

# HAB HIV Performance Measures: Pediatrics



<b>Pediatric Performance Measure: Adherence Assessment &amp; Counseling</b>																					
Percentage of pediatric patients <sup>1</sup> with HIV infection on ARVs who were assessed and counseled <sup>2,3</sup> for adherence two or more times in the measurement year																					
<b>Numerator:</b>	Number of HIV-infected pediatric patients, as part of their primary care, who were assessed and counseled for adherence two or more times at least three months apart																				
<b>Denominator:</b>	Number of HIV-infected pediatric patients on ARV therapy who had a medical visit with a provider with prescribing privileges <sup>4</sup> at least once in the measurement year																				
<b>Patient Exclusions:</b>	<ol style="list-style-type: none"> <li>1. Patients newly enrolled in care during last six months of the year</li> <li>2. Patients who initiated ARV therapy during last six months of the year</li> </ol>																				
<b>Data Element:</b>	<ol style="list-style-type: none"> <li>1. Is the pediatric patient HIV-infected? (Y/N)               <ol style="list-style-type: none"> <li>a. If yes, was the patient seen by a provider with prescribing privileges during the measurement year?                   <ol style="list-style-type: none"> <li>i. If yes, was the patient on ARVs?(Y/N)                       <ol style="list-style-type: none"> <li>1. If the patient was on ARVs, did the patient and/or the parent/guardian (as appropriate) receive adherence counseling during the measurement year? (Y/N).                           <ol style="list-style-type: none"> <li>a. If yes, list the dates of these visits.</li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol>																				
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker, or other electronic data base</li> <li>• HIVQUAL reports on this measure for grantee under review</li> <li>• Medical record data abstraction by grantee of a sample of records</li> </ul>																				
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	HIVQUAL-US Performance Data for adults/adolescents: <sup>5</sup> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Top 10%</td> <td>92.0%</td> <td>97.5%</td> <td>98.4%</td> <td>90.4%</td> </tr> <tr> <td>Top 25%</td> <td>79.2%</td> <td>88.3%</td> <td>91.6%</td> <td>NA</td> </tr> <tr> <td>Mean*</td> <td>39.7%</td> <td>46.8%</td> <td>55.7%</td> <td>46.9%</td> </tr> </tbody> </table> <p><small>*from HAB data base</small></p>		2004	2005	2006	2007	Top 10%	92.0%	97.5%	98.4%	90.4%	Top 25%	79.2%	88.3%	91.6%	NA	Mean*	39.7%	46.8%	55.7%	46.9%
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<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Percent of undetectable viral loads among patients on ARV in the measurement year</li> <li>• Percent of patients with ARV-resistance developed during therapy in the measurement year</li> <li>• Mortality rates</li> <li>• Incidence of HIV-related hospitalizations in the clinic population</li> <li>• Incidence of patients with progression to AIDS in the clinic population</li> </ul>																				
<b>Basis for Selection:</b>																					
Medication adherence to antiretroviral therapy has been strongly correlated with HIV viral suppression, reduced rates of resistance, an increase in survival and improved quality of life. <sup>6,7</sup> Evidence indicates that adherence problems occur frequently in children and adolescents with some studies reporting fewer than 50% of children and/or caretakers reporting full adherence to their regimens. <sup>7</sup>																					
Infants and young children are dependent on others for administration of medication, thus assessment																					

# HAB HIV Performance Measures: Pediatrics

requires evaluation of the caregivers as well as the ability and willingness of the child to take the medications.<sup>7</sup>

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Although discussions of the importance of adherence to ARVs is important to begin prior to initiation of treatment, there is no standard of care for discussions to occur every 6 months for patients who may be years away from ARV treatment.

## **US Public Health Guidelines:**

Strategies to maximize adherence should be discussed prior to initiation of antiretroviral therapy and again at the time of changing regimens. Adherence to therapy must be stressed at each visit, along with continued exploration of strategies to maintain and/or improve adherence.<sup>6</sup>

## **References/Notes:**

<sup>1</sup>Pediatric patient includes any patient younger than 13 years.

<sup>2</sup>Assessment of adherence includes: 1) patient reports of adherence by: a) quantifiable scales, e.g. missed 3 out of 10 doses; b) qualitative scale, e.g. Likert scale; or 2) quantification such as pharmacy dispensing records, pill counts or direct observation therapy.

<sup>3</sup>Adherence counseling can be provided to the patient and/or the parent/guardian as appropriate by any member of the multidisciplinary primary care team.

<sup>4</sup>A “provider with prescribing privileges” is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

<sup>5</sup>HIVQUAL Indicator: Adherence assessed at least once during the review period.

Available at: <http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf>.

<sup>6</sup>DHHS Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents. December 1, 2009. Available at <http://aidsinfo.nih.gov/contentfiles/AdultandAdolescentGL.pdf>. Accessed June 9, 2010, pp. 111-113.

<sup>7</sup>Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. February 23, 2009; pp 1-139. Available at <http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed December 20, 2009, pp.13-15; 61-62.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: ARV Therapy</b>	
Percentage of pediatric patients <sup>1</sup> with HIV infection who met age-specific eligibility criteria <sup>2</sup> were prescribed ARV therapy during the measurement year	
<b>Numerator:</b>	Number of HIV-infected pediatric patients who were prescribed ARV therapy
<b>Denominator:</b>	<p>Number of HIV-infected pediatric patients who:</p> <ul style="list-style-type: none"> <li>had a medical visit with a provider with prescribing privileges<sup>3</sup> at least once in the measurement year;</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>met the following age-specific eligibility criteria<sup>2</sup>: <ul style="list-style-type: none"> <li>&lt;12 mos. = All HIV-infected pediatric patients</li> <li>1 to &lt;5 yrs = AIDS or significant HIV-related symptoms; or CD4 &lt;25% regardless of symptoms or HIV RNA level</li> <li>≥5 yrs = AIDS or significant HIV-related symptoms; or CD4&lt;350 cells/mm<sup>3</sup>;</li> </ul> </li> <li>OR, are currently on ARV therapy</li> </ul>
<b>Patient Exclusions:</b>	1. Patients newly enrolled in care during last four months of the measurement year
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>Is the pediatric patient HIV-infected? (Y/N) <ol style="list-style-type: none"> <li>If yes, was the patient seen by a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>If yes, did the patient meet the eligibility criteria for ARV therapy? (Y/N) <ol style="list-style-type: none"> <li>If yes, was the patient prescribed ARV therapy? (Y/N)</li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>Electronic Medical Record/Electronic Health Record</li> <li>CAREWare, Lab Tracker or other electronic data base</li> <li>Medical record data abstraction by grantee of a sample of records</li> <li>Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>Rate of opportunistic infections in the clinic population</li> <li>Rate of HIV-related hospitalizations in the clinic population</li> <li>HIV-related mortality rates</li> <li>CD4 values</li> </ul>
<b>Basis for Selection:</b>	
Recommendations for initiating therapy have been more aggressive in children than adults for several	

# HAB HIV Performance Measures: Pediatrics

reasons: 1) HIV disease progression in children is more rapid than in adults; and 2) laboratory parameters are less predictive of risk of disease progression.<sup>2</sup> Because CD4 count and HIV RNA values and risk of disease progression vary considerably by age in children, recommendations for when to start therapy differs by age of the child.

The measure reflects important aspects of care that significantly reduces morbidity and mortality. The measure has a strong evidence base supporting the use.

## **US Public Health Guidelines:**

Working Group Recommendations (Table 2):

“Initiation of antiretroviral therapy is recommended for infants aged <12 months, regardless of clinical status, CD4 percentage or viral load. Based on data showing that surrogate marker-based risk of progression varies considerably by age but that CD4 count-associated risk of progression in children age 5 years or older is similar to young adults, the Working Group has moved to recommendations for three age bands for initiation of treatment: infants under age 12 months, children age 1-<5 years, and children and adolescents  $\geq$  5 years.”<sup>2</sup>

## **References/Notes:**

<sup>1</sup> “Pediatric patients” includes all patients younger than 13 years.

<sup>2</sup> Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. February 23, 2009. Available at <http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed December 20, 2009, pp. 24-29.

<sup>3</sup> A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: CD4 Value</b>	
Percentage of pediatric patients <sup>1</sup> with HIV infection who had at least three (3) CD4 values <sup>2</sup> performed in the measurement year	
<b>Numerator:</b>	Number of HIV-infected pediatric patients who had three or more CD4 values performed at least three months apart during the measurement year
<b>Denominator:</b>	Number of HIV-infected pediatric patients who had a medical visit with a provider with prescribing privileges <sup>3</sup> at least once in the measurement year
<b>Patient Exclusions:</b>	1. Pediatric patients with HIV infection newly enrolled in care during the last nine months of the measurement year
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Is the pediatric patient HIV-infected? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, was the patient seen by a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, did the patient have three or more CD4 values performed at least three months apart during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>1. If yes, list the dates the specimens were obtained.</li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker or other electronic data base</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Rate of opportunistic infections in the clinic population</li> <li>• Rate of HIV-related mortality in the clinic population</li> </ul>
<b>Basis for Selection:</b>	
<p>The CD4 count and percentage decline as HIV infection progresses. Patients with lower CD4 values have poorer prognosis than patients with higher values. CD4 values should be monitored every 3-4 months with increased frequency if clinical, immunological or virologic deterioration is suspected.<sup>4</sup></p> <p>The measure reflects important aspects of care that significantly impacts survival and mortality. Data collection is currently feasible and measure has a strong evidence base supporting the use.</p>	
<b>US Public Health Guidelines:</b>	
<p>“In HIV-infected children...the CD4 count and percentage decline as HIV infection progresses, and patients with lower CD4 values have a poorer prognosis than patients with higher values. CD4 values should be obtained as soon as possible after a child has a positive test for HIV and every 3–4 months thereafter. Increased frequency of evaluations may be needed for children with suspected clinical, immunologic, or</p>	

## HAB HIV Performance Measures: Pediatrics

virologic deterioration; to confirm an abnormal value; or when initiating or changing therapy.

### References/Notes:

<sup>1</sup> “Pediatric patients” includes all patients younger than 13 years.

<sup>2</sup> “CD4 values” includes CD4 T-cell counts and CD4 percentages. CD4 percentages are recommended for children < 5 years of age and absolute CD4 counts for children ≥ 5 years of age.<sup>4</sup>

<sup>3</sup> A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.

<sup>4</sup> Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. February 23, 2009. Available at <http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed December 20, 2009, pp. 13-17.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: Developmental Surveillance</b>	
Percentage of HIV- infected or exposed pediatric patients <sup>1</sup> who had developmental surveillance <sup>2</sup> documented <sup>3</sup> in the measurement year	
<b>Numerator:</b>	Number of HIV-infected or exposed pediatric patients who had developmental surveillance documented in the measurement year
<b>Denominator:</b>	Number of HIV-infected or exposed pediatric patients who had a medical visit with provider with prescribing privileges <sup>4</sup> at least once in the measurement year
<b>Patient Exclusions:</b>	None
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Is the pediatric patient HIV-infected or exposed? (Y/N)               <ol style="list-style-type: none"> <li>a. If yes, was the patient seen by a provider with prescribing privileges during the measurement year? (Y/N)                   <ol style="list-style-type: none"> <li>i. If yes, was developmental surveillance documented in the measurement year? (Y/N)                       <ol style="list-style-type: none"> <li>1. If yes, list the date.</li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Rate of developmental delays in clinic population</li> <li>• Rate of appropriate grade level in comparison to chronological age</li> <li>• Rate of referrals for intervention for developmental or educational problems</li> <li>• Mean age of diagnosis of developmental problems</li> </ul>
<b>Basis for Selection:</b>	
<p>Developmental delays in HIV- infected and exposed children are more prevalent than in the general population. One study showed that clinically and immunologically stable HIV-infected children had more frequent behavioral problems and lower developmental and cognitive scores than established childhood norms.<sup>5</sup></p> <p>Early identification of developmental disorders is critical to the well-being of children and their families. The American Academy of Pediatrics' policy statement recommends that developmental surveillance be performed at each medical care encounter and screening tests be administered regularly at 9-, 18- and 30-month visits.<sup>6</sup> Children diagnosed with developmental disorders should be identified as children with special health care needs and chronic-condition management should be initiated.</p>	

# HAB HIV Performance Measures: Pediatrics

<b>US Public Health Guidelines:</b>
None
<b>References/Notes:</b>
<p><sup>1</sup> “Pediatric patients” includes all patients younger than 13 years.</p> <p><sup>2</sup> According to the AAP<sup>6</sup>, developmental surveillance is the process of recognizing children who may be at risk of developmental delays. Developmental surveillance should be age appropriate. For children &lt; 5 years, surveillance should focus on the four spheres of development: 1) fine motor skills; 2) gross motor skills; 3) language development; and 4) social skills. For children ≥ 5 years, surveillance should have an education focus. Screening refers to the use of standardized tools to identify and refine the recognized risk. Evaluation is a complex process aimed at identifying specific developmental disorders that are affecting a child.</p> <p><sup>3</sup> Developmental surveillance must be documented in the health record as performed by any provider caring for the child. If developmental delay is suspected, further examination with a validated developmental screening tool is indicated. For the purposes of this measure, any developmental screening or evaluation efforts count for surveillance.</p> <p><sup>4</sup> A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.</p> <p><sup>5</sup> Nozyce, M. et al. A Behavioral and Cognitive Profile of Clinically Stable HIV-Infected Children. <u>Pediatrics</u> 2006;117: 763-770.</p> <p><sup>6</sup> American Academy of Pediatrics. Identifying Infants and young children with developmental disorders in the medical home: An algorithm for development surveillance and screening. <u>Pediatrics</u> 2006; 118: 405-420.</p>

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: Diagnostic Testing to Exclude HIV Infection in Exposed Infants</b>	
Percentage of exposed infants <sup>1</sup> born to HIV-infected women who received recommended virologic diagnostic testing <sup>2</sup> for exclusion of HIV infection in the measurement year	
<b>Numerator:</b>	Number of HIV-perinatally exposed infants who had at least two virologic diagnostic tests performed at appropriate time points <sup>2</sup> by age of six months to definitively exclude HIV infection
<b>Denominator:</b>	Number of HIV-perinatally exposed infants who: <ul style="list-style-type: none"> <li>• were 6-12 months of age at any point in the measurement year; and</li> <li>• who had a medical visit with a provider with prescribing privileges<sup>3</sup> at least once in the measurement year</li> </ul>
<b>Patient Exclusions:</b>	<ol style="list-style-type: none"> <li>1. Patients who were newly enrolled after six months of age</li> <li>2. Patients diagnosed with HIV infection</li> </ol>
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Was the patient 6-12 months of age at any point in the measurement year? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, was the infant born to an HIV-infected woman? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, was the patient seen by a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>1. If yes, did the infant have documentation of receiving at least two virologic diagnostic tests at recommended time points<sup>2</sup> to definitively exclude HIV infection? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, list dates.</li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker or other electronic data base</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Median age of diagnosis of HIV infection</li> <li>• Median age of exclusion of HIV infection</li> <li>• Rate of opportunistic infections among clinic population</li> </ul>
<b>Basis for Selection:</b>	
HIV virologic testing should be performed at a minimum at ages 14-21 days, 1-2 months and 4-6 months.	
Antibiotic prophylaxis against PCP is recommended for infants with indeterminate HIV infection starting at 4-6 weeks of life or until they are determined to be uninfected. Diagnostic testing allows PCP prophylaxis to	

# HAB HIV Performance Measures: Pediatrics

be avoided or stopped if confirmed uninfected.<sup>4</sup>

## **US Public Health Guidelines:**

“HIV infection should be diagnosed using HIV DNA PCR or RNA virologic assays. Maternal HIV antibody crosses the placenta and will be detectable in all HIV-exposed infants up to 18 months of age; therefore standard antibody tests should not be used for HIV diagnosis in newborns. HIV virologic testing should be performed at a minimum at ages 14–21 days, 1–2 months, and 4–6 months. Some experts also perform a virologic test at birth, especially if the woman has not had good virologic control during pregnancy or if adequate follow-up of the infant may not be assured. A positive HIV virologic test should be confirmed as soon as possible with a second HIV virologic test on a different specimen. Two positive HIV tests constitute a diagnosis of HIV infection.<sup>4</sup>

Definitive exclusion of HIV infection in nonbreastfed infants may be based on two negative virologic tests at  $\geq 1$  month and  $\geq 4$  months of age.<sup>4</sup>

## **References/Notes:**

<sup>1</sup> For the purposes of this measure “infants” includes all patients 6-12 months of age.

<sup>2</sup> *Definitive* exclusion of HIV infection in a nonbreastfed infant is based on two or more negative virologic tests, with one obtained at age  $\geq 1$  month and one at  $\geq 4$  months.

<sup>3</sup> A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.

<sup>4</sup> Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. May 24, 2010; pp 1-117. Available at <http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed December 20, 2009, pp. 111-113.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: Health Care Transition Planning for HIV-infected Youth</b>	
Percentage of adolescents <sup>1</sup> with HIV infection who had a discussion about health care transition planning documented <sup>2</sup> in the health record in the measurement year	
<b>Numerator:</b>	Number of HIV-infected adolescents who had a discussion about health care transition planning documented in the health record in measurement year
<b>Denominator:</b>	Number of HIV-infected adolescents who: <ul style="list-style-type: none"> <li>• were <math>\geq 17</math> years old in the measurement year, and</li> <li>• had a medical visit with a provider with prescribing privileges<sup>3</sup> at least once in the measurement year</li> </ul>
<b>Patient Exclusions:</b>	1. Adolescents who were newly diagnosed with HIV infection in the measurement year
<b>Data Elements:</b>	1. Is the adolescent HIV-infected? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, is the adolescent <math>\geq 17</math> years (Y/N) <ol style="list-style-type: none"> <li>i. If yes, was the patient seen by a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>1. If yes, is a discussion about health care transition documented in the health record in the measurement year? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, list the date</li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• Medical record data abstraction by grantee of a sample of records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Retention in care after transition from pediatric/adolescent program to adult care</li> </ul>
<b>Basis for Selection:</b>	
According to the Society for Adolescent Medicine, transitional health programs should be prepared to address common concerns of young people. Transition programs should be flexible enough to meet the needs of a wide range of young people. The transfer of care should be individualized to meet the specific needs of the young person and his/her family. Health care transition is most successful when there is a designated professional who, together with the patient and family, takes responsibility for the process. The Society for Adolescent Medicine has outlined six critical steps to ensuring successful transition to adult-oriented care. <sup>4</sup>	

## HAB HIV Performance Measures: Pediatrics

The American Academy of Pediatrics recommends creating a written health care transition plan by age 14 together with the young person and family.<sup>5</sup>

### **US Public Health Guidelines:**

Adolescents may feel unfamiliar with the busier clinics typical of adult medical providers. Providing support and guidance to the adolescent and to the adult medical care provider as to what is expected from each may be helpful.<sup>6</sup>

### **References/Notes:**

<sup>1</sup> Each adolescent matures at a different rate and impacts the timeframe when transition planning occurs. By 17 years of age, discussions about transition of health care to an adult program should have occurred as the process can take place over a period of years. The age of 17 years is selected for performance measurement purposes only and should not be interpreted as a recommendation at which discussion should begin to occur. Providers are encouraged to have discussions about transition to an adult program before the adolescent reaches 17 years of age.

<sup>2</sup> “Documented discussion” means that the provider or another member of the medical team has talked with the adolescent about transition of health care to an adult program and the discussion is noted in the health record.

<sup>3</sup> A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.

<sup>4</sup> Society for Adolescent Medicine (2003). Transition to adult health care for adolescents and young adults with chronic conditions. *Journal of Adolescent Health*; 33:309-311.

<sup>5</sup> American Academy of Pediatrics (2002). A consensus statement on health care transitions for young adults with special health care needs. *Pediatrics*; 110: pp. 1304-1306.

<sup>6</sup> Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. February 23, 2009. Available at <http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed December 20, 2009, pp. 64-65.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: HIV Drug Resistance Testing Before Initiation of Therapy</b>	
Percentage of pediatric patients <sup>1</sup> with HIV infection who had an HIV drug resistance test performed <sup>2</sup> before initiation <sup>3</sup> of ARV therapy if therapy started during the measurement year	
<b>Numerator:</b>	Number of HIV-infected pediatric patients who had an HIV drug resistance test performed at any time before initiation of ARV therapy
<b>Denominator:</b>	Number of HIV-infected pediatric patients who: <ul style="list-style-type: none"> <li>• were prescribed ARV therapy during the measurement year for the first time; and</li> <li>• had a medical visit with a provider with prescribing privileges<sup>4</sup> at least once in the measurement year</li> </ul>
<b>Patient Exclusions:</b>	None
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Is the pediatric patient HIV-infected? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, was the patient seen by a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, was ARV therapy prescribed during the measurement year for the first time? (Y/N) <ol style="list-style-type: none"> <li>1. If yes, was an HIV drug resistance test performed at any time prior to prescribing ARV therapy? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, list date.</li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker or other electronic data base</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Percent of undetectable viral loads within six months on initial ARV in the clinic population</li> </ul>
<b>Basis for Selection:</b>	
Mutations in HIV RNA readily arise during viral replication. Ongoing replication in the presence of ARV drugs progressively selects for strains of HIV with mutations that result in drug resistance. Resistance testing is recommended prior to initiation of therapy in all treatment-naïve children. <sup>5</sup>	
The measure reflects important aspect of care that significantly impacts survival and mortality. The measure	

# HAB HIV Performance Measures: Pediatrics

has a strong evidence base supporting the use.

## US Public Health Guidelines:

“Mother-to-child transmission and horizontal transmission of drug-resistant HIV strains have been well documented and are associated with suboptimal virologic response to initial antiretroviral therapy. Drug-resistant variants of HIV may persist for months after birth in infected infants and impair the response to antiretroviral therapy. Consequently, antiretroviral drug-resistance testing is recommended prior to initiation of therapy in all treatment-naïve children.”<sup>5</sup>

## References/Notes:

<sup>1</sup> “Pediatric patients” includes all patients younger than 13 years.

<sup>2</sup> HIV drug resistance testing may occur either during or prior to the measurement year, as long as it is performed before ARV therapy is initiated.

<sup>3</sup> The focus of the measure is on initiation of first antiretroviral regimen for HIV treatment, not prophylaxis or re-initiation.

<sup>4</sup> A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.

<sup>5</sup> Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. February 23, 2009; pp 1-139. Available at <http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed December 20, 2009, pp. 102-104.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: Lipid Screening</b>																					
Percentage of pediatric patients <sup>1</sup> with HIV infection on ARV therapy who had a lipid panel <sup>2</sup> during the measurement year																					
<b>Numerator:</b>	Number of HIV-infected pediatric patients who had a lipid panel performed in the measurement year																				
<b>Denominator:</b>	Number of HIV-infected pediatric patients who: <ul style="list-style-type: none"> <li>• are on ARV therapy; and</li> <li>• had a medical visit with a provider with prescribing privileges<sup>3</sup> at least once in the measurement year</li> </ul>																				
<b>Patient Exclusions:</b>	1. Patients less than 12 months of age at end of measurement year																				
<b>Data Element:</b>	1. Is the pediatric patient HIV-infected? (Y/N) <ol style="list-style-type: none"> <li>If yes, did the patient have a medical visit with a provider with prescribing privileges during the measurement year? (Y/N)               <ol style="list-style-type: none"> <li>If yes, was the patient on ARV therapy?(Y/N)                   <ol style="list-style-type: none"> <li>If yes, did he/she have a lipid panel performed during the measurement year? (Y/N)</li> </ol> </li> </ol> </li> </ol>																				
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker, or other electronic data base</li> <li>• HIVQUAL reports on this measure for grantee under review</li> <li>• Medical record data abstraction by grantee of a sample of records</li> </ul>																				
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	HIVQUAL-US Data for adults & adolescents: <sup>4</sup> <table border="1"> <thead> <tr> <th></th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Top 10%</td> <td>100%</td> <td>100%</td> <td>100%</td> <td>100%</td> </tr> <tr> <td>Top 25%</td> <td>100%</td> <td>97.9%</td> <td>100%</td> <td>NA</td> </tr> <tr> <td>Mean*</td> <td>79.1%</td> <td>80.2%</td> <td>84.7%</td> <td>85%</td> </tr> </tbody> </table> *From HAB database		2004	2005	2006	2007	Top 10%	100%	100%	100%	100%	Top 25%	100%	97.9%	100%	NA	Mean*	79.1%	80.2%	84.7%	85%
	2004	2005	2006	2007																	
Top 10%	100%	100%	100%	100%																	
Top 25%	100%	97.9%	100%	NA																	
Mean*	79.1%	80.2%	84.7%	85%																	
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Incidence of metabolic syndrome in the clinic population</li> <li>• Long term rate of cardiovascular disease</li> </ul>																				
<b>Basis for Selection:</b>																					
Changes in body shape, fat distribution & metabolism occur with frequency among HIV-infected patients, particularly those prescribed HAART. Metabolic changes that have been observed include hyperlipidemia. <sup>5</sup> Compared with the pre-HAART era, recent studies in children have demonstrated that protease inhibitor (PI) therapy improves weight but may be associated with increased serum levels of fasting lipids. <sup>6</sup> For children on ARV therapy, lipid level monitoring every 6-12 months is important to detect side effects and to identify patients who may require treatment. <sup>5</sup> As children live longer with HIV infection and undergo more intensive and potentially cardiotoxic therapies, cardiac morbidity and mortality may become an increasing problem. <sup>6</sup>																					

# HAB HIV Performance Measures: Pediatrics

Measure reflects important aspect of care that impacts HIV-related morbidity and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.

## US Public Health Guidelines:

“Baseline laboratory assessments should be done prior to initiation of therapy; these include...serum lipid evaluation (cholesterol, triglycerides). Monitoring of drug toxicities should be tailored to the particular medications the child is taking; for example, periodic monitoring of serum glucose and lipids in patients receiving PIs.”<sup>5</sup>

## References/Notes:

<sup>1</sup> For the purposes of this measure, “pediatric patients” includes all patients age 1-13 years.

<sup>2</sup> A lipid panel consists of blood cholesterol and triglycerides.

<sup>3</sup> A “provider with prescribing privileges” is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

<sup>4</sup> HIVQUAL-US Indicator: All HIV-infected patients (not just those on ARV Therapy) are evaluated for an annual lipid screening. Available at:

<http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf>.

<sup>5</sup> Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. February 23, 2009. Available at

<http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed June 9, 2010, pp.61-62, 73.

<sup>6</sup> Miller, T. et al. Risk factors for cardiovascular disease in children infected with Human Immunodeficiency Virus-1. *Journal of Pediatrics* 2008; 153: 491-497.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: Medical Visit</b>	
Percentage of pediatric patients <sup>1</sup> with HIV infection who had three or more medical visits in an HIV care setting <sup>2</sup> in the measurement year	
<b>Numerator:</b>	Number of HIV-infected pediatric patients who had a medical visit with a provider with prescribing privileges <sup>3</sup> in an HIV care setting <sup>2</sup> three or more times at least three months apart in the measurement year
<b>Denominator:</b>	Number of HIV-infected pediatric patients who had a medical visit with a provider with prescribing privileges in an HIV care setting at least once in the measurement year
<b>Patient Exclusions:</b>	1. Pediatric patients newly enrolled in care during the last nine months of the measurement year
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Is the pediatric patient HIV-infected? (Y/N)               <ol style="list-style-type: none"> <li>a. If yes, was the patient seen by a provider with prescribing privileges at least once in an HIV care setting during the measurement year? (Y/N)                   <ol style="list-style-type: none"> <li>i. If yes, did the patient have at least three medical visits at least three months apart in the measurement year? (Y/N)                       <ol style="list-style-type: none"> <li>1. If yes, list the dates of these visits.</li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Ryan White Services Report</li> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker or other electronic data base</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Rate of opportunistic infections in the clinic population</li> <li>• Rate of HIV-related mortality in the clinic population</li> <li>• Rate of severe immunosuppression</li> <li>• Rate of viral load suppression</li> </ul>
<b>Basis for Selection:</b>	
<p>The CD4 count and percentage decline as HIV infection progresses. Patients with lower CD4 values have poorer prognosis than patients with higher values. CD4 values should be monitored every 3-4 months with increased frequency if clinical, immunological or virologic deterioration is suspected. Medical care visits every 3-4 months ensures the ability to obtain CD4 values, monitor ARV therapy adherence and toxicity, perform developmental screening, and initiate planning of disclosure of HIV status.<sup>4</sup></p> <p>Measure reflects important aspects of care that significantly impacts mortality. Data collection is currently feasible and measure has a strong evidence base supporting the use.</p>	

# HAB HIV Performance Measures: Pediatrics

## US Public Health Guidelines:

“In HIV-infected children...the CD4 count and percentage decline as HIV infection progresses, and patients with lower CD4 values have a poorer prognosis than patients with higher values...Children should have a monitoring visit at least every 3-4 months to assess both efficacy and potential toxicity of antiretroviral regimens.”<sup>4</sup>

## References/Notes:

<sup>1</sup> “Pediatric patients” includes all patients younger than 13 years.

<sup>2</sup> A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.

<sup>3</sup> An HIV care setting is one which received Ryan White HIV/AIDS Treatment Extension Act of 2009 funding to provide HIV care and has a quality management program in place to monitor the quality of care addressing gaps in quality of HIV care.

<sup>4</sup> Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. February 23, 2009; pp 1-139. Available at <http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed December 20, 2009, pp.13-15; 61-62.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: MMR Vaccination</b>											
Percentage of pediatric patients <sup>1</sup> with HIV infection who have had at least one dose of Measles, Mumps & Rubella (MMR) vaccine administered <sup>2</sup> between 12-24 months of age											
<b>Numerator:</b>	Number of HIV-infected pediatric patients who had at least one dose of MMR administered between 12-24 months of age										
<b>Denominator:</b>	Number of HIV-infected pediatric patients $\geq 2$ years and $< 3$ years of age who had a medical visit with a provider with prescribing privileges <sup>3</sup> at least once in the measurement year										
<b>Patient Exclusions:</b>	<ol style="list-style-type: none"> <li>1. Pediatric patients with CD4 <math>&lt; 15\%</math> between 12-24 months of age</li> <li>2. Pediatric patients newly enrolled after 2 yrs of age</li> </ol>										
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Is the pediatric patient HIV-infected? (Y/N)               <ol style="list-style-type: none"> <li>a. If yes, was the patient <math>\geq 2</math> years and <math>&lt; 3</math> years of age at any time in the measurement year? (Y/N)                   <ol style="list-style-type: none"> <li>i. If yes, was the patient seen by a provider with prescribing privileges during the measurement year? (Y/N)                       <ol style="list-style-type: none"> <li>1. If yes, did the patient receive at least one dose of MMR vaccine<sup>2</sup> between 12-24 months of age? (Y/N)                           <ol style="list-style-type: none"> <li>a. If yes, list the date of immunization or serology</li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol>										
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker or other electronic data base</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>										
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	Healthy People 2010 <sup>4</sup> goal: 90% for individual vaccines National Immunization Survey <sup>5</sup> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> <th>2008</th> </tr> </thead> <tbody> <tr> <td>93.0%</td> <td>91.5%</td> <td>92.3%</td> <td>92.3%</td> <td>92.1%</td> </tr> </tbody> </table> <p>[Note: The NIS estimates vaccination coverage among children 19-35 months and is not specific to HIV disease].</p>	2004	2005	2006	2007	2008	93.0%	91.5%	92.3%	92.3%	92.1%
2004	2005	2006	2007	2008							
93.0%	91.5%	92.3%	92.3%	92.1%							
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Rate of measles in the clinic population</li> <li>• Rate of mumps in the clinic population</li> <li>• Rate of rubella in the clinic population</li> </ul>										
<b>Basis for Selection:</b>											
Vaccines are an effective primary prevention tool and HIV-infected children should be protected from vaccine-preventable diseases. Children with HIV infection are at higher risk than immunocompetent children for complications of varicella, herpes zoster and measles. MMR is recommended for all asymptomatic and symptomatic HIV-infected children who are not severely immunocompromised and who lack evidence of measles immunity. <sup>6</sup>											

# HAB HIV Performance Measures: Pediatrics

The National Immunization Survey notes that while many of the individual vaccine rates meet or exceed the goals set by Healthy People 2010, children living below poverty had lower coverage than children living at or above poverty for most vaccines. Sustaining high coverage levels and using effective methods of reducing disparities across states/local areas and income groups remains a priority to fully protect children and limit the incidence of vaccine-preventable diseases.<sup>5</sup>

The measure reflects important aspects of care that significantly impacts mortality.

## **US Public Health Guidelines:**

MMR vaccine is recommended for all asymptomatic HIV-infected persons who are not severely immunosuppressed and who lack evidence of measles immunity. MMR vaccination of symptomatic HIV-infected persons should be considered if they: a) do not have evidence of severe immunosuppression (CD4<15%) and; b) lack evidence of measles immunity.<sup>6</sup>

## **References/Notes:**

<sup>1</sup> “Pediatric patient” includes all patients younger than 13 years.

<sup>2</sup> Documentation of vaccination can include any of the following: 1) immunization record from another provider; 2) personal record of immunization; or 3) serologic evidence of antibody titers. If serology is used, titers must have been drawn before 2 years of age.

<sup>3</sup> A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.<sup>4</sup> US Department of Health and Human Services (2000) Healthy People 2010. ([http://www.healthypeople.gov/Document/HTML/Volume1/14Immunization.htm#\\_Toc494510240](http://www.healthypeople.gov/Document/HTML/Volume1/14Immunization.htm#_Toc494510240)) Accessed February 10, 2010.

<sup>5</sup> Centers for Disease Control & Prevention. National, state, and local area vaccination coverage among children aged 19-35 months—United States, 2008. MMWR; Aug 28, 2009; 58(33); 921-926. ([http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5833a3.htm?s\\_cid=mm5833a3\\_e](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5833a3.htm?s_cid=mm5833a3_e)) Accessed February 10, 2010.

<sup>6</sup> Centers for Disease Control and Prevention. Guidelines for the Prevention and Treatment of Opportunistic Infections Among HIV-Exposed and HIV-Infected Children. MMWR 2009;58(No. RR-11). [http://aidsinfo.nih.gov/contentfiles/Pediatric\\_OI.pdf](http://aidsinfo.nih.gov/contentfiles/Pediatric_OI.pdf) Accessed February 10, 2010, pp.161-163.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: Neonatal Zidovudine Prophylaxis</b>	
Percentage of infants <sup>1</sup> born to HIV-infected women who were prescribed ZDV prophylaxis <sup>2</sup> for HIV within 12 hours of birth during the measurement year	
<b>Numerator:</b>	Number of infants born to HIV-infected women who were prescribed ZDV prophylaxis within 12 hours of birth during the measurement year
<b>Denominator:</b>	Number of infants who: <ul style="list-style-type: none"> <li>• were born to HIV-infected women during the measurement year; and</li> <li>• had a visit with a provider with prescribing privileges<sup>3</sup> in an HIV setting<sup>4</sup> during the measurement year</li> </ul>
<b>Patient Exclusions:</b>	None
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Was the infant born to an HIV-infected woman during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, was the infant seen by a provider with prescribing privileges in an HIV setting during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, was ZDV prophylaxis prescribed within 12 hours of birth during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>1. If yes, list the date.</li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker or other electronic data base</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Rate of perinatal transmission</li> </ul>
<b>Basis for Selection:</b>	
<p>PACTG 076 demonstrated that administration of ZDV to the pregnant woman and her infant could reduce the risk of perinatal transmission by nearly 70%. Perinatal HIV transmission can occur at low or undetectable HIV RNA levels. All HIV-exposed infants should receive postpartum antiretroviral drugs to reduce perinatal HIV transmission. ZDV should be initiated as close to birth as possible, preferably within 6-12 hours of delivery. The 6-week neonatal ZDV chemoprophylaxis regimen is recommend for all HIV-exposed infants.<sup>5</sup></p> <p>The measure reflects important aspects of care that significantly impacts mortality. The measure has a strong evidence base supporting the use.</p>	

# HAB HIV Performance Measures: Pediatrics

## US Public Health Guidelines:

“The 6-week neonatal component of the ZDV chemoprophylaxis regimen is recommended for all HIV-exposed neonates to reduce perinatal HIV transmission. ZDV should be initiated as close to the time of birth as possible, preferably within 6 to 12 hours of delivery.”<sup>5</sup>

## References/Notes:

<sup>1</sup> “Infants” includes all patients aged 12 months and younger.

<sup>2</sup>The 6-week ZDV prophylaxis regimen is recommended at gestational age-appropriate doses; ZDV should be dosed differently for premature infants <35 weeks than for infants ≥35 weeks as outlined by the Public Health Service Task Force.

<sup>3</sup>A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.

<sup>4</sup>An HIV care setting is one which received Ryan White HIV/AIDS Treatment Extension Act of 2009 funding to provide HIV care and has a quality management program in place to monitor the quality of care addressing gaps in quality of HIV care.

<sup>5</sup>Perinatal HIV Guidelines Working Group. Public Health Service Task Force Recommendations for Use of Antiretroviral Drugs in Pregnant HIV-Infected Women for Maternal Health and Interventions to Reduce Perinatal HIV Transmission in the United States. May 24, 2010. Available at: <http://aidsinfo.nih.gov/contentfiles/PerinatalGL.pdf>. Accessed July 29, 2010.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: PCP Prophylaxis for HIV-Exposed Infants</b>	
Percentage of eligible infants <sup>1</sup> with HIV-exposure who were prescribed PCP prophylaxis in the measurement year	
<b>Numerator:</b>	Number of HIV-exposed infants who were prescribed PCP prophylaxis during the measurement year
<b>Denominator:</b>	Number of HIV-exposed infants: <ul style="list-style-type: none"> <li>• in whom HIV infection has not been presumptively excluded<sup>2</sup> by 6 weeks of age; and</li> <li>• had a medical visit with a provider with prescribing privileges<sup>3</sup> at least once in the measurement year</li> </ul>
<b>Patient Exclusions:</b>	1. Patients who are diagnosed with HIV infection
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Was the infant seen by a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>a. Was the infant HIV-exposed (born to an HIV-infected woman)? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, was the infant <math>\geq</math> 6 weeks of age at any point during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>1. If yes, was HIV presumptively excluded by six weeks of age? (Y/N) <ol style="list-style-type: none"> <li>a. If no, was the infant prescribed PCP prophylaxis during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, list the date</li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker or other electronic data base</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>• Rate of PCP in the clinic population</li> <li>• HIV-related mortality rates</li> </ul>
<b>Basis for Selection:</b>	
“PCP remains a common AIDS-indicator disease among HIV-infected infants and children. The highest incidence of PCP in HIV-infected children is in the first year of life, with cases peaking at age 3–6 months. The single most important factor in susceptibility of HIV-infected children of all ages to PCP is the status of	

# HAB HIV Performance Measures: Pediatrics

cell mediated immunity of the host.”<sup>2</sup>

The measure reflects important aspect of care that significantly impacts survival and mortality. Data collection is currently feasible and measure has a strong evidence base supporting the use.

## US Public Health Guidelines:

“Chemoprophylaxis is highly effective in preventing PCP. Criteria for its use are based on the patient’s age and CD4 count or percentage. Prophylaxis is recommended for all HIV-infected children aged >6 years who have CD4 counts <200 cells/mm<sup>3</sup> or CD4 <15%, for children aged 1–5 years with CD4 counts of <500 cells/mm<sup>3</sup> or CD4 <15%, and for all HIV-infected infants aged <12 months regardless of CD4 count or percentage. Infants born to HIV-infected mothers should be considered for prophylaxis beginning at 4–6 weeks of age. HIV-infected infants should be administered prophylaxis until 1 year of age, at which time they should be reassessed on the basis of the age-specific CD4 count or percentage thresholds mentioned above. Infants with indeterminate HIV infection status should receive prophylaxis until they are determined to be HIV-uninfected or presumptively uninfected with HIV. Prophylaxis is not recommended for infants who meet criteria for definitively or presumptively HIV-uninfected.”<sup>2</sup>

## References/Notes:

<sup>1</sup> “Infants” includes all patients 12 months of age or younger.

<sup>2</sup>Centers for Disease Control and Prevention. Guidelines for the Prevention and Treatment of Opportunistic Infections Among HIV-Exposed and HIV-Infected Children. MMWR 2009;58(No. RR-11). [http://aidsinfo.nih.gov/contentfiles/Pediatric\\_OI.pdf](http://aidsinfo.nih.gov/contentfiles/Pediatric_OI.pdf) Accessed January 29, 2010, pp. 45-48; 68-69. In nonbreast-feeding infants with no positive HIV virologic test results, presumptive exclusion of HIV infection can be based on two negative virologic test results: one obtained at >2 weeks and one obtained at >4 weeks of age...Definitive exclusion of HIV infection is based on two negative virologic test results: one obtained at >1 month of age and one obtained at >4 months of age...For both presumptive and definitive exclusion of infection, the child should have no other laboratory (e.g., no positive virologic test results) or clinical (e.g., no AIDS-defining conditions) evidence of HIV infection.

<sup>3</sup>A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure:</b> PCP Prophylaxis for HIV-Infected Children	
Percentage of eligible infants and children <sup>1</sup> with HIV infection who were prescribed PCP prophylaxis in the measurement year	
<b>Numerator:</b>	Number of HIV-infected infants or children who were prescribed PCP prophylaxis during the measurement year
<b>Denominator:</b>	<p>Number of:</p> <ul style="list-style-type: none"> <li>• HIV-infected infants or children <math>\geq 6</math> weeks of age who meet the following age-specific eligibility criteria<sup>2</sup>: <ul style="list-style-type: none"> <li>&lt;12 months = All HIV-infected infants regardless of CD4 count</li> <li>1-5 yrs = CD4&lt;500 cells/mm<sup>3</sup> or CD4%&lt;15%</li> <li><math>\geq 6</math> yrs = CD4&lt;200 cells/mm<sup>3</sup> or CD4%&lt;15%</li> </ul> </li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>• had a medical visit with a provider with prescribing privileges<sup>3</sup> at least once in the measurement year</li> </ul>
<b>Patient Exclusions:</b>	1. Patients with CD4 values below age appropriate threshold repeated within 3 months that rose above age appropriate threshold
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Was the infant or child seen by a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, is the infant or child HIV-infected? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, is the infant or child <math>\geq 6</math> weeks of age? (Y/N) <ol style="list-style-type: none"> <li>1. If yes, did the infant or child meet the age-specific eligibility criteria? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, was the infant or child prescribed PCP prophylaxis during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, list the date.</li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>• Electronic Medical Record/Electronic Health Record</li> <li>• CAREWare, Lab Tracker or other electronic data base</li> <li>• Medical record data abstraction by grantee of a sample of records</li> <li>• Billing records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for</b>	<ul style="list-style-type: none"> <li>• Rate of PCP in the clinic population</li> <li>• HIV-related mortality rates</li> </ul>

# HAB HIV Performance Measures: Pediatrics

<b>Consideration:</b>	
<b>Basis for Selection:</b>	
<p>“PCP remains a common AIDS-indicator disease among HIV-infected infants and children. The highest incidence of PCP in HIV-infected children is in the first year of life, with cases peaking at age 3–6 months. The single most important factor in susceptibility of HIV-infected children of all ages to PCP is the status of cell mediated immunity of the host.”<sup>2</sup></p> <p>The measure reflects important aspect of care that significantly impacts survival and mortality. Data collection is currently feasible and measure has a strong evidence base supporting the use.</p>	
<b>US Public Health Guidelines:</b>	
<p>“Chemoprophylaxis is highly effective in preventing PCP. Criteria for its use are based on the patient’s age and CD4 count or percentage. Prophylaxis is recommended for all HIV-infected children aged &gt;6 years who have CD4 counts &lt;200 cells/mm<sup>3</sup> or CD4 &lt;15%, for children aged 1–5 years with CD4 counts of &lt;500 cells/mm<sup>3</sup> or CD4 &lt;15%, and for all HIV-infected infants aged &lt;12 months regardless of CD4 count or percentage. Infants born to HIV-infected mothers should be considered for prophylaxis beginning at 4–6 weeks of age. HIV-infected infants should be administered prophylaxis until 1 year of age, at which time they should be reassessed on the basis of the age-specific CD4 count or percentage thresholds mentioned above. Infants with indeterminate HIV infection status should receive prophylaxis until they are determined to be HIV-uninfected or presumptively uninfected with HIV. Prophylaxis is not recommended for infants who meet criteria for definitively or presumptively HIV-uninfected.”<sup>2</sup></p>	
<b>References/Notes:</b>	
<p><sup>1</sup> “Children” includes all patients younger than 13 years; “infants” are those children 12 months of age or younger.</p> <p><sup>2</sup>Centers for Disease Control and Prevention. Guidelines for the Prevention and Treatment of Opportunistic Infections Among HIV-Exposed and HIV-Infected Children. MMWR 2009;58(No. RR-11). <a href="http://aidsinfo.nih.gov/contentfiles/Pediatric_OI.pdf">http://aidsinfo.nih.gov/contentfiles/Pediatric_OI.pdf</a> Accessed January 29, 2010, pp. 45-48; 68-69.</p> <p><sup>3</sup>A “provider with prescribing privileges” is a health care professional who is certified in his/her jurisdiction to prescribe medications.</p>	

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure:</b> Planning for Disclosure of HIV Status to Child	
Percentage of pediatric/adolescent patients <sup>1</sup> with HIV infection who know their HIV status or for whom there is a documented discussion <sup>2</sup> about disclosure in the measurement year	
<b>Numerator:</b>	Number of HIV-infected pediatric/adolescent patients who know their status or for whom the provider and guardian had a documented discussion about disclosure
<b>Denominator:</b>	Number of HIV-infected pediatric/adolescent patients who: <ul style="list-style-type: none"> <li>• were <math>\geq 12</math> years old at the beginning of the measurement year, and</li> <li>• had a medical visit with a provider with prescribing privileges<sup>3</sup> at least once in the measurement year</li> </ul>
<b>Patient Exclusions:</b>	None
<b>Data Elements:</b>	<ol style="list-style-type: none"> <li>1. Is the pediatric/adolescent patient HIV-infected? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, is the child <math>\geq 12</math> years old? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, was the patient seen by a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>1. If yes, does the child know of his/her HIV status <b>or</b> is there a documented discussion about disclosure in the measurement year? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, list date.</li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol>
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>▪ Electronic Medical Record/Electronic Health Record</li> <li>▪ Medical record data abstraction by grantee of a sample of records</li> </ul>
<b>National Goals, Targets, or Benchmarks for Comparison:</b>	None available at this time
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>▪ Rate of undetectable viral load among children <math>\geq 12</math> years</li> <li>▪ Proportion of adolescents who know their HIV status in the clinic population</li> <li>▪ Rate of sexually transmitted infections among youth in the clinic population</li> </ul>
<b>Basis for Selection:</b>	
The American Academy of Pediatrics reaffirmed in 2009 a policy statement that strongly encourages	

## HAB HIV Performance Measures: Pediatrics

disclosure to school-age HIV-infected children. Adolescents should know their HIV status and be fully informed regarding consequences for their health, including sexual behavior. The process for disclosure should be discussed and planned with caregivers. Disclosure should be geared to the child's level of cognitive development and maturity.<sup>4</sup>

Most children without cognitive deficits have the capacity to understand the diagnosis and concepts about immune systems and health. Disclosure can help children understand the illness and may further a child's willingness to adhere to his/her treatment regimen. A disclosure plan also prevents an accidental disclosure from occurring, such as when the child overhears the caregiver discussing the illness. Children who accidentally learn of their diagnosis may have a more difficult time adjusting to it.<sup>5</sup>

### US Public Health Guidelines:

None

### References/Notes:

<sup>1</sup> For purposes of this measure, "pediatric/adolescent patients" includes all children  $\geq$  12 years. While each adolescent matures at a different rate disclosure by 12 years of age is generally appropriate. Planning for disclosure should occur well before 12 years of age so that disclosure can occur by 12 years of age.

<sup>2</sup> "Documented discussion" means that the provider or another member of the medical team has talked with the guardian and/or child about disclosure and the discussion is noted in the health record.

<sup>3</sup> A "provider with prescribing privileges" is a health care professional who is certified in his/her jurisdiction to prescribe medications.

<sup>4</sup> American Academy of Pediatrics (Reaffirmed 2009). Disclosure of illness status to children and adolescents with HIV infection. *Pediatrics*, 103(1); January 1999, pp. 164-166.

<sup>5</sup> New York State Department of Health AIDS Institute (November 2009). Disclosure of HIV to perinatally infected children and adolescents, pp. 1-16.

# HAB HIV Performance Measures: Pediatrics

<b>Pediatric Performance Measure: TB Screening</b>																					
Percentage of pediatric patients <sup>1</sup> with HIV infection who received testing with results documented for latent tuberculosis infection (LTBI) during the measurement year																					
<b>Numerator:</b>	Number of pediatric patients who received documented testing for LTBI with tuberculin skin test (TST) during the measurement year																				
<b>Denominator:</b>	Number of HIV-infected pediatric patients who: <ul style="list-style-type: none"> <li>do not have a history of previous documented treatment of TB disease<sup>2</sup> or previous documented positive TST; and</li> <li>had a medical visit with a provider with prescribing privileges<sup>3</sup> at least once in the measurement year.</li> </ul>																				
<b>Patient Exclusions</b>	None																				
<b>Data Element:</b>	<ol style="list-style-type: none"> <li>1. Is the pediatric patient HIV-infected? (Y/N) <ol style="list-style-type: none"> <li>a. Did the patient have a medical visit with a provider with prescribing privileges during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>i. If yes, has the patient ever had previous treatment for TB disease or previous documented positive TST? (Y/N) <ol style="list-style-type: none"> <li>1. If <b>no</b>, has the patient been tested for LTBI with a TST during the measurement year? (Y/N) <ol style="list-style-type: none"> <li>a. If yes, are the results documented? (Y/N)</li> </ol> </li> </ol> </li> </ol> </li> </ol> </li> </ol>																				
<b>Data Sources:</b>	<ul style="list-style-type: none"> <li>Ryan White Program Data Report, Section 5, Item 47 may provide data useful in establishing a baseline for this performance measure</li> <li>Electronic Medical Record/Electronic Health Record</li> <li>CAREWare, Lab Tracker or other electronic data base</li> <li>HIVQUAL reports on this measure for grantee under review</li> <li>Medical record data abstraction by grantee of a sample of records.</li> </ul>																				
<b>National Goals, Targets, or Benchmarks for Comparison</b>	HIVQUAL-US Data for adults & adolescents: <sup>4</sup> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th></th> <th>2004</th> <th>2005</th> <th>2006</th> <th>2007</th> </tr> </thead> <tbody> <tr> <td>Top 10%</td> <td>91.7%</td> <td>88.8%</td> <td>92.2%</td> <td>100%</td> </tr> <tr> <td>Top 25%</td> <td>73.5%</td> <td>74.8%</td> <td>78.2%</td> <td>NA</td> </tr> <tr> <td>Mean*</td> <td>56.0%</td> <td>57.1%</td> <td>56.2%</td> <td>69.7%</td> </tr> </tbody> </table> *from HAB data base		2004	2005	2006	2007	Top 10%	91.7%	88.8%	92.2%	100%	Top 25%	73.5%	74.8%	78.2%	NA	Mean*	56.0%	57.1%	56.2%	69.7%
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Top 25%	73.5%	74.8%	78.2%	NA																	
Mean*	56.0%	57.1%	56.2%	69.7%																	
<b>Outcome Measures for Consideration:</b>	<ul style="list-style-type: none"> <li>Incidence of TB disease in the clinic population</li> </ul>																				
<b>Basis for Selection:</b>																					
During 1993–2001, 12.9% of adults with TB were reported to be coinfecting with HIV, compared with 1.1% of all children with TB. The actual rate of HIV coinfection in U.S. children with TB is unknown because of																					

# HAB HIV Performance Measures: Pediatrics

the low rate of HIV testing in this population.<sup>5</sup>

Numerous studies have documented the increased risk for TB among HIV-infected adults.<sup>5</sup> Once infected, children aged <4 years and all HIV-infected children are more likely to develop active TB disease. Untreated tuberculosis can result in poor immunologic and clinical responses despite virologic suppression.<sup>6</sup> Usually the clinical features of TB among HIV-infected children are similar to those among children without HIV infection, although the disease usually is more severe. Because children with HIV infection are at high risk for TB, annual testing of this population is recommended to diagnose LTBI.

Measure reflects important aspect of care that impacts HIV-related morbidity and mortality and focuses on treatment decisions that affect a sizable population. Measure has a strong evidence base supporting the use.

## US Public Health Guidelines:

Because children with HIV infection are at high risk for TB, annual testing of this population is recommended to diagnose LTBI.<sup>6</sup>

In the United States, where TB exposure is uncommon and BCG is not routinely administered, HIV-infected infants and children should have a TST (5-TU purified protein derivative) at 3 months of age, and children should be tested at HIV diagnosis. HIV-infected children should be retested at least once per year. HIV-infected infants and children should be treated for LTBI if they have a positive TST or exposure to a person who has contagious TB (after exclusion of active TB disease in the infant or child and regardless of the child's TST results).<sup>5</sup>

## References/Notes:

<sup>1</sup> "Pediatric patients" includes all patients younger than 13 years.

<sup>2</sup> Previous documented treatment for TB disease or previous documented positive TST occurred prior to HIV diagnosis.

<sup>3</sup> A "provider with prescribing privileges" is a health care professional who is certified in their jurisdiction to prescribe ARV therapy.

<sup>4</sup> HIVQUAL-US Indicator: All HIV+ patients without previous treatment for TB or a previous positive PPD test are evaluated to determine whether they have been screened for tuberculosis. Available at: <http://www.hivguidelines.org/admin/files/qoc/hivqual/proj%20info/HQNatlAggScrs3Yrs.pdf>.

<sup>5</sup> Centers for Disease Control and Prevention. Guidelines for the Prevention and Treatment of Opportunistic Infections Among HIV-Exposed and HIV-Infected Children. MMWR 2009;58(No. RR-11). [http://aidsinfo.nih.gov/contentfiles/Pediatric\\_OI.pdf](http://aidsinfo.nih.gov/contentfiles/Pediatric_OI.pdf) Accessed February 10, 2010, p.19

<sup>6</sup> Working Group on Antiretroviral Therapy and Medical Management of HIV-Infected Children. Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection. February 23, 2009. Available at <http://aidsinfo.nih.gov/ContentFiles/PediatricGuidelines.pdf>. Accessed June 9, 2010, p.78.