Rater Reliability Tool, Score Sheet generated, and QI Audit results (3 pp)
- Preparing the Childhood Immunization Dataset for Submission to QMark
- Excel Spreadsheet for use in Calculating Chi-Squared
- Final immunization rates

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> ATT #1a [UNCHANGED] ATT #1b [UNCHANGED] ATT #1c [UNCHANGED] ATT #1d [UNCHANGED] ATT #1e* [UNCHANGED, managed by Tier Med] ATT #1f [UNCHANGED, managed by Tier Med] ATT #1g [UNCHANGED] ATT #1h [UNCHANGED] ATT #2a [UNCHANGED, UPDATED for 2006/7] ATT #2b [UNCHANGED, replaced by Tier Med documents, see ATT 3] ATT #3a [UNCHANGED, replaced by Tier Med documents, see ATT 3] ATT #4a [UNCHANGED] ATT #4b [UNCHANGED] ATT #4c [UNCHANGED] ATT #4d [UNCHANGED] ATT #5 [UNCHANGED] ATT #6 [UNCHANGED] ATT #7 [for 2006 IRR, see 7b, 7c] ATT #8a [REMOVED from submission Process, see 8b] ATT #9 [UNCHANGED] ATT #10a [UPDATED to 10b] | } | <p><i>10-1-06 NOTE:</i>
Qmark attachments 1a through 1h were removed in 2006 and replaced by TierMed (see ATT 3).</p> <p>New ATT 1 topic: Demography.</p> |
|---|---|---|

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F. Activity VIc. Data analysis plan and other pertinent methodological features. [Note, some sections modified to describe 2005 research period.]

BASELINE 2. (Attachments for this PIP include only those with changes from the above list)

➤ Demography of Study Population	ATT #1	[NEW]
➤ HEDIS 2005, Vol. 2. Technical Specifications. “Childhood Immunization Status”	ATT #2	[UPDATED]
➤ Evaluation of Tier Med Data/IRR Process (Flowchart)	ATT #3a	[NEW]
➤ Tier Med Training Workbook, Methodology, Compass Navigator, Compass Viewer manuals	ATT #3b-e	[Methodology changes from 2005]
➤ Data Assessment Notes and Correspondence with Tier Med	ATT #3f	[Methodology Change/Updates]
➤ DH Inter Rater Reliability	ATT #7 repl. By #7b	[Methodology Change]
➤ Guardian Angel Consulting, Inc. HEDIS Date Entry Training and Audit activities	ATT #7c	[NEW]
➤ Preparing the Childhood Immunization Dataset for Submission to Tier Med	ATT #8 repl. By #8b	[Methodology Change]
➤ Final immunization rates	ATT #10 repl. By #10b	[Methodology Change]
➤ QAC Meeting Minutes	ATT #11	[UPDATED]
➤ Intervention Activities Flowcharts	ATT #13	[UPDATED]
➤ PIP Intervention Activities	ATT #14	[UPDATED]
➤ Denver Health System-related Intervention Activities	ATT #15	[UPDATED]

ATTACHMENTS – F. Data Collection Process/Methodology (continued)

Intervention 1. (NOTE: Attachments for this PIP include only those from the above two lists which underwent changes during the last study period)

➤ Demography of Study Population	ATT #1	[Replaces Previous Report]
➤ HEDIS 2007, Vol. 2. Technical Specifications. “Childhood Immunization Status”	ATT #2	UNCHANGED
➤ TIERMED - Chronology of TierMed Data Submission	ATT #3a	[UPDATED]
➤ HEDIS 2007 Abstraction and Collection Process	ATT #3e	[UPDATED]
➤ HEDIS TRAINING ACTIVITIES	ATT #7a	[New Process described; replaces previous 7a]
➤ SUMMARY OF INTERRATER RELIABILITY	ATT #7b	[UPDATED]
➤ HEDIS Audit Report; 2007 HEDIS Review	ATT #8	[UPDATED]
➤ Excel Spreadsheet for use in Calculating Chi-Squared	ATT #9	[UPDATED]
➤ Final immunization rates	ATT #10	[Replaces Previous Report]
➤ 2006 QAC/2007 Medical Management Committee Meeting Minutes	ATT #11	[UPDATED]
➤ PIP Intervention Activities	ATT #14	[UPDATED]
➤ Well visit Insert-related Activities	ATT#14	[NEW]

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F. Activity VIc. Data analysis plan and other pertinent methodological features. [Note, some sections modified to describe 2005 research period.]

Intervention 2:

<ul style="list-style-type: none"> ➤ Demography of Study Population ➤ HEDIS 2008, Vol. 2. Technical Specifications. “Childhood Immunization Status” ➤ TIERMED - Chronology of TierMed Data Submission ➤ HEDIS 2008 Abstraction and Collection Process ➤ HEDIS TRAINING ACTIVITIES ➤ SUMMARY OF INTERRATER RELIABILITY ➤ HEDIS Audit Report; 2008 HEDIS Review ➤ Excel Spreadsheet for use in Calculating Chi-Squared ➤ Final immunization rates ➤ 2008 QAC/2007 Medical Management Committee Meeting Minutes ➤ PIP Intervention Activities 	<p>ATT #1</p> <p>ATT #2</p> <p>ATT #3a</p> <p>ATT #3e</p> <p>ATT #7a</p> <p>ATT #7b</p> <p>ATT #8</p> <p>ATT #9</p> <p>ATT #10</p> <p>ATT #11</p> <p>ATT #14</p>	<p>[Replaces Previous Report]</p> <p>[UPDATED]</p>
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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

BASELINE 1 Report. What are the barriers to children getting immunized? *[Not edited or modified, 8/2006; Baseline 2 begins on p. 24; Intervention 1 Report begins on p. 29]*

Discussion of this topic at the Quality Assurance Committee [QAC] meeting (ATT 11a. QAC Meeting Minutes) led to the identification of the following activities already ongoing for the childhood immunization program:

- immunization records are provided for review during each visit;
- cards developed with the Denver Health VaxTrax registry are routinely sent out by clinics to children deficient in vaccinations;
- program awards are presented to clinics for immunization of toddlers.

In addition, a new Care Management outreach process has been designed by Denver Health Managed Care to reduce the number of children not coming in for their regular EPSDT well visits for Denver Health Medicaid Choice [DHMC] members (ATT 14a). Other ongoing activities noted at this and previous QAC meetings include:

- mailing EPSDT material as part of the Welcome packet for new members (ATT 14b);
- the development of Provider Education Sessions conducted by Denver Health Product Line Manager for DH Medicaid Choice physicians regarding EPSDT services and billing;
- the design of two electronic mailings for PCPs on EPSDT visits in January 2005 (ATT 15e);
- the design of EPSDT screen savers to be placed on all computers within the Denver Health system including the Family Health clinics (work in progress); and ongoing maintenance activities for Denver Health Immunization Registry—VaxTrax (ATT 4d).

Three barriers to Childhood Immunization were also identified at the Sept. 13, 2005 QAC meeting (ATT 11b):

- 1) Well Visits are often not coded as such due to inclusion of these activities with another type of primary care visit, suggesting that recorded PCP visits may be an inaccurate representation of well visit activity;
- 2) Children who lack primary care provider (PCP) visits also tend to lack participation in the immunization program, and
- 3) For various reasons, some children have no prior record of their immunization history available to their Denver Health PCPs.

Since all three of these barriers pertain to Well Visit activities involving PCPs, it is hoped that by increasing the percentage and number of children who complete all of the recommended Well Visits, that the number of children receiving all the recommended childhood immunizations will increase as well.

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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

Supporting Documentation. BASELINE 1. A preliminary review of Baseline 1 data supports the premise that a successful completion of the childhood immunization process may be related to the completion of all recommended childhood Well Visits (ATT 12a-d). Baseline 1 data demonstrated that the average number of immunizations a child receives increases in proportion to the number of Well Visits accomplished ($R^2 = 0.8831$) (see ATT 12e Average Number of Vaccines in Relation to Well Visits). Moreover, a review of members who underwent all of their recommended Well Visits (for which $n = 74$) shows that the numbers of immunizations received per member averaged 5.97 (ideal result/PIP Goal = 7.00 for full immunizations) and that the percentage of members completing their immunization process for a given number of visits is highest (97.37%) for the 'All Visits' (7 visits) group (see ATT 12f Percent Members Completing Their Immunizations in relation to the Number of Well Visits).

The Intervention Process. Along with continuing to provide PCPs with education sessions on EPSDT and documentation about EPSDT and childhood immunization activities, a series of intervention activities were designed to improve member participation in both the Well Visit and immunization programs. The Intervention Process for this PIP targeting members is the implementation of a combined EPSDT-Reminder Letter Mailing procedure designed to increase the number of well visits and in turn the number of immunizations provided to each child (ATT 13a-b). This intervention process combines a number of ongoing programs, including the Colorado EPSDT program (ATT 13c), Denver Health Managed Care's Care Management program (ATT 14a), and VaxTrax–Denver Health's Childhood Immunization registry program (ATT 4). For each individual involved in the ESPDT program, an EPSDT intervention packet is sent (Attachments 14a-c), followed by a reminder letter for immunization (Attachment 14e), followed by a well visit (documented in Diamond), followed by the entry of immunizations in the VaxTrax registry. Two groups of members are involved in this intervention process: a) families with children <1y/o who are eligible for EPSDT (EPSDT children are <6 y/o); b) children > 1 y/o who will turn two during the study year. Both mailings, although similar, serve different purposes. The mailing to children <1y/o is designed to be proactive, reducing the number of children who miss well visits and do not become part of the DH VaxTrax intervention process in the form of reminder letters sent from VaxTrax (see ATT 13c). The mailing to children who turn 2 y/o during the study period serves to increase the percent of members who successfully catch-up with their immunizations by the age of two during the study period.

Description of Mailings (see ATT 14a-f)

The first mailing—the EPSDT letter—is for all members under six years of age (ATT 14a). This population includes those who turn 2 y/o between 1/1/06 and 12/31/06 (all eligible members with birthdates between 1/1/04 and 12/31/04) and who are therefore eligible for the Baseline 1 PIP study.

Baseline 2. The second mailing—a targeted immunization letter—is planned for members who turn two during the study period (ATT 14e,f) and/or who did not undergo the recommended well visits (based on "no PCP visits" report provided by Information Management Dept, ATT 14d).

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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

For the Baseline 2 study period, the first mailing was sent to members in April 2005 (see ATT 14a-c.). This packet informed them of the EPSDT program, including the opportunities provided by Well Visits and the related immunization program at Denver Health. The second mailing (ATT 14e,f), sent in October 2005, targets members with a history of no PCP visits. This letter and the attached information card reminds them of the goals of the immunization program and the role of Well Visits in improving their health.

In sum, by encouraging member participation in the form of PCP visits, it is hoped that more children will complete their immunizations and be entered into Vax Trax during the current study year. By including them in the registry, it is hoped that the reminder mailings sent the members due to the immunization history in VaxTrax will increase their participation in this program.

Counts of Letters Mailed (ATT 14a-f)

For the first year of this intervention (results for the Baseline 2 study), the first letter (ESPDT letter, ATT 14a) was mailed in April to approximately 900 members who had no PCP visits entered into the Diamond records for Denver Health (ATT 14d. EPSDT stats). These mailings targeted special needs children who had only Specialty Encounters and no Well Visits (n=97 for ages 0-6 y/o) and Special Needs children who had no encounters (n=127 for ages 0-6 y/o). No letters were reported as returned.

The second mailing for 2005, the letter on immunizations and well visits mailed in October 2005 (see ATT14e,f. Letter 2), targeted all members <2 y/o who to date lacked PCP visits (approximately 74 members). No letters were returned.

This intervention process will be repeated around the end of the year (December 2005), when a listing of members eligible for the first Re-measurement study period will be generated by Information Management based on the Diamond records. Those members eligible for the PIP will be sent a reminder letter regarding well visit and immunization recommendations by the age of 2.

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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

Limitations

Four limitations are noted for this study. First, the results of the second mailing in October 2005 are limited by the fact that they may impact just three months of activity by members with regarding to reaching the Well Visits and immunizations goals (October 2005 through December 2005). Therefore, these letters have the potential of impacting a small percentage of the Baseline 2 population (less than 25%). In contrast, the earlier mailing of the same packet between December 2005 and January 2006 has the potential of producing a more noticeable impact on the population, providing up to a full year of Well Visits activity for completing any immunization activities. Second, it is important to note that depending on changes in eligibility status in 2006, some members may be eliminated from this PIP study, making any impact produced by the December-January mailing immeasurable. Third, members who turn two years of age between January and February of 2006 are less likely to benefit from this mailing due to the reduced time they have to make up for their Well Visits and immunizations. Fourth, any new members added to the 2006 PIP study eligibility list between November 2005 and January 2006 (3 months time), should they have a history of immunizations and Well Visits not generated by Denver Health Medicaid Choice, still have the potential of impacting our final ratings should their activities and medical history prior to DHMC coverage be limited or non-compliant.

Validity

The population included in the study for a given year is defined by HEDIS eligibility requirements. Beginning with the Baseline 2 study, members included in this study are required to be enrolled for the full year (January 1, 2005 to December 31, 2005), with no more than one 30-day (one month) gap in enrollment.

The intervention process is detailed in the attached chronology and flowchart (ATT 13a-b). Intervention letters are mailed to all members who meet the eligibility requirements for the year of the mailing. For this reason, it is expected that some letters will be mailed to members considered eligible for the study at the time of the mailing, but who later become ineligible due to changes in Medicaid coverage. For this reason, those who re-enroll for DHMC (Year 1) but subsequently disenroll (end of Year 1, beginning Year 2) may be missed for the second intervention depending on when these enrollment lists are produced for this intervention mailing (see ATT 3b). Letters mailed to members under one year of age and who meet eligibility requirements are more likely to be impacted by this effect. Letters mailed to members eligible for the review during the present research year are less likely to be impacted by this sequence of events.

Also impacting the eligible population is the enrollment of new members >6 months of age. During the first six months of age, four of the seven well visits reviewed for this research should have taken place; this represents four of the six visits accomplished by 15 months of age during which all of the immunizations should have been given. This means any members lacking complete immunization after 6 months of age have a greatly reduced likelihood of meeting all the immunization recommendations by 15, 18 or 24 months of age. Should such a member with no history of wellness visits by >6 months year of age become enrolled in Denver Health by 12 to 13 months of age, the lack of immunization due to previous health care activities will have a noticeable impact on the final results for the entire Denver Health Medicaid Choice. Such results are due to enrollment practices rather than member- or member-clinic-related activities.

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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

Regression to the Mean. *(Italics added, 6/2006)*

In theory, any changes in immunization rates for the two Baseline Periods may be related to the mailing of letters. However, since the Baseline 2 measurement period is significantly longer than Baseline 1, the population of Medicaid Choice members in this PIP should also be more representative of the total PIP population for a 12 month study. This suggests that any improvements noted may in fact be linked to a Type 1 error scenario—2005 Baseline 2 rates can reflect the results of a more stable study population study that the 2004-2005 Baseline 1 study, resulting in regression toward the true mean for the Denver Health Medicaid Choice population (probability increases).

Opting Out vs. Exclusion from the PIP.

Finally, it is important to note that a small number of families may opt out (parent refuses) of immunization altogether, or opt out of the use of particular forms of immunization. These members are not excluded from the study, however, and therefore still impact overall results. It is equally important to note that these members are not always noted as “opt outs” in the Denver Health medical records or Denver Health and CIIS Immunization registries. Should such members be identified, they remain in the study and their potential impact on the overall results discussed in the conclusion (for Study Results, see Step 9; for Discussion of these Results, Actions taken and Conclusion, see Step 10; Opt out issues are reviewed in ATT 16).

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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

BASELINE 2 Report (~~NEW~~). What are the barriers to children getting immunized? (Report for 1/1/05 to 12/31/05 period). [<TOC>](#)

Events for Baseline 2 and Intervention 1 Activities (2005 – 2006) (as of 10/1/06). [<Back to Table of Contents>](#)

1. Completion of the second annual EPSDT mailing (July 2005).
2. Completion of Baseline 1 study and submission (October 2005)
3. Information Systems (IS) Request: List of members eligible for PIP study produced by Information Systems (IS) (December 2005)
4. Development, production and mailing of Intervention Letter to populations eligible for review in 2006 and 2007. (December 2005)
5. Completion of EPSDT mailing and statistical review (January 2006)
6. Mailing of Intervention letter with card to members in January 2006.
7. Development of *New Incentives Package* for members with Children < 2 y/o (January/February 2006).
8. February/March 2006. Design of new booklet to be added to the next mailing scheduled for June 2006. This booklet will be discussed with staff persons engaged in CHP- and MCD-related activities. It will then be presented to QAC in March or April for final approval. [*Booklet activity replaced by New Incentives Package, August 2006*]
9. Final list of members eligible for PIP study produced by Tier Med/IS (February 2006)
10. HEDIS Submission of Childhood Immunization data for 2005 (March 2006)
11. Review of Well Visits data in Medical Records Imagery (tentative date – April/May 2006)
12. Return of HEDIS results; review of final results by PIP Researchers (April/May 2006).
13. IS Request: list of members eligible for 2006 review of immunizations and well visits. Sent out new packet and booklet to these members (May 2006).
14. QAC presentation on HEDIS results (May/June/July 2006)
15. Report to QAC on status of PIP (July/Aug/Sept 2006).
16. Completion of the second annual EPSDT mailing (July 1, 2006).
17. Review of statistics related to EPSDT mailings for year by IS (August 2006)
18. Implementation of *New Incentives Package* for member regarding completion of Childhood Immunization/Well Visits activities (August/September 2006). [8 returns as of 9/1/06, 6 with immunizations completed].
19. Completion of PIP—Baseline 2 version for submission in October 2006; *presentation to QAC (September 12, 2006)*
20. Prepare PIP for review by QAC in September 2006.
21. Submission of PIP for final review (October 2006)
22. Begin developing database with Tier Med for 2007 HEDIS: VaxTrax data form and quality to be reviewed (Oct/Nov 2006).
23. Develop new eligible members list using Tier Med dataset; mail new Intervention letters (Dec 2006/Jan 2007).

NOTE: For updated versions of the above activities, see ATTs 11 (QAC minutes), 13 (flowcharts) and 14 (letters and results). A new version of ATT 12 was not produced for the 2005 activities summarized in this 2006 PIP update.

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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

Intervention activities for Baseline 2 (See chronological listing at end of this section, p. 28)

Impact of Population Change on Research and Analysis Methodology. In 2005 and 2006 the Medicaid Choice population size underwent a substantial change in size (see p. 18, Population Size). Such shifts should not impact statistical results for any related intervention studies. One of the more important outcomes of an increase in population pertains to research methodology: the Baseline 2 study reviewed the entire eligible population; the methodology used for next study (Intervention 1) will be a population sampling technique based on HEDIS methodologies.

Validity and reliability. Between November and December of 2005, the possibility for changes in validity (data truthfulness and accuracy) of the study had to be considered due to changes in the contracting agencies for this project in 2006 (from QMark for the 2005 PIP, to Tier Med for the 2006 PIP). For this reason, data production, handling, storage and analysis techniques were reviewed with the newly contracted agency (Tier Med) from December 2005 to January 2006. This assessment was followed by a review of the validity, reliability and reproducibility through a second running of the same dataset used for Baseline 1 study. (The results of this review are summarized in ATTACHMENT 7.)

Upon completion of this validation process and acceptance of Tier Med’s results, the collection of data for Baseline 2 began in late January 2006. Due to the automation of many of the initial data collection processes, some improvements in our HEDIS results were expected. However, other activities engaged in as part of the manual (Hybrid) portion of the data entry process remain unchanged. In theory, the final outcomes expected for these changes include better reporting and the production of truer results by the Baseline 2 study. In actuality, a methodology-related error, predicted in the 2005 PIP submission, took place as well: a regression to the mean occurred due to changes in the study period (from 6 months in 2005 to 12 months in 2006) (for more, see Step 8, p. 29).

Attachments for SYSTEM-RELATED INTERVENTION ACTIVITIES. Baseline 2. (2005 Activities)

A number of system-related activities are worth noting due to their potential impact on other member activities related to well visits and immunization practices. Each of the following may be provided to Medicaid Choice members at any time during the visit encounters, examples of which include (see ATT 15):

<u>Activity</u>	<u>Presented as part of</u>
➤ Intervention Postcard mailed by DH clinics	(BASELINE 1)
➤ EPSDT Activities for 6-2005 to 9-2006 (continuing into 2006/7).	(BASELINE 1)
➤ Reminder letters mailed by DH, based on VaxTrax entries	(BASELINE 2)
➤ Best Babies program information	(BASELINE 2)
➤ CHP+ activities information	(BASELINE 2)
➤ WIC information	(BASELINE 2)
➤ “Milestones” booklet	(BASELINE 2)

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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

INTERVENTION YEAR 1 REPORT. [<Back to TOC>](#) ~~[NEW]~~

Changes on Well visits activities and performance (i.e. coding, billing, scope of performance including improve provider and member education on well visits and immunizations). Newsletter Insert and developing a Newborn Database (in process). SYSTEM ACTIVITY.

INTERVENTION YEAR 2 REPORT. [<Back to TOC>](#)

Events for Intervention 2 Activities (2007-2008) (as of June 2008).

- **Completion of *EPSDT mailing* and statistical review (January 2007)**
- **HEDIS Submission of Childhood Immunization data for 2007 (May 2007)**
- **Completion of *EPSDT mailing* and statistical review (June 2007)**
- **Completion of *EPSDT mailing* and statistical review (December 2007)**
- **Corrected PIP submission (January 2008)**
- **HEDIS Submission of Childhood Immunization data for 2008 (June 2008)**
- **Completion of *EPSDT mailing* and statistical review (June 2008)**

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G. Activity VIIb: Implement intervention and improvement strategies. Real, sustained improvements in care result from a continuous cycle of measuring and analyzing performance, as well as, developing and implementing systemwide improvements in care. Describe interventions designed to change behavior at an institutional, practitioner, or member level.

Chronology of All Mailings for this PIP (ATT 14)

- **BASELINE 1. 2005. Letter 1 (ATT 14a-d), July/August 2005--EPSDT packet and letter for 'No PCP Visits' for Special Needs Children.** This mailing included letters mailed to members in the age range eligible for this study (0-2 y/o); no returns were reported. (see ATT 14, p. 7-10, p. 11 for results--424/902 visits; 12 immunizations received.)
- **BASELINE 1. 2005. Letter 2 (ATT 14e-f; ATT 14, p. 12-16), September, October 2005. Combined Well Visit/Immunization Letter sent: a) to all members between 0 and 2 y/o regarding immunization recommendations, b) to all members ≤ 2 y/o lacking well visits.** Based on an October 1, 2005 query of MCD membership. A total of 74 letters were sent to children ≤ 2 years of age considered eligible for the 2005 Baseline 2 study. Twelve of these letters targeted new children eligible for the PIP study who were between 1 and 2 years of age and considered possibly eligible for the upcoming HEDIS. No returns are noted.
- **BASELINE 2. 2006. Letter 3. (ATT 14g; ATT 14, p. 18), December 2005. Baseline 1, Letter 2 revised, printed in tricolor form; sent regarding immunizations and well visits to be completed by the Age of 2.** Mailing list based on a November 2005 query of MCD membership for children ≤ 2 years of age, all of which were considered eligible for the 2005 Baseline 2 study. Packet included blue Benefits card. No returns noted.
- **BASELINE 2. 2006. Letter 4 ['No PCP Visit' letter, June 2006]. (ATT 14 pp. 27-31 (stats), 33-34 (letter)), June & July 2006 activities. BASELINE 2 mailing, targeting INTERVENTION 1 population.** This new letter with well visit information (3 pp) was sent to all members < 2 yo in July 2006. This letter targets by mothers/guardians with regard to well visits, anticipatory guidance actions taken by the PCP, and any related immunization or immunization update activities. Three returns noted.
- **BASELINE 2. 2006. Letter 5. (ATT 14, pp. 35-39), June & July 2006 activities. BASELINE 2, Letter 3 revised, printed in tricolor form, and sent in July 2006 regarding immunizations and well visits to be completed by the Age of 2.** Mailing list based on a query of MCD membership for children ≤ 2 years of age and who may be considered eligible for the Intervention 1 study. Packet included a form filled out by the parent/guardian for a Coupon awarded upon completion of the childhood immunization series (including 4 Pneumococcal conjugate or PCV7 vaccines). No returns noted. (See pp. 43-47 for coupon responses).
- **INTERVENTION 1, Letter 6. December 2006. Reminder letter (same form as above) on value of immunizations and well visits for children who will turn two in 2007 and who have not yet received all of their immunizations.**

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Chronology of All Mailings for this PIP (ATT 14) (continued)

- **INTERVENTION 2, Letter 7. June/July 2007.** Tricolor Letter re-dated; sent regarding immunizations and well visits to be completed by the Age of 2. Mailing list based on a query of MCD membership for children ≤ 2 years of age requested June 2007.
- **INTERVENTION 2, Newsletter Mailing insert. June/July 2007.** ‘Well Visit’ letter (see June 2006 notes, ATT 14 (letter)). A letter with well visit information was sent to all members < 2 yo in July 2007. This letter targets by mothers/guardians with regard to well visits, anticipatory guidance actions taken by the PCP, and any related immunization or immunization update activities.
- **INTERVENTIONS 2, NEWSLETTER INSERT. June/July 2007.** “Well Visit” newsletter insert (see June 2007 notes, ATT 14 (newsletter insert)). This newsletter insert targets mothers/guardians and provides information on the importance of well visits, number of well visits, anticipatory guidance, and required immunizations by age 2.
- **INTERVENTION 2, Letter 9. Planned for December 2007.** Tricolor Letter re-dated; sent regarding immunizations and well visits to be completed by the Age of 2. Reminder letter (same form as above) on value of immunizations and well visits for children who will turn two in 2007 and who have not yet received all of their immunizations.
- **INTERVENTION 2, Letter 10. June 2008 Letter re-dated;** sent regarding immunizations and well visits to be completed by the Age of 2. Reminder letter (same form as above) on value of immunizations and well visits for children who will turn two in 2008 and who have not yet received all of their immunizations.

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H. Activity VIIIa. Data analysis: Describe the data analysis process done in accordance with the data analysis plan and any ad hoc analyses (e.g., data mining) done on the selected clinical or nonclinical study indicators. Include the statistical analysis techniques used and *p* values.

BASELINE 1 (Unedited). To monitor the success of our mailings, numbers of returned letters are recorded. Letters that are not returned are assumed to have reached the target address and planned recipient. A successful mailing of 90% is the goal of this project. This number and percentage of success will be graphed and reported as part of our trends analysis.

In addition, each immunization result documented as measurements 1 through 8 in the PIP is graphed. The Chi-Squared equation will be used to compare results from one study period to the next (see Step 8). The two sequential Baseline measurements will be kept as separate measures and not combined. Chronological and comparative bar charts will be used for immunizations and their combinations (see Step 10—Graphs). If necessary, the outcomes for different clinics will be compared to see if significant differences in performance or performance improvement exist at a clinic level.

Although discussed in a review of Baseline 1 results, it is important to note that Well Visits are part of our EPSDT-related activities but not part of the reported data. Reviews of the Well Visit data may be graphed as a part of this study, and will be regularly included in any discussion of results.

BASELINE 2 (Unedited). Overall methodology remains unchanged.

For Baseline 2 activities, mailings were carried out according to above chronologies (see pp. 25, 27, 28 and attached Chronology).

As anticipated during the preliminary review of Baseline 1 results in 2005 (see previous page), a Regression to the Mean occurred in 2006 and is partly responsible for the significant changes noted in the Baseline 2 study. This means that the Baseline 2 results more accurately reflect the activities of a Medicaid Choice population considered eligible for this study according to HEDIS standards. Two primary reasons for these improvements are worth noting: 1) for Baseline 1, by extracting a study population from a large population of members without regard to HEDIS requirements (one full year's worth of eligibility, with just one month lapse in membership), the likelihood that less active members might be included in the study group increases, i.e. members who do not engage in immunization-related well visit activities with their physicians (resulting in reductions in VaxTrax database entries), and 2) for Baseline 2, by increasing the period of study from six months to twelve months, the amount of time allowed for members to fully participate in the appropriate well visit activities is increased, thereby increasing the opportunity for completion of immunization sequences.

Due to regression to the means, results following Baseline 2 will not be compared to Baseline 1 results. Baseline 1 results are excluded from any subsequent analysis and Baseline 2 will be used as the true Baseline measure for reviewing Intervention 1 results.

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H. Activity VIIIa. Data analysis: Describe the data analysis process done in accordance with the data analysis plan and any ad hoc analyses (e.g., data mining) done on the selected clinical or nonclinical study indicators. Include the statistical analysis techniques used and *p* values.

Notes on Analysis (Unedited)

No Odds Ratio (Chi-squared test) was performed to compare Baseline 1 and Baseline 2 results since a Regression to the Mean was observed.

Chi square methods will be used to compare the Baseline 2 (2005 activities) results evaluated for HEDIS 2006 with the Intervention 1 (2006 activities) results evaluated for HEDIS 2007 (see ATT 9—UNCHANGED).

Measures will be based on $p = 0.05$, unless otherwise noted.

Results are trended and graphed to demonstrate ongoing change and/or improvement in the childhood immunization rates (see Step 10. 'Graphs' section).

RESULTS

BASELINE 1 [UNEDITED].

In April 2005 a letter and EPSDT packet was sent to 902 members who had no visits with their provider, reminding them of the importance of well visits (ATT14a-c, for schedule, see ATT 13d). According to administrative data extracted from Diamond, there were 424 well visits and 12 immunization visits following the mailing of this letter (ATT 14d). The impact of this letter/packet can be evaluated by comparing it with the Baseline 1 measurement period (August 1, 2004 to Jan. 31, 2005), which preceded this EPSDT mailing.

In October 2005, a second letter was sent to all eligible members describing the immunizations provided to them through the well visits program. This letter may be repeated depending upon whether or not new members are included on the updated lists to be produced for the MCD population <2 y/o.

BASELINE 2. [<Back to Table of Contents>](#)

The first intervention-related mailing for mid-January 2006 is nearly identical in content to the Immunizations-Well Visits letter mailed in October 2005. It was a tricolor version of the previous letter, sent as a two-sided copy with English on one side and Spanish on the other, and included information on submitting a completed immunization record based on Combo 3 in order to receive a **grocery store certificate**. This mailing was sent to 176 members who were <2 y/o and considered potentially eligible for the next PIP study of childhood immunization. This mailing will be repeated for each re-measurement year.

The second letter, dated December 2005, targeted members under the age of 2 y/o who were expected to undergo immunizations and/or Well Visits between January 1, 2006 and December 31, 2006. This letter encourages the parent/guardian to make an appointment and make sure all of the immunizations required by the child are completed by the child's second birthday. *This letter relates primarily to the 2006 PIP study.* This mailing will be repeated for each re-measurement year.

**Appendix A: Colorado 2008–2009 PIP Summary Form:
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H. Activity VIIIa. Data analysis: Describe the data analysis process done in accordance with the data analysis plan and any ad hoc analyses (e.g., data mining) done on the selected clinical or nonclinical study indicators. Include the statistical analysis techniques used and *p* values.

INTERVENTION 1. The previous mailing was updated in form and content, and mailed in July 2006 to members eligible for the Intervention 1 review (2006 activities studied in 2007). As above, this letter included form to be filled for a grocery store coupon, which is rewarded to all members who complete their immunizations by 2 yo (see ATT 14, pp. 35-38). removed

Returned Mail.

Three returned for Well Visits notification as of July 30, 2006.

INTERVENTION 2: The tricolor intervention letter was updated in form, color, and content according to the recommended immunizations by the cdc.gov, mailed in December 2007 and June 2008. After an informal causal/ barrier analysis it was determined that immunizations are correlated well visits so we will continue to include with the mailings a yellow well child flyer outlining the importance of age appropriate immunizations and well-child visit information]. Each letter was double sided with one side translated into Spanish.

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H. Activity VIIIb. Interpretation of study results: Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.

DISCUSSION OF RESULTS.

BASELINE 1 to BASELINE 2. Following review of a Baseline 2 data, Baseline 1 results were re-evaluated and interpreted as preliminary data due to *Regression to the Means*-based error (as previously discussed, p. 26). For this reason, Baseline 1 results are eliminated from any future analyses. Baseline 2 results are considered true baseline values.

BASELINE 2 to INTERVENTION 1.

Baseline 2 results demonstrate a considerably high percentage of completed immunization sequences except Pneumococcal Conjugate (new for HEDIS 2006). For this reason, the following two measures most likely provide the best opportunity to demonstrate sustained improvement:

- a) completion of four Pneumococcal conjugate vaccines (PCVs) by the age of two years,
- b) completion of the entire series of immunizations for DTP/DtaP (3 immunizations by 2 y/o), IPV/IPoV (4), Hep B (3), HIB (3), MMR (1), VZV (1, or history of Chicken Pox), and PCV7 (4).

Since all results were well above the Colorado mean for Medicaid, the following outcomes are needed to reach these goals:

- 1) Maintain the high percentage of completion for Combo 2 and all immunization sequences included in the Combo 2 measure.
- 2) Focus on intervention activities that result in the completion of all four PCV immunizations by the age of two years.

Events favoring this approach: The rates for completion of PCV7 are considerably less than the immunizations measured for previous childhood immunization studies. Since this is a first year study, popularization of the PCV7 sequence will not only improve both public and PCP performances but also increase awareness of this part of the immunization program, thereby increasing rates of reporting and engagement in PCV7-related immunization activities such as well visits.

Events possibly confounding the related 2007 research results: new goals for immunizations in 2006 may not be valid for upcoming years due to the changes in membership.

At the September 12, 2005 QAC Meeting, it was decided that the Goals for all immunizations would be set at 90%, the institutional goals set for the same for all Denver Health childhood immunization intervention activities. This was due in part to concerns that significant changes in population size as of 2006, have a considerable impact on final childhood immunization percentages. The goals for all immunization rates, including the new pneumococcal conjugate and combination 3 rates are therefore 90%.

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H. Activity VIIIb. Interpretation of study results: Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.

Baseline 2 Related Materials

- QAC Meeting minutes (include Guideline and Goals discussions)
- Childhood Immunization Guidelines–Update regarding Pneumococcal Conjugate and Combo 3.
- Intervention Letters
- EPSDT Mailings (July 2005, January 2006, July 2006)
- New Incentives Package (August 2006)
- HEDIS/ Tier Med results for 2006

INTERVENTION 1. Results.

A chi-square analysis and graphing of Baseline 2 and Intervention 1 results performed in July of 2007, following validation of HEDIS data from Tiermed, successful completion of the HEDIS audit, and submission of HEDIS 2007 to NCQA.

At the September 11, 2007 MMC Meeting, it was decided that the Goals for all immunizations would be set to be NCQA 90th percentile and the same for all Denver Health childhood immunization intervention activities. This was due in part to concerns that significant changes in population size as of 2007 have a considerable impact on final childhood immunization percentages. The goals for immunization rates are as follows: DTP (89%), IPV, MMR, Hib, and HepB(95%); VZV(94%), Pneumococcal(64%), Combo 2(83%) and Combo 3(58%).

Intervention 1 Related Materials

- MMC Meeting minutes (include Guideline and Goals discussions)
- Childhood Immunization Guidelines–Update regarding Pneumococcal Conjugate and Combo 3.
- Intervention Letters
- EPSDT Mailings (July 2005, July 2007)
- HEDIS/ Tier Med results for 2007

[Overall 5 of the 9 indicators did show improvement. The remaining 4 indicators either did not change or had no statistically significant decrease. We have maintained the 90th percentile benchmark for most of the indicators from baseline to the intervention 1 period. We plan to sustain these rates for Intervention 2.]

We preformed a mailing impact analysis for our HEDIS 2007 data in Oct2008. There were 186 Medicaid Choice children who received one or more PIP mailings that were born between 1/1/2004-12/31/2004, and of those 91 matched the 2007 HEDIS population sample. Over 80% of those that matched the HEDIS sample were found compliant based on administrative data. We did not measure the percentage of compliant members from chart review.

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H. Activity VIIIb. Interpretation of study results: Describe the results of the statistical analysis, interpret the findings, and compare and discuss results/changes from measurement period to measurement period. Discuss the successfulness of the study and indicate follow-up activities. Identify any factors that could influence the measurement or validity of the findings.

INTERVENTION 2. Results

A chi-square analysis and graphing of Intervention 1 and Intervention 2 results were performed in July of 2008, following validation of HEDIS data from TierMed, successful completion of the HEDIS audit, and submission of HEDIS 2008 to NCQA.

REMEASUREMENT 2: Of the nine measures 4 show we have met our updated goals with only two decreasing from the previous remeasurement year. Three measures showed continuous improvement for all three measurements years (2005-2007): Hepatitis B, Pneumococcal Conjugate and Combo 3. There was no measure that showed a statistically significant increase or decrease from the previous remeasurement year or baseline.

Our goal for intervention 2 was to maintain the high immunization rates we have recorded over the past 2 years. According to the goals set at the 09/11/07 MMC meeting we have met and exceeded the goals for the Heb B, Pneumococcal, Combo 2 and Combo 3. We have succeeded in maintaining the highest standard of quality of care by meeting the 90% percentile for HEDIS in 4 out of 9 of our measure.

In addition to the chi-square analysis, a mailing impact analysis was conducted. We mailed reminder letters to 2075 Medicaid Choice children born between 1/1/2005 to 12/31/2005. Each child received one of more PIP mailings in June 2006, December 2006 and June 2007. Of those 2075; 496 matched the 2008 HEDIS eligible study population (a total of 502). There were 395 that were found compliant or current with their immunizations in the HEDIS 2008 audit (79.6%); 69 were not compliant and 32 has no info or weren't included in the final sample. There was 6 children that were in the study population that didn't receive a mailing; only 2 weren't compliant.

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I. Activity IX: Report improvement. Enter results for each study indicator, including benchmarks and statistical testing with complete p values and statistical significance.

Quantifiable Measure 1: DTP/DtaP Immunization (Goal = 80.0%; Updated 89%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance* (NOTE: Chi-Sq test performed for all measures comparing baseline 2 to remeasurement 1 to remeasurement 2 $p = 0.05$)
					2005 NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:	137	217	63.13%	75.7% (2004 50 th %ile)	57.7%	Chi-Sq: Not Significant P value = 0.47
1/1/05 to 12/31/05	Baseline 2:	72	81	88.89%	85.8% (2005 90 th %ile)	66.3%	
1/1/06 to 12/31/06	Remeasurement 1:	78	92	84.78%	88.9% (2006 90 th %ile)	Not available	
1/1/07 to 12/31/07	Remeasurement 2:	352	411	85.64%	88.30% (2007 90 th %ile)	Not available	

Quantifiable Measure 2: IPV Immunization (Goal = 85.0%; Updated 95%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:	161	217	74.19%	88.4% (2004 50 th %ile)	66.2%	Chi-Sq: Not Significant P value = 0.24
1/1/05 to 12/31/05	Baseline 2:	77	81	95.06%	92.8% (2005 90 th %ile)	75.0%	
1/1/06 to 12/31/06	Remeasurement 1:	85	92	92.39%	94.70% (2006 90 th %ile)	Not available	
1/1/07 to 12/31/07	Remeasurement 2:	390	411	94.89%	95.8% (2007 90 th %ile)	Not available	

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I. Activity IX: Report improvement. Enter results for each study indicator, including benchmarks and statistical testing with complete *p* values and statistical significance.

Quantifiable Measure 3: MMR Immunization (Goal = 82.0%; Updated 95%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:	148	217	68.20%	88.3% <i>(2004 50th%ile)</i>	72.5%	Chi-Sq: Not Significant P value = 0.27
1/1/05 to 12/31/05	Baseline 2:	76	81	93.83%	94.1% <i>(2005 90th%ile)</i>	79.5%	
1/1/06 to 12/31/06	Remeasurement 1:	88	92	95.65%	95.3% <i>(2006 90th%ile)</i>	Not available	
1/1/07 to 12/31/07	Remeasurement 2:	383	411	93.19%	94.6% <i>(2007 90th%ile)</i>	Not available	

Quantifiable Measure 4: Haemophilus influenza type b Immunization (Goal = 79.0%; Updated 95%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:	139	217	64.06%	80.3% <i>(2004 50th%ile)</i>	60.8%	Chi-Sq: Not Significant P value = 0.44
1/1/05 to 12/31/05	Baseline 2:	77	81	95.06%	88.3% <i>(2005 90th%ile)</i>	77.8%	
1/1/06 to 12/31/06	Remeasurement 1:	86	92	93.48%	95.1% <i>(2006 90th%ile)</i>	Not available	
1/1/07 to 12/31/07	Remeasurement 2:	388	411	94.40	95.4% <i>(2007 90th%ile)</i>	Not available	

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I. Activity IX: Report improvement. Enter results for each study indicator, including benchmarks and statistical testing with complete *p* values and statistical significance.

Quantifiable Measure 5: Hepatitis B Immunization (Goal = 80.0%; Updated 95%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:	154	217	70.97%	82.7% <i>(2004 50th %ile)</i>	63.2%	Chi-Sq: Not Significant P value = 0.30
1/1/05 to 12/31/05	Baseline 2:	75	81	92.59%	91.2% <i>(2005 90th %ile)</i>	73.9%	
1/1/06 to 12/31/06	Remeasurement 1:	86	92	93.48%	95.2 % <i>(2006 90th %ile)</i>	Not available	
1/1/07 to 12/31/07	Remeasurement 2:	392	411	95.38%	95.1% <i>(2007 90th %ile)</i>	Not available	

Quantifiable Measure 6: VZV (Chicken Pox) Immunization (Goal = 83.0%; Updated 94%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:	142	217	65.44%	84.2% <i>(2004 50th %ile)</i>	69.7%	Chi-Sq: Not Significant P value = 0.27
1/1/05 to 12/31/05	Baseline 2:	75	81	92.59%	92.2% <i>(2005 90th %ile)</i>	77.5%	
1/1/06 to 12/31/06	Remeasurement 1:	88	92	95.65%	93.8% <i>(2006 90th %ile)</i>	Not available	
1/1/07 to 12/31/07	Remeasurement 2:	383	411	93.19%	94.9% <i>(2007 90th %ile)</i>	Not available	

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I. Activity IX: Report improvement. Enter results for each study indicator, including benchmarks and statistical testing with complete *p* values and statistical significance.

#7 Quantifiable Measure: Combo 1 Immunization (DTP, IPV, MMR, Hep B, Hib) (Goal = 70.5%) *REMOVED FROM PIP as of 2006.*

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:	123	217	56.68%	65.0%	47.1%	RETIRED
1/1/05 to 12/31/05	Baseline 2:		RETIRED		RETIRED	----	
1/1/06 to 12/31/06	Remeasurement 1:						
1/1/07 to 12/31/07	Remeasurement 2:						

7 Quantifiable Measure: : Pneumococcal Conjugate Immunization (Goal = 64%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:						Chi-Sq Not Significant P value = 0.44
1/1/05 to 12/31/05	Baseline 2 (NEW):	70	81	86.42%	NEW	34.6%	
1/1/06 to 12/31/06	Remeasurement 1:	80	92	86.96%	64.2% <i>(2006 90th%ile]</i>	Not available	
1/1/07 to 12/31/07	Remeasurement 2:	362	411	88.08%	80.30% <i>(2007 90th%ile]</i>	Not available	

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I. Activity IX: Report improvement. Enter results for each study indicator, including benchmarks and statistical testing with complete *p* values and statistical significance.

#8 Quantifiable Measure: Combo 2 Immunization (completion of DTP, IPV, MMR, Hep B, Hib and VZV) (Goal = 70.0%; Updated 83%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:	123	217	56.68%	65.0% <i>(2004 50th%ile)</i>	47.1%	Chi-Sq Not Significant P value = 0.52
1/1/05 to 12/31/05	Baseline 2:	69	81	85.19%	75.7% <i>(2005 90th%ile)</i>	58.2%	
1/1/06 to 12/31/06	Remeasurement 1:	78	92	84.78%	82.7% <i>(2006 90th%ile)</i>	69.54%	
1/1/07 to 12/31/07	Remeasurement 2:	350	411	85.16%	84.8% <i>(2007 90th%ile)</i>	Not available	

#9 Quantifiable Measure: Combo 3 Immunization (all of Combo 2 plus VZV) (Goal = 58%)

Time Period Measurement Covers	Baseline Project Indicator Measurement	Numerator	Denominator	Rate or Results	Benchmarks		Statistical Test and Significance*
					NCQA 90 th %ile for Medicaid	HEDIS Colorado Medicaid	
8/1/04 to 1/31/05	Baseline 1:						Chi-Sq: Not Significant P value = 0.51
1/1/05 to 12/31/05	Baseline 2 (NEW):	64	81	79.01%	NEW	30.3%	
1/1/06 to 12/31/06	Remeasurement 1:	77	92	83.70%	57.8% <i>(2006 90th%ile)</i>	64.48%	
1/1/07 to 12/31/07	Remeasurement 2:	346	411	84.18%	74.5% <i>(2007 90th%ile)</i>	Not available	

Describe any demonstration of meaningful change in performance observed from Baseline and each measurement period (e.g., Baseline to Remeasurement 1, Remeasurement 1 to Remeasurement 2, or Baseline to final remeasurement):

Appendix A: Colorado 2008–2009 PIP Summary Form: **Childhood Immunization** *for Denver Health Medicaid Choice*

J. Activity X: Describe sustained improvement. Describe any demonstrated improvement through repeated measurements over comparable time periods. Discuss any random, year-to-year variations, population changes, sampling errors, or statistically significant declines that may have occurred during the remeasurement process.

BASELINE 1. The Baseline 1 measurement for August 1, 2004 to January 31, 2005 was completed in July 2005. The BASELINE 2 measurement period is 1/1/05 to 12/31/05. The Remeasurement 1 period is 1/1/06 to 12/31/06.

Content of Letters (ATT 14 a-f):

- a) The first intervention is a letter mailed to members regarding well visit activities for EPSDT. For example, the EPSDT mailing sent in April 2005 contained: a cover letter (Att 14a), a pamphlet or similar educational materials (Att 14b), and a card detailing Medicaid Choice benefits (Att 14c). Subsequent mailings will include a cover letter (14e) and a card (3' x 5' light blue in 2005) detailing Medicaid Choice benefits and informing members of immunizations and well visits and steps to take for obtaining or changing a PCP (see attached card, Att 14e). In future years, this mailing would take place around June.
- b) Welcome calls (not evaluated or monitored for this PIP) will be performed in the usual fashion for each new members; if needed, materials similar to the EPSDT packet will be mailed to each individual contacted. These contacts have no specific schedule and these activities are not evaluated for this PIP. (see Att 15b-c)
- c) The second intervention letter targeting members eligible for the PIP study for the year will be mailed around December and is not expected to change. This mailing will be performed as close to the months of December-January as possible, and any variations in this process will be noted for each year of performance (Att 14e-f).
- d) The third intervention packet mailed in June 2006 consists of the improved tricolor second intervention letter and a booklet designed in February and March 2006 and approved by all staff members involved and QAC by April 2006.

Year to year variations in intervention activities are anticipated with regard to the date for mailing the intervention packet of materials. Moreover, due to changes in finances and coverage of expenditures, the types of packets mailed from year to year may vary slightly in their contents. For the first Intervention letter (EPSDT information) mailed in 2005, pamphlets were already printed and provided by the Colorado Department of Health Care Policy & Financing. In the future, mailings may also be changed or limited due to changes in availability and/or costs of the information mailed. For such cases, similar information will be delivered to members, through the use of similar if not identical educational information or materials.

Regarding the Study Population for the Baseline 1 study:

- a. The entire population eligible for this study according to HEDIS guidelines will be used; no sampling will be done.
- b. Random year-to-year variations in population size and content are anticipated for this PIP.
- c. With the exception of the January 2005 overlap for the periods reviewed for Baselines 1 and 2, members eligible for one study year are never eligible for any other study year.

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J. Activity X: Describe sustained improvement. Describe any demonstrated improvement through repeated measurements over comparable time periods. Discuss any random, year-to-year variations, population changes, sampling errors, or statistically significant declines that may have occurred during the remeasurement process.

BASELINE 2 (NEW).

Note changes in study population (p. 12).

Evidence for sustained improvement will begin with a review of results from the first Intervention year (review not expected until July 2008 when HEDIS 2008 completed).

INTERVENTION 1. Assessment of Intervention 1 is completed. Note changes in study population (p.12). The following is based on the Childhood Immunizations results in the 2006-2007 External Quality Review Technical Report for Colorado Medicaid Managed Care published by HSAG for Quality Performance by Colorado Medicaid Health Plans and PCPP in 2007. DHMC had the highest rates for Combo 2 & 3 compared to the other plans.

DHMC:

Combo 2 - 84.78% and Combo 3 - 83.70%

RMHP :

Combo 2 – 74.46% and Combo 3 – 68.01%

PCPP:

Combo 2 – 49.39% and Combo 3 – 41.72%

Additional rate improvements in HEDIS 2007 for Combo 2 and Combo 3 compared to the HEDIS 2006 90th percentile results are the following::

Combo 2- 84.78% (82.7% 90th Percentile)

Combo 3- 83.70% (57.80% 90th Percentile)

DHMC was above the HEDIS 2006 90th Percentile ratings for both Combo 2 & 3.

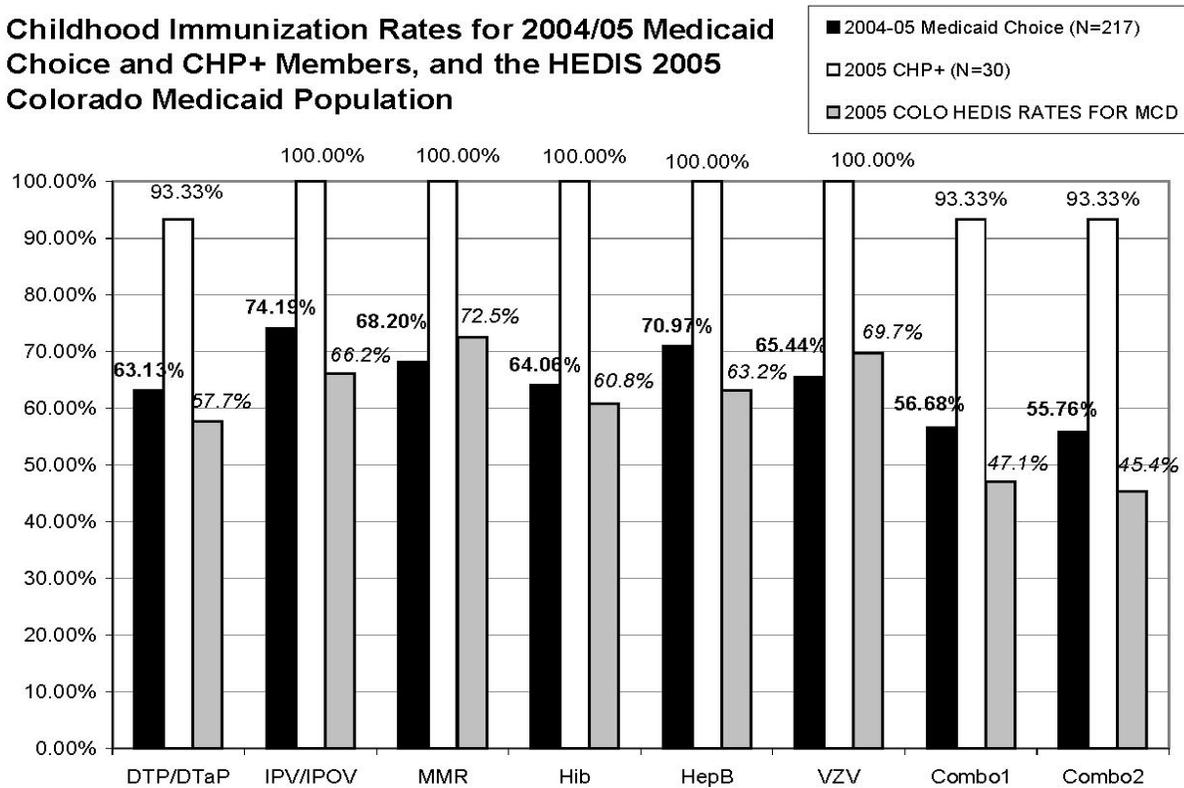
INTERVENTION 2. Assessment of Intervention 2 to be completed in 2008. sustained improvement

After 2 remeasurement periods we have been able to show sustained improvement. While our rates did not show statistical significant increases for this year; our immunization rates maintained high quality standards by meeting or exceeding the 75 percentile benchmark set by NCQA for all our immunization indicators 3 years in a row. For Combo's 2 and 3 we were above the 90th percentile every year.

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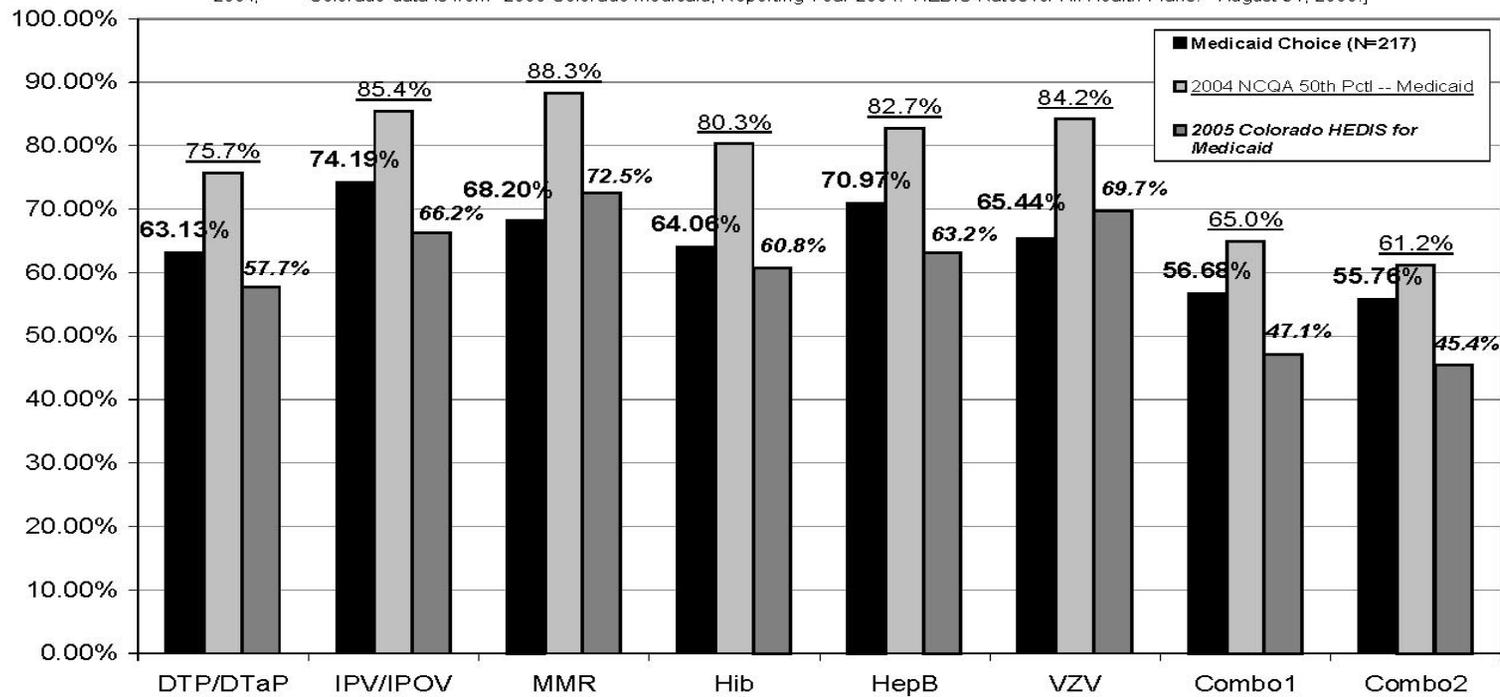
Childhood Immunization Rates for 2004/05 Medicaid Choice and CHP+ Members, and the HEDIS 2005 Colorado Medicaid Population



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CHILDHOOD IMMUNIZATIONS: A Comparison of 2004 MCD PIP and 2005 Colorado HEDIS Outcomes with 2004 National NCQA Benchmarks (Sept. 1, 2005)

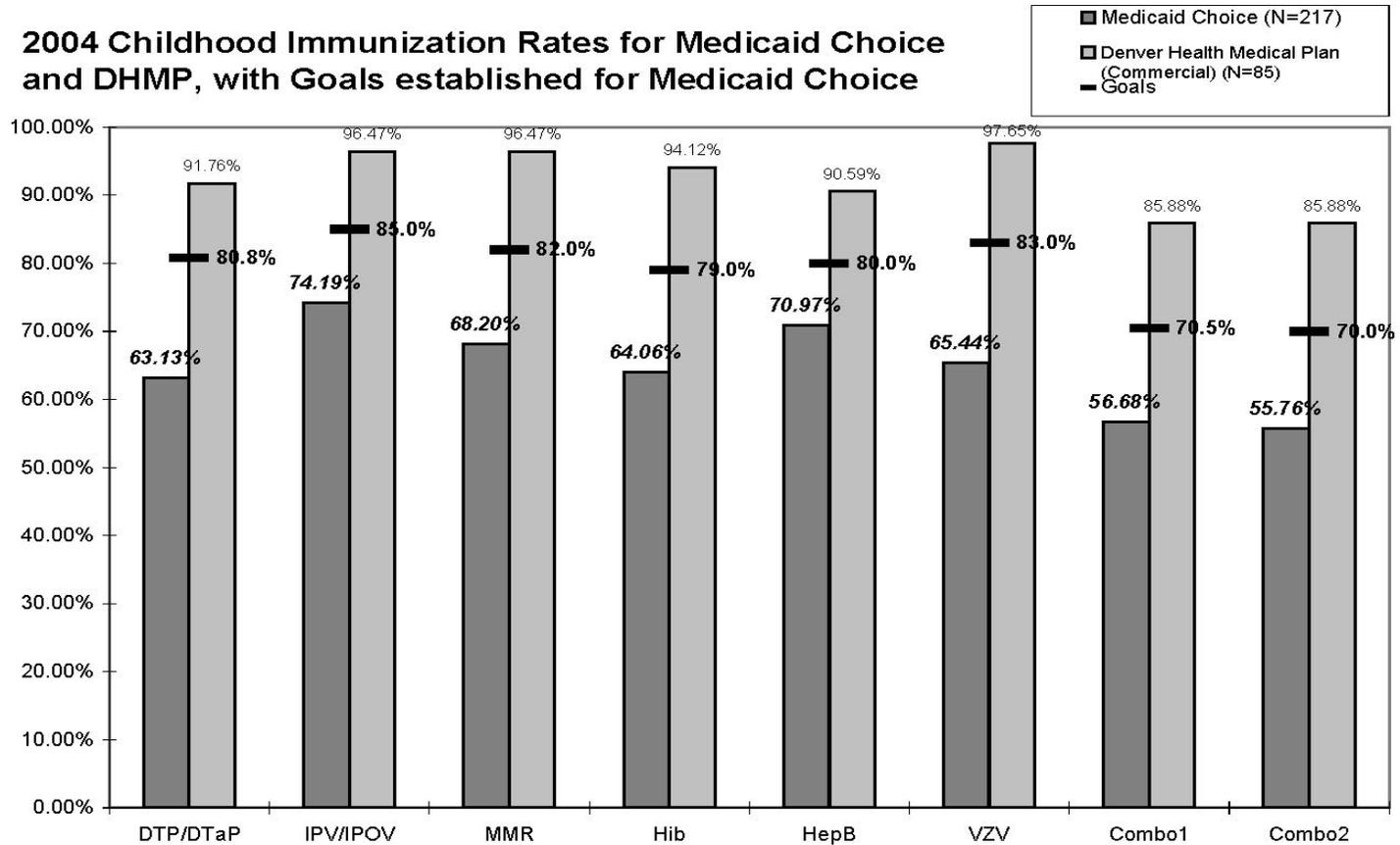
[Ref: DH MCD results are based on only 6 months of data--8/1/04 to 1/31/05; the NCQA 50th %ile is from State of Health Care Quality 2004; Colorado data is from "2005 Colorado Medicaid, Reporting Year 2004. HEDIS Rates for All Health Plans." August 31, 2005.]



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2004 Childhood Immunization PIP

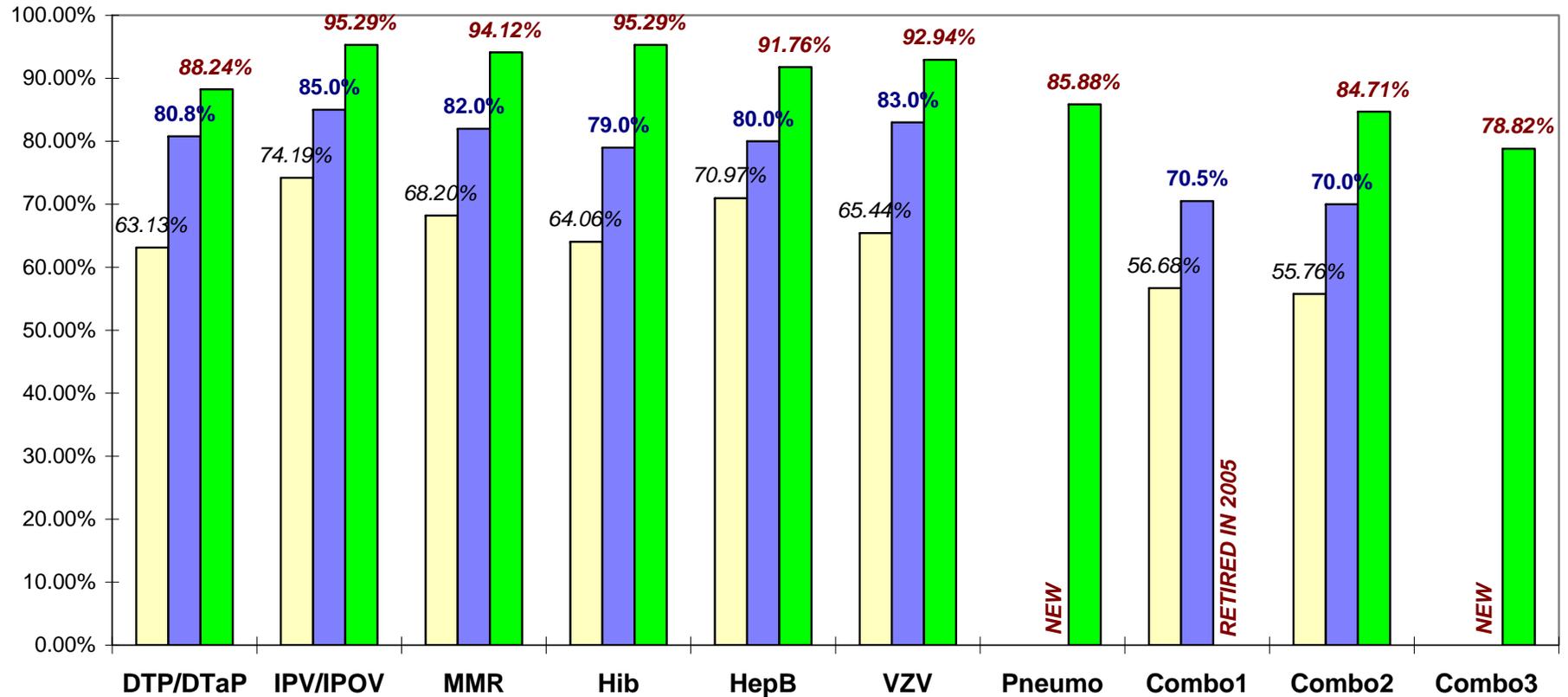
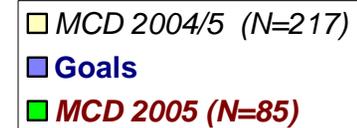
2004 Childhood Immunization Rates for Medicaid Choice and DHMP, with Goals established for Medicaid Choice



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BASELINE 2 -- GRAPHS [<Back to Table of Contents>](#)

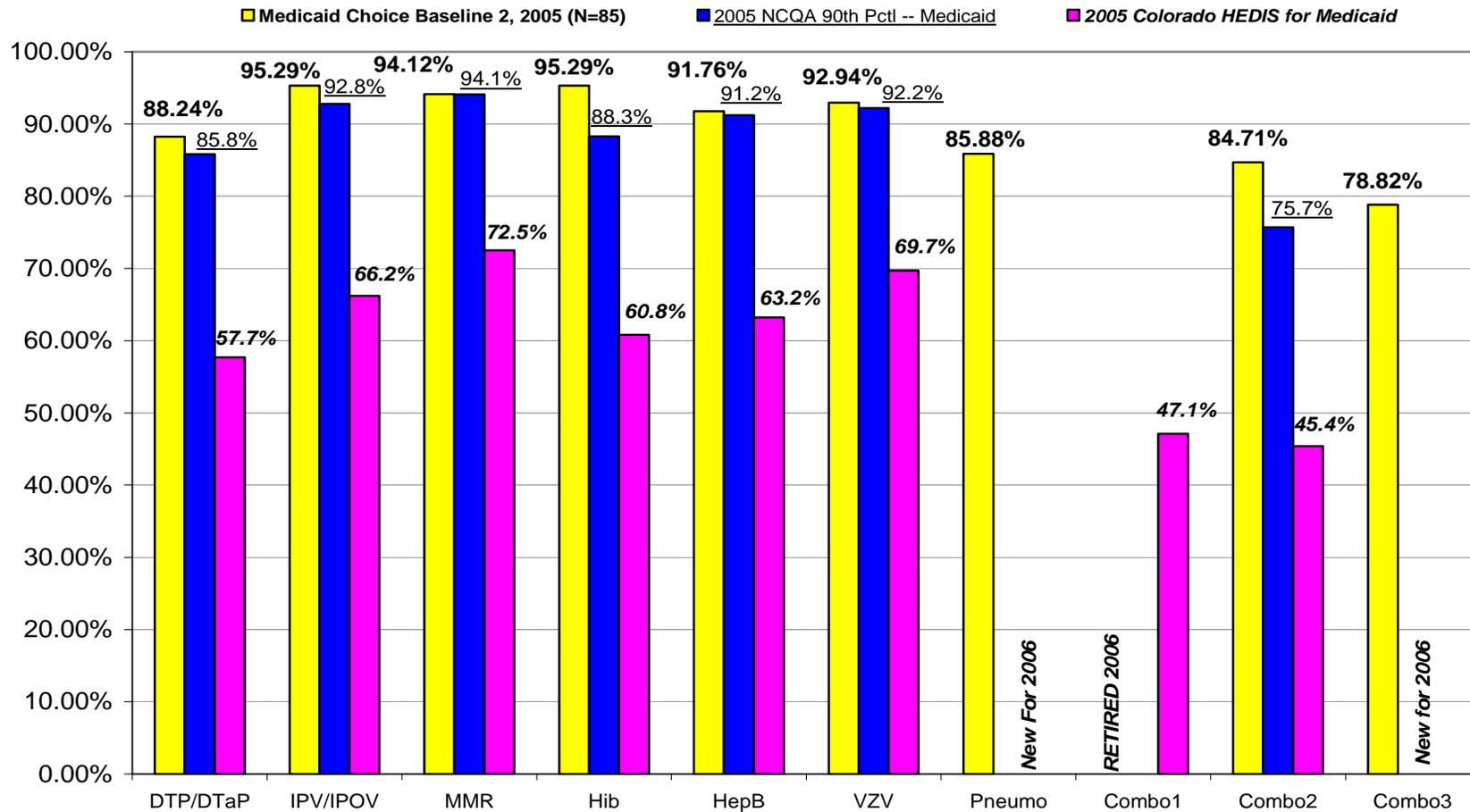
2005 (HEDIS 2006) Childhood Immunization Rates for Medicaid Choice, PIP Baseline 1 results for August 2004 to January 2005, and Goals established for Program for 2005 based on Baseline 1 (2004) results.



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CHILDHOOD IMMUNIZATIONS: A Comparison of 2005 MCD PIP (2006 HEDIS) and 2005 Colorado HEDIS Outcomes with 2005 National NCQA Benchmarks (8/17/06)

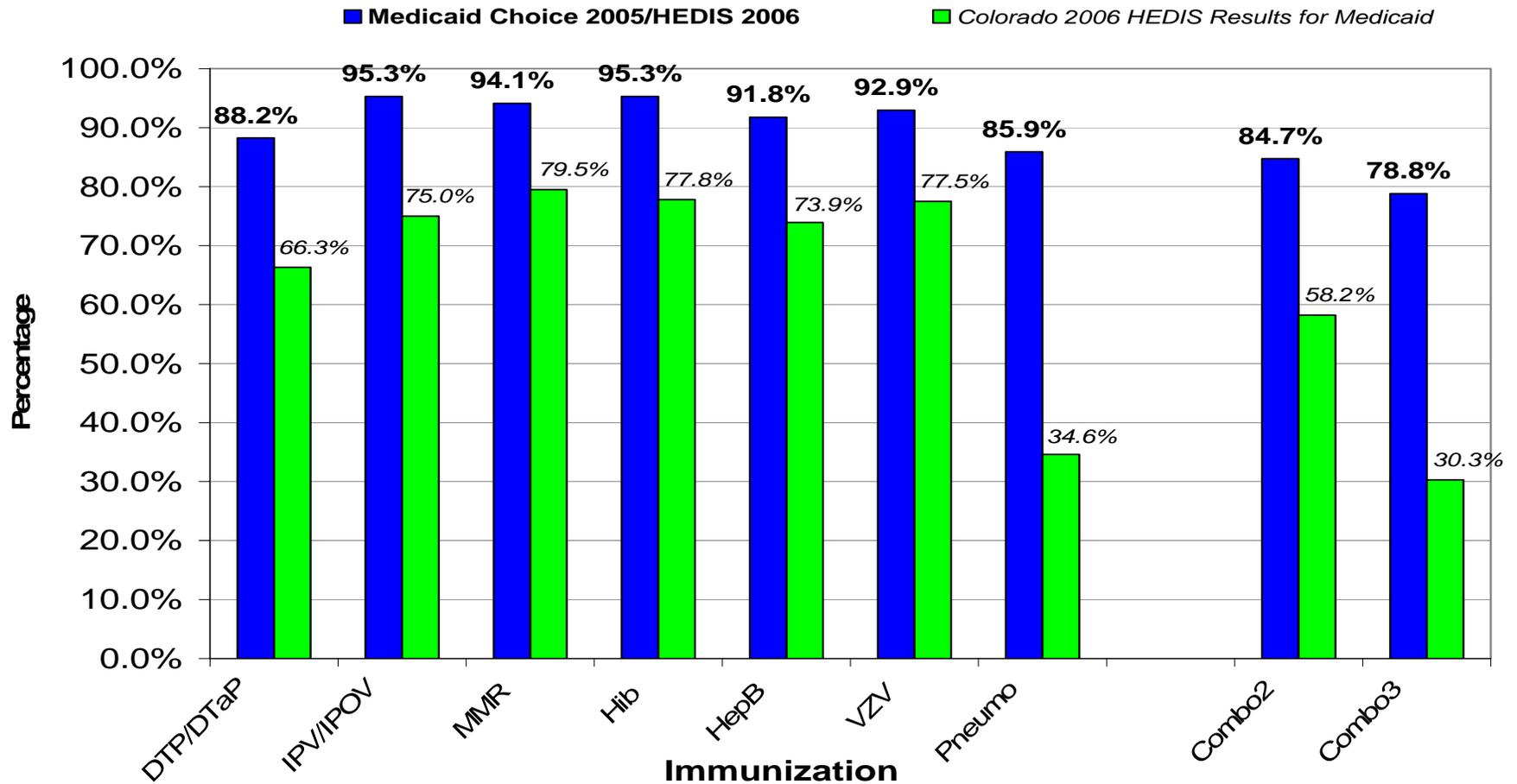
[Ref: DH MCD results are based on the 2005 HEDIS results; the NCQA 50th %ile is from State of Health Care Quality 2004;
Colorado data is from "2005 Colorado Medicaid, Reporting Year 2004. HEDIS Rates for All Health Plans." August 31, 2005.]



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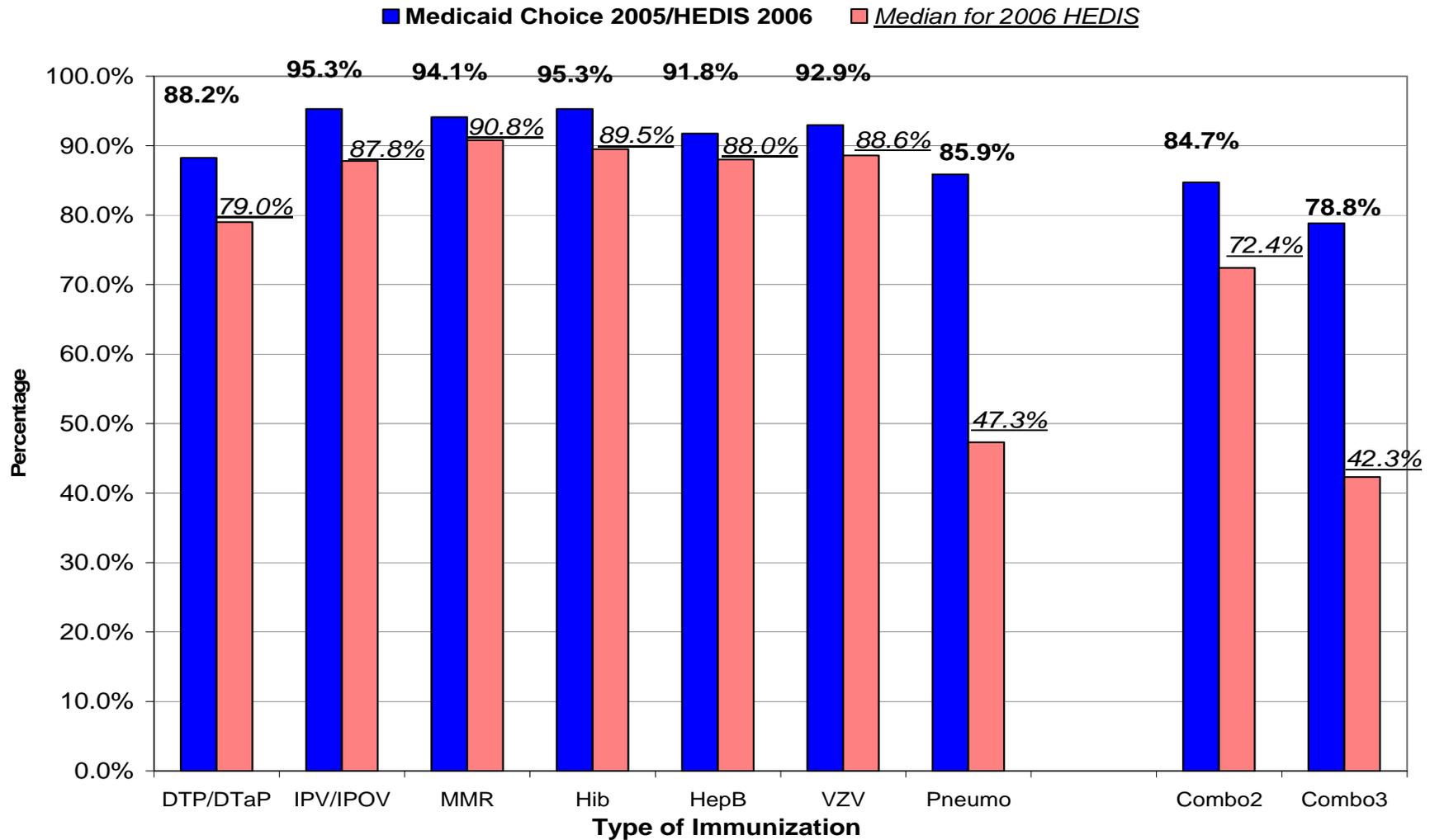
UPDATED GRAPHS USED FOR MAY 2006 PRESENTATION
(with updated COLORADO and NCQA Stats)

**2005 Medicaid Choice (2006 HEDIS) Immunization Rates
compared with Colorado State 2006 HEDIS Rates for 2 year olds**



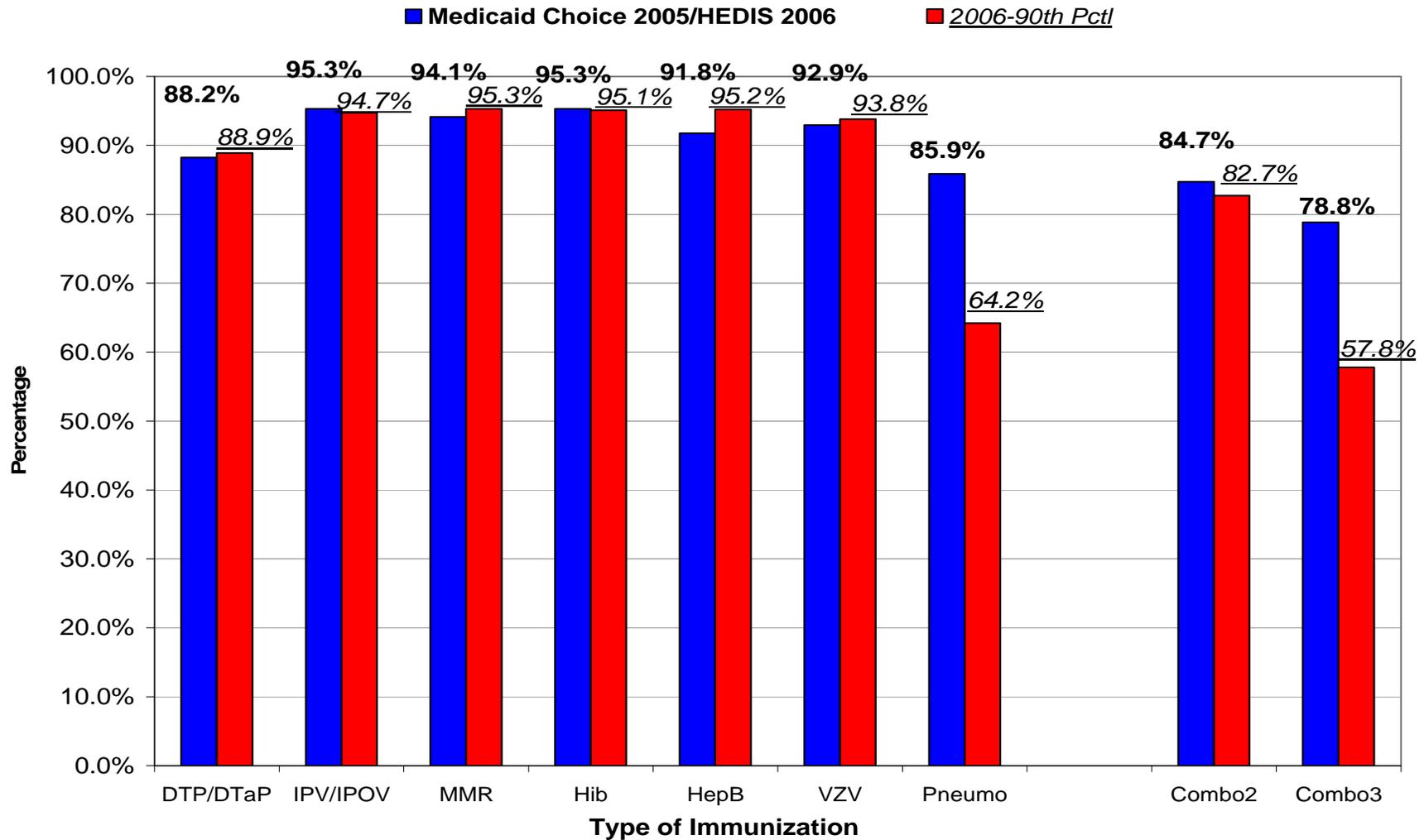
**Appendix A: Colorado 2008–2009 PIP Summary Form:
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2005 Medicaid Choice (2006 HEDIS) Immunization Rates for 2 year olds compared with the Median (50th Percentile) for 2006 HEDIS



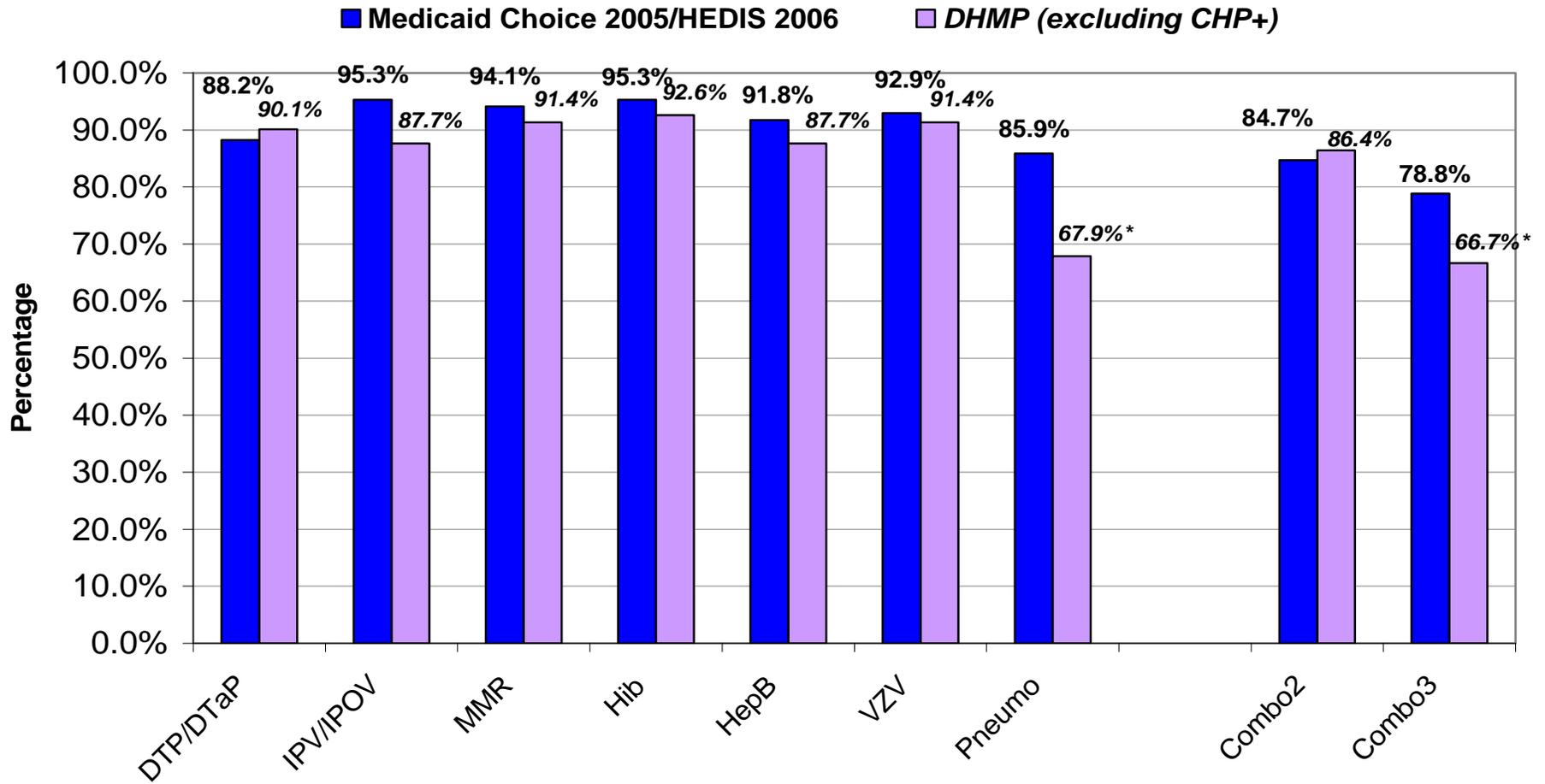
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2005 Medicaid Choice (2006 HEDIS) Immunization Rates for 2 year olds compared with the 90th Percentile for NCQA



**Appendix A: Colorado 2008–2009 PIP Summary Form:
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**2005 Medicaid Choice (2006 HEDIS) Immunization Rates for 2 year olds (N = 85)
compared with 2005 Immunization Rates for DHMP members (N =81)**

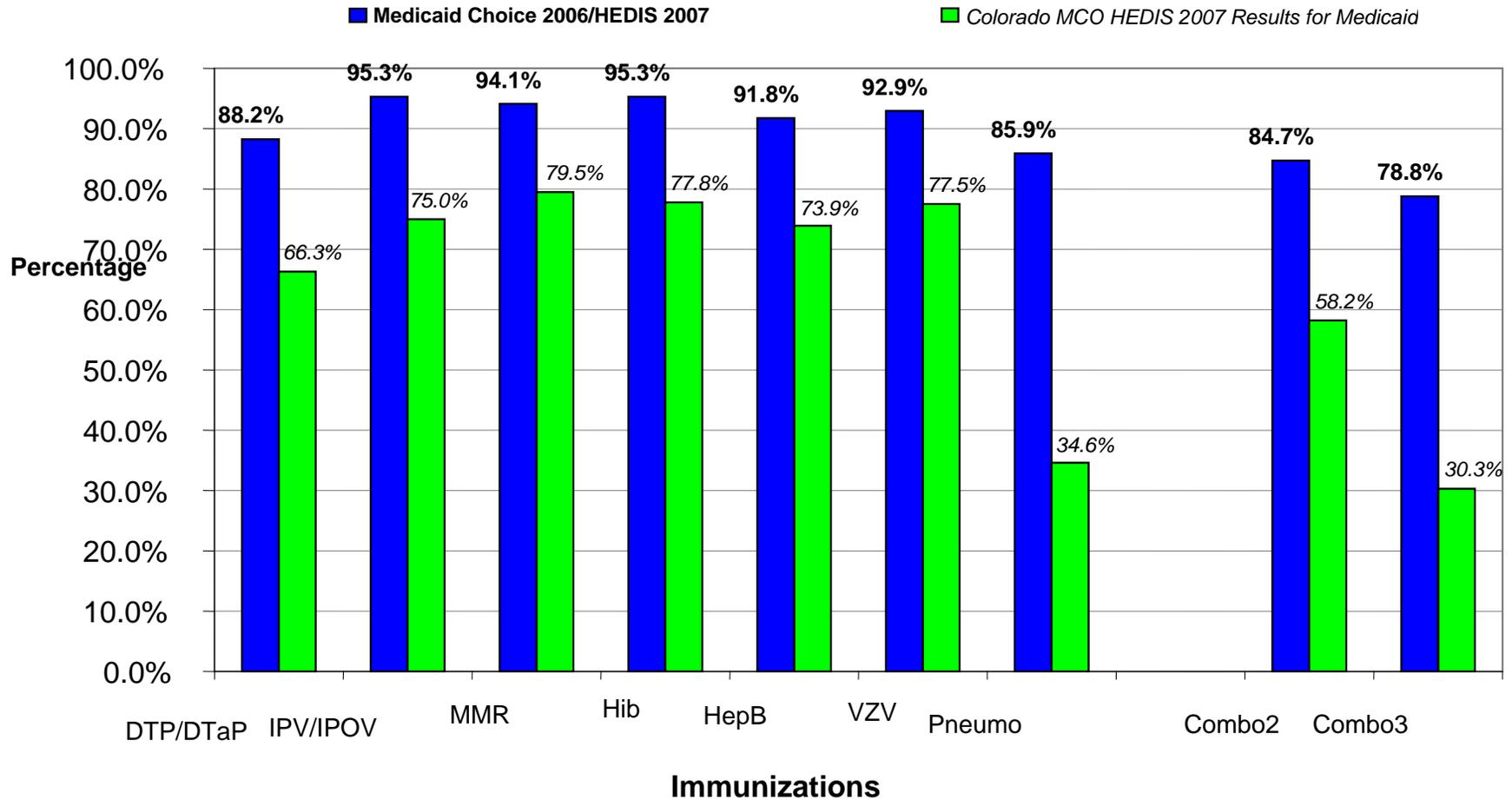


***NOTES:** Pneumo Chi-sq = 7.59, significantly different for $p = 0.05$. Combo 3 Chi-sq = 3.1, signif. diff. for $p = 0.1$ Remaining immunizations No significant difference documented.

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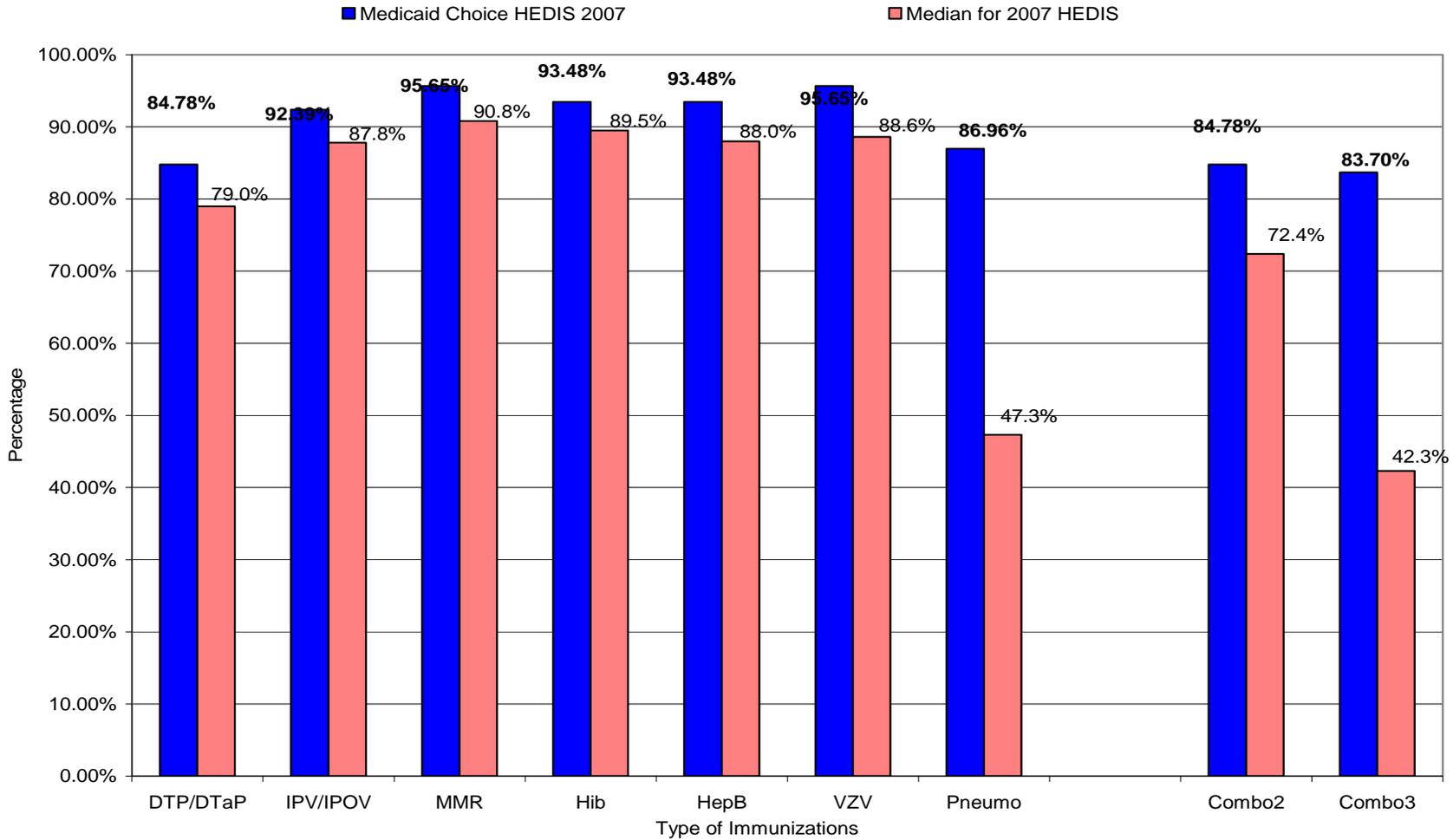
NEW : INTERVENTION 1. GRAPHS (HEDIS 2007 RESULTS- 2006 DATA)

(2007 HEDIS) DHMC Immunization Rates compared with 2007 HEDIS Medicaid Rates



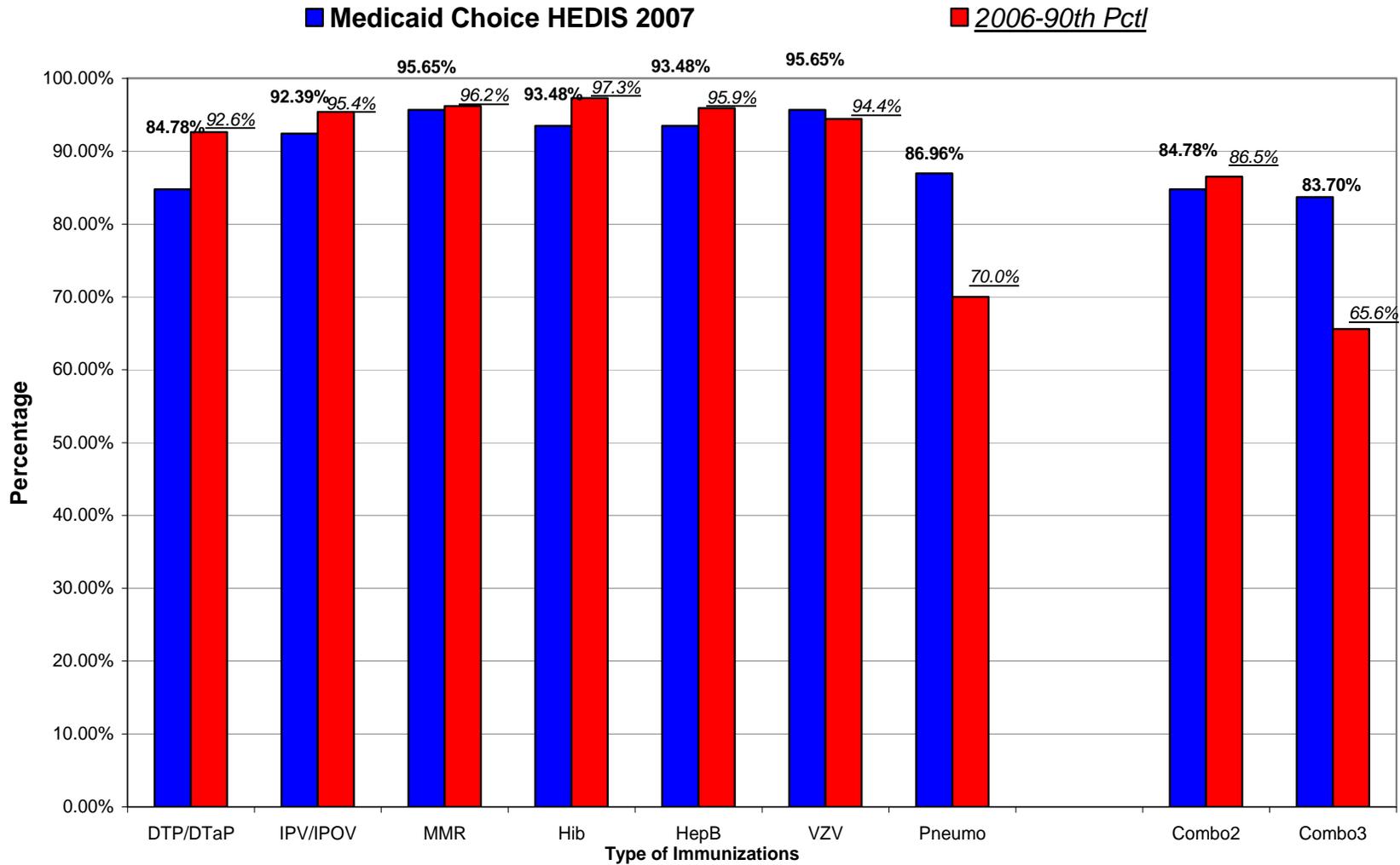
Appendix A: Colorado 2008–2009 PIP Summary Form: Childhood Immunization *for* Denver Health Medicaid Choice

NEW: 2006 Medicaid Choice (2007 HEDIS) Immunization Rates for 2 year olds compared with the Median (50th Percentile) for 2006 HEDIS



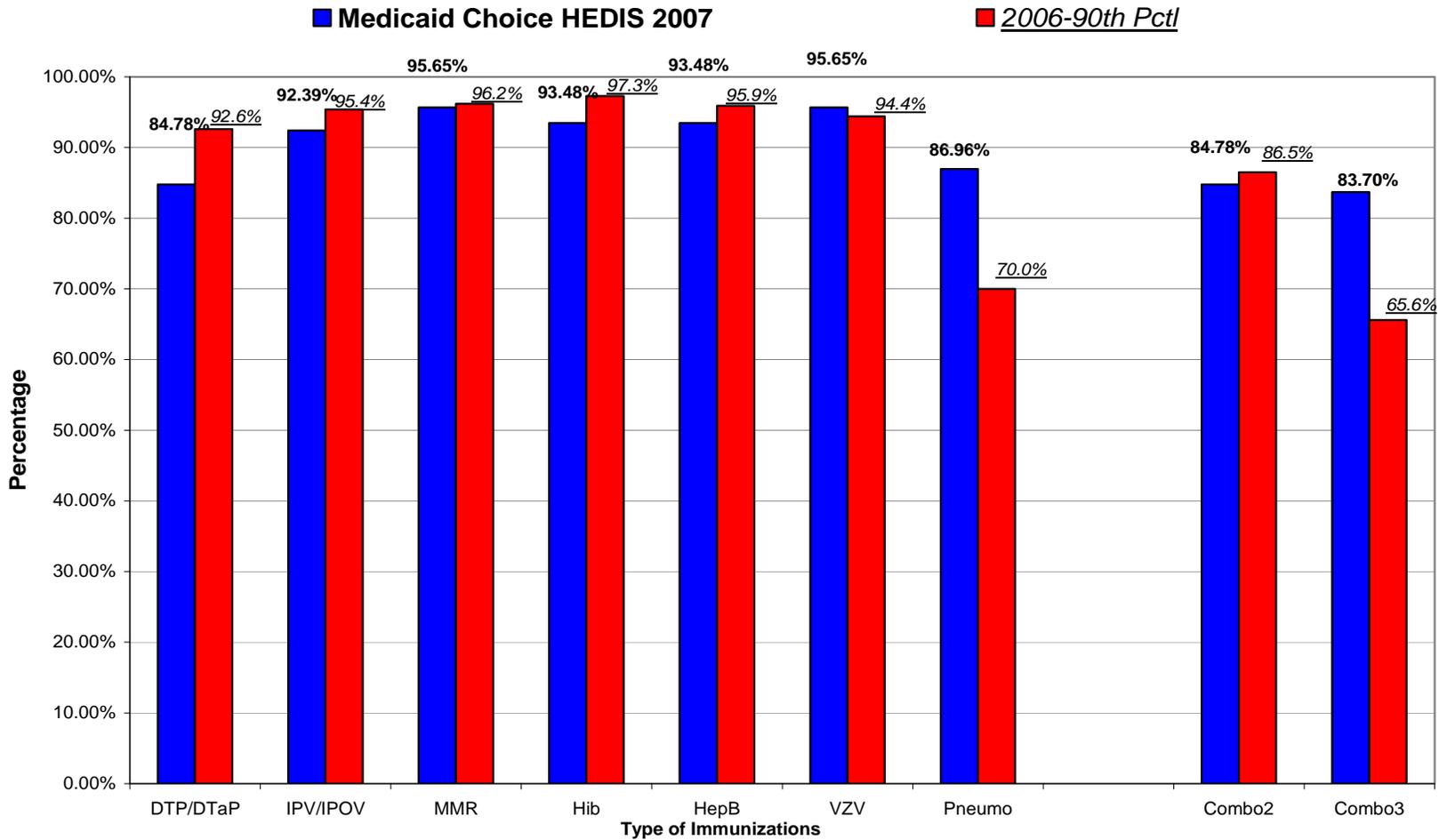
*Appendix A: Colorado 2008–2009 PIP Summary Form:
Childhood Immunization
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NEW: 2007 HEDIS(2006 Data) Immunization Rates for 2 year olds compared with the NCQA Medicaid 90th Percentile



**Appendix A: Colorado 2008–2009 PIP Summary Form:
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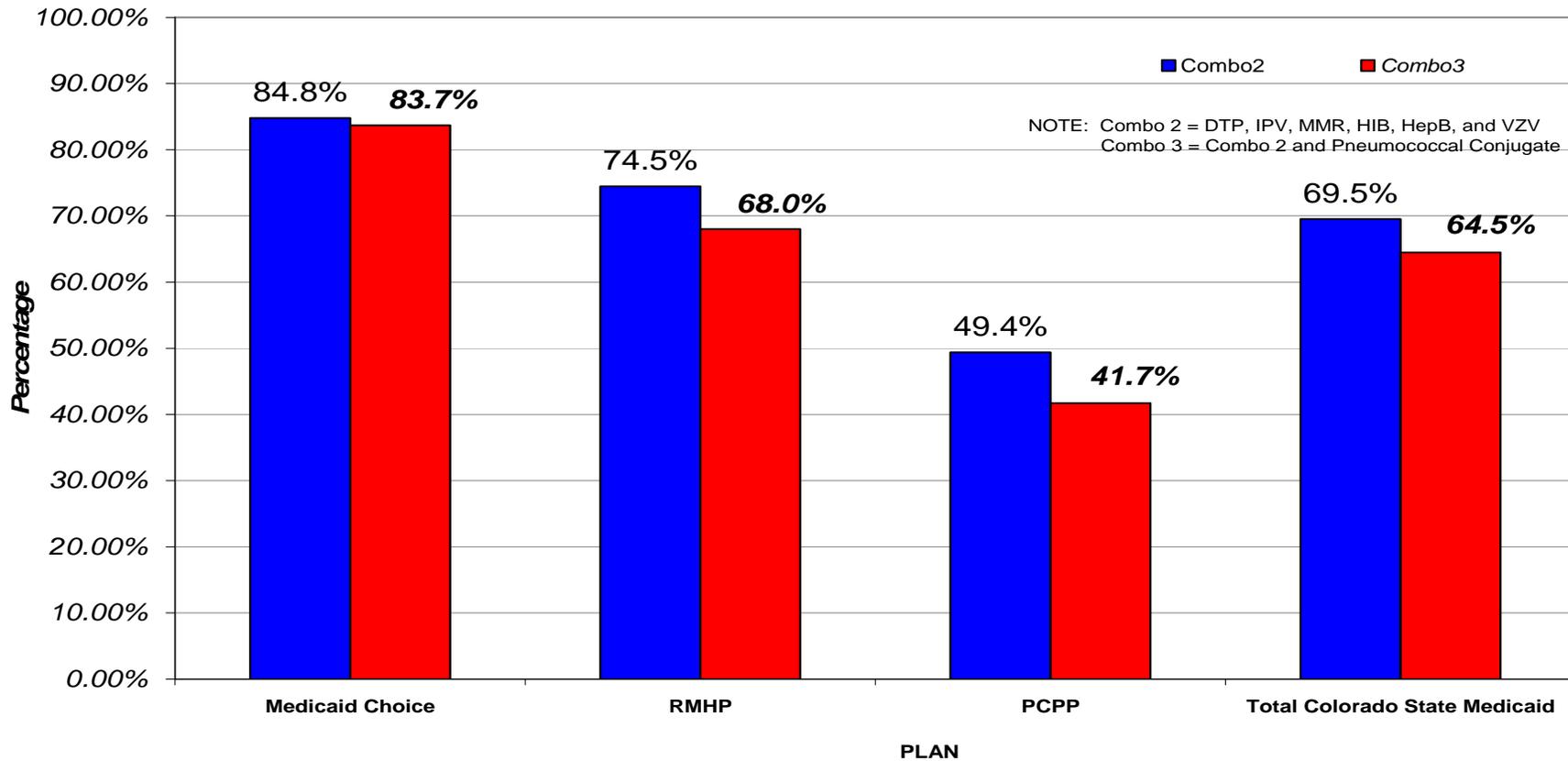
NEW: 2007 HEDIS(2006 Data) Immunization Rates for 2 year olds compared with the NCQA Medicaid 90th Percentile



Appendix A: Colorado 2008–2009 PIP Summary Form: Childhood Immunization for Denver Health Medicaid Choice

NEW: Comparison of Results between Colorado Medicaid Health Plans for the Immunization of Children turning 2 yo in 2006

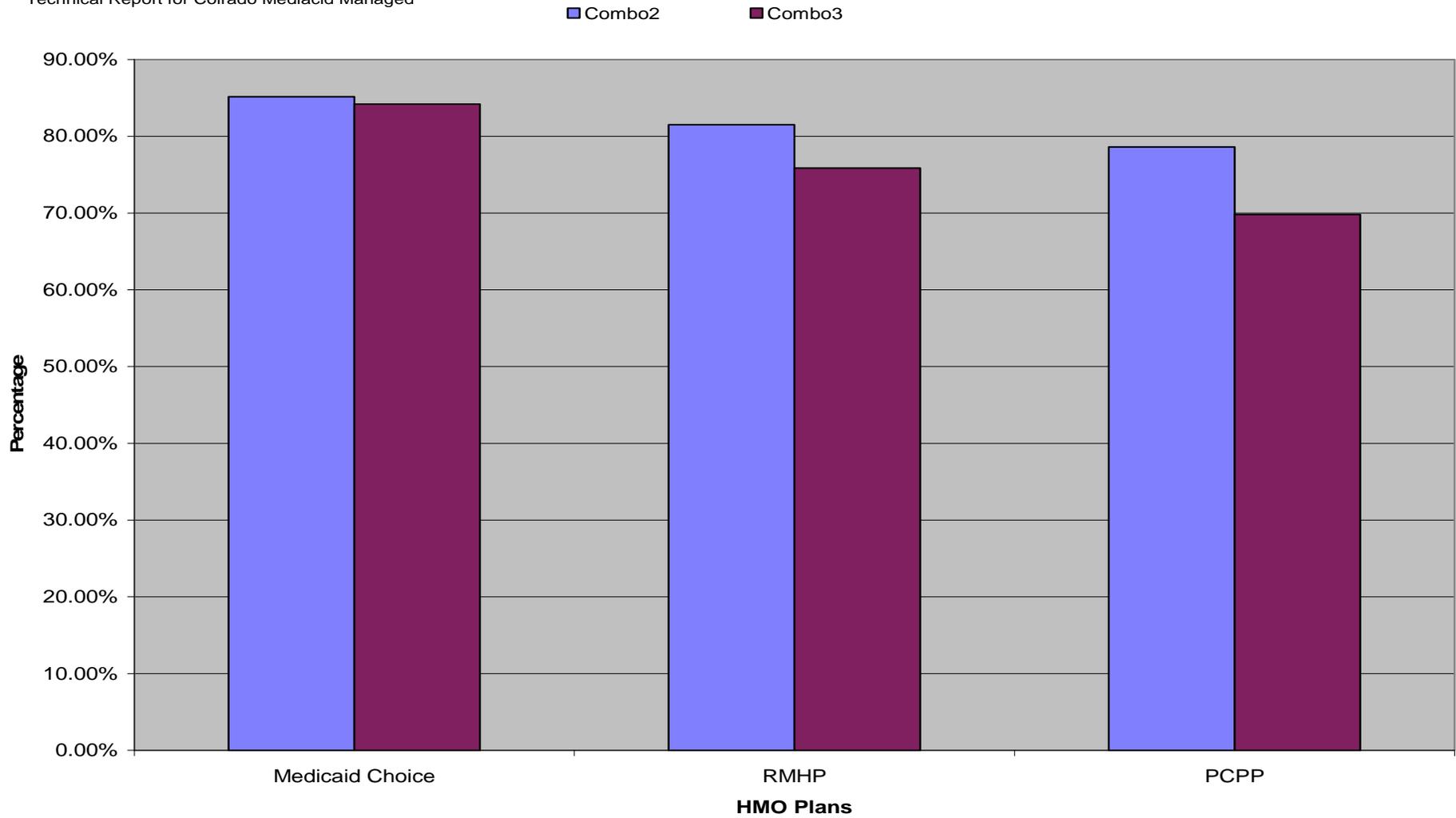
Source: HSAG 2006-2007 External Quality Review Technical Report for Colorado Medicaid Managed Care Reported September 2007.



Appendix A: Colorado 2008–2009 PIP Summary Form: Childhood Immunization *for* Denver Health Medicaid Choice

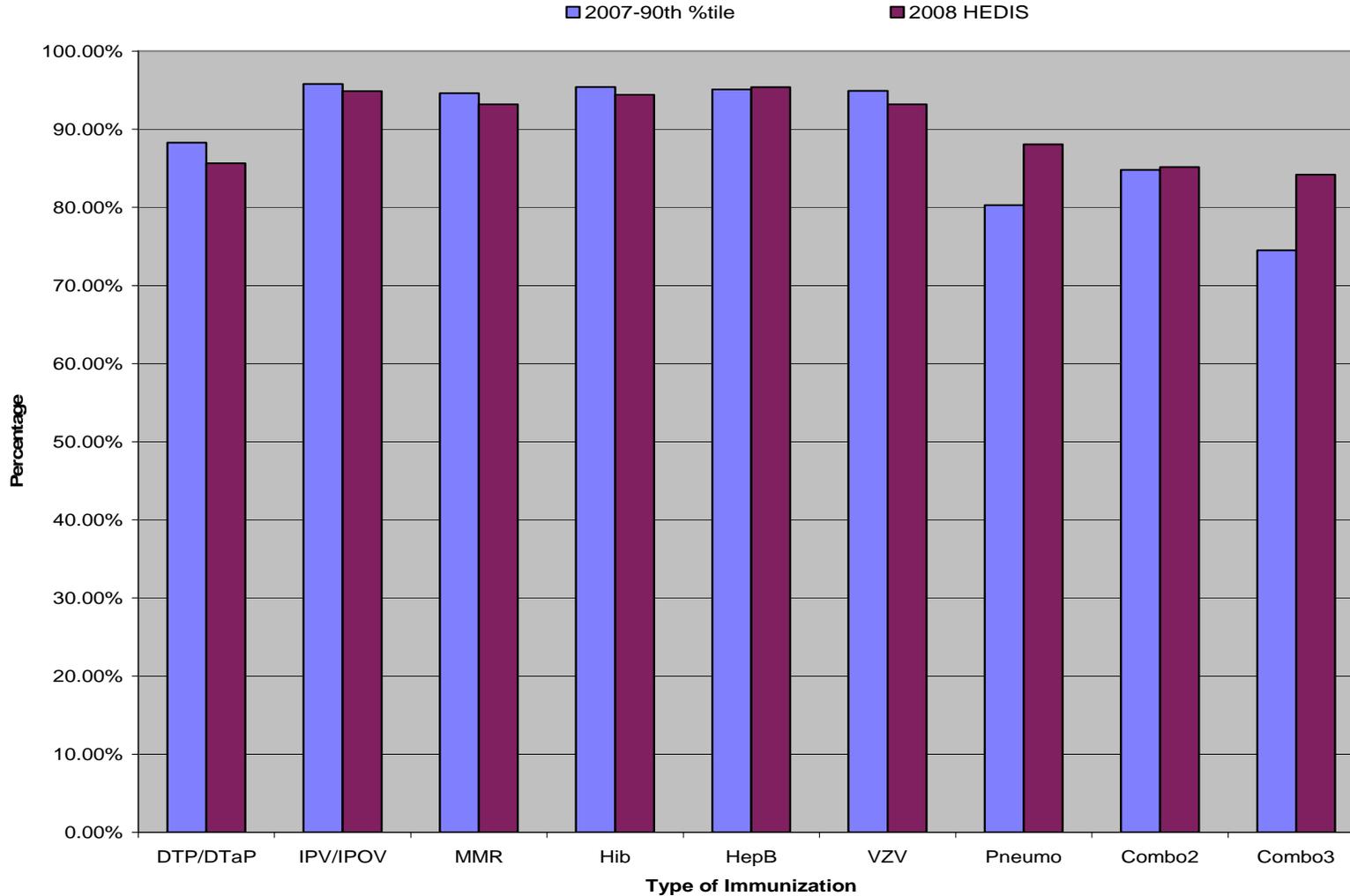
Comparison of Results between Colorado Medicaid Health Plans for the Immunization of Children turning 2 yo in 2007

Source: HSAG 2007-2008 External Quality Review
Technical Report for Colorado Medicaid Managed



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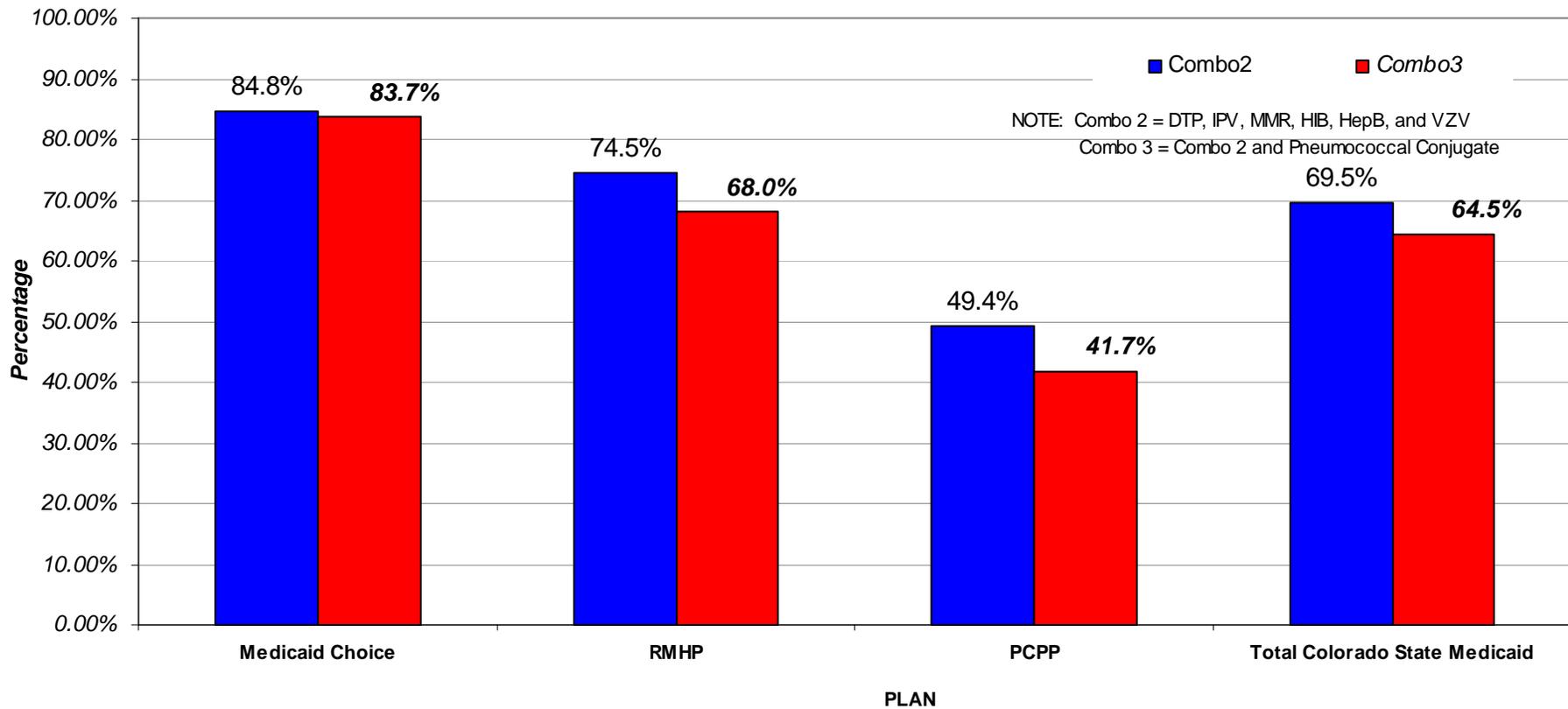
2007 Medicaid Choice (2008 HEDIS) Immunization Rates for 2 year olds (n=411) compared with the 90th Percentile for NCQA



**Appendix A: Colorado 2008–2009 PIP Summary Form:
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**NEW: Comparison of Results between Colorado Medicaid Health Plans
for the Immunization of Children turning 2 yo in 2006**

Source: HSAG 2006-2007 External Quality Review Technical Report for Colorado Medicaid Managed Care Reported September 2007.



Appendix A: Colorado 2008–2009 PIP Summary Form: Childhood Immunization for Denver Health Medicaid Choice

Abbreviations in Use for PIP

ATT or Att	Attachment (refers to supplementary attachments for PIP)
CIS	NCQA abbreviation for HEDIS topics called Childhood Immunizations Study.
CP	Chicken Pox; related abbrev. CPV = Chicken Pox Vaccine
DH	Denver Health, <i>i.e.</i> DH MCD = <i>Denver Health Medicaid Choice</i>
DTP or DTaP	DTP is colloquial reference to Diphtheria-Tetanus-Pertussis immunization/vaccine; from DTaP for Diphtheria and Tetanus Toxoids and Acellular Pertussis.
HepB	Hepatitis B immunization/vaccine
HIB or Hib	<i>Haemophilus influenzae</i> type B immunization/vaccine
IM	Information management
IPV	Inactivated Polio Virus immunization/vaccine
IRR	Interrater Reliability Review
IS	Information Systems (internal DH department)
LCR	Lifetime Clinical Records (clinically-accessed internal/DH medical records registry)
MCD	Medicaid Choice (<i>not to be interpreted as a referral to the general or statewide Medicaid program(s)</i>).
MMC	Medical Management Committee (for DHMC program implemented on January 2007)
MMR	Measles-Mumps-Rubella immunization/vaccine
MRI	Medical Records Imagery (Denver Health's Adobe *.pdf-based electronic library of patients' medical records)
NA or N/A	Not Applicable
PCP	Primary Care Provider
pctl	percentile
PCV7	generally used to refer to all Pneumococcal Conjugate shots or vaccines; more specifically: Pneumococcal Conjugate 7-Valent immunization/vaccine, <i>i.e.</i> Prevnar/TM
PCV	Pneumococcal Conjugate Vaccine
PIP	Performance Improvement Project
QA	Quality Assurance (primary use). Also: Quality Assessment; Qualitative Analysis.
QAC	Quality Assurance Committee (for DHMC program replaced by MMC on January 2007)
QI	Quality Improvement
QIA	Quality Improvement Activity
/TM	Trademark
TOC	Table of Contents (p.2 of PIP)
VZV	Varicella-zoster virus (refers to immunization/vaccine)
y/o, yo	year[s] old

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Proprietary Names / Terminology in PIP

AAP	American Academy of Pediatrics, Inc.
ACIP	Advisory Committee for Immunization Practices, Inc.
AHRQ	Agency for HealthCare Research and Quality, Federal agency/npa (see www.ahrq.gov/about/budgtix.htm).
CAHPS	Consumer Assessment of Healthcare Providers and Systems, refers to a standardized survey administered to members, by AHRQ
CDC	Centers for Disease Control and Prevention
CDPHE	Colorado Department of Public Health and Environment; source for CIIS database.
CDHCPF	Colorado Dept of Health Care Policy and Financing (a Colorado State program)
CHP or CHP+	Child Health Plan or Child Health Plan Plus (a Colorado state program)
CIIS	Colorado Immunization Information Systems (statewide CDPHE database)
Compass Navigator	TierMed’s HEDIS interface for data entry related to HEDIS studies; a data entry tool.
Compass Viewer	Tier Med final report viewing tool; used to review HEDIS reports and outcomes.
DHHA	Denver Health and Hospital Authority
DHMC	Denver Health Medicaid Choice (internal DH program)
DHMP	Denver Health Medical Plan, Inc.; employees’ health care program.
Diamond	Perot Systems/TM electronic data interchange platform; primary source for DH members data (see www.perotsystems.com).
EPSDT	Early and Periodic Screening Diagnosis and Treatment [statewide Medicaid-sponsored program]
FFS	Fee-For-Service, referring to related Medicaid program compared to DHMC
HCPF	Health Care Policy & Financing (agency)/Colorado Dept of Health Care Policy and Financing.
HEDIS	Health Employer Data Information Set (database); NCQA program.
HEDIS Help	QMark, Inc. program for Quality Assessment work (database tool)
HSAG	Health Services Advisory Group; special interest group in HCPF
Hybrid Help	QMark Software tool for Quality Assessment work (database tool used for data entry for Hybrid studies) [trademark name]; NCQA-certified.
NCQA	National Committee for Quality Assurance (agency/npa)
PCPP	Primary Care Physician Program (a Colorado Medicaid program compared to DHMC)
QMark	QMark Research and Polling; NCQA-certified company contracted for the 2004 and 2005 HEDIS studies for DHMC, results of which were used for Baseline 1 PIP report.
Tier Med	Tier Med Systems, LLC; NCQA-certified company contracted for the 2006 and 2007 HEDIS studies for DHMC, results of which were used for the 2005 to 2007 activities associated with Baseline 2 and Intervention PIP studies.
VaxTrax	A Denver Health Immunization Registry used to track Immunization and infectious disease history for individual members.
WIC	Special Supplemental Nutrition Program for Women, Infants and Children (USDA/CDPHE program)

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List of Attachments and Other Documents Submitted October 2007

(NOTE: Documents submitted in Oct. 2006 with previous PIP are not included in this report, unless attachment is deemed necessary)

page

*63	CHRONOLOGY	[UPDATED]
*69	TIMELINE FOR COMPLETION	[UPDATED]

ATTACHMENTS

70	ATT 1 Demography of Medicaid Choice and PIP Study Populations	[NEW]
76	ATT 2 Childhood Immunization Status (CIS) HEDIS 2006, 2007 Vol. 2. Technical Specifications	[UPDATED]
77	ATT 3a Chronology of Tier Med Data Submission/Inter Rater Reliability Process.	[Methodology change]
	<i>ATT 3b Compass Navigator Training Book (Tier Med Training Manual)</i>	[UNCHANGED]
	<i>ATT 3c Data Collection Tools. (Tier Med Data Entry Methodology)</i>	[UNCHANGED]
	<i>ATT 3d Tier Med Compass Navigator Guide</i>	[UNCHANGED]
	ATT 3e HEDIS 2007 Abstraction and Collection Process	[UPDATED]
	ATT 3f Tier Med Training Schedule	[UPDATED]
	ATT 3g Purpose Summary Data Collection Tools	[UPDATED]
82	<i>ATT 4 VAX TRAX (Documents not included in this PIP)</i>	[UNCHANGED]
83	<i>ATT 5 Colorado Immunization Information System (CIIS) (Not included in this PIP)</i>	[UNCHANGED]
84	<i>ATT 6 Medical Records Imagery (Not included in this PIP)</i>	[UNCHANGED]
85	ATT 7a 2007 HEDIS TRAINING (Internal)	[NEW]
	ATT 7b Summary of Inter Rater Reliability	[UPDATED]
	ATT 7c Data Completeness – claims lag report	[UPDATED]
101	ATT 8 HEDIS Audit Report; 2007 HEDIS Review	[UPDATED]
104	ATT 9 Excel Spreadsheet for use in Calculating Chi-Squared	[UPDATED]
107	ATT 10 Final immunization rates for 2007	[UPDATED]
109	ATT 11 QAC/Medical Management Committee Meeting Minutes (incl. Handouts, Notes)	[UPDATED]
120	<i>ATT 12 Preliminary Review of Baseline 1 Data (Not included in this PIP)</i>	[UNCHANGED]
121	<i>ATT 13 Intervention Activities Flowcharts</i>	[UNCHANGED]
122	ATT 14 PIP Intervention Activities	[UPDATED]



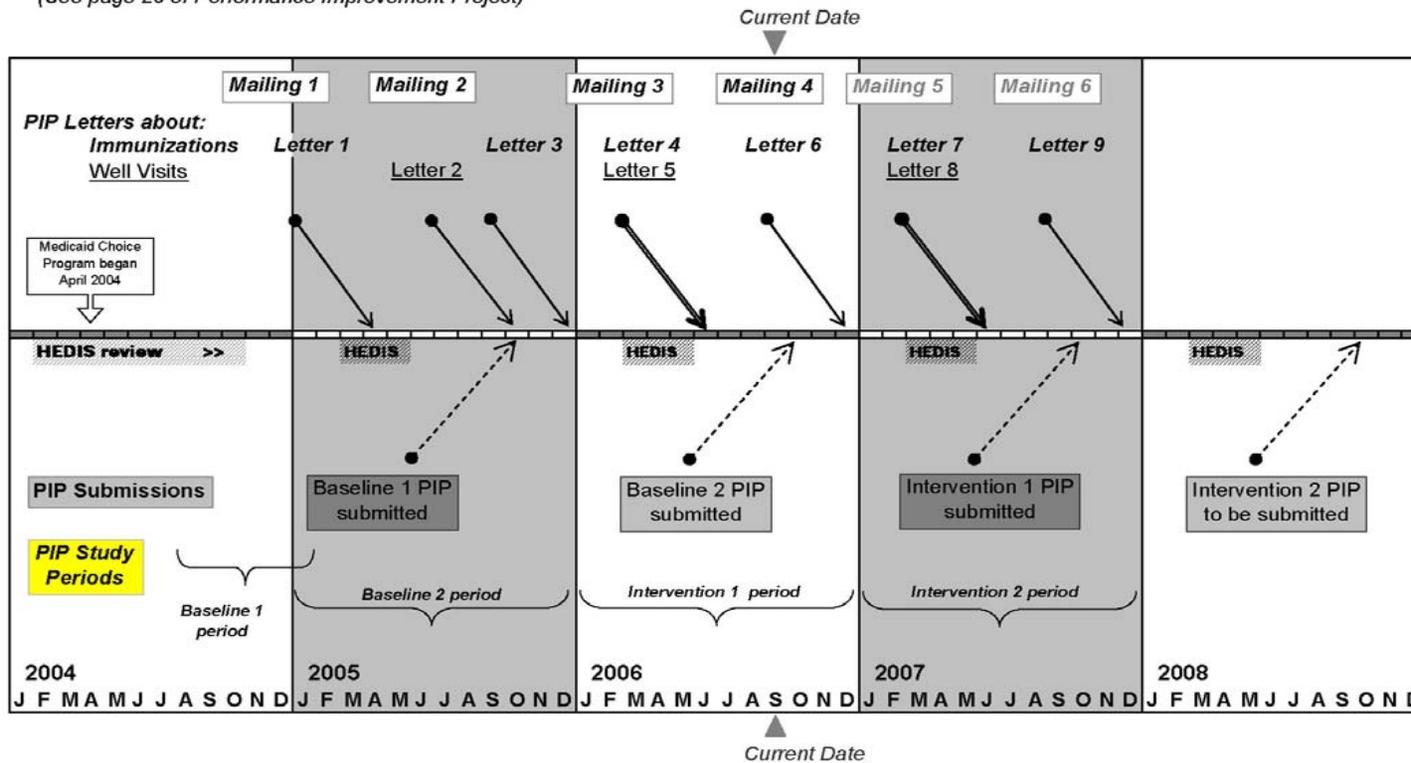
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192	ATT 15	Denver Health System-related Intervention Activities Includes: List of Internal Activities, with following examples or descriptions attached: Member Services, Clinic mailings [263], EPSDT activities[265], VaxTrax [270], CHP+ [271], WIC, Best Babies, Head Start program [275], and Milestone Booklet email [278].	[UNCHANGED] [UPDATED]
193	ATT 16	<i>Opt Out Issues (Not included; no members were excluded from the 2005 HEDIS or PIP study)</i>	[UNCHANGED]

Chronology

Appendix A: Colorado 2008–2009 PIP Summary Form: Childhood Immunization for Denver Health Medicaid Choice

Childhood Immunization PIP Events (See page 26 of Performance Improvement Project)



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Childhood Immunization PIP Events - 2 (September 2007)

(See pages 30-31 of Performance Improvement Project)

