

Attachment A: CHIPRA Pediatric Quality Measures Program (PQMP) Candidate Measure Submission Form (CPCF)

Italics indicate instructions for how to complete a specific field. << >> indicates the name of a text field in the online version of this form. + indicates an upload field in the online version of this form.

Submission Guidelines

All submissions must include a written statement agreeing that, should U.S. Department of Health and Human Services (HHS) 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 and 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 (See section XIV).

Section I. Basic Measure Information

Tobacco use is widespread among adolescents, and it is associated with serious short- and long-term health outcomes, including asthma, heart disease, emphysema and lung cancer. It can result in immediate health problems in otherwise healthy adolescents. Findings suggest that a physician's advice to quit is an important motivator for smokers attempting to quit. This measure assesses whether adolescents' tobacco use status was documented and, for those using tobacco, whether there is documentation of assistance to quit. The measure complements existing measures in the Children's Initial Core Set that assess the content of well care for adolescents and also complements an existing measure that assesses use and treatment for adults.

I.A. Measure Name

Tobacco Use and Help with Quitting Among Adolescents

I.B. Measure Number (auto generated)

«Measure_Number»

I.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 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. Specifications are provided for both provider- and population-level reporting.

I.D. 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's National Quality Measures Clearinghouse and are available at <http://www.qualitymeasures.ahrq.gov/about/hierarchy.aspx>:

I.D.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.

NA

I.D.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.

NA

I.D.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.

NA

I.D.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.

NA

I.E. Numerator Statement

The numerator assesses whether tobacco use status was documented and received help with quitting if identified as a tobacco user.

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

I.F. Numerator Exclusions

None

I.G. Denominator Statement

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

I.H. Denominator Exclusions

None

I.I Data Sources

Check off all data sources specified by the measure.

Data Source	
a. Administrative Data (e.g., Claims data)	
b. Paper Medical Record	<input checked="" type="radio"/>
c. Survey – Health care professional report	
d. Survey – Parent/caregiver report	
e. Survey – Child report	
f. Electronic Medical Record	<input checked="" type="radio"/>
g. Other (If other, please list all other data sources in the field below).	

I.J. Measure Owner

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

I.K. National Quality Forum (NQF) ID (if applicable)

NA - New measure

Section II: 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 (February 2011), published by the Centers for Medicare & Medicaid Services and available at <http://www.medicare.gov/Medicare-CHIP-Program-Information/By-Topics/Quality-of->

[Care/Downloads/InitialCoreSetResouceManual.pdf](#) and <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Quality-of-Care/CHIPRA-Initial-Core-Set-of-Childrens-Health-Care-Quality-Measures.html>. 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.

+ Upload provider and population spec documents

Section III. 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. Also, include references and data.

III.A. Evidence for general importance of the measure

Provide evidence for all applicable aspects of general importance:

- Addresses a known or suspected quality gap 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 proficiency (LEP) populations.
- Potential for quality improvement (i.e., what is known about effective approaches to reducing the quality gap or disparity in quality.)
- Prevalence of condition among children under age 21 or 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.
- Rarity of condition (e.g., not often addressed or affects smaller vulnerable population)
- 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 changes across developmental stages, such as infancy, early childhood, middle childhood, adolescence, young adulthood, etc.

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 which adolescents who are identified and documented as current tobacco users 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* (AMA-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 (NSDUH 2010 and University of Michigan 2011). This issue is important, as early onset of tobacco use is correlated to 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 (TFK 2011).

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 (TFK 2011, 2012). Additionally, tobacco use can lead to engagement in other risky behaviors. Adolescents who smoke or use tobacco products are three times more likely than their

non-smoking counterparts to use alcohol; eight times more likely to use marijuana; and 22 times more likely to use cocaine (TFK 2011 and Fox et al. 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 (TFK 2012 and Clark et al. 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 prevention or early intervention efforts, 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) (TFK 2010).

Effective cessation assistance options for adolescents include counseling (individual or group, cognitive-behavioral, family, and motivational) and forms of behavior therapy. In addition, there are a range of tools 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. 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*. While there are a number of smoking cessation medications 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 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).

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 having ever been asked about their tobacco use or received advice about quitting from their clinicians (IOM 2012). Maciosek 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 (CDC 2012).

Tobacco use is also associated with income level. Persons (across ages) whose household incomes were below or near the federal poverty level had substantially higher prevalence of smoking, compared with persons whose household incomes were above the federal poverty level (CDC 2011).

III.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 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*¹.
- *Any other specific relevance to Medicaid/CHIP or to populations overrepresented in Medicaid or CHIP.*

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 (FPL) (Medicaid.gov 2012), and Medicaid coverage rates for children 0-18 years are more than double for African Americans (29 percent) and Hispanics (27 percent) compared to Caucasians (12 percent) (StateHealthFacts.org 2010). This measure aligns with the goals of EPSDT. 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) is a key component 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.

III.C. Relationship to other measures, if any

Please describe how this measure complements or improves on an existing measure in this topic area for the child or adult population (if known), or if it is intended to fill a specific gap in an existing measure. If this question does not apply, please note this.

The *Tobacco Use and Help with Quitting Among Adolescents* measure complements other Prevention and Health Promotion measures in the Children's Initial 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.

Citations

Campaign for Tobacco-Free Kids. 2012. Tobacco Overview. http://www.tobaccofreekids.org/facts_issues/tobacco_101/ (April 2012).

Campaign for Tobacco-Free Kids. 2011. Health Harms from Smoking and Other Tobacco Use. <http://www.tobaccofreekids.org/research/factsheets/pdf/0194.pdf>.

Campaign for Tobacco-Free Kids. 2011. Tobacco Use Among Kids. <http://www.tobaccofreekids.org/research/factsheets/pdf/0002.pdf>.

Campaign for Tobacco-Free Kids. 2010. Benefits & Savings From Each One Percentage Point Decline in the USA Smoking Rates. <http://www.tobaccofreekids.org/research/factsheets/pdf/0235.pdf>.

Centers for Disease Control and Prevention. 2010. Health Youth! Tobacco Use. <http://www.cdc.gov/healthyyouth/tobacco/index.htm> (Aug 2011).

Centers for Disease Control and Prevention. CDC, HHS, NCCDPHP and DASH. 2012. Tobacco Use and United States Students. http://www.cdc.gov/healthyyouth/yrbs/pdf/us_tobacco_combo.pdf.

Centers for Disease Control and Prevention. 2010. Selected Health Risk Behaviors and Health Outcomes by Race/Ethnicity – National YRBS: 2009. http://www.cdc.gov/healthyyouth/yrbs/pdf/us_disparityrace_yrbs.pdf.

Centers for Disease Control and Prevention. 2011. CDC Health Disparities and Inequalities Report – United States, 2011. MMWR 60(1): 109-13. Available from: http://www.cdc.gov/healthyyouth/yrbs/pdf/us_tobacco_combo.pdf (August 2012).

¹ The Early and Periodic Screening, Diagnostic and Treatment service, EPSDT, is a comprehensive set of benefits available to children and youth under age 21 who are enrolled in Medicaid. For more information, see <http://www.healthlaw.org/images/stories/epsdt/3-ESDPT08.pdf>

² Public Law 111-3, Available at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_public_laws&docid=f:publ003.111

³ Under Section 214 of CHIPRA, states may elect to cover the following groups under Medicaid only or under both Medicaid and CHIP: pregnant women and children up to age 19 for CHIP or up to age 21 for Medicaid.

Centers for Disease Control and Prevention. 2012. Youth Risk Behavior Surveillance - United States, 2011. MMWR 61(4).

Clark RE et al. 2010. Substance Abuse and Healthcare Costs Knowledge Asset, Web site created by the Robert Wood Johnson Foundation's Substance Abuse Policy Research Program. http://sabbr.org/knowledgeassets/knowledge_detail.cfm?KAID=21.

Fiore, M.C., C.R. Jaen, W.C. Bailey. 2010. Clinical Practice Guideline. Treating Tobacco Use and Dependence: 2008. Update. US Dept of Health and Human Services. Updated 2008. http://www.surgeongeneral.gov/tobacco/treating_tobacco_use08.pdf.

Fox HB, McManus MA and Arnold KN. 2010. Significant Multiple Risk Behaviors Among U.S. High School Students. <http://www.thenationalalliance.org/pdfs/FS8.%20Significant%20Multiple%20Risk%20Behaviors.pdf>.

Institute of Medicine. 2012. Ending the Tobacco Problem: Resources for Local Action. Health Care Providers Discouraging Smoking. http://sites.nationalacademies.org/Tobacco/SmokingCessation/Tobacco_051285.

Karpinski JP, Timpe EM, Lubsch L. 2010. Smoking Cessation Treatment for Adolescents. J Pediatr Pharmacol Ther.;15(4): 249–263. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3042263/>.

Maciosek, M.V., A.B. Coffield, N.M. Edwards, T.J. Flottemesch, M.J. Goodman, L.I. Solberg. 2006. Priorities among effective clinical preventive services. Results of a systemic review and analysis. Am J Prev Med 31(1):52–61.

Medicaid.gov. 2012. Medicaid & CHIP Program Information: By Population – Children. <http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Population/Children/Children.html>.

Medicaid.gov. 2012. Early and Periodic Screening, Diagnosis & Treatment. <http://medicaid.gov/Medicaid-CHIP-Program-Information/By-Topic/Early-Periodic-Screening-Diagnosis-Treatment.html>

National Institute on Drug Abuse. 2009. Screening for Drug Use in General Medical Settings: A Quick Reference Guide. NIH Pub No. 09-7384.

National Survey on Drug Use and Health (NSDUH). 2010 National Survey on Drug Use and Health data. <http://oas.samhsa.gov/NSDUH/2k10NSDUH/tabs/Sect2peTabs17to21.pdf>.

StateHealthFacts.org. 2010. Medicaid Coverage Rates for the Nonelderly by Race/Ethnicity, states (2009-2010), U.S. <http://www.statehealthfacts.org/comparetable.jsp?ind=163&cat=3>.

Tobacco Cessation Leadership Network. 2006. Trends in Delivery and Reimbursement of Tobacco Dependence Treatment. Updated 2006. http://www.tcln.org/reports/pdfs/Trends_in_Delivery_and_Reimbursement_final.pdf.

University of Michigan, Monitoring the Future Study, 2011. <http://www.monitoringthefuture.org/data/11data/pr11cig1.pdf>.

IV. Measure Categories

CHIPRA legislation² requires that measures in the initial and improved core set be responsive to the services and topics of health care quality listed below. Moreover, the legislation requires the core set to address the needs of children across all ages³ and to reflect availability of care across the range of health care settings in which such care is furnished. 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 each other, so please indicate "Yes" to all that apply.

	[Yes/No]
a. Care Setting – ambulatory	Yes
b. Care Setting – inpatient	No
c. Care Setting – other—please specify	No
d. Service – preventive health	Yes
e. Service – care for acute conditions	No
f. Service - care for children with special health care needs/chronic conditions	No
g. Service – health promotion and services to promote healthy birth	No
h. Service-other (please specify)	No
i. Measure Topic -duration of enrollment	No
j. Measure Topic – clinical quality	Yes

**[Add the following choices:
home, school, other community
and public health settings, long-
term care, other]**

	[Yes/No]	
k. Measure Topic – patient safety	No	
l. Measure Topic – family experience with care	No	
m. Measure Topic – care in the most integrated setting	No	
n. Measure Topic – other (please specify)	No	«Other_Topic»
o. Population – pregnant women	No	«Age_Range»
p. Population – neonates (28 days after birth)	No	«Age_Range»
q. Population – infants (29 days to 1 year)	No	«Age_Range»
r. Population – pre-school age children (1 through 5 years)	No	«Age_Range»
s. Population – school-age children (6 through 10 years)	No	«Age_Range»
t. Population – adolescents (11 through 20 years)	Yes	≥ 12 years and <21 years

V. Evidence 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. Describe the research and clinical or other rationale that supports the focus of this measure.

V.A. Research Evidence

Research evidence should include a brief description of the evidence base for the relationship between a structure or process of health care and outcomes or an outcome that is influenced by a structure or process of health care. Describe the nature of the evidence, including study design, and provide relevant citations. Evidence may be systematic reviews of research literature, research studies, or published formal consensus procedures⁴.

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 clinicians ask pediatric and adolescent patients about tobacco use and message the importance of abstaining from it. The guideline also recommends clinicians counsel adolescents who are using tobacco. The U.S. Preventive Services Task Force recommendation concluded the evidence was insufficient to recommend for or against routine screening and interventions for adolescents. However, this statement was published in 2003, and we anticipate it will be updated.

TYPE OF EVIDENCE	KEY FINDINGS	KEY CITATION(S)
Clinical Guidelines	U.S. Public Health Service (USPHS) - 2009: Tobacco Use Clinicians should ask pediatric and adolescent patients about tobacco use and	Fiore MC, Jaén CR, Baker TB, et al. Treating tobacco use and dependence: 2008

⁴ A systematic review of the research literature: In the space provided, indicate how the systematic review of evidence has been assessed, for example, according to the guidance of such organizations as:

- Cochrane Collaborative, including EPOC as appropriate (<http://www.cochrane.org/>).
- U.S. Preventive Services Task Force (<http://www.uspreventiveservicestaskforce.org/uspstf07/methods/currprocess.pdf>); (<http://www.effectivehealthcare.ahrq.gov/tools-and-resources/researcher-resources/>)
- Oxford Center for Evidence-Based Medicine (<http://www.cebm.net/index.aspx?o=1011>)
- Or other appropriate taxonomy (<http://www.equator-network.org/>)

Research studies: Published in a National Library of Medicine (NLM) indexed, peer-reviewed journal (specify study design and other critical features relevant to assessing the quality of the study).

Published formal consensus procedure: Involving experts in relevant clinical, methodological, public health, and organizational sciences.

TYPE OF EVIDENCE	KEY FINDINGS	KEY CITATION(S)
	<p>provide a strong message regarding the importance of totally abstaining from tobacco use.</p> <p>U.S. Public Health Service (USPHS) - 2009: Counseling</p> <ul style="list-style-type: none"> • 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 	<p>update. Clinical practice guideline. Rockville, MD: US Department of Health and Human Services, Public Health Service; 2008. Available at http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat2.chapter_28163.</p>
Clinical Guideline	<p>U.S. Preventive Services Task Force (USPSTF) - 2003: Counseling to Prevent Tobacco Use.</p> <p>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.</p>	<p>U.S. Preventive Services Task Force (USPSTF). 2003. Counseling to Prevent Tobacco Use and Tobacco-Caused Disease, Topic Page. http://www.uspreventiveservicestaskforce.org/uspstf/uspstbac.htm</p>
Clinical Guidelines	<p>American Academy of Family Physicians (AAFP) - 2011: Tobacco Use, Counseling, Children and Adolescents</p> <p>Aligned with USPSTF recommendation</p>	<p>American Academy of Family Physicians (AAFP). 2011. Summary of Recommendations for Clinical Preventive Services. Leawood (KS): American Academy of Family Physicians; 18 p.</p>
Clinical Guidelines	<p>Institute for Clinical Systems Improvement (ICSI) - 2010: Tobacco Use Screening, Prevention and Intervention in Adolescents</p> <p><i>Service</i></p> <p>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[<i>Systematic Review</i>], [<i>Low Quality Evidence</i>].</p> <p><i>Efficacy</i></p> <p>Tobacco use is the single most preventable cause of death and disease in our society. There is some evidence that that school-based programs and family intervention programs may help prevent smoking in children and adolescents [<i>Systematic Review</i>]. There is good evidence that tobacco cessation interventions are best carried out when the entire clinical staff is organized to provide these services [<i>Systematic Review</i>], [<i>Low Quality Evidence</i>].</p> <p>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 [<i>High Quality Evidence</i>].</p> <p>Refer to the original guideline document for more information on the efficacy of tobacco use screening, prevention, and intervention in adolescents.</p> <p><i>Counseling Message</i></p> <p>For children and adolescents using tobacco:</p> <ul style="list-style-type: none"> • 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 [<i>Low Quality Evidence</i>]. 	<p>Institute for Clinical Systems Improvement (ICSI). Preventive services for children and adolescents. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2010 Sep. 84 p.</p>

TYPE OF EVIDENCE	KEY FINDINGS	KEY CITATION(S)
	<ul style="list-style-type: none"> • 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. <p><i>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 decision-making.</i></p>	
<p>Expert Consensus/ Evidence informed</p>	<p>Bright Futures (2008) - Risk reduction - tobacco</p> <p>Risk reduction – tobacco</p> <p>Provide information and/or role-play on how to resist peer pressure to smoke, drink alcohol, or use drugs.</p> <p>For the parent</p> <ul style="list-style-type: none"> • 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. <p>For the youth</p> <ul style="list-style-type: none"> • 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. <p>If you smoke, use drugs, or drink alcohol, let's talk about it. I can suggest ways to help you quit.</p>	<p>Hagan, JF, Shaw JS, Duncan PM, eds. 2008. <i>Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, Third Edition</i>. Elk Grove, IL: American Academy of Pediatrics.</p>
<p>Clinical Guidelines</p>	<p>American Academy of Pediatrics (AAP) - 2010: Alcohol, Tobacco and Other Substance Use</p> <p>Alcohol, Tobacco and Other Substance Use</p> <ul style="list-style-type: none"> • 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. <p>Recommendations Specific to Tobacco Use</p> <p>For patients and their family members</p> <ul style="list-style-type: none"> • 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.^{83,84} As a result, prevention of tobacco use is one of the most important messages you can deliver. 	<p>American Academy of Pediatrics. Committee on Environmental Health, Committee on Substance Abuse, Committee on Adolescence, and Committee on Native American Child Health. 2009. Tobacco Use: A Pediatric Disease. <i>Pediatrics</i> 124(5): 1474.</p>

TYPE OF EVIDENCE	KEY FINDINGS	KEY CITATION(S)
	<p><i>For patients or family members who use tobacco</i></p> <ul style="list-style-type: none"> • 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.¹⁴ 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. <ul style="list-style-type: none"> ○ 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. <ul style="list-style-type: none"> ○ 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 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 (Table 2). 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. <p><i>Special considerations for high-risk populations</i></p> <ul style="list-style-type: none"> • Emphasize the significant health harms of tobacco use 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 	

TYPE OF EVIDENCE	KEY FINDINGS	KEY CITATION(S)
	<p>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.</p> <p>When assessing mental health and substance abuse, include 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.</p>	

V.B. Clinical or other rationale supporting the focus of the measure (optional)

Please provide documentation of the clinical or other rationale for the focus of this measure. Please include one or a few key citations to support your rationale, if 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 (TFK 2011, 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).

Citations

Campaign for Tobacco-Free Kids. 2012. Tobacco Overview. http://www.tobaccofreekids.org/facts_issues/tobacco_101/ (April 2012).

Campaign for Tobacco-Free Kids. 2011. Health Harms from Smoking and Other Tobacco Use. <http://www.tobaccofreekids.org/research/factsheets/pdf/0194.pdf>.

Fox HB, McManus MA and Arnold KN. 2010. Significant Multiple Risk Behaviors Among U.S. High School Students. <http://www.thenationalalliance.org/pdfs/FS8.%20Significant%20Multiple%20Risk%20Behaviors.pdf>.

VI. Scientific Soundness of the Measure

Please explain the methods used to determine the scientific soundness of the measure itself. Also, 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 the data system/data sources may impact reliability and validity. The glossary contains terms related to reliability and validity is included.

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) To assess the availability of key data elements and logic required for calculating well care measures in diverse EHR implementations.
- 2) To compare measure results based on manual reviews of the electronic medical records to automated extracts from the EHR.
- 3) To examine the reliability and validity of the measures, including inter-rater reliability among manual reviewers and known-groups validity.
- 4) To 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: 1) 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 2) 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% of adolescents had documentation of tobacco use status with a range of 58.5% to 94.9% across the three participating sites. Overall, 13.6% of adolescents were identified as tobacco users (6.5 to 20.0% across sites). Only one-third (32.1%) of tobacco users received help with quitting (30.0 to 38.5% 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% and ranged from 44.5 to 85.3% 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% versus 47.4%. 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 U.S.; 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 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 trained 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%) (Almost all adolescents at one site were female). African-American adolescents represented the largest proportion of the overall sample (44.4%) followed by non-Hispanic Whites (30%). 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 5 Sites

We requested an automated EHR extract for all eligible adolescents at the three sites that participated in study group #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%). Non-Hispanic White adolescents represented the largest proportion of the overall sample (51.8%) followed by non-Hispanic African-Americans (32.1%).

VI.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 1) inter-rater reliability among manual EHR reviewers and 2) comparisons between 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% 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 Elements¹

	TOTAL
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Data elements	Kappa Coefficient	95% Confidence Interval ²
Smoking Status as defined in CMS EHR Meaningful Use objectives	0.94	0.87, 1.00
Current tobacco use	n/a	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

¹ Based on n=75 repeated ratings by two manual reviewers.

² 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% of adolescents in the manual reviews compared to 53.9% in the automated extracts; the Kappa score (0.52) shows moderate agreement. In the manual reviews, 13.6% of adolescents were identified as smokers compared to 7.7% 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 are users was 61.6% in the manual review versus 47.4% 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 %	Automated Data Extract %	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

VI.B. Validity

Validity of the measure is the extent to which the measure meaningfully represents the concept being evaluated and its relationship to measuring quality. The method for establishing the validity 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., R² for concurrent validity).

We assessed validity by 1) obtaining multi-stakeholder feedback on the face validity of measure specifications and study results, and 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 served primarily female adolescents for behavioral health and gynecology care.

As shown in Table 3, documentation of tobacco use and help with quitting 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 among Adolescents with and Without Designated Well Care Visits¹

Percentage of Adolescents whose tobacco use is documented and who received help with quitting if they are users	Had 1 or More Well-Care Visits in Measurement Period		p-value
	Yes	No	
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

¹Data from EHR manual review (N=400).

VII. 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 measures' performance for disparities identification.

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 *Tobacco Use and Help With Quitting Among Adolescents* 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 were no difference in the measure rate based on presence of a chronic condition.

VII.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.

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 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 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, Total and by Site¹

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%

¹Based 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 were lowest among Latino and Asian, Native American, or Pacific Islanders (38.1% and 25.0%, respectively). However, these two categories of adolescents had greater representation at Site 3, which also had the lowest performance rate for this measure (Table 10). 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 Quitting¹

	Total (n=597)	White, non- Hispanic (n=179)	African- American, non- Hispanic (n=265)	Latino /Hispanic (n=42)	Asian, Native American, or Pacific Islander (n=8)	Other/ Multi-racial (n=77)
Percentage of Adolescents whose tobacco use is documented and who received help with quitting if they are users	61.6%	65.9%	66.8%	38.1%	25.0%	54.6%

¹Data from EHR manual review (n=597).

VII.B. Special health care needs

Recognizing that children with special health needs comprise 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 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), 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%; Site 2: 40.1%; Site 3: 39.5%). 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, tobacco use and help with quitting was similar among adolescents with one or more chronic conditions compared to those without chronic conditions.

Table 6. Differences in Tobacco Use and Help with Quitting among Adolescents with and without Chronic Conditions¹

	Presence of 1 or More Chronic Conditions	
	Yes (n=233)	No (n=357)
Percentage of adolescents whose tobacco use is documented and who received help with quitting if they are users	63.5%	61.1%

¹Data from EHR manual review (N=590). 7 subjects were missing chronic condition data.

VII.C. Socioeconomic status

Recognizing that children of different socioeconomic statuses 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 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%) compared to Medicaid-insured or uninsured teens (60.6% and 39.2%, 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 E.H.R. Review, by Site¹

Insurance Coverage	Site 1	Site 2	Site 3
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%

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

Table 8. Socioeconomic Differences in Tobacco Use and Help with Quitting Among Adolescents¹

	Insurance Coverage		
	Medicaid (n=404)	Commercial (n=100)	Self-Pay/Other (n=79)
Percentage of Adolescents whose tobacco use is documented and who received help with quitting if they are users	60.6%	82.0%	39.2%

¹Data from EHR manual review (N=583). 14 subjects were missing insurance data.

VII.D. Rurality/Urbanicity

Recognizing that children living in areas with differing levels of rurality/urbanicity 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 levels of 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.

VII.E. Limited English Proficiency (LEP) Populations

Recognizing that children living in families with differing primary languages at home and differing levels of parental English proficiency 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 primary language spoken at home and parental English proficiency.

Initial analyses of the manual review data showed that at least 90% of adolescents within this sample lived within households where English was the preferred language spoken at home (Site 1: 92.5%; Site 2: 95.4%; Site 3: 90.5%). 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.

VIII. 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 measurement⁵. Please explain the methods used to determine the feasibility of implementing the measure in the following sections.

VIII.A. Opportunities/Issues in Implementation

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

Data needed for calculating *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

b. 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 relate to the use of the EHR and issues about implementation in that setting are discussed in Section XI.

c. Describe the extent to which the measure has been used or is in use, including the diversity of settings in which it has been used. If the measure has been used or is in use, what methods, if any, have already been used to collect data for this measure? What lessons are available from its prior or current use?

⁵ Adapted from: CMS-Centers for Medicare & Medicaid Services Quality Measurement and Health Assessment Group glossary http://www.cms.gov/MMS/19_MeasuresManagementSystemBlueprint.asp#TopOfPage Accessed February 6, 2012.

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

VIII.B. Eligible Population and Performance Rates

Please describe the following for this measure:

a. Describe the eligible populations and results of testing in the eligible populations.

Performance rates for the *Tobacco Use and Help With Quitting Among Adolescents* measure based on manual EHR review is presented by site and for the total sample in Table 10. The overall rate was 61.6%. Rates vary from a low of 44.5% percent documentation to a high of 85.3 percent. Site to site variation can be explained, in part, by differences in the availability of data elements, content of free-text notes, and site characteristics.

Table 10. Performance Rates for *Tobacco Use and Help with Quitting among Adolescents* in Manual EHR Review, Overall and by Site

	Overall	Site 1	Site 2	Site 3
Percentage of Adolescents whose tobacco use is documented and who received help with quitting if they are users	61.6%	55.5%	85.3%	44.5%

Table 11 shows the percentages of adolescents who met or failed the numerator requirements for the measure in the overall manual review sample as well as by site. Most adolescents who failed to meet the numerator requirements had no documentation of tobacco status (29.2% of the sample). Overall, 13.6% of adolescents were identified as current tobacco users; only one-third (32.1%) of these adolescents (4.3% of all adolescents) received help with quitting. There were substantial variations by site in documentation of tobacco status.

Table 11. Percentage of Adolescents Who Met and Failed the Numerator Requirements for *Tobacco Use and Help with Quitting among Adolescents* in Manual EHR Review, Overall and by Site (N=597)

	All Sites	Site 1	Site 2	Site 3
Met Numerator Requirement				
Percentage of adolescents with documentation of no tobacco use	57.3%	53.0%	80.7%	38.5%
Percentage of adolescent tobacco users who received help with quitting	4.3%	2.5%	4.6%	6.0%
Failed Numerator Requirement				
Percent of adolescents whose tobacco status was not documented	29.2%	40.5%	5.1%	41.5%
Percentage of adolescent tobacco users who did NOT receive help with quitting	9.2%	4.0%	9.6%	14.0%
TOTAL	100%	100%	100%	100%

Data from Sample Manual Review (N=597).

The potential eligible population at the five participating sites varied from 401 to 53,625 adolescents. There was wide variability in performance rates across sites (19.8 to 76.8%); we do not present detailed data because of concerns about the reliability of the automated EHR extracts.

b. Provide an estimate of the required sample size to gain adequate numbers of observations for sufficiently precise comparisons of stratifications by race, ethnicity, special health care needs, and socioeconomic status.

We are unable to provide an estimate of required sample size for making comparisons across these patient characteristics or provider groups due to the limited data available from the manual review sample.

+ Opportunity to upload attachment with supplementary materials.

IX. 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. Please provide information about this measure's use at

the following levels of aggregation:

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. 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).

Level of aggregation	Is measure <i>intended to apply</i> at this level? [Yes/No and field to SPECIFY where needed]	Has this <i>measure been calculated</i> at this level? [Yes/No and field to SPECIFY which level 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)		

An [Aggregation worksheet](#) may also be completed (optional).

+ Opportunity to upload attachment with aggregation worksheet.

X. 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 to purchasers, families, and health care providers. If any efforts have been made to assess the understandability of this measure, please describe.

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; and

- 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, states, 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 XI. Health Information Technology (Health IT)

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.

This measure is relevant for implementation in EHRs. The use of health IT will allow for less burdensome data collection and provide opportunities for identifying populations at risk and clinical decision support focused on appropriate assistance for tobacco cessation. Fields for documenting smoking status are required for the Meaningful use program; however, fields for documenting cessation help could be improved. We anticipate that further incorporating data fields addressing tobacco assistance into EHR technical standards, increasing the use of these fields in EHR systems, and encouraging providers to use structured fields rather than text fields to document these measure concepts would further improve the feasibility of reporting this measure from EHRs.

XI. 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.

XI.B. Health IT Testing

Has the measure been tested as part of an electronic health record (EHR) or other health IT system? If so, in what health IT system was it tested and what were the results of testing?

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

XI.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, referral or enrollment into a tobacco cessation program (see Section IB – 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 VA – 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 extract of EHR data (as a method of data collection) is limited by the degree of data completeness (see Section VI. 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.

XI.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: http://healthit.hhs.gov/portal/server.pt/community/healthit_hhs.gov_standards_ifr/1195)?

Overall, most data elements are not supported at this time. However known capabilities exist within most commercial EHR vendor systems and can be enhanced as EHR systems are widely adopted by practices and quality measures are established. The table below summarizes whether the data elements for the *Tobacco Use and Health 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).

Data Element	Supported by ONC	Comments
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*	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. *However EHR functionality (currently in development) has the capacity to support mapping between an associated data element and this particular information point.
Smoking status as defined by Meaningful Use reported by patient	Yes*	"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. *However EHR functionality (currently in development) has the capacity to support mapping between an associated data element and this particular information point.
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	No	

Data Element	Supported by ONC	Comments
reported by patient (e.g. number per week)		
Referral to external smoking or tobacco cessation programs (e.g., telephone counseling "quit lines")	No	
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 (see DEFINITIONS)	No	
Patient reports whether s(he) is willing to quit smoking or using tobacco	No	
Enrolled in a smoking or tobacco cessation program	No	

XI.E. Health IT Calculation

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

This measure 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 VI. Scientific Soundness of the Measure*).

XI.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 on the measure?

Implementation of other HIT functions, such as computerized decision support systems in an EHR, can enhance performance on the proposed measure, providing an opportunity to capture information on the management of interventions with respect to initiation and maintenance of cessation assistance, provider-patient communication (e.g., reminders for follow-up) and care coordination across care settings (e.g., if an adolescent patient transitions into adult primary care). HIT can also help providers refer patients to cessation interventions provided in other settings, such as community-based interventions, therefore capitalizing on other support structures typically available to the adolescent population.

XII. Limitations of the Measure

Please describe any limitations of the measure.

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 and follow-up for tobacco users was less often captured 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.

XIII. Summary Statement

Provide a summary rationale for why the measure should be selected for use, taking into account a balance among desirable attributes of the measure. Please 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.

The *Tobacco Use and Help with Quitting Among Adolescents* measure addresses an issue of significant importance. Data show that many adolescents continue to 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% of adolescents had documentation of tobacco use status, with a range of 58.5% to 94.9% across the three participating sites. Overall, 13.6% of adolescents were identified as tobacco users (6.5 to 20.0% across sites). Only one-third (32.1%) of tobacco users received help with quitting (30.0 to 38.5% 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% and ranged from 44.5 to 85.3% 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% versus 47.4%. 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.

Tobacco Use and Help with Quitting Among Adolescents 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 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 XIV: Additional Information

Complete information about the person submitting the material, including:

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NCQA Signatory

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Glossary of Terms

	TERM	DEFINITION	SOURCES
1.	DENOMINATOR	The number or population representing the total universe in which an event might happen: the number at risk used to calculate a rate, proportion, or percentage.	Cohn, 2001
2.	NUMERATOR	A subset of those in the denominator who have experienced the event of interest (e.g. death, morbidity, screening) used to calculate a rate, proportion, or percentage.	RTI
3.	OUTCOME	A particular state of health, often defined for purposes of quality measurement as a result of the performance (or nonperformance) of functions or processes of care.	Adapted from CMS
4.	OUTCOME MEASURE	Measure that indicates the results of the performance (or nonperformance) of functions or processes. A measure that focuses on achieving a particular state of health.	CMS
5.	PROCESS MEASURE	Measure that focuses on a healthcare process that leads to a certain outcome. For a process measure to be valid, a scientific basis exists for believing that the process, when executed well, will increase the probability of achieving a desired outcome.	Adapted from CMS
6.	PROCESS (of care)	Process of care denotes what is actually done to the patient in the giving and receiving of care. As examples: the provider could immunize the patient against a communicable disease; the provider could prescribe a medication for the patient; the provider could screen an asymptomatic patient for developmental disorders.	Adapted from IOM, 2006, Appendix E
7.	QUALITY (in health care)	Health care quality has been defined in several ways. In 1990, the Institute of Medicine (IOM) defined quality as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (IOM, 1990). Eisenberg defined quality as the right care for the right person at the right time in the right way. In 2001, the IOM defined quality as having six aims: Safety, Timeliness, Effectiveness, Equity, Efficiency, and Patient-Centeredness. The Affordable Care Act defines quality of care as a measure of performance on IOM's six aims for health care. CHIPRA defines a clinical quality measure as "a measurement of clinical care that is capable of being examined through the collection and analysis of relevant information, that is developed in order to assess one or more aspects of pediatric health care quality in various institutional and ambulatory health care settings, including the structure of the clinical care system, the process of care, the outcome of care, or patient experiences in care."	IOM, 2001 IOM, 1990, Eisenberg, CHIPRA; Patient Protection and Affordable Care Act
8.	QUALITY MEASURE	A quality measure is in effect a rule (or the result of a rule) that assigns numeric values to a specific quality indicator. Quality measures generally consist of a descriptive statement or indicator, a list of data elements necessary to construct and/or report the measure, detailed specifications that direct how the data elements are to be collected (including the source of data), the population on whom the measure is constructed, the timing of data collection and reporting, the analytic models used to construct the measure, and the format in which the results will be presented.	Adapted from IOM, 2006, Appendix E; NQMC Glossary
9.	RELIABILITY	Measure reliability: The results of the measure are reproducible a high proportion of the time when assessed in the same population (e.g., the measure has high inter-rater reliability, no calculation errors). Internal consistency reliability assesses the consistency of results across items within a test, where "test" refers to a series of questions, ratings, or other items designed to determine knowledge, ability or health status. Inter-rater reliability is a measure of the variation in measurements when taken by different individuals but with the same method or instruments. Test-retest is a statistical method used to determine a test's reliability . The test is performed twice; in the case of a questionnaire, this would mean giving a group of participants the same questionnaire on two different occasions. If the correlation between separate administrations of the test is high (~.7 or higher), then it has good test-retest reliability. It is important to consider the time interval between testing and retesting and the nature of the measurement. Quality measures optimally would show improvement in scores over time.	CMS, Wikipedia, Farlex
10.	STRUCTURE	Structure refers traditionally to the attributes of settings in which providers deliver health care, including material resources (e.g., electronic health records), human resources (e.g., staff expertise), and organizational structure (adapted from IOM, Performance Measurement, 2006; Appendix E). Some have suggested that structural attributes should include organizational characteristics such as leadership and culture (Kunkel, 2007) and system attributes beyond individual health care delivery settings.	Adapted from IOM, 2006, Appendix E
11.	STRUCTURAL MEASURE	Measures of structure assess the capacity of health care professionals and organizations to provide safe, timely, effective, equitable, efficient and patient-centered processes of care and positive health outcomes.	Adapted from AHRQ
12.	STRUCTURE-PROCESS-OUTCOMES MODEL	As identified by Donabedian (1988), the classic paradigm for assessing quality of care based on a three-component approach. Donabedian's model proposes that each component has a direct influence on the next, as represented by the arrows in this schematic (Donabedian, 1980): Structure → Process → Outcomes.	IOM, 2006, Appendix E
13.	VALIDITY	Measure accurately represents the concept being evaluated and achieves the purpose for	CMS, Wikipedia

TERM	DEFINITION	SOURCES
	<p>which it is intended (to measure quality). In science and statistics, validity has no single, agreed upon definition but generally refers to the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to the real world. The word "valid" is derived from the Latin validus, meaning strong.</p> <p>Concurrent validity refers to the degree to which the measure correlates with other measures of the same construct that are measured at the same time. Using a testing example, a test administered to current employees and then correlated with their scores on current performance reviews would have good concurrent validity if those who scored well on the test also did well on performance reviews.</p> <p>Construct validity is the extent to which a measure measures the concept or construct that it is intended to measure. For example, a measure that measures the quality of diabetes care by whether a provider conducted an HbA1c test on a patient with diabetes has relatively good construct validity because high HbA1c levels are associated with diabetes crises.</p> <p>Content validity. In psychometrics, content validity refers to the extent to which a measure represents all facets of a given construct. For example, a depression scale may lack content validity if it only assesses the affective dimension of depression but fails to take into account the behavioral dimension. Using the diabetes care example, a combination of three different measures (HbA1c testing, foot examinations, and eye examinations) would have better content validity than a single measure of HbA1c testing.</p> <p>Criterion validity involves the correlation between a measure and a criterion variable (or variables) taken as representative of the construct. In other words, it compares the test with other measures or outcomes (the criteria) already held to be valid. For example, IQ tests are often validated against measures of academic performance (the criterion). If the test data and criterion data are collected at the same time, this is referred to as <i>concurrent validity</i> evidence. If the test data are collected first in order to predict criterion data collected at a later point in time, then this is referred to as <i>predictive validity</i> evidence.</p> <p>Face validity is the validity of a measure at face value. Generally face validity means that the measure "looks like" it will work, as opposed to "has been shown to work."</p> <p>Predictive validity refers to the degree to which the measure can predict (or correlate with) other measures of the same construct that are measured at some time in the future. In job selection, for example, this would mean that tests are administered to applicants, all applicants are hired, their performance is reviewed at a later time, and then their scores on the two measures are correlated. If there is a strong correlation between test scores and future performance, the test would be said to have good predictive validity.</p> <p><i>Measures should be assessed against all relevant criteria at all intended levels of aggregation.</i></p>	

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