

# Tobacco Use and Help With Quitting Among Adolescents

## Section 1. Basic Measure Information

### 1.A. Measure Name

Tobacco Use and Help With Quitting Among Adolescents

### 1.B. Measure Number

0090

### 1.C. Measure Description

**Please provide a non-technical description of the measure that conveys what it measures to a broad audience.**

The percentage of adolescents 12 to 20 years of age during the measurement year for whom tobacco use status was documented and who received help with quitting if identified as a tobacco user.

This measure is recommended for health care provider-level and population-level reporting and has been tested in electronic health records (EHRs). Specifications are provided for both provider- and population-level reporting.

### 1.D. Measure Owner

National Committee for Quality Assurance (NCQA) on behalf of the National Collaborative for Innovation in Quality Measurement (NCINQ).

### 1.E. National Quality Forum (NQF) ID (if applicable)

NQF ID No. 2803.

### 1.F. Measure Hierarchy

**Please note here if the measure is part of a measure hierarchy or is part of a measure group or composite measure. The following definitions are used by AHRQ:**

- 1. Please identify the name of the collection of measures to which the measure belongs (if applicable). A collection is the highest possible level of the measure hierarchy. A collection may contain one or more sets, subsets, composites, and/or individual measures.**

Not applicable.

- 2. Please identify the name of the measure set to which the measure belongs (if applicable). A set is the second level of the hierarchy. A set may include one or more subsets, composites, and/or individual measures.**

Not applicable.

- 3. Please identify the name of the subset to which the measure belongs (if applicable). A subset is the third level of the hierarchy. A subset may include one or more composites, and/or individual measures.**

Not applicable.

- 4. Please identify the name of the composite measure to which the measure belongs (if applicable). A composite is a measure with a score that is an aggregate of scores from other measures. A composite may include one or more other composites and/or individual measures. Composites may comprise component measures that can or cannot be used on their own.**

Not applicable.

## **1.G. Numerator Statement**

Documentation that the adolescent is not a tobacco user

OR

Documentation that the adolescent is a tobacco user AND any of the following:

- Advice given to quit smoking or tobacco use.
- Counseling on the benefits of quitting smoking or tobacco use (e.g. "5-A" Framework).
- Assistance with or referral to external smoking or tobacco cessation support programs (e.g. telephone counseling 'quit line').
- Current enrollment in smoking or tobacco use cessation program.

## **1.H. Numerator Exclusions**

None.

## **1.I. Denominator Statement**

Adolescents who turn 12 through 20 years of age during the measurement year.

## **1.J. Denominator Exclusions**

None.

## **1.K. Data Sources**

**Check all the data sources for which the measure is specified and tested.**

Paper Medical Record, Electronic Medical Record.

**If other, please list all other data sources in the field below.**

## **Section 2: Detailed Measure Specifications**

**Provide sufficient detail to describe how a measure would be calculated from the recommended data sources, uploading a separate document (+ Upload attachment) or a link to a URL. Examples of detailed measure specifications can be found in the CHIPRA Initial Core Set Technical Specifications Manual 2011 published by the Centers for Medicare & Medicaid Services. Although submission of formal programming code or algorithms that demonstrate how a measure would be calculated from a query of an appropriate electronic data source are not requested at this time, the availability of these resources may be a factor in determining whether a measure can be recommended for use.**

Please see the attached NCINQ Tobacco Use and Help documents: NCINQ Tobacco Use and Help Spec - Pop.pdf and NCINQ Tobacco Use and Help Spec - Prov.pdf.

## **Section 3. Importance of the Measure**

**In the following sections, provide brief descriptions of how the measure meets one or more of the following criteria for measure importance (general importance, importance to Medicaid and/or CHIP, complements or enhances an existing measure). Include references related to specific points made in your narrative (not a free-form listing of citations).**

### **3.A. Evidence for General Importance of the Measure**

**Provide evidence for all applicable aspects of general importance:**

- **Addresses a known or suspected quality gap and/or disparity in quality (e.g., addresses a socioeconomic disparity, a racial/ethnic disparity, a disparity for Children with Special Health Care Needs (CSHCN), a disparity for limited English proficient (LEP) populations).**
- **Potential for quality improvement (i.e., there are effective approaches to reducing the quality gap or disparity in quality).**
- **Prevalence of condition among children under age 21 and/or among pregnant women**
- **Severity of condition and burden of condition on children, family, and society (unrelated to cost)**
- **Fiscal burden of measure focus (e.g., clinical condition) on patients, families, public and private payers, or society more generally, currently and over the life span of the child.**
- **Association of measure topic with children's future health – for example, a measure addressing childhood obesity may have implications for the subsequent development of cardiovascular diseases.**
- **The extent to which the measure is applicable to changes across developmental stages (e.g., infancy, early childhood, middle childhood, adolescence, young adulthood).**

This measure evaluates whether adolescents have smoking/tobacco use status documented and, for tobacco users, whether they received help with quitting. The measure focuses on a clinical

process (documentation of tobacco use and appropriate follow-up) that, if followed, has the potential to achieve a desirable clinical outcome (cessation of tobacco use, which can prevent a wide range of established complications of tobacco use, such as asthma and lung cancer). The measure highlights those adolescents who are identified and documented as current tobacco users but may not be receiving cessation assistance. The measure complements other measures in the Children's Initial Core set that assess receipt and content of adolescent well care: Adolescent Well Care Visit, Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents: Body Mass Index Assessment for Children/Adolescents, Immunizations for Adolescents, and Chlamydia Screening in Women. The measure also complements an existing tobacco measure for adults (Preventive Care and Screening: a. Tobacco Use Assessment, b. Tobacco Cessation Intervention (American Medical Association [AMA]-Physician Consortium for Practice Improvement [PCPI]).

### ***Importance***

Over 2.6 million adolescents 18 years of age and younger are current tobacco users, with nearly one-fifth of all adolescents becoming current smokers before finishing high school (National Survey on Drug Use and Health, 2010; University of Michigan, 2011). This issue is important, as early onset of tobacco use correlates with tobacco use in adulthood. Of adults that smoke on a daily basis, 82 percent reported trying their first cigarette before the age of 18, and 53 percent reported becoming daily smokers before the age of 18 (Campaign for Tobacco-Free Kids, 2011a).

Tobacco use is associated with some of the most serious and costly diseases, including lung cancer, heart disease and emphysema. Tobacco use can affect an individual's reproductive health and damage almost every organ in the body. In addition to these long-term complications, there are also a number of health concerns that can appear immediately in otherwise young and healthy adolescents, such as increased heart rate, increased blood pressure and shortness of breath (Campaign for Tobacco-Free Kids, 2011b, 2012). Additionally, tobacco use can lead to engagement in other risky behaviors. Adolescents who smoke or use tobacco products are three times as likely as their non-smoking counterparts to use alcohol; eight times as likely to use marijuana; and 22 times as likely to use cocaine (Campaign for Tobacco-Free Kids, 2011a; Fox, McManus, Arnold, 2010).

The financial burden incurred from tobacco use is significant. From 2000 to 2004, annual expenditures (public and private) related to smoking were \$96 billion, and another \$97 billion can be attributed to lost productivity each year (Campaign for Tobacco-Free Kids, 2012; Clark, O'Connell, Samnaliev, 2010). When taking into account additional costs related to engagement in other risky behaviors; the costs total over \$200 billion, distributed among direct costs such as medical expenses and indirect costs such as costs related to lost productivity and drug-related crimes (Clark et al. 2010).

Studies suggest tobacco use prevention efforts can lead to cost savings. The Campaign for Tobacco-Free Kids found that for every percentage-point decline in youth smoking, there is a corresponding \$13.2 million reduction in health care costs (accrued over the lifetime of adolescents who do not become adult smokers) (Campaign for Tobacco-Free Kids, 2010).

Effective cessation assistance options for adolescents include counseling (individual or group, cognitive-behavioral, family, and motivational) and forms of behavior therapy. In addition, a range of tools are available for conducting risk assessments and offering cessation assistance. The Department of Health and Human Services screening algorithm and the Fagerström test determine the nature of use of tobacco products (past or current and degree of dependence), which can facilitate the design of appropriate cessation interventions (National Institute on Drug Abuse [NIDA], 2014). The National Institute on Drug Abuse suggests the Smoking and Substance Involvement Screening Test (ASSIST) (NIDA, 2009), which follows the "5-A" framework: Ask, Advise, Assess, Assist, and Arrange. Although a number of smoking cessation medications are on the market, none of these are indicated for use in adolescents.

### ***Opportunity for Improvement***

Findings from research in adults and limited research in adolescents have shown that a physician's advice to quit is an important motivator for smokers who are attempting to quit (Fiore, Jaen, Bailey, 2010). While research indicates that the more intense the intervention, the higher the likelihood that smokers will quit successfully (Fiore et al. 2010), providers and other licensed care professionals can contribute to improvement in a patient's outcome in as little as 3 minutes (Tobacco Cessation Leadership Network, 2006).

Despite these findings, health care professionals are not screening or counseling adolescents for tobacco use as often as recommended by guidelines. Fewer than half of all smokers reported that they had ever been asked about their tobacco use or received advice about quitting from their clinicians (Institute of Medicine, 2012). Maciosek, Coffield, Edwards, et al., (2006) similarly found that fewer than half of all smokers (across age groups) receive cessation counseling.

### ***Health Disparities***

According to the 2011 Youth Risk Behavior Survey, tobacco use is more common among Caucasian and Hispanic students compared to African American students, with 20.3 percent of Caucasian students and 17.5 percent of Hispanic students smoking at least one cigarette in the past 30 days compared to 10.5 percent of African American students. Caucasian students were also more likely to try other forms of tobacco products, including chewing tobacco, snuff, or dip (Centers for Disease Control and Prevention [CDC], 2012).

Tobacco use is also associated with income level. Individuals (across ages) whose household income was below or near the Federal poverty level had substantially higher prevalence of smoking, compared with those whose household income was above the Federal poverty level (CDC, 2011).

## **3.B. Evidence for Importance of the Measure to Medicaid and/or CHIP**

**Comment on any specific features of this measure important to Medicaid and/or CHIP that are in addition to the evidence of importance described above, including the following:**

- **The extent to which the measure is understood to be sensitive to changes in Medicaid or CHIP (e.g., policy changes, quality improvement strategies).**

- **Relevance to the Early and Periodic Screening, Diagnostic and Treatment benefit in Medicaid (EPSDT).**
- **Any other specific relevance to Medicaid/CHIP (please specify).**

The Tobacco Use and Help with Quitting Among Adolescents measure assesses tobacco use among adolescents and whether users were offered assistance. As described above, tobacco use is more prevalent in households that are below the Federal poverty level (CDC, 2011). Children covered by Medicaid and CHIP are typically of lower socioeconomic status. The average CHIP income eligibility level for children is 241 percent of the Federal Poverty Level (Centers for Medicare & Medicaid Services [CMS], 2012a). This measure aligns with the goals of the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program (CMS, 2012b). The purpose of the EPSDT program is to ensure the provision of comprehensive health care services for children and adolescents. Appropriate guidance and encouragement of healthy lifestyles (or documentation of smoking/tobacco use status and cessation assistance as highlighted by this measure) are key components of screening services as recommended by EPSDT benefits. This is especially relevant to the measure, which focuses on the process of providing some form of cessation assistance once an adolescent is positively identified as a current smoker/tobacco user.

### **3.C. Relationship to Other Measures (if any)**

**Describe, if known, how this measure complements or improves on an existing measure in this topic area for the child or adult population, or if it is intended to fill a specific gap in an existing measure category or topic. For example, the proposed measure may enhance an existing measure in the initial core set, it may lower the age range for an existing adult-focused measure, or it may fill a gap in measurement (e.g., for asthma care quality, inpatient care measures).**

The Tobacco Use and Help with Quitting Among Adolescents measure complements other prevention and health promotion measures in the Child Core Set that assess receipt and content of adolescent well care: Adolescent Well Care Visits, Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents: Body Mass Index Assessment for Children/Adolescents, Immunizations for Adolescents and Chlamydia Screening in Women.

The measure is structured similarly to a tobacco use and follow-up measure that applies to the adult population: Preventive Care and Screening: a. Tobacco Use Assessment, b. Tobacco Cessation Intervention (AMA-PCPI, NQF ID: 0028). Our measure has been specified for and tested in the adolescent population.

## **Section 4. Measure Categories**

**CHIPRA legislation requires that measures in the initial and improved core set, taken together, cover all settings, services, and topics of health care relevant to children. Moreover, the legislation requires the core set to address the needs of children across all ages, including services to promote healthy birth. Regardless of the eventual use of the measure, we are interested in knowing all settings, services, measure topics, and**

populations that this measure addresses. These categories are not exclusive of one another, so please indicate "Yes" to all that apply.

Does the measure address this category?

- a. Care Setting – ambulatory: Yes.
- b. Care Setting – inpatient: No.
- c. Care Setting – other – please specify: No.
- d. Service – preventive health, including services to promote healthy birth: Yes.
- e. Service – care for acute conditions: No.
- f. Service – care for children with acute conditions: No.
- g. Service – other (please specify):
- h. Measure Topic – duration of enrollment: No.
- i. Measure Topic – clinical quality: Yes.
- j. Measure Topic – patient safety: No.
- k. Measure Topic – family experience with care: No.
- l. Measure Topic – care in the most integrated setting: No.
- m. Measure Topic other (please specify): No.
- n. Population – pregnant women: No.
- o. Population – neonates (28 days after birth) (specify age range): No.
- p. Population – infants (29 days to 1 year) (specify age range): No.
- q. Population – pre-school age children (1 year through 5 years) (specify age range): No.
- r. Population – school-aged children (6 years through 10 years) (specify age range): No.
- s. Population – adolescents (11 years through 20 years) (specify age range): Yes.
- t. Population – other (specify age range):
- u. Other category (please specify): No.

## **Section 5. Evidence or Other Justification for the Focus of the Measure**

The evidence base for the focus of the measures will be made explicit and transparent as part of the public release of CHIPRA deliberations; thus, it is critical for submitters to specify the scientific evidence or other basis for the focus of the measure in the following sections.

### **5.A. Research Evidence**

Research evidence should include a brief description of the evidence base for valid relationship(s) among the structure, process, and/or outcome of health care that is the focus of the measure. For example, evidence exists for the relationship between immunizing a child or adolescent (process of care) and improved outcomes for the child and the public. If sufficient evidence existed for the use of immunization registries in practice or at the State level and the provision of immunizations to children and adolescents, such evidence would support the focus of a measure on immunization registries (a structural measure).

**Describe the nature of the evidence, including study design, and provide relevant citations for statements made. Evidence may include rigorous systematic reviews of research literature and high-quality research studies.**

The Tobacco Use and Help with Quitting Among Adolescents measure evaluates whether adolescents have tobacco use documented and, for those identified as current tobacco users, have cessation assistance documented.

Overall, the clinical practice guidelines and expert consensus statements recommend that providers ask pediatric and adolescent patients about tobacco use and, if a patient is positively identified as a smoker/tobacco user, provide anticipatory guidance to both patients and family members/caregivers on cessation. Most notably, the U.S. Public Health Service recommends that clinicians ask pediatric and (U.S. Preventive Services Task Force, 2003). However, this statement was published in 2003, and we anticipate it will be updated.

### *Clinical Guidelines*

#### **Key Finding**

U.S. Public Health Service (USPHS) - 2009: Tobacco Use

Clinicians should ask pediatric and adolescent patients about tobacco use and provide a strong message regarding the importance of totally abstaining from tobacco use.

- U.S. Public Health Service (USPHS) - 2009: Counseling.
- Counseling has been shown to be effective in treatment of adolescent smokers. Therefore, adolescent smokers should be provided with counseling intervention to aid them in quitting smoking.
- Tobacco control policies and community-based interventions that increase cessation among adults also might encourage youths to quit smoking. These interventions, in addition to those that prevent initiation, need to be fully implemented to further lower the prevalence of smoking among both youths and adults.

#### **Key Citation**

Fiore MC, Jaén CR, Baker TB, et al. Treating tobacco use and dependence: 2008 update. Clinical practice guideline. Rockville, MD: US Department of Health and Human Services, Public Health Service; 2008. Available at <http://bphc.hrsa.gov/buckets/treatingtobacco.pdf>, April 28, 2016.

### *Clinical Guidelines*

#### **Key Finding**

U.S. Preventive Services Task Force (USPSTF) - 2003: Counseling to Prevent Tobacco Use.

The USPSTF concludes that current evidence is insufficient to recommend for or against routine screening for tobacco use or interventions to prevent and treat tobacco use and dependence among children and adolescents.



### **Key Citation**

U.S. Preventive Services Task Force (USPSTF). 2003. Counseling to Prevent Tobacco Use and Tobacco-Caused Disease, Topic Page. Available at <http://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/tobacco-use-in-children-and-adolescents-primary-care-interventions>. Accessed May 2, 2016.

### ***Clinical Guidelines***

#### **Key Finding**

American Academy of Family Physicians (AAFP) - 2011: Tobacco Use, Counseling, Children and Adolescents

Aligned with USPSTF recommendation.

### **Key Citation**

American Academy of Family Physicians. 2011. Summary of Recommendations for Clinical Preventive Services. Leewood, KS: American Academy of Family Physicians; 18 p.

### ***Clinical Guidelines***

#### **Key Finding**

Institute for Clinical Systems Improvement (ICSI) - 2010: Tobacco Use Screening, Prevention and Intervention in Adolescents

### ***Service***

Providers should establish tobacco use status for all patients and reassess at every opportunity. (See Annotation #30 "Secondhand Smoke Exposure Counseling [Level III]" in the original guideline document). All forms of tobacco should be included in this assessment. Providers should recommend ongoing cessation services to all tobacco users at every opportunity and reinforce non-users to continue avoiding tobacco products [Systematic Review], [Low Quality Evidence].

### ***Efficacy***

Tobacco use is the single most preventable cause of death and disease in our society. There is some evidence that school-based programs and family intervention programs may help prevent smoking in children and adolescents [Systematic Review]. There is good evidence that tobacco cessation interventions are best carried out when the entire clinical staff is organized to provide these services [Systematic Review], [Low Quality Evidence].

Two elements are effective for tobacco cessation intervention in adults: social support for cessation and skills training/problem-solving. The more intense the treatment, the more effective it is in achieving long-term abstinence from tobacco. Structured physician clinical-based smoking cessation counseling is more effective than usual care in reducing smoking rates in adults [High Quality Evidence].

Refer to the original guideline document for more information on the efficacy of tobacco use screening, prevention, and intervention in adolescents.

### *Counseling Message*

For children and adolescents using tobacco:

- Emphasize short-term negative effects of tobacco use.
- Advise tobacco users to quit.
- Assess user's willingness to make a quit attempt.
- Provide a motivational intervention if the user is not ready to make a quit effort [Low Quality Evidence].
- Assist in quitting if ready to make a quit effort. Negotiate a quit date. Counsel to support cessation and build abstinence skills. Offer phone line for more assistance.
- Arrange follow-up to occur soon after the quit date.
- Provide educational and self-help materials for all patients and families.
- Support school and family based programs to help prevent smoking.

### *Level III Preventive Services*

Providers and care systems could recommend these services to patients, but only after careful consideration of costs and benefits. These are services for which the evidence of effectiveness is currently incomplete or equivocal, or which may have the potential for significant harm. Providing these services is left to the judgment of individual medical groups, clinicians, and their patients. Decisions about preventive services in particular should be made based on the principles of shared decisionmaking

### **Key Citation**

Institute for Clinical Systems Improvement (ICSI). Preventive services for children and adolescents. Bloomington, MN: Institute for Clinical Systems Improvement; 2010 Sep. 84 p.

### *Expert Consensus/Evidence Informed*

#### **Key Finding**

Bright Futures (2008) - Risk Reduction - Tobacco

#### ***Risk Reduction - Tobacco***

Provide information and/or role-play on how to resist peer pressure to smoke, drink alcohol, or use drugs.

For the parent:

- Know where and with whom your child is spending leisure time.
- Clearly discuss rules and expectations for acceptable behavior.

- Praise your child for not using tobacco, alcohol, or other drugs. Reinforce this decision through positive and open conversations about these issues.

For the youth:

- Do not smoke, use tobacco, drink alcohol, or use drugs, inhalants, anabolic steroids, or diet pills. Smoking marijuana and other drugs can hurt your lungs; alcohol and other drugs are bad for brain development.
- Support friends who choose not to use tobacco, alcohol, drugs, steroids, or diet pills.

If you smoke, use drugs, or drink alcohol, let's talk about it. I can suggest ways to help you quit.

### **Key Citation**

Hagan, JF, Shaw JS, Duncan PM, eds. 2008. *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, Third Edition*. Elk Grove, IL: American Academy of Pediatrics.

### ***Clinical Guidelines***

#### **Key Finding**

American Academy of Pediatrics (AAP) - 2010: Alcohol, Tobacco and Other Substance Use

#### **Alcohol, Tobacco and Other Substance Use**

- Become knowledgeable about all aspects of adolescent alcohol, tobacco, and other substance use through participation in training program curricula and/or continuing medical education that provide current best-practices training, including media-literacy training.
- Strongly advise against the use of alcohol, tobacco, and other illicit drugs by youth.

#### **Recommendations Specific to Tobacco Use**

For patients and their family member(s):

- Counsel children and parents about the harms of tobacco use.
- Include tobacco in all discussions of substances of abuse and risky behaviors. Discussion and anticipatory guidance about tobacco use should ideally begin by 5 years of age and emphasize resisting the influence of advertising and rehearsal of peer refusal skills. Be aware of confidentiality issues related to tobacco use and other substance abuse, including testing for nicotine and its metabolites.
- Encourage parents to start discussions of tobacco use with their children early in their life and continue to do so throughout childhood and adolescence; these discussions should include delivery of clear messages disapproving of tobacco use. Both parents and children should be counseled that it is not safe to "experiment" with tobacco because nicotine is so highly addictive, and there is no safe way to use tobacco. Tobacco dependence can begin almost as soon as use begins, with some users exhibiting signs of dependence with only

occasional or monthly use. As a result, prevention of tobacco use is one of the most important messages you can deliver.

For patients or family members who use tobacco:

- Advise all families to make their homes and cars smoke free, and urge all tobacco users to quit. Provide appropriate advice and counseling to foster tobacco users to quit. Routinely offer help and referral to those who use tobacco— even if the person is not your patient. Be familiar with evidence-based guidelines for treatment of tobacco use and dependence and apply them to patients and their families. There is a growing body of literature on the effectiveness of pediatric clinician-provided treatment for parental nicotine addiction that demonstrates a role for pediatricians in this effort.
  - Pharmacotherapy is an effective component of tobacco use-cessation treatment in adults. Encourage tobacco users to include these medications in their quit plan, whenever appropriate. Be familiar with and offer information and instruction on correct use. Many nicotine replacement products are available without a prescription, although prescriptions are required for any nicotine-containing product if the patient is younger than 18 years.
  - Pediatricians who choose not to prescribe pharmacotherapies should make referrals to cessation services and recommend that parents discuss pharmacotherapies with their health care providers or purchase over-the-counter products.
- Be familiar with tobacco use-cessation services in your community and provide referrals to these programs for your patients and their families. Memorize the national quit line telephone number (1-800-QUIT NOW), prominently post it, and provide it to all tobacco users. Whenever possible, proactively enroll tobacco users in cessation programs, using "fax-back" or similar programs. Such referrals are more effective in connecting the tobacco user to the resource than referrals that require the tobacco user to initiate the contact.
- Counsel all parents, including those who smoke, on how to deliver anti-tobacco messages and ways to discuss the addictive nature of nicotine.
  - When parents or caregivers use tobacco, their children are more likely to experiment with tobacco and to begin to use tobacco regularly. Maintain a high index of suspicion for early onset of tobacco use by these children. It can be a particularly powerful message when the parent or caregiver who uses tobacco advises the child never to start using tobacco.
  - Help patients and families understand that even casual use of tobacco by children and adolescents, regardless of amount or frequency, is illegal and associated with adverse health consequences.
- Code for tobacco use and secondhand smoke (SHS) exposure and bill for treatment. Consider SHS exposure a risk factor when justifying immunizations, respiratory syncytial virus prophylaxis, and other care. The additional time needed to counsel families about tobacco use should be documented and billed as the counseling that it is. Whenever appropriate, list on death certificates that tobacco use or SHS exposure was the cause of or a contributor to death.
- Tobacco use by mothers is not a contraindication to breastfeeding, but tobacco use immediately before and during breastfeeding is strongly discouraged. Nicotine and its metabolites are present in human milk, and all tobacco users, including breastfeeding mothers, should make their home smoke free immediately and quit using tobacco products as

soon as possible. Infants of mothers who smoke and breastfeed are more likely to be weaned at a younger age and to experience other adverse effects.

Special considerations for high-risk populations:

- Emphasize the significant health harms of tobacco use when treating children with chronic diseases or health risks such as preterm birth, low birth weight, asthma, diabetes, cystic fibrosis, and sickle cell disease. Several AAP policy statements have addressed tobacco use and SHS exposure in children with chronic diseases, including sickle cell disease and Turner syndrome. When preparing future AAP policies, guidelines, and other products, authors should consider and mention the effects of tobacco use and SHS exposure on the subject addressed. Whenever relevant, AAP products should provide information on or access to information about treatment of tobacco use and dependence and SHS exposure.

When assessing mental health and substance abuse, you should include an assessment of tobacco use and SHS exposure. Urge adolescent substance abuse treatment programs to treat tobacco dependence in their patients and their families. Treatment for nicotine addiction, if indicated, should be part of any inpatient or outpatient treatment plan. Closely monitor such individuals for changes in their symptom and adverse-effect profile during early nicotine withdrawal.

### **Key Citation**

American Academy of Pediatrics. 2009. Tobacco Use: A Pediatric Disease. *Pediatrics* 124(5): 1474.

## **5.B. Clinical or Other Rationale Supporting the Focus of the Measure (optional)**

**Provide documentation of the clinical or other rationale for the focus of this measure, including citations as appropriate and available.**

As noted, this measure assesses tobacco use and follow-up in adolescents. Tobacco use has both short- and long-term adverse health consequences and has been shown to be associated with smoking in adulthood (Campaign for Tobacco-Free Kids, 2011b, 2012; Fox et al, 2010). Findings from research in adults and limited research in adolescents have shown that a physician's advice to quit is an important motivator for smokers attempting to quit (Fiore et al. 2010). While research indicates that the more intense the intervention, the higher the likelihood that smokers will quit successfully (Fiore et al. 2010), providers and other licensed care professionals can contribute to improvement in a patient's outcome in as little as three minutes (Tobacco Cessation Leadership Network, 2006).

### **References**

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Fox HB, McManus MA, Arnold KN. 2010. Significant Multiple Risk Behaviors Among U.S. High School Students. Available at [www.thenationalalliance.org/pdfs/FS8.%20Significant%20Multiple%20Risk%20Behaviors.pdf](http://www.thenationalalliance.org/pdfs/FS8.%20Significant%20Multiple%20Risk%20Behaviors.pdf). Accessed April 28, 2016.

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## **Section 6. Scientific Soundness of the Measure**

**Explain the methods used to determine the scientific soundness of the measure itself. Include results of all tests of validity and reliability, including description(s) of the study sample(s) and methods used to arrive at the results. Note how characteristics of other data systems, data sources, or eligible populations may affect reliability and validity.**

## 6.A. Reliability

**Reliability of the measure is the extent to which the measure results are reproducible when conditions remain the same. The method for establishing the reliability of a measure will depend on the type of measure, data source, and other factors.**

*Explain your rationale for selecting the methods you have chosen, show how you used the methods chosen, and provide information on the results (e.g., the kappa statistic). Provide appropriate citations to justify methods.*

NCINQ conducted field tests to assess the feasibility of the measure for EHR systems, as well as validity and reliability of the measure itself. Specific research aims included:

1. Assess the availability of key data elements and logic required for calculating well care measures in diverse EHR implementations.
2. Compare measure results based on manual reviews of the electronic medical records to automated extracts from the EHR.
3. Examine the reliability and validity of the measures, including inter-rater reliability among manual reviewers and known-groups validity.
4. Explore differences in performance based on patient characteristics, including race/ethnicity, presence/absence of chronic conditions, socioeconomic status, and preferred language spoken at home.

To address these aims, our study included two components: one, collection of information on care for a sample of 597 adolescents in three sites using manual EHR reviews (i.e., trained reviewers recording data based on viewing the electronic record) paired with automated EHR extracts; and two, collection of information on 68,409 adolescents in five sites based on automated EHR extracts.

### ***Key Findings from the Field Test***

- Based on manual review of the EHR, a total of 70.9 percent of adolescents had documentation of tobacco use status, with a range of 58.5 to 94.9 percent across the three participating sites. Overall, 13.6 percent of adolescents were identified as tobacco users (6.5 to 20.0 percent across sites). Only one-third (32.1 percent) of tobacco users received help with quitting (30.0 to 38.5 percent across sites). The proposed measure looks at the proportion of adolescents who had documentation of tobacco use and, if they were users, received help with quitting; the overall performance rate for this measure was 61.6 percent and ranged from 44.5 to 85.3 percent across sites.
- Inter-rater reliability was high for most data elements, including documentation of smoking status; however missing data prevented us from calculating kappa scores for all elements relevant to this measure. There was moderate agreement between performance measure results from the manual review and the automated EHR extract: 61.6 percent versus 47.4 percent, respectively. There was substantial variation in agreement across sites.
- Stakeholder reviews of the specifications and field test results showed that the measure has face validity. We also found that the known-groups validity, defined as the ability of the measure to meaningfully differentiate distinct groups, varied by site.



- Performance rates varied by race/ethnicity and health insurance coverage, a proxy measure for household socioeconomic status; however, these differences are confounded by site variations in performance on the measures.

### ***Methods***

This section describes the methods for the two field testing studies designed to evaluate the scientific soundness of the measure. NCINQ obtained data from five pediatric centers located in diverse geographic regions of the United States. Sites were selected to represent a variety of specialties (family practice, general pediatrics, and adolescent medicine), practice settings (children's hospitals, private practices, and clinics serving vulnerable youth), locations (Ohio, Missouri, Pennsylvania, and New York), EHR systems (EPIC, eClinicalWorks, and Allscripts), and patient populations (described below). The study relied on existing medical records.

Because of concerns about the completeness of data that could be automatically extracted from the EHR, the findings reported here focus on the manual review data unless otherwise noted.

#### *Study Group 1: Sample of Eligible Adolescents at 3 sites*

NCINQ conducted manual reviews and obtained an automated extract of EHR data for a sample of approximately 200 adolescents in three sites. The participating sites included pediatric clinics affiliated with a children's hospital (this sample was selected from adolescents enrolled in Medicaid), a network of clinics serving homeless and vulnerable adolescents, and an adolescent medicine clinic affiliated with a children's hospital (which primarily provides behavioral health and gynecology care to young women). The participating sites were in different States and used different EHR vendors. Potentially eligible adolescents were 12 to 19 years old as of December 31, 2010 (thus adolescents in the study ranged from age 12 to age 20) and had at least one visit to the same primary care office or adolescent medicine clinic in both 2010 and 2011. A total of 597 adolescents comprised the final study group for both the manual EHR review data as well as the automated EHR extract. Site personnel assigned site-specific identification numbers to protect the confidentiality of the adolescents' records and maintained a crosswalk with the patient identifiers.

NCINQ's trained reviewers collected information on smoking status documented in the field using the definition specified in Meaningful Use objectives, current tobacco use documented in the record, documentation of advice to quit smoking, counseling on the benefits of quitting smoking/using tobacco, referral to a smoking/tobacco cessation support program, and enrollment in a smoking/tobacco use program, as well as other quality measures, visit history, and socio-demographic characteristics. The review focused on care that occurred from October 1, 2010 to December 31, 2011 (a 15-month observation period).

At each site, two reviewers independently collected data for the same 75 adolescent records across three sites in order to assess inter-rater reliability. NCINQ provided a detailed data layout and instructions on required data for the automated extract and provided training for personnel at the field site on the data collection and submission procedures.

The mean age of the sample at the start of the measurement period was 15.5 years (Range: 12 to 19 years). Slightly more than two-thirds of the sample was female (68.2 percent; almost all

adolescents at one site were female). African-American adolescents represented the largest proportion of the overall sample (44.4 percent), followed by non-Hispanic Whites (30 percent). Approximately 93 percent of adolescents lived in households where English was the preferred language spoken at home.

### *Study Group 2: Automated EHR Extracts for All Eligible Adolescents at Five Sites*

We requested an automated EHR extract for all eligible adolescents at the three sites that participated in study group number 1, as well as two additional sites. The eligibility criteria and look-back period were altered slightly to allow for alignment with measure specification conventions used in federally funded efforts to specify measures for electronic reporting. Eligible adolescents were 12 to 19 years old as of December 31, 2010 (thus including adolescents ages 12 to 20) and had at least one visit to a primary care office or adolescent medicine clinic in 2011. The period of review was 18 months instead of 15 months. The automated EHR extract instructions were similar, though some data elements were eliminated to avoid collection of protected health information.

The mean age of this study group was 14.7 years (Range: 11 to 19 years). Just over half of the sample was female (51.8 percent). Non-Hispanic White adolescents represented the largest proportion of the overall sample (51.8 percent), followed by non-Hispanic African-Americans (32.1 percent).

## **6.A. Reliability**

**Reliability of the measure is the extent to which the measure results are reproducible when conditions remain the same. The method for establishing the reliability of a measure will depend on the type of measure, data source, and other factors. Please explain your rationale for selecting the methods you have chosen, show how you used the methods chosen, and provide information on the results (e.g., the kappa statistic).**

NCINQ assessed reliability by examining inter-rater reliability among manual EHR reviewers and comparing manual EHR reviews and automated EHR extracts. Inter-rater reliability was high for most data elements, including documentation of smoking status; however, missing data prevented us from calculating kappa scores for all elements relevant to this measure. Rates of documentation of tobacco use and help with quitting were lower in the automated data extract compared to the manual review of the EHR except at one site; however, there was substantial variation in agreement, by site.

### ***Inter-Rater Reliability***

To assess inter-rater reliability, two reviewers independently collected data on 75 patients. The agreement between the two reviewers was high for a large proportion of data elements (approximately 200). These variables included aspects of care related to demographics, sexual activity, chlamydia screening, depression screening, tobacco and drug use, vaccinations, and other common well-care visit items. Kappa coefficients and 95 percent confidence intervals were computed for each data element; kappa coefficients greater than 0.75 are indicative of excellent agreement. Table 1 presents the levels of agreement between the two manual reviewers together

for the data elements of tobacco cessation assistance. There was high agreement for smoking status based on the Meaningful Use definition data element (kappa coefficient =0.94). The kappa coefficients for the remaining data elements could not be calculated because there was no variance in the ratings of either reviewer, primarily because the data elements were not documented.

**Table 1. Inter-rater Reliability of Manual Reviews for Tobacco Use and Help with Quitting Among Adolescents Data Elements<sup>1</sup>**

Data elements	Total	
	Kappa Coefficient	95% Confidence Interval <sup>2</sup>
Smoking Status as defined in CMS EHR Meaningful Use objectives	0.94	0.87, 1.00
Current tobacco use	n/a	
Documentation of advice to quit smoking/using tobacco	n/a	n/a
Counseling on the benefits of quitting smoking/using tobacco	n/a	n/a
Referral to smoking/tobacco cessation support program	n/a	n/a
Enrolled in a smoking/tobacco use program	n/a	n/a

<sup>1</sup> Based on n=75 repeated ratings by two manual reviewers.

<sup>2</sup> 95% confidence intervals listed as n/a are because neither rater could find any data available in these charts for those data elements.

***Comparison Between Manual Review and Automated EHR Extract***

Table 2 compares information on tobacco use documentation and help with quitting calculated from manual EHR review versus automated EHR data extracts for the same sample of adolescents. Overall, there was documentation of tobacco status for 70.9 percent of adolescents in the manual reviews compared to 53.9 percent in the automated extracts; the kappa score (0.52) shows moderate agreement. In the manual reviews, 13.6 percent of adolescents were identified as smokers compared to 7.7 percent in the automated extract; the agreement is substantial (kappa=0.66). For the proposed measure, the percentage of adolescents whose tobacco use is documented and who received help with quitting if they were users was 61.6 percent in the manual review versus 47.4 percent in the automated extract; the agreement was moderate (kappa=0.52). There were substantial variations by site, both in the results and the agreement between manual review and automated EHR extract.

**Table 2. Agreement Between Manual EHR Review and Automated EHR Extract: Information on Tobacco (N=597)**

	Manual EHR Review (percent)	Automated Data Extract (percent)	Kappa Coefficient	95% Confidence Interval
Percentage of adolescents with tobacco status documented	70.9	53.9	0.52	0.45, 0.58
Percentage of adolescents who are current tobacco users	13.6	7.7	0.66	0.56, 0.76
Percentage of adolescents whose tobacco use is documented and who received help with quitting if they are users	61.6	47.4	0.52	0.45, 0.59

## 6.B. Validity

**Validity of the measure is the extent to which the measure meaningfully represents the concept being evaluated. The method for establishing the validity of a measure will depend on the type of measure, data source, and other factors.**

*Explain your rationale for selecting the methods you have chosen, show how you used the methods chosen, and provide information on the results (e.g., R2 for concurrent validity).*

We assessed validity by (1) obtaining multi-stakeholder feedback on the face validity of measure specifications and study results, (2) exploring the known-groups validity of the proposed measures among adolescents with and without a designated well-care visit during the study period. Stakeholder reviews of the specifications and field test results showed that the measure has face validity. We also found that the known-groups validity, defined as the ability of the measure to meaningfully differentiate distinct groups, varied by site.

### *Face Validity*

Validity refers to whether the measure represents the concept being evaluated. To assess different perspectives on the measure’s validity, NCINQ reviewed the specifications and field test results with our advisory panels, which included experts in measures development, adolescent medicine, and quality improvement (i.e. individuals well positioned to speak to a measure’s face validity). We reviewed measure results based on the different data element options for defining tobacco status, use, and follow-up. Our advisory panels concluded the measure is a valid way to assess tobacco status, use, and follow-up in adolescents.

### *Known Groups Validity*

While any clinical encounter with adolescents, including sports physicals or acute care visits, represents an opportunity to discuss risky behaviors, designated well-care visits provide an

important opportunity for these conversations. For this reason, NCINQ chose to evaluate the known-groups validity, defined as the ability of the measure to meaningfully differentiate distinct groups, by comparing the performance rates of adolescents who did not have any well-care visits in the measurement period to those who had one or more well-care visits. The manual reviewers abstracted the total number of well-care visits that were completed from October 1, 2010 to December 31, 2011. We defined well-care visits based on diagnosis or procedures codes or a visit that included documentation of health and developmental history, a physical exam, and health education/anticipatory guidance. The total number of well-care visits was transformed into a dichotomous variable to indicate whether the adolescent had any well-care visits (yes/no). NCINQ excluded Site 2 from the known groups validity analysis; this site is an adolescent medicine clinic that serves primarily female adolescents for behavioral health and gynecology care.

As shown in Table 3, documentation of tobacco use and help with quitting was significantly higher among adolescents who had at least one well-care visit in the measurement period compared to adolescents without designated well-care visits at Site 1 but not at Site 3.

**Table 3. Known Groups Validation: Tobacco Use and Help with Quitting Among Adolescents with and Without Designated Well Care Visits<sup>1</sup>**

	Had one or more well-care visits in measurement period (percent)		p -value
	Yes	No	
Adolescents whose tobacco use was documented and who received help with quitting if they were users			
Site 1	61.9	31.9	<0.0001
Site 3	57.0	52.3	0.53
Sites 1 and 3 (combined)	58.9	39.2	<0.0001

<sup>1</sup> Data from EHR manual review (N=400).

## Section 7. Identification of Disparities

**CHIPRA requires that quality measures be able to identify disparities by race, ethnicity, socioeconomic status, and special health care needs. Thus, we strongly encourage nominators to have tested measures in diverse populations. Such testing provides evidence for assessing measure’s performance for disparities identification. In the sections below, describe the results of efforts to demonstrate the capacity of this measure to produce results that can be stratified by the characteristics noted and retain the scientific soundness (reliability and validity) within and across the relevant subgroups.**

## 7.A. Race/Ethnicity

*Recognizing that children with differing races and ethnicities make up a diverse population of individuals with needs of varying complexity, please describe the results of any efforts to demonstrate the capacity of this measure to produce results that stratify by race and ethnicity.*

Due to limitations of the automated EHR extracts, NCINQ presents results stratified by key patient characteristics for the 597 adolescents included in the manual review study group only. Performance rates of the Tobacco Use and Help with Quitting Among Adolescents measure varied by race/ethnicity and health insurance coverage, a proxy measure for household socioeconomic status; however, these differences are confounded by site variations in performance on the measures. There was no difference in the measure rate based on presence of a chronic condition.

Prior to implementation of the field testing, sites confirmed that fields for patient-reported race and ethnicity data were available in the EHR and used at their institutions. NCINQ used the Office of Management and Budget (OMB) race/ethnicity categories and grouped adolescents into one of the following seven categories: (1) White, non-Hispanic; (2) African-American, non-Hispanic; (3) Latino/Hispanic; (4) Asian; (5) American Indian/Alaska Native; (6) Native Hawaiian and Other Pacific Islander; and (7) Other. The latter category included multiracial adolescents.

Table 4 shows that the study group was racially and ethnically diverse, but it varied substantially by site. Of note, the percentage of adolescents with missing race/ethnicity data ranged from 3.0 percent (Site 1) to 5.1 percent (Site 2).

**Table 4. Race/Ethnicity Breakdown of Adolescents in Sample, Percentage Total and by Site<sup>1</sup>**

Race/Ethnicity	Total	Site 1	Site 2	Site 3
White, non-Hispanic	30.0	28.0	52.3	10.0
African-American, non-Hispanic	44.4	57.5	40.6	35.0
Latino/Hispanic	7.0	1.0	0.5	19.5
Asian, Native American, or Pacific Islander	1.3	1.0	0.0	3.0
Other/Multiple	12.9	9.5	1.5	27.5
Missing	4.4	3.0	5.1	5.0

<sup>1</sup> Based on manual review of EHR data on the sample population (n=571).

Table 5 shows that the rates of tobacco use and help with quitting varied by race/ethnicity but appear to be attributable to differences across sites in measure performance. For example, the proportion of adolescents who met the measure requirements was lowest among Latino and Asian, Native American, or Pacific Islanders (38.1 percent vs. 25.0 percent, respectively). However, these two categories of adolescents had greater representation at Site 3, which also had the lowest performance rate for this measure. Hence, these results are not suggestive in differential patterns of treatment but may be attributed to site differences in EHR documentation.

**Table 5. Race/Ethnicity Differences in Tobacco Use and Help with Quitting Among Adolescents<sup>1</sup>**

Race/ethnicity of adolescents whose tobacco use was documented and who received help with quitting if they were users

Race/Ethnicity	Number	Percentage
Total	59	61.6
White, non-Hispanic	179	65.9
African-American, non-Hispanic	265	66.8
Latino/Hispanic	42	38.1
Asian, Native American, or Pacific Islander	8	25.0
Other/Multi-racial	77	54.6

<sup>1</sup>Data from EHR manual review (n=597).

## 7.B. Special Health Care Needs

In the absence of a standardized definition for ‘special health care needs,’ NCINQ explored the relationship between the presence of one or more chronic conditions and documentation of tobacco use and help with quitting. NCINQ obtained data on the top 20 diagnoses for each patient in 2011 (as indicated by ICD-9 codes) in the automated EHR extracts. NCINQ compared these diagnoses to an existing list of chronic and severe conditions for case identification in research (Perrin List; see Perrin, Newacheck, Pless, et al., 1993) and calculated the number and type of chronic conditions for which the adolescent received treatment.

Approximately 40 percent of adolescents had received treatment for at least one chronic condition in 2011 (Site 1: 37.0 percent; Site 2: 40.1 percent; Site 3: 39.5 percent). The most prevalent chronic conditions across the sites were: (1) asthma; (2) depression; (3) attention deficient hyperactivity disorder; (4) psychoses; (5) epilepsy; and (6) inborn errors of metabolism.

As shown in Table 6, data on tobacco use and help with quitting were similar among adolescents with one or more chronic conditions compared to those without chronic conditions.

**Table 6. Percentage of adolescents with one or more chronic conditions whose tobacco use is documented and who received help with quitting if they are users**

	Number	Percent
Yes	233	63.5
No	357	51.1

<sup>1</sup> Data from EHR manual review (N=590). Seven subjects were missing chronic condition data.

## 7.C. Socioeconomic Status

The adolescent’s health insurance coverage was used as a proxy measure of family socioeconomic status (SES). The type of coverage varied substantially by site; in Site 1, NCINQ used Medicaid insurance plan data to select the sample (Table 7). As shown in Table 8, rates of tobacco use and help with quitting varies by type of insurance, with higher rates of documentation for adolescents with commercial insurance (82.0 percent) compared to Medicaid-

insured or uninsured teens (60.6 percent and 39.2 percent, respectively). However, this finding appears to be related to differences in performance across sites rather than differences by insurance status.

**Table 7. Insurance Coverage Breakdown of Adolescents in Manual Review of Electronic Health Record, Percentage by Site<sup>1</sup>**

<b>Insurance Coverage</b>	<b>Site 1</b>	<b>Site 2</b>	<b>Site 3</b>
Commercial	0.0	50.3	0.5
Medicaid	100.0	42.1	60.5
Self Pay/Other	0.0	2.0	37.5
Missing	0.0	5.6	1.5

<sup>1</sup>Based on manual review of EHR data on the sample population (n=597).

**Table 8. Socioeconomic Differences in Tobacco Use and Help with Quitting Among Adolescents<sup>1</sup>**

Percentage of Adolescents whose tobacco use is documented and who received help with quitting if they are user:

	<b>Number</b>	<b>Percent</b>
<b>Medicaid</b>	404	60.6
<b>Commercial</b>	100	82.0
<b>Self-Pay/Other</b>	79	39.2

<sup>1</sup>Data from EHR manual review (N=583); 14 subjects were missing insurance data.

## **7.D. Rurality/Urbanicity**

NCINQ did not collect data to capture whether the adolescent’s household residence was in a rural or urban area. However, the sites involved in the study served adolescents in a range of communities.

## **7.E. Limited English Proficiency (LEP) Populations**

Initial analyses of the manual review data showed that at least 90 percent of adolescents in this sample lived in households where English was the preferred language spoken at home (Site 1: 92.5 percent; Site 2: 95.4 percent; Site 3: 90.5 percent). In light of this lack of variation, NCINQ did not explore the association of primary language spoken at home and the performance of this measure.



## Section 8. Feasibility

**Feasibility is the extent to which the data required for the measure are readily available, retrievable without undue burden, and can be implemented for performance measurement. Using the following sections, explain the methods used to determine the feasibility of implementing the measure.**

### 8.A. Data Availability

#### 1. What is the availability of data in existing data systems? How readily are the data available?

Data needed for calculating the Tobacco Use and Help with Quitting Among Adolescents measure are available in the medical record; however, the data are not consistently recorded in structured fields that would allow calculation of the measure electronically. Data needed for calculating this measure are not available in claims data.

Table 9 presents information from the five sites that participated in the field test on the availability in the EHR of data elements needed for constructing the Tobacco Use and Help with Quitting Among Adolescents measure. All five sites could report both elements for tobacco use. Although all sites can record tobacco status in the EHR, the rates of non-documentation are considerable.

Three of the five sites (Sites 1, 3, and 5) had the capacity to record at least one data element of help with quitting in adolescents. The two most common data elements were advice to quit smoking/using tobacco and referral to smoking/tobacco use program.

**Table 9. Availability of Tobacco Use and Help with Quitting Among Adolescents in Existing EHR Data Systems**

Data Element	Site					Total number of sites that can currently extract as automated EHR data
	Site 1	Site 2	Site 3	Site 4	Site 5	
	EPIC	Allscripts	eClinical-Works	EPIC	EPIC	
Smoking status as defined in EHR Meaningful Use objectives	X	X	X	X	X	5
Current tobacco use documented in the record	X	X	X	X	X	5
Documentation of advice to quit smoking/using tobacco			X		X	2
Counseling on the benefits of quitting smoking/using tobacco	X					1
Referral to smoking/tobacco cessation support program	X		X			2
Enrolled in a smoking/tobacco use program						0

**2. If data are not available in existing data systems or would be better collected from future data systems, what is the potential for modifying current data systems or creating new data systems to enhance the feasibility of the measure and facilitate implementation?**

The primary feasibility issues related to the use of the EHR and issues about implementation in that setting are discussed in Section 11.

**8.B. Lessons from Use of the Measure**

**1. Describe the extent to which the measure has been used or is in use, including the types of settings in which it has been used, and purposes for which it has been used.**

This is a new measure so it has not been in use.

**2. If the measure has been used or is in use, what methods, if any, have already been used to collect data for this measure?**

Not applicable.

**3. What lessons are available from the current or prior use of the measure?**

Not applicable.

## **Section 9. Levels of Aggregation**

**CHIPRA states that data used in quality measures must be collected and reported in a standard format that permits comparison (at minimum) at State, health plan, and provider levels. Use the following table to provide information about this measure's use for reporting at the levels of aggregation in the table.**

**For the purpose of this section, please refer to the definitions for provider, practice site, medical group, and network in the Glossary of Terms.**

**If there is no information about whether the measure could be meaningfully reported at a specific level of aggregation, please write "Not available" in the text field before progressing to the next section.**

***Level of aggregation (Unit) for reporting on the quality of care for children covered by Medicaid/ CHIP:***

Tobacco Use and Help with Quitting Among Adolescents was tested at the practice site level, and we are proposing it at the provider, health plan, and State levels (see Table 10). We have structured the measure to include all adolescents in the denominator in order to capture both tobacco use documentation and appropriate follow-up for those who are using tobacco (i.e., assistance with quitting).

**Table 10. Levels of Aggregation at the Provider, Health Plan, and State Levels**

Level of aggregation	Is measure intended to apply at this level? [yes/no and field to specify where needed]	Has this measure been calculated at this level? [yes/no and field to specify if needed]
a. Non-State geographic area (e.g. Metropolitan Statistical Area, county, Hospital Referral Region) If yes, specify which type of area		
b. More than one State (if yes, specify which)		
c. State: All children covered by Medicaid, CHIP, or both in one State (if yes, specify which State, and which program(s))	Yes	No
d. State: all children in the State regardless of payer (if yes, specify which State and which payers)		
e. Payment model (e.g., managed care, primary care case management, fee-for-service, other, or all) (if yes, specify which)		
f. Health plan	Yes	No
g. Hospital or residential facility (e.g., residential treatment center, nursing home, rehab center) (if yes, specify which type of facility)		
h. Individual health care provider (if yes, specify which type of health care provider)	Yes	No
i. Practice site	Yes	Yes
j. Other groupings of providers (if yes, specify which)	Yes (provider organization)	Yes (provider organization)
k. Other levels of aggregation (if yes, specify which)		

Note: An aggregation worksheet may also be completed (optional).

## Section 10. Understandability

**CHIPRA states that the core set should allow purchasers, families, and health care providers to understand the quality of care for children. Please describe the usefulness of this measure toward achieving this goal. Describe efforts to assess the understandability of this measure (e.g., focus group testing with stakeholders).**

NCINQ convened a multi-stakeholder advisory panel with representation from a wide range of stakeholders, including consumers, pediatricians, family physicians, adolescent medicine physicians, health plans, State Medicaid agencies, and researchers. In addition, we convened three targeted panels of stakeholders with particular relevance to the measures: we partnered with the National Partnership for Women and Families to convene a panel of consumer and family advocates; we partnered with the American Academy of Pediatrics to convene a panel of pediatricians, including adolescent medicine physicians; and we convened a panel of State Medicaid and CHIP representatives. Throughout the measure development process, we presented the measure to these panels and solicited feedback on importance, understandability, and usability.

In addition, we posted the measures for public comment to obtain feedback from an even wider audience of stakeholders. We specifically sought feedback on the following:

- Importance of topic area.
- Usability.
- Feasibility of implementation.
- Whether the measure concepts provide an opportunity to influence quality improvement in the health care system.

Overall, this measure garnered widespread support from our stakeholder groups and those who commented during public comment. Stakeholders noted the issue of tobacco use is of particular importance for the adolescent population. Consumers, State representatives, and clinicians were enthusiastic about the measure, with clinicians noting that smoking status should be considered "the fifth vital sign," given its importance and far-reaching health consequences. Consumers noted that the measure is easy to understand and interpret.

## **Section 11. Health Information Technology**

**Please respond to the following questions in terms of any health information technology (health IT) that has been or could be incorporated into the measure calculation.**

### **11.A. Health IT Enhancement**

**Please describe how health IT may enhance the use of this measure.**

Implementation within health IT will decrease the level of effort needed to calculate and report paper-based measures, which can be highly burdensome. Collecting these data items using paper or non-electronic formats can be a difficult and time-intensive task. Health IT can also help link the results of documentation of tobacco use with clinical actions to manage cessation assistance among adolescents. The results of the measure can be fed back to the provider via the EHR system. In addition, EHR systems have the functionality (currently in development) capable of tracking individual patients longitudinally in comparison to other methods of data collection; thus the potential to establish a data set capturing outcomes of cessation interventions among adolescent tobacco users exists.

### **11.B. Health IT Testing**

**Has the measure been tested as part of an electronic health record (EHR) or other health IT system?**

Yes.

**If so, in what health IT system was it tested and what were the results of testing?**

Please refer to Section 6. Scientific Soundness of the Measure for details regarding testing results of the measure in EHRs.

**11.C. Health IT Workflow**

**Please describe how the information needed to calculate the measure may be captured as part of routine clinical or administrative workflow.**

Follow-up activities pertaining to identification and documentation of tobacco use and the subsequent provision of interventions such as advice, counseling, and referral or enrollment into a tobacco cessation program (see Section 1B – Numerator Statement) are routinely captured in a clinical care process workflow. Additionally these activities are considered among the ‘best practice’ activities promoted by clinical practice guidelines and expert consensus statements (see Section 5.A – Research Evidence).

Given the widespread implementation of EHR systems, it is important to highlight how the proposed measure contributes to informing changes in EHR systems, which then informs changes in clinical care process workflows and vice versa. Currently automated extraction of EHR data (as a method of data collection) is limited by the degree of data completeness (see Section 6. Scientific Soundness of the Measure). Our testing shows that changes in the implementation of EHR capabilities, improved methods for searching text fields, and changes in clinical workflow (such as encouraging documentation in structured fields rather than text-based notes), would improve the feasibility of calculating this measure from electronic data.

**11.D. Health IT Standards**

**Are the data elements in this measure supported explicitly by the Office of the National Coordinator for Health IT Standards and Certification criteria (see [healthit.hhs.gov/portal/server.pt/community/healthit\\_hhs\\_gov\\_\\_standards\\_ifr/1195](http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov__standards_ifr/1195))?**

No.

**If yes, please describe.**

Overall, most data elements are not supported at this time. However known capabilities exist within most commercial EHR vendor systems and could be enhanced as EHR systems are widely adopted by practices and quality measures are established. Table 11 summarizes whether the data elements for the Tobacco Use and Help with Quitting measure are supported by the latest version of the ONC standards (Stages 1 and 2 Meaningful Use Objectives for an ambulatory care setting).

**Table 11. Support of data elements for the Tobacco Use and Help with Quitting Measure**

<b>Data Element</b>	<b>Supported by ONC</b>	<b>Comments</b>
Current smoking/tobacco use status reported by patient	Yes	"Record smoking status for patients 13 years old or older."
Past smoking/tobacco use status reported by patient	Yes	"Record smoking status for patients 13 years old or older."
Number of cigarettes smoked per day reported by patient	Yes Note: EHR functionality (currently in development) has the capacity to support mapping between an associated data element and this particular information point.	While the certification criterion defines 'smoking status' by the Meaningful Use (MU) definitions (stated as "Enable a user to electronically record, modify, and retrieve the smoking status of a patient. Smoking status types must include: current every day smoker; current some day smoker; former smoker; never smoker; smoker, current status unknown; and unknown if ever smoked"), the quantity of cigarettes is an information point that has not been explicitly stated in association to the MU definitions.
Smoking status as defined by Meaningful Use reported by patient	Yes Note: EHR functionality (currently in development) has the capacity to support mapping between an associated data element and this particular information point.	"Record smoking status for patients 13 years old or older." While the certification criterion defines 'smoking status' by the Meaningful Use (MU) definitions (stated as "Enable a user to electronically record, modify, and retrieve the smoking status of a patient. Smoking status types must include: current every day smoker; current some day smoker; former smoker; never smoker; smoker, current status unknown; and unknown if ever smoked"), smoking status is an information point that has not been explicitly stated in association to the MU definitions.
Type of tobacco product used as reported by patient (e.g., cigarettes, smokeless tobacco [chewing tobacco, snuff, or dip], cigars)	No	
How often "other" tobacco substances (other than cigarettes and smokeless tobacco) are used as reported by patient (e.g. number per week)	No	
Referral to external smoking or tobacco cessation programs (e.g., telephone counseling "quit lines")	No	

**Table 11. Support of data elements for the Tobacco Use and Help with Quitting Measure (continued)**

<b>Data Element</b>	<b>Supported by ONC</b>	<b>Comments</b>
Order of prescription medication for smoking or tobacco cessation	Yes	One of the criteria is "Generate and transmit permissible prescriptions electronically (eRx)." Providers are also required to "maintain active medication list" and "maintain active medication allergy list"  Computerized physician order entry (CPOE) is included in Meaningful Use.
Recommending a patient use over-the-counter (OTC) medications for smoking or tobacco cessation (e.g., gum, patch)	No	
How often smokeless tobacco is used as reported by patient (e.g., number per week)	No	
Advice was given to patient to discontinue smoking or tobacco use	No	
Structured counseling patient on the benefits of discontinuing tobacco use using methods such as the "5-A" Framework was given	No	
Patient reports whether s(he) is willing to quit smoking or using tobacco	No	
Enrolled in a smoking or tobacco cessation program	No	

## 11.E. Health IT Calculation

**Please assess the likelihood that missing or ambiguous information will lead to calculation errors.**

This measure was tested with Meaningful Use in mind. Providers can document the required data elements in routine parts of the EHR system. The measure may miss instances where providers document tobacco use and cessation help in non-structured fields, such as a physician's note. This is true of all eMeasures that rely on data being documented in specific locations. Thus, variation in where relevant information is recorded in an EHR limits the ability to compare providers in a standardized manner, in addition to affecting the degree of data completeness. NCINQ's testing showed that data obtained through manual EHR review had a higher degree of data completeness (see Section 6. Scientific Soundness of the Measure).

## 11.F. Health IT Other Functions

**If the measure is implemented in an EHR or other health IT system, how might implementation of other health IT functions (e.g., computerized decision support systems in an EHR) enhance performance characteristics on the measure?**



## Section 12. Limitations of the Measure

**Describe any limitations of the measure related to the attributes included in this CPCF (i.e., availability of measure specifications, importance of the measure, evidence for the focus of the measure, scientific soundness of the measure, identification of disparities, feasibility, levels of aggregation, understandability, health information technology).**

Our measures development process, including feedback from advisory panels, public comment and field testing, helps us to identify any potential limitations of proposed measures. For this measure, potential issues raised include concerns with confidentiality, limited treatment options for adolescents, and lack of standardization among EHR data elements. However, on balance, our advisory panels concluded the benefits of such a measure outweigh the concerns and have recommended the measure be finalized and submitted.

### *Confidentiality*

Stakeholders noted that adolescents may be unwilling to share information about this topic in the presence of a parent/caregiver or if they are not certain their privacy will be maintained. However, EHRs may potentially promote confidentiality of data records, as reports pulled from EHRs can be customized to print out only specified fields and therefore protect adolescent confidentiality. In addition, NCINQ is in the process of developing an adolescent self-report survey to gain more information about how confidentiality impacts an adolescent's health care experience. In the meantime, our advisory panels concluded the issue of confidentiality does not argue against implementation of a measure to encourage providers to ask about sexual activity.

### *Lack of Treatment Options*

Another potential limitation raised by stakeholders was the lack of available treatment options for the adolescent population. As noted, tobacco cessation medications are indicated only for adults. However, the measure includes various forms of therapy and other assistance, which reflects the current state of the field.

### *EHR Limitations*

As noted in our testing results, documentation of follow-up for tobacco users was captured less often by EHR systems in a systematic fashion. However, we anticipate that further adoption of EHR systems will promote increased use of structured fields. This uptake was seen in field test results for smoking status documentation. This data element is required as part of Meaningful Use, and we found that many of the EHR systems had this data element available in their systems.

## Section 13. Summary Statement

**Provide a summary rationale for why the measure should be selected for use, taking into account a balance among desirable attributes and limitations of the measure. Highlight specific advantages that this measure has over alternative measures on the same topic that**

**were considered by the measure developer or specific advantages that this measure has over existing measures. If there is any information about this measure that is important for the review process but has not been addressed above, include it here.**

The Tobacco Use and Help with Quitting Among Adolescents measure addresses an issue of significant importance. Data show that many adolescents begin smoking and using tobacco products, which can have both immediate and long-term serious health consequences. Research has shown that a provider's advice to quit can be effective. The measure encourages standardized documentation of tobacco use status and appropriate follow-up for those who are users.

The measure was presented to a wide range of stakeholders and was found to be valid and reliable. Based on manual review of the EHR, a total of 70.9 percent of adolescents had documentation of tobacco use status, with a range of 58.5 to 94.9 percent across the three participating sites. Overall, 13.6 percent of adolescents were identified as tobacco users (6.5 to 20.0 percent across sites). Only one-third (32.1 percent) of tobacco users received help with quitting (30.0 to 38.5 percent across sites).

The proposed measure looks at the proportion of adolescents who had documentation of tobacco use and, if they were users, received help with quitting; the overall performance rate was 61.6 percent and ranged from 44.5 to 85.3 percent across sites. Inter-rater reliability was high for most data elements, including documentation of smoking status. There was moderate agreement between performance measure results from the manual review and the automated EHR extract: 61.6 percent versus 47.4 percent. Stakeholder reviews of the specifications and field test results showed that the measure has face validity, while known-groups validity, defined as the ability of the measure to meaningfully differentiate distinct groups, varied by site.

The Tobacco Use and Help with Quitting Among Adolescents measure contributes to a comprehensive quality improvement strategy that is relevant and important for the adolescent population. First, the measure will encourage health care providers to standardize their documentation procedures to allow for retrievable information that is useful for tailoring health care interventions. Second, it will encourage greater efforts to provide adolescent tobacco users with help to quit. Last, it complements existing measures in the Children's Core Set that assess adolescent well care (Adolescent Well Care Visit, Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents: Body Mass Index Assessment for Children/Adolescents, and Immunization for Adolescents, and Chlamydia Screening in Women).

## **Section 14: Identifying Information for the Measure Submitter**

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**The CHIPRA Pediatric Quality Measures Program (PQMP) Candidate Measure Submission Form (CPCF) was approved by the Office of Management and Budget (OMB) in accordance with the Paperwork Reduction Act.**

**The OMB Control Number is 0935-0205 and the Expiration Date is December 31, 2015.**

## **Public Disclosure Requirements**

**Each submission must include a written statement agreeing that, should U.S. Department of Health and Human Services accept the measure for the 2014 and/or 2015 Improved Core Measure Sets, full measure specifications for the accepted measure will be subject to public disclosure (e.g., on the Agency for Healthcare Research and Quality [AHRQ] and/or Centers for Medicare & Medicaid Services [CMS] websites), except that potential measure users will not be permitted to use the measure for commercial use. In addition, AHRQ expects that measures and full measure specifications will be made reasonably available to all interested parties. "Full measure specifications" is defined as all information that any potential measure implementer will need to use and analyze the measure, including use and analysis within an electronic health record or other health information technology. As used herein, "commercial use" refers to any sale, license or distribution of a measure for commercial gain, or incorporation of a measure into any product or service that is sold, licensed or distributed for commercial gain, even if there is no actual charge for inclusion of the measure. This statement must be signed by an individual authorized to act for any holder of copyright on each submitted measure or instrument. The authority of the signatory to provide such authorization should be described in the letter.**

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