

Sexual Activity Status Among Adolescents

Section 1. Basic Measure Information

1.A. Measure Name

Sexual Activity Status Among Adolescents

1.B. Measure Number

0087

1.C. Measure Description

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

This measure assesses whether adolescents 12 to 20 years of age with a primary care visit had their sexual activity status documented. This measure is designed for health care provider-level reporting and has been tested in electronic health records (EHRs). Specifications are provided for both provider- and population-level reporting.

1.D. Measure Owner

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

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

Not applicable.

1.F. Measure Hierarchy

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

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

Not applicable.

1.G. Numerator Statement

Documentation of any of the following during the measurement year or the 6 months prior to the measurement year:

- Sexual activity status – current (e.g., sexually active, abstinent).
- Sexual activity, past.
- Number of sexual partners.
- Current or past diagnosis of a sexually transmitted infection (STI).
- Use of non-hormone-based methods of birth control (e.g., rhythm method; barrier methods such as condoms, diaphragm).
- Prescription for birth control/contraception with indication for pregnancy prevention.
- Current or past diagnosis of pregnancy.

Documentation of a prescription for birth control/contraception alone would count towards the numerator only when it is documented with an indication for contraception/pregnancy prevention.

1.H. Numerator Exclusions

None.

1.I. Denominator Statement

Adolescents who turn 12 through 20 years of age during the measurement year with a primary care visit.

1.J. Denominator Exclusions

None.

1.K. Data Sources

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

Paper medical record; electronic health record.

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

Section 2: Detailed Measure Specifications

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

See measure specifications for sexual activity status in the following supporting documents: NCINQ Sexual Activity Status Spec – Pop.pdf and NCINQ Sexual Activity Status Spec – Prov.pdf.

Section 3. Importance of the Measure

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

3.A. Evidence for General Importance of the Measure

Provide evidence for all applicable aspects of general importance:

- **Addresses a known or suspected quality gap and/or disparity in quality (e.g., addresses a socioeconomic disparity, a racial/ethnic disparity, a disparity for Children with Special Health Care Needs (CSHCN), a disparity for limited English proficient (LEP) populations).**
- **Potential for quality improvement (i.e., there are effective approaches to reducing the quality gap or disparity in quality).**
- **Prevalence of condition among children under age 21 and/or among pregnant women.**

- **Severity of condition and burden of condition on children, family, and society (unrelated to cost).**
- **Fiscal burden of measure focus (e.g., clinical condition) on patients, families, public and private payers, or society more generally, currently and over the life span of the child.**
- **Association of measure topic with children’s future health – for example, a measure addressing childhood obesity may have implications for the subsequent development of cardiovascular diseases.**
- **The extent to which the measure is applicable to changes across developmental stages (e.g., infancy, early childhood, middle childhood, adolescence, young adulthood).**

Adolescents experience adverse sexual and reproductive health outcomes, such as sexually transmitted infections (STIs) like chlamydia and unplanned pregnancy, at alarming rates in the United States. In 2009, an estimated 517,174 cases of chlamydia and other STIs and 2,036 cases of HIV were reported among high school students aged 15 to 19 years (Centers for Disease Control and Prevention [CDC], 2012). In addition, an estimated 745,000 females younger than 20 years of age become pregnant every year (Gavin, Catalano, Markham, 2010). Determining an adolescent’s sexual activity status and history is an important first step in identifying those at risk for contracting STIs or becoming pregnant. For example, the U.S. Preventive Services Task Force (USPSTF) recommends STI screening (chlamydia, gonorrhea, HIV and syphilis) based on sexual activity status and other risk factors (U.S. Preventive Services Task Force).

Given the trends regarding adolescent sexual behaviors, it is important to address this issue. According to the 2011 Youth Risk Behavior Surveillance System, 47.4 percent of high school students have had sex at least once, 33.7 percent are currently sexually active (defined as having had sex in the 3 months prior to administration of the survey), and 15.3 percent have had sex with four or more partners in their lifetime. Adolescents’ curiosity about sex is also beginning at a fairly young age, with 6.2 percent of students reporting having had sex for the first time before the age of 13 (CDC, 2012).

Opportunity for Improvement: Sexual Activity Status Documentation

Oftentimes, an adolescent’s provider is overlooked as a credible source of sexuality information; however providers play an important role in reducing adolescents' sexual health risks. Research suggests that primary care providers are missing opportunities to identify sexually active adolescents. Providers frequently fail to document sexual histories of new patients or to complete a sexual history detailed enough to educate patients about sexual risk behaviors (Clark, Brey, Banter, et al. 2012). As a result, providers may also be missing opportunities to screen adolescents for STIs, such as chlamydia, for which rates are highest in the adolescent and young adult population (CDC, 2011a).

Health Disparities

Rates of sexual activity among adolescents vary by race/ethnicity. Overall, the prevalence of high school students who have ever had sex is highest among African American students (60 percent) compared to Hispanic (48.6 percent) and white (44.3 percent) students. The rate of

being currently sexually active (defined as having had sex in the 3 months prior to administration of the survey) was also highest among African American students (41.3 percent) compared to Hispanic (33.5 percent) and white (32.4 percent) students. In addition, the rate of students reporting having had sex with four or more sexual partners was nearly double for African American students (24.8 percent) compared to Hispanic (14.8 percent) and white (13.1 percent) students (CDC, 2012).

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

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

- **The extent to which the measure is understood to be sensitive to changes in Medicaid or CHIP (e.g., policy changes, quality improvement strategies).**
- **Relevance to the Early and Periodic Screening, Diagnostic and Treatment benefit in Medicaid (EPSDT).**
- **Any other specific relevance to Medicaid/CHIP (please specify).**

The Sexual Activity Status Among Adolescents measure assesses whether health care providers document the sexual activity status of their adolescent patients. As described above, risky sexual behavior and chlamydia infections occur more frequently among adolescents from minority racial/ethnic groups. Children covered by Medicaid and CHIP are typically of lower socioeconomic status and are disproportionately of minority race/ethnicity. The average CHIP income eligibility level for children is 241 percent of the Federal Poverty Level (FPL) (Centers for Medicare & Medicaid Services, 2012), and Medicaid coverage rates for children 0-18 years are more than double for African Americans (29 percent) and Hispanics (27 percent) compared with whites (12 percent) (Kaiser Family Foundation, 2010). Furthermore, these populations are at a higher risk of being currently sexually active, becoming sexually active at a younger age, having more partners, contracting an STI, and becoming pregnant during adolescence.

This measure aligns with the goals of the Early and Periodic Screening, Diagnostic, and Treatment (EPSDT) program, a mandatory set of services and benefits for all individuals under age 21 who are enrolled in Medicaid. The purpose of the EPSDT program is to ensure the provision of comprehensive health care services for children and adolescents. Under EPSDT guidelines, all sexually active adolescents and young adults should be screened annually for gonorrhea and chlamydia. Sexually active youth should also be counseled about the schedule of human papillomavirus (HPV) vaccines and screened for syphilis if at risk. The measure ensures health care providers document sexual activity status in order to determine the appropriateness of these services for the adolescents.

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

Describe, if known, how this measure complements or improves on an existing measure in this topic area for the child or adult population, or if it is intended to fill a specific gap in an existing measure category or topic. For example, the proposed measure may enhance an existing measure in the initial core set, it may lower the age range for an existing adult-

focused measure, or it may fill a gap in measurement (e.g., for asthma care quality, inpatient care measures).

This measure complements the four existing measures in the Medicaid Child Core Set that assess the receipt and content of adolescent well care: Adolescent Well Care Visits, Chlamydia Screening in Women, Human Papillomavirus Vaccine for Female Adolescents, Immunizations for Adolescents Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents, and Body Mass Index Assessment for Children/Adolescents.

Section 4. Measure Categories

CHIPRA legislation requires that measures in the initial and improved core set, taken together, cover all settings, services, and topics of health care relevant to children. Moreover, the legislation requires the core set to address the needs of children across all ages, including services to promote healthy birth. Regardless of the eventual use of the measure, we are interested in knowing all settings, services, measure topics, and populations that this measure addresses. These categories are not exclusive of one another, so please indicate "Yes" to all that apply.

Does the measure address this category?

- a. Care Setting – ambulatory: Yes.**
- b. Care Setting – inpatient: No.**
- c. Care Setting – other – please specify: No.**
- d. Service – preventive health, including services to promote healthy birth: Yes.**
- e. Service – care for acute conditions: No.**
- f. Service – care for children with acute conditions: No.**
- g. Service – other (please specify): No.**
- h. Measure Topic – duration of enrollment: No.**
- i. Measure Topic – clinical quality: Yes.**
- j. Measure Topic – patient safety: No.**
- k. Measure Topic – family experience with care: No.**
- l. Measure Topic – care in the most integrated setting: No.**
- m. Measure Topic other (please specify): No.**
- n. Population – pregnant women: No.**
- o. Population – neonates (28 days after birth) (specify age range): No.**
- p. Population – infants (29 days to 1 year) (specify age range): No.**
- q. Population – pre-school age children (1 year through 5 years) (specify age range): No.**
- r. Population – school-aged children (6 years through 10 years) (specify age range): No.**
- s. Population – adolescents (11 years through 20 years) (specify age range): Yes; 12 – 20 years.**
- t. Population – other (specify age range): Not applicable.**
- u. Other category (please specify): Not applicable.**

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

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

5.A. Research Evidence

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

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

The Sexual Activity Status Among Adolescents measure assesses whether health care providers documented their adolescent patients' sexual activity status. The American Academy of Pediatrics and Bright Futures (Hagan, Shaw, Duncan, 2008), through evidence-informed, consensus-based clinical guidelines, advise health care providers to discuss sexuality education with their adolescent patients. This measure can inform whether adolescents need screenings that are recommended for sexually active adolescents, such as chlamydia, gonorrhea, and HIV screening.

Guidelines that Apply to Sexual Activity Documentation Among Adolescents

Note that we have included the chlamydia screening guidelines here for reference, as this measure was developed in the context of improving the denominator for the Chlamydia Screening in Women measures. Note that explanations of the ratings given here can be found in the source document.

USPSTF, 2014: Screening for Chlamydia and Gonorrhea. The Task Force recommends screening for chlamydial infection for all sexually active non-pregnant young women aged 24 and younger and for older non-pregnant women who are at increased risk. Grade: A Recommendation.

The U.S. Preventive Services Task Force (USPSTF) recommends screening for chlamydia and gonorrhea in sexually active women age 24 years and younger who are at increased risk for infection.

The Task Force notes that age is a strong predictor for chlamydia and gonococcal infections. The highest infection rates are found in females 20-24 years of age, followed by those aged 15-19. Other risk factors include having a new sex partner and having more than one sex partner.

USPSTF, 2013: Screening for HIV. The Task Force recommends that clinicians screen for HIV infection in adolescents and adults aged 15 to 65 years. The Task Force notes that younger adolescents and older adults who are at increased risk should also be screened.

USPSTF, 2014: Sexually Transmitted Infections: Behavioral Counseling. The Task Force recommends intensive behavioral counseling for all sexually active adolescents and for adults who are at increased risk for sexually transmitted infections.

CDC, 2010: Chlamydial Infections: Sexually Transmitted Diseases Treatment Guidelines. Chlamydial genital infection is the most frequently reported infectious disease in the United States, and the prevalence is highest in persons aged 25 years and younger. Several important sequelae can result from *Chlamydia trachomatis* infection in women, the most serious of which include pelvic inflammatory disease (PID), ectopic pregnancy, and infertility. Some women who have uncomplicated cervical infection already have subclinical upper reproductive tract infection upon diagnosis.

Asymptomatic infection is common among both men and women. To detect chlamydial infections, health care providers frequently rely on screening tests. Annual screening of all sexually active women aged 25 years and younger is recommended, as is screening of older women with risk factors (e.g., those who have a new sex partner or multiple sex partners).

Screening programs have been demonstrated to reduce both the prevalence of *C. trachomatis* infection and rates of PID in women. Although evidence is insufficient to recommend routine screening for *C. trachomatis* in sexually active young men, based on several factors (including feasibility, efficacy, and cost-effectiveness), the screening of sexually active young men should be considered in clinical settings with a high prevalence of chlamydia (e.g., adolescent clinics, correctional facilities, and STD clinics). Among women, the primary focus of chlamydia screening efforts should be to detect chlamydia and prevent complications, whereas targeted chlamydia screening in men should only be considered when resources permit and do not hinder chlamydia screening efforts in women. An appropriate sexual risk assessment should be conducted for all persons and might indicate more frequent screening for some women or certain men.

Centers for Disease Control and Prevention. Chlamydia infections. In: Sexually transmitted diseases treatment guidelines, 2010. MMWR Recomm Rep 2010 Dec; 17:59(RR-12):44-9.

American Academy of Family Physicians (AAFP), 2012. Summary of recommendations for clinical preventive services, Chlamydia. The AAFP recommends screening for chlamydial infection for all sexually active non-pregnant young women aged 24 and younger and for older non-pregnant women who are at increased risk. Grade: A recommendation.

The AAFP recommends screening for chlamydial infection for all pregnant young women aged 24 and younger and for older pregnant women who are at increased risk. Grade: B recommendation.

The AAFP recommends against routinely providing screening for chlamydial infection for women aged 25 and older whether or not they are pregnant if they are not at increased risk. Grade: C recommendation.

The AAFP concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydial infection for men. Grade: I recommendation.

American Academy of Family Physicians. Summary of recommendations for clinical preventive services. Leawood, KS: AAFP; 2012 May.

Institute for Clinical Systems Improvement (ICSI), 2011. Screen all sexually active women aged 25 years and younger for chlamydia. Level 1 preventive services: Providers and care systems must assess the need for and recommend these services to every patient. These have the highest value and are worthy of attention at every opportunity.

Institute for Clinical Systems Improvement. Preventive services for children and adolescents. Bloomington, MN: ICSI; 2011 Sept.

American Academy of Family Physicians, 2012. Sexually transmitted infections (STIs); Summary of recommendations for clinical preventive services. The AAFP recommends high-intensity behavioral counseling to prevent sexually transmitted infections (STIs) for all sexually active adolescents and for adults at increased risk for STIs. Grade: B recommendation.

The AAFP concludes that the current evidence is insufficient to assess the balance of benefits and harms of behavioral counseling to prevent STIs in non-sexually active adolescents and in adults not at increased risk for STIs. Grade: I recommendation.

Evidence-Informed Consensus-Based Recommendations

American Academy of Pediatrics, Bright Futures, 2008; Role of the health care professional. Clinical care for adolescents and young adults is commonly related to concerns about sexual development, contraception, STIs, and pregnancy. Clinical encounters for acute care, health maintenance visits, or sports physicals all provide opportunities to teach adolescents and their families about healthy sexuality. Health care professionals can discuss sexual maturation, family or cultural values, communication, monitoring and guidance patterns for the family, personal goals, informed sexual decisionmaking, and safety.

Bright Futures: Guidelines for health supervision of infants, children, and adolescents, 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2008. Available at <https://brightfutures.aap.org/materials-and-tools/guidelines-and-pocket-guide/Pages/default.aspx>. Accessed August 11, 2016.

American Academy of Pediatrics (AAP), 2005: Sexuality Education for Children and Adolescents, Policy Statement. This policy statement advises health care professionals to integrate sexuality education into the longitudinal relationship they develop through their care experiences with the preadolescent child, the adolescent, and the family. Confidential, culturally

sensitive, and nonjudgmental counseling and care are important to all youth, including youth with special health care needs and non-heterosexual youth. The American College of Obstetricians and Gynecologists has a similar statement that supports the same approach.

To address this issue in ways that respect values and meet the adolescent's needs, health care professionals must learn about the family's values and attitudes. Parents and health care professionals should be partners with youth in supporting healthy adolescent development and decisionmaking. The rewards are long term. Health care professionals, however, cannot assume that the family's values are the adolescent's values. In addition, although parents of most adolescents are concerned and available, health care professionals also must offer the best care possible to adolescents whose parents are absent or disengaged.

Counseling for adolescents should include stating the advantages of delaying sexual involvement, suggesting skills for refusing sexual advances, providing information about drug and alcohol risks, and expressing encouragement for healthy decisions. Adolescents with and without sexual experience may welcome support for avoiding sex until later in their lives. Health care professionals also should support adolescents in how to have healthy relationships. In addition, they should screen for, as well as counsel against, coercive and abusive relationships for adolescents who are involved with intimate partners.

Information about contraception, including emergency contraception and STIs, should be offered to all sexually active adolescents and those who plan to become sexually active. Each contraceptive method has instructions for correct use, effectiveness for preventing pregnancy, potential side effects, and long-term consequences (e.g., potential bone density concerns with depot medroxyprogesterone acetate). Hormonal contraception does not protect against STIs. Emergency contraception is available to prevent pregnancy after intercourse. The latex condom is the only method available to prevent the spread of HIV and can reduce the risks of some other STIs, including chlamydia, gonorrhea, and trichomoniasis. Condoms also can reduce the risk of genital herpes, syphilis, and HPV infection when the infected areas are covered or protected by the condom.

Health care professionals who care for adolescents may encounter some adolescents who are gay, lesbian, bisexual, transgendered, unsure, or uncomfortable with their sexual orientation or gender identity. Many of these youth remain unidentified and secretive because they are not comfortable enough to identify themselves and their sexual concerns. They may fear rejection or stigmatization from disclosure of their sexual orientation or gender identity issues to health care professionals. The goals for these youth are the same as for all adolescents—to promote healthy development, social and emotional well-being, and optimal physical health.

Supportive, quality health care for adolescents means that adolescents must feel welcomed as individuals, regardless of social status, gender, disability, religion, sexual orientation, ethnic background, or country of origin. The health care professional must create a clinical environment in which the adolescent believes that sensitive personal issues, including sexual orientation and expression, can be discussed. According to an AAP clinical report on sexual orientation and adolescents, "Sexual orientation refers to an individual's pattern of physical and emotional arousal toward other persons." The health care professional must help the adolescent understand

that same-sex interest and behaviors can occur at this age and that they do not define sexual orientation.

Clinic and practice materials, as well as personnel, can convey a nonjudgmental and safe environment for care and confidentiality for adolescents who may be experiencing same-sex attractions. Non-heterosexual adolescents are sensitive to jokes, attitudes, and comments regarding their sexual orientation, and they may not feel comfortable discussing significant health history or concerns. If the health care professional cannot ensure a safe environment for these adolescents because of personal feelings or other barriers, the adolescent should be referred to another practice or clinic with appropriate services.

As with all other patients, the adolescent should be assured that confidentiality will be protected and also should be told of the conditions under which it can be broken. In those situations of serious concern, the health care professional should help the adolescent discuss the issue with her parents or family and, if necessary, obtain additional services with mental health professionals or other health care professionals. The health care professional also should offer advice to guide these adolescents in avoiding sexual and other health risk behaviors.

Adolescents with special health care needs and their families can benefit from knowledgeable, personalized anticipatory guidance. Education about normal puberty and sexuality can be augmented with information that is germane to adolescents with physical differences, especially those that directly affect sexual functioning, as well as youth with cognitive delays. The risk of sexual exploitation and the protection of youth are always critical. A focus on youth access to accurate and complete information and support for healthy decisionmaking is key for all youth who are transitioning to adulthood.

Bright Futures, Adolescence Tools. Elk Grove Village, IL: American Academy of Pediatrics. Available at <https://brightfutures.aap.org/materials-and-tools/tool-and-resource-kit/Pages/adolescence-tools.aspx>. Accessed August 11, 2016.

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

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

References

Centers for Disease Control and Prevention. Youth risk behavior surveillance—United States, 2011. *MMWR* 2012; 61(SS-4).

Centers for Disease Control and Prevention. 2010 Sexually Transmitted Diseases Surveillance; 2011. STD Trends in the United States: 2010 National Data for Gonorrhea, Chlamydia, and Syphilis; 2011a. Available at <http://www.cdc.gov/std/stats10/trends.htm>. Accessed August 9, 2016.

Centers for Disease Control and Prevention. Sexually Transmitted Diseases (STDs). Sexually Transmitted Diseases Treatment Guidelines, 2010: Special Populations. Available at <http://www.cdc.gov/std/treatment/2010/specialpops.htm>. Accessed August 9, 2016.

Centers for Medicare & Medicaid Services. Medicaid & CHIP Program Information: By Population – Children; 2012. Medicaid.gov Web site. Available at <https://www.medicaid.gov/medicaid-chip-program-information/medicaid-and-chip-program-information.html>. Accessed August 10, 2016.

Clark JK, Brey RA, Banter AE, et al. The delivery of sexuality-related patient education to adolescent patients: A preliminary study of family practice resident physicians. *J Fam Med Primary Care* 2012; 1:34-8.

Gavin LE, Catalano RF, Markham CM. Positive youth development as a strategy to promote adolescent sexual and reproductive health. *J Adolesc Health* 2010; 46(3 Suppl):S1-S6.

Hagan JF, Shaw JS, Duncan PM, eds. *Bright Futures Guidelines for Health Supervision of Infants, Children, and Adolescents*. 3rd Edition. Elk Grove Village, IL: American Academy of Pediatrics; 2008.

Kaiser Family Foundation. 2010. Medicaid Coverage Rates for the Nonelderly by Race/Ethnicity, States (2009-2010). Web site, StateHealthFacts.org. Available at <http://www.statehealthfacts.org/comparetable.jsp?ind=163&cat=3>. Accessed August 10, 2016.

Kuhlthau KA, Beal AC, Perrin JM. Comparing a diagnosis list with a survey method to identify children with chronic conditions in an urban health center. *Ambul Pediatr* 2002 Jan-Feb; 2(1):58-62.

U.S. Preventive Services Task Force. Recommendations for primary care. Available at <http://www.uspreventiveservicestaskforce.org/Page/Name/recommendations>. Accessed August 22, 2016.

Section 6. Scientific Soundness of the Measure

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

6.A. Reliability

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

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

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

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

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

Key Findings

Based on manual EHR review, a total of 79.9 percent of adolescents had documentation of their sexual activity status, and 45.6 percent were identified as sexually active. Rates of documentation and sexual activity varied by site (61.5 percent to 95.9 percent for documentation; 32.5 percent to 56.4 percent of adolescents were sexually active).

We found high inter-rater reliability in the manual EHR reviews. However, agreement between the manual EHR reviews and automated EHR extracts was only fair. Currently, manual reviews provide more reliable and complete information about sexual activity documentation than automated EHR extracts.

Stakeholder reviews of the specifications and field test results indicate 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, was good: documentation of sexual activity status was much higher among adolescents with a designated well-care visit.

Documentation of sexual activity status 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 test studies designed to evaluate the scientific soundness of the measure. NCINQ obtained data from five pediatric centers located in diverse geographic regions of the United States. Sites were selected to represent a variety of specialties (family practice, general pediatrics, and adolescent medicine), practice settings (children's hospitals, private practices, and clinics serving vulnerable youth), locations (Ohio, Missouri, Pennsylvania, and New York), EHR systems (EPIC, eClinicalWorks, and Allscripts), and patient populations (described below). The study relied on existing medical records. Because of concerns about the completeness of data that could be obtained through automated EHR extracts, the findings reported here focus on the manual EHR review data unless otherwise noted.

Study Group 1: Sample of Eligible Adolescents at Three Sites

NCINQ conducted manual EHR reviews and obtained an automated EHR extract for a sample of approximately 200 adolescents at 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 of age as of December 31, 2010 (which produces a sample of adolescents age 12 to age 20, the measure denominator requirement) and had at least one visit to the same primary care office or adolescent medicine clinic in both 2010 and 2011. The final study group for both the manual EHR review data and the automated EHR extract data comprised a total of 597 adolescents. 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 current/past sexual activity status, use of non-hormone-based methods of birth control, number of sexual partners, past/current pregnancy, and STIs, as well as other quality measures, visit history, and sociodemographic 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 EHR 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 percent; almost all adolescents at one site were female). African-American adolescents represented the largest proportion of the overall sample (44.4 percent), followed by non-Hispanic whites (30 percent). Approximately 93 percent of adolescents lived in households where English was the preferred language spoken at home.

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

NCINQ requested an automated EHR extract of data 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 of age as of December 31, 2010 (thus including adolescents ages 12 to 20) and had at least one visit to a primary care office or adolescent medicine clinic in 2011. The period of review was 18 months instead of 15 months. The automated EHR extract instructions were similar, though some data elements were eliminated to avoid collection of protected health information.

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

NCINQ assessed reliability by examining inter-rater reliability among manual EHR reviewers and comparing manual EHR reviews and automated EHR extracts. We found high inter-rater reliability in manual EHR reviews, but only fair agreement between manual EHR reviews and automated EHR extracts. Currently, manual EHR reviews provide more reliable and complete information about sexual activity documentation than automated EHR extracts.

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. Variables for which Kappa scores were high (between 0.8 and 1.0) were approximately four times as common as variables with low agreement. As shown in Table 1, Kappa scores for the agreement between manual reviewers were high for all but one data element used to document sexual activity.

Table 1. Inter-Rater Reliability of Manual EHR Reviews for Sexual Activity Status Data Elements

Data Elements	Kappa Coefficient	Total 95% Confidence Interval
Current sexual activity status	0.98	0.94, 1.00
Past sexual activity status	0.96	0.88, 1.00
Number of sexual partners	1	1.00, 1.00
Order for birth control/contraception	1	1.00, 1.00
Non-hormone-based methods of Birth control	1	1.00, 1.00
Current pregnancy	1	1.00, 1.00
Past pregnancy	1	1.00, 1.00
Current STI	1	1.00, 1.00
Past STI	0.66	0.00, 1.00

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

Comparison Between Manual EHR Review and Automated EHR Extract

Table 2 shows fair agreement observed between sexual activity status documentation as calculated by manual EHR review versus the automated EHR extract for the same sample of adolescents. Through manual review, which included searching and recording data found in unstructured fields, a much higher rate of sexual activity status documentation was recorded than through the automated EHR extract (79.9 percent vs. 49.4 percent, respectively). These data show that information about sexual activity status is documented at a high rate in the EHR but is not recorded in a structured way that allows automated extraction.

The proportion of adolescents identified as sexually active was 45.6 percent in the manual EHR reviews versus 41.7 percent in the automated EHR extracts. The Kappa coefficient was higher for this variable than for the variable assessing percentage of adolescents with documentation of sexual activity status (0.53 versus 0.36, respectively).

Table 2. Agreement Between Manual EHR Review and Automated EHR Extract: Percentage of Adolescents with Documentation of Sexual Activity Status and Percentage of Adolescents Who Are Sexually Active (n=597)

	Manual EHR Review	Automated EHR Extract	Kappa Coefficient	95% Confidence Interval
Number and Percentage of Adolescents with Documentation of Sexual Activity Status	477 (79.9%)	295 (49.4%)	0.36	0.30, 0.42
Number and Percentage of Adolescents Who Are Sexually Active	272 (45.6%)	249 (41.7%)	0.53	0.46, 0.60

6.B. Validity

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

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

We assessed validity by first obtaining multi-stakeholder feedback on the face validity of measure specifications and study results and second by exploring the known-groups validity of the proposed measure among adolescents with and without a designated well-care visit during the study period. Stakeholder reviews of the specifications and field test results show that the measure has face validity. We also found that the known-groups validity was good: documentation of sexual activity status was much higher among adolescents with a designated well-care visit. Details are described below.

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 sexual activity. We also reviewed findings that showed our field-test rates of those who are sexually active were comparable to the prevalence rates found in the 2011 CDC Youth Risk Behavior Survey (i.e., 45.6 percent in our field test compared to 47.4 percent of high school students who reported having had sex at least once in the CDC Survey) (CDC, 2011).

Our advisory panels concluded the measure is a valid way to assess sexual activity status in adolescents, despite some concerns about potential adolescent reluctance to report on sexual activity or provider reluctance to document information in the medical record.

Known Groups Validity

While any clinical encounter with adolescents, including sports physicals or acute care visits, represents an opportunity to discuss issues and concerns related to sexuality, 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). We excluded Site 2 from the known groups' validity analysis; this site is an

adolescent medicine clinic that serves primarily female adolescents for behavioral health and gynecology care. As shown in Table 3, documentation of sexual activity status was significantly higher among adolescents who had at least one well-care visit in the measurement period compared to adolescents who had none (p-values <.0001, Sites 1 and 3 and data from these two sites).

Table 3. Known Groups Validation: Documentation of Sexual Activity Status Among Adolescents With and Without a Designated Well-Care Visit

Percentage of Adolescents with Documentation of Sexual Activity Status	Had One or More Well-Care Visits in Measurement Period: Yes	Had One or More Well-Care Visits in Measurement Period: No	p-value
Site 1	91.9%	58.5%	<.0001
Site 3	85.7%	45.7%	<.0001
Sites 1 and 3 (combined)	89.5%	50.3%	<.0001

Note: Data from manual EHR review (N=400).

Section 7. Identification of Disparities

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

7.A. Race/Ethnicity

Prior to implementation of the field test, sites confirmed that fields for patient-reported race and ethnicity data were available in the EHR and used at their institutions. We 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 (includes multi-racial 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 Manual EHR Review, Total and by Site

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

Note: Based on manual EHR review data (n=581).

Table 5 presents the documentation of sexual activity status among adolescents from the manual EHR review sample, stratified by race/ethnicity. The rate of sexual activity status documentation is lower (52.4 percent) among the Latino/Hispanic group compared to other racial/ethnic groups. This disparity may be attributable to the fact that data for the greatest number of Latino/Hispanic adolescents were from the site with the lowest rate of sexual activity documentation.

Table 5. Race/Ethnicity Differences in Documentation of Sexual Activity Status

	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 with Documentation of Sexual Activity Status	79.9	87.7	81.1	52.4	100.0	75.3

Note: Data from manual EHR review (n=597) 26 subjects were missing race/ethnicity.

7.B. Special Health Care Needs

In the absence of a standardized definition for "special health care needs," NCINQ explored the relationship between the presence of one or more chronic conditions and documentation of sexual activity status. We obtained data on the top 20 diagnoses in 2011 (as indicated by ICD-9

codes) in the automated EHR extract. We compared these diagnoses to an existing list of chronic and severe conditions for case identification in research (Perrin List; Kuhlthau, Beal, Perrin, 2002) and calculated the number and type of chronic conditions for which the adolescent received treatment.

Approximately 40 percent of adolescents had received treatment for at least one chronic condition in 2011 (Site 1: 37.0 percent; Site 2: 40.1 percent; Site 3: 39.5 percent). The most prevalent chronic conditions across the sites were: (1) asthma; (2) depression; (3) attention deficient hyperactivity disorder; (4) psychoses; (5) epilepsy; and (6) inborn errors of metabolism. As shown in Table 6, documentation of sexual activity status was similar among adolescents with one or more chronic conditions compared to those without chronic conditions.

Table 6. Documentation of Sexual Activity Status Among Adolescents with and Without Chronic Conditions

	Presence of One or More Chronic Conditions: Yes N = 233	Presence of One or More Chronic Conditions: No N = 357
Percentage of Adolescents with Documentation of Sexual Activity Status	79.4	80.4

Note: Data from EHR manual review (n=590); seven subjects were missing chronic condition data.

7.C. Socioeconomic Status

The adolescent’s health insurance coverage was used as a proxy measure of family socioeconomic status (SES). The type of coverage varied substantially by site: in site 1, we used Medicaid insurance plan data to select the sample (Table 7). As shown in Table 8, documentation of sexual activity status varies by type of insurance with higher rates of documentation for adolescents with commercial insurance (96.0 percent) compared to those with Medicaid coverage and uninsured teens (79.7 percent and 59.5 percent, respectively). However, this finding appears to be related to differences in performance across sites rather than differences by insurance status.

Table 7. Insurance Coverage Breakdown of Adolescents in Manual EHR Review, by Site

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

Note: Based on manual EHR review data (n=597).

Table 8. Socioeconomic Differences in Sexual Activity Documentation

	Insurance Coverage (%) Medicaid (n = 404)	Insurance Coverage (%) Commercial (n = 100)	Insurance Coverage (%) Self-Pay/Other (n = 79)
Percentage of Adolescents with Documentation of Sexual Activity Status	79.7	96.0	59.5

Note: Data from manual EHR review (n=583); 14 subjects were missing insurance data.

7.D. Rurality/Urbanicity

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

7.E. Limited English Proficiency (LEP) Populations

Initial analyses of the manual EHR review data showed that at least 80 percent of adolescents within this sample lived within households where English was the preferred language spoken at home (Site 1, 92.5 percent; Site 2, 95.4 percent; Site 3, 90.5 percent). In light of this lack of variation, we did not explore the association of primary language spoken at home and the performance of this measure.

Section 8. Feasibility

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

8.A. Data Availability

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

Data needed for calculating the Sexual Activity Status Among Adolescents measure are available in the EHR; however, the data are not consistently recorded in structured fields that would allow automated calculation of the measure. Data needed for calculating this measure are not available in claims.

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 Sexual Activity Status Among Adolescents measure. Only Site 5 had structured fields for all nine data elements used to construct this measure; Site 2 had the fewest with four data elements. We also found that the rate of positive sexual activity varied depending on which data elements are allowed to contribute to the numerator. Given the variation in documentation at this time, we allow multiple data elements to provide information for calculating this measure.

Table 9. Availability of Sexual Activity Status Data Elements in Existing EHR Data Systems

Data Element	Site 1: EPIC	Site 2: Allscripts	Site 3: eClinical Works	Site 4: EPIC	Site 5: EPIC	Number of sites that can extract data as programmed
Current sexual activity status	x	x	x	x	x	5
Past sexual activity status	x				x	2
Non-hormone-based birth control methods	x		x	x	x	4
Order for birth control/contraception	x	x	x	x	x	5
Number of sexual partners			x		x	2
Current pregnancy	x	x	x	x	x	5
Past pregnancy	x	x	x	x	x	5
Current STI	x		x	x	x	4
Past STI	x		x	x	x	4

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

The primary feasibility issues relate to the use of the EHR. Issues about implementation in that setting are discussed in Section 9.

8.B. Lessons from Use of the Measure

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

This is a new measure that currently is not in use.

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

Not applicable.

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

Not applicable.

Section 9. Levels of Aggregation

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

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

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

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

State level Can compare States*

Intended use: Is measure intended to support meaningful comparisons at this level? (Yes/No)

Yes.

Data Sources: Are data sources available to support reporting at this level?

Yes.

Sample Size: What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?

Not available.

In Use: Have measure results been reported at this level previously?

No.

Reliability & Validity: Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?

No.

Unintended consequences: What are the potential unintended consequences of reporting at this level of aggregation?

None.

Other geographic level: Can compare other geographic regions (e.g., MSA, HRR)

Intended use: Is measure intended to support meaningful comparisons at this level?

(Yes/No)

No.

Data Sources: Are data sources available to support reporting at this level?

No.

Sample Size: What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?

Not applicable.

In Use: Have measure results been reported at this level previously?

No.

Reliability & Validity: Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?

No.

Unintended consequences: What are the potential unintended consequences of reporting at this level of aggregation?

Not applicable.

Medicaid or CHIP Payment model: Can compare payment models (e.g., managed care, primary care case management, FFS, and other models)

Intended use: Is measure intended to support meaningful comparisons at this level?

(Yes/No)

Yes.

Data Sources: Are data sources available to support reporting at this level?

Yes.

Sample Size: What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?

Not available.

In Use: Have measure results been reported at this level previously?

No.

Reliability & Validity: Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?

No.

Unintended consequences: What are the potential unintended consequences of reporting at this level of aggregation?

None.

Health plan*: *Can compare quality of care among health plans.*

Intended use: Is measure intended to support meaningful comparisons at this level?

(Yes/No)

Yes.

Data Sources: Are data sources available to support reporting at this level?

Yes.

Sample Size: What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?

Not available.

In Use: Have measure results been reported at this level previously?

No.

Reliability & Validity: Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?

No.

Unintended consequences: What are the potential unintended consequences of reporting at this level of aggregation?

While not necessarily an unintended consequence, a potential barrier to collecting this measure at the health plan level may be confidentiality concerns that prevent adolescents from sharing their sexual activity status.

Provider Level: Individual practitioner: *Can compare individual health care professionals*

***Intended use:* Is measure intended to support meaningful comparisons at this level?
(Yes/No)**

Yes.

***Data Sources:* Are data sources available to support reporting at this level?**

No.

***Sample Size:* What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**

Not available.

***In Use:* Have measure results been reported at this level previously?**

No.

***Reliability & Validity:* Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**

No.

***Unintended consequences:* What are the potential unintended consequences of reporting at this level of aggregation?**

While not necessarily an unintended consequence, a potential barrier to collecting this measure at the provider level may be confidentiality concerns that prevent adolescents from sharing their sexual activity status.

Provider Level: Hospital: Can compare hospitals

***Intended use:* Is measure intended to support meaningful comparisons at this level?
(Yes/No)**

No.

***Data Sources:* Are data sources available to support reporting at this level?**

No.

***Sample Size:* What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**

Not applicable.

***In Use:* Have measure results been reported at this level previously?**

No.

***Reliability & Validity:* Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**

No.

***Unintended consequences:* What are the potential unintended consequences of reporting at this level of aggregation?**

Not applicable.

***Provider Level: Practice, group, or facility:** Can compare:* (i) practice sites; (ii) medical or other professional groups; or (iii) integrated or other delivery networks**

***Intended use:* Is measure intended to support meaningful comparisons at this level?
(Yes/No)**

Yes.

***Data Sources:* Are data sources available to support reporting at this level?**

Yes.

***Sample Size:* What is the typical sample size available for each unit at this level? What proportion of units at this level of aggregation can achieve an acceptable minimum sample size?**

Not available.

***In Use:* Have measure results been reported at this level previously?**

No.

***Reliability & Validity:* Is there published evidence about the reliability and validity of the measure when reported at this level of aggregation?**

No.

***Unintended consequences:* What are the potential unintended consequences of reporting at this level of aggregation?**

While not necessarily an unintended consequence, a potential barrier to collecting this measure at the provider level may be confidentiality concerns that prevent adolescents from sharing their sexual activity status.

Section 10. Understandability

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

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

the measure to these panels and solicited feedback on importance, understandability, and usability.

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

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

On balance, this measure garnered widespread support from our stakeholder groups and those who commented during public comment. Stakeholders noted the measure topic is of particular importance for the adolescent population. Consumers expressed that the measure as specified is understandable and sensible to obtain the information we are seeking.

There were concerns about public reporting, particularly among representatives of State agencies. State representatives noted that public reporting of a sexual activity status measure may not be useful at a State level. However, they noted such a measure would be useful as a means for improving the Chlamydia Screening in Women measure. Given this feedback, as noted, we are recommending the measure at the health care provider level at this time.

Section 11. Health Information Technology

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

11.A. Health IT Enhancement

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

Implementation within health IT will decrease the level of effort needed to calculate and report paper-based measures, which can be highly burdensome. Collecting these data items using paper or non-electronic formats can be a difficult and time-intensive task. For documenting sexual activity status, health IT can also help link the results of documentation of risk status with clinical actions to manage STIs or other relevant subsequent health outcomes among adolescents. The results of the measure can also be fed back to the provider via the EHR system to support quality improvement efforts.

11.B. Health IT Testing

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

Yes.

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

Please refer to Section 6, Scientific Soundness of the Measure for EHR testing results.

11.C. Health IT Workflow

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

As EHR systems become more widely adopted, it is important to highlight how changes in workflow can inform changes in EHR systems and vice versa. Currently, automated extraction of EHR data for calculating quality measures such as Sexual Activity Status Among Adolescents is limited by the degree of data completeness (see Section 6. Scientific Soundness of the Measure). Our testing shows that changes in the implementation of EHR capabilities (e.g., such as documentation of the indication for hormonal contraceptive prescriptions), improved methods for searching text fields, and changes in clinical workflow (such as encouraging documentation in structured fields rather than text-based notes), would improve the feasibility of calculating this measure from electronic data.

11.D. Health IT Standards

Are the data elements in this measure supported explicitly by the Office of the National Coordinator for Health IT Standards and Certification criteria (see healthit.hhs.gov/portal/server.pt/community/healthit_hhs_gov__standards_ifr/1195)?

Yes.

If yes, please describe.

Almost half of the data elements in the Sexual Activity Status Among Adolescents measure are supported by the latest version of the ONC certification standards for Stages 1 and 2 Meaningful Use Objectives for an ambulatory care setting. This information is summarized in Table 10. While currently most data elements are not supported, capabilities exist within most commercial EHR vendor systems and can be enhanced as EHR systems are widely adopted by practices.

Table 10. Sexual Activity Among Adolescents: Data Elements Supported by ONC

Data Element	Supported by ONC	Comments
Current sexual activity status reported by patient	No	
Past sexual activity status reported by patient	No	
Number of sexual partners reported by patient	No	
Unprotected sex (e.g., any type of sex without condom)	No	
Order for medication for birth control/contraception and whether indicated for contraception	Yes Note: EHR systems do have the capability to capture indication.	One criterion 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 is included in Meaningful Use.
Use of non-pharmaceutical methods of birth control (e.g., rhythm method, condoms) for birth control/contraception	No	Social history not part of ONC standards
Sex for money or drugs (also called sex work)	No	
Sex with partners who have had STIs who are bisexual or injection drug users	No	
Other or unspecified “high risk sexual behavior” (please specify)	No	
Diagnosis of pregnancy during measurement period	Yes	
Past diagnosis of pregnancy	Yes	
Diagnosis of one or more STIs during measurement period	Yes	
Past diagnosis of one or more STI	Yes	

11.E. Health IT Calculation

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

If the clinical and administrative workflows for capturing this information are inconsistent, missing or ambiguous information may result. 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 and also affects the degree of data completeness.

NCINQ’s testing showed that data obtained through manual EHR review had a higher degree of data completeness (for more details, see Section 6. Scientific Soundness of the Measure).

11.F. Health IT Other Functions

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

Section 12. Limitations of the Measure

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

Our measures development process, including feedback from advisory panels, public comment, and field testing, helps us to identify potential limitations of proposed measures. For the Sexual Activity Status Among Adolescents measure, some limitations include confidentiality concerns and issues with lack of standardization of 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 used.

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.

EHR Limitations

Field testing revealed that EHRs still inconsistently capture sexual activity status documentation in a single standard field, such as the data element "current sexual activity status." Thus, in order to capture a "truer" picture of status, other fields must still be used (e.g. current/past pregnancy, current/past STI, contraceptive medications). The specifications for the Sexual Activity Status Among Adolescents measure identify all relevant data elements. A limitation of this measure structure is that it will not encourage movement towards a standardized approach for documenting sexual activity status. However, if the measure is to be used for determining who is sexually active and should therefore receive follow-up services (such as screening for chlamydia), we concluded the specifications should be as inclusive as possible. It is possible we could refine the data elements used to construct the measure once EHR functionality and workflows using that functionality become more standardized.

Section 13. Summary Statement

Provide a summary rationale for why the measure should be selected for use, taking into account a balance among desirable attributes and limitations of the measure. Highlight specific advantages that this measure has over alternative measures on the same topic that were considered by the measure developer or specific advantages that this measure has over existing measures. If there is any information about this measure that is important for the review process but has not been addressed above, include it here.

The Sexual Activity Status Among Adolescents measure addresses an area of significant importance to adolescent health, particularly for those enrolled in Medicaid and CHIP. Currently, over a third of adolescents report they are sexually active (CDC, 2011). Understanding an adolescent's sexual activity status allows providers to tailor health care services, including offering chlamydia screening when an adolescent is identified as sexually active. Chlamydia is a widespread disease among adolescents, particularly among racial/ethnic minority youth, who make up a large component of the Medicaid/CHIP population. Untreated chlamydia can lead to severe and long-term adverse health outcomes, such as pelvic inflammatory disease and infertility.

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 79.9 percent of adolescents had documentation of their sexual activity status, and 45.6 percent were identified as sexually active. We found high inter-rater reliability in the manual reviews. Stakeholder reviews of the specifications and field test results indicate the measure has face validity, and we found that the known-groups validity was good. Because agreement between the manual reviews of the EHR and automated EHR extracts was only fair, manual reviews provide more reliable and complete information about sexual activity documentation than electronic reports from the EHR. Thus, we recommend this measure for provider-level reporting and suggest that manual reviews may be needed until reporting from the EHR improves.

The Sexual Activity Status Among Adolescents measure contributes to a comprehensive quality improvement strategy that is relevant and important for the adolescent population. First, the measure will encourage health care providers to standardize their documentation procedures to allow for information that is useful for tailoring health care interventions and services. Second, it will provide an opportunity to improve the specificity of the Chlamydia Screening in Women measure; and third, it complements existing measures in the Medicaid Child 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, in addition to Chlamydia Screening in Women).

Section 14: Identifying Information for the Measure Submitter

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

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

Public Disclosure Requirements

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

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